

INNOVATION MANAGEMENT ENTREPRENEURSHIP AND CORPORATE SUSTAINABILITY 2016

Proceedings of the 4th International Conference





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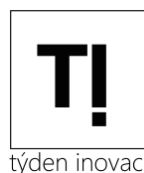


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BUSINESS INCUBATORS IN THE CZECH REPUBLIC: WELL SPENT MONEY?

Michal Andera – Martin Lukeš

Abstract

The aim of this study is to analyze business incubators in the Czech Republic using publicly available data. Business incubators are used worldwide to support creation and development of entrepreneurial ventures. In the Czech Republic, there have been many incubators founded in the last decade, visibly due to inflow of EU funding. Surprisingly, there is no public register of incubators. This study offers the first overview of business incubators in the Czech Republic. Due to instable terminology concerning business incubators, we took the support of new entrepreneurial activity as a defining characteristic of a business incubator and created a list of organizations that offers this kind of services. Result of our study is a list of 51 institutions offering support to new companies or teams with ideas. This support takes various forms ranging from office rental to funding. The highest number of venues are in Prague and majority have been financed from EU funds. There are 21 publicly owned venues, 23 privately owned and 7 privately and publicly co-owned organizations. Almost eighty percent of incubators offer office space rental. Results show that business incubators in the Czech Republic differ and we need to start monitoring their performance in order to understand their added value, not just for incubated companies, but also for the economy as a whole. It is surprising, that in relation to huge funding by public money, there has been no effort made to systematically analyze incubators in the Czech Republic.

Keywords: business incubator, Czech Republic, EU funding, accelerator, entrepreneurship support

JEL code: M13, O38

Introduction

Startup support has various forms. Ranging from education, mentoring, competitions, financial support and various forms of business incubation. Business incubation activities done in various facilities are widely considered an effective tool for entrepreneurial support (Grimaldi & Grandi, 2005). They help new ventures minimize negative effects of newness and increase their probability of survival. Business incubation support is realized by providing resources, social connections and management advice that is not available to independent firms.

Most successful business incubators (in terms of number of high growth startups) are in Silicon Valley. It is the source of inspiration for business incubators worldwide. Many regions have tried to replicate the success of those facilities, but very few can say they have succeeded (Aaboen, 2009). Is it even a right decision to copy best practices developed in highly specific environment of Silicon Valley? We believe, that in order to improve their operations, it makes more sense to learn from past data of specific countries and regions. In order to understand something and learn from it, you need to measure the performance first. That is why the United States, Italy and other countries monitor their incubators performance for many years. There are official state registers of incubators in the above mentioned countries. There are over 400 facilities in operation in neighboring Germany (Schwartz and Horny, 2008). Sternberg did the first comprehensive evaluation study of German business incubators and companies graduating from them in 1988. The history of incubators in the Czech Republic is younger, but there was done nothing comparable between the years 1990-2016.

There is no official statistics of business incubation in the Czech Republic, moreover there is even no official list of business incubators. This paper aims at closing this gap. We provide an overview of incubators in the Czech Republic with focus on their founding, owners and regional distribution. This is the first step on the path towards benchmarking the incubators in a more detailed way and creating an official list. This study is the first attempt to monitor business incubator activity in the Czech Republic and create a knowledge base for future monitoring and research.

Theoretical background

Entrepreneurship and start-up firms contribute substantially to job creation. In 2010 US start-up firms created 2.3 million new jobs, exceeding the 1.8 million new jobs created by the remainder of private sector firms (Haltiwanger, Jarmin & Miranda, 2012). New companies are

vulnerable and not all of them become successful job creators. The probability of exiting is the highest during the first two years of company life and linearly decreases with maturing beyond the two years (Calvino, Criscuolo, & Menon, 2015). That is exactly the time when incubators can help lower the failure rate. The failure rate of start-ups is around 60 % within 3 years from inception (OECD, 2015). Study of the European Commission (2002) showed that the survival rate of incubator tenants was significantly higher than the business success rate amongst the wider SME community. Almost 90 % of incubated companies run their business after five years according to European Commission. Ferguson and Olofsson (2004) compared Swedish companies that were part of a science park with companies that developed their venture outside of business parks. Their results showed that companies, which spent some time in science parks, have higher survival rates than comparable companies that develop on their own. On the other hand, research done by Schwartz (2008, 2011) in Germany indicates that long-term survival after graduation from business incubator can be negatively correlated with participation in incubator. Thus, benefits of business incubation are not straightforward and it is important to monitor and observe the incubators and their best practices.

Defining incubators

Unfortunately, there is no unified definition of a business incubator. We can search for patterns among the existing ones. Business incubators guide starting enterprises through their growth process and as such constitute a strong instrument to promote innovation and entrepreneurship (Aerts, Matthyssens, & Vandenbempt, 2007). In general, business incubator is an organization that supports the creation and growth of new businesses by providing a variety of services like office space, shared administrative services, marketing, access to capital and financing, legal advice, networking opportunities, and management training (Hackett & Dilts, 2004; Aaboen, 2009). In 2012, there were 1250 business incubators in the United States, compared to just 12 incubators in 1980 (Business incubation – NBIA, 2016). In order to support innovation and job growth US government wanted to create a regional network of incubators. In 2009, they invested \$250 million annually to this endeavor (Romero, 2009). European countries have also heavily invested to support the emergence of new business incubators (Phan, Siegel & Wright, 2005). Even emerging economies believe in the business incubators as a source of employment and wealth (Ratinho & Henriques, 2010). According to International business innovation association, there are seven thousand business incubators worldwide.

Various definitions of a business incubator can be found in the literature. Usually, they share some similarities. Bergek (2008) distilled them down to four components that majority of venues offer to their members:

- (1) shared office space, rented for free or under favorable conditions to incubates,
- (2) a pool of shared support services to reduce overhead costs,
- (3) professional business support or advice (“mentors, coaches, advisors”) and
- (4) network provision, internal and/ or external.

The literature varies over time in the opinion on what is essential for the incubator in terms of support. Initially, the focus was on facilities and administrative services. Currently the emphasis is strongly on the business support activities (Peters et al., 2004). More recently, the focus shifted to the networking activities specifically (Bøllingtoft & Ulhøi, 2005). Without business support, the denomination “hotel” might be a better description than incubator (Bergek, 2008). No doubt though that colocation is a necessary feature of an incubator (Nolan, 2003; von Zedwitz, 2003).

Business incubator typology

We can divide incubators in two main groups according to their owners. There are public incubators founded by universities, city or regional governments. They fulfill a public service of helping new entrepreneurs get their ventures off the ground. They are based on a belief that entrepreneurship has not just economic but also social impact. They are often of a non-profit nature. Private incubators constitute the second group. They are founded and owned by private entities with various motivations that influence the vision and mission of the venue. It could be complementary to the core activities of the owner or their main goal is to find good investment opportunities. They search for companies and new ideas to invest in or they want to create creative environment that serve as an inspiration for employees of owner organization.

Previous focus of incubators was mainly on job creation and real estate offering to its members. Later intangible services were added and now we can speak of third generation of incubators. Their focus is on high-tech, ICT and new technology based firms (Aerts et al., 2007). The range of services offered in different modes of operation differ as well. E.g., some incubators offer more specialized programs like acceleration focused on fast growth of member start-ups or they target industry specific ideas. It is difficult to compare different types of incubators or to compare incubators across countries, because there is not only one type of business incubators.

Different owners have different motivations and goals. That is why we need to build a list of existing incubators in the Czech Republic and start monitoring their development.

Methods

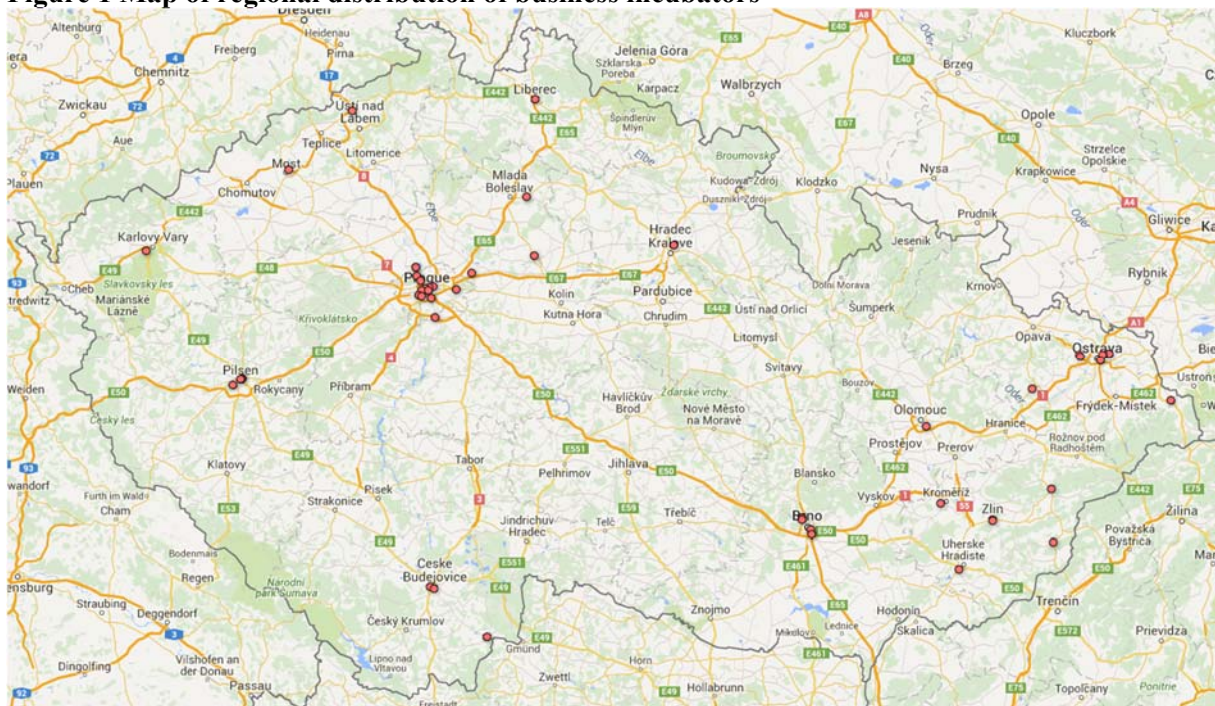
First, we compiled a list of incubators and accelerators in the Czech Republic. This was rather complicated process as there is no official list we could build on. Moreover, there is no unified definition of business incubator used. Due to the non-existence of previous verified list of incubators, we adopted more benevolent approach in the initial phase of the research. We built a preliminary contact list and included every organization that publicly declares focus on supporting new venture creation and company growth. Aside to the incubator list, we compiled also list of co-working spaces in the Czech Republic as they may provide efficient support for start-ups as well. Co-working space might be serving as a sort of incubator for their tenants. The focus is mainly on one dimension of the entrepreneurial support and that is shared office space. But some of the components of incubators could be tacitly involved. Many co-working spaces offer educational and networking activities, they can also provide advice to partner companies in terms of support services. The data set used in this article was built up as a first of its type in the Czech Republic.

We used an existing list of science and technology parks of the investment and business development agency (Czechinvest, 1994; 2007) and also a catalogue of Science and Technology Parks Association CR (Science and Technology Parks Association CR, 2016). We combined those two lists for a preliminary list. To further add missing venues, we searched on google.com for terms business incubator, entrepreneurial incubator and accelerator. We also explored articles concerning business incubators of major online newspapers ihned.cz, idnes.cz and regional news portals. Following the preliminary list, we visited each page of the venues to gather further information like year of foundation, ownership etc. We focused on their vision, what services they offer, whether they organize events and contact information. We excluded venues that did not mention focus on new business creation and entrepreneurial support on their home page or subpages. We also excluded venues that ceased their existence. This was for example a case of Wayra business incubator that left the Czech Republic following its mother company Telefonica. We also excluded venues with solely academic focus or science and technology parks with no pronounced entrepreneurial focus.

Results

This section describes the results of the empirical research. We show the numbers in terms of business incubators with the major findings in terms of facility characteristics. We had a 59 venues in the preliminary list of business incubators. After the online research we ended up with 51 organizations that qualified as business incubators. The highest number of incubators (10) is in Prague, the second place is shared by Moravskoslezský (8) and Zlínský (8) region. For detailed locations, see Figure 1.

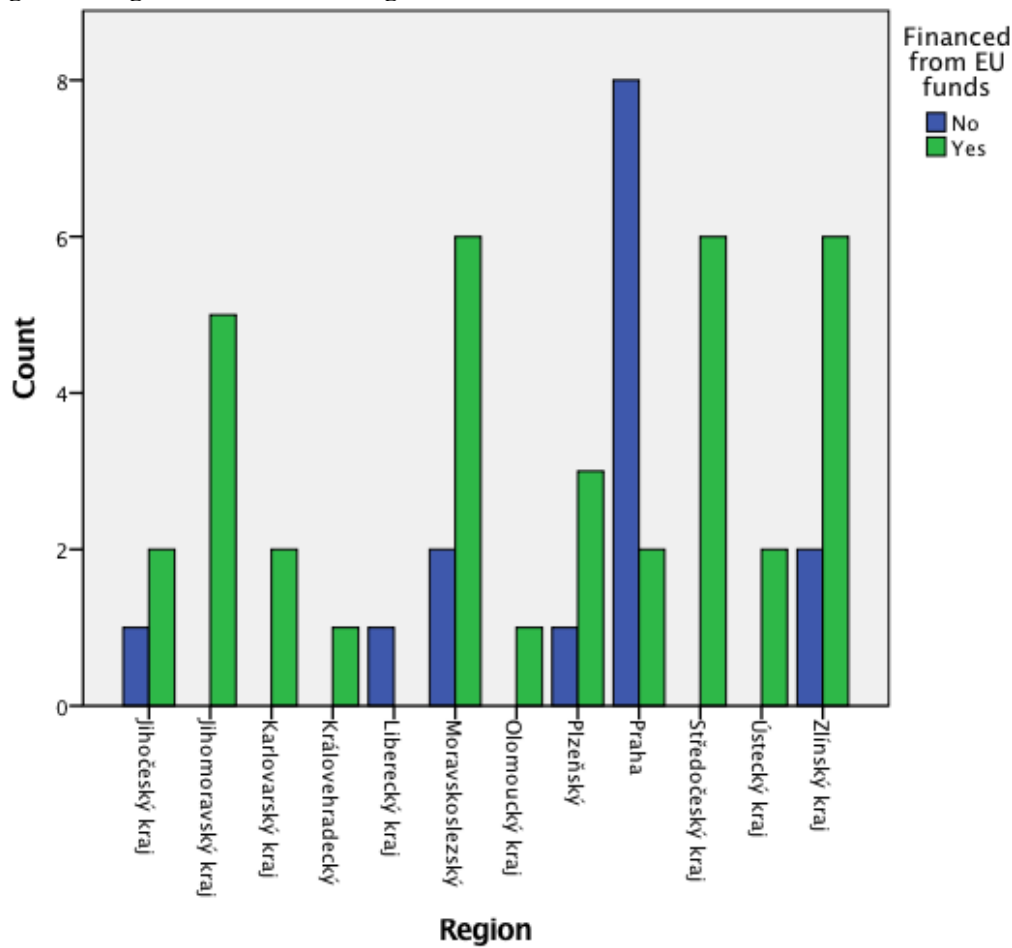
Figure 1 Map of regional distribution of business incubators



Source: Authors

It is obvious that the majority of incubators are based in large cities throughout the country. If the incubators want to be sustainable, they need to have constant influx of members. Majority of new companies need to be located close to their customers. When growing, they search for new employees to hire. Both customers and employees are easily attainable in urban areas with higher density of population than in countryside. It is evident that incubators located further from cities are mainly in Moravia, especially in Zlín region. These are mainly financed from EU money (see Figure 2). It gives them more freedom in terms of location, but one must necessarily question their sustainability.

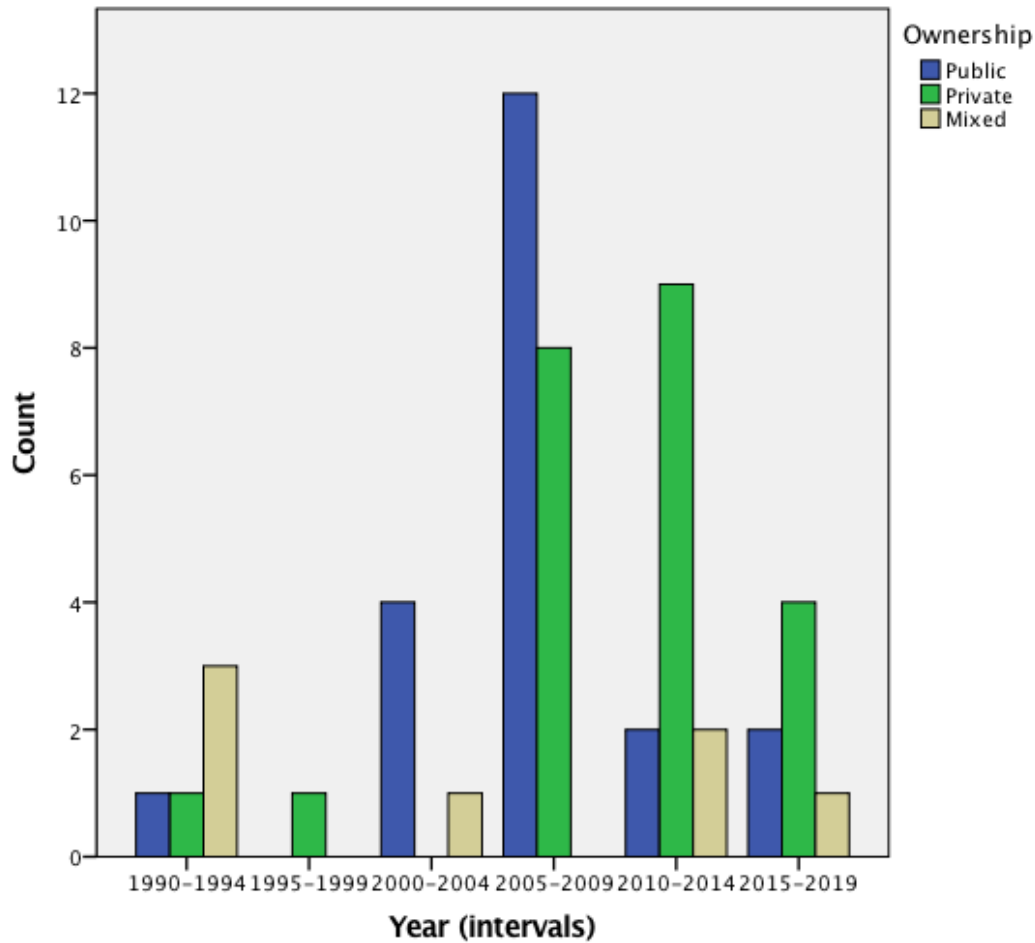
Figure 2 Region and EU Funding



Source: Authors

Business incubators were mostly founded in several waves. The first organizations were founded shortly after the velvet revolution, but majority of venues were founded shortly after Czech Republic joined European union. The high peak was in the first years after the accession. There were 18 business incubators financed from structural funds out of 20 in the first four years. The Figure 3 illustrates the ownership of incubators founded in different time periods. Basically all public and mixed, and some of the private business incubators have been financed or co-financed from EU money.

Figure 3 Years of foundation and ownership



Source: Authors

There are 23 incubators run only by private entity, 21 solely public incubators and 7 incubators have mixed ownership. Out of the 23 private incubators 15 are financed from EU funds. Only two private incubators were founded before Czech Republic joined European Union. For the public incubators 5 were founded before the year 2005, the remaining 16 were founded between years 2005 and 2016. Concerning the 7 incubators with mixed ownership 4 were founded before 2004.

There are 12 venues, i.e. 23,5 % of the sample, that are founded or co-founded by a higher education institution. Out of those 12 organizations with university involvement, there are 7 business incubators run only by University, that is 14 % of the sample. Four university incubators have involvement of other public entity (e.g. city, regional government). Only one university incubator - Podnikatelský inkubátor Vysoké školy podnikání - is run by a private entity.

There are some doubts about the way some incubators use funds from European Union. You can find stories of incubators changing ownership from public to private, receiving funds and going bankrupt. For example the TechnoPark incubator from Pardubice. It was founded in 2008 and heavily financed from EU funds. In 2012 it changed its ownership to offshore tax paradise in Panama. Czech authorities were unable to trace down its real owners. It was sold below price due to bankruptcy and is not a business incubator anymore (Lidové Noviny, 2014). In general, it is hard to trace down the number of closed incubators, because there is no official list since the first incubators were open. We were able to document 4 cases of closed business incubators in course of this study.

The number of institutions using EU money is 36. Which is 70,6 % of entities in the sample. Many of the venues were founded in years 2005 to 2009, shortly after CR entered European Union and the support from EU funds was available.

Services

Only eight venues offer acceleration program. Forty-seven business incubators offer office rental. This means only four operate as a virtual incubator. Non-members can attend public events in 34 incubators.

Conclusion

According to our knowledge, we have built the first list of incubators ever published in the Czech Republic. The weakness so far is that we relied only on publicly available data. We believe follow up studies are needed in order to understand the benefits of the incubators for the incubated firms, employment, innovation and economy as a whole. Also, to identify successful incubators and document their best practices. We also found that only eight venues offer acceleration program geared towards fast growing companies in later than startup phase. Further, it is stunning, if we take into account the huge amounts of money that were poured in the development of business incubators, that there are no control mechanisms that would be able to ensure that they serve their purpose. To understand the incubation ecosystem, we need to study the various organization in detail. This opens new research opportunities. We make our list of incubators publicly available and hope this study leads to further research that continues to analyze business incubators, their performance and their impact.

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ARTIFICIAL INTELLIGENCE AS A TOOL FOR DIAGNOSTICS OF PERSONNEL COMPETENCES

Andrey Andrunik – Galina Ostapenko – Sergey Kosyakin

Abstract

Traditionally, quantitative and qualitative characteristics of human resources of enterprises are formalized in the form of structures, which reflect the ratios of these characteristics for different groups of employees. However, changes in the set and the nature of the competencies are currently one of the key aspects of change in the qualification structure of the personnel, especially when it comes to the development of innovative industrial personnel. The structuring of personnel characteristics allows developing a model of key competencies required for excellent innovative performance. In this paper, we consider the applicability of diagnostic indicators of personnel competencies in self-developing, self-organizing systems in order to solve the problems of candidates' optimal selection for a specific senior position in the innovative industrial companies. Software with the built-in procedure that combines the competence model, active examination, cluster analysis and logit modelling, specially created by the authors, allows to realize in practice the idea of creating artificial intelligence, applied to the problem of optimal candidates' selection from a finite set of alternatives.

Key words: artificial intelligence; 2S-systems; competences model

JEL Code: M 12, D22, C60

Introduction

The problem of ensuring compliance of the employees' competencies with the strategic objectives of an organization under the conditions of budget optimization, investment in human resources and management system has not only theoretical but also great practical importance, which is increasing in the innovative economy. Creative perception of foreign experience, its adaptation to the Russian economic conditions, the use of local diagnostic methods allow to develop a management approach based on a comprehensive and timely assessment of

employees' competencies in terms of compliance with the strategic objectives of organization.

This article is structured as follows: firstly, the competence management approach is presented based on the main concepts and approaches related to this topic; secondly, the authors' Model (matrix) of Competencies is introduced; thirdly, the application of intellectual intelligent as a tool of diagnosis and assessment of competencies factors is described and finally the conclusions are presented.

1 The conceptual approach to competence management

Tomorrow's organizations must be adaptable, innovative, inspiring, and socially responsible, as well as operationally excellent. To imbue organizations with these attributes, scholars and practitioners must rebuild management's underpinnings (Hamel, 2009). Companies must redesign management systems and performance management. Numeric ranking and formal evaluations without positive feedback may create a culture of reduced performance (Bersin, 2015). Companies need to rethink their human resources and the development of their competencies. There are several approaches to the notion «competence» and Competence Management. Sandberg's work (1996) criticizes the traditional concept and rationalist approach of competence as a set of knowledge, skills and attitudes, that is, attribute acquisition. On his mind, competence development must be seen as based on organizational practices, focusing its analysis on the enrichment of experiences (interpretive approach). Boterf (1997) locates competence based upon three main axes, which include personal formation (biography, socializing), educational formation and, professional experience. David Kolb's (1971) approach is focused on the Experiential Learning Cycle. Argyris (1992) argue about the gap between exposed theory and in use theory (discourse and practice). Senge (1990) determined collective and individual competencies as well as a Common or Shared Vision, Systemic Thinking, Personal Mastery, Mental Models.

Change of the modern management paradigm "Management 2.0" – management of «humanizing the organization» is associated with the decrease in the degree of subjectivity in the company's management development, with changes of personnel responsibilities and self-determination related to the reflection regarding professional goals. However, the development of new programs, models, innovative competencies, which are interconnected by coherent management system and able to propel HRM to a new complex level, remains a challenge. At the stage of transformations acquire a special role of required competencies. The management

competence approach focuses on linking business strategies to individual performance efforts. It also encourages employees to develop competencies which can be used in diverse work situations rather than being boxed into the job. In this way they can develop capabilities useful throughout the organization as it changes and evolves. Obviously, it requires the development of mechanism of diagnostic staff to meet the strategic competency model, which includes theoretical, methodological and practical aspects of diagnosis. Therefore, the projected patterns of behavior should be laid such competencies that have contributed to the development of staff, and improving his skills would take place on the team, but from the initiative of the employees, who decide which methods of formation and development of their own competence to the required level could be chosen. In other words, in the development and justification of diagnostic methods of personnel competencies in self-developing, self-organizing systems (hereinafter – 2S - competencies) not only professional, personal and competences related to qualification, but also behavioural competencies should be considered. In order to ensure a holistic assessment of 2S - competencies it is necessary not to summarize the results of their achievements, but to identify the relationship between the competencies and the individual components of such. Only with this case it becomes possible to objectively assess the results of labour behaviour and activity of the personnel and provide an adequate opinion on the compliance of the employee with the position occupied and the possibility (or impossibility) of their self-development. This means that the diagnostics of personnel competencies should be performed in three major areas: professional, personal, and behavioural. (Molodchik and Andrunik, 2015).

The main research problem is to present Model of Competencies which integrate three sets of competencies (professional, personal and behavioural one), as well as to create diagnostic tools for evaluating personnel competencies easily applied in practice, which would embrace the theoretical, methodological and practical aspects of diagnostics.

2 2S –Model of Competencies

The knowledge and use of competencies and competency modelling has become common. Building upon and integrating a great deal of research, Goleman (1998) presented a model of emotional intelligence with twenty-five competencies arrayed in five clusters (Spencer and Spencer, 1993; Jacobs, 1997). Although numerous methods were available to assess these

competencies behaviorally through behavioral event interviews (Boyatzis, 1982; Spencer and Spencer, 1993), simulations and assessment centers (Thornton and Byham, 1982).

To process a competency analysis we design the Model of Competencies. It categorizes which core skills are needed to be successful, proactive, initiative person involving in the implementation of company's strategic goals. The more detailed the model is, the better chance there is of finding someone who will be able to best carryout the requirements of the position. Each place competence in this model has a brief descriptor as well as several indicators of competencies on three levels (personal, professional, behavioral). The indicators define what employee needs to do to be successful and to contribute to the company's strategic goals and values. More than 20 criteria and 70 indicators of their dynamic pattern have been formulated in three areas of competencies, which make it possible to objectively evaluate the level of development of 2S-competencies and transform their qualitative state into the quantitative expression (Table 1).

Table 1 2-S Model of Competencies

<i>Nº</i>	Competence cluster	Competencies		Indicators of Competencies
1	UNITY OF GOALS AND INTERESTS OF INDIVIDUALS, GROUPS, COMPANIES The characteristic reflects	<i>personal</i>	Capacity to accept corporate goals and values	Accepts corporate rules and principles; follows corporate values easily; makes decisions taking into account corporate interests.
		<i>professional</i>	Capacity to determine priorities	Sets sensible priorities for tasks in order of importance; maintains effective workflows by involving colleagues; manages resources effectively.

	how personnel goals coincide with subdivisions and company goals, how employee behaviour vector coincides with the necessary line of enterprise development.		Capacity to solve problems	Evaluates possible solutions to a problem; analyses the consequences of different solutions; determines resources needed to solve a problem; makes timely solutions in critical situations.
2	TAKING RESPONSIBILITY, SELF-CONTROL The characteristic shows employee readiness to take the responsibility for initiatives realization, to control independently movement toward the desired result	<i>Professional</i>	Capacity to make daily decisions and to ensure their realization	Follows pre-defined procedures of decision-making; collects and uses all the information needed for decision-making; delegates decision-making responsibilities to colleagues;
			Capacity to execute self-control of performed work quality	Shows discipline and responsibility; complies with time and cost standards; makes independent decisions within one's area of expertise.
		<i>Behavioural</i>	Capacity to be responsible for results of professional & administrative activity	Rationally organizes work in the workplace; plans and organizes one's own work; completes work tasks responsibly; maintains and improves one's professional and personal image.

3	MULTILEVEL LEADERSHIP, TEAM WORK, SYNERGETICS, ENGAGEMENT	<i>Personal</i>	Emotional stability	Completes the set tasks regardless of one's emotional state; conducts win-win negotiations; takes into account different cultural styles and values in one's communication with colleagues.
			Stress resistance	Accept feedback easily; has a low level of anxiety; works efficiently even in increasingly uncertain conditions.
			Capacity to be fair and honest toward others	Does things that are important in one's life, one's words agree with one's deeds; speaks about one's intentions, ideas and feelings openly and directly; stands up for colleagues if they are treated unfairly.
		<i>Professional</i>	Capacity to build relations within group	Treats colleagues objectively in the workplace; adapts one's style to relations developed within a group; develops and maintains constant contact with colleagues.
			Crew member	Shares one's experience and information with colleagues; appreciates colleagues' contribution to teamwork; inspires colleagues to contribute to teamwork.
4	INSIDE LONG-RANGE MOTIVATION AND ITS TENSION (MOVER)	<i>Personal</i>	Foresight	Identifies promising goals; foresees the dynamics of development of internal and external processes; revisits one's experience taking into account new information and changing circumstances.
				Understands the direction of medium-term corporate development; determines the

	People demonstrate adherence to company values and interests, they are initiative and involved in change processes, they support new ideas, attack creatively regular and new problems, solidarity and team work are key characteristics of colleagues.		Capacity to determine strategic aims	direction of technology development in the strategic business planning of the company; participates actively in the setting of long-term goals.
			Employee orientation at the market and consumption	Analyses consumer behaviour, determines the parameters of new products; analyses the requirements for existing products, develops products with new attributes.
		<i>Behavioural</i>	Strength of motivation and its orientation (behaviour vector)	Manages to find the sources of personal stimulus; makes extra efforts to achieve results by sacrificing personal interests; demonstrates his dedication to corporate values; enjoys solving complex problems.
5	DECENTRALIZATION AND INTRAPRENEURSHIP Formal rules and protocols, which contribute for initiative display, permit to make and to realize administrative and technologic decision independently.	<i>Professional</i>	Communicative skills	Creates a professional team and coordinates its activity; understands colleagues, their motives and behaviour; understands one's own influence on the communication with colleagues; provides feedback and creates understanding with colleagues.
			Entrepreneurial skills	Applies systems thinking and innovations to one's work; uses new opportunities for corporate development;

6	SELF-EDUCATION, KNOWLEDGE ACCUMULATION AND EXCHANGE Employees are able to find independently all necessary information. The best experience is quickly distributed among subdivisions. . Colleagues are ready to share the experience with each other.	<i>professional</i>	Capacity to work with information	Actively collects and analyses information and draws correct conclusions; understands technical, commercial and other professional terms correctly.
			Cognitive capability	Acquires new skills concerning one's field of expertise (including technical and normative aspects); develops ways of acquiring new skills; formulates one's need for new skills, evaluates the ways of acquiring these skills and the results of their application.
			Self-education and self-development culture	Collects resources for self-education at all corporate levels; always studies new areas and motivates one's colleagues to study; knows how to correlate self-education goals with the forms and methods of acquiring new skills.
7	DISPLAY OF INITIATIVE AND ACHIEVEMENT OF MAXIMUM RESULT Employees display their	<i>personal</i>	Capacity to organize colleagues for task solution	Chooses most effective ways to stimulate one's colleagues to complete work tasks; knows how to identify urgent and important tasks; analyses risks and offers ways of completing the set tasks.
		<i>professional</i>	Capacity to contribute to individual goal setting	Identifies correct assessment criteria of success; identifies and analyses possible consequences of the achieved goals; contributes to the process of achieving goals within one's area of work agreed upon with colleagues.

initiative in getting of new knowledge, in its appliance, in the realization of advanced initiatives. Employees' work is aimed at the achievement of the maximum result.		Capacity to inspire for idea development	Participates in activities concerning the generation of ideas; enthusiastically promotes new ideas; develops new methods and practices of implementing new ideas.
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Source: developed by the authors

The model is intended to serve as a flexible guide. Competencies and indicators of the behavioural model have been identified based on the interviews with experts of the leading industrial companies in the Perm Territory (394 employees of the enterprises, where Centres for Youth Innovative Creativity and QRM Centres were created). They correlated with the lists, dictionaries and clusters of competencies used by the European institutions, researches approaches and research centres dealing with the problems of innovative personnel competences' management(*The OECD Competency Framework, 2014; EFQM Exelence Model; Model of Competency Framework Easy360 2002-2012; Personal Development and Performance Review Behavioral Competency Reference Guide, (2014); Spencer and Signe, 1993; Seema Sanhi (2008).*

3 Aplied methods and techniques of diagnostics of personnel competencies

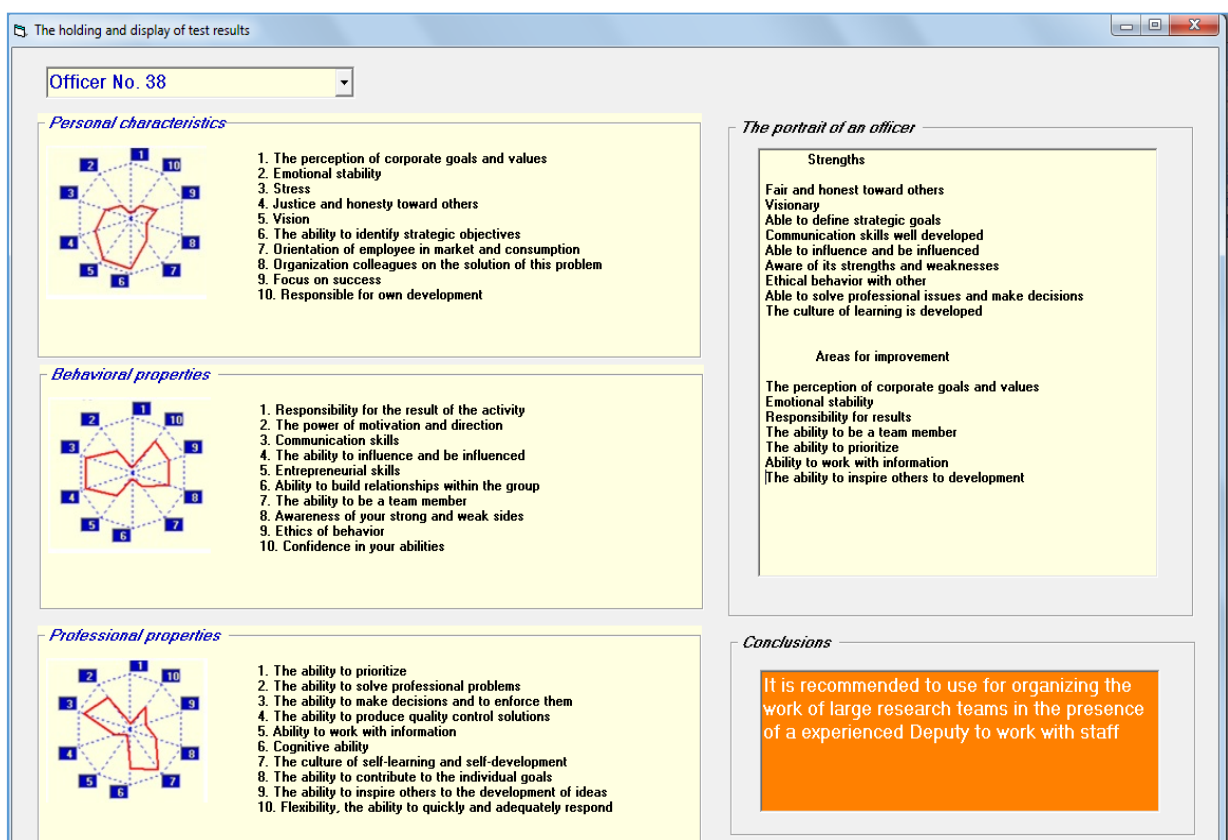
Assessing competencies not only benefits organizations but it also bears «sweet fruits» for their employees as they will be more proactive, self-started, and self-motivated on the job. Competencies of the employees become demonstrable skills which are useful in their job and future career plans. To determine the efficiency of the developed diagnostic tools and organizational assessment procedures and their regulations, an empirical research was held among the employees of the same innovative enterprises of the Perm Territory. As a result of the survey it was determined that 81.2% of the respondents did not consider the applied competences' diagnostic methods efficient, 52.8% – considered them correct, 75.3% –

demonstrated resistance to such assessment. At the same time, 84.1% did not know whether the assessment activities were developed in the organization, 73.2% – whether the results of the evaluation were seen by the team members as objective, 66.9% – if the assessment influenced on the results of work. According to the conducted research we concluded, that the development goals of employees often contradict with the economic interests of the management of the investigated enterprises, and the management does not attempt to harmonize organizational and individual strategic objectives of competences' diagnostics in a single goal-setting system.

In order to solve the identified problems and increase the level of satisfaction of the personnel of industrial enterprises of the Perm Territory with the help of the applied methods and techniques of diagnostics and management, the authors have developed a special software package ensuring execution of cluster analysis for breaking the set of the testees into the disjoint sets with the identification of the Kemeny median; calculation of the multiple-choice model parameters for each area of the 2C-competences' model (logit - model); definition of the rules of attributing the testees to one of the found clusters representing the maximum likelihood principle; generation of reports indicating the strengths of the testees and their areas for improvement; formation of tabulated findings, designed to minimize uncertainty in decision-making and strengthen consistency of corporate and individual strategic goals and objectives. The interface functionality is based on the method of active examination, suggesting the calculation of differences in similar properties for each tested candidate. Thus, the Manhattan norm is used as a measure of differences – the sum of differences of similar properties (in absolute value). (Train, 2005; Pindyck and Rubinfeld, 1981; Chmidheiny, 2005). For each tested candidate a total difference of their properties from the rest is defined and the set of properties of the candidate having the minimum value is selected as the cluster median. Then, the cluster formation takes place, which includes the candidates with the set difference from the found median according to the Manhattan norm. At the conformance testing, those candidates having the predetermined level of difference from the median are put in the "cluster members" list and the candidates with a slightly higher Manhattan norm are assigned to the "candidates" list. The cluster analysis results are used as the initial data for construction of a multiple choice model. Computer implementation is designed so that the zero values are obtained by the parameters of the model that correspond to the latter of the stated alternatives. The software

package allows performing such calculations after conducting cluster analysis for each area of competences. In this case, the tested employee is required to choose a question, read the contents and select one of the possible answers. Survey results are stored in a special external database file, which can be used for the calculation of the logit-model parameters and cluster analysis taking into account mutually unambiguous correspondence of the survey questions with the indicators of 2S-Competencies Model, represented in Table 1. The survey results are used in the software package to generate a report on the employee portrait and conclusion on the potential career movement, which is created based on the rules shown in Fig. 2.

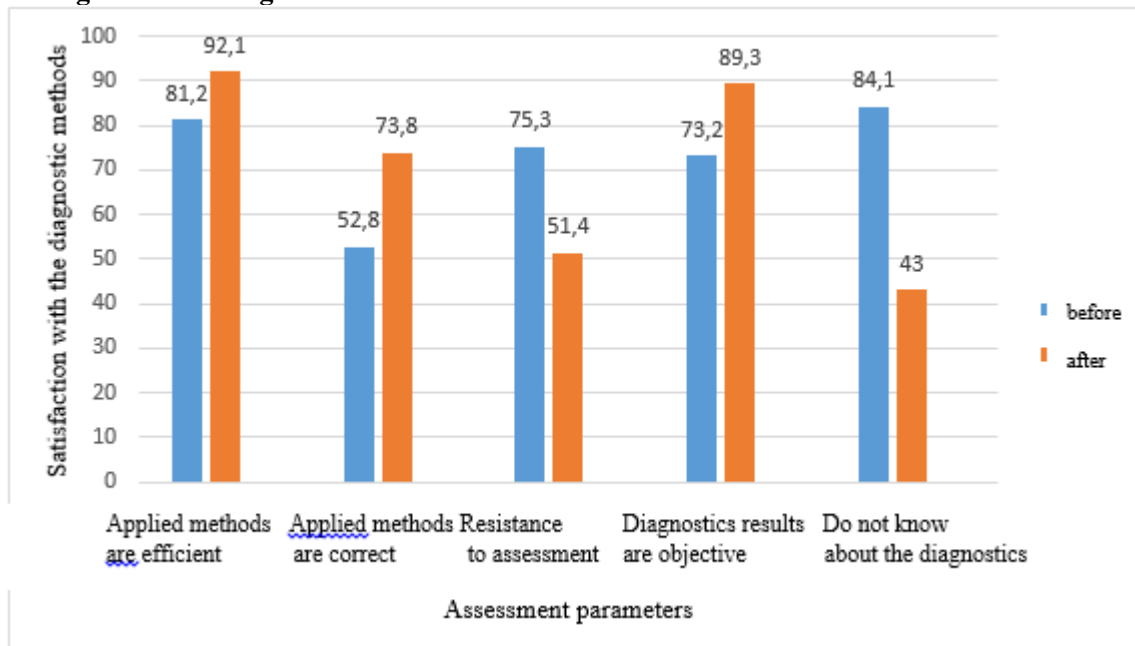
Figure 2 The screen version of the report



One of the main problems is to considerate several dozens of indicators of personality, behavioural and professional competencies and to minimize uncertainty, when taking a decision on a career development for an employee. We tried to solve this problem through the computational procedure based on the principle of maximum likelihood estimation with built-in the software package (Dempster, A, Laird, N., 1977; Davnis, V. and Tinyakova, V., 2005). To determine the efficiency of the developed software package with the built-in procedure for combining the competences' diagnostic technologies, active expertise, cluster analysis and logit

modelling, the authors organized and conducted an empirical study with the same group of employees of industrial enterprises of the Perm Territory. As a result of the control survey it was found out that 92.1% of the respondents considered the applied methods of competences' diagnostics to be efficient; 73.8% – considered them correct; personnel resistance to the diagnostic procedures decreased to 51.4%. With that, 43% of the respondents did not know whether the assessment activities were developed (Fig.3)

Figure 3 The efficiency of application of the diagnostic complex with the use of artificial intelligence technologies



The results of assessments parameters demonstrate the efficiency of the developed diagnostic tools and the ease of their application.

Conclusion

Assessing competencies not only benefits organizations but it also bears « sweet fruits» for their employees as they will be more proactive, self-started, and self-motivated on the job. Competencies of the employees become demonstrable skills which are useful in their job and future career plans. 2-S Competencies Model was presented which includes 7 clusters (similar competences to a common skill set) performing in three major areas: professional, personal, and behavioural.

The developed software package of active expertise, cluster analysis and logit-modelling allows to implement the idea of creating artificial intelligence in order to solve the issues of personnel

competences' diagnostics, evaluation of compliance of the existing 2S-competences and their development capacity with the strategic objectives of the enterprise; development of a substantiated management position regarding each employee, development and retention of key employees in respect to the problem of optimal selection of a candidate for a specific senior position from a finite set of alternatives.

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ANALYSIS AND EVALUATION OF THE INFLUENCE OF A NON-HOMOGENEOUS CUSTOMER OF AN INTERNATIONAL COMPANY IN LINE WITH THE PROJECT MANAGEMENT

Stefan Bader – Milan Fekete – Jaroslav Hul'vej

Abstract

The increasing globalization of markets, permanently shortened innovation cycles and increasing competition pressure provoke companies to offer their products to an aspiring markets. Most companies use successfully the classic project management in order to conduct the orders within the company internally. But, what will happen if the classic applications related to project structure plan, milestone plan, etc. are influenced by parameters which cannot be foreseen? Which variables disturb this well-established instrument of the project management? The aim of this study is to ascertain specifically what kind of roles and behaviors the project manager needs to handle in order to successfully cope with two difficult cultures, namely an industrial company located in Germany and the United Arab Emirates.

Keywords: cultural, intercultural competence, project management, influencing disturbance, non-homogenous customer

JEL Code: L14

Introduction

The purpose of business enterprises is the provision of services on the market. Usually, this is done in repetitive, standardized routine processes, the so-called line work. The line organization of companies is tailored to these works. Its design aims at optimization (division of labor and specialization) of known tasks and work procedures to obtain a marketable cost level. In addition to the routine work, innovation processes are essential for the long-term success of a company. Innovation tasks can affect an individual department and are handled as a special task derived from innovation processes. They are controlled in the subordinating and reporting

conditions, and with the procedures of line organization. Many innovation tasks require a different approach from well-integrated procedures of the line organization, because they involve special requirements. In this case, we are talking about projects (Kraus – Westermann, 2010).

The sequence is predominantly unified. Three parameters - cost, schedule, and quality - form the framework in which the project is executed. Grimm (2009) indicates that a one-sided optimization always leads to the burden of the other two factors. Kuster (2011) confirmed that none of these factors can be changed without having an influence on the other two factors. For standardized products, which are always delivered to the same customer base, the influence parameters are low or almost constant, because the customer behaves homogeneously. Homogeneous here means that only the lot size or purchased quantities can change in time or no agreement on price is achieved.

The extreme opposite are projects that are subjected to the customer influence, arbitrary changes and fluctuations. Although these have an impact on the three elements, however, there are much more difficult to assess, because the parameters that are changed, are not known in advance. For the opposite side of the contract, the customer, thus, appears inhomogeneous. The customer is different and therefore not predictable. Who makes the assumption here that only a common language is defined, more mistakes he or she makes. It is not enough, all generated documents just into English language to translate, because in addition to another language, intercultural backgrounds also play sometimes stronger role than the language barrier.

So, how the inhomogeneous customer can be distinguished from a homogeneous? In general, the statement is that a homogeneous customer orders a standard product that was previously offered by listing price and delivery time. Thus, all the boundary conditions are manifested. Once we depart from these conditions and that has an impact on the cost, quality and the lead time, we can speak about the inhomogeneous customer.

These negative effects arise out of the disturbances caused by inhomogeneous customers. Here is a list of possible disturbances that may affect a project:

- Change of the lot size
- Change of the delivery schedule
- Change of the payment schedule
- Modification of the contract

- Change of the warranty periods.

The aim of this paper is the analysis and evaluation of the influence of the non-homogeneous customer and based on that to determine the appropriate roles and behaviors of the project manager that should perform in order to efficiently handle international projects.

1 Empirical research

Expert interviews

As the main empirical research, the questionnaire procedure for interview with experts was applied in order to get a feedback. The questionnaire was drawn up specifically based on the authors' experiences. Fifteen participants altogether were asked in the interview and were chosen in a way that they cover almost the entire range of projects they were involved in, from the start-up difficulties, through production problems, to activities in the customer's country.

The expert interviews were carried out in the period from 2013 to 2014. The company areas, from which experts were involved in the interview, were: planning, scheduling, purchasing, controlling, development, construction, shipping, production, sales, quality assurance, accounting, and project management. The data collection was carried out in the following points to consider:

- Determining the possible deviations from the ideal process
- Identification of the influential disturbances
- Determination of cultural influence

The findings of the expert interviews are intended for the development and design of a pattern approach for roles and behaviors of the project managers they should have and perform specifically in international projects.

2 Roles and behaviors of the project manager

What differentiates successful projects from less successful or failed projects? Scheurer (2002) notes that successful projects are influenced more by the people working on them as by the applied techniques. He defines success as: "Being successful also means being willing to allow new thinking. The willingness to change us themselves - constantly every day. Each participant shall rise from the depths of his gray everyday life and be inspired to new ideas and goals. Naturally, the intercultural competence plays an important, unfortunately often underestimated role. Once different cultures collide each other, technology and functionality of the ordered

product will be immediately subordinate to the cultural aspects. The only solution here is an internationally experienced project manager."

2.1 Requirements on the successful project manager

For the selection and suitability of an international project manager, the following qualifications play an important role:

- professional expertise
- good social skills
- intercultural competence.

The first request covers much, in social skills the certain instinct being sensitive to interpersonal processes is notably lower, and in the third point, it often remains only a pitiful remnant left, if at all (Hoffmann, et al., 2004).

Kerzner (2008) requires that a project manager should have more authority than is actually required for its area of responsibility. It requires neither a single fighter nor an all-rounder, to succeed. Continuous and especially structured project work that has been thought out in detail in advance is an important guarantee.

Who wants to work successfully as a specialist or manager in a foreign country, he or she should see the new culture not only from a visitor perspective without deeper personal commitment, as it would be sufficient, for example, for a traveler, but he or she should in many ways in light of his or her own cultural experience in the home country deal with the peculiarities of the foreign culture (Reimer-Conrads - Thomas, 2009).

The project manager has to perform many different roles (see Figure 1). In addition to all these roles, a successful project manager should never lose sight of an important feature: his or her authenticity. Relatively quickly the Arabs would notice this in case, the project manager would not behave authentically and the Arabs get this acknowledged with suspicion.

Once a project manager has determined that the target is at risk, he must act. To leave the danger zone, he must identify and determine appropriate measures and how these can be implemented. The power of measurement enforcement is carried out thanks to his or her authority and exercise of power. In many cases, the project leader will identify a measure that costs the least to him. Since the project is usually measured only financially regarding success, the procedure is legitimate. It can then be that the cheapest version brings him into conflict with his values and standards, or even with compliance.

However, it is also often noted that the job description of a project manager is immeasurably expanded. It is unacceptable that for production errors, for quality defects, delivery delays, for wrong deliveries, etc., only the project manager is considered solely and exclusively responsible.

Figure 1 Roles of the project manager



Source: Kraus, G. – Westermann, R., 2010. Projektmanagement mit System

One project manager controls, moderates, and manages to him entrusted project. Then he writes delivery notes, performs customs clearance, handles negotiations with suppliers, leads price reductions, helps in the production, prepares packages for shipping, then something will go wrong in the process. The reason for this is that either the job description does not exist or that some colleagues intend to push the project manager to the forefront to distract his awareness of their, perhaps, ignorance or convenience. In such a case, the project manager must immediately

provide an explanation to his or her supervisors and keep it in writing for future. Following are important several job descriptions of project manager.

Analysis

For the successful, fast start as a project manager, it needs to be firstly analyzed, what are the conditions and assumptions of the project:

- Clarification of the project contract, the contractors, their culture and value proposition
- Clarification of stakeholder; Who are the real decision-makers?
- Definition of the strategic project goals
- Implicit, by the client and other stakeholders unspoken project objectives
- Product vision and initial product specification
- Available resources and local features
- Size of the budget
- The actual area of responsibility and the scope of negotiation of the project manager
- Relationship of the project team members to their line manager.

Innovation

In addition to innovation, imagination, and constant new thinking, the project manager can create or maintain the harmony in the project again. The new ideas are virtually the drivers of changes. A successful project manager is the master of project organization and marketing. Behind that is understood that you constantly keep a close contact with the project team.

Language

The contact takes place about the language and the information being exchanged. The language, verbal or gestures, have an impact on the project. Anyone who thinks the opposite side will impress by using a part of more terms and thereby will act more competent, will be disappointed. From this reason, a so-called terminology list is created before the project begins. In that list, all important parts with the correct name of the project are listed. This undoubtedly facilitates communication. The list must be agreed between the parties and, at best, even countersigned. The principle for translations is: uniqueness before ambiguity. This terminology list should be maintained by the project manager and visible for all participants in the joint project procedure.

Negotiations

A very commonly applied form of interpersonal communication is the negotiation. There cannot be only the factual content of the project, but also an interpersonal and emotional issue. Such meetings take place between two or more persons. Negotiations may be conducted from different positions and with different attitudes. However, the aim of negotiation should be to maintain a forward-possible solution for all parties, so that further cooperation is possible. This is in projects often a challenging task, because there are naturally many trade-offs and differences of interest.

Language is the most important part of international negotiations. "There are many issues or topics that can be discussed in negotiations. In the Arab world, the following four points have crystallized out:

- to achieve a particular purpose
- to convince people
- to appease conflicting interests
- to reconcile different views.

Protocol Leader

Another instrument of efficient meeting is the protocol. The project manager is mostly assigned as secretary. To avoid misunderstanding or misinterpretation, but also any other decisions than in the meeting agreed and fixed in the protocol, it has been proven, either after each agenda item or at the end of the meeting, to formulate the essential decisions together, then to print them, and lastly from both sides to countersign and distribute. While protocols in Europe will be sent to all participants in the draft phase in order to obtain their release, this practice has not prevailed in the Arab world. Here, an example reflects why the project manager should be involved from the outset in the project. He might make decisions in such negotiations because there is no time left for laying questions anew. He would lose face, extremely weaken his position and soften its already built-up relationship.

Behaviors

The new media such as e-mail, Internet, telephone and videoconferencing have become standard tools. E-mails are gladly used for distributing documents (shipping documents, custom documents, etc.), or telephone calls for short agreements. However, once critical and important

issues should be coordinated, the Arabs consist on a personal conversation. The non-verbal peculiarities previously listed would not come to light in an e-mail or a telephone conference. However, the importance of these special features is high. It is recommended a dose application of these electronic aids. A project manager who is curious and open, shows this willingness to learn from other cultures, creates much faster and successfully a stable basis of trust with the opposite side.

Hoffmann / Schopper / Fitzsimons (2004) recommend: "Pay attention to differences in the attitude, in the facial expressions, gestures, but also in the voice and in the statements of the other person. You can learn from it and understand the new culture faster. You will also learn to develop a new paradigm, or possibly to change your thought patterns and, thus, to make your behavior more flexible. These measures contribute to the development of your own social competence and team building." Of course, some problems in the project will not be 'explained away' by even such a clever communication behavior or it is not enough to have an understanding of the other culture. In parallel to this, skills need to be developed that complement the intercultural communication to get the project a success.

More alien the involved cultures are, the more commitment must the project manager apply for the development, maintenance and further development of all-round inner obligations in order to bring up the project. One has to free himself from his thoughts that only just the way how your work is done is the right procedure. International projects have a lot more problems to solve them than national projects. Currency risk, communication problems, climatic conditions, time shifting, legal system, working hours, holidays, just to name a few. However, they provide the project manager the chance to learn about a foreign country with its people, and its culture. Also it helps to deal with the historical heritage of the nation. This way, many behaviors can be better understood.

Culture Translator

The biggest threats to the international project management lurk in intercultural cooperation. There, very rapidly misunderstandings and conflicts are formed. Here, an experienced and well-trained project manager can make a difference. Thus, a so-called "Cultural Agent" can significantly improve the situation. This fulfills two tasks by perfectly translating the foreign language and also the actions, customs, rites, etc. he or she translates with comments. This

cultural interpreter can also control translations and attack immediately if errors in translation are made. This can often happen.

Project Documentation

This is a project-based repository for all documents obtained during the project. The access must be guaranteed for all project participants and as fast as possible as the basis for the project schedule. For future projects, corresponding data should remain available. Thus, the documentation makes the comparability of projects possible, resulting in planning data and ensures learning outcomes for other projects. The structured storage of all project-relevant documents occurs in the project order. This applies twofold. Once, the hardware in the form of printed documents, further, in electronic form on the project procedure with limited access authorization only for the project team. The first option is meaningful, if something must be quickly looked up or if the project is selected for an audit. It is, of course, natural that the structure in both forms of organization must be identical. The care of both forms of organization is the responsibility of the project manager. For each project, the same document structure should be used as a basis and be modified only for specific projects.

Conclusion

In this paper, the roles and behaviors of the project manager in handling with non-homogenous customer were showed to lever the regulation mechanism of project management. This is not obvious from the project beginning. Things, circumstances, and parameters change - some with huge implications for the project. These can successfully be equalized or neutralized by the presented roles and behaviors.

Based on the results of the questionnaire, it could be proved that compliance with the cultural standards to which weak preparation for the culture of the other side can be the main reasons for failure of the internationally-focused projects. The next work could be to expand the list of these roles and behaviors on different culture types.

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SOCIAL BUSINESS: PUBLIC AND NON-PUBLIC PROVIDER OF SOCIAL SERVICES

Ol'ga Bočáková – Darina Kubíčková

Abstract

Nowadays, we meet with the correlating welfare state which is replaced by a private sector. This is reflected also in the field of social services. The private sector is increasingly expanding at the expense of the welfare state, the social services are becoming the subject of social entrepreneurship. The sample used in our paper is selected by a quota selection in terms of age, education and residence in particular regions. It is about 1250 respondents who have citizenship of the Slovak republic. In terms of used methods, we applied a questionnaire method, as well as analysis and comparison of results. The conclusions and results stemming from the paper will be directed to find out whether the citizens trust more the public or non-public providers of social services, whether the amount of income correlates with a view to the privatization of social services facilities, even if in case of need, they would choose public or non-public provider of social services for themselves or for their close relatives, where they see the strengths and weaknesses of public and non-public providers of social services. The importance for a practice is in a recommendation of what public providers of social services should do in order to be able to compete with the non-public providers of social services.

Key words: Social services, Public provider, Nonpublic provider, Public sector

JEL Code: H830, M190

Introduction

The following paper carries the title “Social Business: Public and Non-Public Providers of Social Services”. The issue of social business is still a more and more up-to-date topic in connection with the failing state. Social services are being offered not only by the public, but also by the non-public providers.

Our paper has been divided into two parts. The first part has a theoretical character and deals with the mentioned issues in the theoretical sense of the word. The second part has empirical character and contains evaluation of the questionnaire.

1 Problem Formulation

After 1989 we have become witnesses of social, economic and political transformation. Liberalisation of economy took place, from the original planned economy into the market or mixed economy. In spite of the fact that after 1989 we got to the democratic road of development, it is possible here and there to observe antidemocratic and intolerant tendencies in our society. (Mihálik, 2015)

New opportunities have appeared, by this we mean doing business in which there appears also a private sector next to the public (state) sector. Entrepreneurs exist probably in every country but the level of entrepreneurial activity is different. (Roper, 2012) The difference between a private and a public sector is that the first is focussed on profits, whereas the state sector provides its services and distributes assets without entitlement to profits. (Čemez, 2015)

The reason, why these places take place is that someone wants to change some social services into private business and wants to have profits from them. Also the right-liberal principle applies here, i.e. that the private sector provides better quality than the public sector. However this is connected with a higher price, therefore not every client can afford social services that are being provided by a private sector. To a certain degree the quality is connected with several aspects. Some authors emphasise high quality education for performance of profession of future employees. (Dudžáková, Slovák, 2015) Other authors emphasise human resources. (Mura, Horváth, 2015)

The concept of social business has been emerging lately. The public, non-profit and private sectors have been transformed by the social entrepreneurship. (Keohane, 2013) Social business as such has not been precisely delimited and it is necessary to set borders, according to which the business entity may be understood as a social enterprise. To a great extent the social enterprise is being financed from its profits. (Krechovská, Dvořáková, 2014) Social entrepreneurship belongs to one of the most interesting issues in public and non-profit sectors. (Guo, Bielefeld, 2014) The social entrepreneurship and its development is connected with the economic development at the international, national and local level. (Ridley-Duff, Bull, 2015)

In this connection it is necessary to emphasise that what we miss in the conditions of Slovakia in comparison with the western countries is education and informing the public about social business. (Pongrácz, 2014) In the context of social business the principle role is played by social capital, which is a catalyst of innovations. (Dana, Light, 2012)

2 Empirical Research

2.1 Aim of Research

The aim of research is finding out, what the public providers of social services should do to be able to compete against the non-public providers.

2.2 Research Tasks

In our research we have set ourselves the following tasks:

1. Finding out, whether the respondents trust more the public or non-public providers of social services
2. Finding out, whether the amount of income correlates to the opinion on privatisation of social services facilities
3. Finding out, whether the respondents would select for themselves a public or a non-public provider of social services
4. Finding out, whether the respondents would select for their close relatives a public or a non-public provider of social services
5. Finding out in what they see the advantages or shortcomings of public and non-public providers of social services.

2.3 Methodology and characteristics of a sample

In our research we are going to use a questionnaire method. The sample, which has been used in our paper has been selected by quota selection from the point of view of age, sex and the place of residence in individual regions. Our sample includes 1250 respondents with the citizenship in the Slovak Republic. In addition to the questionnaire method we are also going to apply the analysis of results and their comparison and also correlation as well.

In order to analyse obtained data we used statistical methods and comparative method. We inserted obtained data into the tables and we calculated percentage of each category. Using

percentage we were able to compare data between the public and non-public provider in tables 2, 3 and 4.

From the facts we have ascertained the correlation coefficient using the function Correl in the programme MS Excel. According to table 5 the respondents were supposed to assess, to what extent they agree with privatisation of social services facilities from 1 (I completely disagree) to 5 (I completely agree). According to table 1 we have divided the respondents according to the income amount into 5 categories from 1 to 5.

2.4 Assessment and analysis of research results

In table 1 we can see, how our respondents are diversified from the point of view of net income per month. We can see that the respective group of respondents grows numerically with the decreasing income, so that 29.36% of respondents are included in the group that is earning less than 500 Euro, on the other hand only 7.8% respondents are included in the group with income above 1.500 Euro.

Table 1 Net income of respondents per month

net income per month	n	%
up to 500 Euro	367	29.36
from 500 to 750 Euro	247	19.76
from 750 to 1250 Euro	206	16.48
from 1,250 to 1,500 Euro	152	12.16
over 1,500 Euro	98	7.84
have not been provided	180	14.4
total	1,250	100

Source: authors' calculations

Table 2 is signalling to us, that the majority of respondents (47.12%) provided a statement that a non-public provider provides social services in higher quality.

Table 2 Opinion of respondents about, who provides a higher quality of social services: public or non-public provider

Provider	n	%
public	408	32.54

non-public	589	47.12
have not been provided	253	20.24
total	1,250	100

Source: authors' calculations

According to Table 3, if the respondents should select a provider for themselves, so they would select a non-public provider.

Table 3 Hypothetical selection of social services provider for themselves

Provider	n	%
public	456	36.48
non-public	561	44.89
have not been provided	233	18.64
total	1,250	100

Source: authors' calculations

Table number 4 displays which provider the respondents would choose not for themselves, but for their closest relatives. From the results we can see that they would prefer selection of a non-public provider.

Table 4 Hypothetical selection of social services provider for their closest relatives

Provider	n	%
public	497	39.76
non-public	549	43.92
have not been provided	204	16.32
total	1,250	100

Source: authors' calculation

The table number 5 shows up to what extent the respondents agree with privatisation of social services facilities and they were supposed to provide the assessment from 1 (I completely disagree) to 5 (I agree completely). From the provided numerical data it can be seen that the number of respondents from 1 to 5 has a sinking tendency, i.e. the more negative assessment, the more respondents. The respondents that have provided assessment from 1 to 5 are represented in the number of 1070. However in reality there were more of them, but because of the fact that some of them did not provide the amount of their income (which we are going to

use later) so they are irrelevant for us and they have been included into the group of respondents, who did not provide their assessment.

Table 5 Opinions of respondents on privatisation of social services facilities graded from 1 (I completely disagree) to 5 (I completely agree)

Assessment	n	%
1	288	23.04
2	221	17.68
3	251	20.08
4	171	13.68
5	139	11.12
have not been provided	180	14.44
total	1,250	100

Source: authors' calculations

As table 6 is signalling to us, on the whole we have 8 items here, which were planned to be assessed by the respondents of the public provider of social services. Positive assessment prevailed in case of three items above the negative assessment and negative assessment prevailed in five items above the positive assessment:

1. Positive:
 - food
 - provided services
 - tidiness
2. Negative:
 - accommodation
 - staff attitude
 - management attitude
 - amenities
 - other

Table 6 Opinions of respondents on individual aspects in social services facilities provided by a public provider

	positive		negative		not provided	
	n	%	n	%	n	%
food	532	42.56	420	33.6	298	23.84
accommodation	332	26.56	549	43.92	369	29.52
staff attitude	403	32.24	589	47.12	258	20.64
management attitude	459	36.72	479	38.32	312	24.96
amenities	378	30.24	569	45.52	303	24.24
provided services	522	41.76	452	36.16	276	22.08
tidiness	589	47.12	352	28.16	309	24.72
other	279	22.32	569	45.52	402	32.16

Source: authors' calculations

The Table 7 below shows that positive assessment of social services provided by non-public providers prevails in all cases with the exception of the category “other”, where negative assessment prevails.)

Table 7 Tab. 7: Opinions of respondents on individual aspects in social services facilities provided by a non-public provider

	positive		negative		have not been provided	
	n	%	n	%	n	%
food	496	39.68	398	31.84	356	28.48
accommodation	516	41.28	388	31.04	346	27.68
staff attitude	528	42.24	415	33.2	307	24.56
management attitude,	491	39.28	408	32.64	351	28.08
amenities	494	39.52	441	35.28	315	25.2
provided services	516	41.28	448	35.84	286	22.88
tidiness	546	43.68	384	30.72	320	25.6
other	343	27.44	511	40.88	396	31.68

Source: authors' calculations

It results from tables 6 and 7 that in case of a public provider five from eight items have been positively assessed (62,25 %) and in case of a non-public provider there were seven from eight items (87,5 %) that were positively assessed. For the public provider to be able to compete against the non-public provider it should improve these items: accommodation, staff attitude, management attitude and amenities.

According to table 1 we have divided the respondents according to the income amount into 5 categories from 1 to 5. According to table 5 the respondents were supposed to assess, to what extent they agree with privatisation of social services facilities from 1 (I completely disagree) to 5 (I completely agree). From the mentioned facts we have ascertained the correlation coefficient. After having used the function Correl in the programme MS Excel the correlation coefficient reached the value of 0.331272, so we can talk here about direct and average dependence between the amount of income and attitudes to privatisation of public facilities of social services, i.e. the lower the income, the stronger the opinion in favour of privatisation of social services facilities. This was based on the data from the table 8 below. We have operated with only 1070 respondents, because 180 respondent have not provided information about the amount of their salary (see table 1).

Table 8 Numbers in categories of respondents according to the amount of income and according to their attitude to privatisation

		attitude to privatisation					
		1	2	3	4	5	total
categories of respondents according to the amount of salary	1	194	38	53	39	43	367
	2	49	122	43	20	13	247
	3	17	46	97	30	16	206
	4	9	7	33	76	27	152
	5	19	8	25	6	40	98
	total	288	221	251	171	139	1070

Source: authors' calculations

2.5 Summary of research conclusions

In our research we have arrived at the following conclusions:

1. On the whole the respondents trust non-public providers of social services more than the public providers,
2. The amount of monthly income correlates to the opinion on privatisation of social facilities of social services provided to public providers in that sense that with decreasing income the negative attitude to privatisation increases.
3. In case it turns out to be necessary the respondents would choose a public provider of social services for themselves.
4. In case it turns out to be necessary the respondents would choose a non-public provider of social services for their closest relatives.
5. The shortcomings of public provider in comparison with non-public provider are mainly: accommodation, attitude of the management and amenities.

Conclusion

In the end it is possible to state that from the point of view of trustworthiness a non-public provider of social services successfully competes with a public provider. This can be explained by higher quality of provided services. The main aim of our paper was to identify, how the public provider should change to order to attract more clients on its side in competition with a non-public provider. The answer to this question is increasing of quality of accommodation and amenities in the facilities but also improvement of attitude of the staff and attitude of management to the clients.

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THE USE OF ELECTRONIC TOOLS IN PUBLIC PROCUREMENT AS A FACTOR SPURRING DEMAND FOR INNOVATIVE SOLUTIONS IN THE ECONOMY, ACCORDING TO CONTRACTORS

Arkadiusz Borowiec

Abstract

By generating a number of economic and non-economic benefits, electronic procurement can act as an important tool for creating demand for innovation by the public sector, and thus raise the innovativeness of the entire national economy.

The purpose of this article is to gather information on the state of knowledge of the representatives of companies taking part in tenders regarding various electronic tools in the public procurement system, and to evaluate the image of public entities responsible for their implementation, and to gather opinions on the possibility of implementing such solutions in the process of spurring demand for innovation.

The results come from a questionnaire conducted among 176 companies in various industries that participated in the public procurement system as contractors. The survey was conducted electronically. The time range of the study covered the first half of 2015 and concerned the contractors located in Poland.

In the opinion of the surveyed companies the use of electronic tools in the Polish public procurement system is conducive to spurring demand for innovation. Contractors see broad prospects in connection with the computerization of the public procurement system in Poland. However, they are dependent on the actions of authorities.

Key words: public procurement, innovation

JEL Code: E1, E6

Introduction

The issue of innovation was introduced into economic sciences in 1911 by Joseph Schumpeter (1960). His theory, later called *supply side*, indicated the activity of entrepreneurs and was based on the following five cases:

- placing a new product or products with new properties on the market,
- introducing new production methods and new technological processes,
- opening new markets,
- gaining new sources of organization for certain industries,
- introducing new organizations in an industry.

The scope of innovation proposed by J. Schumpeter is indeed very wide, but he considers it as an exogenous factor of economic growth. It is fundamental from the point of view of economic theory, because it implies that innovation provides resources with new opportunities to create wealth (Białoń, 2010).

The aforementioned supply side theory by J. Schumpeter found numerous opponents in literature. For example, 1960s were marked by a theory by Jacob Schmooklera (1966). It pointed to the relationship between appearing innovations and market demand. Karlhainz Oppenländer (2000) combined both theories - of supply and of demand in the late 1980s. According to his theory, innovations introduced by entrepreneurs can constitute a turning point, but remain in minority.

Current economic situation is characterized by high volatility and uncertainty of environment and it is important to continuously improve processes and create new products and services, in order to ensure stable income for market participants. Therefore, all sorts of competitiveness enhancing innovations have also been gaining importance (Kalinowski, 2010). The importance of innovation as a source of competitive advantage and a determinant of economic development has been described in numerous scientific publications of both Polish and foreign authors. The noteworthy ones include the works by Porter (1998), Kay, J. (1996), Hamel, G., Prahalad, C.K. (1999) and Simon, H. (1999).

In view of these theories it is worth considering how the system of public procurement contributes to the growth of innovativeness in national economies. For this reason the author of this paper considers the use of electronic tools as an instrument, which used rationally, can become public sector's tool for creating demand for innovation, and thus raise the

innovativeness of national economies. Solutions in this area proposed by the Polish Public Procurement Act can constitute a starting point.

The purpose of the research conducted along with this article was to obtain information about the state of knowledge in companies taking part in public tenders regarding various electronic tools in the public procurement system. The idea was also to evaluate the image of public entities responsible for the execution of public tenders and to gather opinions on the possibility of implementing such solutions in the process of creating demand for innovation. Although purposeful sampling does not provide as representative results as random sampling, the individuals selected for the study point to a much higher usability of the obtained results.

As already mentioned, the research results presented in this section were obtained from a questionnaire conducted among 176 companies in various industries, which participated in the public procurement system as contractors. The survey was conducted electronically. In order to verify the test results and determine the relation a chi-square independence test was used. The study covered the first half of 2015 and concerned contractors located in Poland.

1 Innovations and electronic public procurement against empirical research

In recent years, innovativeness has been one of the priority areas of economic policy in Poland and other EU countries. This policy, in line with the understanding of innovations as a driver of economic growth (Romer, 1986), is reflected in many documents at Community level, as well as in actions conducted by governments of many states. However, the analysis of Poland's position in the ranking of EU innovativeness demonstrates that its economy is characterized by a low level of this indicator, and scores one of the last in comparison to the remaining EU Member States¹. What is especially worrying is the insufficient activity reported in connection with the decommissioning of institutional barriers and insufficient adaptation of public institutions to the needs of entrepreneurs.

Electronic public procurement appears to be one of the methods to eliminate these barriers and adapt to the needs of entrepreneurs in the public procurement system². Polish law distinguishes

¹ The innovative position has been determined using the Innovation Union Scoreboard

² Electronic procurement refers to any action in the process of procurement, which replaces any traditional form of submitting statements and documents with an electronic one. Such an understanding of the concept is now common in all of the European Union member states

several instruments in this regard, including an electronic auction as the most important one, followed by a dynamic purchasing system.

Unfortunately, despite legal possibilities of the use of innovation-oriented electronic tools for the purposes of public procurement, their use raises a number of problems and obstacles (Borowiec, 2013). This fact has spurred the research to define e-procurement as a factor spurring demand for innovative solutions in the economy, according to the surveyed contractors.

Construction and service sector companies dominated among the surveyed business entities. The respondents also represented IT companies, industry, agriculture and education. As far as the employment structure is concerned, small and micro-enterprises were dominant. Most surveyed companies had their seats in Greater Poland and Lubusz Voivodeships, while Podlasie and Lublin remained the least represented. The questionnaire with its imprint included 15 questions of which the vast majority concerned the closed ones.

84 respondents affirmatively answered the question about contact with electronic procedures in public procurement. It was about 48% of the studied population. Most replies were related to the exchange of correspondence with the authorities, the use of websites, as well as participating in bidding and electronic auctions. IT companies and service providers prevailed in this field. It is worth noting that the majority of companies declaring contact with electronic procedures are large and medium-sized enterprises.

The advantage of business sector over public institutions - as demonstrated in previous studies (Borowiec, 2013) - is not surprising in the context of the use of electronic tools. Building an information society requires companies to use a wide spectrum of technical innovations. Through their acquisition and implementation such companies improve their chances in a competitive market. This is not the case for government officials, as in their case the notion of competing for a customer is practically non-existent.

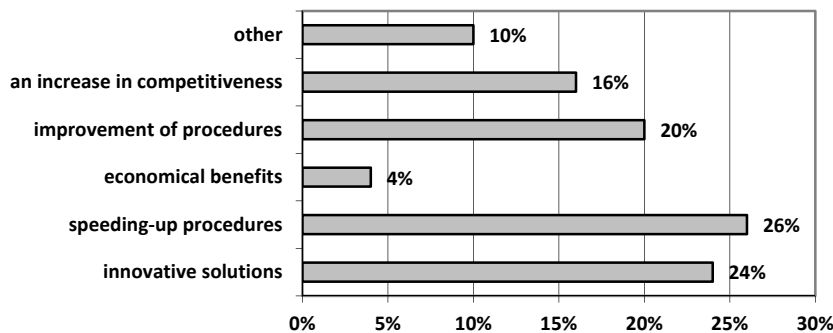
98% of the respondents replied affirmatively to the question on the elimination of corrupt practices through the use of electronic tools in the public procurement system. This result is very similar to previous responses obtained from the authorities and shows that solutions such as electronic auctions largely solve the problems of corruption in the Polish public procurement system³.

³ More on this subject (Borowiec, 2009)

Interesting replies appeared in connection with the question about the friendliness of applicable legal provisions on the use of electronic tools. Only 16% of respondents expressed their approval in this regard, while 65% felt that the law did not favor this type of solutions. This may indicate a low level of knowledge or some misunderstanding among contractors in the field of legal provisions in the public procurement system. As it turns out, one of the barriers for small and medium enterprises is a legal one, expressed primarily in the non-use and misunderstanding of applicable rules (Łuczka, 2005). Therefore, it is not surprising that 19% of respondents are not able to express an opinion on the legislation in force.

Replies regarding the benefits of electronic tools in the procurement procedures are shown in Figure 1.

Figure 1 The benefits of electronic tools in public procurement, according to contractors



Source: own study based on test results.

The replies of authorities and the results obtained from contractors demonstrate great importance of the acquisition of innovative solutions in connection with the use of electronic tools in public procurement. Interestingly, contractors consider economic benefits as the least important. Such a reply can be easily justified, because what the authorities consider a benefit is a waste for contractors. While bidding the lowest price, entrepreneurs "give up" their profits. Therefore, it is difficult to believe that an entrepreneur aware of this fact would approve of such an option.

The most frequent response in the case of "other" was the elimination of geographical barriers for public tenders. As it turns out, tenders are often won by companies from an immediate vicinity of the ordering authority. The participation in electronic auctions eliminates this problem and enables contracting authorities to obtain more modern and innovative solutions applied in other regions, countries and even continents. This fact also explains such a high per-

centage of affirmative responses indicating high innovative potential of using electronic tools in procurement procedures.

As shown by the test results, not without significance for entrepreneurs is also improving and speeding up the procedure related to the execution of public tenders. However, unlike authorities, they differently perceive increasing competitiveness in public procurement. They identify it primarily with contracting authority's greater respect for such rights as the principle of fair competition, or equality.

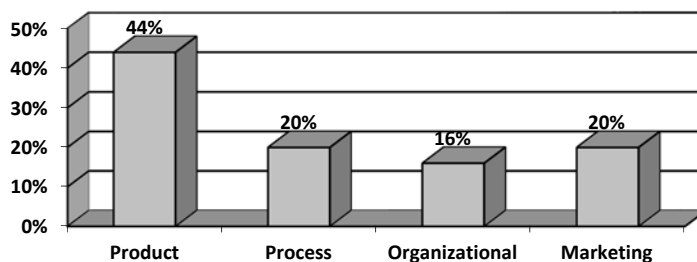
Almost 88% of respondents considered the use of electronic tools in procurement procedures as innovative. The respondents pointed out to outdated methods used by government officials as well as high formalization of procedures, which is facilitated by documenting each step in writing. In this respect, their point of view that the introduction of procedures for abolishing bureaucratic barriers is considered as modern and innovative does not surprise at all.

This question was related to another one regarding the image of public institutions, in connection with their use of electronic tools in procurement procedures. As it could be expected, the use of these tools would significantly improve this image in the eyes of entrepreneurs. It would also increase confidence in the structures of the state.

Both the respondents and the contracting authorities provided similar replies to the question about the type of innovation that can be achieved using electronic procurement. In this case, the highest response rate was associated with product innovations (44%). The distribution of replies is shown in Figure 2.

According to Figure 2, other types of innovations had quite similar distribution of responses. It is due to a very different profile of companies participating in the survey and a broader range of services than the demand from public entities.

Figure 2 The types of innovations linked to the use of electronic tools in public procurement, according to contractors



Source: own study based on test results.

The actions necessary to gain wider access to electronic tools can be divided into several groups. The first of these includes actions on economic grounds. The most common response in this group regarded government authorities providing access to free electronic signature for every citizen and business, as well as reducing the cost of Internet usage. Another group of actions includes those with technical background. The most popular replies here pointed to the need for an access to such services as e-certificate, as well as creating a system that would enable comprehensive cooperation of public entities with the environment. The third group concerns organizational actions. Among the most important measures the respondents mentioned a wider access to free training in the field of computerization of the public procurement system, and the dissemination of instructions on the use of existing electronic solutions. The last group of actions indicated by entrepreneurs regarded those of legislative nature. The following two replies appeared to be the most prominent: the need to introduce an obligation for the authorities to use electronic procedures related to the emergence of the best bid and the need for the legislator to clarify regulations on the use of electronic procedures.

Conclusion

In summary, it is possible to conclude that in the opinion of the surveyed companies the use of electronic tools in the Polish public procurement system is conducive to creating demand for innovation. One cannot resist an impression that the contractors are those who see broader perspectives in connection with the computerization of the Polish public procurement system and perceive it as a greater chance for implementing innovation⁴. They, however, depend on the actions of authorities since the latter determine the mode of public contracts and the entire procedure to be followed in order to select the best offer.

To create demand for innovation through the computerization of the public procurement system it is necessary to imitate more developed economies and eliminate the problems encountered in daily practice by both contractors and authorities. It seems that public sector should be interested in large-scale computerization of the public procurement system as this contributes to increasing the efficiency and innovativeness of services, supplies and construction works.

⁴ As mentioned before, an analogous study regarding awarding authorities has been conducted by the author in another scientific publication.

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**EMPIRICAL RESEARCH ON THE RELATIONSHIP
BETWEEN KNOWLEDGE MANAGEMENT, MARKET
ORIENTATION AND SMALL AND MEDIUM-SIZED
ENTERPRISES PERFORMANCE – SELECTED
PRELIMINARY RESULTS**

Krzysztof Brzostek – Anna Michna

Abstract

The article presents preliminary results of empirical research on the relationship between knowledge management, market orientation and the performance of small and medium-sized enterprises (SME). The literature analysis allowed designing a research tool /survey questionnaire/ for two groups – the SME owners/managers and SME employees. Both market orientation and knowledge management focus on the knowledge, both conceptions are considered to be determinants of the present-day enterprises increase. Both conceptions are considered to be required for effective performance of enterprises (Brzostek, Michna, 2014). The literature does not indicate unambiguously as regards the direction of the relationship between knowledge management and market orientation. Effective knowledge management creates conditions for processing, interpreting and using the knowledge on market trends. Integration of knowledge management and market orientation may be the key element of competence and improvement of competitive company position (Wang, Hult, Ahmed, 2009). The research will allow elaborating the practical guidance for owners/managers of SME, and thus increasing the effective performance and the possibility of development.

Key words: knowledge management, market orientation, SME

JEL Code: M14, O31

Introduction

This article is to present selected results of empirical research on the relationship between knowledge management, market orientation and effective performance of small and medium-sized enterprises. The research was conducted in enterprises located within the region of Lower Silesia in Poland. The applied research tool was a survey questionnaire addressed to the SME owners/managers and employees. The research methods included statistical analysis and structural equation modelling. This article consists of three parts. The first part includes specification of the sector of small and medium-sized enterprises. The second part of this article contains the characteristic of conducted empirical research. The third part of this article presents selected empirical dimensions of the relationship between knowledge management, market orientation and effective performance within the SME sector.

1 Specification of the sector of small and medium-sized enterprises

In the majority of developed and developing world economies the small and medium-sized enterprises prevail, whilst within the European Union about 20 million enterprises operate, from among of which 99.8% belong to SME sector (Katua, 2014). This group is definitely predominated by microenterprises, which in the amount of approx. 18 million constitute 91.8% of entities. According to the report of the Polish Agency for Enterprise Development, the SME sector enterprises correspond to nearly 3/4 of the Polish GDP, the contribution of small and medium-sized enterprises is at the level of 48.5% (Polish Agency for Enterprise Development, 2014). The report published by the World Bank entitled „SME Exchange in emerging market economies. A stocktaking of development practices” (Harwood, Konidaris, 2015) indicates an important role of the SME sector enterprises in the economic life of particular countries. The specificity of small firms affects their better ability to adapt to new market conditions and better flexibility, i.e. the ability to find and exploit the appearing opportunities to enter into activity of better profitability (Bartlett, Popa, Popovski, 2013). The flexibility results, to a large degree, from a simplified structure of a small enterprise as compared to a big one and often less complicated decision-making process.

The performance of small and medium-sized enterprises to a high degree depends on reacting to the expectations of the changing market. SME have to equally analyse both external and internal changes in the dynamic environment. Gaining and subsequently maintaining advantage over the competition is determined by implementing innovativeness by particular entities, the use of technology, especially IT and by building the processes and resources of knowledge targeted at the market environment. The reaction to ongoing changes is establishing organizational activities within the scope of knowledge. The knowledge management is perceived as an important factor which enables to adjust to the market requirements, the improvement of effectiveness and innovativeness (Bosua, Venkitachalam, 2013). The SME sector enterprises are characterized by deficiency of human and financial resources, insufficient awareness of managers (Dotsika, Keith, 2013) and insufficient knowledge, which in combination with ambiguity of the knowledge management conception – determines problems related to the implementation of knowledge management solutions (Cerchione, Esposito, Spadaro, 2015). The research provided in the literature indicates that in case of small and medium-sized enterprises the knowledge management initiatives are of major importance, since knowledge is the key resource for those entities (Lin, 2013). The market orientation application is not determined by enterprise size. Market orientation is realized in both SME entities and big corporations. An important element of market orientation is the coordination of market information flow inside the organization and the engagement of all organizational units in building the strategy, forming prospective opinions and determining the needs and problems of customers.

On the basis of the literature analysis one may formulate a thesis that no complex research has been conducted so far on the relationship between knowledge management, market orientation and effective performance of small and medium-sized enterprises. Thus, it is justified to conduct complex research on the impact of knowledge management and market orientation of small and medium-sized enterprises on their performance.

2 Characteristic of conducted empirical research

The research referred to small and medium-sized enterprises from the region of Lower Silesia /Poland/. The small and medium-sized enterprises sample being surveyed consisted of 120 entities. In order to conduct the research among managers and employees of small and medium-sized enterprises, a research tool was designed in the form of survey questionnaire. The

questionnaire for managers comprises two parts: the first part refers to knowledge management, whereas the second part refers to market orientation. The questionnaire for employees contains two thematic areas in one form. Variables were specified to evaluate orientation to knowledge in market orientation paradigm under each knowledge-related process. The source of particular variables was the analysis of domestic and foreign literature. The use of the existing research indicators is indicated as recommended practice, because it allows minimising the errors as well as it allows a creative approach to the foregoing legacy. The seven level Likert scale was applied in the questionnaire. Apart from questions directly related to knowledge management, the questionnaire included questions concerning the phenomena and processes which significantly affect the ability of an SME enterprise to create market orientation. The SME effective performance was measured through: the increase in revenue, the increase in the number of employees, the increase in sales profitability, the market share, the customer satisfaction, the quality of offered products/services and the number of new products/services. At the first stage of the study, the questionnaire, on behalf of its authors, was distributed via email by business organisations among their affiliated members. After this stage, a response rate of 3% was recorded. At the second stage, the authors contacted each entrepreneur in person, providing them with hard copies of the questionnaire. Here, the response rate reached 38%. The pilot stage of the study covered 10 managers and 10 employees of small and medium-sized enterprises. Particular attention at this pilot stage was paid to whether the respondents had any difficulties in understanding the questions – those not clearly understandable were reformulated or, in certain cases, deleted.

For the needs of the research carried out by the author it was assumed that knowledge management is an integrated set of activities aiming at the creation and use of knowledge resources conducive to the increase of effective performance of an enterprise.

The sample characteristic was carried out in respect of duration of an enterprise, the rate of employment, the change in the number of employees in relation to the previous year, the gender distribution within the group of managers, the annual revenue and the profitability of an enterprise. Selected elements are presented below. Five-year brackets were applied when analysing the enterprises in respect of duration. The biggest group of surveyed enterprises was formed by enterprises with duration ranging from 6 to 10 years, i.e. 35.8 %. Only 7 enterprises existed more than 50 years. The changes in effective performance of surveyed enterprises, as

compared to the previous year, show that 38.3% of enterprises reported an increase in relation to the previous year with concurrent drop of profitability (40%).

Table 1 Change in revenue of an enterprise in relation to previous year

Enterprise net profitability change in relations to previous year: (N = 120)		
	Frequency	Percentage
decreased	48	40.0
is constant	26	21.7
increased	46	38.3
In total	120	100.0

Source: author's study

From among the surveyed enterprises, 42 demonstrated that the value of their assets in total was less than 2 million, whilst the second biggest category was formed by entities, whose value of assets ranged from 2 to 10 million Euro (45 of all surveyed enterprises). None of the surveyed enterprises declared the ownership of assets worth over 43 million Euro.

Table 2 Sample structure in respect of rate of employment and annual revenue

Annual revenue (ml Euro)	Rate of employment					Total
	From 10 to 26	From 26 to 50	From 51 to 100	From 101 to 200	From 201 to 249	
(0;2>	34	7	0	1	0	42
(2; 10>	17	11	11	4	2	45
(10; 50>	8	6	8	8	3	33
Over 50	0	0	0	0	0	0
Total	59	24	19	13	5	120

Source: Author's study

Tab. 3: Sample structure in respect of rate of employment and assets total value

Annual revenue (ml Euro)	Rate of employment					Total
	From 10 to 26	From 26 to 50	From 51 to 100	From 101 to 200	From 201 to 249	
(0;2>	36	6	0	4	0	46
(2; 10>	16	13	15	4	4	52
(10; 43>	7	5	4	5	1	22
Over 43	0	0	0	0	0	0
Total	59	24	19	13	5	120

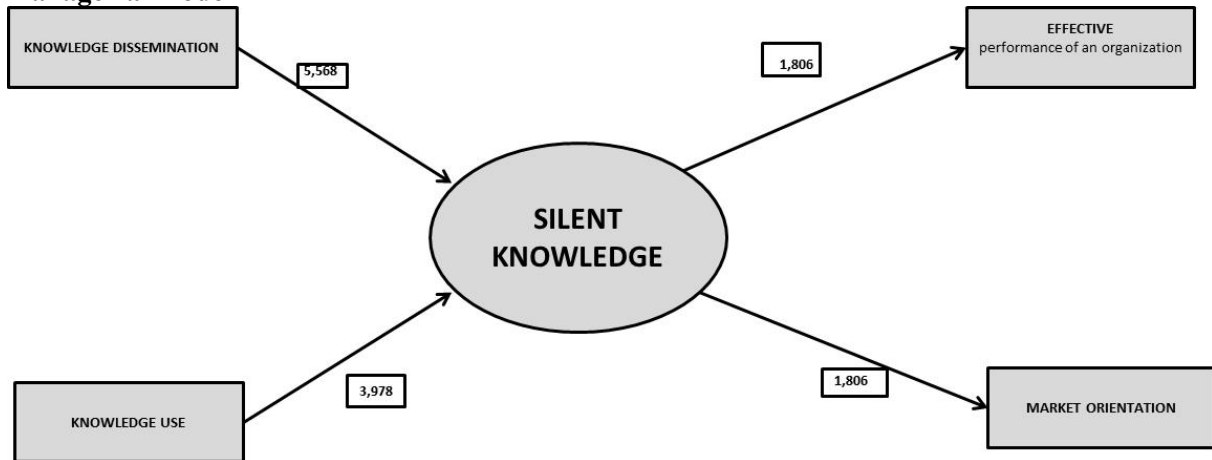
Source: Author's study

3 Empirical dimensions of the relationship between knowledge management, market orientation and effective performance of SME enterprises

The analysis of the relationship between knowledge management, market orientation and enterprise performance became the ground for designing the models, which were verified via the structural equation analysis. Structural equation models may be illustrated as path diagrams. The models being analysed differ by adopted latent and manifest variables, as well as by the structure of mutual cause and effect relationships. On the basis of the analysis of constructed models, a researcher may describe the reality aspect being the subject of interest. The analysis results allow determining the areas important for the surveyed phenomenon. The models contained silent knowledge, which may significantly affect the performance of an organization. The silent knowledge was indicated by the author as knowledge that constitutes the context in which particular knowledge management processes take place. By exogenous variables the author indicated in the research effectiveness of an enterprise and market orientation. The models were designed for the group of managers and for the group of employees. The method of ML estimation was applied in the research; after selecting this option, the program performs Wishart maximum likelihood estimation for correlation or covariance analysis and the normal maximum likelihood estimation in the case of the torque analysis. The models presented below constitute an element of broader analyses of the relationship between knowledge management, market orientation and effective performance of SME enterprises.

The analysis of empirical dimensions of the relationship between knowledge management, market orientation and effective performance in small and medium-sized enterprises was carried out among the group of managers:

Fig. 1: Knowledge management, market orientation, effective performance of an enterprise–managerial model



Source: Author's study

The model presented above (managerial model) indicates 2 components of knowledge management process with the highest correlation coefficient.

The employee model obtained convergence in the 14th iteration step with discrepancy function amounting to 1.43. High values of path parameters obtained the relationship from "knowledge use" to „silent knowledge" (3.978) and from "knowledge dissemination" to "silent knowledge" (5.568). Concurrently, between „silent knowledge" and „effective performance of an organisation" and "market orientation" we record the parameter value at the level of 1.806. The calculated model adjustment coefficients indicate good model adjustment to the data.

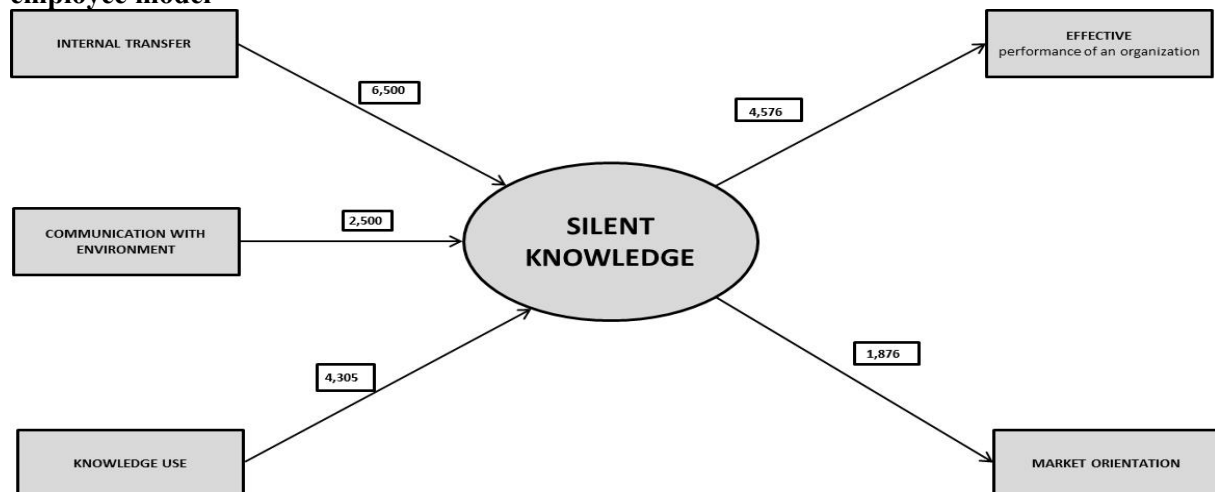
Tab. 4: Model assessment – managerial model

	Model assessment (Correlations: Managers. Management. Effectiveness, KM, Market Orientations)			
	Parameter assessment	Standard error	Statistics T	Likelihood
[COM]-1->(S_KNOWLE)	5,568	0,408	2,115069E+00	0,034
[USE]-2->(S_KNOWLE)	3,978	0,092	2,913884E+00	0,004
(S_KNOWLE)-3->[EFFICIEN]	4,802	0,203	3,684675E+00	0,000
(S_KNOWLE)-4->[MARKET]	1,806	0,184	6,548074E+00	0,000
(EPS1)-5-(EPS1)	0,500	0,000		
(EPS7)-6-(EPS7)	0,00	0,000	0,017	0,000
(EPS8)-7-(EPS8)	0,82	0,000	1,000	0,000
(EPS9)-8-(EPS9)	13,43	0,000	0,212	0,032
(ZETA1)-9-(ZETA1)	0,00	0,000		
(ZETA2)-10-(ZETA2)	0,95	0,000	0,069	0,000
(ZETA3)-11-(ZETA3)	2,20	0,000	0,984	0,245
(ZETA4)-12-(ZETA4)	0,44	0,000	0,500	0,000

Source: Author's study

High values of particular parameters indicate that the use of silent knowledge is extremely important for an enterprise. The model reveals more complex structure of the relationship because it allows the differentiation of the relationship between adopted variables and knowledge management and the corresponding silent knowledge. The management of present-day enterprises requires to consider the matters related to the competition, innovations and ever shorter lifetime of particular products. Enterprises, in order to achieve or maintain their effective performance, must continuously modify the management systems and consider the progress of science in their activities. In the economy based on knowledge, human resources gained the meaning in both macro and microeconomic aspect. Knowledge management allows building the effective performance of an enterprise basing on effective use of knowledge. Effectively implemented and subsequently effectively used knowledge management should effectively let an enterprise build its market position, develop competitiveness of an enterprise. The next model examined the relationship between empirical dimensions of knowledge management, market orientation and effective performance of small and medium-sized enterprises among the group of employees:

Fig. 2: Knowledge management, market orientation, effective performance of an enterprise – employee model



Source: Author's study

In case of the (employee) model, which indicates the relationship between empirical dimensions of knowledge management, market orientation and effective performance of an organization, 3 components of knowledge management process were used with the highest correlation

coefficient. The calculated model adjustment coefficients indicate good model adjustment to the data.

Table 5. Model assessment – employee model

	Model assessment (Correlations: Employee. Management. Effectiveness, Market Orientations)			
	Parameter assessment	Standard error	Statistics T	Likelihood
[TRANSF]-1->(S_KNOWLE)	6,500	0,399	2,093812E+00	0,036
[COM]-2->(S_KNOWLE)	2,500	0,266	1,138308E+00	0,255
[USE]-3->(S_KNOWLE)	4,305	0,000		
(S_KNOWLE)-4->[MARKE_O]	1,876	0,000		
(S_KNOWLE)-5->[EFFICIEN]	4,576	0,335	1,228983E+00	0,219
(EPS1)-6-(EPS1)				
(EPS2)-7-(EPS2)	1,000	0,000	7,609120E+31	0,000
(EPS3)-8-(EPS3)	1,000	0,000	1,200991E+32	0,000
(EPS4)-9-(EPS4)	0,173	0,013	7,682537E+00	0,000
(EPS5)-10-(EPS5)	0,335	0,057	8,327789E+00	0,000
(ZETA1)-11-(ZETA1)	0,806	0,000		
(ZETA2)-12-(ZETA2)	0,267	0,000		
(ZETA3)-13-(ZETA3)	0,500	0,401		
(ZETA4)-14-(ZETA4)	0,507	0,000		
(ZETA5)-15-(ZETA5)	0,287	0,000		

Source: Author's study

The employee model obtained convergence in the 36th iteration step with discrepancy function amounting to 1.4. Three coefficients with highest correlations to market orientation and effective performance of an organization – create the space for revealing the silent knowledge in respect of market orientation and effective performance of an organization. High values of the parameters indicate that knowledge management and silent knowledge are fundamental in both effective performance of an organization and market orientation. The level of the relationship between knowledge management, market orientation and effective performance may be different, which depends on such elements as: size of an enterprise, the subject of activity of an enterprise, the industry in which an enterprise operates and its duration. The model confirms the standpoint expressed in the literature that developing the knowledge of employees through activities aiming at the development of social abilities is an important direction of research and development of knowledge management conception (Carleton, 2011).

Conclusion

The conducted research opens an interesting research perspective, which allows formulating further research directions. The research analyses concerning knowledge management and

market orientation in building effective performance of an enterprise should focus on specified sector and specificity of enterprises within a given sector, so as to be able to specify in more details the needs within the area of effective management of processes in SME enterprises. Overall elaboration of the results of conducted analyses will allow presenting the practical guidance for SME owners/managers and thus increasing the effective performance and the possibility to develop.

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THE DEVELOPMENT OF THE INSTITUTIONAL CAPACITY MONITORING TOOLS IN THE STRATEGIC PLANNING OF THE INDUSTRIAL ENTERPRISES

Elena Bykova

Abstract

In the context of high uncertainty of the possible directions of the development of political events is necessary to meet the new challenges of strategic planning at the industrial enterprises. In particular, the definition of how much strongly the rules of interaction with business partners can change in the nearest period of time and is the company ready for such changes. Solving the problem of evaluating the adequacy of existing policies expected changes is possible with the development of new assessment tools. The main focus is on the principle of forming the base of the prototype machine-building enterprises, including the full value chain and collaboration with stakeholders at all levels of the socio-economic hierarchy. We suggest using Atlas institutional development of industrial enterprise for this purpose. After the formation of the analysis tool the researcher will have an opportunity to assess the institutional capacity of business strategies and predict the "problem" institutions for tactical intervention.

Keywords: monitoring tools, strategic planning, institutional Atlas, industrial plant

JEL Code: L 290, C 820

Introduction

The main objective of strategic planning is a sustainable corporate development as an economic and social system. The concept of sustainable corporate development strategy is rather young but fast-paced in the practice of the Russian industrial enterprises management. Its peculiarity is in the fact that when considering the entire variety of strategic objectives, it is necessary to respect the interests of the entities of the business process. The entities' interests may be predicated upon formal and informal institutions. The formal institution structure may be predicated upon the analysis of the statutory instruments regulating the actions of the enterprise.

Informal institutions are more complex for analysis as they may include the code of ethics, conceptual values, tier of authority, wish and opportunities to use the social and political capital, etc.

By "institutional capacity" we shall basically understand the level of the correspondence of the institutional environment constitution and structure of the analyzed enterprise to the institutional Atlas of the industrial enterprise.

Based on the data obtained, managers have the opportunity to define the industry-wide peculiarities of the business strategy in the institutional environment and evaluate the growth capacity.

The following shall be observed in the formation of this instrument:

- production and marketing system should reflect the requirements of integrity, i.e. the condition under which "the functional elements are able to implement the extended reproduction of its integral quality by means of their own resources" (Zarnadze, 2014);
- functional subsystems should tend to pursue the objectives, common for the entire system, reflecting the principle of the efficient resources allocation across the entire value chain;
- the structure of the basic production and marketing institutional system should be formed in terms of the versatile evaluation criterion. On one side, this criterion should reflect the Pareto principle (or Pareto optimality), and, on the other side, the possibility of pluralism at equivalent economic alternatives considering political and social interests (Walzer, 1983).

1 Literature review

Theoretical and empirical results of the modern economic science imply the admission of the fact significance of the institutions' impact and the institutional environment, based on them, on the performance of the microeconomic system. However, it is to be noted that researches are generally conducted on the base of the classic conception, according to which the institutional environment is the basic mechanism serving the grounds for the approaches to the formal institutions formation for the solution of the questions concerning the distribution of power.

For the purposes of the institutional capacity monitoring techniques in the strategic planning at the industrial enterprise, let us perform the analysis of the primary approaches to strategic planning and their interconnection with the institutions formation mechanisms. In the works of

the Russian researchers, addressing the issues of the institutional project planning, strategic planning is casted in the form of the reforms development and application (Polterovich, Popov). The extent, to how strong their impact on the production and marketing activities of enterprises should be, depends on the selected institutions formation mechanism: a strictly selective effect on the branches and enterprises or less selective one, including integrated institutions developments, maintaining the innovative and infrastructural capacity (Polterovich, 2007).

The appraisal indicator of formal institutions is considered to be the institutions quality indicator (Balatsky, 2007).

The strategic management of the objects of the meso-economic analysis is identified with "the tools of the reallocation of tangible and intangible assets providing with the stable and irreversible process of the transformation of the current institutional constraints into the ambiguous complex terms of the development capability of the object as a purposeful system" (Terebilov).

In the age of globalization and growth of ambiguity, strategic planning institutions design is generally regarded as a process of formation and implementation of the institutional innovations. Bypassing the existing variety of the objects of the meso-economic analysis (alliances, multicorporate enterprises, holding structures, and industrial and innovative clusters), while implementing the innovative principles of action, many of them demonstrate the willingness to overcome (or resolve) the system ambiguity (Dopfer et al., 2004).

The appraisal indicators are defined in terms of the strategy of interaction between the entities, market environment, and institutional impacts system.

For the modeling and analysis of the institutional composition the tool "Institutional Atlas" was suggested (Popov, 2011).

In the context of the microeconomic level, the objects of strategic management (the production and marketing enterprise system) can be presented as the interconnected spheres of activity planning and the obtained result (Kleiner, 2008).

According to this concept, structural bonds serve as an essential element. The expectations scope, where the results of an unexpected reaction of the external world to the enterprise activities (the intentions coordination, capacities or constraints analysis and forecast) are reflected, is specially defined. The significance and expediency of the development of such

tools as an institutional Atlas for the enterprise was specified by G.B. Kleiner (2008) but in the works it has remained at the level of a conceptual idea.

The performed analysis allows us to suggest a hypothesis that the institutional capacity monitoring tool in strategic planning of the industrial enterprises should be formed on the ground of the institutional Atlas of the industrial enterprise's development.

2 The development of the institutional capacity monitoring tools

As a base for the quantitative methods of the monitoring tools formation we suggest using the structural and functional approach. Its objects will be institutional structures presenting an ordered set of institutions creating institutional matrices of the economic agents' coordination, based on the business processes of enterprises. The structural aspect problems include the composition analysis of the institutions groups forming the boundaries of the institutional matrices.

Based on the transaction analysis in the institutional environment, the functional aspect enables us to define the composition and content of the institutions according to the selected decomposition criterion (according to the management functions, scopes of activities, etc.).

On the initial stage of the structural-functional analysis it is essential to conduct a cluster analysis of the institutions and build a full clusters tree.

Combining the objects of the analyses into clusters on each level of the analyses owing to the institutional environment uniqueness of each enterprise is possible in terms of the principle of owning a minimum intercluster distance with reference to the linguistic criteria of the reference to the group of the business process institutions in the value chain.

On the ground of the formed cluster the exact amount of the groups of institutions becomes apparent.

In particular, for the basic model of the institutional Atlas four groups of institutions were identified: the institutions of management, utilization of resources, cooperation, and spillover externality. The results of this stage of the analytical activity are the base for forming a list of basic institutions.

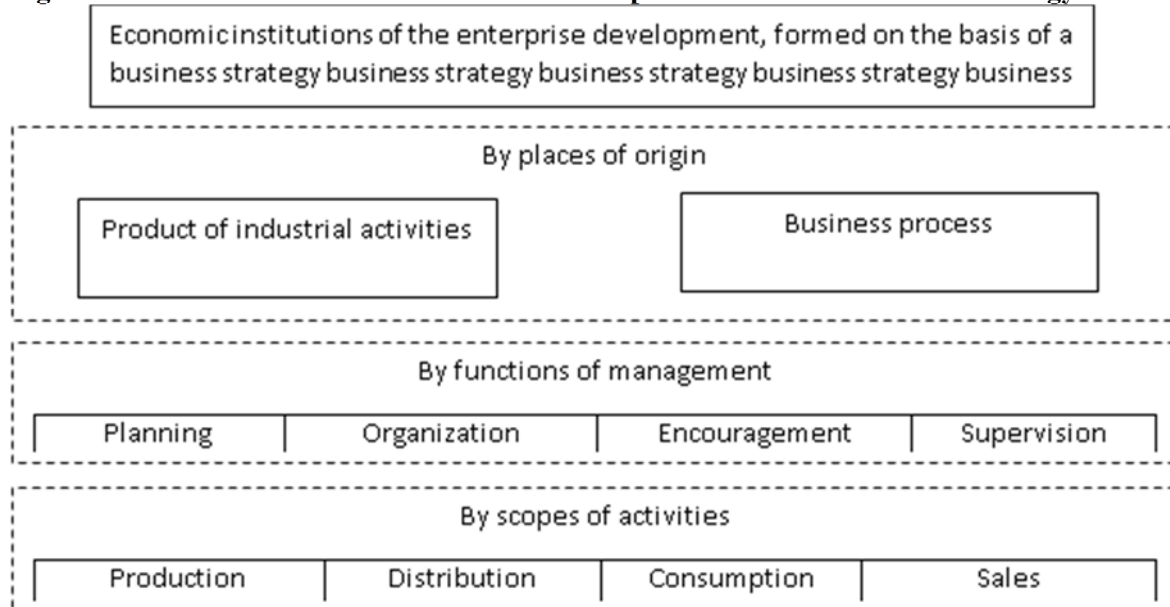
As a basis, we took the model of the meso-economic development institutions, described in Popov et al. (2010), and completed it with institutions, connected with the integration and hybrid forms of the industrial and marketing activities organization. The result of the cluster analysis of institutions is represented in the Table 1.

Table 1 The enterprise development economic institutions of the basic institutional Atlas of the industrial enterprise

No.	Name of institution	No.	Name of institution
Institutions of management		Institutions of utilization of resources	
1	Institution of industrial policy	29	Institution of application of information resources
2	Institution of foreign economic activities	30	Institution of application of intangible assets
3	Institution of priority guidelines	31	Institution of application of tangible assets
4	Institution of self-government	32	Institution of application of labour resources
5	Institution of development program	33	Institution of application of financial resources
6	Institution of economic stability	34	Institution of licensing and certification
7	Institution of guarantees	Institutions of cooperation	
8	Institution of revenues	35	Institution of contractual relationship
9	Institution of management	36	Institution of government orders
10	Institution of liability	37	Institution of search of counterparts
11	Institution of industrial activities	38	Institution of communication activities
12	Institution of strategic planning	39	Institution of science and business integration
13	Institution of control operations	40	Institution of informal relationship
14	Institution of examination of development projects	41	Institution of transfer of goods
15	Institution of corporate planning	42	Institution of selection of structure of cooperation arrangements
16	Institution of organization of industrial activities	43	Institution of interfirm cooperation
17	Institution of organization of information activities	44	Institution of transportation and logistic system
18	Institution of material incentive of activities	45	Institution of transfer prices
19	Institution of moral encouragement of activities	Institutions of spillover externality	
20	Institution of technologies	46	Market institution
21	Institution of business consulting	47	Institution of currency and export control
22	Institution of research activities	48	Institution of taxation
23	Institution of engineering development	49	Institution of property
24	Institution of pilot-line production	50	Institution of education
25	Institution of postsale service	51	Institution of technology transfer
26	Institution of legal protection	52	Institution of innovations diffusion
27	Institution of public good	53	Institution of added value formation
28	Institution of club goods		

Let us present the decomposition of the institutional Atlas of the industrial enterprise based on the business strategy (Fig. 1). It reflects the pacing factors of the production and marketing activities: by places of their origin, institutions can form the decomposition in reference to the market weight of the product (service) or business processes. The selection of the first principle of decomposition is formed depending on how fully the value chains are presented and which type of cooperation arrangements is presented by a particular business strategy.

Figure 1 Institutional Atlas of the industrial enterprise based on the business strategy



The next level of decomposition is finding the institutions by the functions of management. Each function corresponds to a certain institutional amount of each scope of activities. Their quantitative representation enables us to judge of the composition in reference to each function.

Conclusion

Therefore, the analysis of the basic institutions of strategic planning at the macro-, meso-, and micro-levels allowed us to form a new approach to the strategic planning tools development. We suggest using a structural and functional approach to forming a basic institutional Atlas of the industrial enterprise. This tool is a projection of the entire value chain within an industrial and marketing system to the groups of institutions. On the grounds of the basic institutional Atlas of the enterprise, it is possible to identify the institutional capacity of the forming business strategy of any industrial enterprise. The higher the convergence of the basic institutional Atlas and the Atlas of the business strategy is, the higher the institutional capacity is. For a manager,

taking decisions on the strategic activities continuation, it may indicate the high probability of the strategic targets and low level of the risks connected with other market entities' influence on the strategy realization.

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THE SELECTED MEASURES OF INNOVATION

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Abstract

The introduction of new production and sales methods, use of the new materials and changes in the organisation of the market position, are closely connected to looking for the new approaches how to measure performance of innovation. Measurements of innovation referred in this document as the coefficients, are universal. They can be used not only at the macro and micro level, but also at different stages of innovation activities. The essence of the measurements is the pro rata indicator, which compares the volume of sales (production) of the innovative activities carried out in the overall volume of all sales carried out of the individual subject (production). The total volume of sales has a universal character. A particular problem constitutes a determination of innovative sales and even the importance of a variety of innovative sales innovation. Innovation coefficient has a universal use, it can be used on the macro and micro level.

Key words: Innovation measurements, innovations, monetary coefficient, natural coefficient

JEL Code: O31, O32

Introduction

In the professional literature, there is not an accurate guide to the measurement of the innovation effectiveness, due to the uniqueness and specificity of each innovation. Effective innovation should contribute not only to the development and growth of the enterprise, but also to elimination of the non-effectiveness of the business processes (Vlček, 2011). We cannot forget that innovations create very difficult process in steps (Tidd, Pavitt, and Bessant.2005). The first step represents a monitoring of the internal and external environment of the enterprise, the second step represents the applied research and development, following step of the pre-production and production phase results in the implementation itself (Tidd, Pavitt, Bessant, 2005). Effectiveness of innovation is appropriately measured by selected financial indicators, because they reflect costs and benefit changes (Pitra, 2006). The financial reports do not reflect

the indirect consequences for the decision in detail. It is therefore the administration's assessment of the innovation using the indicators associated with the quantity of risks. (Pitra, 2006). When optimizing the innovation business (Žižlavský, 2012) we need to consider the complex system of indicators, so called innovation scorecard (Skarzynski, Gibson, 2013). It is not enough, however, just pick a few areas, use the random variables and expect to have all the relevant information for the evaluation of innovation. Such an approach can lead to the incorrect conclusions. The basic rule of innovation says: "...that just linking strategy and innovation performance measurement system through several administrative indicators ensures a clear picture of performance". (Davila, Epstein, Shelton, 2012). The selection and content of the indicators for evaluation must be always clear and understandable. Problem of all virtually available metrics is that the measurement of innovation should bring relevant information to the management (Hadraba, 2005). For the assessment of the capacity there is required the overall look. Innovations represent hierarchically organized system. In this context, there are important effects of the innovations systems. Valenta (2001) distinguishes simple effects and complex effects created from the simple ones. Hauschildt & Salomo (2011) recommend to carry out the measurement of the value of the innovation on the basis of three criteria: technical, economic, and others. Hierarchically organized system of innovations in the evaluation of their efficiency presumes conformity of goals themselves and market economy (on the way to maximise the volume of sales or profit or minimization of costs per unit). It holds chain effects (Dvořák, 2006). In our opinion it creates the scheme of the effects on hierarchic scheme with impact on highlighting the position and calculation of the economic indicators.

The starting point for the search for methods of evaluating the performance of innovation has become our primary research: VEGA č. 1/0536/10 „Innovation as a strategic base of raising the competitive ability of the Slovak Republic. Direction, measurements and support of innovation processes." (Zajko 2011) (Chajdiak, Arbe, Novotná, 2011), VEGA č.1/1164/12 Possibility of applying information and communication technologies to increase the efficiency of international co-operation of small and medium enterprises in the Slovak Republic in the field of innovation (Zajko, 2014), VEGA č.1/0335/13 Statistical analysis of the selected indicators of the competitiveness on a series of enterprises in the Slovak Republic using double-entry bookkeeping (Chajdiak, 2015). In the processing and evaluation of the results, we found out that a significant part of the small and medium-sized enterprises still do not have an effective

system for the objective measurement of innovative products. The possibility of quantifying the benefits associated with the implementation of innovation and fairness, is directly dependent on the extent of specific implemented innovation. In the case of innovation of the evolutionary nature, the outcome of the evaluation can be fairly reliable, but in the case of "revolutionary innovations", mentioned conversions are often very unrealistic (Zajko, 2014). Practical experience shows that enterprises are not able to estimate the costs on the development and implementation of innovation sufficiently and accurately, they are not able to estimate its final outcome as well.

1 Goals setting and process solutions

The aim of this paper is to present the process of measuring innovation activities resulting from our multi-annual innovation research. The coefficient (a measure) of innovation in this paper is based on the ratio of innovation (innovative production, sales from innovations) to the parameter unit of the economy, including the innovative elements: (total production, total

revenue):
$$\text{Coefficient } t(\text{rate of }) \text{ innovation} = \frac{\text{upgraded production}}{\text{overall production}} \quad (1)$$

In the essence, it is a monetary indicator. Our outcome is based on the conditions of market economy, which has a universal character. Its essential aspects are measured in monetary units. Its objective is to maximize total production and this way to maximize the amount of profit (extensive road) or to maximize the amount of profit by reducing the unit costs (intensive way). This is valid for the market economy as a whole, but also for its individual content or organizational parts (practically in almost any direction structure).

Manufacturer produces with the aim to maximize profit; he sells the product to the consumer. The consumer buys a product from a manufacturer with the aim to maximize usefulness. Another manufacturer produces a product that is sold to another consumer. Again, in order to maximize profit. This cycle is decisive in our methodology to measure innovation.

The mentioned operation "sale – purchase" fulfils determining characteristics and conditions for calculating the rate of innovation (we know the volume of total sales and also the individual volume of innovated sales). Operation "sale and purchase" in monetary term practically ensures the size and efficiency of production by producer and buyer.

The buyer by paying for the amount of goods or services confirms, that the quantity of the goods was in such volume as paid and also that the relevant part of production has an innovative

character. This way it obtains the “confirmation” about the meaningfulness of production of the certain goods or services. Seller returns embedded resources into the production process. Through collected sales he obtains funds for the additional manufacturing and for their personal consumption. Failure to pay in the operation sale – purchase” does not fulfil the essence of the market economy. A manufacturer is usually not willing to produce or sell any goods for zero costs and if the buyer does not pay, it means purchasing of goods or services for zero price, nothing is changed on the value of innovation (the size of the numerator and the denominator by adding or subtracting does not change).

Declaration on the side of the purchaser that the goods or service is innovative will not change anything on the value of the numerator and the denominator of formula (1) (the act of purchase and sale was not completed-sold volume of goods or services are outstanding, with all consequences). The volume of the numerator and the denominator will be changed to zero and in the case of the seller the cost of production (personnel costs, depreciation and cost of materials) become non-productive costs and decreasing income.

The issue of this methodology is an award of the numerator in respect of (1), i.e. specification in the natural form what was upgraded (the status before the upgrade and after upgrading) and size determination of the turnover for this innovation. In natural units, we can construct a large number of indicators measuring the extension of the innovation. Those have admittedly simple explanatory power and may be homogenous and heterogeneous. When we talk about heterogeneous, we have to use monetary units.

2 Coefficients of innovation

2.1 Simple coefficients (rates) of innovation

We can split them into natural, useful, efficient, economical, and we could also name the others. In the text we will focus on economical natural and economical monetary indicators. Principles of market economy make key indicators on innovation from the economic indicators and from the other natural indicators only helping additional explanatory economic indicators. Coefficients structure can be split to simple innovation coefficients and more complex coefficients, or the procedures of measurement of innovation. An essential aspect of the measurement of innovation is to define what is innovated in the measured object and what is not upgraded. Implementation of this aspect creates a range of factors (rates) of innovation or

their values. It is important which part of production or production procedures of this process is considered to be innovated, and which not. The aspect is the comparison of the upgraded production volume to not-innovated production volume, or to the total volume of production (the sum of the non-innovated and an upgraded production volume).

Financial coefficient of innovation Q represents a fraction, the numerator of which is the upgraded production revenue specifically defined by the manufacturer, the denominator is the total value of sales. The second version represents the percentage, the numerator of which is monetary profit from the innovative production, and the denominator is the monetary profit of the total production. The formal correctness of these two numbers is confirmed by the customer. The proof of the correctness and their amount is their real payment.

There is valid relationship: $money = imoney + nmoney$ (2)

While the **money** represents the total volume of production of the product X in the monetary terms. The upgraded production of the product X constitutes of **imoney** indicator (the volume of the upgraded production of the product X in monetary terms). Non-innovated production of the product X represents the cash volume of **nmoney**. On the expression of the monetary indicators we can also use the designation **isalesiQ** (volume of sales for the upgraded volume of sold production volume of the product X), **ip**(price in upgraded sold natural unit of the product X) and **iq** (natural amount of the total volume of the production of the product X). **The monetary coefficient of innovation Q** represents the ratio:

$$inovQ = \frac{imoney}{money} = \frac{isales}{money} = \frac{isales}{sales} = \frac{iQ}{Q} = \frac{ip.iq}{p.q} \quad (3)$$

while the total volume of production of the product X represent as indicators **money**, **sales** (volume of the sales for the total volume of the produced volume of the product X), **p** (the price of the natural unit of the product X) and **q** (the natural amount of the total volume of production of the product X). It is virtually the same coefficient as the coefficient of natural innovation. The calculation is based on the natural (the coefficient of natural innovation) or cash units. It acquires values from 0 to 1 or from 0% to 100%. The results of the natural coefficient of innovation and financial influence of the same product X may not always be the same under the influence of inflation. In any case, the financial version of the coefficient of innovation Q

acquires the values from 0 to 1. Monetary coefficient of the innovation Z:

$$inovZ = \frac{imoney}{money} = \frac{iprofit}{profit} = \frac{iZ}{Z} \quad (4)$$

It represents more precise measurement of innovation than financial (monetary) coefficient of innovation Q. The primary objective of the market economy is profit. Sales are only a tool for reaching it. The advantage of using innovation coefficient Q there are also non-economic (social) aspects of sales indicator compared to a profit. In practice, it is also possible to achieve the loss. The results when interpreting the loss represent mainly the causes of loss than the innovation evaluation. Process of tax “optimization” of profits may also have its influence on the robustness of the reported results of economy.

To illustrate the previous text we present the following example, where we applied coefficients of innovation in engineering company that supplies components for the car industry. In 2014 and 2015, we evaluated the innovative property by the weight of the product X in kg with the required direction of development of decrease. In 2014, there was invoiced a total production volume of product X equalled to 563 weight units in 2015 there was invoiced a total production volume of product X equalled only 516 weight units. From the produced volume of 563 products X in 2014 there were upgraded and sold 214 weight units and in 2015 there were 288 weight units. In 2014, the price of the upgraded component was € 21.80 per weight unit and in 2015 was innovated price of € 22.76 per one weight unit. Price for non-upgraded product in 2014 was equivalent to € 25.20 per weight unit and in 2015 remained unchanged. Calculation of the coefficient of natural innovation of the product X in 2014 and in 2015 is in table 2 in the line marked with the ***inov = inatur/natur***. Quantity of non-innovated weight of the product X in 2014 and in 2015 is in table 2 in the line marked with the ***nnatur = nq***. The coefficient calculation of the financial innovation coming from sales is mentioned in table2 in the line marked with ***inov=iQ/Q***. In the lines of ***natur, inatur, nnatur and inov*** there are values used for calculating the coefficient of natural innovation.

Table 2 Calculations of the coefficients of innovation and its components

Indicator	Description	2014	2015
Weight in total	Natur	563	516
- Upgraded	inatur=iq	214	228
- Non-innovated	nnatur=nq	349	288
Natural coefficient of innovation	inov=inatur/natur	0,38	0,44
Sales from the upgraded production	iSales=iQ	4665,2	5189,28
Sales from non-innovated production	nSales=nQ	8794,8	7257,6
Money	Q = iQ+ nQ	13460	12446,88
Financial coefficient of the innovation Q	inovQ=iQ/Q	0,35	0,42
Innovated price for 1 kg	Ip	21,80	22,76
Innovated amount in v kg	Inatur	214	228
ISales	iQ=ip*inatur	4665,2	5189,28
Non-innovated weight	nnatur	349	288
Price for non-innovated for 1 kg	Np	25,20	25,20
Q Sales	nQ=np*nnatur	8794,8	7257,6
costs-innovated, per 1 kg	iCost1Kg	18,44	18,44
costs-innovated, in total	iCostTotal	3946,16	4204,32
costs-non-innovated, per 1 kg	nCost1Kg	22,68	22,68
costs-non-innovated, in total	nCostTotal	7915,32	6531,84
profit - innovated	iProfit=(iQ-iN)	719,04	984,96
profit- non-innovated	nProfit=(nQ-nN)	879,48	725,76
profit – in total	Z= iProfit+nProfit	1598,52	1710,72
Financial coefficient of the innovation Z	inovZ	0,45	0,58

Source: own research

In 2014 it was equal to 0.38 (38%) and in 2015 increased to 0.44 (44%). Sales for the upgraded product in 2014 were € 4665.2 and in 2015 they were 5189.28 Eur. The volume of non-innovated production of the product X in 2014 was 349 kg and in 2015 it was 288 kg, in the financial terms, the volume of the non-innovated product X in 2014 was equal to 8794.8 € and in 2015 it was equal to € 7257.6. The financial volume of the upgraded production of the product X was 4665.2 € in 2014 and 5189.28 € in 2015. Financial innovation coefficient Q was equal to 0.34 (34%) in 2014 and in 2015 to 0.42 (42%). In Tab. 2 there are provided the data necessary to calculate the coefficient of financial innovation Z. From the financial statements reporting of the company (profit levels, costs and revenues, together in € and sales quantities of components in weight units) monetary (financial) factor Z from 2014 was equal to 0, 45 and in 2015 it was 0.58, it means 13 percentage points higher. With revenues it was only 7 percentage points and in natural measuring about 6 percentage points only. The order in the

event of a positive economical result is following: profit, sales and nature; in the case of a negative economic result is the order: sales and nature.

2.2 Coefficient of innovation for the more difficult and complex objects

In the previous section we derived from the production of a single type of the product (X). In the case of sales the natural aspect of innovation has manifested in the one natural indicator (e.g. kg). In the light of the required development of the indicator, which is important for the task analysis solution, there exists only a single variant of its development: growth or otherwise decrease. The production process, however, is more complex. The number of various products, which have their natural reporting unit (kg, litres, pieces...), it is not possible to count (for example, 5 kg of product X and 3 litres of product Y). In such case there are used monetary units to express the measurements (5 kg of production of the product X has value 100 € and 3 litres of production of the product Y has value 180 €, which means in total there is 5 kg and 3 litres (two data), but regarding the financial expression of the value it is 280 € (=100€ +180€). Adding two different kinds of numbers does not make sense, but two or more financial numbers expressed in euro make a sum in euro.

When X_1, X_2, \dots, X_M represents volumes of the production M of various products in natural units. By selling these products from the natural amounts we get the financial award appropriate natural volumes X_1, X_2, \dots, X_M in euro Q_1, Q_2, \dots, Q_M .

Then the total volume of sales for all products is equal to:

$$Q = Q_1 + Q_2 + \dots + Q_M = p_1 \cdot q_1 + p_2 \cdot q_2 + \dots + p_M \cdot q_M \quad (5)$$

where, there is:

Q – the total volume of production in euro (total sales),

Q_J – volume of production of the J-product in euro (partial sales for J-product),

p_J – volume of the unit of the J-product,

q_J – natural amount of the J-product,

$J = 1, 2, \dots, M$ – description of the J-product.

The total volume of production can be split to the part of upgraded iQ and part of non-innovated

$$nQ \text{ production volumes} \quad Q = iQ + nQ \quad (6)$$

$$\text{or} \quad Q = (iQ_1 + iQ_2 + \dots + iQ_M) + (nQ_1 + nQ_2 + \dots + nQ_M) \quad (7)$$

Total monetary coefficient of innovation **inovQ** is equal

$$inovQ = \frac{iQ}{Q} = \frac{\sum_{j=1}^M iQ_j}{\sum_{j=1}^M Q_j} = \frac{\sum_{j=1}^M ip_j \cdot iq_j}{\sum_{j=1}^M p_j \cdot q_j} \quad (8)$$

The coefficient acquires the values from 0 to 1, respectively from 0% to 100% and reflects the extent of innovation in the relevant set of products. As in the previous cases there are mentioned the following example for a better clearness of the above text. Let us have three products (A), (B) and (C). The necessary data is listed in the following table 3.

Table 3 Calculation of the coefficients of innovation for the various productions

Product	m.j.	natur	inatur	iinov	ip
A	kg	200	100	0,5	100
B	peace	400	50	0,125	200
C	m	300	120	0,4	80
Total	x	x	x	x	
Product	m.j.	sales	isales	iinov	
A	€	20000	10000	0,5	
B	€	80000	10000	0,125	
C	€	24000	9600	0,4	
Total	€	124000	29600	0,238	

Source: own research

The total financial value of the coefficient of innovation is mentioned in the last line of table 3. The task was to calculate from the first part of the table no. 3, from the values in natural terms the individual values of the coefficients **iinov**. Natural values of the coefficients are equal to 0.5 (50%), 0.125 (12.5%) and 0.4 (40%). It does not have a sense to count the line total from the natural values. From the figures from the individual sales the products (A), (B) and (C) in the natural term and the unit price of products (A), (B) and (C) we calculate the volume of the sales in euro mentioned in the second part of the table. Finally, we calculate the data about the financial individual coefficients of innovation and the total coefficient of innovation for the entire file. Individual financial innovation coefficient are equal to 0.5 (50%), 0.125 (12.5%) and 0.4 (40%), i.e., identical to the individual natural coefficients. The total financial innovation coefficient is equal to 0.238 (23.8%).

Conclusion

There is a fairly extensive range of innovation measurements. Some of them we have described in our article. One of them is the coefficient of innovation, which can be used on various levels,

on the product level, financial level, management level, to the global entity level and through to the level matching, for example to the Eurozone. Financial coefficient of innovation represents the share of the sales from the innovative production to the total sales in monetary terms. In the conditions of the market economy a seller requires from the buyer the corresponding cash amount for the offered goods (innovated and non-innovated production). Buyer confirms by paying the total volume of sales and within this volume of sales for innovative products the structure and declared form. Although the mechanism of market economy allows the seller to demand any price for the offered goods in the given structure, but also has to take into account the interest of the buyer to buy the offered goods in the given structure for the lowest possible price. Qualified calculation of the coefficient of innovation requires the financial experts who are able to split production on upgraded and non-innovated, which is in some cases very difficult to reach. The above methodology for calculating the innovations we are currently testing in two start-up companies operating in the car industry.

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EU FUNDING PROGRAMMES FOR RESEARCH AND INNOVATION

Lorenzo Costantino

Abstract

Europe 2020, the medium term strategy of the European Union, hinges on research and innovation as the pivots for growth and competitiveness. The European Commission defines policies and develops regulation that converge towards the EU2020 ambitious priorities of smart, sustainable and inclusive growth. In addition, the EU provides funding for projects that support the achievement of EU2020 objectives. Funding is available at national level through the European Structural and Investment Funds and at European level through the centralised EU funding programmes, the focus of this paper. Small and large organisations of the private, public and third sectors from all over Europe are eligible for funding. EU programmes provide grant funding that cover only partially - typically 75% - the costs of international collaborative projects. Horizon 2020 is the EU programme in support of research and innovation for growth and competitiveness; with an almost € 80 billion budget for the 2014-2020 period, Horizon 2020 is the largest EU funding programme.

Key words: European Union, grant financing, Research and Innovation

JEL Code: H81, O38

Introduction

The rationale and motivation behind public support for Research and Development (R&D) is globally and universally accepted: R&D plays a pivotal role in igniting and sustaining innovation and competitiveness of domestic firms. Public support for Research and Innovation (R&I) is justified by the economic and societal benefits represented by increased productivity and employment as well as enhanced living and working conditions. This leads many governments in the world to provide financial and operational support to R&I. Such support

may take different forms in different countries and contexts from direct financial and/or technical support to tax incentives for R&D investments⁵.

The purpose of this paper is neither to challenge nor justify public support to R&I⁶. Rather, this paper gives an overview of the many European Union's (EU) funding opportunities available to the participants in the innovation system, such as firms, research centres and universities irrespective of their size (micro, small and large) and type (public or private).

Europe 2020 is the strategic compact of the EU and Member States that identifies three key priorities of smart, sustainable and inclusive growth. The European Commission formulates overarching strategic objectives and identifies programmatic priorities, while Member States implement reforms and programmes at national level to achieve EU2020 objectives. R&I is at the core of the EU 2020 Strategy and plays a pivotal role to achieve the five objectives on employment, innovation, education, social inclusion and climate/energy:

1. Employment: 75% of the 20-64 year-olds to be employed
2. R&D / innovation: 3% of the EU's GDP (public and private combined) to be invested in R&D/innovation
3. Climate change / energy: greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990; 20% of energy from renewables; 20% increase in energy efficiency
4. Education: Reducing school drop-out rates below 10% and at least 40% of 30-34-year-olds completing third level education
5. Poverty / social exclusion: at least 20 million fewer people in or at risk of poverty and social exclusion

⁵ A complete taxonomy of support instruments may be difficult to compile due to the plethora of different forms and tools that can be used. Typically public support to R&I may be channelled through: competitive grant schemes for R&I; innovation support services; support to start-ups, incubators, tech-parks, etc.; collaborative R&D programmes; financial instruments, including direct or indirect equity investments; tax incentives or credits; etc.

⁶ A wealth of literature and scientific publications provide analysis and arguments for the validity of public support to R&I:

OECD, (2015), "Governance and Implementation of Innovation Policies"

OECD, (2015), "The Innovation Imperative: Contributing to Productivity, Growth and Well-Being"

OECD (2010), "R&D Tax Incentives: Rationale, Design, Evaluation"

Harper J. C. (2013), "Impact of Technology Foresight: Compendium of Evidence on the Effectiveness of Innovation Policy Intervention", Manchester Institute of Innovation Research

Auerswald P. (2007), "The Simple Economics of Technology Entrepreneurship: Market Failure Reconsidered", in D. Audretsch, I. Grilo, R. Thurik, Handbook of Research on Entrepreneurship Policy, Edward Elgar, Cheltenham, UK.

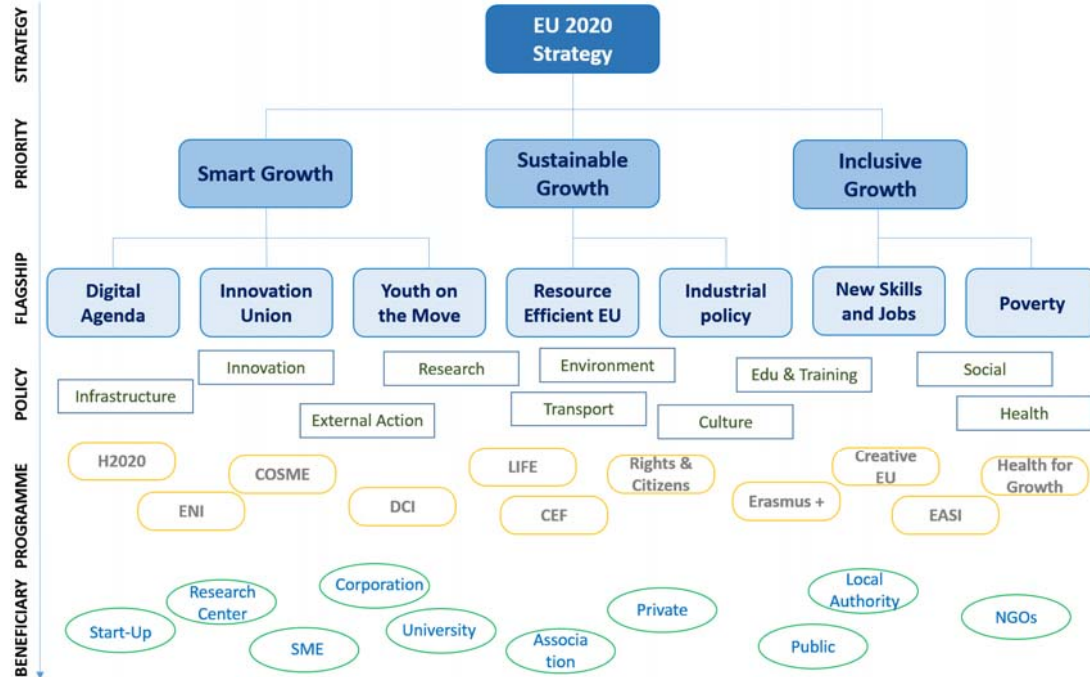
EU 2020 Strategy devises seven Flagship Initiatives to ensure coordination between European strategies and national interventions and maximise impact of programmes. The Flagship Initiatives represent the policy and programmatic tools to operationalise the EU 2020 strategy and are directly linked to the five medium term objectives.

Figure 1 The Seven Flagship Initiatives

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| <ol style="list-style-type: none">1. <u>Innovation Union</u>: improve framework conditions and access to finance for R&I to turn ideas into products and services that create growth and jobs2. <u>Youth on the move</u>: enhance the performance of education systems and facilitate youth employability3. <u>A digital agenda for Europe</u>: speed up the roll-out of high-speed internet and reap the benefits of a digital single market for households and firms4. <u>Resource efficient Europe</u>: support the shift to low carbon economy, increase use of renewable energy, modernise transport sector and promote energy efficiency.5. <u>An industrial policy for the globalisation era</u>: improve the business environment, notably for SMEs, and support the development of a strong and sustainable industrial base able to compete globally6. <u>An agenda for new skills and jobs</u>: modernise labour markets and empower people through skills development to increase labour participation and better match labour supply and demand7. <u>European platform against poverty</u>: ensure social and territorial cohesion such that the benefits of growth and jobs are widely shared and people experiencing poverty and social exclusion are enabled to live in dignity and take an active part in society. |
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As such, the Flagship Initiatives represent the linkage between the EU2020 Strategy and funding programmes that constitute the financial instrument for the implementation of EU policies in all domains ranging from social inclusion, health and education to frontier research, digital economy and infrastructure.

Fig. 2: From Strategy to Funding Programmes



Source: own elaboration

The programmes and initiatives in support of the implementation of the EU 2020 Strategy that stem from the Flagship Initiatives are funded by the budget of the EU in the context of the Multiannual Financial Framework, which is the framework for financial programming and budgetary discipline for the period between 2014 to 2020. The financial framework for the seven years amounts to a total of € 960 billion distributed along five “headings” or categories of expenditures as follows:

1. Smart and Inclusive Growth: encompasses the policy areas of “competitiveness for growth and jobs” and “economic, social and territorial cohesion”;
2. Sustainable Growth and Natural Resources: ranges from environmental issues to agricultural policy and rural development;
3. Security and Citizenship: embraces internal policy domains such as justice, immigration, public health and consumer protection, culture and youth;
4. Global Europe: relates to all the aspects of the EU’s external action (“foreign policy”) including development and cooperation with third countries;
5. Administration: represents the administrative expenditure of all EU institutions.

1 EU Funding for Research, Innovation and Competitiveness

In addition to formulating and coordinating EU and national policies, the EU Commission (EC) provides funding in support of research, innovation and competitiveness through a series of programmes managed at national level or centrally at EU level.

At national levels, the European Structural and Investment Funds (ESIF) – commonly referred to as the “Structural Funds” – represent a considerable financial resource for Member States to implement socio-economic development strategies. The ESIF is the financial instrument for the implementation of the cohesion and regional policy of the EU that aims to eliminating regional disparities while sustaining job creation, business competitiveness, economic growth and sustainable development. The ESIF represent the largest part of the EU budget: the Cohesion Policy envelope for the 2014-2020 period is set at € 351.8 billion.

1.1 The European Structural and Investment Funds

The ESIF encompasses the various funds and instruments for the implementation of the cohesion policy across European regions:

- European Regional Development Fund (ERDF) addressing regional disparities and investing in growth
- Cohesion Fund for environment, networks and transport infrastructure
- European Social Fund (ESF) investing in people

In addition to the above three Funds, the ESIF includes two thematic Funds European Agricultural Fund for Rural Development (EAFRD) and European Maritime and Fisheries Fund (EMFF).

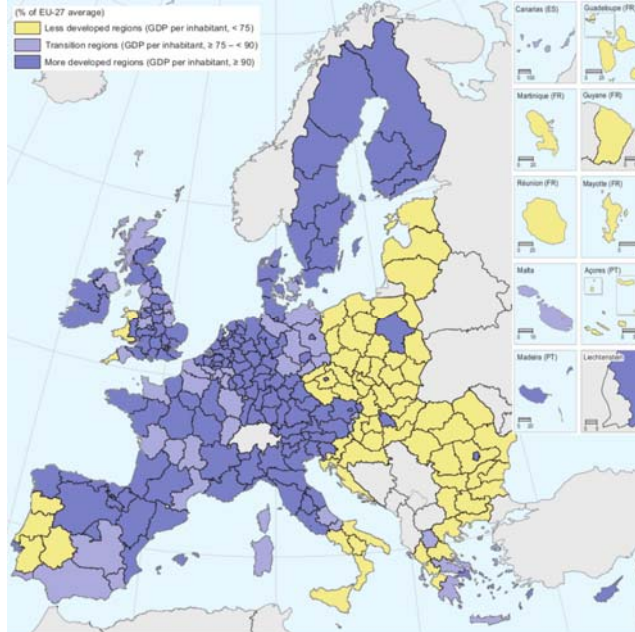
In the implementation of the regional policy, EU regions are grouped in three categories depending on their level of development measured in GDP per inhabitant benchmarked against EU average:

- 1) “less developed regions” less than 75% of the EU average;
- 2) “transition regions” with a GDP/inhabitant between 75% and 90% of EU average;
- 3) “more developed” regions have GDP per inhabitant above 90% of EU average.

The structural funds for less developed regions are devised to decrease regional disparities across Europe, supporting disadvantaged territories to converge towards the socio-economic levels of more developed regions. Less developed regions use structural funds for basic infrastructure (including environmental), business support programmes and skilling and

reskilling. More developed regions mobilise structural funds to sustain their competitiveness by enhancing their ability to attract investors, create jobs and investing in innovation.

Figure 3 Regional Eligibility for Structural Funds



Source: European Commission, Directorate General for Regional and Urban Policy

The rate of co-financing for projects under structural funds vary from 50% to 85% depending on the group of region, with higher rates of financing in less developed regions.

Almost a third of EFIS' total amount is devoted to overall innovation and competitiveness: approximately € 110 billion are earmarked for investments in EU regions on ICT, support to SME and low carbon economy. Regions across EU have to develop smart specialisation strategies prior to receiving ESIF funding for projects in the area of innovation. This process should allow regions to concentrate their investments on their comparative advantages.

Each region defines specific development objectives that are then negotiated and approved with the EU for the allocation of funds to projects that are approved on the basis of region specific priorities. Each region will then have their own managing authority that is tasked with the definition of implementing programmes, publication of Call for Proposals for applicants to request funding and monitor the implementation and impact of projects.

Structural funds are implemented through "shared management" by which the EU sets priorities and negotiates Partnership agreements and Operational Programmes (OPs) with Member

States. The EU allocates resources while Member States – through the designated managing authorities distributed at regional levels – manage programmes and select projects.

Structural funds represent a unique and considerable resource in support of innovation at local level: through structural funds enterprises, universities and research centres can upgrade their infrastructure (equipment, machinery, etc.) as well as build and enhance their capacity. Beneficiaries need to comply with geographic eligibility criteria to access structural funds: only organisations from the region can apply to the funds allocated for that region.

1.2 The European Centralised Programmes

In addition to the structural funds, the EU supports innovation and competitiveness also with the so called centralised funding programmes (EU Programmes) that represent the financial instruments for the implementation of EU policies and the achievement of EU 2020 strategic objectives. EU programmes differ from the Structural Funds as they are managed centrally by the EU Commission, do not finance structural investments but only activities and apply to the whole EU without geographical limitations.

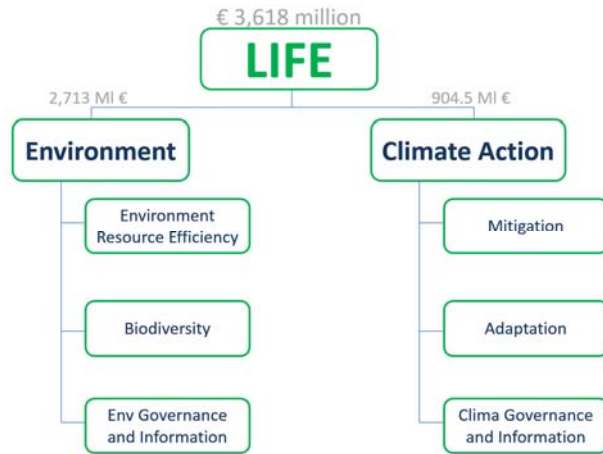
Through centralised programmes, the EU finances organisations from the public, private and third sectors to carry out activities that contribute to achieving the EU 2020 Strategy's objectives. Funding is available in all policy domains and themes, ranging from social inclusion, to health, culture and infrastructure. Regulations emanated by the EU Parliament and Council (on the basis of a proposal from the EU Commission) establish the funding programmes, defining their:

- Sectors of application
- General and specific objectives of the programme
- Activities that can be founded
- Type of beneficiaries
- Geographical scope of the funding programme
- Budget for the 2014-2020 period and allocations through sub-programmes

All funding programmes are divided into “sub-programmes” that narrow down their sectoral scope with specific sectoral priorities. As an example, the programme that pertains to the environmental policy of the EU, the Life Programme is structured into two sub-programmes, one for “Environment” and the other for “Climate Action”, each with relevant objectives,

activities, etc. Each sub-programme is then articulated into strands, each financing different actions.

Figure 4 Structure of a Programme



This leads to more than 300 funding streams every year and requires a thorough understanding of the structure of the programme – and in most cases of more than one programme – for organisations to navigate through the plethora of funding opportunities. An organisation can access different EU funding programmes and also benefit from Structural Funds concurrently.

The simultaneous use of different EU streams of financing is not only possible, but also encouraged and considered as a value adding element for a request for funding.

Besides, double financing of the same cost is never allowed. While the EU sees very positively, and encourages, complementarities among EU funding instruments and programmes, the same activity cannot be funded twice by the EU, either directly (through the EU centralised funding programmes) or indirectly (through the Structural Funds).

2 Key Principles of EU Funding Programmes

This section describes the management of the programmes, their geographical scope, and the key characteristics that a project proposal needs for approval. This section refers to the general rules that apply to EU centralised programmes, and do not take into account features of specific sub-programmes and strands that may derogate to those general principles.

The EU funding programmes are managed by the European Commission, either by the relevant Directorate General or by an Executive Agency. For example, the Directorate General Justice manages two programmes (“Justice” and “Rights, Equality and Citizenship”) that relate to the policy domain of European citizenship, while the European Agency for SME (EASME) is tasked with the operational management of the EU funding programmes that pertain to R&I, competitiveness of enterprises and environment, respectively Horizon 2020, COSME and LIFE. Such centralised management is representative of the non-territorial connotation of EU

programmes that apply to the EU as a whole and not to a specific region, as they aim to the implementation of EU policies.

EU programmes run for the 2014-2020 period and each year the managing authority publishes a Call for Proposals and a relevant Work Programme⁷ that sets the specific priorities and activities that are eligible for funding for that year. The Call for Proposals is the official communication from the EU Commission that the Programme is making available funding for that year through the competitive selection of proposals. The Work Programmes allow the EU Commission to fine-tune the operational scope and further detail the activities, types of projects and beneficiaries of the programmes depending on specific socio-economic challenges and opportunities that may have arisen since the adoption (back in 2013) of the Regulation establishing the Programme.

All organisations established in any of the 28 EU Member States are eligible to participate in the funding programmes. The participation of organisations from non-member states in EU funded projects is also possible: the establishing Regulations sets the geographical scope of the programmes and provide for the eligibility of third countries⁸.

A prerequisite for funding through the EU programmes is that the project should involve a transnational consortium representing partners from different eligible countries. The minimum number of partners for proposals to be eligible for funding is provided in the Guide for Applicants (or Guide for Proposers) that is published every year and accompanies the Work Programme in what can be called the “Application Package”

Figure 5 The Application Package for EU Funding Programmes

Before preparing a request for funding through EU programmes, applicants should identify and analyse reference documentation to make sure that their project idea is properly drafted and that linkages between their organisation’s ambition and the overall policy and strategic objectives that the EU programme pursues. These reference documents are freely and easily accessible on the websites of the respective managing authorities of EU programmes.

⁷ An exception to the yearly Work Programme is Horizon 2020, the programme for R&I under which the Work Programmes are published one every two years: the current Work Programme for H2020 covers the 2016-2017 period.

⁸ While third countries’ eligibility to participate in EU funding programmes varies according to the specific programme (and sub-programme), in most programmes the following are generally eligible:

- Countries of the European Economic Area (EEA);
 - Countries at various stages of accession to the Union (candidate and potential candidates countries);
- Countries interested by the European Neighbourhood Policy (i.e. border the EU, southward and eastwards)

Regulation	Understand the strategic background and rationale of the programme Explore alignment between EU policy objectives and organisation's mission
Work Programme	Identify specific objectives and concrete activities that can be funded Establish linkage between programme's objective and project's results
Guide for Proposers	Familiarise with technical and operational guidelines of the programme Develop project idea according to project and financial requirements
Application Form	Shape project idea along the various sections of the Application Form Develop scale and scope of the project

The funding provided by EU programmes is a grant that covers only partially the total costs of the project: the Regulation and Guide for Proposers provide all the parameters detailing the rate of financing and the maximum amount of the grant foreseen in the programme, sub-programme and relevant strands, with co-financing ranging between 50 and 90% of the total project costs. This requires project partners to make appropriate financial projections when requesting an EU grant as the application form will require detailed information about the budget and financial provisions to cover the remainder project costs not funded by the grant. Those costs can be covered by any of the following, also in combination:

- Own funds: project partners will cover the costs with their own organisations' budget. Partners need to carefully consider cash-flow implications for the project;
- Other public funding: partners can mobilise other streams of public funding at national and/or local levels, provided that they are not of EU origin. Partners need to carefully understand the origin of the other public funds to avoid any possible conflict and risk of double EU financing (that is never allowed);
- External sponsors: projects can also benefit from sponsors (public or private) who share an interest in project activities and results;
- Income from the project: any income generated by the project can be accounted for as a share of the budget to cover project costs. In this case, partners need to realistically foresee credible estimates of any income that the project can generate;
- In-kind contribution: in some instances in-kind contributions can be accounted as share of co-financing; the Guide for Proposers details whether in-kind contributions can be accounted in the budget and for which amount (as a % of the total project costs).

In addition to the operational and technical requirements set by the regulation, Work Programme and Guide for Proposers, a general pre-requisite for any project funded by EU

centralised programmes is the transnational consortium: EU programmes finance only international collaborative projects⁹. The Guide for Proposers provides details on the minimum number of partners and countries that projects need to involve.

Irrespective of the programmes' specific requirements, any project idea to be funded by the EU programmes needs to have three inherent characteristics. EU funded projects need to be innovative, relevant to European issues and sustainable:

1. **Innovative character:** EU funded projects need to bring about innovative solutions, processes or products that improve the state-of-the art in the domain of interest. Innovation is not only confined to the technological sector: EU programmes finance also social innovation projects and any advancement in social sciences and non-technological sectors as well;
2. **EU relevance:** to be funded under EU programmes, projects need to demonstrate relevance against the pertinent EU policy and programme. As such, the project not only serves the private interest of the participating organisations, but also accommodate EU strategic priorities;
3. **Sustainability:** applicants need to demonstrate that the project is not an end in itself. Besides, in the request for funding partners need to clearly describe how they will valorise the project, disseminate information about activities and - most importantly - how they will exploit project results both within and after the EU funding.

3 EU Funding Programmes for R&I

R&I are the underpinnings for the EU 2020 strategy and such policy priority is reflected by the financial allocations for Horizon 2020, COSME and Erasmus Plus, the EU funding programmes supporting research, innovation and competitiveness for companies, research institutes and universities. These three programmes are funded under the first heading of the EU Multiannual Financial Framework "Smart and Inclusive Growth" that accounts for approximately € 451 billion out of the total € 960 billion of the EU budget for the 2014-2020 period.

With approximately € 80 billion, Horizon 2020 (H2020) is the largest EU R&I programme ever. H2020 has the ambition of realising Europe's potential in R&I along three main priorities:

⁹ There are just a few exceptions to this general rule, the most relevant one for R&I projects is the Horizon 2020's strand "SME Instrument" that finance also mono-beneficiary projects, i.e. projects with only one applicant and no partners.

1. Excellent Science: the focus is to support research infrastructure, Future Emerging Technologies and frontier research that can bring Europe at the forefront of global R&I;
2. Industrial Leadership: support for applied research projects in Key Enabling Technologies (that broadly encompass nanotechnology, micro- and nano-electronics, photonics, advanced materials and biotech); and
3. Societal Challenges: invest in R&I projects that tackle challenges of European society at large grouped under seven categories of Health, agriculture and bio-economy, energy, transport, climate and environment, globalisation and security.

H2020 finances projects along the whole spectrum of R&I with a strong focus on “innovation”: the purpose is to bring ideas into the market and bridge the gap between laboratories and real-life applications, products and services. The emphasis is on entrepreneurship and how research and innovation can really unlock the potential of growth and competitiveness of European small and medium enterprises.

Conclusion

A plethora of funding opportunities exist for companies and universities in support of their competitiveness to promote research, innovation and entrepreneurship. EU programmes are a valuable means for SMEs and academia to build collaborative cross-border networks, develop new products and services, innovate and grow. The EU makes available billions of euros through more than 300 funding opportunities each year. EU programmes award grants on a competitive basis: projects are selected through an evaluation process (formal, technical and financial) based on criteria such as excellence, impact, EU relevance and innovative character. EU programmes are very competitive: success rates average 25% with negative peaks of 10% in some specific strands and sub-programmes.

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POLITICAL PARTIES AND SUPPORT OF BUSINESS IN SLOVAKIA IN 2016

Alexander Čemez

Abstract

The given contribution deals with the relationship of politics and business. Concretely, it deals with programs of political parties, which entered into the National Council of Slovak republic in 2016. These political parties are: Smer-sociálna demokracia, Sloboda a Solidarita, Obyčajní ľudia a nezávislé osobnosti, Sme rodina, Most-Híd, ĽS Naše Slovensko and Siet'. We analyze election programs of these political parties in the issue of support of business. Concretely, we focus on four areas: administrative load, restructuring, investment aid, taxes and levies. Among methods, which we will use in our contribution, belongs the study of sources, analysis and comparison. To used materials belong election programs of political parties.

Key words: business, political parties, election programs

JEL Code: Z000, O200

Introduction

In the given contribution, we deal with the relationship between business and politics. We deal with election programs of political parties, which entered into the National Council of Slovak republic in 2016. By this, we mean these political subjects: Smer-sociálna demokracia, Sloboda a Solidarita, Obyčajní ľudia a nezávislé osobnosti, Sme rodina, Most-Híd, ĽS Naše Slovensko and Siet'. In programs of political parties, we focus on the issue of support of business. In this regard, we deal mainly with four areas: administrative load, restructuring, investment aid, taxes and levies. Methods, which were chosen for this contribution, are the study of sources, analysis and comparison. To used materials, we can include election programs of political parties.

1 Theoretical part

It is possible to start from the basic precondition that right-wing political parties in general incline more to entrepreneurs and entrepreneur environment, in comparison with left-wing political parties. It is given by the fact that socialistic parties are oriented mainly on lower social classes (Bočáková, 2015) and put their focus on solidarity. They perceive the human as the social being and they see the world in move, try to achieve the change, even significant change. They see the role of the state mainly in economical allocation of resources, in social sphere, in support of education system, culture and health care, or in support of values, which are not economically attractive, but they give to life some kind of multidimensional extent. Right-wing in contrast puts the focus on individuality, private ownership and interventions into the market economy on as low level as possible. Right-wing also stands for lower taxes and minimizes economical resources allocation. It considers as inevitable and useful to have large social differences; it emphasizes the role of social elites. It addresses mainly middle and higher classes. (Kol., 2003) Differences between right-wing and left-wing voter are shown also in different lifestyles, while the lifestyle is not possible to measure in simple way. (Polonský, 2015) To this adapts also the communication of politicians, because they are aware, how important the communication with public is. In this way, words are tools, with which politicians work. Words create the world. (Žúborová, 2015)

In conditions of Slovak republic, it is moreover possible to divide the right-wing into two parts, which are basically able to agree on economical questions, but the difference is in the issue of human rights:

1. Conservative right-wing – stands for the traditional values, as for example family, nation, national state, homeland,
2. Liberal right-wing – stands for rights of marginalized groups.

Political parties, which entered into the National Council of Slovak republic in 2016, are possible to be divided from the ideological point of view in following way:

1. Left-wing – Smer-sociálna demokracia,
2. Right-wing – Sloboda a Solidarita,
3. Central – Siet',
4. Minority – Most-Híd,
5. Extreme right-wing – ĽS Naše Slovensko,

6. National – SNS,
7. New forms – Obyčajní ľudia a nezávislé osobnosti, Sme rodina.

From mentioned facts arises that from the ideological point of view, currently, there is very varied spectrum of political subjects in the parliament. Results of elections showed that the winner was Smer-sociálna demokracia, but with lower values, as it expected, while its estimations for formation of coalition of two or three political subjects was not fulfilled. For achieving the majority in the National Council of Slovak republic, it needed to form the coalition of four political subjects, which now consists besides Smer-SD also of SNS, Most-Híd and Siet'. Interesting is the fact that without regards on the ideology, almost all political subjects have agreed on negative approach to the issue of opening our state for immigrants, while the migration is understood as moving of people from their homelands. (Slovák, 2015) Along migration, there are also other problems and challenges, which are needed to be faced, for example aging of population (Kubíčková, 2015) or regional differences. (Adamkovičová, 2013)

The government of single party Smer-SD from 2012 to 2016 was not very favorable to entrepreneurs. Connection of four political subjects requires compromises, while three remaining political parties (SNS, Most-Híd and Siet') had in their programs also suggestions, which were directed towards the improvement of business environment in Slovakia.

Results of elections into the National Council of Slovak republic in 2016 brought several interesting facts. On one side, Smer-SD achieved weaker election victory than four years ago which is natural for the governing party. On the other hand, into the parliament entered more political subjects, which are generally marked as non-standard. It is mainly the extreme right-wing party ĽS Naše Slovensko and the political movement Sme rodina. The cause is clearly the disillusion and overall disappointment and apathy of politics after 1989. Extremism became the everyday part of life in the society. (Mihálik, 2015)

Table 1 Results of the parliamentary elections in 2016

political party	amount of voters in %	amount of mandates
Smer-SD	28,3	49
SaS	12,1	21
OLaNO-NOVA	11	19

SNS	8,6	15
ĽS Naše Slovensko	8	14
SME RODINA - Boris Kollár	6,6	11
MOST-HÍD	6,5	11
SIEŤ	5,6	10

Source: Statistical office of the Slovak Republic, 2016

Paradox is that although the governmental coalition has not been officially formed yet, some of its political parties begin to collapse. For preserving of integrity of the given political party are very important good managerial and leader experience. (Mura, Horváth, 2015)

2 Analytical part

Political parties many times talk about the elimination of administrative load for entrepreneurs. Most-Híd stands for the cancellation of some laws and rules, concretely cancellation of occupational health service at least for small companies, Act on inappropriate conditions in business relationships, and Act on acquiring the ownership of agricultural land. (Volebný program Most-Híd, 2016) Siet' party wants to cancel tax licenses for business companies, limit the obligatory health service only on risk works, and to cancel gastro-coupons and re-schooling of drivers. (Volebný program Siet', 2016) In the case of SaS party, the program in the question of decreasing the level of administrative load is more detailed and contains also concrete suggestions. We can mention for example: we will cancel the obligation to send to the given office the announcement about the selling and operation hours; we will decrease the number of bound small-businesses; we will move more craftsman and bound small businesses into the category of free small businesses; we will cancel the obligation to register free small businesses at the Trade Office; we will decrease the amount of minimal basic equity of limited company to 1 Euro; we will speed up the process of liquidation of companies and their deleting from the business register. (Volebný program SaS, 2016)

From introduced facts arises that with the issue of decreasing of bureaucratic load for entrepreneurs dealt three political subjects (Most-Híd, Siet', SaS). Two of them (Most-Híd and Siet') dealt with this problem only partially from the point of view of partial solutions. Most complexly elaborated was this issue in the case of SaS, which proposed several solutions, which also contain many concrete suggestions.

Another problem, which is related to the business environment, is restructuring. Most-Híd proposes that companies should temporarily not be able to apply for further orders within the public providing, until they will pay to their contractors from previous public orders. So-called mailbox companies will not be able to apply for public orders; these will be opened only for companies with transparent ownership structure. During the restructuring, also unsecured smaller creditors will be able to claim refund of debts minimally of 50%, within the period of maximally two years. (Volebný program Most-Híd, 2016) Siet' wants to avoid repeating of fraudulent restructurings and misuse of bankruptcies. In this way will be eliminated the possibility of debtor to nominate the restructuring administrator and mailbox companies will be automatically considered as persons related to the debtor. (Volebný program Siet', 2016) SNS, in the area of restructuring and bankruptcies, wants to enforce the condition of minimally 60% satisfaction of creditors within the period of maximally 5 years. (Volebný program SNS, 2016) Farthest goes again SaS, which offers the complex of solutions of restructuring issue: we will introduce the condition for restructuring of minimally 50% satisfaction of creditors, during maximally 4 years; we will enable to company sub-contractors within the restructuring, if they are not paid, without any sanctions or fees, immediately to withdraw and terminate all contractual relationships or to suspend works; we will introduce the obligation to publish information about the successfulness of restructuring and bankruptcy administrators. (Volebný program SaS, 2016)

The issue of restructuring is dealt by four political subjects, concretely Most-Híd, Siet', SNS and SaS. In the case of first three mentioned parties, it is again just partial solutions. It is also possible to find some agreement or similarities between some political parties, for example in the case of parties Most-Híd and Siet', which deal in their election programs with mailbox companies and their inability to participate on bankruptcies. Similarly, it is possible to consider between Most-Híd, SNS and SaS within the issue of claim on payment of debts for creditors; however, they differ in percentage proportion. Most-Híd proposes 50 % to 2 years, SNS 60 % to 5 years, and SaS 50 % to 4 years. Also in this case it is possible to say that the SaS party solves the question of restructuring most complexly.

Another problem, which frequently appeared in programs of political parties, was the investment aid. The objective of the party Most-Híd is to increase the transparency and forthrightness of providing of investment aid. They propose such change of rules of providing

of investment aid, which will move it more significantly into regions with above-average unemployment rate. They also propose the gradual elimination of use of direct financial aid and focus solely on use of tax allowances, as the form of investment aid. (Volebný program Most-Híd, 2016) SaS proposes to cancel investment stimuli. (Volebný program SaS, 2016) Political movement Sme rodina wants to support small and middle-sized business by giving them similar stimuli as large and foreign investors. The extent of support has to depend on the number of newly created work positions and on their sustainability. (Volebný program Sme rodina, 2016) SNS proposes providing of investment stimuli only to those business subjects, which regularly fulfill their tax and levy obligations, preferably to companies with Slovak ownership structure. (Volebný program SNS, 2016) OĽaNO proposes the support of business incubators, i.e. associated centers of supporting services. These centers will be the place, where starting entrepreneurs, or also the potential investor, will find on one place everything what will need in order to start the business in fast, simple, effective and relatively cheap way. (Volebný program OĽaNO, 2016)

Differences in the question of investment aid are relatively significant. Political party SaS proposes cancellation of investment stimuli. Most-Híd wants to enforce the forthrightness and transparency of providing of investment aid and their directing into regions with high level of unemployment. According to political movement Sme rodina, domestic investors should get similar aid as foreign investors. OĽaNO proposes introduction of business incubators.

Within the context of this topic, we cannot omit also the issue of taxes and levies. Most-Híd stands for the stability of tax system and supports the return to the flat tax on income of 19%, while by favorable development of public finances they propose further gradual decreasing: We recommend to cancel the higher tax rate on income of natural persons (25%) and to decrease the tax for legal persons (from current 22%). At the same time, we propose cancellation of tax licenses. We will stand for simplification of tax system: where by tax on income by natural persons should exist one tax rate, one allowable item on the taxpayer and progressive tax bonus on children. (Volebný program Most-Híd, 2016) OĽaNO wants to cancel tax licenses. Among other regulations belong: increase of tax on income to 50% to banks and regulated subjects. Such acquired resources will be used for increase of tax bonus on child and decrease of VAT on all comestibles to 10%. (Volebný program OĽaNO, 2016) SaS proposes these regulations: return of flat tax on income to 19%, decrease of flat tax on income rate to 15%, return of tax

rate took by withholding tax from 35% to 19%, later to 15% and cancellation of tax licenses. (Volebný program SaS, 2016) Siet' wants to simplify the tax system, decrease the amount of rates of VAT and exclusions, and to eliminate anomalies, when, for example the small-business entrepreneur pays higher tax rate on income, than the large enterprise. (Volebný program Siet', 2016) According to the political movement Sme rodina, employed persons should pay low flat tax of 16%. Small and middle-sized businesses should pay the flat tax from profit also on the level of 16%. The same tax should pay also large companies, which really produce something and employ people. Companies making business on the basis of license from the state, so-called oligopolies, should pay approximately double tax, in the amount to 33%. Monopolies should pay even higher taxes on profit, in the amount to 50%. (Volebný program Sme rodina, 2016) SNS wants to decrease taxes on income of natural and legal persons on 19%, decrease the VAT rate on 10% for all Slovak foodstuff products from yard. This party also wants to enforce the act on taxation of monopolies and banks. (Volebný program SNS, 2016)

The area of taxes and levies is probably the most interesting. It is possible to find there many similarities and differences. Political parties Most-Híd and SaS want to enforce the flat tax of 19%, while SaS wants to decrease it later to 15%. In contrast, Sme rodina proposes the gradual tax on income for people, small, middle-sized and large enterprises on 16%, for oligopolies on 33% and for monopolies on the level of 50%. SNS proposes the tax on income of 19%, and for monopolies and banks individual taxations. Most-Híd and OĽaNO propose to cancel tax licenses. Most-Híd proposes progressive tax bonuses on children in dependence on the number of children, and OĽaNO proposes increase of tax bonus on children. SNS and OĽaNO propose to decrease VAT on comestibles on 10%. Siet' and Most-Híd want to simplify the tax system.

Conclusion

From mentioned facts arises that with the issue of decrease of bureaucratic load for entrepreneurs dealt three political subjects (Most-Híd, Siet', SaS). This problem was elaborated most complexly by SaS. With the issue of restructuring deal four political parties, which are Most-Híd, Siet', SNS and SaS. In the case of first three parties, there are only partial solutions. Also in this case it is possible to say that most complexly elaborated issue of restructuring has the party SaS. Differences in the question of investment aid are relatively great. The area of taxes and levies is probably the most interesting. It is possible to find there many similarities and differences.

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EVALUATION AND TREATMENT OF SELECTED RISKS IN THE SOLUTION MINING INDUSTRY

Peter C. G. Davids

Abstract

Standard risk management systems are already researched on a pretty high level. Currently there is no special literature about those in the environment of solution mining of carnallite. These special risks (geological ones, risks arising in the processing plant due to its special design, financial risks) need to be addressed, evaluated and treated. DEUSA International GmbH is a potash mine situated in Thuringia / Germany, using the technology of hot selective solution mining of carnallite. Currently it is the only one in the world using this special process which is more and more going to be adopted in other projects around the world. One of the key issues is the energy intensiveness of the process. Purchase of natural gas currently accounts for approximately 60% of total costs. At first, this empirical case study will explore the existing risk management by documents study and by interviews, identify and evaluate selected risks and find approaches for treatment. It will be accompanied by a precursory literature review. Main goal is to contribute to improvement of the existing risk management system focussing on addressing the named special risks. The results should be useful for other carnallite solution mining projects as well.

Key words: potash, solution mining, carnallite, risk management

JEL Code: G32, L72

Introduction

Unlike conventional potash mining, solution mining extraction and processing is an environmentally-friendly process because there are no dissolution residues which need to be disposed of in tailings piles. Furthermore no staff needs to work in the underground compared to conventional potash mining, which is a big advantage in terms of work safety. Amongst other solution mining technologies, the opportunities of solution mining of carnallite are felt more

and more attractive since the beginning of the 21st century. Carnallite solution mining projects have been initiated around the world since. The double salt carnallite ($\text{KCl} \cdot \text{MgCl}_2 \cdot 6 \text{H}_2\text{O}$) is a relatively low graded potash source which makes its conventional mining uneconomically. Currently there is just one active mine in the world (DEUSA International GmbH in Germany) using the innovative process of hot selective solution mining of carnallite which has proven the economic feasibility of the process. Other such projects are still in development i.e. in Pointe-Noire, Republic of Congo, in Wynyard Saskatchewan / Canada as well as various projects in Vietnam and Laos. Main research question after setting up the status quo of existing risk management structures is to address the main and most threatening risks, including their interdependencies, attributed to utilization and commercialisation of the described technology thus try to provide a basis for subsequent treatment. Furthermore the risk awareness of the individuals responsible for the different departments involved will be explored in order to basically find out further areas of risks which have not been in the focus so far. The results should be useful for upcoming or future projects in the field solution mining of carnallite as well. Research will be performed as an empirical case study by documents study and semi standardized interviews.

1 Literature review

As the potash production through solution mining of carnallite is a new and innovative technology it warrants a look of how innovation as well as innovation management should be defined. Secondly the term of risk management will be explained.

1.1 Innovation Management

Hauschild et al. (2011) basically define innovations as qualitatively new products or processes, which noticeably vary against a comparative state – however this is to be determined. In the present case we undoubtable have a technical process innovation. This triggers the question, whether the technology itself is new or its application. Looking at this, the basic technology of solution mining is very well known and far off being an innovation. But its application as a variant of the basic process, namely the selective hot solution mining of carnallite, has been new and innovative. On this Hauschild et al. (2011) make the point that having a patent or a similar right does not automatically mean that it is already an innovation. It just can be the starting point for creating an innovation. In the case described there have been early patents for

some process steps which meanwhile expired. Based on those, the process has been developed in the course of many years. So the company already went through certain stages of innovation management in this regard. Hauschild et al. (2011) summarize innovation management as a dispositive design of innovation processes. In the environment of enterprises, innovation management is the process of conversion of an idea to a competitive new process or product. Goffin et al. (2005) are comparing innovation management with a pentathlon rather than a marathon, like many others do. They describe the five stages as follows 1) creating an innovation strategy, 2) generating ideas, 3) prioritizing and selecting from these, 4) implementing the ideas selected, 5) involving people from across the business. Looking at the exemplary enterprise, this is still in stage 4 (implementing the ideas) taking into consideration, that stage five is just underpinning the stages before. Goffin et al. (2005) have a strong focus on stage 4, which is risk management: 'The characteristic that most distinguishes innovation projects from others is their level of uncertainty, so ways of assessing and addressing risks must come high on the list of techniques for managing innovation projects'. Hence the following chapter will focus on risk management as a part from stage 4 of the pentathlon process.

1.2 Definition of the risk term

In the literature, the concept of risk is defined differently. In general, risk refers to the possibility of future occurrence of an unwanted development. Risk represents the potential danger of suffering damage or a loss. Economically taken, a risk is the risk of failure of a project or the latent danger of a negative target-actual variation. A concrete company-specific definition is provided by Hornung et al. (1999). Accordingly, risk means the danger that events or actions could prevent a company from achieving its objectives and successfully implementing its strategies.

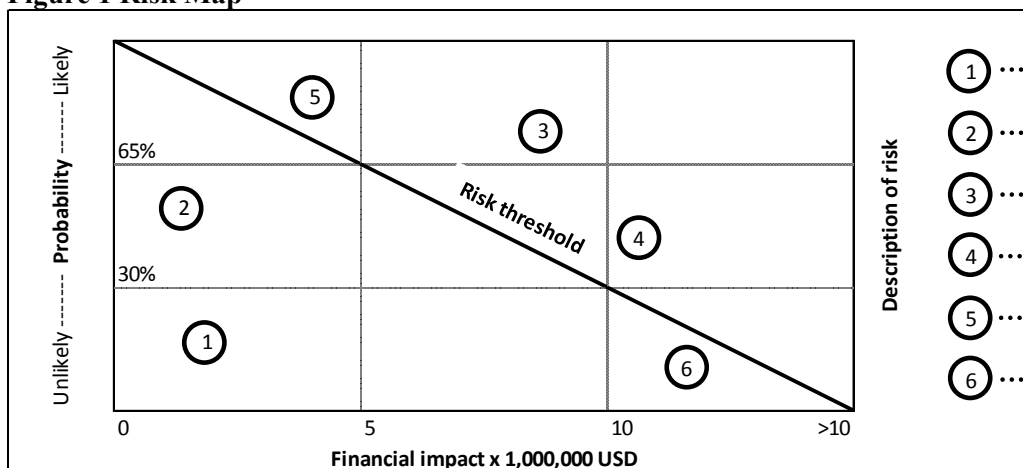
1.3 Risk Analysis

Risk analysis consists of risk identification and risk assessment. It involves the systematic identification of potential risks and their impact on the company's goals. An investigation revealed that only about 30% of the companies surveyed perform a systematic risk analysis. This is, however, the "conditio sine qua non" for a well-functioning risk management (Wolf, Klaus et al, 2013).

Risk identification. "Risk identification includes a preferably structured, detailed and complete coverage of all significant risks or damage risks ..." (Hornung et al., 1999). First of all, it depends on the collection of all risks which might have an impact on the company's objectives. For this purpose, it makes sense to organize workshops with the future risk-owners responsible for the departmental-/ group level. In the literature essentially the following basic structure for the formation of main risk categories has emerged: compliance risks, operational risks, financial risks and other risks. For the detection of the external risk factors one should use publications available covering topics such as politics, market analysis, competitive analysis as well as publications on law-related developments. The result will be a company-specific risk profile, which must be developed through a continuous process in the future (Hornung et al., 1999).

Risk assessment. As a result, the threat of a risk will always have a financial impact on the company when damage occurs. Exactly this effect needs to be predicted as accurately as possible. According to Wirtschaftsprüfer Handbuch (2000), only in the second step the risks are to be reviewed net in addition in order to determine the value of so-called residual risk after taking into account risk management measures. One of the factors is the probability of occurrence of the risk, the other one is the maximum possible impact on earnings. The required benchmark is the risk threshold, which is to be determined in a company-specific way. One option to achieve this is to set out the various risks in a risk map (Hornung et al., 1999).

Figure 1 Risk Map



Source: <http://www.software-kompetenz.de/servlet/is/5480/?print=true>

The measurement and limitation of risks in the financial sector based on quantitative methods is basically possible. However, in a system covering the other risks, too, this approach is reaching its limits. It is often not possible to make such risks sufficiently assessable, that a

purely quantitative analysis still leads to reasonably exploitable results (Saitz et al., 1999). As a result, a risk portfolio before the measures to be taken to minimize risks arises in any case. Now a few risks can certainly be illustrated very well by means of a risk map. If there are, however, 50, 100 or more risks, the risk map no longer seems to be the adequate tool. In this case rather a different illustration needs to be chosen (Wolf et. al., 2001). In the literature evaluated by the author, just the graphical portfolio approach is existent.

1.4 Risk Control

Risk management is the targeted influencing on the previously identified risks with their presumed loss dimensions and probabilities. It should basically be aimed for to control the entire risk portfolio through the strategic alternatives described below (Hornung et al., 1999) and thus to keep them below the risk threshold set by the company: risk aversion, risk reduction, risk transfer and bearing the risk. The first two instruments can be combined into a cause-related and the other two ones into an impact-related risk policy. The cause-related risk policy works on the risks themselves, while impact-oriented risk policy is to limit the impact of materialized risks (Baetge et al., 1999).

Risk aversion. A risk ultimately can only be avoided by not taking the decision, which would establish that risk (Baetge et al., 1999). Carrying out these thoughts, it would be theoretically possible to maintain the whole business riskless in this way. This, however, created a new risk, namely the risk of non-utilization of opportunities. When considering the opportunities and risks it is also possible that specific transactions are found to create such serious or even life-threatening risks to the entity, that it is better to waive these kinds of transactions. This can also be true for a whole portfolio of transactions associated with unacceptable liability risks (Saitz et al., 1999).

Risk reduction. The risk reduction tries to minimize the risk in the sense of "Possible Maximum Loss" (PML) to the extent that it can be accepted and supported by the company. This is an attempt to influence both damage factors. Through loss prevention, the probability should be reduced and limited by reduction effects on the damage occurred (Wolf et al., 2001). If we consider the fire risk of a building with significant technical facilities for power generation, fire insurance can certainly cover the monetary risk largely. But the insurance policy will not affect the probability of occurrence of the damage. This determinant, however, is influenced by fire protection measures (Saitz et al., 1999).

Risk transfer. Another way to reduce the risks of the company but without giving up the core business is the outsourcing or the shifting of risks to third parties. The classic means of risk transfer is the acquisition of insurance. It should be in mind that insurance only can cover the monetary loss partly or entirely, but not soft factors such as image, or loss of market shares (Saitz et al., 1999). Certain risks are not at all to insure or only against non-acceptable premiums.

Bearing the risk. Risks not covered by the measures described above are to be borne by the company itself. Bearing risks by oneself does not just mean to passively take risks, but also includes the active provision for the event that the risks actually occur (Baetge et al., 1999). Self-borne risks must therefore be funded. This can, for example, be done by risk sur-charges in product costing as well as through formation of provisions or value adjustments in the balance sheet.

2 Methodology of Research

The author has chosen the documents study, as this offers the widest initial information base considering the situation described. To compensate for the weaknesses of the documents study, a semi-standardized interview has been used.

2.1 Documents Study

The documents study is attributable to other survey techniques in the context of organizational techniques in the series of survey techniques (Schmidt, Einführung..., 2000). Other categories are interviewing and observing. In general, the documents will be studied at the beginning of a survey, so that the collector can be incorporated into the matter and gather general information. Due to the variety of information obtained in this way the documents study is considered an important survey technique (Schmidt, Methoden..., 2000). The documents study offers a wide information base and allows a more targeted survey in a subsequent interview. The documents are tamper-free in relation to the purpose of the survey. Disadvantage of documents study is the possible lack of completeness and timeliness of data. Furthermore, there is a risk that the documents only reflect the target state instead of the desired actual state (Schmidt, Einführung..., 2000). Because of the weaknesses described the documents study should not be used solely, but flanked by another survey technique (Schmidt, Methoden..., 2000).

2.2 Interview

The interview is assigned to the category interrogation of the survey techniques. An interview is a special talk situation which is directed by the interviewer (project staff) (Schmidt, Methoden..., 2000). An interview always brings the interviewee into a position of having to react, because the conversation is guided mainly by the questioner. It is important to create a positive climate for discussions to build up an atmosphere of sympathy and to increase the willingness to provide information of the interviewee (Schmidt, Methoden..., 2000). In this context it is important to explain the intent of the survey to assure confidentiality and to communicate possible benefit for the respondent. The results of the interviews should basically be recorded in abbreviated form by the interviewer already during the survey and being completed at the end of the interview. Sufficient time should be planned for the preparation of this protocol between two interviews. The concurrence of a second person as a transcript writer may lead to the impression of a witness and probably may be answered with restraint and tactics on side of the respondent (Schmidt, Methoden..., 2000). The standardized interview is based on a questionnaire which is read literally in the predetermined order during the interview. This is expected to provide homogeneous formulations and conceptual identity of each question for all individuals involved. This assumption, however, is considered critically (Schmidt, Methoden..., 2000). The semi-standardized interview comes with a questionnaire; however, this can be varied in order and formulation as desired by the interviewer, depending on the willingness to provide information (Schmidt, Methoden..., 2000).

3 Risk Management at the exemplary enterprise

As an implemented a working risk management is a legal obligation for public- as well as for private companies in Germany, this needed to be explored first. The annual financial statements including the relevant auditors' opinions since foundation of the exemplary enterprise in 2001 have been reviewed. All of these have been granted the non-qualified auditors' certificate. Furthermore it was stated by the auditors that a risk management is „implemented and working“ in each of the above mentioned financials. Thus, the legal obligations have been entirely proven to be met but it does not allow any conclusion on the quality and functionality of the risk management above a basic level.

3.1 Examination of the existing risk management system

To get a first clue where to start with the improvement of risk management, the author has initially determined the actions already taken to control risk by studying documents. This approach was chosen because a whatsoever listing of risks with the corresponding measures to date was not yet completed. The author has been made available all of the required documents for his examination. These included in particular financial statements, insurance documents, accounting documents, ongoing business reports and the internal and external reporting. The literal rendering and the insertion of photocopies from financial statements and contracts was not allowed to the author. However, this had no impact on the course of the investigation and the results thereof. As another survey method, a half standardized interview was conducted with the supposed future risk owners using a pre-formulated questionnaire. The goal of this method was to identify those risks which may have been already identified without recording them in a certain document.

In the document analysis, the recent financial statements from 2012, 2013 and 2014 were considered. Furthermore, the insurances documents, documents of financial accounting as well as the internal and external reporting. Balance sheet and income statement are essentially suitable for risk-effective measures only in the area of provisions and adjustments, since all other values as actual values must not be changed. Certain latitude in this regard also provides depreciation. Since the design of the depreciation only has an impact on current and future corporate taxes payables, this point was not pursued with risk considerations by the author.

The analysis of the reserves showed that the common risks have been considered. Further adjustments were made to receivables. First, the individual value adjustments were determined. Normal receivables were written down by a general provision of 2%. A discount risk (consensus is between 2% and 4%) has not been considered. Doubtful accounts have been written-off entirely, if so.

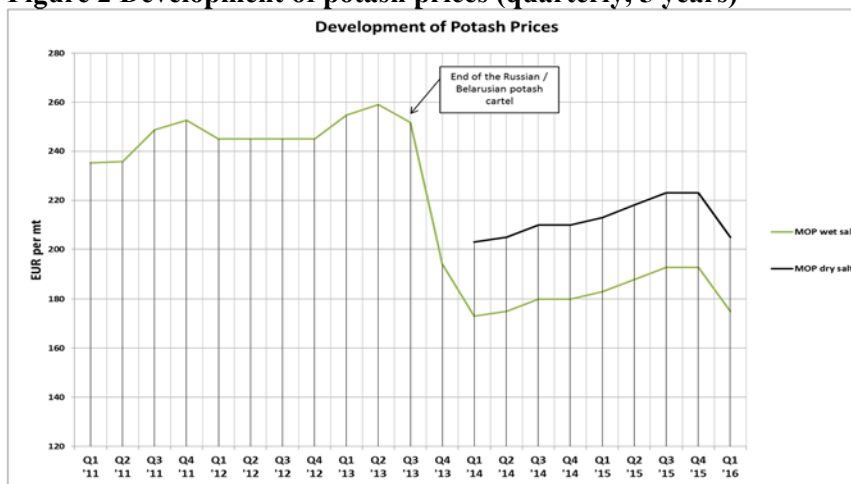
The analysis of insurance documents showed that all of the usual property insurances (i.e. fire / storm / hail, electronics / IT, business interruption, general liability, machines, cars and vehicles) exist and are regularly reviewed on the reasonableness of their coverage levels.

The documents of the financial accounting comply with the legal requirements. About reconciliation, differences logs are created automatically. These serve as a basis for manual corrections. Furthermore, the financial accounting is a main part of the audit procedures of the

auditing firm during the annual audit of the financial statements. As part of the document analysis, the financial accounting gave no major approaches for improving risk management. The current internal and external reporting is about the budget figures of the company in profitability and liquidity relevant respects. Monthly plan / actual comparisons were carried out in order to gain reasonable evidence for the subsequent controlling process. Furthermore, medium- and short-term profitability / liquidity plans are prepared. In order to refine the reporting system, a management information system based on the primary data of the financial- and payroll accounting system is installed.

The outcome of the analysis of the revenue section provided the following findings: About 70% of the revenues were generated through the sales of potassium chloride (potash) which is the main product of the company. Other revenues are coming from sales of magnesium chloride as a liquid and as solid flakes, selling surplus electricity to the public grid, take-over from salt based waste for refilling of disused caverns and a few smaller items which will not be considered further. Whilst the market price for potash is varying considerably over the course of a few years (see fig. 3), the other product prices are relatively stable. As potash is the main product, it should be in the focus of risk management.

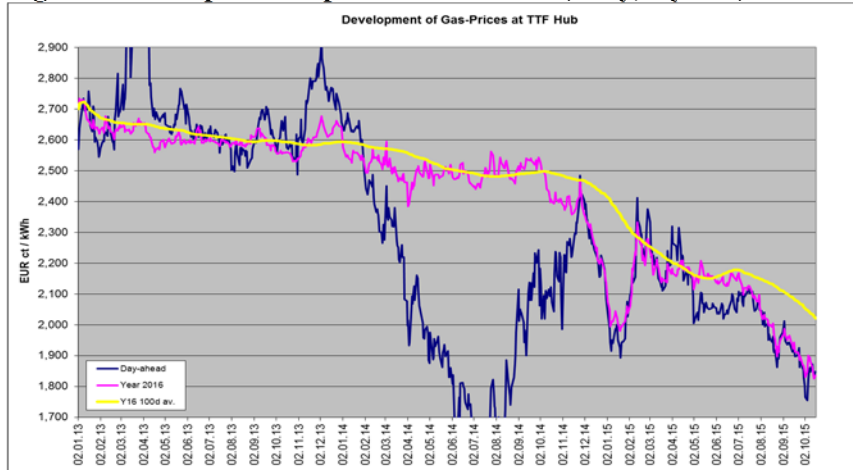
Figure 2 Development of potash prices (quarterly, 5 years)



Another issue of interest was the company's purchase strategy. The biggest cost position found is the purchase of natural gas which is needed to feed the company owned industrial power plant. This comprises of two gas engines for the generation of electricity and two steam boilers for producing saturated steam. The purchase of natural gas accounts for approximately 60% of the company's total cost. As the exemplary enterprise is producing out of a natural source, other

purchase activities like for packing materials and some raw materials are of minor importance. The development of gas prices rather warrants a more detailed view.

Figure 3 Development of prices for nat. Gas (daily, 3 years)



Having in mind the above mentioned falling potash prices, it is evident that the gas prices are going the same way. This looks like a kind of self-hedging but should be strongly in the focus for optimization in the future.

The documents study has been completed so far by looking into the technical issues. The current status of risk evaluation is documented in a list, where approximately 1,100 items have been named. Such are mainly aggregates, vessels, tanks, pumps motors, pipelines, stored program controls (SPC) and many more. To the author's impression, this list is pretty complete and provides a solid basis for a further set-up and improvement of risk management. Some of the crucial items are highlighted like a semaphore, green, yellow and red, depending on the risks they are supposed to. Depending on this, risk mitigation measures have been partly employed where applicable. Those are, for instance, double sourcing, keeping spare parts where delivery time is too long, performing anticipatory maintenance - just to mention a few. This needs to be part of a further survey-in-deepness because the shortness of this study does not allow doing so. However, risk management on the technical side seems to be already on an acceptable quality level.

Potential risks arising from the company's mining activities are basically in mind but not listed like those from the processing plant mentioned above. The extraction field has been pre-explored by a certain grid of exploration drillings. So it is well known, that the deposit is not equal in its whole dimension but the thickness of the carnallite layer varies from 5 to 70 meters in short distances.

3.2 Semi standardized interview

The goal was to close the gap described for the documents analysis and to obtain a reasonable status of previously practiced risk management or its approaches in this way. First, the group of individuals was chosen, of which the author expected the best information. The interviews have been designed purely as measures of actual input and not as an anticipated risk analysis. Accordingly, the questionnaire has been developed. The following persons were interviewed: Heads of Finance & Controlling, Marketing & Sales, Personnel & Organisation, Production, Technology, Power Plant, Extraction Field and Geologist. Questions:

- 1.) Do you think the company deals with the issue of risk management sufficiently or rather not? Please enter a score 1 - 5 (5 pts => risk management is sufficient) and explain briefly.
- 2.) How important do you see the legal obligation to address risks for the company?
- 3.) What are the main risks you see generally for the company?
- 4.) What are the main risks of your remit that come to your mind spontaneously?

Summary of answers to question no. 1:

Table 1 Results of question no. 1

Score	1	2	3	4	5
Count	0	1	4	2	1

Looking at the figures initially, it is clear that only one respondent considered the existing risk management to be sufficient. This was justified with the fact that the auditors had nothing to complain so far. In addition, the issue of risk management is under the authors' review, so that, if necessary, an optimization could be performed subsequently. The further weighting of scores corresponded with the expectations of the author. The justifications were reflected in the score values. Except the above mentioned respondent no more individual has anticipated the results of this study incorporated in his evaluation.

Summary of answers to question no. 2: The basic legal obligation was more or less in mind of all of the respondents. The importance of the required measures has been generally conceded. Also it was noted that the risk (here more in general terms) has increased for the company during the course of the recent years. Correctly, it was stated that most of the requirements discussed were not new, but has been drawn more and more into the focus of the auditors for them to review in more detail during the audit of the annual financial statements.

Summary of answers to question no. 3: The main risk to the company mentioned by everyone involved is the general economic stagnation coupled with declining margins. As a reason for this, the decline in potash prices at the end-users has been seen, as the sales slumps immediately penetrate through to the producers. Another risk was the extension of production volumes on the potash world market, which also has a suppressive effect on prices. It was also pointed out that the company is energy-intensive and highly dependent on the price of natural gas. As for the operation of the production plant many well-trained professionals and specialists are needed, which cannot easily be acquired on the labour market, this is also felt as a general risk. Furthermore geological risks have been identified, but these are basically attributable to the mining industry.

Summary of answers to question no. 4: On the sales and personnel side, the answers revealed somehow with those to question 3. Furthermore the risk was stressed to lose customers to competitors in the environment of low prices and fights for market shares hence not to hit the sales target. The Finance & Controlling department pointed out that beyond the well-known general risks (which will not be listed here) the treasury and accounts receivables management needs to be monitored well due to the fact that there are many foreign customers with typical long payment terms compared to the domestic ones. Consequently, the customer- and country risks must be in the focus as well. Both of the Production and Technology departments mentioned that the process itself as well as many parts of the plant are unique so this is the main risk seen in this regard. If one of the unique aggregates fails, the whole plant may come to a standstill and a spare part might not be easily available. The same applies to the process itself: just the own pool of experience is available. In case of failure it cannot be resorted to foreign knowledge and experience considering similar situations. The Geologist as well as the Head of Extraction Field mentioned that a roof collapse of a cavern, especially in the last third of its lifetime, cannot be predicted well as the results of the pre-exploration do not provide enough information on the covering layers above the carnallite deposit. Due to the similarity of the different layers, x-ray- and sonar explorations have not proven to deliver usable results so far. As the company's industrial power plant is a typical and usual installation, no special risks beyond the common ones, have emerged.

Conclusion

The exemplary enterprise is currently in stage 4 after the pentathlon model of innovation management described by Goffin et al. (2005). A crucial part of this stage is the implementation of a robust risk management. This study tried to find approaches to improve the partly existing risk management system of the company by the research methods of a documents study and a combined semi standardized interview. Goal was to get a grip on the special main risks evolving from the mentioned technology amongst those which already have been addressed. While the legal and formal requirements on risk management are met, it turned out, that some of the standard risks are identified and mitigated. Through the research, the main risks could be basically identified and addressed. Those are, amongst others, the volatile potash prices in connection with prices for natural gas, demand on well and special educated staff, unique parts in the processing plant and the process itself as well as geological risks, especially on the extraction field and on the design of the caverns. It further turned out that these risks are generally in mind of those responsible and a certain risk culture is in place. However, there is missing a proper documentation and implementation of a formal risk management process. Consequently, the next step should be to go into the main risks in more detail in order to complete and prioritize the risk inventory under consideration and of the work already done. Subsequently the next stages of the risk management process need to be implemented.

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INNOVATIONS IN PUBLISHING IN THE PERIOD OF DIGITALIZATION

Dana Dvořáková

Abstract

The present paper deals with contemporary changes in the world of entrepreneurship and economics. It explains the difference between the traditional and current cognizance of the innovation process and the related necessity of innovation of the entire business model. It is particularly focused on the field of publishing practice where the explicit phenomenon is at present digitalization. An analysis is presented of the facilities available in our country and on a global scale and summarizes and presents comments on contemporary trends in the sphere of media.

The paper includes a case study of a publishing house which within the scope of the innovation of its business model introduced on the market in addition to a well-established print journal also its tablet version. On the basis of a questionnaire distributed among readers the paper presents the results of the survey which identifies reserves and shows the specific character of digital publishing.

The definition and addressing of the target group of readers and focusing of marketing activities is a very significant factor. Another significant factor of success is besides the high-quality content also a guarantee of the optimum technical parameters of the journal related with the size of files and adaptation of the content to individual types of reading devices (tablet vs. smartphone). A frequent mistake is an excessive volume of data in a single edition which can discourage a lot of readers from downloading the file and subsequently reading it. Owing to the different display of the journal on a tablet, smartphone and desktop, the production of a tablet journal must count with and invest in three different output versions optimized for individual devices. In conclusion the paper summarizes the advantages and disadvantages of digital publishing.

Key words: Innovation, business model, print journal, digitalization, publishing.

Introduction

The world as we know it is approaching its end. During the last few years we are faced with the most rapid and most extensive changes of production, consumption, values and of the behaviour of individuals, groups and nations. Hitherto unprecedented changes have appeared and the transformation of real economy is in progress – digitalization, automation, removal of interfaces, individualization, recycling, etc.

Standards which were valid only a few years ago are not topical any more. If now firms want to be successful, they must take interest in contemporary trends and adequately respond to them, they must transform their business and react to the requirements of today's customers. In the present era of entrepreneurship, the development of entrepreneurial thinking has a paramount priority (Zelený, 2016).

1 Innovation and business model

One of the most significant prerequisites of the transformation of the global business is the discovery of opportunities and innovation of business models (IPA Slovakia).

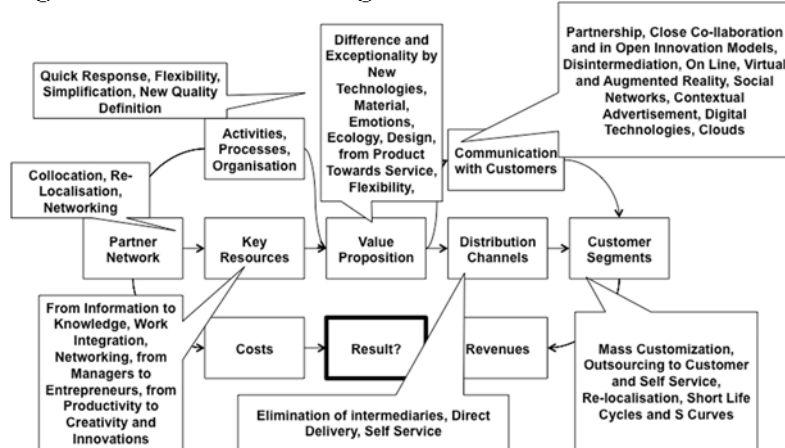
At present innovations are an item which is very often spoken and written about. Traditionally the innovation process was understood as an improvement of existing or new products and production processes. Inventiveness, however, will become an innovation only under the assumption that the product will be bought by the customer. Thus the customer is the Alpha and Omega of every innovation process. Thanks to globalization the global market is full of innovators from all over the world and this leads to a rapid increase of competitiveness namely in the sphere of innovations. A new trend has appeared when instead of partial innovations of goods or services the entire business model is innovated and its ultimate quality affects the final acceptance or rejection of the offer (Zelený, 2016).

“Innovations are developed on a higher level than that of a product, service or company process. They are created on the level of the business system. New business models frequently utilize completely new technical solutions, materials, they create new supplier networks and communities of customers.” (Košturiak, 2016).

A business model includes customers, provided value, infrastructure delivery value, relations with customers, key activities and resources, key parameters, generation of the revenue and structure of costs (Osterwalder, 2013). Together the above nine blocks form a complete business model. Hence the creation of a model is not the domain of an engineer or an

improvement proposal without any direct contact with the customer but a new professional field in the entrepreneurial system. A fundamental change has occurred in the world of innovations (Zelený, 2016). The influence of the main transformation trends on current business models is summarized in Fig. 1.

Figure 1 Fundamental changes in business models



Source: Košturiak, 2016

“Competition today no longer means competition between products and services. The real challenge is a business concept design; designing entirely new business models.” (Gary Hamel, in Design)” (Landa, 2015).

2 Sphere of publishing and digitalization in the 21st century

The issue of innovations and the related changes of business models concern all fields ranging across economics including the sphere of publishing on which this paper focuses. The global contemporary phenomenon also in this sphere is digitalization. Digitalization of media represents: “Introduction of digital technologies into mass communication processes into the production and processing of the media product and its multiplication and mass distribution” (Osvaldová, 2002).

A number of publishing houses in the present period of digitalization and gradual transfer from print media to on-line versions are faced with the problem how to change the existing business model, how to adjust their business in order to be able to keep pace with global trends and simultaneously to develop their business.

These issues are dealt with at numerous international conferences and meetings of publishers and representatives of the academic sphere who are intensively engaged in these issues. Let us

mention e.g. the Digital Innovators Summit organized at the end of March 2016 in Berlin. About 60 representatives of most significant publishing houses and scientists from all over the world shared their experience in a 2-day marathon of lectures and presentations with approximately 600 registered delegates from 35 countries from Europe, America and Asia.

The explicit message from this event is that at the beginning of the 21st century digitalization is very much active in global media. The greatest world publishing houses like e.g. Hearst Magazines Int., Times, Axel Springer, Burda, The Media Trust, National Geographic are successfully engaged in business and profit from the innovated business model in relation with digital publishing, operating on a global market exceeding the national borders of countries, interconnecting the printed form with the web, sharing parts of the content of their titles and the active utilization of various social networks focused on a selected group of readers. The publishing houses impose high requirements on the quality of the content intended for global receivers, optimum graphics in individual smart devices, accessibility of the digital content 24hours every day and on sensitive positioning of correctly selected advertisements in the right place.

The revolutionary changes in global media were made possible due to accessibility of the internet and a rapid increase of the availability of electronic facilities. In the next section of this chapter we will deal with the analysis of statistics reflecting these facts including changes in the preferences of consumers of media in the Czech Republic and abroad.

2.1 Accessibility of the internet

Approximately 40% of the world population have daily access to the internet and the number of internet users rose between 1999 and 2013 tenfold. China, a country with the highest number of users (642 mio in 2014), represents 22% of the total number of users and has more users than e.g. the USA, India and Japan together. In the USA, Germany, France, Great Britain and Canada 80% of the population can be connected to the internet (FIPP World Magazine Trends 2014/2015).

In the Czech Republic 73% of the population in 2015 had access to the internet, which corresponds to 3.1 million households. This is 1 million more than five years ago (Czech Statistical Office).

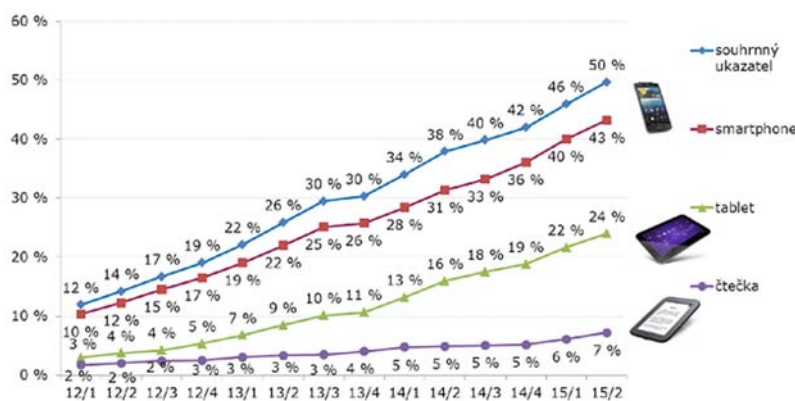
2.2 Equipment with electronic devices

In 2010 the company Apple introduced its first iPad tablet on the market. In three years tablets completely changed the world of personal computers. Besides iPads with an iOS operating system, tablets with the Android operating system supplied by more producers (e.g. Samsung, LG, Acer, Lenovo, Google, and Sony) are increasingly winning recognition. And in 2012 also Microsoft introduced its operating system Windows 8 on the market.

Statistics monitoring the global sales of tablets and smartphones indicate a rapid growth of the number of these electronic devices. In 2011 about 500 million smartphones were sold, whilst in 2015 it was nearly 1.5 billion pieces. In 2019, according to estimates, approximately 239 million tablets should be sold worldwide (Das Statistik- Portal).

The trend of a rapid increase of the popularity of tablets and other reading devices can also be observed in the Czech Republic as can be seen in Fig. 2. Approximately 50% of the population have either a smartphone, tablet or a reading device. Most popular are smartphones which are owned by 43% of the population. The popularity of tablets grows year after year. Two years ago only 9% of the population used them, two years later they were used by 24% of the population and the number of users grows continually very rapidly (Media Project).

Figure 2 Equipment of Czechs with reading devices (souhrnný ukazatel =summarizing parameter, čtečka = reading device)



Source: Media Project, 2+3Q/2015, Union of Publishers, Median, Stem/Mark

2.3 Comparison of consumption of classical and on-line media

In relation with trends of spreading digital equipment among consumers of media communications, their user customs and practice obviously also change. According to a study

by GlobalWebindex at present more time is devoted to reading digital media than classical ones (Mediaguru).

The growing trend of on-line media is most apparent in the United Arab Emirates and in China, where digital media represent more than 6 hours of the daily consumption of media. Classical media (TV, radio, press) remain to be the main source of media observation in advanced European countries (The Netherlands, Germany, Great Britain) and also in the USA. Altogether 31 countries were included in the study. In 23 of them the time devoted to on-line media is higher than that devoted to classical media (Mediaguru).

From the above it is explicitly apparent that not only in the Czech Republic but on a global scale the interest in electronic equipment grows. And this is directly related with the popularity of the use of such equipment for the consumption of media and reception of topical information.

3 Changes in the forms of publishing

Publishers see in digital publishing on tablets and/or smartphones a great potential or means how to apply experience from classical media and transfer it into the world of on-line information. In contrast with webs, tablets are appropriate for publishing texts arranged similarly as in journals which have their layout and information well-arranged in pages. A doubtless advantage of tablet journals is their potential interactivity, i.e. inclusion of videos and audio records, pop-up bars, multimedia graphics, photogalleries etc. which make such a journal more attractive and user friendly compared with the printed version.

Most publishers continue to publish their printed titles and simultaneously offer a web version of the printed journal completed with pictures and videos and/or a tablet journal.

This is also testified by the results of research performed by Media Project in the Czech Republic in Q3/2013 on a sample of 4925 respondents with access to the internet. According to these results the questioned readers favour extended versions of titles on the web as an alternative to an electronic platform. The study indicates the following key benefits of the electronic versions compared with printed ones: greater accessibility of electronic versions, easier access, appropriate price, possibility of viewing, interconnection with other media and their sharing. An important advantage is also electronic archiving.

The research also presents factors of the longtime orientation of readers on print media, among them routine and “delight” in reading from paper, unwillingness to pay for information from

the internet and human inclination to laziness, i.e. reluctance to consider transfer to an electronic print platform (Media Project).

4 Trends in publishing in the 21st century

Concerning trends in media in the forthcoming period in view of what has been presented above they can be summarized as follows:

- Print media are interconnected with the internet - so-called convergence or distribution of identical content by various channels (Čuřík, 2012).
- Digital information are employed. In consequence the receivers of medial communication have immediate access to a vast amount of information and it only depends on them which field and which form they will prefer.
- Digital publication which is related with the above makes it possible to bring information to owners of smartphones, tablets and desktops in an absolutely new way.
- New tablet journals only in the on-line version are established. In our country, e.g. Tablet Media (weekly periodical “Dotyk“ (touch) and “Dotyk Byznys“ (Touch business)) and Optio (musical monthly Headliner) are specialized in publishing tablet journals.
- The number of readers and popularity of digital journals grows. This is related with the growing interest in presentations of firms, growing revenue from digital advertisements and charges for downloading journals. The revenue from the publishing of digital journals showed the fastest growth. The total revenue from digital journals will reach USD5.2bn in 2016. Owing to the fact that publishing houses appear to find a higher potential in the transfer from free-of-charge to payed access to digital journals, the revenue from digital journals will increase from 4% of the total revenue from journals in 2013 to 11% in 2016 (FIPP World Magazine Trends 2014/2015).
- Attempts have appeared to influence media by politicians and by the sphere of business and the related effort to connect political power with the ownership and control of significant media companies in the Czech Republic (e.g. A. Babiš, owner of the Mafra publishing house and Radio Impulse) and abroad, (e.g. S. Berlusconi, owner of Mediaset).

- The user routines of receivers of media communication are changing. Mobile phones are mostly used in the morning. During the day PCs dominate, whilst in the evening, approx. between 19:00 and 23:00 hours, tablets are used most frequently (Tablet Media).

It must be mentioned that digitalization has its limits and that it depends on the particular experience and priority of the given publishing house. As an example let us mention the experience of the US weekly Newsweek. The print version of the journal ended after 79 years in 2012 and was replaced exclusively with a digital version. Subsequently this step was not evaluated as optimal and since 2014 the publishing house decided to return to the print version. The print version started to be published from the autumn of 2015 also in Czech.

5 Case study of MM Publishing, Co.Ltd.

In the next chapter an example will be shown of the change of the business model of a selected publishing house which, in response to global trends, decided newly to include in its portfolio the digital version of its journal.

5.1 Introduction of the publishing house

MM publishing, Co.Ltd. Publishes a technical monthly journal specialized in mechanical engineering MM Průmyslové spektrum (MM Industrial Spectrum) (www.mmspektrum.com) in the Czech Republic since 1997. It primarily provides information on current domestic and international trends in specific sectors of the field. The journal is intended for middle and higher company management, designers, technologists, importers and exporters, personnel in research and development, and the staff of universities and secondary technical schools. The publishing house also publishes a scientific journal “MM Science Journal” in English and a number of professional technical publications.

5.2 Reasons for digital publishing of the MM Tablet version

The management of the publishing house decided to follow global trends and started publishing an on-line version for tablets and smartphones for iOS and Android operating systems. MM Tablet publishes most interesting information from print issues supplemented by unpublished photo material and videos, which represents a new dimension and an interactive level. Available

are also special articles, reports and information only for the tablet version. Download is free-of-charge.

This change was accompanied by very high costs for the purchase of new software and licences for publishing, education of staff, graphic works, and marketing and expert consultancy services. The first issue of the tablet version of MM was released in March 2014 and there were five further issues the same year.

The publishing house found this change of the business model to be very strategic and with a big potential in the future. It was anticipated that this innovation could be very attractive to readers and could also have a commercial effect. This meant that firms interested in being presented in this way were to be addressed.

5.3 Survey using a questionnaire

A year after the start of digital publishing the publishing house performed a survey of the satisfaction and popularity among target readers since the number of downloads unfortunately did not correspond with the expectations of the publishing house. Over 60 respondents were selected and addressed from the professional and general public. 85% were men and 15% women, which corresponds with the fact that the journal is devoted to technology and men prevail in this field. The age of the respondents was in the range from 18 to 55 years. Most of the respondents work in the field of mechanical engineering. Approximately 22% of the addressed persons filled in the questionnaire. Another 20% of the respondents informed the publishing house that either technical conditions or restrictions from their management prevented them from downloading the tablet journal.

The survey was orientated on a particular edition No. 6/2014 – and further on preferences in the consumption of digital journals, equipment with digital devices and use of a particular operating system.

The results of the survey can be summarized as follows:

- Respondents liked animated titles and the introductory parts of articles. However they require minimum pauses during the onset of individual elements of the animations (they criticized longer time periods).
- Respondents are not interested in the graphic format of the journal (e.g. in a PDF file format) and neither in the flip digital version of the printed journal.

- Operation with the journal is considered by the respondents to be simple and user comfortable. A simpler user environment is not required.
- Respondents amuse themselves by finding hidden windows, looking at photogalleries, uncovering puzzles and other interactive elements.
- The structure of the journal was found to be well-arranged, a single-column arrangement of pages is preferred.
- The respondents could not agree on the favoured form of the display of titles (horizontal vs. vertical)
- The shortest size of a file (max. 120MB) is unambiguously most favoured. Downloading of bigger files is problematic (capacity of the hard disc, time consuming...)
- Respondents most of all read the journal on a 9'' or bigger tablet.
- Use of the operating systems iOS and Android is roughly equal.
- Respondents generally agree that they are interested in the commercial presentations of firms. In this category they favour static graphics without animation.
- Bad legibility on mobile phones was criticized and also the fact that some data could not be magnified.

5.4 Analysis and conclusions of research results

With respect to the above the publishing house decided to adopt certain measures. Cooperation was established with an external firm Optio CZ which has longtime experience with the creation of digital journals. The following most significant changes were made:

- The size of individual editions was reduced from the original approx. 180MB to approx. 120MB.
- Newly the journal was offered besides for operating systems iOS and Android also for Windows. The journal can be read not only on a tablet and smartphone but also on a desktop.
- Instead of only one version of the journal for all types of devices, three different versions, one for tablets, one for smartphones and one for desktops were created. Each type of device has different requirements on graphics and on its operation.

The above measures were a bound forward for the tablet journal. At present the publishing house is busy with marketing in an effort to increase the awareness of the journal and the interest of the public.

From the above it follows that in the creation of a digital journal, besides a high-quality content which is the fundamental prerequisite of success, the following aspects play a significant role:

- Technical parameters of the journal – final size of the file (a large file can discourage from downloading and reading), respect for the differences and possibilities of displaying on individual devices on which the journal is read (tablet*smartphone*desktop).
- Correctly targeted marketing which defines and addresses new readers and is simultaneously aimed at downloading and “loyalty” to the title (in this respect a significant instrument is functional notification (advice) of the new edition of the journal automatically displayed on the device which previously downloaded the application).

6 Advantages and disadvantages of digital publishing – view from experience

Digital publishing experiences a great boom and at present is obviously one of the paramount trends in the sphere of media. Summarized below are the advantages and disadvantages of the transfer from the print to the digital version of a journal for tablets and smartphones from the aspect of the publisher. Their definition reflects the practical experience of the publishing house MM Publishing in the publishing of its tablet journal MM Science Journal.

6.1 Advantages

1. The design of the tablet journal is similar to that of the print journal. It maintains its advantages concerning the layout, arrangement in pages, clear arrangement. In addition it permits inclusion of attractive interactive elements such as animation, photogalleries, videos, multimedia graphics, etc.
2. It enables the journal to address and communicate with readers, to give them advice of new editions, to gain operatively feedback in the form of a questionnaire or to contact the publishing house with a single click by e-mail.
3. Costs pertaining to printing, distribution and for searching distribution channels, which represent the highest item in the publishing of print media, are eliminated.

4. A journal published digitally can be corrected retroactively e.g. if the date of the advised events was changed, this can be simply corrected.
5. The number of users of smartphones and tablets grows which in turn increases the potential of the family of readers.
6. Presentations of firms – advertisements can be published by applying interactive methods, e.g. by inserting a video with the offered product. This increases the interest of firms in such presentations and the earnings of the publishing house from mobile advertising.
7. Statistics can be monitored of the interest in particular articles, the number of downloads of the journal, number of clicks etc., and thus to obtain immediate feedback on the interest of readers.

6.2 Disadvantages

1. An optimum graphics programme must be selected for the production of the digital version of the journal. Many of them are available on the market (DPS, Tribo, CoverPage) and each of them has its own advantages and disadvantages.
2. It is important to count with high initial costs (leasing of the graphics programme, training of graphic designers and gaining enough initial capital).
3. Further capital is necessary for public publishing and downloading (volume of data).
4. After regular upgrading of operating systems they are subject to some instability.
5. An optimum user comfort must be guaranteed and different variants prepared for tablets, smartphones and desktops. Simultaneously the different possibility of displaying which each type of device can offer must be considered.
6. The operation of the medium must be guaranteed on all platforms, i.e. Android, iOS and Windows in order to enable all users of smart devices to have access to the published information.

Conclusion

The present period is characterized by great changes including the world of media. On-line media have become a current component of the media landscape. This is an unambiguously positive signal to receivers of media communication because the ways how to gain access to necessary information are continuously improved and accelerated. It depends only on them

what type of information they favour and in which form they will receive them. If publishers and media companies want to be successful they must adapt themselves to this situation and be abreast with global trends.

“Technology, product, content, data, advertising and distribution are inseparable... We need to be in control of the whole experience.” (Duncan, 2016).

Particular information presented in this introductory study serve as a basis for further research in the field of digital media, preferences of readers and related changes of business models of publishers.

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RELATIONSHIP BETWEEN UNEMPLOYMENT AND ENTREPRENEURIAL ACTIVITY: EVIDENCE FOUND AMONG VISEGRAD COUNTRIES

Ondřej Dvouletý – Jan Mareš

Abstract

The following study is focused on the relationship between the registered business activity and unemployment rate in Visegrad countries over period of years 1998-2014. The aim of the research was to investigate whether in the periods of higher unemployment rate, individuals engage into entrepreneurial activity, no matter if they are opportunity or necessity driven entrepreneurs. Our data set consists of data collected from national statistical offices, World Bank, Eurostat and other sources. Panel regressions were employed and econometric models with dependent variable registered businesses per economically active inhabitant were estimated. Econometric models estimated with fixed effects and lagged variables confirmed positive relationship between the entrepreneurial activity and unemployment rate. The increase of unemployment rate led to increase of overall entrepreneurial activity. The positive impact on registered business activity was also found for GDP per capita, growth of share of population with tertiary education, growth of business freedom and growth of R&D expenditures. Negative relationship was confirmed for the amount of days required to set up business. Finally, the increase of registered business activity led to decrease of unemployment rate.

Key words: registered business activity, level of entrepreneurial activity, entrepreneurship, unemployment rate, regression analysis

JEL Code: M2, M1, L260

Introduction

Entrepreneurship is nowadays perceived more than before as a factor significantly contributing to the economic development through innovation and creation of new employment opportunities and hence there is recent increase in research dedicated to entrepreneurship and

its determinants (Grilo and Thurik, 2004). Political authorities expect decrease of unemployment rate and increase of economic growth from entrepreneurial activity. This year we celebrate 25 years of existence of the Visegrad Group that associates the Czech Republic, Hungary, Poland and Slovakia (V4) and therefore we devoted this study to investigation of relationship between entrepreneurial activity and unemployment rate as a contribution to future common development of our entrepreneurial policies, such as those focused on reduction of unemployment and promotion of entrepreneurship. According to Global Entrepreneurship Monitor (2016) on average 5.5 % of 18-64 population were involved in ownership or management of established business activity in V4 countries in 2011.

Different outcomes across countries and over time, when analysing relationship between entrepreneurship and unemployment rate were obtained by researchers (Baptista and Thurik, 2007) and such a study is still for V4 countries missing. Koellinger and Thurik (2012) argue, that when people lose jobs and unemployment rate is high, they may engage into entrepreneurial activity to make for living. Cueto et al. (2015) explain, that this effect works only in the cases when unemployment rate increases significantly, reducing regional employment opportunities. Fritsch et al. (2015) conclude on German data that new business registrations were positively associated with higher unemployment rate. To test these relationships, authors mainly use econometric approach and quantify effects with up to two years lags. The following hypothesis are therefore to be tested in this article:

H1: Higher unemployment rate is associated with higher level of entrepreneurial activity

H2: Higher level of entrepreneurial activity is associated with lower unemployment rate.

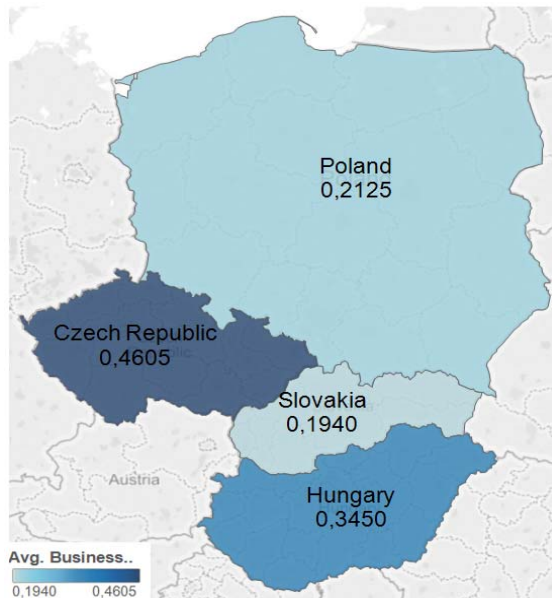
1 Data

Collected data were formed into a panel of four Visegrad countries covering period of years 1998-2014. The dependent variable is registered businesses per economically active inhabitant (BUSINESS_ACTIVITY_EAP), representing country level of entrepreneurial activity and was collected from national statistical offices of Visegrad countries¹⁰. We had to calculate rate of registered business activity, because population surveys, such as Global Entrepreneurship Monitor do not provide sufficiently long time series needed for econometric analysis.

¹⁰ Central Statistical Office of Poland, Czech Statistical Office, Hungarian Central Statistical Office, Slovak Statistical Office (2016)

According to our calculated average rate of entrepreneurial activity, the highest rate was during examined period in the Czech Republic, followed by Hungary, Poland and Slovakia as can be seen on Figure 1. Number of economically active inhabitants used for calculation comes from Euromonitor database (2016).

Figure 1 Average rate of entrepreneurial activity in V4 countries over period 1998-2014



Source: Tableau, own elaboration

The main investigated explanatory variable, unemployment rate (UNEMPLOYMENT_RATE), was obtained from Eurostat (2016). GDP per capita (GDP_PER_CAPITA) and amount of expenditures for research and development (RD_EXPENDITURES) in constant (2005) US dollars were collected from World Bank (2016). From the same source was collected share of tertiary educated population (TERTIARY_EDUCATION). Doing Business statistics contain time required to start a business in days (DAYS_START_BUSINESS)¹¹. Business freedom index (BUSINESS_FREEDOM_INDEX), part of Index of Economic Freedom was obtained from Heritage Foundation (2016). Descriptive statistics are presented in Table 1 below.

¹¹ Authors are familiar with the fact, that there are various legal forms of business entities and therefore the actual amount of days required to start business may differ. However since this indicator is comparable across V4 countries we use it as a proxy variable for bureaucratic barriers of potential entrepreneurs with all its limitations

Table 1 Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
<i>BUSINESS_ACTIVITY_EAP</i>	0.302978	0.255789	0.518496	0.149688	0.117113	68
<i>BUSINESS_FREEDOM_INDEX</i>	69.82500	70.00000	85.00000	53.70000	6.528957	68
<i>DAYS_START_BUSINESS</i>	26.94792	25.50000	103.0000	4.000000	18.44810	48
<i>GDP_PER_CAPITA</i>	11199.64	11044.74	15726.85	6241.784	2552.946	68
<i>RD_EXPENDITURES</i>	0.882928	0.820400	1.905250	0.449660	0.331663	64
<i>UNEMPLOYMENT_RATE</i>	10.79706	9.650000	20.00000	4.400000	4.407151	68
<i>TERTIARY_EDUCATION</i>	13.71618	12.95000	23.80000	7.700000	4.024685	68

Source: EViews, own elaboration

1.1 Stationarity of variables

Before we proceed to estimation of econometric models we need to make sure, that all variables are stationary, to avoid misleading spurious regression estimates (Verbeek, 2012). We tested all variables with Levin, Lin & Chu unit root test for panel data built in EViews software. Unfortunately, not all variables were found to be stationary at least on 10% level of statistical significance. Therefore variables *BUSINESS_FREEDOM_INDEX*, *RD_EXPENDITURES* and *TERTIARY_EDUCATION* had to be transformed into growth form. Additional testing confirmed their stationarity. The next section is dedicated to description of estimated econometric models.

2 Econometric analysis

Regression analysis is used to evaluate our stated hypothesis, mainly the relationship between registered entrepreneurial activity and unemployment rate. Econometric models were estimated in software EViews 8. As for estimation technique, fixed effects estimation approach was chosen, because our data set consists of states that generally do not change over time. Fixed effects approach was also confirmed, when we tested for redundancy of fixed effects and also by Hausman test. Violation of econometric assumptions in sense of autocorrelation and heteroscedasticity was solved by estimation with White cross-section standard errors & covariance (d.f. corrected). Level of collinearity among independent variables was controlled by Variance Inflation Factors test and normality of residuals was tested by Jarque Bera test of normality (Verbeek, 2012). We conclude, that presented models in Table 2 satisfy econometric assumptions and therefore may be used for interpretation.

2.1 Interpretation of results

The results of regression analysis are divided into two parts. Firstly, we investigated factors affecting level of entrepreneurial activity, that was set up as dependent variable and testing the influence of unemployment rate (Models 1-7) and secondly, we quantified the impact of entrepreneurial activity on unemployment rate (Models 8-10) using up to two years lag. Models 1 and 5 confirmed statistically significant initial positive impact of unemployment rate on entrepreneurial activity with different control variables. Models 2 and 6 confirmed positive impact of unemployment rate on entrepreneurial activity lagged by one year and in Models 3 and 7 positive impact of unemployment rate lagged by two years. Hence H1 is confirmed, concluding that higher unemployment rate was associated with higher level of entrepreneurial activity in V4 countries during analysed period. In the times of higher unemployment rate, entrepreneurship may become a solution for individuals who lost their jobs or better alternative opportunity in terms of earnings and other values.

Models 1-7 allow us to provide interesting findings about determinants of entrepreneurial activity. Our results proved statistically significant positive impact of growth of business freedom on entrepreneurial activity and on the other hand, negative impact of the amount of days required to set up business. Based on these findings, we conclude that business environment and administrative procedures matter and affect decision of current and potential entrepreneurs to engage into entrepreneurial activity or disengage from it. Growth of R&D expenditures positively affected entrepreneurial activity through mechanism of new scientific knowledge creating entrepreneurial opportunities that are exploited by entrepreneurs. Growth of tertiary educated population positively affected level of entrepreneurial activity in Visegrad countries, supporting argument, that individuals equipped with more resources tend to more likely engage into entrepreneurship. Higher GDP per capita positively influenced the level of entrepreneurial activity up to two years lag.

Models 8-10 investigated the impact of entrepreneurial activity on unemployment rate. Model 9 confirmed negative impact of entrepreneurial activity on unemployment rate lagged by one year and in Model 10 negative impact of entrepreneurial activity lagged by two years. In Model 8 we were unable to find statistically significant initial positive impact of entrepreneurial activity on unemployment rate, even the coefficient had negative sign. One explanation could be that it takes time to make newly established business operational and therefore it takes some

time to hire new employees. Also, entrepreneurs would more probably firstly seek in the rows of employed professionals and then secondly in the crowds of those who are unemployed. It may take up to two years to decrease unemployment rate after increase of level of entrepreneurial activity. With this statement we support H2.

Tab. 2: Model table

Variable / Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Dependent variable	BUSINESS_ACTIVITY_EAP									
UNEMPLOYMENT_RATE	0.003387*** (0.000821)			0.000359 (0.001591)	0.005946*** (0.001054)					
UNEMPLOYMENT_RATE(-1)		0.003408*** (0.000802)				0.005756*** (0.000948)				
UNEMPLOYMENT_RATE(-2)			0.003292*** (0.000649)				0.005634*** (0.000811)			
GDP_PER_CAPITA					2.26E-05*** (1.09E-06)					
GDP_PER_CAPITA(-1)						2.16E-05*** (1.11E-06)				
GDP_PER_CAPITA(-2)							2.11E-05*** (1.13E-06)			
DAYS_START_BUSINESS	-0.001532*** (0.000304)	-0.001524*** (0.000280)	-0.001517*** (0.000271)							
TERTIARY_EDUCATION_GROWTH	0.010559* (0.006045)	0.015049** (0.006208)	0.020072*** (0.006905)	0.028519** (0.013830)						
BUSINESS_FREEDOM_GROWTH	0.000770*** (0.000112)	0.001010*** (0.000171)	0.001023*** (0.000188)	0.000433 (0.000625)						
RD_EXPENDITURES_GROWTH				0.210802** (0.081484)						
BUSINESS_ACTIVITY_EAP								-4.906641 (5.771832)		
BUSINESS_ACTIVITY_EAP(-1)									-9.124414* (5.118883)	
BUSINESS_ACTIVITY_EAP(-2)										-11.83753** (5.870469)
CONSTANT	0.320572*** (0.011495)	0.315232*** (0.000171)	0.311389*** (0.014828)	0.274032*** (0.020675)	-0.014884 (0.020697)	0.005164 (0.018984)	0.019474 (0.017319)	12.28366*** (1.773000)	13.61416*** (1.527606)	14.35673*** (1.763602)
R-Squared	0.978961	0.979899	0.979684	0.917962	0.959410	0.966804	0.972721	0.579377	0.587543	0.576391
Adj. R-squared	0.975279	0.976382	0.976129	0.906918	0.956136	0.963943	0.970195	0.552671	0.559580	0.545583
F-statistic	265.8879	278.5686	275.5538	83.12180	293.0922	337.8427	385.1033	21.69446	21.01130	18.70915
Observations	48	48	48	60	68	64	60	68	64	60

Note: Standard Errors are in parenthesis *** stat. significance on 1 %, ** stat. significance on 5 %, * stat. significance on 10 %.

Source: EViews, own elaboration

Conclusion

Presented article is dedicated to investigation of relationship between the registered business activity and unemployment rate in Visegrad countries over period of years 1998-2014. Following econometric approach we conclude that higher unemployment rate was associated with higher level of entrepreneurial activity in V4 countries during analysed period. These findings were stable with expansion up to two years lag of unemployment rate. Our findings support results of former scholars investigating the impact of entrepreneurship on unemployment rate. Results of econometric models were unable to statistically confirm initial negative impact of entrepreneurship on unemployment rate, however we were able to prove this effect with usage of lags one and two of entrepreneurial activity confirming negative influence of entrepreneurship on unemployment.

For future coordination of entrepreneurial policies of Visegrad countries we strongly support activities promoting engagement into entrepreneurial activity, especially during times of economic recessions and higher unemployment rates. Policy makers should be however familiar with fact that effect of entrepreneurship on unemployment rate may take up to one year, before it appears. Another implication of our results is that business environment and administrative barriers have significant impact on entrepreneurial activity. Therefore any efforts aiming at reduction of administrative barriers for potential entrepreneurs should be definitely supported.

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WHAT DID SAP CHANGE? A MARKET SHAPING ANALYSIS

Burak Erkut

Abstract

The market for enterprise resource planning (ERP) software was analysed in the contexts of computer science, business models and history. However, the impact of SAP which has driven the ERP market was not analysed in the framework of economic theories. Especially a new direction within marketing which aims to re-connect it to markets, can be an interesting point of departure for the analysis. The analysis is based on the business history of the software firm SAP as well as a theoretical framework. The point of view of the study is evolutionary economics, which focuses on the role of innovation and knowledge generation in an open loop evolving, non-pre-determined economic system. Findings suggest that SAP's impact was mainly on agency costs, transaction costs and network effects. These three points suggest a similarity to the market shaping impact of internet economics, put forward by Dholakia and co-authors (2002).

Key words: Market shaping, product innovation, SAP, evolutionary economics

JEL Codes: B52, O30, L10

Introduction

The global market for enterprise resource planning (ERP) software is expected to reach \$41.69 Billion by 2020 according to Allied Market Research, 2015. ERP software is aimed at businesses for organizing their own business processes. Although the emergence of the ERP market was analysed from the perspectives of computer science, business models and history, it lacks an economic framework to understand its economic impacts, and contribute to the understanding of shaping of a new market.

1 The ERP Market

The meaning and the emergence of a new market or a new market segment is important for every developed economy. Especially for the competitive advantages of economies, the role of

innovation gained importance during the last decades. Not only countries, but both national and multinational firms need to find innovative ideas and to create new market segments for their future existence.

The focus of innovation research is on how to find relevant target groups outside the companies for finding innovative ideas (Chesbrough, 2003), whereas the entrepreneurial research is going in the direction of exploring and explaining entrepreneurial orientation in a broader context, combining both personal characteristics of existing and potential entrepreneurs and the economic landscape such as conditions, opportunities and cultural influences (Saeed et al., 2014). Some scholars found out that by focusing more on the emergence stage of new market segments, and connecting market emergence stage to marketing can increase the explanatory power of the latter (Araujo et al., 2010).

How does a product innovation contribute to the shaping of a new market segment? This is the question behind the history and the evolution of ERP market. The evolution of business integration concepts is a key factor in understanding today's ERP market which evolved from material requirements planning and manufacturing resource planning (Klaus et al., 2000). Starting with the aim to have more precise calculations for needed materials, the next step was having a more efficient manufacturing process – the more profitable these steps were, the more interest emerged for applying it to the enterprise as a whole (Klaus et al., 2000). In 2013 worldwide ERP software market had a volume of \$25.4 Billion, where the five biggest shareholders of the market are SAP (24%), Oracle (12%), Sage (6%), Infor (6%) and Microsoft (5%) (Columbus, 2014). Software products of the ERP market target building digital infrastructures, and their evolution continue towards cloud computing.

2 The Role of SAP

In addition to being the biggest shareholder of the ERP market, SAP is also the largest European software firm with an annual revenue of €20.8 billion (see sap.com for more details). The role of SAP as the market leader in the ERP market goes back to the product innovation made by its founding team in 1970s. Founded in Mannheim, Germany, SAP introduced a standardized business software for integrating business processes in real-time (Leimbach, 2010) for the first time in computer history – at a point of time where the computer industry in USA was more developed than that of Germany.

A number of factors seem to be effective in SAP's success (Meissner, 1997). Some interesting facts need to be mentioned: The founders were all former employees of IBM, they were able to observe different business processes of different clients of IBM, they financed themselves for a very long period of time, they were a heterogeneous team with different competencies, their geographic location was full of international customers which led them use English in their programming procedures, they were the first ones introducing a particular product innovation to the market, they used a word-of-mouth strategy to build on a previous innovation of a team member known in the region, to mention only a few. Since this paper is the first of a series of papers, the question of whether SAP's story is a pre-defined success story, and which factors caused its success, will be answered later on. At this point, the emphasis will be put on the forming and leading firm of ERP market, and what its impact was and still is.

3 Economic Impacts

What did SAP change in economic terms? The economic impacts of the introduction and implementation of the software programme can be analysed within the framework of Dholakia et al. (2002). This framework analyses infrastructure innovations and their economic impacts, which is applicable to ERP since implementing an ERP system is accepted as a digital organizational infrastructure innovation (Clagett and Berente, 2012).

3.1 SAP's Product Innovation

What were the innovative notions of SAP's "System R"? SAP introduced a new software which was standardized for businesses (1), integrating business processes for sales, materials management and accounting (2) and allowing to enter data in real-time (3) (Leimbach, 2010). Starting with a prototype for a single client (where they were not sure, whether they would continue with selling the programme), the SAP founders learned with each installation and shaped a new market segment (Meissner, 1997). The economic impacts of this product innovation and the corresponding emergence of a new market segment can be described with three effects.

3.1.1 Agency Costs

Diverging interests of the owner/manager of an organization and the agents who carry out tasks for the owner/manager may lead to agency costs (Dholakia et al., 2002). ERP decreases administrative reporting costs, costs of coordinating and monitoring the activities of agents as

well as costs of errors in product and information (Poston and Grabski, 2001). The latter point was a crucial factor associated with entering data in real-time, which was made possible with SAP's "System R". The previous method of entering data was by using the batch processing using punch cards (Leimbach, 2010) which caused huge delays and errors in planning and production.

3.1.2 Transaction Costs

Transaction costs are "costs of acquiring the knowledge which is necessary to make transactions or the costs of making arrangements to counteract the irremediable lack of knowledge about the future" (Loasby, 2002, p. 76). ERP systems reduce the costs of "search, transportation, inventory holding and communications" (Poston and Grabski, 2001, p. 278) which were also reflected in the initial form of SAP's software programme consisting of three modules (sales, materials management and accounting) to give an overview of business processes with accurate information processed in real-time.

3.1.3 Network Externalities

Infrastructure technologies are considered as network technologies linking people and institutions where "the economic benefit of the network derived by each linked node increases as the size of the network expands" (Dholakia et al., 2002, p. 38). In case of more organizations joining the ERP system, cost efficiencies come into existence for present organizations, since "the zero or very low marginal costs for information reproduction reduces the high ERP implementation costs" leading to positive network externalities (Huang et al., 2004, p. 691). In fact, SAP founders' initial observation of similarities in business processes of different firms (Meissner, 1997) can be interpreted as a move towards making use of network externalities – since the absence of a standardized business software led the programmers to create a new programme for every new customer every time.

3.2 Market Shaping and Entrepreneurial Discovery

A successful product innovation pioneers the emergence of a new market segment. This emergence does not occur with an external shock, but rather with the imagination and actions of human beings (Witt, 1998). SAP's founders introduced their standardised, integrated business software in real-time at a point of time where it was the first of its generation, an advantage which SAP still keeps today as it is the biggest shareholder of the ERP market.

Since finding an innovative idea, establishing an entrepreneurship, designing a business conception and therefore shaping the market are all very individualistic actions, they do not necessarily need to be pre-determined; “of many ideas about technological and commercial activities which may be developed by many people, only a tiny fraction is actually turned into a venture in the form of a multi-person firm” (Witt, 1998, p. 175) implying a selection process. In general, processes influenced by human agents suffers from simplifying stylizations (Lehmann-Waffenschmidt, 2010). These include product innovations and markets as well, even though these concepts “begin as gleams in the eyes of individuals” (Sarasvathy, 2001, p. 261) and are contingent to environmental, social, technological conditions.

Examples from SAP’s founding story include Hasso Plattner’s choice of customer service against working in the R&D lab of IBM (Plattner et al., 2000), which led him share his office with his later business partner Dietmar Hopp. Another example is how he dropped all the punch cards to the floor on a rainy day, on which the software program of SAP was coded; Plattner claims that if he did not dry all the cards immediately, they might have never had SAP’s software program R (Srinivasan and Neumann, 2009). A third example include how long the start-up period of SAP lasted, namely 15 years all by own financing, where SAP collaborators claim that with an external financing, they needed to show sound results immediately, which might not occur and SAP would not be today’s successful SAP (NWZ Online, 2015).

These all point out to the contingent nature of entrepreneurial discovery. Defining contingency as “not impossible, but not necessary” (Lehmann-Waffenschmidt, 2010, p. 482) implies that these past events have at least one other alternative possible event, which was not realized. Focusing on the concept of contingency, which has a long tradition in the management literature (see e.g. Woodward 1965), can be applied to the concept of entrepreneurial discovery if it is also seen as in the midway between chance and necessity. According to Kirzner (1997), entrepreneurial discovery can be defined as “midway between deliberately produced information in standard search theory, and that of sheer windfall gain generated by pure chance” (Kirzner, 1997, p. 72).

These all lead to the contingent character of an entrepreneurially driven market process, where “the progress of any particular innovation (...) will depend on a variety of contingent circumstances” (Tidd and Bessant, 2014, pp. 76-77). The market process is built upon competition as a discovery procedure where “the situation is somewhat like agreeing to play a

game based partly on skill and partly on luck” (Hayek, 2002, p. 16). Although the provided framework of Dholakia et al. (2002) provides a relevant point of departure for understanding the economic impact of SAP's, however, a new question arises: Is SAP a pre-defined success story, or would its development and therefore the development of the ERP market be different than realized due to the existence of alternative possible events? The next step will be providing a conceptual framework for analysis.

Conclusion

Introduction of a new product and its economic consequences was the key point of this paper. The case study was SAP's market shaping role in ERP market, which came into existence with the corresponding product innovation aiming to provide a standardized business software in real-time with integrated business processes. The economic impact of this development was considered within the framework of Dholakia et al. (2002) based on agency costs, transaction costs and network externalities – emphasizing the importance of a closer analysis of SAP's business history to understand both today's ERP market and the notions of product innovation and market shaping. The contingent character of the entrepreneurially driven market process was discussed within theoretical considerations going back to Kirzner (1997) and Hayek (2002). The next goal was set as providing a conceptual framework for the further analysis.

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EXPERT SYSTEM FOR WAREHOUSE STOCK OPTIMIZATION

Radim Farana – Ivo Formánek – Bogdan Walek

Abstract

Currently, many companies try to optimize their system of warehouse stock management to minimize their production costs. The optimization means mainly optimization of processes like resources adjustment, resources planning, purchasing, deliveries, sales etc. The goal is clear – not to spend too much money for stock.

There are various information systems more or less successfully anticipating and predicting the quantity of resources that should be ordered. These systems usually apply prediction based on sales in the previous period. In most cases the managers can also adjust the prediction based on their knowledge and experience. But not every company has so experienced managers. Therefore it is advantageous to have something like expert system for this.

The paper will introduce an expert system which will use a knowledge-base based on managers' knowledge and experience and other influences affecting the prediction in order to predict and propose the quantity of necessary resources that should be ordered. Individual steps and parts of the expert system are described in the paper. The proposed expert system is verified on a particular example, i.e. in practical application.

Key words: expert system, fuzzy logic, optimization, warehouse stock

JEL Code: C49, C53, C61

Introduction

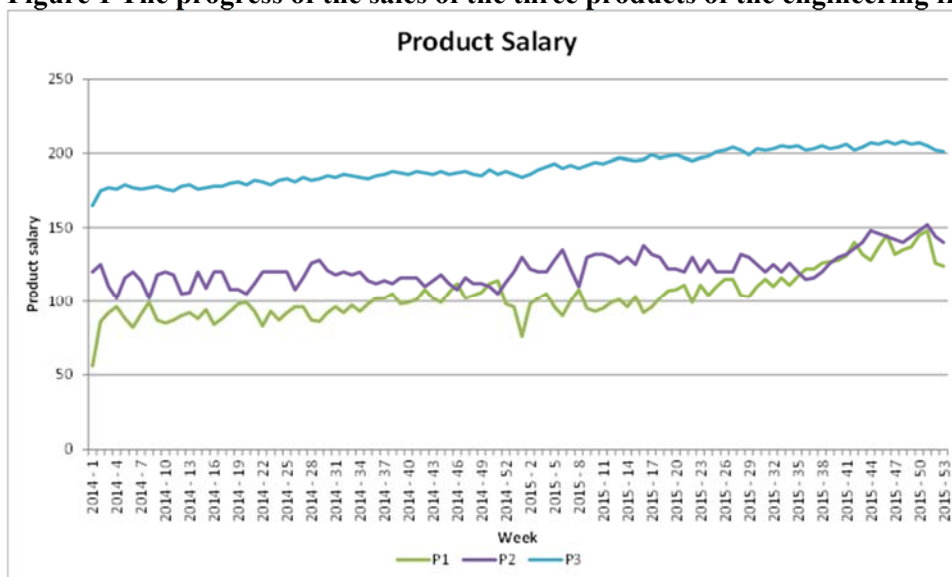
Currently, many companies try to optimize their system of warehouse stock management to minimize their production costs. The optimization means mainly optimization of processes like resources adjustment, resources planning, purchasing, deliveries, sales etc. The goal is clear – not to spend too much money for stock. There are various information systems more or less successfully anticipating and predicting the quantity of resources that should be ordered.

There are generally used different approaches to the sales prediction and thereby the production planning (Brown, 2000; Swift, 2001). These can be equalized on statistical methods, especially the analysis of time series, but in practise we often come across with very simple approaches that are very robust at the same time, such as method of moving average. Our approach is based on the use of fuzzy logic expert systems (Novak, 1995; Pokorny, 1996). Experts systems, in particular using fuzzy logic are in this area used by a number of authors for different applications (Xu Bin et al., 2010; Zang et al., 2004; Zang, Liu, 2005). The applications of artificial neural networks (Vaisla et al., 2010; Kunwar et al., 2010) or tools of soft computing are also very interesting. As advantage of Rule-Based Expert Systems is a particular opportunity to use the knowledge of experts and their simple expressions by rules. Fuzzy logic then helps us especially with easy expression of dependences among the values which is poorly expressed using crisp values.

1 Design of the expert system for prediction of sales

As an example of the use of the expert system for prediction of sales we use the specific example of the sale of the three specific products of a mechanical engineering company. We have sales data for each of the weeks in 2014 and 2015 (Fig. 1), which are split into two parts. We have used the data 2014 and the first 42 weeks in 2015 to determine the knowledge. The remaining data, then we have used to verify the behaviour of the expert system compared to the prediction based on moving average.

Figure 1 The progress of the sales of the three products of the engineering firm



Source: authors

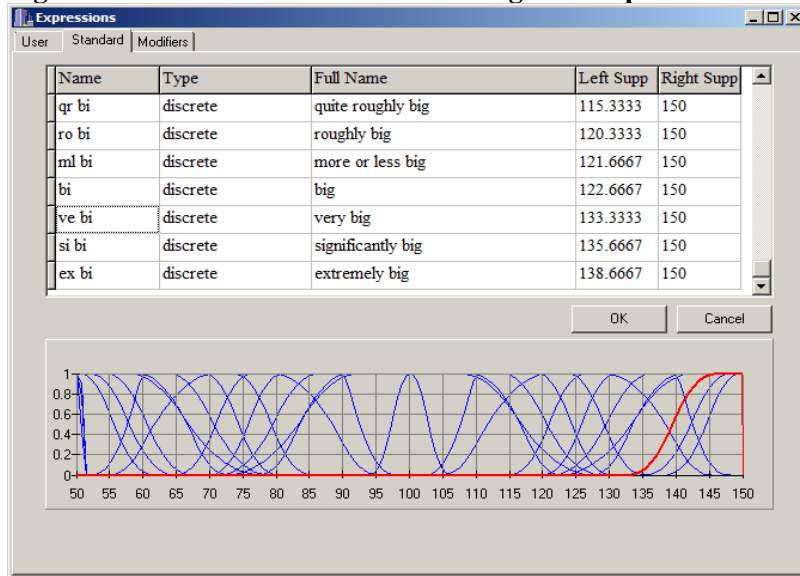
The first task is to determine the parameters of expert system, because we have no other knowledge than the actual sale, we can't use a more comprehensive view of the problem, as in the other cases, see for example Walek, Farana (2015). Thus, as the parameters we set the sales of individual products in the previous two weeks. For the realization of the expert system, we will use the Linguistic Fuzzy Logic Controller (LFLC), see Fig. 3, which is very convenient for practical applications.

Linguistic Fuzzy Logic Controller (LFLC) is a result of application of formal theory of the fuzzy logic in the broad sense (FLb). The fundamental concepts of FLb are evaluative linguistic expressions and linguistic description. Evaluative (linguistic) expressions are natural language expressions such as small, medium, big, about twenty-five, roughly one hundred, very short, more or less deep, not very tall, roughly warm or medium hot, roughly strong, roughly medium important, and many others. They form a small, but very important, constituent of natural language since we use them in common sense speech to be able to evaluate phenomena around. Evaluative expressions have an important role in our life because they help us determine our decisions; help us in learning and understanding, and in many other activities.

Simple evaluative linguistic expressions (possibly with signs) have a general form *<linguistic modifier><TE-adjective>* (where *<TE-adjective>* is one of the adjectives (also called gradable) “small – sm, medium – me, big – bi” or “zero – ze”. The *<linguistic modifier>* is an intensifying adverb such as “extremely – ex, significantly – si, very – ve, rather – ra, more or less – ml, roughly – ro, quite roughly – qr, very roughly – vr”), see Fig. 2.

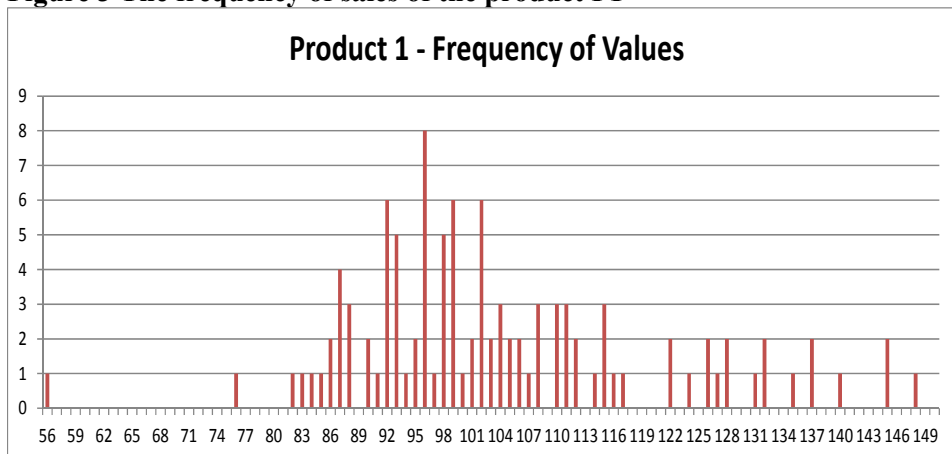
This set of linguistic expressions has been drawn up on the basis of the experience of the creators, but it does not always suit the particular situation. Fig. 3 shows the frequency of each value of sales for the product P1. We can see that most of the values are concentrated in the middle of the interval, which covers little linguistic expressions, so when compiling a system of rules for the expert system, there have often appeared the same value (me). LFLC tool offers the possibility of user-set assembly of evaluative linguistic expressions; see Fig. 3 that will better respond to the current situation.

Figure 2 A standard set of evaluative linguistic expressions of LFLC tool



Source: authors

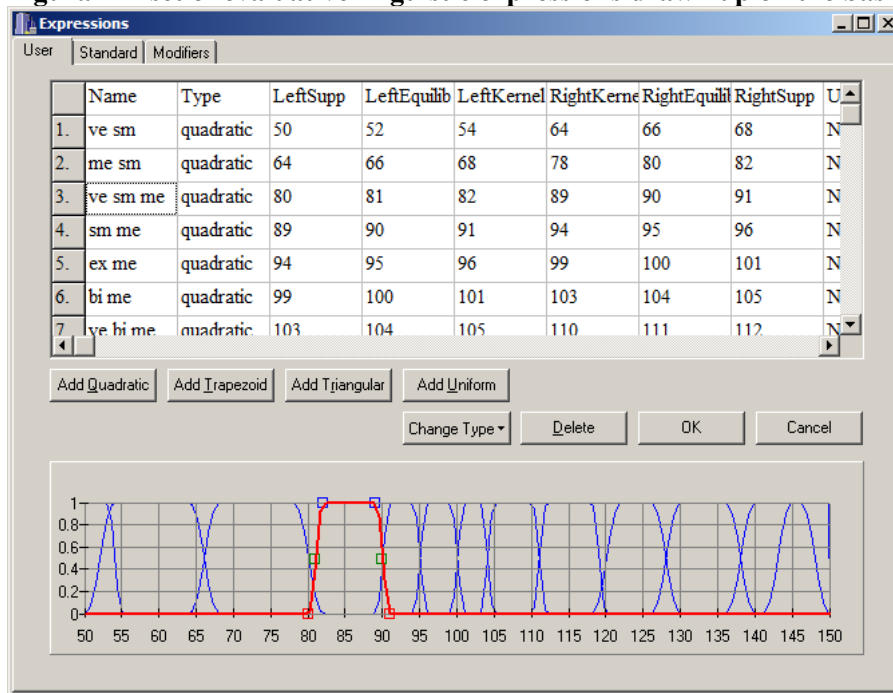
Figure 3 The frequency of sales of the product P1



Source: authors

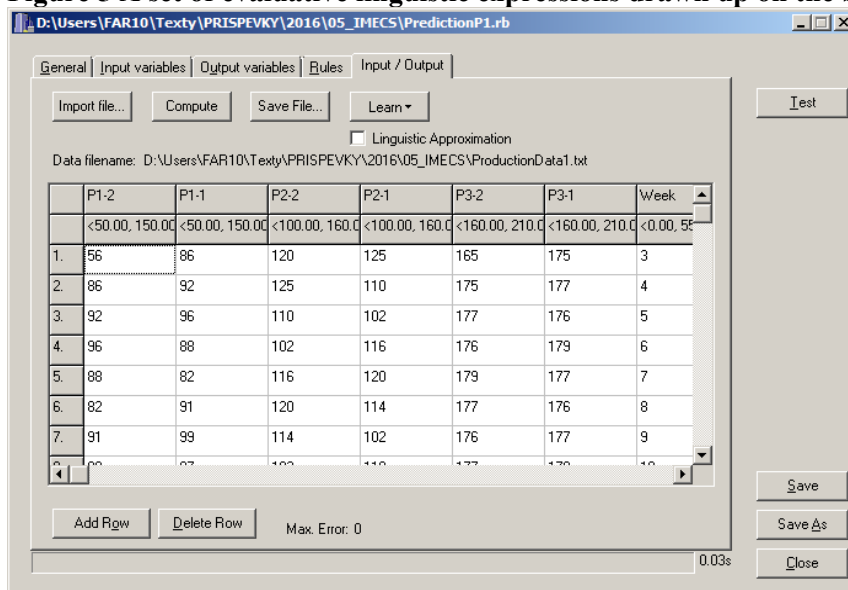
Then we set the rules that describe the behaviour of the system, the sale of products. As already mentioned, in the sample we have no information about external influences, the behaviour of competitors, etc., that would have allowed us to better describe the whole system, which could significantly improve the quality of prediction, see e.g. Walek, Farana (2015), and we need to focus only on known values of sales.

Figure 4 A set of evaluative linguistic expressions drawn up on the basis of expert knowledge



Source: authors

Figure 5 A set of evaluative linguistic expressions drawn up on the basis of expert knowledge



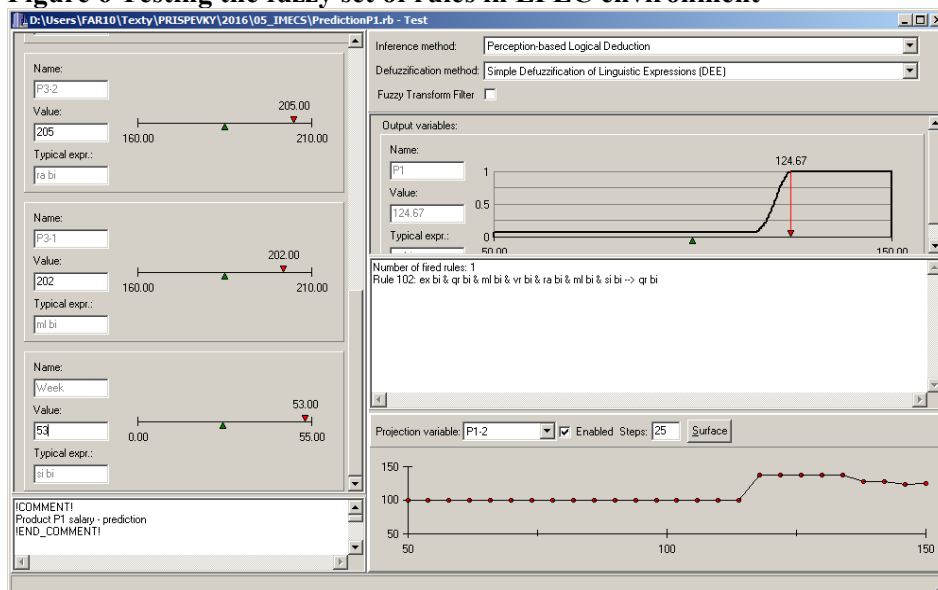
Source: authors

We will use the two previous sales values (marked P1-2, and P1-1, P2-2 and P2-1, P3-2 and P3-1) and set the individual rules predicting the current sale (P1, P2, P3). If we do not have available the knowledge of an expert, we can use the automated system with advantage of

learning system LFLC, which on the basis of known values shall draw up a set of rules, see Fig. 5.

The created set of rules, of course, can contain not only duplicate rules, but also contradictory rules, which it is appropriate to resolve, but the expert knowledge is required. If the contradictory rules are not removed, the system will determine the outcome on the basis of all these rules laid down by the way, typically by the method of Center of Gravity. Fig. 6 shows the testing the behaviour of the created fuzzy expert system for the specified combination of input values.

Figure 6 Testing the fuzzy set of rules in LFLC environment



Source: authors

As already stated, the set of rules has been drawn up on the basis of sales data from 2014 and the first 42 weeks of the year 2015. If we used the expert system for prediction, the results were satisfactory, but the deviation would be similar as the other approaches. Of course, the process of sales, Fig. 1 clears that the sale of the product P1 has a positive trend over the time. This fact we can very easily use for a simple change in the context of the input and output variables, see Fig. 7.

Figure 7 Setting the context of the output variables P1 in LFLC environment

Source: authors

Tab. 1 shows the results of the testing for the solution for weeks 43-53 of year 2015. We can see that compared to the moving average (of the four previous values), the expert system reaches an average half a deviation from the true value.

Table 1 Title of table

Year	Week	P1 - real	P1 - stat	difference	P1 - LFLC	difference
2015	43	132	130	-1,52%	131	-0,76%
2015	44	128	132	3,13%	130	1,56%
2015	45	137	132	-3,65%	138	0,73%
2015	46	145	134	-7,59%	143	-1,38%
2015	47	132	136	3,03%	134	1,52%
2015	48	135	135	0,00%	136	0,74%
2015	49	137	135	-1,46%	136	-0,73%
2015	50	145	137	-5,52%	141	-2,76%
2015	51	148	139	-6,08%	146	-1,35%
2015	52	126	139	10,32%	130	3,17%
2015	53	124	138	11,29%	125	0,81%

Source: authors

Conclusion

The paper has presented a processing of design for the fuzzy-expert system for prediction of sales of products of the engineering company, using the tool of Linguistic Fuzzy-Logic Controller, which has been developed at the University of Ostrava in the city of Ostrava. The described procedure for creating a set of linguistic expressions and automatic assembly system of the rules enables to easily automate the whole process. A simple change of input and output contexts then allows to take into account the global development trend of sales and thus significantly advanced prediction using an existing set of rules.

Experience of using the expert systems prediction of warehouse stock shows that these systems work very well in situations with no unexpected changes or events. The main reason is that the

set of rules contains only aggregated knowledge of situations that already occurred.. Therefore, inference mechanism of expert systems can find solutions just only for situations which are the same as situations occurred in the past or which are very similar to them. The presented example comes from middle-sized engineering company that did not monitor and evaluate the external influences and their effects on the sale. To further refine the prediction and to obtain more accurate prediction, there would have to contribute an analysis of external influences and add the appropriate parameters in the expert system, see Walek, Farana (2015).

Operation of the predictive system in early 2016 has confirmed our expectations with which it has been created. Any deviations in the predicted values continue to move in units of percent. These good results are achieved also by inclusion of new rules to the values of sales which is very easy in case of the expert systems – e.g. unlike artificial neural networks that need a new learning process.

Acknowledgment

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INNOVATIVE APPROACHES TO STRATEGIC SOCIO-ECONOMIC PLANNING OF TERRITORIAL SUBJECTS

Maroš Finka – Vladimír Ondřejčka

Abstract

The limitations of resources, increasing complexity and vulnerability of human systems, fuzzification of the space relating to the definition of belonging and uncertainty in it, increasing a number of decision-making actors are some of the crucial determinants of socio-economic development with a direct influence on all elements of economic systems. Innovation in the management of socio-economic development processes incl. planning seems to be needed reflecting “new conditions” in socio-ecosystems. In this context, the theory of commons represents an innovative approach with potential to face the challenges in conceptual, processual and also institutional level. This paper presents a new approach to the development of socio-economic spatial strategies underlining the role of cooperation and competition in the development processes with special attention to the processes of networking, clustering and development of fuzzy structures.

Keywords: spatial development, theory of commons, fuzzy spaces, socio-economic development

JEL Code: O21, R11, R58

Introduction

The diversity of actors in spatial development, their power and interest in using the resources including the land, in the combination with economic, social and natural processes increases the vulnerability of urban and regional socio-ecosystems to the disturbances such as floods, droughts, earthquakes, fires, overpopulation, economic volatility. Growing shortage of resources and problems in their accessibility leads to growing tension and conflicts among the spatial development actors. In addition, the development of the cities and regions is exposed to numerous short-term (shocks) and long-term (stresses) events that affect the functions and

structure of the territorial socio-ecosystems of the cities and regions (Leach, Scoones, & Stirling, 2010). Spatial development (not only in the EU) is connected with a high concentration of economic activities and population in urban systems. In many cases very rapid processes of urbanization and suburbanization approach natural spatial/territorial limits, such as carrying capacity of land, transport and infrastructural systems, absorption capacities of recipients and others. EU integration and processes of growing together bring not only a higher level of territorial cohesion, but increased interdependencies, growing material and immaterial flows between territorial units and between them and their surroundings and competition across the different hierarchic level. Territorial Agenda 2020 of the European Union (Commissions of the European Communities, 2011) as a key strategic document on spatial development in the EU reflects these facts as the challenges new innovative approaches to territorial governance.

Studying and managing complex socio-ecosystems of the cities and regions representing typical territorial subjects is a challenge for science with important implication for the practice. The problems of their adjustment to different types of disturbances, increasing vulnerability of them connecting with their growing complexity and interdependencies in global environment, exposure to dynamic changes caused by many contemporary social-economical processes (Janssen, Ostrom, & Andriess, 2007), such as economic volatility, global market turbulences lead to the confrontation of traditional management systems with the limits of their capacities. The development of territorial subjects is determined not only by many external shocks and stresses but even multiple internal stochastic factors and multi-actors decisions bringing a high level of uncertainty. The crucial question in this context is how to increase adaptive capacity of territorial socio-ecosystems against external shocks under the increased complexity and uncertainty and to protect their sustainable development. This is not only an important policy question in an increasingly democratic and globally linked era, but also a stimulus to the development of better explanatory theories relevant to governance more generally (Ostrom, 2002).

1 Fuzzification of socio-economic development processes

The new spatial reality is determining the necessity of new modes of governance. This is closely connected with the development of new cooperation structures (networks and clusters) creating different territorially overlapping functional and physical patterns leading to the appearance fuzzy territorial systems and fuzzy spaces across administrative, historic as well as natural

geographical borders in the European Union. It does concern all hierarchical levels starting with the municipal and ending with the EU outer borders. Permeability and openness of administrative borders of territorial units and opening their territories for the development of new functional and spatial structures is the challenge for planning and for the theory and practice of territorial governance. We can speak about fuzzy borders and dominant role of soft functional spaces in the spatial organization independent from traditional organization of territorial government.

With rapid extent of individual human activities across the space, increased mobility of the citizens, free choice of their working place, services, dwelling places, leisure time activities leads to the overlapping of their individual existential spaces given administrative borders of municipalities, regions even national states. The development of different open, mutually inconsistent functional spaces is determined by the whole range of stochastic external and internal factors, different life processes are related to different, only partially overlapping spaces. This increases the level of uncertainty in the definition of territorial belonging of the people and with this in their authorization to take part in the territorially organized decision making based on representative democracy too. In additions uncertainty in spatial development is increased by the decision-making role many individual actors in it.

Fuzziness as spatial quality use to be connected with the quality “softness” in spatial development speaking about soft and fuzzy spaces (Kluvankova-Oravska, Finka, Kovac, & Jilkova, 2013). Fuzziness and softness are very close but not identical qualities. Although in many cases used misleading as a term linked to the spaces equipped with “intelligent” infrastructure, softness of the spaces is first of all the feature of social spaces, related to the perceived quality of spatial framework for human activities and processes, to the development flexibility and openness for self-definition and self-organization processes.

Based on broad empirical research (Finka, Kluvankova-Oravska, Ondrejicka, & et al., 2011) (Finka & Petrikova, 2006) it is possible not only to outline the contexts and conceptual approaches to handle new reality of soft and fuzzy territorial organization, but to look for a proper reaction to the ongoing problems and to propose possible reactions to these challenges in the field of spatial planning based on complementarity of potentially applied traditional and innovative concepts in territorial governance.

2 The theory of commons

One of the innovations reacting on new challenges in spatial development is the implementation of the governance concepts based on the theory of commons. This theory traditionally deals with nature based common-pool resources, their production issues and aspects of their governing and management, but the implications in the sphere of cultural commons and others are well known as new commons too. For the purpose of this article, we use terms common-pool resources and commons in similar meaning. Ostrom et al. defined commons as nature-based and human constructed systems that generate finite quantities of resource units so that one person's use does subtract from the quantity of resource units available to others (Ostrom, 1990). The traditional economic theory includes open-access goods as subtractable and non-excludable benefits of goods, what is similar to respective of Kassa (2008) *when an individual uses a common good, he or she subtracts from the total amount of this good available for others to use* (Kassa, 2008). Nowadays, existing concepts of commons are principally dealing with four basic categories of commons: according to level of knowledge (tradition, new) and according to origin (natural, human-constructed).

Examples of commons are public services such as social security, public transport, health care, urban or environmental space etc. with key characteristics as non-excludability and subtractability, respectively physical and institutional exclusion of beneficiaries is extremely costly (Ostrom, 1990). The links to territorial socio-ecosystems of the cities and regions are obvious.

The commons could be an input, but also an output in the economic values transformation process, regarding to their position within the process. Sharing of the commons by multiple actors in unpredictable complex environment emphasize the three crucial problems: social dilemmas of actors, tragedy of the commons and collective actions of actors.

Individuals jointly using commons are assumed to face potential dilemmas, in which individual short-term interests are in conflict with long-term society interest, set management of commons up critically important in designing effective decision-making strategies under the complexity of multiple actors and competing interest. Collective action problem is also linked to the selfish behavior of actors, but this problem can be overcome through organisation in a group. Actors in group, according to favorable conditions, are willing follow the common interest and ultimately fulfill even their own interest. The central problem here is the phenomenon of free-

riding - user or a group of users that are benefiting from the common-pool resource without contributing to it, respectively they are not willing to cooperate on its maintenance (Ostrom, 1990) (Poklembova, Maco, & Ondrejicka, 2013).

3 Robust self-governance institutions

A big proportion of the inputs and outputs within socio-economic development processes of territorial subjects, as well as the environment framing those processes, can be characterised as the commons. The question is: how to manage the commons sustainably and how to preserve their quality in the long term?

Governing of territorial subjects as the shared resources involves making not simple decisions under uncertainty, in very complex and conflicting environments and contexts. The number of actors of decision making is rising, social relations and interactions decrease, self-identification of members with the community is insecure and willingness of individuals to adjust to common group preferences is low (Poklembova, Finka, & Kluvankova-Oravska, 2012).

The theory of the commons is fostering an approach to management build on bottom-up, self-organized and community-based leadership with decision-making pressure on local stakeholders and relevant actors, as the most efficient and effective. The precondition for efficient institutional arrangements of territorial units using the common goods management approach is the combination of the principles of multilevel governance and polycentrism.

The tragedy of commons, described to precise details by Hard in (1968), is not a paradigm, with no change going through. Establishment of effective community-based governance institutions with clear processes, conditions and rules are a possible way of breaking „the tragedy. “Hundreds of documented examples exist of long-term sustainable resource use in such communities as well as in more economically advanced communities with effective, local, self-governing rights, but there are also many failures” (Dietz, Dolsak, Ostrom, & Stern, 2002)

Elinor Ostrom with her team in collaboration with broad research community defined in the book *Governing of commons* (1990) 8 basic principles for designing sustainable efficient governance institutions of the commons. The updated version of the principles was published by Ostrom in 2010.

Table 1 The design principles of robust institutional arrangement for sustainable and effective governance of the commons

Principle	Description
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1. User and resource boundaries	<p>A. <u>User Boundaries</u>: Clear and locally understood boundaries between legitimate users and nonusers are present.</p> <p>B. <u>Resource Boundaries</u>: Clear boundaries that separate a specific common-pool resource from a larger social-ecological system are present.</p>
2. Congruence with local conditions, appropriation and provision	<p>A. <u>Congruence with Local Conditions</u>: Appropriation and provision rules are congruent with local social and environmental conditions.</p> <p>B. <u>Appropriation and Provision</u>: Appropriation rules are congruent with provision rules; the distribution of costs is proportional to the distribution of benefits.</p>
3. Collective choice arrangements	<p><u>Collective-Choice Arrangements</u>: Most individuals affected by a resource regime are authorized to participate in making and modifying its rules.</p>
4. Monitoring users and resource	<p>A. <u>Monitoring Users</u>: Individuals who are accountable to or are the users monitor the appropriation and provision levels of the users.</p> <p>B. <u>Monitoring the Resource</u>: Individuals who are accountable to or are the users monitor the condition of the resource.</p>
5. Graduated sanctions	<p><u>Graduated Sanctions</u>: Sanctions for rule violations start very low but become stronger if a user repeatedly violates a rule.</p>
6. Conflict-resolution mechanisms	<p><u>Conflict-Resolution Mechanisms</u>: Rapid, low-cost, local arenas exist for resolving conflicts among users or with officials.</p>
7. Minimal recognition of rights	<p><u>Minimal Recognition of Rights</u>: The rights of local users to make their own rules are recognized by the government.</p>
8. Nested enterprises	<p><u>Nested Enterprises</u>: When a common-pool resource is closely connected to a larger social-ecological system,</p>

governance activities are organized in multiple nested layers.

Source: (Ostrom, 2010)

Because of the complexity of particular territorial socio-ecosystems, not all of them are suitable to be governed through self-governing community-based institutions constituted by the users or related actors. The potential of self-organisation of socio-ecosystems can be measured through a set of the variables defined by Ostrom (2010). “Obtaining measures for these 10 variables is the first step in analyzing, whether the given territorial socio-ecosystem would be able to be governed, based on self-organizational principles defined for common goods management” (Ostrom, 2009). The variables focus on following qualities:

Table 2 The variables for analyzing the self-governing ability of socio-ecosystems (based on self-organizational principles)

Variables	Description
Size of resource system	For land-related resource systems, such as very large territories are unlikely to be self-organized given the high costs of defining boundaries (e.g., surrounding with markers or fences), monitoring use patterns and others.
Productivity of system	A resource system’s current productivity has a curvilinear effect on self-organization across all sectors.
Predictability of system dynamics	System dynamics need to be sufficiently predictable that users can estimate what would happen if they were to establish particular harvesting rules or no-entry territories.
Resource unit mobility	Due to the costs of observing and managing a system, self-organization is less likely with mobile resource units..
Number of users	The impact of group size on the transaction costs of self-organizing tends to be negative given the higher costs of getting users together and agreeing on changes.
Leadership	When some users of any type of resource system have entrepreneurial skills and are respected as local leaders as a result of prior organization for other purposes, self-organization is more likely.

Norms and social capital	Users of all types of resource systems who share moral and ethical standards regarding how to behave in groups they form, and thus the norms of reciprocity, and have sufficient trust in one another to keep agreements will face lower transaction costs in reaching agreements and lower costs of monitoring.
Knowledge of the socio-ecosystem	When users share common knowledge of relevant socio-ecosystem attributes, how their actions affect each other, and rules used in other socio-ecosystems, they will perceive lower costs of organizing.
Importance of resource to users	In successful cases of self-organization, users are either dependent on the resource for a substantial portion of their livelihoods or attach high value to the sustainability of the resource. Otherwise, the costs of organizing and maintaining a self-governing system may not be worth the effort.
Collective choice rules	When users have full autonomy at the collective-choice level to craft and enforce some of their own rules, they face lower transaction costs as well as lower costs in defending a resource against invasion by others.

Source: (Ostrom, 2010)

4 Concept of common goods in strategic socio-economic planning and management of territorial subjects

Analysing the principles of common goods management as described above, is it obvious, that many of them can be under certain precondition implemented in strategic socio-economic planning and management of territorial subjects reflecting current problems in their development. The basic preconditions are the synergies between the concept of common goods and the concept of multilevel polycentric governance mirroring the fuzzification of the territories and territorial communities. Potential effects in the form of balanced a fair spatial allocation of externalities and benefits, better access of the stakeholders to collective decision making based on their real affection or capacities to respond properly to the challenges, better

control and sustainability of the resource use are only some of the potential effects as it is shown in the table as follows.

Table 3 Potential effects of the concept of common goods and concept of multilevel polycentric governance implementation

Current problems in socio-economic development	Principle	Developed effect
Disparities between spatial allocation of externalities and spatial distribution of benefits.	Congruence with local conditions, appropriation and provision	Balanced and fair spatial allocation of and externalities and also benefits.
Fuzzy spatial relations. Decision-making of stakeholders about socio-economic development in accordance with administrative boundaries.	Collective choice arrangements Monitoring users and resource	Stakeholders and relevant actors participated in decision-making as users of the goods, not in accordance with administrative relationship to space (ex. as citizens).
Inadequate participation of local actors in monitoring of development processes.	Monitoring users and resource Minimal recognition of rights Conflict-resolution mechanisms	Active participation of local users with direct influence to sanctions and conflicts solving processes.
Unclear definition of relevant users. Conflicts in desirable functions and using regulation.	User and resource boundaries	Precise defined a group of users with the rights, but also duties. Decreasing of conflicts in desirable functions, also via the creation of new spatiotemporal structures.
Decision-making and planning process leading by a limited group of users	Congruence with local conditions, appropriation and provision	Participation of wide range of local with knowledge of local specifics on decision-making

without a direct link to using the resource and without acceptance of local specifics and conditions.	Collective arrangements	choice and planning processes, based on own defined rules and principles.
Overusing and quality degradation of resources.	Congruence with local conditions, appropriation and provision Collective arrangements Monitoring users and resource	Maximum of benefits for users with respect to limits of resources and their sustainable management and maintenance.
Sanction mechanism with low influence on behaviour of users and relevant actors.	Graduated sanctions Conflict-resolution mechanisms	Self-defined sanction mechanism with preventive effects and direct influence on change of behaviour of users and relevant actors.
Uneffective centralised decision-making system. The concentration of decision-making in levels without a direct link to a resource.	Nested enterprises	New arrangement of the governance system as the multilevel polycentric decision-making system

Source: authors according to (Ostrom, 2010)

Conclusion

The combination of the concepts based on common goods management principles and the multilevel polycentric governance in strategic socio-economic planning and management of territorial subjects represent one of innovative sustainable and effective approaches across conceptual, processual and also institutional levels. Their synergies can be the solution how to get through the current problems and limits resulting from forthcoming fuzzification in socio-economic development and functioning processes facing the problems of destruction and

reduction the quality of the goods and resources, limitation their accessibility for users and relevant actors, increasing complexity and vulnerability of socio-economic systems.

The synergies between concepts represent desired innovations with high potential to follow crucial aspects of effective and sustainable management and planning of territorial subjects as:

- *capitalization of local capital (social, spatial)* = development based on local potentials,
- *bottom-up approach* = participation and active decision-making of local stakeholders, own regulation and sanctions rules,
- *the effectiveness of resources using* = acceptance of resource limits, an equal spatial division of benefits and externalities, sustainable maintenance of resources,
- *decentralized decision-making (subsidiarity principle)* = decisions are taken as closely as possible to the good/resource stakeholders, a polycentric network of communities with decision-making rights,
- *local leadershipment* = decision-making, planning and management processes under the local leadershipment.

The theory of the commons as the base source for this concept has been broadly proved in practice. Elinor Ostrom as the author of this theory was awarded by Nobel Prize in 2009. Research of the SPECTRA Centre team collaborating with her team shows that self-governing institutions leading by local actors and users, following the principles of multilevel governance and polycentrism respecting the 8 basic principles of common goods management are able to improve efficiency, to contribute to the sustainability in the development of territorial socio-ecosystems and to foster behavioral change towards sustainable use of resources.

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INNOVATIVE DIGITAL MARKETING OF SME HOTELS

Tamara Floričić

Abstract

State of the art digital marketing enters into all the spheres of marketing positioning in the hotel industry. As opposed to large hotel companies, small and medium sized hotels are in a more disadvantageous position with respect to the size of marketing budgets; they, however, find new strength in proactive and dynamic tools of e-placements. They include search engine optimisation (SEO), search engine marketing (SEM), Metasearch, dynamic rate marketing (DRM), email marketing, as well as a strong social presence.

Description of research sample - for the purposes of achieving a synergic conclusion, the research was conducted on two levels: stakeholders - researched hotels and implemented digital marketing tools and market – tourists' response to recognition of the said tools.

Research methods – the methodology used includes quantitative, statistical and qualitative research methods, which include interview and creative thinking techniques.

Findings and outcomes of the research – the research results point to a recommendation for the implementation of an optimal mix of digital marketing components for the purposes of realisation of results and return on investment.

Application in practice - conclusions and recommendations are implicative and represent a new potential for application in practice, as well as support for new market recognisability and competitiveness.

Keywords: innovation, social media, SME hotels, digital marketing, competitiveness

Introduction

Digital technologies considerably open numerous hotel marketing potentials because the Internet has become an omnipresent tool for all human activities. People increasingly use Internet for research, relying on the data provided. Today, research for the needs of tourism has reached a level of relative reliability and considerably decreases the unsteadiness of the business in the domestic and international markets. Tourism promotion by means of Internet contributes to the development of small and medium entrepreneurship in the hotel industry and the choice

of an adequate mix of digital tools and communication models affects the levels of business profitability, as well as the improvement of quality of products, services and the overall image of the hotel company in the tourism destination. The aim of this paper is directed towards the affirmation of knowledge about the implementation of an optimal mix of digital marketing components in SME business in the hotel industry and the research points to the level of awareness and hotel managers' perception of its relevance.

Digital Marketing of SME hotels - Theory and Literature Review

Small and medium enterprises (SMEs) are important for the economic growth and development of each country, as well as for the employment policy and social integration and are also important for the overall innovation potential. Čavlek and Hodak (2010) and Cetinski (2003) emphasise the importance and consider the fact that the economic growth and development, employment policy and the overall gross domestic product are actually based on this. As a propulsive economic activity, tourism occupies a dominant position in the world economy developmental trends. In order to achieve new competitiveness in the international market environment, small and medium sized companies in tourism implement innovative technologies in their marketing systems, from the formation of the hotel product itself, price defining, promotional placement to distribution channels which change positions and reshape the hotel visibility in the global market (Jantan et al., 2003 & Shegg et al., 2013). SMEs company competitiveness depends on management innovativeness in achievement of lower costs and a higher quality of effects which will satisfy potential consumers, stress Bartoluci and Budimski (2010).

The importance of entrepreneurship in SME hotel companies and the possibilities of their market positioning and placement as a trend of modern tourism is analysed by many authors at an international level. Jones and Haven (2005) researched Tourism SMEs, Service Quality, and Destination Competitiveness and Lee-Ross and Lashley (2009) explored family businesses, hospitality and commercial homes within entrepreneurship concepts. Small and medium-sized entrepreneurs, as opposed to large hotel companies, find themselves more often in economically problematic positions, given that numerous SMEs have grown from independent tourist activities and, in the circumstances of organised international market economy, they come across difficulties conditioned by a lack of education, experience and limited resources, discuss

Soriano and Castrogiovanni (2013) and Bell et al. (2005) who analyse the aspects and challenges of internationalisation.

Numerous authors analyse the importance of digital marketing as an innovative technology which, to SME entrepreneurs, facilitates a wide accessibility at the international level. Cox and Koezler (2005) write about Internet marketing for hotels, restaurants and tourism, considering it from both large hotel and SME tourism entrepreneurship aspects; Dulčić and Petrić (2008), Paulo (2000) and Samardžić (2010) consider the importance of web marketing for development of the tourism destination and SME hotel business in the system. Panian (2000) analyses electronic business determinants, while Marić (2006) studies business process management, within which also are the new technologies and innovations. As the Internet is a dynamic technology going through continuous and constant changes, innovations are formed and applied in systems on a daily basis, from the development of user friendly smart phone applications, through the evolved web search engines, to different innovative implementations of digital technologies in the hotel business. Finding an optimal mix is of key importance, suggest both Kriechbaumer and Christodoulidou (2014) and Marshal and Todd (2009).

Real time communication is increasingly gaining in importance; using search and booking engines, tourists wish to make their bookings straight away, receive a confirmation of the booked service at the price offered and pay using online banking services which include card business, with which innovative payment services also emerge.

Both large corporations and independent SME hotels consider communication with tourists from informative, transaction or consumer aspects, i.e. the organisation of technology and website can be either interactive or only informative. Websites, whose main goals are transactions, are focused on facilitation of reservations, i.e. purchase, also offering functions and tools which support the creation of long term relationships with visitors. Examples of such functions are newsletters, website photography, virtual visits, instructions or other ways of building positive relationships with clients. Numerous web portals implement tools for consumer relationship marketing by means of which they collect data on website visitors, users or clients and profile it in the CRM database. Hotels use this data for adaptation of their website, promotional actions, marketing events and other activities, driven by clients' needs, tastes and priorities. Cox and Koezler (2005) consider the features which Internet websites should have; from attractive appearance, the design with which the hotel positioning wishes to be expressed,

attractions and original features which distinguish it from a multitude of competition, as well as consistency, clarity and efficient organisation which facilitate accessibility of the requested information.

On the other hand, the aspect of financing marketing costs, which represents an important segment in the overall budget, is the subject of consideration of the authors who examine returns on investment into marketing in realised income. To remain competitive in the aggressive global market, the tourism industry and service providers face the need to collaborate and share their expertise and resources, as well as their costs and risks, considers Afsarmanesh (2000). This includes linking into clusters, as well as collaboration in strategic marketing campaigns with other stakeholders, institutions and hotel companies with which it is synergically acted in the market.

Koryak et al (2015) also discuss the competencies of entrepreneurial leadership, capabilities and their influence on the growth of small and medium-sized enterprises (SMEs), as well as El Gohary et al. (2013), who pointed to the fact that SME owners and marketing and sales managers have a limited knowledge in relation to the different available export entry modes in the sense of affirmation of the placement channels. Furthermore, Gratzler and Winiwarter (2003) explore the major threats and opportunities for hotels by evaluating the framework for competitive advantage in eBusiness. The international standard for the hotel marketing budget typically amounts to approximately 4-5% of an asset's total revenue. Given the flexibility of needs, the budget is characterised by certain flexibility, according to the needs of adaptation and choice of the marketing tools required in order to meet consumer communication methods and demands.

Although only a small amount of a hotel's revenue is traditionally allocated for the marketing budget, the hotel's performance is directly reliant on how effectively that budget is utilised, and which digital marketing tools are used. Independent hotels, particularly those with no affiliation to a soft brand or alliance with a marketing consortium of some kind may need to invest more on their marketing than those that are branded. When choosing which channels they decide to use, the calculation of efficiency should be conducted especially when new tools of digital

marketing are continually coming along.¹² Digital marketing is an umbrella term for the basic modern ICT technology tools in hotel marketing.

SEO (Search Engine Optimisation) is a tool which is important when having to meet standards of search engines which demand constant improvement of unique content and rejuvenation of the existing content. It gives the opportunity to independent hotels to penetrate the marketing space without losing its special features. SEM (Search Engine Marketing) includes paid search, and, aligned with SEO, produces a greater ROI – return on investment, which amounts to about 27-29% of the digital marketing budget. Meta search marketing is a cost-per-click (CPC) advertising format, where the advertiser only pays when someone clicks on the listing and is then led deeper into their booking engine. Dynamic Rate Marketing is a direct response marketing system which allocates real-time hotel inventory and pricing.

E-mail marketing gives hotels the opportunity to reach many potential customers and it is based on data collected on website viewers which is translated into personalised emails about information they were just viewing on the website. E-mails, including newsletters, are optimised to be responsive for desktop, tablet and mobile devices. Organic and paid social media channels could enable an independent hotel to distinguish itself among current buyers and also imprint a lasting message and/or visual for social media platform viewers. The social sites should continuously be updated in order to reply to customers promptly, provide viewers with the most current information and perform their function effectively in real time.

Application development is an important segment of digital marketing strategy that SMEs invest in. It includes the creation of attractive and informative smart phone applications which are accessible all the time and which enable hoteliers to achieve organic search visibility, website traffic and direct online revenue. E-content marketing is a tool which is related to quality, design and information on a website. It includes different types of information and formats linked to the website i.e. maps, films, social media links, etc. Video productions which are posted on websites include virtual reality, films and direct real time insight into the facility, its services and characteristics.

¹² Silberstein, L., adjunct professor at Boston University School of Hospitality and Administration, <http://www.4hoteliers.com/features/article/9321>, accessed on 28.01.2016

In analysing the importance of web search engines, research companies have determined the supremacy of Google tools in digital business¹³. It is estimated that 87% of all travel-related searches begin online and we all know how dominant Google is in this area, controlling anywhere between 65-90% of the online search market, leaving Bing and Yahoo far behind on the worldwide scene. Among the tools, the accent is on Google Analytics, which monitors performances of the site, time spent, number of visitors per page, pages viewed per session and bounce rate on the site or specific pages. It also monitors where traffic is coming from, whether it is organic, direct, referral, social or paid; it recognises the device which generates traffic and the conversion rate: downloads, subscriptions and reservations. Google Alerts deals with management of online reputation by recognising key words set as criteria and posted on the air. Google AdWords includes paid advertising which is shown in the prime positions, making it much more difficult for organic results to appear at the top. Thus, using AdWords campaigns has become a must, even though results and costs vary greatly per market, per industry and per brand. Google search console enables hotels to analyse what keywords online travellers use in order to reach websites and, along with Google keyword planner, an SME hotel could plan more efficient web placement. Google street view brings virtual reality of destinations and hotels directly to the traveller. Google Hangout is a free tool which can be used between individuals in the same way as Skype conversations, but it also has broadcasting features that can be useful when launching a new product or service. YouTube as a video platform contributes to awareness of a hotel through video materials and enables key word search and presence. Google my business is tool and Google + allows hotels to ensure that all relevant details about the organisation are correct on Google Map listings (address, city, postcode, etc.) as well as allowing management of online reviews, among other things. Google instant booking is still not developed but is under consideration; it has huge potential for development.

2 Research, Findings and Discussion

The research is divided into two parts. The first part of the research was conducted in March 2015 at the International Travel Trade Fair ITB in Berlin, which represents the world's largest gathering of supply, demand and associated stakeholders and which sets the future trends and potentials of international tourism development. In order to explore the level of implementation

¹³ Gonzalo, F., senior researcher in Gonzo Marketing, www.gonzomarketing.biz, accessed on 22.02.2016

of digital technologies in marketing strategies of SME hotels, the research of hotels was conducted on a sample of 22 independent hotels by using the interview technique. The results were processed by statistical methodology, together with creative thinking techniques, aiming to explore the perception and attitudes of hotel management and entrepreneurs of SME hotels in regard to digital marketing. The second part of the interview was conducted in the Southern Istrian region, by using a questionnaire with several types of questions and the explored sample were random tourists (58 persons) who visited Istria during the Easter holiday season. The research included demographic characteristics, motivation, personal attitudes and behaviour related to the use of digital technologies when planning, booking and travelling for tourism purposes. There were limitations regarding reaching respondents, the contacted sample was 105 persons and only 55% accepted the survey of consumers' attitudes. Projection of future research will include larger sample of respondents and it would develop new theories originated from this paper.

2.1 Innovative digital marketing of SME hotels

The first research question referred to consideration of implementation of digital technologies in the hotel marketing of small and medium-sized hotel companies. The sample research showed that 77% of respondents develop digital marketing as a part of their hotel's marketing strategy. Ranking the digital marketing tools, respondents marked which innovative technologies they apply in their business activities. Looking cumulatively, a rank of implementation of different digital marketing tools was determined, as follows:

Table 1 Rank of implementation of digital marketing tools

Digital marketing tool	Rank	Number of respondents N
Social networks	1	16
Web design	1	16
E-mail marketing	2	15
SEM/SEO	3	12
Metasearch	4	7
Video production	5	6
Website revenue	6	5
Application development	6	5
Content marketing	7	4

Source: Author's research

The data points out that different social network tools, together with web design tools, are the most represented among the tools for digital marketing in strategic positioning. This is directly

interlinked, given that linking to different social networks is facilitated to users through websites and that it is also linked to direct marketing email, by which the existing and potential consumers, guests, are linked to the hotel, continually informing them of and involving them in new hotel offer and service aspects. The direct marketing email refers to periodic newsletters and forms part of the CRM tool¹⁴, with which the clients' interest in various offers and activities which an SME hotel provides, ultimately leading towards the realisation of bookings. As a response to the question of implementation of this tool in their marketing presentation, 68% of respondents answered affirmatively. In the respondents' perception, (12 respondents), SEO/SEM search engine optimisation and a better hotel positioning in search on the most well-known search engines (Google, Yahoo...), is in the third ranking place by importance and the importance of metasearch (rank 7) is also recognised, as well as other tools which hotels implement in order to improve their digital marketing performance. 7 respondents market video production as an important tool which they use, as well as content marketing (4). The data relating to the development of mobile telephony applications, as well as the importance itself of the tools for monitoring of the website revenue, which are at the bottom of the rank scale, points to the trend of negligence of the importance of mobile applications which, given the increase in the use of smart telephones in everyday life, represents a potential threat of loss of visibility in the Internet search engines¹⁵, as well as the communication with direct guests. Finally, the Website revenue is a tool, but also a goal towards which all other tools are directed, in the form of support. Income realisation by means of digital marketing and measurement of profitability belong to the sphere of controlling and measurement of investment which we consider from the aspect of the SME hotel budget represents an important item and that is why its considerable relevance should be recognised.

Asked to grade whether digital marketing raised their income, 68% of hotel managers responded affirmatively, 23% stated that they were not sure, while 9% of them responded to the question negatively. Further, the potential for raising income was researched and 73% of respondents expressed their agreement with the potentials for future increase, 18% were indecisive, while 9% of them do not agree with it. Considering budget allocation for marketing

¹⁴ CRM- Customer relation management

¹⁵ Google plans setting of terms for implementation in its search engines by development of smart phone applications. Hotels which do not have developed applications will lose their place in organic search

and channelling of a part of it for digital marketing, 50% of hotel managers stated that they had special funds planned for it.

As the next aspect, the potentials for common marketing with the DMOs was researched, where 50% of respondents confirmed that they plan and organise mutual digital promotional campaigns, which points to the awareness of independent hoteliers of the fact that, with synergic marketing activities, it is possible to obtain higher quality and more comprehensive results and realisations. Considering the placement through sales channels and the importance of digital distribution, 45% of respondents declared that the majority of bookings are realised through traditional offline channels, 45% implement innovative digital distribution channels, while 10% of them primarily use placement through tour operator businesses. 73% of respondents realise cooperation with online travel agencies, while 68% of them use one of the Channel Manager Distribution platforms. In conclusion, 64% of respondents think that digital marketing provides them with competitive advantage in benchmarking with other hotels which do not apply the same tools in their marketing presentation.

2.2 Digital marketing and tourist demand

Examination of the attitudes of tourism consumer demand and activities is the subject of the second part of this research which, in a complementary way, follows the organised aspects of hotel offer digital marketing. The aim of the research is to examine to what extent tourists use digital marketing tools and in what measure they recognise the importance of distribution channels and promotional activities of SME hotels which are available online. The research is based on a sample of 58 tourists and was conducted during the Easter holiday season, using a structured survey questionnaire, processed using the statistical methodology which provides qualitative and quantitative results and knowledge that could serve for future comparative studies.

According to the research demographic aspects, the sample consists of 62% women and 38% men, divided into three age categories, young to middle aged, 28%, middle aged, 40% and older aged, 31%. The emissive countries' market indicators show that 29% of respondents were from Austria and equally 29% respondents from Italy, while from Slovenia and Germany 16% each and from Croatia and other countries 5% each, which implies the importance and affirmation of easily accessible markets, i.e. car destinations. Examining the information sources which tourists communicated in planning of their trips, tour operators are evidenced with 45%,

Internet and social networks with 33%, TV and newspapers 5% and direct hotel marketing with 17%. The quoted results show that although digital marketing activities realise a considerable share in the hotel placement, it is still the traditional distribution channels that are predominant in this segment. For the purpose of an in-depth examination of the problem area and given that, in the demographic sample, middle and older respondents' age groups dominate, the segment of older tourists was researched and their use of smart phones as a medium for online communication. The research shows that, from a sample of 18 respondents, a mere 6% use smart phones for obtaining information and for booking of hotel accommodation and that nobody uses it for obtaining information about destination offers and possibilities. This implies and confirms that, with development of modern digital marketing, hotel strategies should be diversified and that targeted marketing activities should be focused on specific market segments.

Examining the whole sample, the answer to the frequency of use of computers for tourist needs is the following: 52% of respondents use it often, 33% use it from time to time, while only 15% of respondents answered the question on frequency of use. 43% of respondents confirmed the use of smart phones in hotel offer searches while the same percentage, 43% of respondents confirm using it to obtain information about tourism destination offers. This points to the fact that younger demographic segments are more interested in the activities and facilities which a tourism destination offers and they search it more frequently than the older population segment, who does not accept smart phones as a means of digital communication. Examination of the effects of the review in making decisions on booking follows, where 59% of respondents confirm the importance of positive reviews, as well as the influence of hotel email communication on market demand. Out of the total number of respondents, 40% receive and read newsletters sent by the hotel, which contributes to their decision on the choice of a particular hotel. Website design has supremacy over newsletters when it comes to making a decision on the choice of hotels; 59% of respondents answered affirmatively regarding its importance. Given the importance of price definition, the last question to which the respondents gave their answers refers to the check and comparison of different hotel offers on the Internet. The quoted topic area also includes consideration of specialised small and medium-sized hotels, as well as marketing activity in affirmation of their special features and specificities in the competitive environment.

Using the Likert scale in research of tourists' attitudes, attitudes were evaluated and the importance of the perception of the digital marketing segment was ranked. In table 2 the results of the average grade per individual attitude follow.

Table 2 Tourists' perception of digital marketing aspects

Source: Author's research

Tourists' perception survey – statements	Average grade
1. Internet is important for information in the travel industry	2.5
2. Hotels are well promoted via Internet	2.3
3. Destination offer is well promoted via Internet	2.2
4. Brochures and magazines are the best informative materials	2.1
5. Smart phones have changed the travel industry	2.4
6. Digital marketing is in growth and expansion	2.6

The results show that the statement in which the respondents grade the digital trend marketing, i.e. recognise its growth and expansion, obtained the highest average grade. However, this does not reflect on their consumption habits, which was proved by the previous part of the research. They recognise the importance of the Internet technologies for tourism and travel and respect hoteliers' efforts (grade 2.3) and tourism destinations (average grade 2.2), targeted to as high as possible promotion through digital marketing tools. On the other hand, the statement relating to traditional informative tourism media, which would be expected to be more strongly affirmed by the respondents who do not implement digital marketing in a greater measure in communication with the hotel, produced the poorest grade rank. This and the statement about the effect of smart phones on the changes in the tourist travel industry (average grade 2.4) additionally support recognition of the importance of hotel digital marketing. Still, in the final examination of the result discussion it can be concluded that independent hotels need to be "online" in order to realise their market competitiveness, but, with implementation of the digital marketing strategy, they need to respect also "offline" communication with the market segments which are not prepared for tourism digitalisation.

Conclusion

Implementation of digital marketing is a fast growing trend in the development of the international hotel industry, both in large hotel chains and brands and SMS independent hotels. The conducted research shows that, on one hand, independent hoteliers are interested in implementation of as wide as possible a spectrum of digital marketing tools, given that they facilitate their market presence at the international level, with considerable savings in the area

of promotional activities. On the other side, since the technology is in fast change and development, the know-how about efficient inclusion of advantages and general awareness should be increased. Numerous tools are available free of charge; SME hotels can deal with some of the activities using their own resources, while particular digital services are quite expensively defined. By choosing an optimal mix, independent hotels have options for a more successful market placement and, in combination with offline promotional and distribution channels, it is possible to cover all consumer market segments. Bearing this knowledge in mind, it is evident that both hoteliers and tourists recognise the importance and possibility of a continuous growth of digital marketing positions. However, for inclusion at all levels, education and knowledge dissemination are needed. As innovative shifts of the Internet technologies occur on an everyday basis, tourism stakeholders are included in a circle of numerous opportunities and possibilities, but also in the challenge of modern digital marketing which open a new spectrum of implications for future research.

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ANALYSIS OF THE BUSINESS PROCESS MANAGEMENT AT THE AUTOMAKER ENTERPRISES IN RUSSIAN FEDERATION (USING STANDARD ZONES AT «GAZ» FACTORY AS AN EXAMPLE)

**Ekaterina Garina – Viktor Kuznetsov – Alexander Garin – Anastasia
Sevrukova**

Abstract

Business process management has been a basis for the scientific developments since 1990-s and Integrated adaptable production systems is quite essential for the domestic market. Business process management in Russia is at the stage of the theoretical search and carried out mostly in the area of organization design, engineering and manufacturing automation. The results of the scientific researchers can be also used in the condition of the home industrial enterprises and often they are contradictory and do not based on the systematic approach. Also debating points are connected with transferring from functional management to process management. Process managements is widespread in Russia nowadays. Objective of the research is to assess the process management effectiveness while the enterprise is transforming. The research is based on the systematic and comparative analysis, method of the expert assessment. The authors study the experience of the process management at the domestic enterprises, using «GAZ» as the particular example. Format transformation is possible in case of the operational effectiveness and with the usage of vertical and horizontal pressure.

Key words: process management, business process system, product creation, operation capability

JEL Code: Q 400, Q 430

Introduction

According to the process management conception, enterprise consists of some business processes, where the process is determined as combination of connected activities that can transform exits and entrances (Oudalov, Kuznetsov and Garina, 2011). Logical order of the actions to achieve the goal. Process management is supposed to be the system of different business-processes. Typical business process includes some particular components: data massive; owner of the process; technology of the process; resources of the process (material and non-material, human resources). Borderlines of the process- entrance and exits; showings of the effectiveness; implementation mechanisms.

The following works are devoted to the business processes: B.Andersen, E.Deming, R. Kaplan, et al. and some Russian scientists: R. Zagidulin, V. Elifero, V. Repin. Analysis of the other works, show that structuring of the business processes is possible by using different approaches (Garin, 2013):

- Determine business processes using functional systems of the enterprise;
- Determine business-processes using process management.

Every of the approaches has some benefits and disadvantages that influence the content and structure of the business processes.

Table 1 Comparative characteristics of the functional and process management

	Process management	Functional management
benefits	Opportunity to determine borders of the process and suppliers. It helps to have a good collaboration of the participants; Opportunity to share the experience; Effectiveness of the corporate information systems	Sharing Technological process into elements ant steps; Formal description of the working process and clarifying the typical functions
disadvantages	System is difficult to use (in business modelling) and integrated highly technological processes; Difficult to work out the rules for the owners of the managers and workers. It demands huge work to implement the «lean manufacturing», «Six sigmas» and «Kanban»	There is no interaction between departments; Strategic goal of the company is substituted by the goal of the departments; External customer is not the main target; there is no informational entropy, because there are many levels of the management; There is no a responsible person for the business process; High expenses

Source: own elaboration

Analysis of the business process methodology can have different technologies.

Business process can be used differently. Process management is used to build stable business processes (Romanovskaya, Garin, Dalidovich and Lapygin, 2016): technological processes demand some preparation and usually they are not replicated. Number and type of the business processes usually depend on the tasks (Oudalov, Kuznetsov and Garina, 2011): Process management is limited with the stream value or loop quality (life cycle of the production); Functional management is about connection in business processes and technological processes (Dassisti, 2010).

As the result there are many business processes that can ignite some additional business-processes that are independent.

Process management places business processes at the first place to change them. These changings determine the structure of the enterprise.

Table 2 Peculiarities of the implementation at Russian enterprises

Criteria to compare	Process management	Functional management
Changed firstly	While forming business processes the structure is quite pure and transparent	Optimization of the business processes appear later
Objects to manage	Combination of the business processes	Departments at the enterprise; departments as the parts of one chain
The main target	Horizontal connections between departments	Functions of different departments
Business process objectives	Structuring the business processes and management processes	Preparation and usage of the business processes
Business processes	Process that have result and value for the customer – new product creation	All processes at the enterprise that are connected with production and preproceses that guarantee the stability at the enterprise
Comparison of the business processes	Connection with additional value is important; or PLM conception is used	All the orders should be analyzed and it helps to determine the scheme
Managerial technologies	Matrix decomposing	Vertical managerial decomposition
Tools to manage	Systems to support life cycle CALS, CAD and production system, PLM tools and ABB method	Technological process order, MES-systems, APS- systems
Result	Business process result	Planned financial showings

Source: own elaboration

Interpretation of results

The authors study the usage experience of the process management at the home enterprises in the particular automaker – GAZ. We widen the format of the enterprise activities in the light of operational effectiveness increase for the business process with the usage of “vertical and

horizontal pressure. The authors offer the transition from the batch production to the flow of the unique things at the standard zones. We develop the algorithm to shorten the business-processes that serve the technological processes (Gupta and Krishnan, 2009). Result – low effective showings at «GAZ» (they are presented in Table 3).

Table 3 Smoothed showings of the business processes at «GAZ»

Showings of the effectiveness	Type of the coefficient	Formulas to count coefficient	Normal coefficient	Coefficients
Difficulty	k_{cl}	$k_{cl} = Y\Pi_{yp} / Y\Pi_{\text{экз}}$	$k_{cl} = 0,66$	0,0064
Process	k_{np}	$k_{np} = Y\Pi_{\text{раз}} / Y\Pi_{\text{кп}}$	$k_{np} < 1$	0,1082
Control-ability	$k_{отв}$	$k_{отв} = Y\Pi_{\text{кп}} / \text{СП}$	$k_{отв} = 1$	1,1829
Resources	k_p	$k_p = P / Y\Pi_{\text{вых}}$	$k_p < 1$	1,0152
Regulation	$k_{рег}$	$k_{рег} = Y\Pi_{\text{рег}} / Y\Pi_{\text{кп}}$	$k_{рег} = 1$	1,7938
Total coefficient			from 1 to 2,86	8,0984

Source: own elaboration, using the method of express check by Chuprova K.K.

Method counts the total showings: 1. Difficulty of the business process (k_{cl}) – correlation between decomposing levels number and business processes ($Y\Pi_{yp}$) to the sum of processes ($Y\Pi_{\text{экз}}$); 2. Process (k_{np}) – correlation between interruptions ($Y\Pi_{\text{раз}}$) (there is no connection between business processes) and the sum of the business processes ($Y\Pi_{\text{кп}}$); 3. Control ($k_{отв}$) – correlation between types of the business processes ($Y\Pi_{\text{кп}}$) to the number of the owners (OP); 4. Resources (k_p) – correlation between resource usage (P) and the number of the ready products. ($Y\Pi_{\text{вых}}$); 5. Regulation ($k_{рег}$) – correlation between regalement documents ($Y\Pi_{\text{рег}}$) and number of the business processes ($Y\Pi_{\text{кп}}$). Showings must correlate with normal number of the business processes ($Yk1$). The correlation must be: from 1 to 2,86. When sum of the coefficients is equal or more than 1 analyzed business process- it is effective. When the sum of the coefficients is more 2,8 – business model is not effective. The conducted research shows that process management, that is used by «GAZ» is not effective, because the sum of the coefficient is 8,0984, that is more than normal result 2,8 to 5,29

So the difficulty is not suitable for it (if k_{cl} is more 0,01, business process is difficult) ; Control (when $k_{отв}=1$ – process is controllable); if $k_{отв}<1$, controllability is less; if $k_{отв}>1$, - controllability is higher; resources (the less coefficient, the more effectiveness), Regulation ($k_{рег}<1$ – low showing; $k_{рег}=1$ –high showing , in our case – very high.

The enterprise has foreign assets that helps us to analyze business effectiveness inside one holding- in Russia and in foreign countries. Result: domestic showings are lower in 4 times (Garin, 2013). Example: the number of the stuff for one operation. In European «Volkswagen» 1 operation demands 1 specialist in Russia the same process demands 4 specialist.

There is no consistency, and mechanic duplicating is popular (using the experience of «Toyota» and «Magna»)

There are some restrictions (time, investments) and taking into account transition period, transformation is possible only in case transformation existed business processes, using «vertical and horizontal pressure». And using the hybrid processes. In that case the stages are the following (Kuznetsova, Kuznetsov, Egorova and Romanovskaya, 2015):

1-st stage Flow of the products helps to shorten time to complete the order, without extra production; also it helps to avoid loses and provide flexibility for the effective production of the small bunches according to the production tempo; Big bunches provokes big loses and 95% of time is just waste. It leads to prices rising. How the flow is formed:

1. Determine the number of the customers, in case if:
 - there is one customer – tact time is determined by him;
 - there are some customers – the tact flow must be shared.
2. Determine machine time in order to share the flows;
3. Standardize working areas;
4. Build independent flow for every customer (Garina et al, 2015). Making the details using some machines try to use only one;

The implementation of this stage helps to get the following results: «Bunch production» - bunch size 30 It.; unfinished production in the flow – 120 it.; square – 75 м2; number – 5 people;

Second stag: visualization and showings control of the processes, that helps to unite them

The problem can be sold by the usage of «Huizinga» tools – it helps to have one level for all the products – complicated and simple. The order must be the following:

1. Standard working places: operations are divided into minimal elements; cycle time is determined; modes are excluded.
2. Simple and complicated products are combined in the flow for balanced work. Where:
Т_т – время такта; Т_{ц.пр.изд.} – time for simple products; Т_{ц.сл.изд.} – time for complicated cycles.

3. Determine the correlation between simple and complicated goods.

4. Count weighted average time:





Where: $T_{св.вр.ц.}$ – average cycle time; i -number of modifications; $T_{цi}$ – cycle time of the i -d modification; N_i – number of goods i -d modification; N – total amount of the goods in every modification. We introduce gradation: if weighted average time is less than tact- work is possible to complete;

5. Guarantee to finish work even if the product is complicated;

6. There is balance between simple and complicated products.





Then analysis blank is formed (Table 4). This blank helps to unite and analyze information

Table 4 Blank of the analysis

Zone:	Responsible process:	– time,min	
Process:	Watcher:	– transportation, м	
product:	Link:	–control, min	
Demanded number for a day	Date:	–storage, it., Days	

Using the collected data we build the map of the process (Table 5).

Table 5 Map of the present processes

№	Process description	Symbol				Showings				notes
						Time, min.	Number/ it	Length, м	Square, м ²	
	total									

3-d stage: to shorten business-process time, that serve technological process

Hybridization is implemented by shortening or substituting some processes with one hybrid process. It leads to minimizing the number of operations that are necessary to synchronize the technological chain (Pahl and Beitz, 1988). Additionally, new features of the product appear (Oswaldo, 2010).

Some pure areas at «GAZ» is implemented on the example of the following project: Transformation casting technologies 4173-1005015 «crank shaft» using the casting technologies Typical opportunity of the ptocesses are introduced in Table 6.

Table 6 Opportunity to compare

Showings	Casting to cluster	Casting to sandy and clay form
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shapes	Thin complex	Thin, cylindrical complexes
Detail size	100a kg	Till 250 kg
Materials	Alloy steel, stainless steel, cast-iron, copper, magnum, nickel	Alloy steel, stainless steel, cast-iron, copper, magnum, nickel
Surface – Ra	125 – 250 micro inches	300 – 600 micro inches
Acces	± 0,015 мм	± 0,03 мм
Maximum wall	3-30 мм	5-50 мм
Time to complete Время	120-180	45-90
Benefits	Can form complicated shapes and variants, low level of the tools and equipment tools	Can form complicated shapes, variants, low cost of the workers
Disadvantages	Possible high cost	High cost of the tools

The showings were changed because of one hybrid process and it helps to advance it (Table 7).

Table 7 Showings in comparison

showings	Cast to cluster	Cast to sandy-clay form
<i>Material</i>		
failure (%):	5	3-4
Note material (%):	10	9
<i>production</i>		
Performance rate for press-forms (\$/ час):	140	110
purification (\$ / час):	30	20
Efficiency (%):	85	92
Note prosuction	10	10
<i>tools</i>		
Cost of the tools (\$/ h):	45	85

The result of «hybridization process» project

- –time to work with metal is from 28 800 to 22 500 c.;
- three parts of equipment is free;
- three people appear (electro-oven melter);
- process time for form making is decreased from 2 800 c. to 1 788 c. (0,5 h.).
- 3 cluster machines appear;

- six people appear (form-makers);
- productivity is increased in 2 times by new facilities (4-th model) ;
- physical pressure is excluded ;
- working conditions are improve (phenol-formaldehyde resins excluded) .

Total effect of the project implementation– 10 449,1 th. rub. year.

4 stage: benchmark testing to determine business processes. The results are measured by the defect level. X ppm, formula is the following:

$$(number\ of\ defect\ details / number\ of\ ready\ details) \cdot 1\ 000\ 000$$

Showings reveal the number of defect details for 1 mln. Of the checked details. For example: (2 defect. det / 2 580 ready. Det.) · 1000000 = 775 ppm. In comparison with AUSS 8242 (method AQL) X ppm guarantees more strict control. The aim of the benchmark testing – supply the customer with 0 defect detail. Forming the landscape in the frameworks of ISO 9001:2011 benchmark testing includes the most important processes that determine customer satisfaction QFD (Kuznetsov, Romanovskaya, Vazyansky and Klychova, 2015).

Conclusion

The authors study the usage experience of the process management at the home enterprises in the particular automaker – GAZ. We widen the format of the enterprise activities in the light of operational effectiveness increase for the business process with the usage of vertical and horizontal pressure. The authors offer the transition from the batch production to the flow of the unique things at the standard zones. We develop the algorithm to shorten the business-processes that serve the technological processes.

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IS LOGICAL THINKING THE LOGIC FOR INNOVATION? HIDDEN PATTERN OF INNOVATION AND DISRUPTIVENESS

Gunther Herr – André Nijmeh

Abstract

Many tools and methods exist to foster innovation. Generally they can be distinguished in a set of analytical tools to clarify the situation and tools that inspire the creation of new insights.

Based on more than twenty years of research, combined with practical experience of several hundred industrial projects this paper shows that innovativeness in disruptive environment requires a new approach and attitude for actively designing and shaping future strength.

A comprehensive analysis of the current context and content of the business model is needed. Nevertheless, when trying to create new future attempts experience and analytical strength restraints the search field to mainly those opportunities that are visible based on current success criterion. A distinguished mind-set that is based on the strength of dialectic thinking can create the required freedom to develop the new insights required. The know how of creating business models that utilise new KPIs will round up the innomorphosis approach.

Our world is too complex to create relevant context without analysing the situation in depth. However: Expert knowledge limits visible solutions to the current foundations and basic rules of the competition basis of today. Within the same process, different thinking-modes are required, to create disruptive views.

Key words: Innovation Culture, Pattern of Innovation, Disruptiveness, Thought Frame, Contradiction Oriented

JEL Code: L1, M14, O3

Introduction

In the past a new business idea could safeguard wealth for generations. Nowadays in some industries successful businesses need to operate several business models in parallel already to remain competitive.

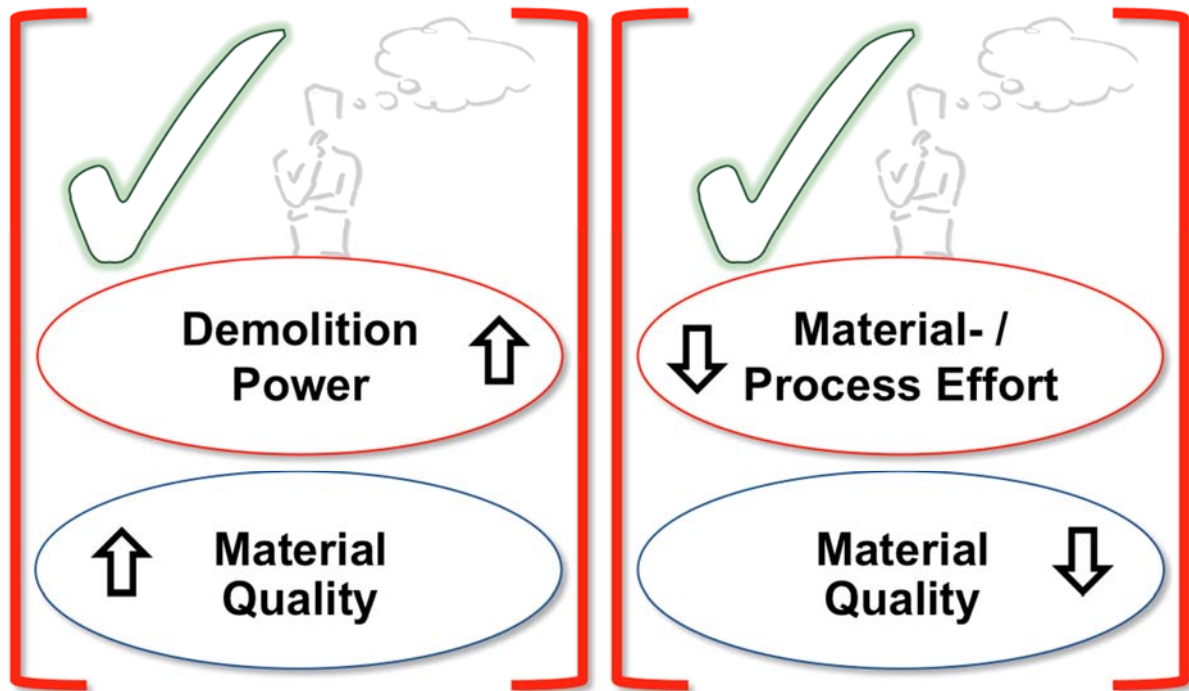
For some time the quote “being big is beauty” became a synonym for sustainable strength. In disruptive times “size” becomes a damping factor in flexibility, the ability to re-orientate.

Is there an approach that allows leading companies of today to prepare early enough for the success-criterion of tomorrow?

1 Success-Factors of Today become the Reason of Failing Tomorrow

Successful companies, such as HILTI organise to break through generally accepted thought pattern as a basis to create competition leadership. Using the development of chisels as an example the success factor for generations has been the material quality of the chisel tip. The trap became the target conflict between the demolition power and the material- and process effort for producing the chisel: Improved material quality increased the demolition power; nevertheless this development path increased the material- and production-effort simultaneously.

Figure 1 The pillars of the thought frame of the occident



Source: WOIS Institut

Finding new interpretations to such bad fix situations is the foundation for new paradigms. The HILTI Polygon Chisel is such a solution. Utilising geometrical effects the demolition power could be increased despite of maintaining the material quality. This pattern of utilising new degrees of freedom to create uniqueness is applicable to all abstraction levels. Prof. Yunus, the inventor of micro-credits, received the Nobel Price for his solution in the catch 22 situation of the banking business: Ethnical Values vs. the need for Profit.

Once being aware of this pattern: Why is it a challenge to implement the ability of re-interpreting barrier situations into organisations? The answer is the otherness in comparison to what makes organisations successful on a daily basis.

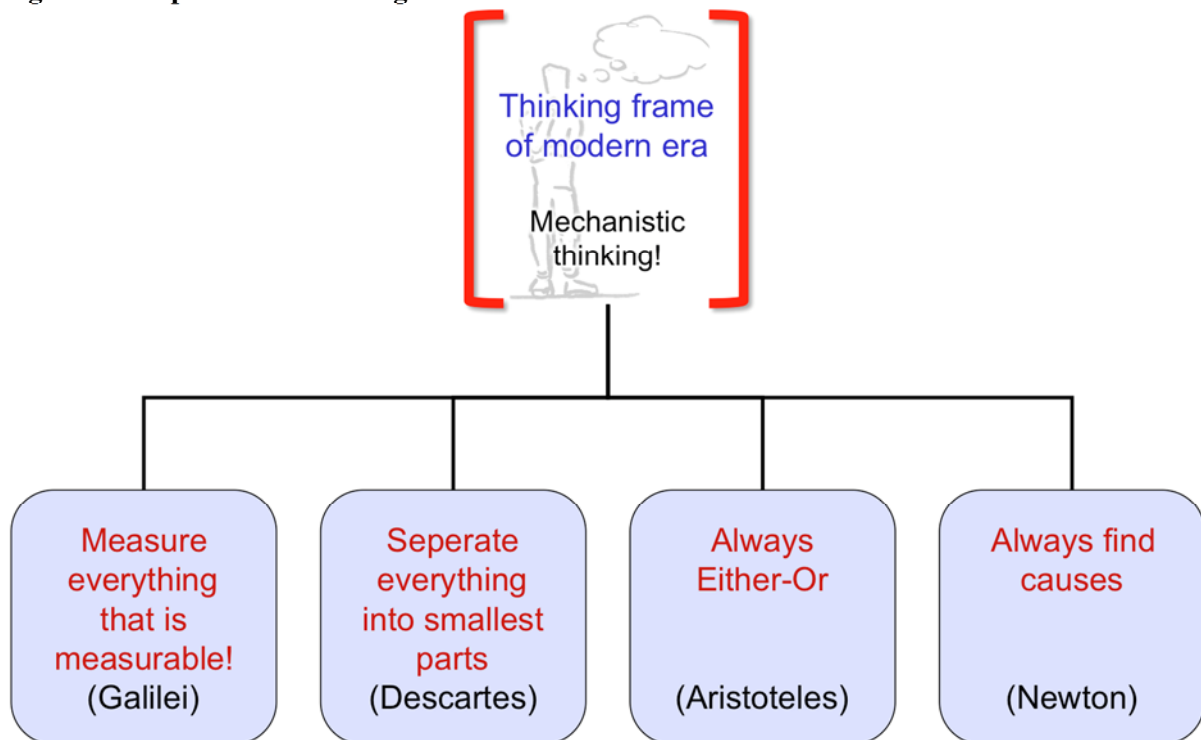
2 The Strength and Limitations of the European Approach

Causally determined by history the cultural sphere of the occident has developed its behaviour of decision-making. Talking to representatives of other cultures their approaches differ significantly due to the same reason. For Europeans the following quote might be surprising: “Being a theoretical physicist I deliberately decided on becoming a follower of the mechanical thinking frame of the occident”.

This quote implies that a range of distinct pattern exists to organise decision-making processes. Thinking about future opportunities this awareness raises the question: What are the relevant success patterns for future oriented decision making – and what are the foundations of decision making processes in Europe.

Herbert Pietschmann from the University in Vienna has published his findings that are based on decades of international research. The European frame of thinking is based on the foundations of Aristotle, Descartes, Galileo Galilei and Newton. It is the desire to determine causal results that are based on the principles of logic: reproducible, quantifiable, analysable, unambiguous. Is that possible, all experts would agree to follow respective outcomes.

Figure 2 The pillars of the thought frame of the occident



Source: Herbert Pietschmann, University of Vienna

This mechanism of decision-making is one of the crucial foundations of the European economic strength: Experts have the opportunity to analyse the current situation, to identify key success factors (KPIs) and to define strategies to develop the performance to its logic limits. These abilities are the strong foundation for operational excellence.

The strength of the unambiguity of logic becomes a hurdle as soon as boundary conditions change. If the reference system becomes re-interpreted hitherto valuable conclusions might

become irrelevant. This, on its own might be manageable. The underlying risk is, that the new criterions are new to the branch. This sounds trivial, yet it is essential for survival to be aware of the effect: “New criterion” will not be monitored. Per definition they are external to any kind of explanation or simulation model. They will not be a criterion for benchmarks – because they are new. As soon as one competitor starts to use such a new criterion, the rules of competition can change in a way that the own business model becomes immediately unattractive, without being able to see the effect in one of the available statistics.

New criterions are invisible for experts of the “old school”.

This is at the same time the reason why the analytical strength of experts has only limited effect on the ability to create innovative approaches.

3 The Value of Contradictions

Modern developments follow a common pattern: They are non-linear. Therefore linear projections and prognosis that are built on today’s criterion are likely not to show future, as it will happen.

Consequently a new approach is required to handle future challenges. An approach that allows building on the strength of the past, without loosing the ability to transform to new competition environments. This becomes possible, once we accept, that our current picture of the situation is only a small excerpt of the multidimensional dependencies that exist. If one of the dependencies is changed this is likely to cause the entire system to behave differently. This also applies to market behaviour and to competition networks.

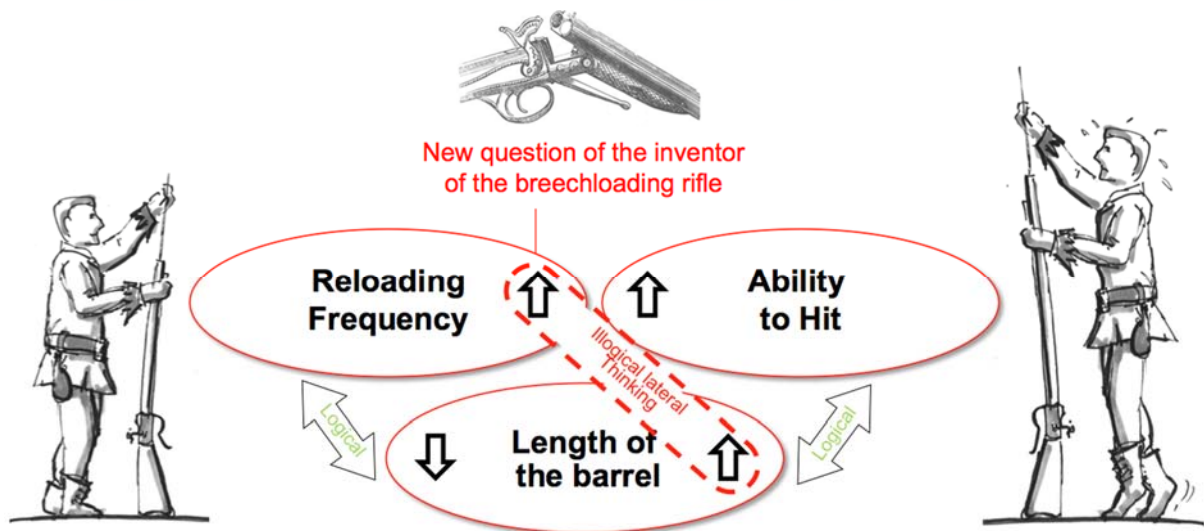
What is needed is therefore a new understanding of team members according to their role. Expert knowledge is needed to describe the current situation. Expert knowledge is essential to understand the mechanism of current limitations. Nevertheless expert knowledge on its own is limited in the ability to create insights beyond the mechanism of current limitations. The creation of such views requires trans-disciplinary exchange of expertise.

The old picture of departments that independently and sequentially create solutions for improved performances is not valid any more. Game changing insights originate from trans-disciplinary approaches, mainly by connecting disciplines with hitherto non or only limited relations to the own knowledge domain.

How is it possible to systematically establish such new links?

Contradiction Thinking is a starting point: There is a target that is currently the reason for success. There is an idea for targets that will become relevant for future success. If a logic reason exists, why both targets cannot be fulfilled at the same time right at the moment a contradiction is formulated. Being aware of the “logic link” the starting point for searching for new solutions is identified.

Figure 3 The Contradiction Model

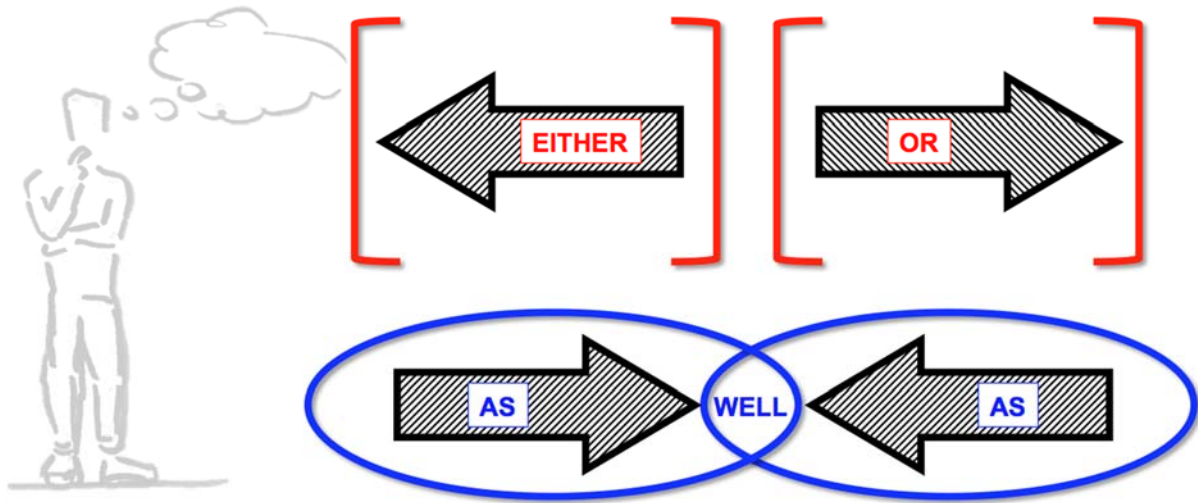


Source: WOIS Institut

Looking back at the chisel example: Material quality has been the logic link and therefore the reason for the “old” limitation. Instead of trying to take “material quality” to further limits, utilising geometrical effects has created a new generation. The same pattern applies to disruptive business models: Classical hotel chains need to invest in rooms to remain attractive. Rooms result in capital bound and the sustainability decreases due to the speed of development of cities. Airbnb re-interprets the investment in rooms, by utilising rooms that are already existing – no investment cost, despite of increased availability !

To summarise: For operational excellence it is relevant to understand the mechanism of the limit to exhaust it. Innovation requires understanding the mechanism of the limit to identify the starting point for necessary new interpretations.

Figure 4 Operational Excellence and Innovation Leadership



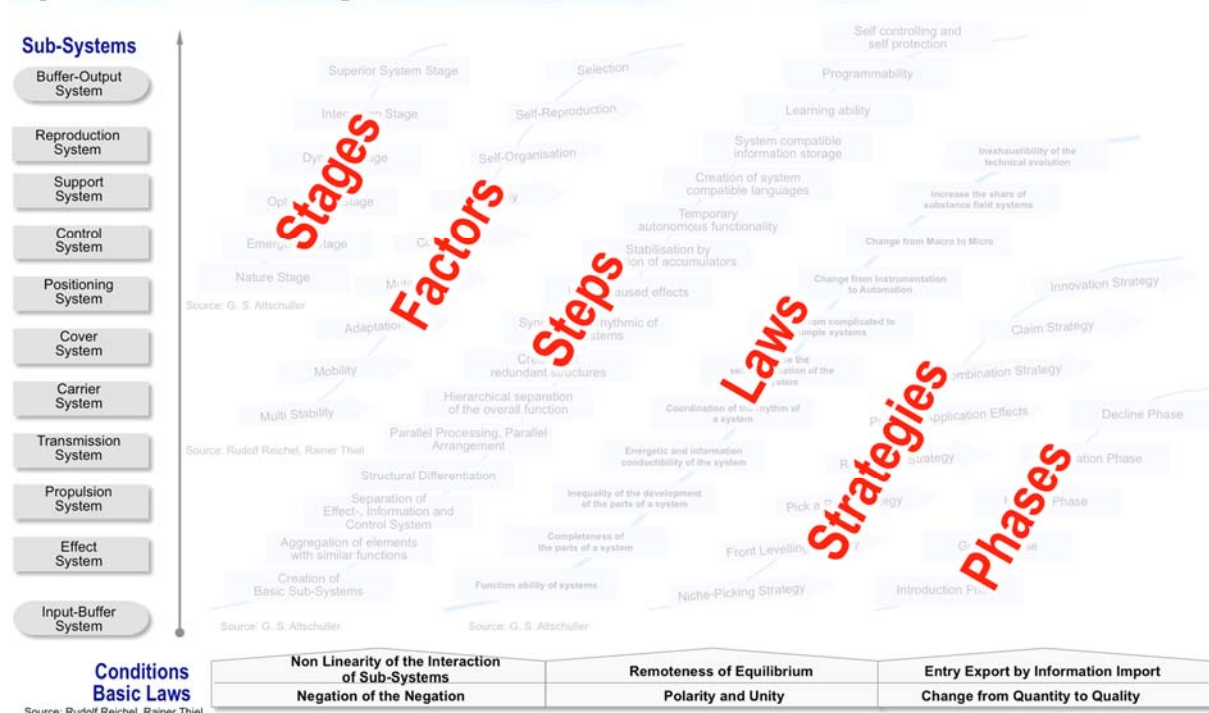
Source: WOIS Institut

4 Creative Freedom or Structured Process?

If structured analysis leads to the clear awareness of the current limits it might be consequent to think that creative freedom is the most appropriate answer to come up with new insights to break through existing barriers.

Creativity assists, but remains not the only opportunity. Creative might help to break through barriers, but there is no orientation to the variety. To gain orientation it would be helpful to have guidance available. The formulation of an innovative challenge gives this guidance. Additionally there are pattern of development, which describe on an abstract level pathways towards improved performances. Once the current development level can be characterised these pattern of development give an orientation which development steps are likely to happen next. Consequently it is not only the inspiration and creativity of individuals, it is the combination of the creativity with inspiration by pattern of development.

Figure 5 Pattern of Development



Source: WOIS Institut based on multiple sources, indicated for each group of development pattern

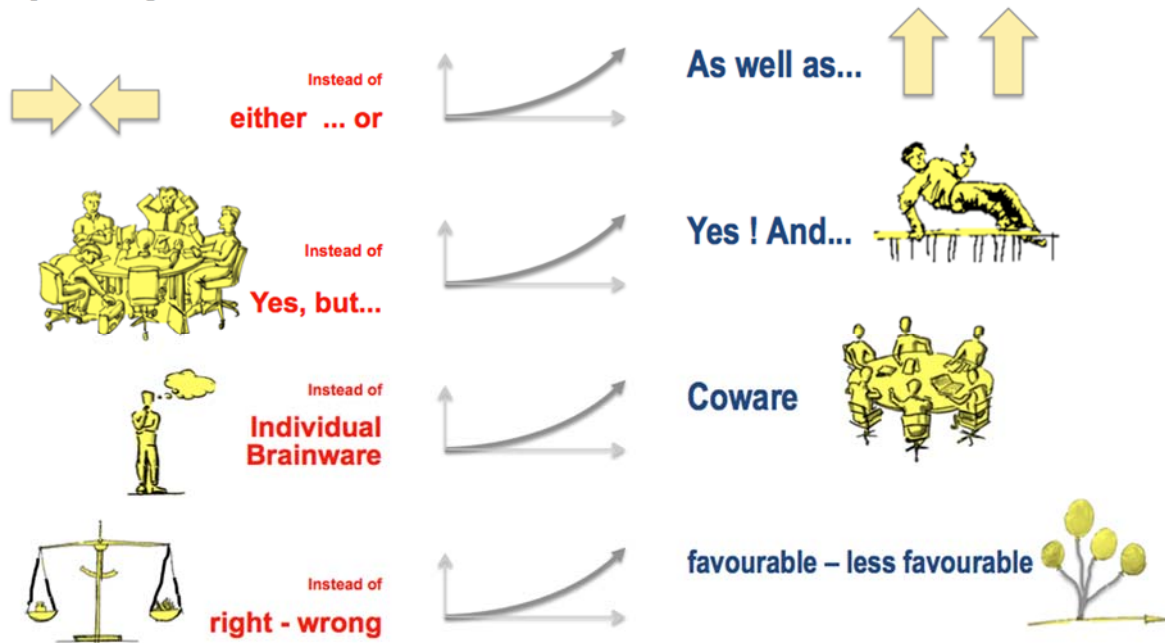
Important is the awareness for the underlying principle of abstraction. The framework of logic is specific and explicit. We are educated and used to the pattern of “given - wanted – solution”. Future challenges require a mind set that is able to handle situations that can be characterised as follows: What is given is fuzzy, what is wanted nobody knows yet and the solution seems to be impossible. The challenge can be handled by applying the principles of abstraction. The fuzzy present situation can be described by characterising the current development level. Strategic Orientation tools, such as the development pattern and trends can give an orientation what might be wanted. Innovation principles can be applied to overcome contradicting challenges.

5 Culture and Mind-Set for Innovation

Being successful is dangerous. Trying to remain successful is the hardest job to perform. Why? Because it is harder to leave a pathway to success than to change once the situation is tense. Helpful orientation can be found once the following question is answered: “What do we need to do to endanger our current success most?” If the answer to this question makes sense for

customers: Let's do it ! – let's do it in a way that the own business is strengthened, because if somebody else would do it, we would be out of the game in total.

Figure 6 Aspects of Future oriented Innovation Culture



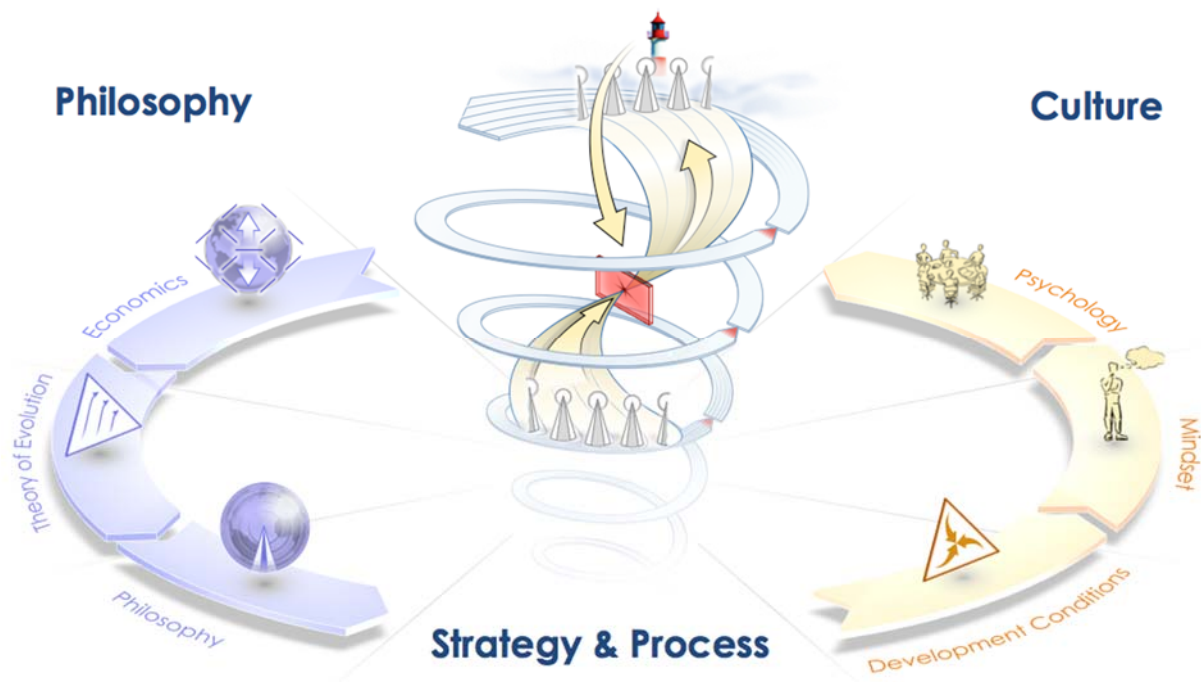
Source: WOIS Instiut

6 Innomorphosis a Comprehensive System for Innovation

What is most important for innovation? This question cannot be answered unambiguously. There is a range of elements that, when being applied in combination, can increase the likelihood to gain relevant insights for innovative solutions.

- Philosophical definitions give orientation towards future.
- Cultural aspects allow the organisation of trans-disciplinary work
- Contradiction awareness supports to overcome the logic of the current limits
- Structured processes support the implementation in organisations.

Figure 7 Core Elements for Innomorphosis



Source: WOIS Instiut

Conclusion

The decision making culture of the western world supports approaches for operational excellence in an ideal way. Creating new solutions beyond current limits requires the new interpretation of current dependencies. Not only within the own knowledge domain, especially in a trans-disciplinary manner. This stands in a strong contrast to current organisation structures and linear, sequential process descriptions.

The Innomorphosis system proposes a new approach that provides strategic orientation tools, supports a future oriented innovation culture and proposes a process that increases the likelihood to identify future relevant insights.

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INNOVATIONS IN THE INSURANCE MARKETING THROUGH SOCIAL MEDIA

Claudia Hilker

Abstract

Social media have changed the requirements for the marketing seriously. Companies need to master new challenges that have arisen because of new media usage. This concerns the web 2.0 technologies, social media and the two-way communication between companies and customers. There are new opportunities for marketing, which require new approaches in handling, e.g. user-generated-content and risks like “shitstorm¹⁶”. Solutions may be reduction of risks and monitoring. It is a major challenge for such a conservative sector as insurance to integrate social media in their marketing in order to maintain existing customers and win new ones. They instigate changes in marketing strategy, marketing mix and processes and require a great deal of creativity in implementing them within the phenomenon of social media marketing. The paper deals with different views on social media marketing in the insurance sector using case studies on design of new processes within the innovation management, and indicating benefits in insurance business.

Keywords: Innovation, Insurance sector, digitalization, creativity, social media marketing.

JEL Code: G220, M310, O30

Introduction

Innovation is a perceived novelty. Innovation management allows the organization to respond to external or internal opportunities, and use its creativity to introduce new ideas, processes or products (Kelly, Kranzburg, 1978). The term innovation is heterogeneous and the intensity of implementation depends on the specific industry. The intensification of international

¹⁶ “Shitstorm” is a storm of indignation in a discussion on Social Media platforms (blogs, Twitter, Facebook) accompanied with insulting remarks aggressive, abusive, threatening or attacking statements about companies, institutions. Its distinguishing feature is the large number of subjective criticism in a short period of time.

competition led to increased pressure for innovation. As a consequence, the importance of innovation was increasing in science and practice and became a differentiator for companies in mature markets. Today, innovations decide whether a company can survive in the market (Neubauer, 2008).

Innovations with web 2.0 technologies and social media have increased importance. Social media is a term designating a constellation of internet platforms allowing users to publish, share, comment, distribute and remix all types of digital content (Hilker, 2010). Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content (Kaplan, Haenlein, 2010). Social Media are causing significant changes in the way the internet is used and perceived. The most popular platforms for business companies are Facebook, Twitter, Youtube, Instagram, Twitter and Youtube (Hilker, 2015).

Social media have revolutionized the marketing. The web 2.0 technologies have changed the way consumers participate, collaborate und communicate. In the digital age of globalization, social media marketing dominate the economy. To sum up, dramatic changes have eroded the effectiveness of the mass media in marketing 3.0. Kotler and Keller (2010) describe the paradigm shift in marketing: "We can say with some confidence the marketplace is not what it used to be. It is dramatically different from what it was even 10 years ago" (Kotler et al., 2012). Companies can react to the marketing environment in the following manners: 1) Reactive manner: a company can passively accept the current marketing environment and deemed as an uncontrollable element. They can design strategies to avoid the threats and look for opportunities. 2) Proactive manner: companies can pursue with actions to force against their environment. This can be achieved by using adaptations and changes.

1 Innovation in insurance marketing with social media

The innovation intensity in the insurance industry is low. In 2012, the companies in the automotive sector spent about 10.7 per cent of their turnover on innovation projects while the companies in the insurance company economy spent only about 0.5 per cent. The innovations focus of the German insurance companies is in product marketing (Swiss, 2011):

1. Adjustment of insurance terms: Mostly, it involves customized „deal-by-deal adjustments“.

2. Splitting/Bundling of risk coverage: The splitting of existing products as „modular“ as well as the summary of existing products into bundles.
3. Policies based on specific triggers: payed to the occurrence of a predefined event.

These product marketing innovations in insurance companies are mostly incremental innovations. It could even be a critical questioning, whether „tailoring“ or „bundling“ have already a sufficient degree of novelty, to be considered as a true innovation. Revolutionary or transforming innovations remain out (Swiss, 2011). Most of the identified innovations are rather driven in response to regulatory changes, specific customer requests or actions of the competition, but less by the active research for new opportunities in the market. The German insurance industry faces a dilemma. On one hand, innovations are needed to survive in a competitive market environment on the other hand innovations make it difficult to uncertainty regarding development duration and outcome a controlled use. The solution lies in establishing a framework for controlling the development of innovation factors.

Innovation with the use of social media is an attractive concept for insurance companies, as there is growing evidence that innovation can bring about tangible results. One of the reasons for the surge of interest in innovation seems to hinge on the expectation that the contribution from social media can bring about a transformation and an increase in productivity in the insurance market. Those expectations are moderated by the evidence that innovation has a problem of speed and scale. An essential feature of the new innovation paradigm is the opening of the innovation process. Customers become relevant actors in the innovation process, by contributing ideas for product development (Hettler, 2010). Terms and concepts such as open innovation, customer integration and networks reflect individual aspects of this development. Social media may support open innovation activities like:

1. Better interaction with external participants in the innovation process (customer, partner)
2. External support of the ideation process
3. Business intelligence to better understand the innovation ecosystem
4. Identification of appropriate people, being capable of assisting dedicated innovation efforts
5. Branding, promotion and marketing of innovation outcomes and capabilities.

Social media play an important role because in innovation because they allow new forms of interaction. Thus, the concepts such as open innovation or customer integration in product innovation development without the Internet cannot be realized. The web 2.0 and social networks provides the technical platform for numerous open innovations. In his concept of interactive value, Piller is based on a collaborative process with a social exchange (Reichwald et al., 2009). Clients participate in complex value creation process of companies. The following practical examples illustrate the innovation push of Social Media for the insurance marketing:

- Innovation for product development: With Social Media, it is possible to integrate customers in the development of product innovation to evaluate customer-oriented ideas, for example: the Ergo platform (www.kundenwerkstatt.ergo.de).
- Evaluation platform for insurance company intermediary allow customers to check in advance of the opinions, experiences and reviews (www.whofinance.de).
- Insurance with friends: the customers of “Friendsurance” (www.friendsurance.de) share with their friends an insurance product. Within their peer-group, they support each other financially, if minor damage incurred. The insurance company pays only to complete greater damage. The insurance company save money and ensure that the customer gets money back.

2 Objective, Research Question and Method

The paper will explore new innovation with social media in the insurance marketing. The research question is: What is the impact of social media for innovation in the insurance marketing based on the Cases Ergo and Allianz? The premise is that insurance companies can build credibility, transparency and closeness to stakeholders with social media marketing, because it will offer insurers new ways to increase their market penetration and to increase the effectiveness of their customer retention and acquisition strategies. The starting point is the assumption that it must be the goal of an insurance company, to avoid a negative perception of the brand (e. g. shitstorm) and to create a positive perception in social media (e. g. recommendations, increase in sales) to achieve positive impact effects.

Based on negative and positive case studies, the modes of action (cause / effect) in social networks are to be analyzed to identify causal relationships in social media marketing and examine recommendations. The methods are analysis, monitoring and e-mail survey. Social media monitoring refers to the observation of discussions and opinion on the Internet.

A case study is suitable as a qualitative method to answer the research question, because it detects a holistic and realistic picture of the social world with the social interactions. The case studies have been researched and evaluated based on publicly available information with monitoring analysis due to online researches. The case studies base on publicly available information on the Internet and publications in the media, recorded and analyzed with social media monitoring. In addition, the companies were interviewed by an e-mail survey. It should be noted that there are few social media marketing case studies from insurance companies. Social media monitoring can help to find out what internet user think about topics, for example about the reputation. The observation, analysis and evaluation should be carried out professionally so that one can draw from the results of the right conclusions for market research and to discover new trends for product development (Sen, 2011). The aim is to filter out the relevant content, trends and opinion and evaluate it. This enables to identify relevant topics and gain knowledge. In addition to the monitoring results, the companies have been contacted in order to clarify additional questions that are not publicly accessible and concern sensitive issues, like revenue loss.

The instrument of observation and analysis, which is used in the negative and positive case studies, enables the observation of reactions to people and stimuli. Therefore, it is possible to draw conclusions about relevant marketing issues of crises in the social media environment. To complement support and evidence of personal observation and interpretation, analysis data are used by technical applications for the social media monitoring. Thus, the behavior of the social media user can be measured online, systematically documented and it can be objectively analyzed.

However, the limited and arbitrary selection of the samples will not lead to representative samples. It is primarily for the exploratory phase of research. There is still a gap of practical examples, because the social media use has only been established in the insurance branch in recent years. In this respect, the results of the investigation of the case studies are not representative, but they can be interpreted as trends. The following table provides an overview of the features of the examined case studies.

Table 1 Negative and positive case studies with special features; own representation

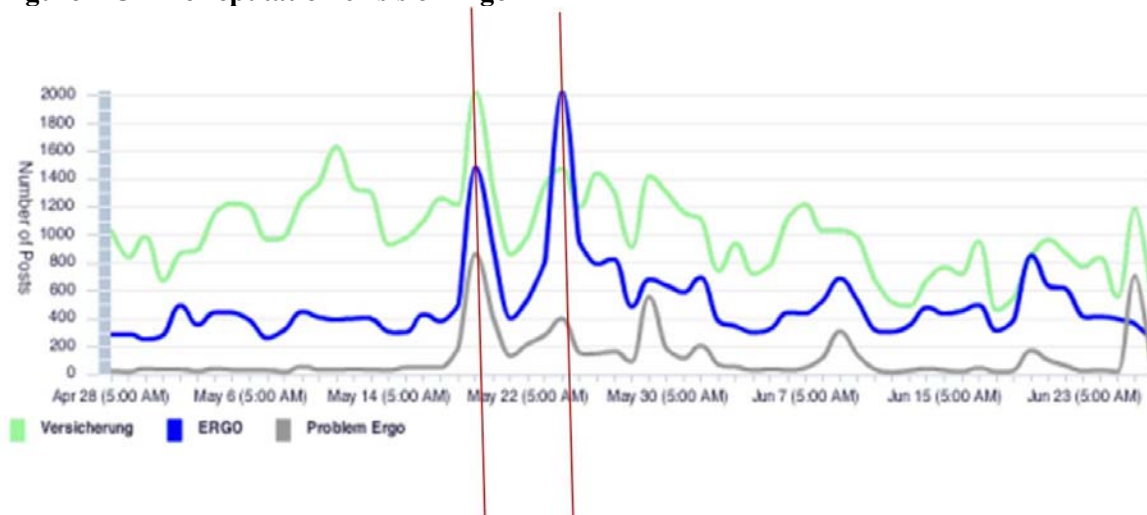
Case Studies	Negative Case Study	Positive Case Study
Particularities	Case study with negative effects such as a shitstorm	Case study with positive action results like sales promotion
Description	Ergo: Reputation Crisis 2011	Allianz with Facebook promotion and self service online
Hoped Insights	Recommendations for crisis management.	Recommendations for social media marketing.

3 Case studies on innovations in insurance marketing

3.1 Negative case: Ergo Insurance (Incentive Travel 2011)

- The crisis: In 2011, Ergo¹⁷ was in the headlines with an incentive trip, miscalculated Riester contracts and faulty life insurance. In May 2011, the Handelsblatt announced that the HMI (a sales organization of Ergo) had invited hundred best salespeople and high managers as an incentive for a sex trip to Budapest in 2007.
- The course of the crisis in Social Media Monitoring: The crisis of Ergo has been debated intensively in media. The f. Fig. shows the crisis in the course of social media monitoring.

Figure 1 Online reputation crisis of Ergo



At the peak of the crisis (22/05/2011) 2,000 postings were identified through Ergo online. The tone slips into the vulgar language with insults. The Ergo shitstorm shows how the balance of

¹⁷ The Ergo Insurance Group is an international insurance group. It is one of the largest insurance companies in Germany with offices in 30 countries (www.ergo.de).

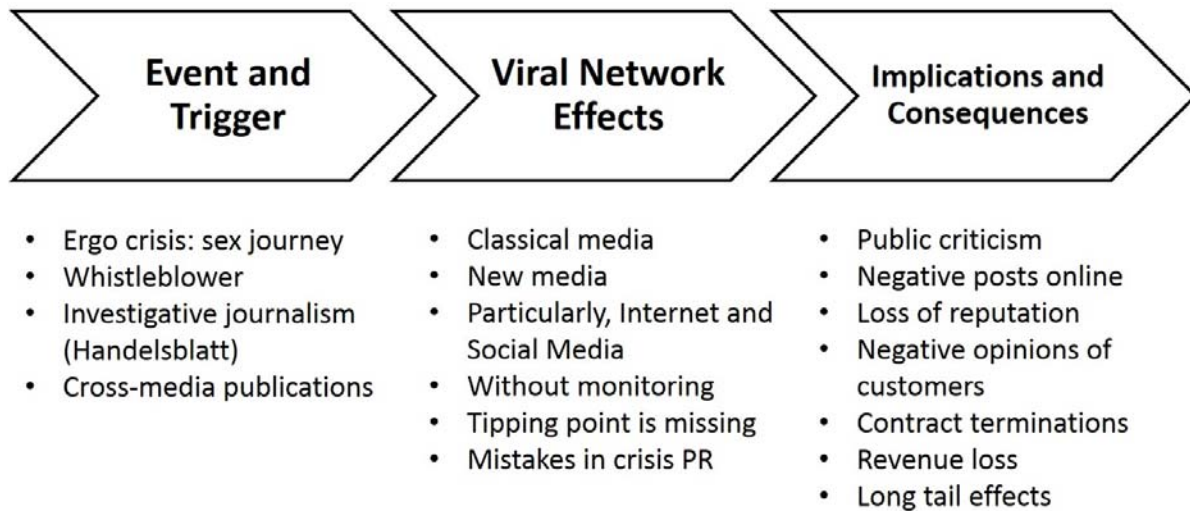
power has changed by social media. Previously, companies have designed their brand by image measures. Today, customers share their opinions online and create the reputation.

- The consequences for Ergo: The scandals surrounding the sex party and miscalculated contracts have significantly damaged the image of Ergo. Every fourth German does not want to be consulted by an insurance agent anymore. This is due to lack of confidence: 60 percent of the Ergo-refusers fear that the insurance agent give them a wrong advice¹⁸.
- The measures of Ergo: The Compliance for incentive trips should save the reputation of the Ergo crisis¹⁹. Since that, there are stricter rules for bonus trips. In addition, Ergo has invented a hotline for whistleblower to give anonymous tips for misconduct. However, that was only to limit the damage, because the trust of 40 million customers and the company image were in danger. Amazingly, Ergo has neglected the social media marketing and reputation management despite a marketing budget of 80 million euro.
- Evaluation of the case study: The case illustrates the great importance of online reputation. When customers share negative opinions about a brand online, it damages the reputation of the brand. Therefore, it is important for insurance companies to use social media monitoring in the risk management, in order to take advantage of opportunities to detect crises at an early stage to ensure minimal risks. The consequences of a shitstorm are archived on the Internet and are even difficult to remove with legal assistance, because in Germany the law of freedom of expression shall apply. The figure shows the Ergo crisis as an effect chain.

¹⁸ In: Handelsblatt, 07.08.2011. Online: <http://www.handelsblatt.com/unternehmen/banken-versicherungen/nach-skandal-deutsche-misstrauen-ergo-vertretern/4473018.html>, checked 22.04.2015.

¹⁹ Online: <http://www.handelsblatt.com/unternehmen/banken-versicherungen/compliance-bereich-neues-team-soll-bei-ergo-regeln-ueberwachen/4539674.html>, checked 26.04.2015.

Figure 2 Ergo crisis as an effect chain, own illustration



The effect chain shows the causal event of the Ergo crisis with the timer that triggers a chain of other events in a dynamic sequence, inter alia, whistleblower and viral effects. One could speak of causal chains, as each action itself will cause a new event, again.

3.2 Positive case study: Allianz Germany (Allianz-helps and Facebook-Toolbox)

The Allianz²⁰ has been using social networks since 2009. The use of social media for the Allianz is intensive in terms of the diversity of platforms, contribution rate and response. Therefore, some studies describe the Allianz as a pioneer (AMC/Hilker Consulting, 2014).

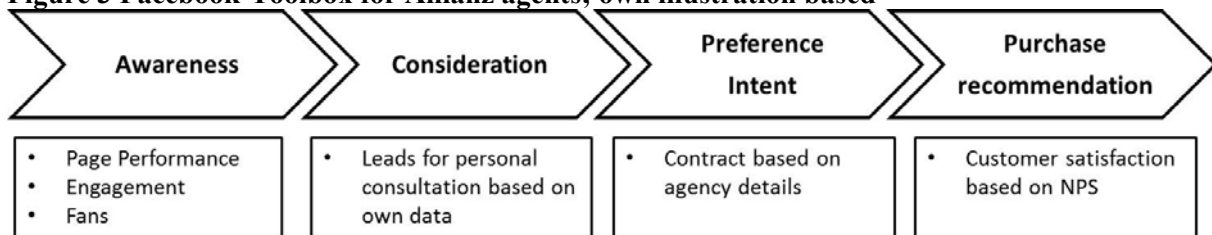
- Social media of Allianz: With social media, the Allianz wants to use new ways to interact online. Allianz Germany uses social media in functional areas: communications, human resources, marketing and knowledge management. The criterion for achievement is that every measure must have a demonstrable effect on the information and decision process, while it stands in a cost and performance ratio to other measures. The social media channels of Allianz are bound to a strategic control in the market management of Allianz Germany. For example, they established a central social media monitoring to use it as an early warning system for crises and complaints. In addition, Allianz has introduced guidelines for governance and compliance for the whole company. Overall, the Allianz sees its SM-commitment as a learning system.

²⁰ Due to sales and market capitalization, Allianz SE is the world's largest insurance group and is represented in about 70 countries. The company's most important market is Germany with approximately 20 million customers. The Allianz Germany AG generated sales of around 30 billion euros in 2013 (www.allianz.de).

Here, KPI systems and various communities are maintained for the learning process. Thus, a continuous exchange of the development of the Social Media strategy with all stakeholders is supposed to be ensured (AMC/Hilker Consulting, 2014).

- Innovations in customer service: Allianz leaders and members of the community answering user questions, whether it is a complaint or someone is looking for a partner or a quick information. The forum Allianz-helps (www.forum.allianz.de) reduces the amount of calls in call centers. The customer can find the answer online. The reaction rate of the team and the processing status of customer inquiries are visible on the homepage in real time²¹.
- Innovative promotion of the Allianz on Facebook: Since 2012, the Allianz has been using the Facebook Toolbox for insurance agents for all agencies because they strategically focus on creating a network between insurance agents and their prospective customers in the local environment. Therefore, the Allianz provides relevant locally content for the fan pages of the insurance agents to win fans. The Facebook Toolbox for insurance agents is created out of modules that try to win existing network contacts of the insurance agents as fans and new customers. In addition, Facebook presences of mediators are to be brought into line with regulatory and brand-specific requirements. The application consists of a Facebook page with legally secured templates for Facebook design²². The figure Facebook Toolbox for insurance agents shows the main processes in relation to the buying cycle.

Figure 3 Facebook-Toolbox for Allianz agents; own illustration based



²¹ The transparency of the platform changed the scope of subjects. *Allianz-helps* is a Facebook application, a mobile website for Tablet / PC and available on Twitter. This makes it accessible to all customers, regardless of devices. On the website, there is an indication to the current response status with response times.

²² This includes, for example, the automated setting of the imprint, customer service applications with unique content of agents and a defined tab for videos from the YouTube channel of the Allianz.

The Alliance has defined the Facebook Tool to the processes related to sales: 1) awareness, 2) consideration, 3) preference / intent 4) purchase / recommendation. The actual impact on sales and customer loyalty are collected by a standardized customer survey. Relevant KPIs are the postal commitment rate²³, the conversion rate and the NPS²⁴.

- The evaluation of the case study. The facebook toolbox of the Allianz promotes the user engagement and the sales success. This presents a KPI for the social media conversion from Facebook in the online initiation phase to incept a contract in an offline environment (ROPO²⁵). The Allianz asks the mediator for the sales success every six months. For the Allianz, the net promoter score is relevant in terms of customer loyalty and word-of-mouth. A positive NPS is desirable regarding a strong customer loyalty and to generate a positive word-of-mouth communication. According to the Allianz, 2,500 of the 8,400 insurance agents are currently using the application (May 2015). 29 percent of the insurance agents on Facebook are successful in closing contracts with Facebook contacts (conversion rate). Overall, 55 percent of Allianz agencies have closed contracts with Facebook contacts and around a third has closed even more than ten contracts per quarter. Thus, it illustrates a high competitive relevance of the social media strategy of Allianz. The Allianz aims to implement further plans via social media, in particular the purchase process with information, contact initiation, consulting, sales, service, after-sales and recommendations online.

4 Summary of the main conclusions

Regarding the positive and negative cases, the following findings can be concluded. The negative case study Ergo shows how reputational crises can spread quickly with exponential growth in social media. The negative consequences are stored in the digital memory of the search engines (like Google) long and appear high up in the ranking on searches. The negative consequences are only conditionally (monetary) to reduce measures. When submitting an application to Google to remove z. B., the pages are not output in the search as a hit. While this

²³ The post engagement rate refers to the average user engagement that is realized by a single post. Thus, the Allianz has standardized comparable metrics for measuring success.

²⁴ The Net Promoter Score (NPS) is a measure that correlates with the success of the company (in certain sectors). The method was developed by Satmetrix Systems, Inc., Bain & Company, and Fred Reichheld.

²⁵ ROPO effect means: Research online, purchase offline, is a trend in buying behaviour where customers research relevant product information to qualify their buying decision, before they actually decide to buy offline.

reduces the findability, but does not rule it out. If the offending entry to another site linked, this link will also continue to exist. This is just one example of the complex issues and the consequences of digital reputation crisis. It is recommended, therefore, before the SM-start an opportunity and risk analysis carried out, social media monitoring and reputation management use. Regarding the innovations in the insurance marketing through social media shown by the both cases (Ergo, Allianz), the following conclusions can be made:

- Social media monitoring is an important innovation tool in insurance marketing to detect crises, problems and causes earlier, as the crises of Ergo has shown.
- Insurances that have integrated social media marketing systematically in their marketing and have built it up professionally (as Allianz), win an interactive dialogue with their customers and show positive experiences of the brand online.
- Insurances that build service communities online strengthen their positioning online and can save costs through self-service like Allianz-helps.
- Next to image, branding, relationship management and community building, Facebook also works for sales promotion as the case of Allianz has demonstrated.

As a limitation, it must be added that these are not generalized statements because of the limited number of case studies. The paper also confirms that a risk analysis in social media marketing is relevant to new opportunities such as to use branding and acquisition safely (especially younger target customers). Likewise, the restricted areas of application in innovation for social media marketing have been confirmed. The NPS measurably increase the customer satisfaction and online degrees promote the premium income. In addition, the digital skills of the insurance agents are promoted, which is becoming increasingly important in the competition for the process of change in the business transformation. Thereby, they gain market advantage through unique selling points. The integration of social media may rise opportunities of innovations for insurance marketing. The approaches for innovations in social media and its potential for insurance marketing are explained in the following table.

Table 2 Social media innovation potentials for insurance companies, own table

Corporate functions	Selected functional Concepts	Potential Innovation Benefits
Marketing	Reputation Management Digital Branding Cross Media Marketing Monitoring Conception Campaign Management	Through viral effects, people in social media become brand ambassadors and promote the range of messages for businesses. Customer loyalty improvement through social media.

Product Development	Crowdsourcing Innovation Management Trendscouting	company get new suggestions for improvement through feedback, the costs of market research can be reduced.
Customer Service, Benefit and Claims Management	Customer Self Service online (Allianz-helps) Service Apps Communities Website Chat	Through applications like blogs and apps, customers can find the answers to their questions online through self-service. This reduces the costs of call centers. Through the higher pace of communication in real time, the customer satisfaction (NPS) increases.
Online / Social Media Marketing	Recommendation Facebook Marketing LinkedIn Marketing Twitter Marketing Youtube Marketing Pinterest Marketing	Presences in social networks can reach new target groups. Especially younger users are important for insurance companies. Through viral effects, social network effects can be used strategically for mouth-to-mouth marketing.
Corporate Communications	Online Public Relations Blogger Relations Corporate Blogging	Through interactive online dialogues with stakeholders, the communication gets cheaper, faster and participatory.
Sales Promotion	Community Building Brand Ambassadors Social CRM-System	Communities promote customer loyalty. Through Social CRM, new customers can be identified and recovered.

Insurance marketing can get new innovation impulse with social media. The customer determine the change and drive it forward. The new Internet technologies cause innovation potentials, through which interactive value can unfold quickly and easily without large capital investments, but with high performance, flexibility and quality. In addition, a change develops in the consciousness of many users, who no longer see themselves as consumers but as active creators. In my opinion, these developments will lead to the result that the diffusion curve of innovation benefits with social media will be considerably steeper than the previous approaches in the evolution of insurance marketing.

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DRIVERS OF SENIOR ENTREPRENEURSHIP IN VISEGRAD COUNTRIES

Marian Holienka – Zuzana Jancovicova – Zuzana Kovacicova

Abstract

Senior entrepreneurship is an important topic in the context of current socio-economic challenges, such as unemployment, aging population, or low competitiveness of older generations on the labor market. Involvement in entrepreneurial efforts is a promising solution to these problems. However, Visegrad countries (Czech Republic, Hungary, Slovakia and Poland) traditionally exhibit low inclusion of senior (i.e. 55+) generation in early-stage entrepreneurial activity. Therefore, the aim of our study is to analyze the individual-level factors related to business start-up, considering the opportunity-necessity motive dichotomy. We base our analysis on Global Entrepreneurship Monitor Adult Population Survey data for V4 countries for years 2011 to 2014. Our findings identify the main drivers of seniors' involvement in early-stage entrepreneurial activity, with specific focus on common factors and differences between businesses driven by opportunity and necessity.

Key words: entrepreneurship, seniors, opportunity, necessity, drivers

JEL Code: L26, J14

Introduction

Senior entrepreneurship is definitely a hot topic in nowadays socio-economic context. Aging population and associated questionable sustainability of pension systems, increasing retirement age and disadvantaged position on labor market put self-sufficiency through entrepreneurship as one of the important options. Positions of older workforce groups are even weaker when job opportunities are scarce and employers have more applicants available. In vacant positions where this is not true, seniors usually do not match the required profile. On contrary, even if their business fails, seniors with entrepreneurial experience are usually equipped with skills and knowledge improving their positions on job market. However, seniors often face unequal

barriers in starting businesses or becoming self-employed, and are generally under-represented in entrepreneurial activity. Last but not least, due to demographic trends, in few decades the senior population will immensely grow, representing a huge potential market for senior entrepreneurs who should be closest to understanding and serving the needs of this segment. Despite its considerable importance, particularly emphasized by policy makers on national and international levels, elaboration on senior entrepreneurship in literature and empirical research is still underrepresented. However, we have seen a positive trend with this respect in last few years. Thus, our aim is to contribute to the forming body of knowledge in this field. The main research question of our paper is to find out what are the main drivers of senior involvement in early-stage entrepreneurial activity from among individual characteristics and perception of societal attitudes towards entrepreneurship, while distinguishing between opportunity and necessity motives.

1 Senior entrepreneurship and its importance

Senior entrepreneurship is, similar to other types of entrepreneurship, a multifaceted phenomenon. Seniors face certain barriers to enter the entrepreneurship process, but at the same time they generally possess some advantages they could capitalize through business start-up. Due to unequal barriers preventing seniors from involvement in entrepreneurial activity, they are one of the main target groups of inclusive entrepreneurship research and policy. In this context, seniors are usually considered as individuals 50+ or 55+ years old (Pilkova et al., 2014). Generally, the inclusive entrepreneurship policies intend to enable all people, regardless of their personal characteristics or background, an opportunity to start-up and operate in business or self-employment (OECD/EU, 2015). As summarized by Pilkova et al. (2014), there are certain reasons for supporting senior population in order to consider entrepreneurship as an option before, but also during the retirement age. First, involvement of seniors in entrepreneurial activities can help to unveil the untapped potential of their accumulated human and social capital. With this respect, seniors themselves might not only act as entrepreneurs, but they also may transfer their knowledge and wisdom to younger generations of entrepreneurs through formal or informal mentoring. Second, self-employment of seniors, especially those starting businesses from unemployment or retirement, can help to unburden social security and retirement schemes. Even though senior entrepreneurship is not necessarily a source of innovative and high growth businesses crucial for economic growth, it still reduces the pressure

on social security and retirement systems, as well as negative effects of unemployment. Thus, senior entrepreneurship brings considerable benefits not only to senior population, but also to the entire society as such.

1.1 Drivers of entrepreneurial activity in senior population

The most frequently studied drivers of individual business start-up (whether in age-specific connotation or not) are the individual entrepreneurship-related attributes, social capital and perception of societal attitudes, and individual demographic characteristics.

Individual demographic characteristics studied for their influence on taking the entrepreneurial path are mainly the age, gender, educational attainment and household income. The role of age is based on the opportunity costs of time, since with increasing age the opportunity costs of involvement in an entrepreneurial activity increase (Lévesque and Minniti, 2006). Gender studies suggest that the entrepreneurial propensity of men and women may be influenced by differences attributed to gender-specific characteristics (Langowitz and Minniti, 2007), with female population being generally less involved in business activities. The assumptions about effect of educational attainment is related to the concept of human capital, a knowledge base determining capacity to recognize and pursue entrepreneurial opportunities (Ramos-Rodríguez et al., 2010). Finally, the role of household income in relation to involvement in entrepreneurial activity can be viewed through the financial resources perspective, especially with the opportunity costs of reducing this income (Kim et al., 2006).

The most commonly investigated individual attributes regarding the involvement in early-stage entrepreneurial activity are the alertness to entrepreneurial opportunities, self-confidence and fear of failure related to starting a business. According to Kirzner (1979), alertness to unexploited business opportunities is a key perceptual characteristic of entrepreneurial behavior and a necessary precondition for entrepreneurial action. Individual entrepreneurial self-confidence relates to the concept of self-efficacy, representing one's judgement of own ability to execute an action and produce designated levels of performance (Bandura, 1994). Thus, it has been established as a reliable predictor of different goal-directed behaviors, including entrepreneurship. Fear of failure represents a subjective perception regarding the risk of entrepreneurial failure and its possible consequences. Since the majority of individuals are supposed to be risk-averse by nature, increased fear of failure is expected to act as an inhibitor of entrepreneurial action (Arenius and Minniti, 2005).

Social capital in entrepreneurship context generally refers to social networks of an individual, or so-called external knowledge, that enable to extract benefits from these social structures, networks and memberships through the social exchange. Thus, social capital fosters the discovery of opportunities, their exploitation as well as the identification, collection and allocation of scarce resources (Ramos-Rodríguez et al., 2010; Davidsson and Honig, 2003).

Perception of societal attitudes towards entrepreneurship represents an individual perception of social norms, values, beliefs and assumptions socially carried by individuals within the society, influencing their behavior. One of such is the status of successful entrepreneurs in a society. If an individual believes successful entrepreneurs enjoy high levels of social status and respect, he will be generally more likely to find entrepreneurial activity desirable. He would perceive that by joining an entrepreneurial path he would achieve legitimacy by conforming to norms and values within society (Lonsburry and Glynn, 2001).

Specifically in the context of senior population, previous empirical research findings on factors affecting individual involvement in business activity were summarized by Pilkova et al. (2014) and Pilkova and Rehak (2015). According to their overview, from among individual-level attributes, age, former work experience in managerial or entrepreneurial positions, social capital (in terms of broad and relevant networks) and accumulated financial capital influence seniors' decision to engage in entrepreneurial path.

Another important question is, how the generally expected relationship between the above discussed factors and individual involvement of seniors in entrepreneurial activity is moderated by the motive behind the decision to start a business. Various motives to start a business can be generally divided into the two main categories - opportunity and necessity motives. Verheul et al. (2010) argue that distinction between opportunity and necessity entrepreneurs is important for several reasons, one of them being the difference between determinants of these two types of entrepreneurship. Some evidence on relationship between individual characteristics and push/pull entrepreneurship has already been provided by empirical studies, but it is often quite ambiguous.

2 Material and methods

Our analysis was based on data from Global Entrepreneurship Monitor (GEM), a world's largest academic study on entrepreneurship that annually monitors entrepreneurial attributes and activities across tens of participating economies (Singer et al., 2015). It uses two main

instruments to collect the primary data - Adult Population Survey (APS) and National Expert Survey (NES). The APS takes place every year in all participating countries and collects individual-level data from representative samples (by age and gender) of 18 to 64 years old adult populations using a standardized survey instrument.

We created a pooled sample derived from GEM APS individual level data for V4 countries from years 2011 to 2014, with age of respondents between 55 to 64 years as the only selection criterion. Our sample comprised of total 6,306 senior individuals (1,394 from Czech Republic, 1,768 from Hungary, 1,496 from Slovakia and 1,648 from Poland), containing altogether 273 early-stage senior entrepreneurs (out of them 165 running their businesses based on opportunity, 101 necessity-driven business owner-managers, and 7 who refused to indicate the main motive for business start-up). The main sample was further divided into two subsamples - one for analyzing factors influencing the opportunity-driven entrepreneurship (containing non-entrepreneurs and entrepreneurs out of opportunity), and latter for the analysis of necessity-based activity drivers (comprising of non-entrepreneurs and entrepreneurs starting out of necessity) among senior population.

Our analysis was based on standard GEM variables. Dependent variables indicated involvement of respondents in opportunity- or necessity-driven early-stage entrepreneurial activity. In GEM, total early-stage entrepreneurial activity (TEA) includes individuals actively involved in setting up a business or owning-managing new firms that are less than 3.5 years old. These individuals are further classified according to self-reported dominant reason for starting a business. Individuals who reported having no better choices for work are considered as necessity-driven entrepreneurs, while those whose reason was mainly/partially to take advantage of business opportunity, or those seeking for better opportunities than in their recent jobs, are classified as opportunity-driven entrepreneurs.

The explanatory variables included the following: 1) entrepreneurial self-confidence (belief in having knowledge, skill and experience required to start a new business: yes=1, no=0); 2) alertness to opportunities (perception of good opportunities for starting a business in his/her area in the close future: yes=1, no=0); 3) fear of failure (having a fear of failure that would prevent one from starting a new business: yes=1, no=0); 4) knowing an entrepreneur (knowing personally someone who started a business in recent two years: yes=1, no=0); 5) perceived status of new entrepreneurs (one's agreement that in his/her country, successful new

entrepreneurs possess high levels of status and respect: yes=1, no=0); 6) gender: male=1, female=2; 7) education (highest educational attainment); and 8) household income (total annual household income classified into lowest/middle/upper 33rd percentile for each country). Finally, we also included proxies for country and year of survey as control variables.

To investigate the entrepreneurship drivers among senior population we applied a binomial logistic regression modelling. This model estimates the probability of an event happening. In our case this event was running an early-stage business activity based on necessity or opportunity. Thus, we conducted two regression models analysis with two different dependent variables - opportunity-driven and necessity-driven early-stage entrepreneurial activity. To estimate the parameters of each model we used statistical software R, namely its build-in function for Generalized Linear Models (GLM) which was set on binomial family with logit transformation. The significance of parameters was tested using Wald z-statistics, and Maximum likelihood estimations were used to calculate the logit coefficients denoting changes in the log odds of the dependent variable. Correlations between independent variables were tested and proved not to be problematic. The selections of final models were conducted through a stepwise regression function drop1 using Chi-square goodness of fit test, log-likelihood ratio function and Akaike Information Criterion. The selected final models were then compared to the real observation using Hosmer and Lemeshow goodness of fit (GOF) test, which indicated that the models are well fitted.

3 Results and discussion

The results of binomial logistic regression conducted to identify the drivers of senior involvement in opportunity- and necessity-driven entrepreneurship are displayed in Tab. 1.

Table 1 Entrepreneurial activity drivers among seniors (logistic regression results)

Variable	Opportunity entrepreneurship				Necessity entrepreneurship			
	Estimate	Std. Err.	Z value	Pr(> z)	Estimate	Std. Err.	Z value	Pr(> z)
(Intercept)	-5,7712	0,3655	-15,7900	< 2e-16	-4,6707	0,3437	-13,5890	< 2e-16
Alertness to opportunities	0,7511	0,2120	3,5430	0,0004				
Self-confidence	1,8293	0,3049	5,9990	< 1,98e-9	1,6662	0,3148	5,2930	0,0000
Knowing an entrepreneur	0,7411	0,2080	3,5640	0,0004				
Fear of failure	-0,7552	0,2310	-3,2700	0,0011				
Gender: female					-0,5099	0,2523	-2,0210	0,0432
Income: lowest 33 rd percentile	0,0000							
Income: middle 33 rd percentile	0,8103	0,2968	2,7300	0,0063				
Income: upper 33 rd percentile	1,0356	0,2915	3,5520	0,0004				
Country: HU					0,0000			
Country: PL					0,2095	0,2845	0,7360	0,4615
Country: CZE					-0,9363	0,4359	-2,1480	0,0317
Country: SK					-0,4270	0,3522	-1,2120	0,2254
df	4 060				4 029			
AIC	835,6				680,7			
Log-likelihood	7,4650				1,3140			
p-value (Chi-sq)	0,0584				0,2518			
GOF test	0,9831				0,9947			

Source: GEM 2011-2014 data, own elaboration

As can be seen from the results in Tab. 1, only two hypothesized variables were significant for necessity entrepreneurship, while five of the hypothesized variables were found to be significant in case of opportunity-driven entrepreneurship.

We found significant positive relationships between alertness to business opportunities, entrepreneurial self-confidence, personally knowing an individual who recently started a business, and higher income (belonging to middle and upper income category) and the odds of starting an opportunity-based early-stage entrepreneurial activity among senior population. On contrary, fear of failure was observed to have opposite relation and act as an inhibitor of senior opportunity-driven entrepreneurship. As for necessity-driven entrepreneurship, we found significant positive relation of early-stage entrepreneurial activity out of necessity with entrepreneurial self-confidence, and its negative relation with having a female gender. As for the remaining hypothesized variables, we found no significant relationships in case of perceived high societal status of those successful in starting a new business, or educational attainment with neither of the two types of entrepreneurship. Regarding our control variables, year of

survey showed no significance, and from the analyzed V4 countries, only originating from Czech Republic significantly decreases the odds of becoming involved in early-stage entrepreneurial activity out of necessity among seniors. The results of our analysis are also summarized in Tab. 2 and discussed below.

Table 2 Significance of the hypothesized senior entrepreneurship drivers (summary)

Variable	Opportunity entrepreneurship	Necessity entrepreneurship
Self-confidence	Yes (+)	Yes (+)
Alertness to opportunities	Yes (+)	No
Fear of failure	Yes (-)	No
Knowing an entrepreneur	Yes (+)	No
Status of entrepreneurs	No	No
Gender	No	Yes
Education	No	No
Income	Yes (+)	No

Source: own elaboration; (+) = positive relationship, (-) = negative relationship

Self-confidence was identified as the strongest driver related to involvement in entrepreneurial activity, irrespective its motive. Moreover, the strength of relationship was found to be similar in both cases. Thus, our findings suggest that belief in having skills, knowledge and experience required to start a business is a key factor influencing involvement of senior population in business start-up.

Alertness to opportunities was found to be significant for opportunity entrepreneurship only. Therefore, we assume that for seniors in necessity economic situations, perception of good business opportunities is not a factor that would either persuade them to follow the entrepreneurial path or prevent them from doing so.

Similarly, having fear of failure acts as an inhibitor only in case of opportunity entrepreneurship, but it is not significant for entrepreneurial activity out of necessity. This is an interesting finding, because it suggests that for seniors being at the edge of involvement in business activity out of necessity, i.e. having no other chance to earn for living, fear of failure is not a determining factor when deciding whether to start their own business or not.

Knowing an entrepreneur was also identified as factor significantly related to business start-up out of opportunity. Having entrepreneurial network might broaden the horizon of available business opportunities, equip senior individuals with business-relevant skills and knowledge, or provide them access to resources required to start-up.

Our findings on influence of gender suggest that it does not significantly affect involvement in opportunity entrepreneurship. On contrary, even in necessity situations, according to our results, female seniors will usually not consider starting a business. We assume that in their pre-retirement years, they will generally rather rely on their male partners or social security/retirement benefits, and focus on their traditional roles in families, i.e. taking care of their grandchildren and/or elderly parents.

Finally, we found positive relationship between higher income levels and involvement in opportunity early-stage entrepreneurship. However, in this case we assume the opposite direction of this relationship. In our opinion, senior individuals achieve higher incomes thanks to being involved in entrepreneurship, not vice-versa.

Conclusion

Our findings suggest that opportunity and necessity early-stage entrepreneurship among senior population in V4 countries show different nature as far as their drivers are concerned. Only the entrepreneurial self-confidence was identified as universal factor influencing individual involvement in business start-up, irrespective the motivation in behind. Thus, it deserves crucial attention of policy makers aiming to foster involvement of seniors in business start-up.

While opportunity-driven senior entrepreneurship quite well follows the expected pattern in terms of its drivers, necessity-driven activities are completely different story. Seniors in situations of economic necessity do not follow most of the traditional patterns when deciding whether to seek for solution in starting a business or not. Thus, we suggest that this target group deserve special attention of policy makers. There is definitely a need for systematic work with senior population individuals who find themselves in economic necessity, in order to help them to consider whether entrepreneurship is a suitable way out or not, and, if so, to guide them in the first steps to the entrepreneurial path and in its beginning.

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INNOVATIVE MEASUREMENT OF SOCIAL VALUE BLENDING THE PUBLIC, PRIVATE AND THIRD SECTORS IN THE UK

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Abstract

In contemporary society there is an increasing importance attached to measuring social value and social impact organizations in the public, private and third sector create. In particular public and third sector organisations as a result of ongoing austerity measures face persistent uncertainties in regard to revenues which impact upon services and need to prove quality, efficiency, purpose and transparency for varied stakeholders including commissioners, funders grant stipulations, oversight agencies, and community. This paper presents results of three social value analyses: a) Willmott Dixon a private company in the construction and property sector (2014), b) Made in Corby third sector arts project, Northamptonshire (2015), c) West Midlands Fire Service (2015) public sector procurement pilot. The chosen quantitative methodology for social value analyses is the Social Earnings Ratio (S/E Ratio) the fastest growing metric currently being adopted in the field of social value measurement, a disruptive, social innovative metric based on international General Accounting Principles (GAP) converting sentiment into financial value. The approach has been developed by the UK based Centre for Citizenship, Enterprise and Governance (CCEG) providing a low cost, high volume measure of social impact intangibles or social value providing a single benchmarkable metric of organisations across all sectors.

Key words: Social Value, Social Impact, Social Innovation, Social Earnings Ratio, Public, Private and Third sectors

JEL Code: M14, M49, Z19

Introduction

In contemporary society there is an increasing importance attached to measuring social value and social impact organizations in the public, private and third sector create. Social value represents intangible and non-financial value. In particular public and third sector organisations as a result of ongoing austerity measures face persistent uncertainties in regard to revenues which impact upon services and need to prove quality, efficiency, purpose and transparency for varied stakeholders including commissioners, funders grant stipulations, oversight agencies, and community.

1 Innovative Measurement of Social Value: Methodology

Social Earnings Ratio[®] (S/E Ratio[®])-²⁶ was the chosen quantitative methodology for social value assessment in all three case studies, the Social Earnings Ratio (S/E Ratio) is an officially recognised social impact metric translating sentiment into financial value and is compliant with EU Social Value procurement regulations and the Social Value Act 2012 (SVA2012). Since the advent in the UK of the Act from January 2013 (HM Government, 2012) more and more local authorities and public sector commissioners are considering the potential social value offered by bidders in addition to cost in their procurement processes to deliver additional economic, social and environmental value in the tender. The Social value Act, for the first time, places a duty on public bodies to consider social value ahead of procurement and to deliver social impact through procurement. This will impact not only on public sector bodies to articulate their social value delivery but private companies bidding for contracts and third sector organisations in receipt of grant funding.

The target level of created social value is typically in the range 10-20% of the contract or project value. For example, a €500 million house build contract can be expected to produce up to €100 million of social value. It is being used in local government, health, social care, emergency services, indeed any public sector tender with some 20,000 UK organisations expected to comply therefore the need to embrace this ethos is required by private companies bidding for

²⁶ S/E Ratio was developed at the Centre for Citizenship, Enterprise and Governance (CCEG) in 2011. According to The Vatican (January 2015) it is now “the God metric ... the most rapidly adopted social impact analysis metric in the world” (Lubov, 2015). The Centre for Citizenship, Enterprise and Governance (www.cceg.org.uk) has curated the use of S/E Ratio to develop many prodigy metrics in use today from measurement of social impact used in UK Social Value Act 2012 through Health & Wellbeing, Organisational Value, Freedom for Modern Slavery Act 2015, Ethical Leadership and even Personal Value (PV) launched at the end of 2015.

local authority contracts, public sector organisations to attain the social economic and environmental impact required of the social value act and third sector organisations to quantify the social value delivered through grant funding.

1.1 Introduction to the Social Earnings Ratio (S/E Ratio) Theoretical Framework

The burgeoning of Intangible Values in our society is at the centre of developing international legislative frameworks such as the UK Public services (Social Value Act) 2012 (Hrabětová, Dohnalová and Ta'eed, 2015) and to measure these intangibles the Social Earnings Ratio (S/E Ratio) has become the fastest growing metric currently being adopted in the field of social value measurement harnessing sentiment analysis and big data to allow scientific rigour in soft intangible discovery generating a one number metric that purports to be the currency of non-financial value. The S/E metric is a powerful all-encompassing disruptive financial metric based on General Accounting Principles (GAP) that operates at all levels and has been created under open source Creative Commons 4.0 license illustrated in Fig 1. It has been developed by the CCEG and highlighted in Lord Young's Social Value Act report in February 2015 (Cabinet office, 2015) as a quick, low cost, high volume way to assess social impact providing a single metric.

Fig. 1: The Social Earnings Ratio Model Levels of Value



Source: Centre for Citizenship, Enterprise and Governance, 2015

The Social Earnings Ratio® extends market theories that calculate capitalisation as an artefact of financial sentiment. The propensity of sentiment analysis and big data has allowed the same instruments to be used in a multi-stakeholder citizenship framework. The S/E Ratio® is the corollary of the Price Earnings Ratio (p/e) which is the single number metric that articulates financial value.

$$\text{Total Value} = \text{Financial Value} + \text{Social Value} = p/e + s/e \quad (1)$$

The mathematical formulation of S/E Ratio has been well delineated elsewhere (Hrabetova and Ta'eed, 2015) but as an overview S/E purports to turn sentiment into financial value, effectively digitising value across micro, meso and macro levels using the same metric; it aims to be the currency of non-financial value in the same way as the € is the currency of financial value. In summary, it is the broadening of financial sentiment determining shareholder value, replicated to non-financial stakeholder value through the determination of social sentiment.

1. 2 Synthesising Big Data and Sentiment Analysis

Facebook *likes*, LinkedIn *links*, Twitter *trending*, are consumer manifestations of feedback sentiment in action. Similarly in business eBay *feedback*, NetPromoter.com *RAG*, TripAdvisor *stars*, are differentiators. The necessity for feedback is already part of EU GECES Social Impact Measurement (GECES, 2014) recommendations demanding that two questions are asked from the receiver of the intervention – did they want it, and what do they think if it? Without it would result in the previously accepted concept of CSR with no regard as to the outcome of the intervention but purely focussed on the resources applied ie. Output, not Impact (Ta'eed, 2014). An important element of the The Social Earnings Ratio® scoring that was used in all three highlighted case studies was the synthesise of sentiment into the calculation this Sentiment Analysis is a result of Web 3.0 Semantic Web development where words are examined in the context of surrounding language to articulate support for an organisation in terms of positive/neutral/negative sentiments, strength and passion harnessing social media search and analysis platforms that aggregate user generated content from across the web into a single stream of information. It allows tracking and measuring what people are saying about an organisation across the social media landscape in real-time including: Twitter, Facebook, YouTube, Google.

2 Social Value Analyses Case Studies – Private, Public and third Sectors

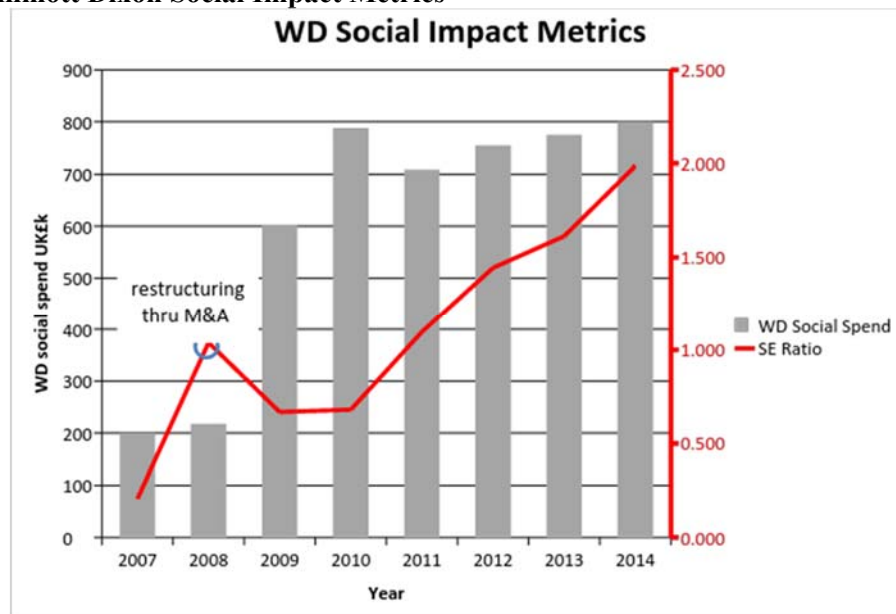
2.1 Willmott Dixon a private company in the construction and property sector (2014)

Since the introduction in January 2013 of the Social Value Act 2012 in the UK there has been a requirement stating “public authorities to have regard to economic, social and environmental

well-being in connection with public services contracts”(HM Government, 2012:1). Willmott Dixon (WD) is moving towards a GRI (Global Reporting Initiative) type measuring and reporting framework. Using the Social Impact SE Ratio metric, the analysis shows a direct correlation between Willmott Dixon’s progression from CSR, to Sustainability, to Social Impact and the company’s 2009-2011 initiatives of WD Sustainability, WD Rethinking and the current WD Foundation. In continuously reexamining and renewing the corporate core values, and building on rather than replacing programmes, the Board has perhaps more intuitively than planned remained on agenda and aligned to current thinking. Perhaps more surprisingly, despite a deep recession at the time and the inevitable restrictions on social expenditure that created.

Willmott Dixon has managed a year on year increase social impact index score since 2011 (fig 3), the S/E Ratio. The total value of an organisation being both their social value (S/E Ratio) and their financial value (P/E Ratio). The key mechanism for this growth appears to have involved a remarkable articulation of its core values through its organisation at every level, ensuring a close proximity and interaction between the staff and the communities in which they engage. This ‘degrees of separation’ between social output and impact - on average less than one for Willmott Dixon – has ensured a high index report and rapidity of translation to social outcome.

Figure 3 Willmott Dixon Social Impact Metrics



Source: Ta'eed & Pryce, 2014

Willmott Dixon is an exemplar in the field of private companies adopting a social value agenda into thie business strategy developing a model to deliver a more blended and coherent solution of private, public, third and community sector intervention closely aligned to the WD Foundation's stated goals of seeking social impact within a youth exclusion framework. Formulated around three key areas of

- Skills Development through the WD Academy accredited by a University
- Leveraged funding through the WD Social Enterprise Intermediary,
- Local Intervention together with statutory bodies, multiple corporate partners, and voluntary groups

An example been a project undertaken for Nottingham City Council to address significant post-riot gang warfare issues in Basford and Bulwell; partners led by Willmott Dixon and partnering with the Co-Op Group, PWC, Blackberry, Fire Service and Babcock as well youth engagement CIC -The Future Melting Pot. Since the introduction of the Social Value Act 2012 local authorities are increasingly looking for 'Big Society' type interventions using legislation to leverage social value delivery through private tenders contractual obligations (Ta'eed & Pryce, 2014).

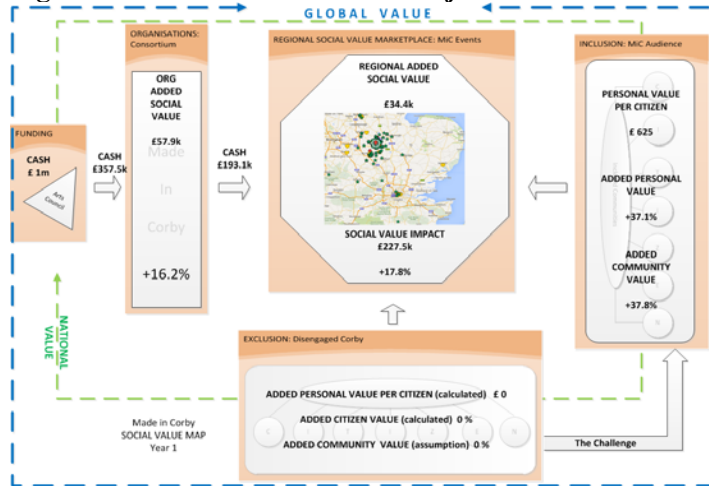
2.2 Made in Corby third sector arts project (2015)

Made in Corby (MiC) is a sustainable 3 year programme funded by the Arts Council England as part of its national Creative People and Places programme. The aim is to deliver lasting change in Corby through a three year programme of new arts events and activities and to inspire more local people than ever before to take the lead in experiencing, creating and taking part in high quality arts and cultural activities. Historical and current social, economic and demographic status of Corby signposts potential benefits from greater involvement of local people in the arts, as well as strengthening of ambition and confidence of local residents (Hrabětová, 2015).

The MiC project is performing well with impressive delivery of social value achievements as illustrated in fig 4. Those engaged are drawing a great deal of social value from MiC, but hitherto tend to be from the more wealthy backgrounds. Rather than this being a failure of inclusion, however, it is in itself a success. Using the lure of High Art, MiC has managed to persuade a significant number of people from London, a more affluent area of

the UK, to journey to Corby, which has areas of deprivation. Wealth does not negate the impact of Personal Value (Hrabětová, 2015).

Figure 4 Flow of Value of MiC Project



Source: Hrabětová, 2015

2.3 West Midlands Fire Service public sector procurement pilot (2015)

Since the advent in England of the Social Value Act (2012) from January 2013 more and more local authorities and public sector commissioners are considering the potential social value offered by bidders in addition to cost in their procurement processes to deliver additional economic, social and environmental value in the tender. The Social value Act, for the first time, places a duty on public bodies to consider social value ahead of procurement and to deliver social impact through procurement (HM Government, 2012).

Interim results of a longitudinal research study commenced in 2015 investigating West Midlands Fire Service (WMFS) embarking on a social value roll-out measuring the current and future social value of the organisation, measuring the leveraged social value procurement bidders offered, investigating the impact of the social value delivered by the winning bidder in a pilot 'learning excellence' tender and developing digital GIS mapping of WMFS' third sector collaborations and impact in the community synthesising the theoretical framework of social impact theory with WMFS high impact data and hyperlocality mapping. WMFS driver was to illustrate it's presence as a 'Force for Good' allowing it to articulate their lifetime value creation for Commissioners delivering social value both internally and in the procurement process (Daly et al., 2016).

The challenge for WMFS was to put into the pilot tender a social value requirement to deliver an aspiration of 20% of the financial value of the contract as social value in the form of social, economic and environmental added value through exploring a blended solution between the public, private and third sectors. The social value offering of bidders in relation to a Learning and Development Tender was measured using the social earnings ratio tool. The tender process carried out in May 2015 highlighted that the social value score which was worth 10% of the overall scoring was a differentiator in the awarding of the contract as highlighted in table 1 whereby organisation E won the contract over organisation D.

Table 1 WMFS ‘Leading Excellence’ learning tender scoring, 2015

Tenderer	Social Value (10%)	Total (100%)
Tender A	8.20	61.10
Tender B	6.80	46.09
Tender C	7.06	38.15
Tender D	5.52	63.52
Tender E	10.00	67.37

Source: Daly, Hrabětová & McCabe, 2016

The initial research highlighted that as a key public sector figure and “Force for Good” WMFS are in a perfect position to act as an exemplar model for fire services in the delivery of social value both internally and in the procurement process by taking up and embracing awareness of the social earnings ratio metric to measure social value and use procurement strategy to contribute to the funding gap for non-statutory firefighting work (Daly, Hrabětová & McCabe, 2016).

Conclusion

This paper demonstrates that the measurement of social values (intangible values) can be adopted by various organizations across blended sectors utilizing one single measurement tool, The Social Earnings Ratio® a quick, low cost, high volume way to assess social impact providing a single metric allowed for benchmarking not only within a single sector but across the private, public and third sector organizations to measure social value generated. Practical

commissioned examples of this multi sector adoption since 2014 delivered by the Centre for Citizenship, Enterprise and Governance (CCEG) highlighted the measuring of social impact of Willmott Dixon a private company in the construction and property sector (2014), the arts in Corby a third sector project (2015) and Social Value Analysis of West Midlands Fire Service the third largest public sector fire and rescue service in the UK (2015). The commissions allowed all the organizations measured to evidence their quality, efficiency, purpose and transparency based on the use of a single socially innovative measurement of social impact/ social value delivery. Since the advent of the The Social value Act 2012 in the UK, placing a duty on public bodies to consider social value ahead of procurement and to deliver social impact through procurement the need to articulate social value delivery through an innovative single benchmarkable measurement applies across the blended sector of private companies bidding for local authority contracts, public sector organisations that need to attain the social economic and environmental impact required of the social value act and third sector organisations to quantify the social value delivered through grant funding.

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MODELING AND MODERNIZATION OF DISTRIBUTION ENTERPRISE

Natalia Izyumova – Anna Smirnova

Abstract

The use of the logistical approach to traditional marketing involves marketing enterprise modeling system and its permanent improvement with the advent of new counterparties (customers and suppliers), changes in competitive conditions, technological progress and other factors. The article deals with the optimization of the functioning of the intra logistics customer service system (like enterprise marketing element), which improves service quality and thereby increases customer loyalty to the enterprise at minimal cost.

Key words: modeling, marketing system, customer, intralogistics

JEL Code: C 52, D 01

Introduction

In the context of unstable economic situation, the good and competent use of logistics in conventional processes is one of the most important tools for economic security of an enterprise. Logistics approach to sales involves close coordination of the sales processes, in which products are delivered to consumers, with the delivery of products to enterprises and the product movement in an enterprise.

In terms of logistics, the sales system should provide effective and physical promotion of material flows from manufacturer to consumer; in this respect, minimum costs with the service quality assurance are the optimality criteria.

The reasons for modeling and modernization of the sales system are: new customers, changes in competitive environment, technological advancements, etc. Every company having its own logistical system adjusts its intralogistics system to its client's logistical system and, correspondingly, requirements to intralogistics system of the company change depending on the requirements of logistical system of new clients.

Pressure of competition involves the need for improvement in the quality of the company's customer service. The sales system of some particular enterprise is characterized by certain opportunities for logistics service rendering. It is possible to expand such opportunities only through modernization of the sales system of the enterprise.

The influence of technical progress on the necessity to modernize sales system is obvious due to the appearance of new information technologies assuring high quality work with clients, new types of packages, innovative technologies of material and information flows processing.

1 Stages of Sales System Modeling and Modernization

Stages of the comprehensive approach to the sales system modeling are as follows: sales system goal setting, determination of requirements to be complied with the analysis and external environment restrictions, analysis of models, selection of subsystems and their arrangement into a unified system.

Sales system modeling and modernization is a complex of works being scheduled, interrelated and combined into stages and steps which are necessary for the sales system building and modification. Modeling and modernization of logistics systems are carried out in three stages, each stage having three steps (See Table I).

Table 1 Stages and Steps of Sales System Modeling or Modernization

Stage	Steps
Problem detection and sales system planning	Modelling or modernisation goal determination. Development of requirements for the updated sales system of the enterprise
	Visualization of the modernized sales system (solutions)
	System planning
Sales system project development	Actual data collection
	Analysis of created system functioning models
	Development of recommendations for the sales system building
Project implementation	Updated system project implementation outlining
	Project implementation scheduling
	Determination of implementation results optimality criteria

Source: the authors

The main objective of the first stage is the detection of problems, weak points and reserves for the sales system of the enterprise. At this stage answers for the following questions should be found: "What is the condition of the existing sales system?", "Is it necessary to modernize the

system?”, “If yes, what is the reason for the modernization?”, “How much will the modernization cost?”

Operations at the first stage: collection of data relating to the existing sales system elements, such as: inventory management, warehousing, logistics services, transportation, material flows management.

In the course of the data collection problems (i.e. discrepancies between expected and actual situation) are detected. The problems are settled in the course of the sales system modernization at the enterprise. The problems detected are ranked in accordance with their level of significance. Then solutions are offered and probable effect is assessed comparing potential costs and benefits from the sales system project implementation.

At the end of the first stage of modeling or modernization the future sales system of the enterprise is planned. Changes in the customer service level and costs before and after operations show that the modeling or modernization objective is achieved.

The second stage: detailed working out of the image of the future system. More detailed information relating to the problems detected is gathered, selected solutions are analyzed, methods are drawn out, and expected results are shown. As a result, the best solution of the problems detected is chosen based on comparison of costs, benefits, and payback periods for the sales system modeling or modernization.

The third stage: planned sales system implementation with its scheduling is carried out.

2 Improvement of the Sales System Elements

The sales system building is based on the sales policy of an enterprise. To develop the policy it is required to segment customers and establish a priority group. It is possible to define the hierarchy of customers using the following methods: ABC analysis, customer profitability analysis and CRM (Customer Relationship Management) system analysis.

ABC analysis allows to define a key group of customers evaluating them by their gross income. Expenditures which should be considered to assess the actual customer profitability are not estimated.

One of the systems making it possible to use the customized approach is the CRM system (Izyumova N. Yu., Smirnova A.V., Chernousova N. In., 2012). The system allows to define the most prospective customer groups, to offer the most marketable products and services, to

inform customers of such products and services, to provide the customers with the variety of communication channels and points of sale, and to sale accessory goods.

For example, a company renders services to three consumer segments: corporate customers, wholesalers and individuals. Corporate customers are the priority segment for rendering services (the priority is assigned by the company's management).

Corporate customers can be grouped according to target segments (prospective, stable, unpromising customers), such clients require specific servicing. Sales policy directions offered for such target segments can be as follows:

- for prospective customers: full priority in orders execution and rendering services, maximum satisfaction of all their needs and expectations, focus on the stable growth of sales volume;
- for stable customers: orders execution and rendering services after servicing of prospective customers, and in case of absence of prospective customers' orders – priority servicing, diligent attitude to their demands and wishes, focus on the maintenance and healthy increase of sales volume;
- unpromising customers: orders execution and rendering services depends on the availability of resources, regular and strict control of payments, analysis of a possibility to transfer customers from this group to another.

2.1 Determination of Top-Priority Goals for Improvement of Logistics Service Quality

Let us consider some of the management tools for the logistics service system of a company.

The need for improvement of logistics services with the purpose to enhance the customer loyalty often arises in the process of the sales system modernization.

Optimization of customer servicing by a trade company is the process of bringing the service system into an optimal condition. Approaches used by employees of trade companies when interacting with customers for the development of strategies, measurement of operating performance ratios and analysis of data, for design and delivery of products and services, become the quality providers, which allow to achieve customer satisfaction and obtain high results in competitive activities.

In order to raise the level of service quality for wholesaler customers, the authors proposed a tried and tested method, which allows to focus attention of the trade company's management team on the most important characteristics of logistics service quality (Smirnova A. V., 2012). The basic idea of the method is ranking of quality characteristics followed by the company's activity appraisal in the context of several characteristics. The higher the rank of a particular logistics service characteristic and the lower its quality rating by the customer, the higher is the need for getting the company's activities in order in the context of this particular characteristic. Therefore, this method allows to rather quickly single out the object of optimization in the sales logistics system. Order for determining the priority of logistics service characteristics is shown in Table 2.

Table 2 Algorithm for Determining the Priority of Logistics Service Characteristics

№	Stage Description
1	Formation of a group of experts from priority segment regular customers
2	Determination of the list of quality characteristics of logistics service to wholesaler customers
3	Questionnaire survey of the expert group aimed at the ranking of logistics service characteristics
4	Questionnaire data processing and determination of the importance of individual service features
5	Assessment of expert opinion consistency
6	Questionnaire survey of the expert group for the purpose of the company's activity appraisal in the context of several characteristics of logistics service. Rating.
7	Priority assessment of certain characteristics for the improvement of service quality

Source: the authors

At the first stage, a group of experts is formed. Customers from the key segment of the company should be engaged as experts. Then several service quality characteristics important for the company's customers are chosen by unification method. These characteristics may be as follows: filling a supply demand for specified goods; short order delivery lead time; prompt adjustment of customer claims, etc.

At the third stage, the selected experts are to rank the developed list of service quality characteristics arranging them according to the principle "from the most important to the least important": $r_1 > r_2 \dots r_m$, where r - is the characteristics rank; m - number of ranked characteristics of service quality. Then, the questionnaire results are processed and significance of certain quality characteristics is calculated according to the formula:

$$R_i = \frac{n}{\sum_{j=1}^m r_{ij}}, \quad (1)$$

where R_i - is the importance of the i -th service characteristic; n – number of experts ($j=1, n$); r_{ij} is the place that took the i -th service quality characteristic in ranking by the j -th expert.

The number of analyzed service characteristics is taken equal to m , ($i=1, m$). As it was mentioned above $m=10$.

At the fifth stage, the customer opinion consistency is assessed using coefficient of concordance:

$$W = \frac{12 \times d}{n^3 \times (n^3 - m)} \quad (2)$$

The coefficient of concordance (W) shows how much the preference chains built by each expert are consistent. Values of this coefficient range within 0 – 1, where $W=0$ means full discordance, and $W=1$ means full concordance of rankings. If $W=0,7...0,8$, the concordance is considered nearly good.

At the sixth stage, the company's activity is assessed in the context of the specified characteristics. This assessment shows the quality of conformance of a particular service quality characteristic to expectations of customers. The same group of experts (formed at the first stage) performs the assessment according to a four-point system: 4 – poor, 3 – satisfactory, 2 – good, 1 – excellent. The activity rating is calculated according to the following formula:

$$Q_i = \frac{n}{\sum_{j=1}^n q_{ij}} \quad (3)$$

where:

q_{ij} - particular rating of the i -th service quality characteristic by j -th expert,

Q_i – total rating of the i -th service quality characteristic..

The value calculated by this assessment method ranges within 0.25 – 1, and increases with the improvement of customers' (experts') opinions on the logistics service quality of the provider.

At the final stage, priorities of several characteristics are assessed in terms of the necessity for the service quality improvement. The lower the rating and the higher the importance of the service characteristic, the higher the priority will be.

Priority indices for the logistics service quality characteristics may be calculated based on the values obtained and the service quality characteristics importance rate according to the following formula:

$$P_i = \frac{R_i}{Q_i} \quad (4)$$

where P_i is the priority of the i -th characteristic in terms of the service quality improvement. Let us consider the example of determining the priorities of the logistics service quality improvement for a company engaged in production and selling of domestic furniture. The furniture manufactured in the Central Region is being sold in the Ural through regional wholesale warehouses (RWW) located in Ekaterinburg, Perm and Chelyabinsk. Here is a calculation example for a warehouse in Ekaterinburg. Leading dealers from Ekaterinburg and the Sverdlovsk Region were invited as experts. With the participation of these experts six main characteristics of logistics services rendered by this RWW (Table 3) were chosen using the brainstorming technique. Total number of participants in the questionnaire survey: 25 experts. As it is impossible to show all the tables within the limits of one magazine article, we will show only a fragment of calculations done with the participation of five experts. Calculation of the coefficient of concordance showed high degree consistency of expert opinions:

$$W = \frac{12 \times 367,5}{5^2 \times (6^2 - 6)} = 0,84$$

Note: the coefficient of concordance for the whole group of experts was 0.86.

Table 3 Importance Ranking of Logistics Service Characteristics

No.	Service Quality Characteristics	Ranks by Experts					rank sum	Service Characteristic Importance, R_i	deviation from mean	deviation square
		1 st expert	2 nd expert	3 rd expert	4 th expert	5 th expert				
1	Short order delivery lead time	3	3	4	3	2	15	0.33	-2.5	6.25
2	Supplier's flexibility relative to the delivery place	6	6	5	6	5	28	0.18	10.5	110.25
3	Filling a supply demand for ordered goods	1	1	2	2	1	7	0.71	-10.5	110.25
4	Prompt adjustment of customer claims	2	2	1	1	3	9	0.56	-8.5	72.25
5	Observance of delivery dates	4	4	6	5	6	25	0.20	7.5	56.25
6	Delivery free of damage to goods	5	5	3	4	4	21	0.24	3.5	12.25
TOTAL								105	TOTAL	367.50
MEAN VALUE								17.5		

Source: the authors

After that, the experts assessed the RWW's activity in terms of the specified characteristics (Table 4) using a four-point system. The last column of this table shows calculation of priorities for the logistics service quality improvement for each characteristic. The priorities are graphically presented in Figure 1.

Application of the proposed method allowed to identify key problems in logistics services to customers. We turn our attention to the first four problems (highest to lowest in order of importance).

1. Filling a supply demand for ordered goods

In high season, in the estimation of customers, the demand is 60-80% satisfied. Good satisfaction level is considered to be 95%. The customers ranked this characteristic as the most important and rated it the lowest against the other characteristics. Irrespective of the low rating of this characteristic, the statistics show that inventories in the RWW are increasing, wrong product, not the one in market demand, is being stockpiled.

2. Prompt adjustment of customer claims

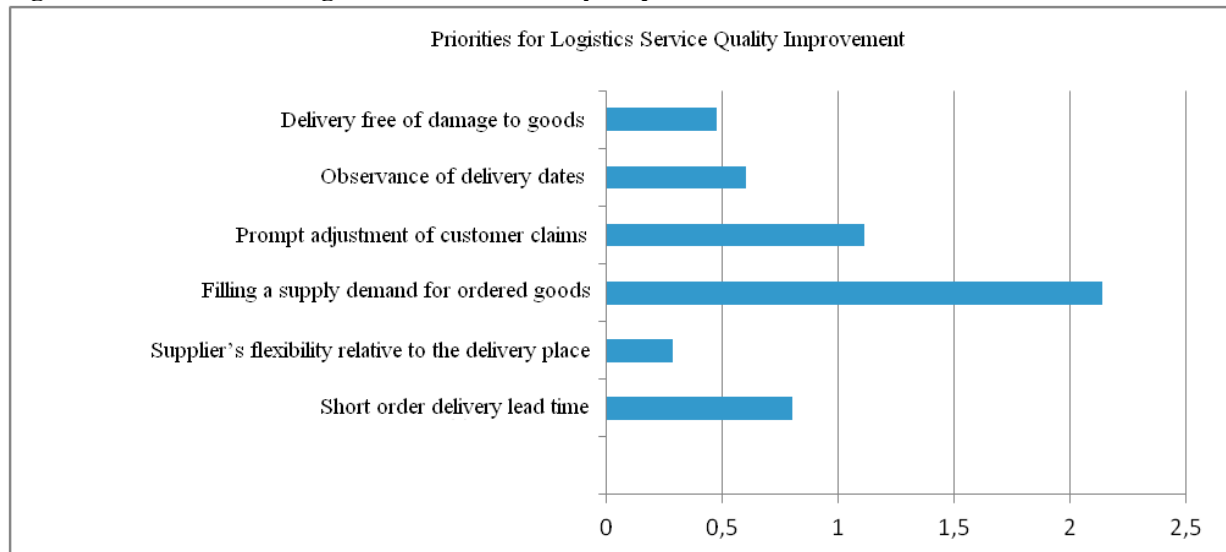
Deadlines for claims adjustment are not set by the quality system department. The customers rated this characteristic as one of the most troubled (the second place after "Filling a supply demand for ordered goods" characteristic).

Table 4 Assessment of RWW's Activity in Terms of Specified Logistics Service Characteristics, and Calculation of Priorities for Logistics Service Quality Improvement for Each Characteristic

Service Quality Characteristics	Ranks by Experts					Sum of particular ratings	Total rating Qi	Service Characteristic Importance, Ri	Calculation of priorities for the logistics service quality improvement, $P_i=R_i/Q_i$
	1 st expert	2 nd expert	3 rd expert	4 th expert	5 th expert				
Short order delivery lead time	2	2	1	3	4	12	0.42	0.33	$0.33/0.42=0.80$
Supplier's flexibility relative to the delivery place	1	2	1	2	2	8	0.63	0.18	$0.18/0.63=0.29$
Filling a supply demand for ordered goods	3	3	3	4	2	15	0.33	0.71	$0.71/0.33=2.14$
Prompt adjustment of customer claims	2	3	2	1	2	10	0.50	0.56	$0.56/0.50=1.11$
Observance of delivery dates	3	2	4	4	2	15	0.33	0.20	$0.20/0.33=0.60$
Delivery free of damage to goods	2	3	1	2	2	10	0.50	0.24	$0.24/0.50=0.48$

Source: the authors

Figure 1 Priorities for Logistics Service Quality Improvement



Source: the authors

3. Short order delivery lead time

Sometimes customers have to wait for the ordered goods for 1.5-2 months notwithstanding the fact that 1-month term of delivery is provided for in the contracts with end consumers. Besides, the low rating of this characteristic adversely affects the turnover, and causes injury to the Company's reputation due to legal proceedings initiated by its clients.

4. Observance of delivery dates

It is one of the most important characteristics, on which the inventory level in customers' warehouses directly depends. The larger deviation of actual dates of delivery from those promised to customers, the higher is inventory level in warehouses. According to the expert opinion, this characteristic is more important than "Short order delivery lead time", as customers will run down stocks if they stand assured of suppliers' delivery reliability.

2.2 Model of the Gap between Expectations and Actual Customer Service

In addition to the above described methods for calculation and analysis, the prospective lines of optimization of customer service may be determined through analysis of existing gaps between expectations of customers in respect of services and actual performance of the service

provider. One of the methods for determining of priority orientations is Gap-analysis (Hajinski A. M., 2012)

Gap-analysis based model for differentiation and analysis of discrepancies between the actually provided service quality and service expectations of wholesale customers helps to detect and differentiate the gap causes (Figure 2).

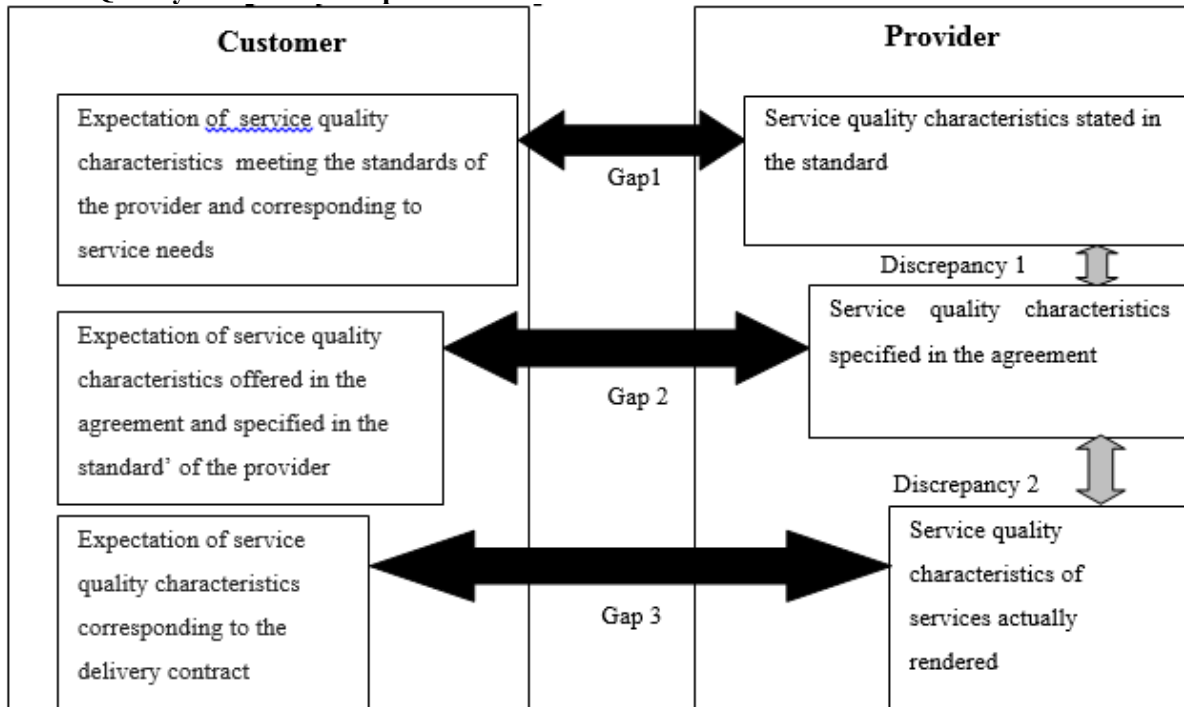
The service standards declared by the company may not satisfy the needs and expectations of the customer. Gap1 may be caused by incorrect service market study, lack of sufficient resources. As a result, discrepancies between actual service needs of the customer and understanding of these needs by top management of the service provider.

Gap1 comes as no surprise to the customer, and it is taken into consideration during the provider selection, strategic planning, and, as a rule, requires no reservation of any resources by the customer.

Discrepancy 1 arises as a result of errors in tactical and operational planning when the provider fails to maintain the declared level of service. Gap 2 of the customer's expectations of the services is the highly charged for the customer than Gap1 as it can frustrate the customer's tactical and operational plans. The probability of Gap 2 emergency lays the customer under the necessity to reserve resources, create alternative channels of procurement. The provider ignoring Discrepancy 1 risks to lose the customer.

The most painful for the customer is Gap 3 caused by non-conformity of service characteristics specified in the delivery contract (Discrepancy 2) to actual characteristics of the services rendered. Discrepancy 2 may arise during warehousing operations and transportation of the order to the customer. Discrepancy 2 may also be caused by nonavailability of the stock of goods requested by the customer from the provider.

Figure 2 Model for Differentiation and Analysis of Discrepancies between Actually Provided Service Quality and Service Expectations of Wholesale Customers



Source: the authors

Resulting from this non-conformity Gap 3, is likely to become the cause of claims, as it is the breach of contractual obligations by the provider. The growth of Discrepancy 2, and consequently, Gap 3 affect customer centricity of the trade organization. Since Discrepancy 2 is significant for customers, it should be recorded by the service management system, and the sales system, correspondingly.

Low customer satisfaction level in the service quality during the delivery of goods reduces the customer centricity of the trade organization, and therefore, is one of the reasons for modernization of the sales system of the enterprise.

Conclusion

The article demonstrates the procedure for the company sales system modeling. We offer a method based on a systematic assessment and ranking of customers, which allows to grade the enterprise sales policy. We show the algorithm for identifying promising directions for the improvement of services for wholesale customers on the basis of customers' opinion research, which includes the evaluation of importance of the service quality characteristics provided by trade companies, and assessment of service quality relating to the selected characteristics. We

present a model which allows the customers to assess the service quality by comparing the expected and actual quality characteristics.

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EVALUATION OF INNOVATIVE POTENTIAL OF SMES USING THE FUZZY LOGIC

Hana Janáková

Abstract

In a changing business environment customer requirements are increasingly demanding supply and service growth, higher market competition and also technological developments and the globalization of business. The innovative capacity seems to be an ultimate condition for the competitiveness of all types of enterprises. The innovation potential of the company is essentially its internal characteristics. The measurement of innovation potential in SME and describe how to manage the companies innovation potential for reaching the business goals. To know how to measure innovation potential in SME by different approaches and methods using the artificial intelligence, for instance fuzzy logic can be applicable for innovation potential management. Fuzzy logic is a form of many-valued logic and it deals with reasoning approximate rather than fixed and exact. Because of human language response to questions fuzzy logic is useful for evaluating and transforming words or sentences to numbers for quantitative evaluation of certain human meanings. The paper focuses on a system for assessing the innovation potential of the manufacturing company using fuzzy logic. To meet the objective it is therefore necessary to identify criteria characterizing the sources of business, properly organize them and suggest ways of assessment so that it can be applied method.

Key words: innovation potential, fuzzy logic, innovative potential management, SME (small and medium enterprises)

JEL Code: O31, C18, C69

Introduction

Innovation is now becoming a key to gaining competitive advantage of business growth, it can sell customer value which can be strategically focused on new product development and innovative approach to solve problem innovation can also be described the process of

generating and implementing ideas. However, for a development should be objectified indicators that allow for the identification of critical points, respectively exploit competitive advantage. The basis how to set an innovation is knowledge flow values in different stages of the innovation process of a company. The main aim of innovation is output transformation to innovation activities into successful product or new idea. The issue of the assessment of innovative potential of enterprises is currently being addressed in two methodological directions: the first represents the implementation issues of innovation in integrated measurement of performance businesses and the second specializes in assessing innovation potential as a specific component of corporate responsibility. The importance of measuring innovation potential is directly linked with terms such as evaluation of the innovation capital of the company, evaluation of knowledge capital and innovation potential. Innovation potential also affects the market value of the company, business plan, the creditworthiness of a company in obtaining credit, increase competitiveness, sustainable development and so on.

Innovative processes are specific instrument business and the operations. Paper analyses basic approach of evaluating of innovation potential of small and medium enterprises in order to develop pragmatic assessment methodology for the measurement. Fuzzy logic as a many-valued logic, which deals with reasoning that as approximate rather than fixed and exact, due to human language fuzzy logic is useful for evaluating and transforming sentences to numbers for quantitative evaluation of some human meanings. Measuring innovation potential of the SMEs is necessary to focus on two main factors. The first is the perception of the company as an organization that is an object of comparison with other companies where you need to focus on performance, efficiency and so on and the second factor thus setting the company as a whole. When measuring innovation potential is necessary to distinguish carefully measured factor.

1 Evaluation of innovation potential

The implementation of a new significantly improved idea which can be innovation or innovative processes as a new marketing or a new organisational method in business practices, also workplace organisation etc. Nowadays, innovation and innovative potential of SMEs are key aspect in the growth of production and productivity because innovation activities can be in the scientific, technological, organisational, financial and commercial area intended to lead to the implementation of innovations. Impacts of innovations on firm performance range from effects on productivity and efficiency with important impacts at industry and national levels

which are changes in international competitiveness and in total productivity and an increase in the amount of knowledge flowing through networks. Adequate projection innovation capacity in relation to increasing the efficiency of business processes guarantees the strategic growth of the company and focused management decisions to position the knowledge of flow values represented the innovation. It is currently not possible to implement innovation in companies without coexistence of several process and product parameters often high cost of research and development of new products respectively. Their parts and improving production parameters are covered by the sales proceeds only from a certain threshold sales. Experience shows that a large part of production is highly capital intensive and requires enormous capacity utilization, so it is important to know what the cost ratio between produce outputs and inputs invested. The production capacity of the company is usually made up of a portfolio of different products and endeavours to achieve rational and competitive production forces producers to define the optimal size and innovation capacity to bind optimal costs of innovation on which we expect to be paid in full in the form of sales revenue.

1.1 Types of innovations

Good or service improved significantly with respect to its characteristics or intended uses are **product innovation** that includes new ideas or improvements in specifications in technical components or also materials, incorporated software, or other functional characteristics. A product innovation is the act of bringing something new to the market place that improves the range and quality of products.

A **process innovation** is a new way of making or delivering goods or services, which includes significant changes in techniques, equipment and/or software due to the current time places high demands on managers, as well as other employees, forcing them to think about how best to optimize business processes. The improvement and optimization of production processes encounters end constraints and therefore it is necessary to look for potential for increasing the efficiency of business processes and other business sector innovations are the ideal place because its outputs and influence the future of the company from the customer's perspective as well as a business owner.

New ideas of innovations can be **marketing innovation**, which consist of the implementation of a new marketing method involving changes significantly in design of products and packaging, placement, promotion or also the last “4P” pricing.

Implementation of a new organisational method such as changes in the business practices, organization of the workplace or company's relationship with the outside is the **organisational innovation**.

1.2 Measuring innovation potential

Innovations and innovative potential of SME as a part of a process that is managed with long term perspective and the best measured in long time increments (months, years) but rather in completion of targeted goals. The following types of measures can be incorporate into a balanced innovation scorecard and linked to performance evaluation and reward and recognition systems:

- **Leading innovation measures** where the richness and robustness of growth and innovation platform and clusters of ideas or opportunities are selected and developed. Strength of strategic and leadership commitment to growth through innovation as expressed in strategic initiatives, targets and leadership metrics.
- **In-process innovation measures** in which the risk-adjusted net present value of the innovation pipeline and the return on investment in that pipeline. Innovation capacity and capability build (including partnerships and networks) relative to targets and competition.
- **Lagging innovation measures** as amount of earnings or revenue growth achieved through innovation relative to targets and industry competitors and overall competitive position Success of individual innovation projects (from concept to customer) and overall platform or new business development programs.

The most known methods of comprehensive evaluation of innovative performance enterprises provides a method of "balancing system performance indicators" - **Balanced Scorecard** with the main principe that business performance is measured shift of four balanced perspectives - financial, customer, internal business processes and learning and growth of businesses and for each undertaking the prospect of a set of intentions, their peace, objectives and initiatives. **The corporate audit of competitiveness** is the second elaborated a comprehensive assessment methodology peace the competitive position of the components, main modules assessment of the conduct of the business, market position, products, technology, quality control and innovation level. The methodology is based on an expert evaluation of defined parameters and achievements conditions compared to competitive average and top level businesses. Another

may be, for example also the **application of procedures consulting firms for innovation and re-engineering projects**. In this type of methodology is the expert's questionnaire innovations incorporated in the processes of supplier - customer chain.

Cooperation based methodology for assessing the innovation potential of SMEs - **Map readiness of enterprises to innovate**, that is training module to enhance the innovation performance of firms and proposes mechanisms for implementing the system of work with innovations in the company. The methodology focuses on several problem circuits associated with innovation potential of company. **The methodology of innovative processing of OECD characteristics** consists of the comparable indicators of innovation. As part of the EU's innovation strategy was introducing **standardized set of indicators** for evaluation of innovation. Range of indicators allows insight into the number of important areas affecting innovation process and resulting data also give valuable investment information and performance individual countries or regions.

1.3 Indicators of innovation potential

There are a numbers of indicators used for the valuation of the innovation potential for instance payback period, internal rate of return, profitability index, economic value added or the most widespread theory is the most preferred method present value (PV) and then also net present value (NPV). Innovation potential is a summary of business opportunities and the ability to innovate including: intellectual possibilities related to technological documentation, patents, licenses that are available as well as inventions, models, designs and prototypes. Material options as machinery and instrumentation, pilot plants, research, experimentation and laboratory equipment. Moreover, as the financial capacity mainly own and other sources, including the possibility of their acquisition, investment, budget and grant possibilities for the company. Not excluding the possibility of involving staff human resources of the company, qualified personnel, scientists and researchers. The options of infrastructure as its own research institutes, design department, quality management. In additional resources that are needed to improve the results of innovative activities such as partner and personal relationships with the scientific and research centres, experience in strategic project management and others.

Table 1 Indicators of innovation potential

The primary criteria for the innovation potential	The secondary criteria for the innovation potential
------------------------------------------------------------------	----------------------------------------------------------------

Intellectual possibilities	Patents
	Licenses
	Quality management
Material resources	Instrumentation
	Automatization of activities
Financial resources	Total debt of the company
	The company's liquidity
	Bonita of the company
	R & D funding
Personal resources	Willingness to innovate by employees
	The level of education workers
	Own scientists and researchers
Infrastructural resources	Research centres and laboratories
	Design department
Additional resources	Supplier-customer relations
	Cooperation with universities and scientific research centres
	Product Life Cycle
	Information Systems of the company

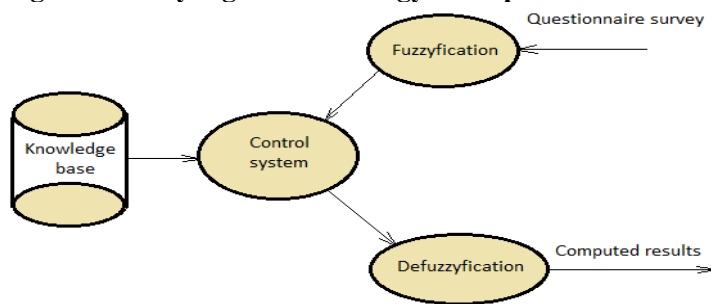
Source: own processing

2. Measurement concept of fuzzy logic

Fuzzy logic was introduced by American cybernetics and informatics L. A. Zadeh, when in 1965 he published a famous work of fuzzy sets in the journal Information and Control. Fuzzy logic resp. fuzzy sets are effective theoretical framework for modelling fuzzy terms which are vagueness and it can be used to specify vaguely bounded concepts. This mathematical discipline refutes the traditional assumption of the total area of all considerations. In many cases man works with concepts that are ambiguous and imprecise. It is a kind of logic that recognizes more than just true and false terms. Using fuzzy logic problems can be presented with a degree of truth and falsity. The classical logic, adopted bivalence principle values other than true or false and every statement has one of these values - values of statements are taken from the set $\{0, 1\}$, for instance, every statement is either true (1) or false (0). To reduce the risk of impact of the possible adoption of incorrect decisions based on uncertain assumptions is therefore useful to model uncertainty means necessary. The best known tools to express uncertainty are fuzzy set theory and this area of mathematics is based on the concept of many-valued logic offers a much wider opportunity to express uncertainty as commonly used Boolean's (bivalent) logic. The main advantage of the fuzzy classification in comparison with the classical logic is the element which is not limited to a single class but can be assigned to multiple classes. In addition fuzzy

classification and fuzzy method support qualitative and quantitative indicators. The way and methods of data processing through fuzzy logic is one of the options developed to capture and allow working more efficiently with vague concepts. The theory of fuzzy logic is based on intuitive reasoning and takes into account human subjectivity and uncertainty and it allows working with unclear and ambiguous concepts of human speech, so verbal expression. Use of linguistic expressions and variables hides the complexity of the application domain and allows for more intuitive processes and human-oriented interview.

Figure 1 Fuzzy logic methodology concept



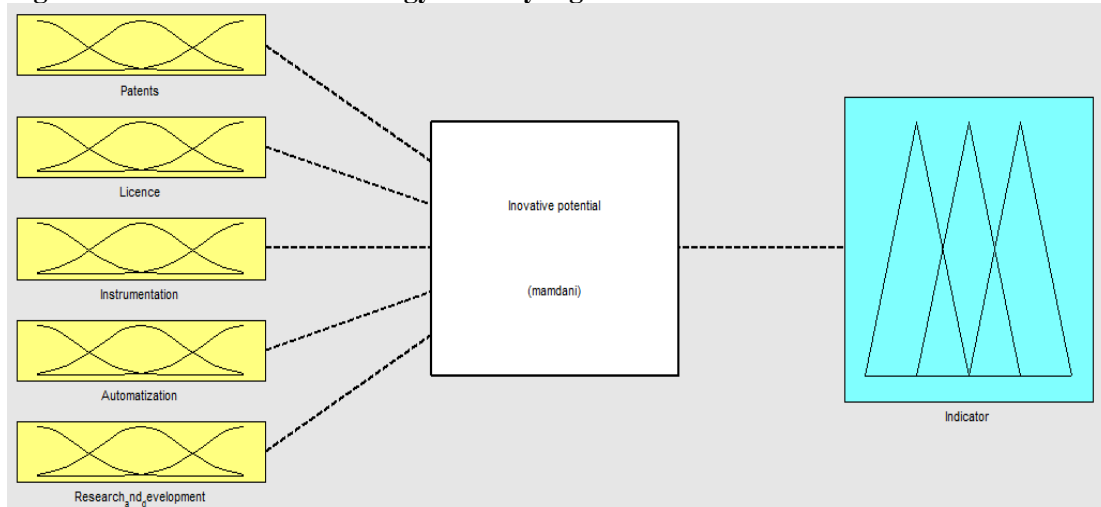
Source: own processing

Fuzzy sets constitute extremely effective theoretical framework for modelling vagueness of the terms with which it is possible to specify vaguely bounded concepts such as height, age and the like. Our world is full of well demarcated terms, which we do know fairly well handled intuitively through our natural language.

2.1. The concept of fuzzy logic

Treatment of results as two-level fuzzy processing means that the evaluation takes place twice - after consecutive ingestion fuzzy system using two different methodologies for processing data obtained from the survey. This system is chosen because it is an attempt to create a concept of a full evaluation of the survey on the basis of partial surveys. For numerical calculations has been proposed methodology. Linguistic expressions are used as variables are based on the complexity of the application domain.

Figure 2 Evaluation methodology of fuzzy logic



Source: own processing

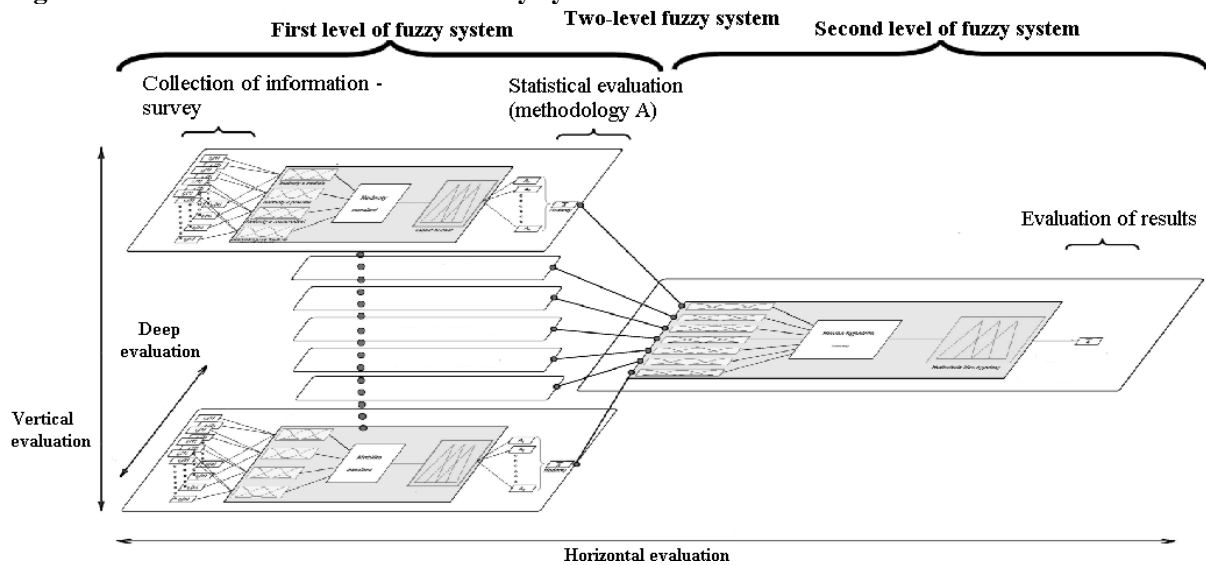
Table 2 The grading scale of selected indicators of innovative potential

	Indicator of innovative potential	The grading scale				
1	Patents	none	working on it	few of them	average	many of them
2	Licenses	none	working on it	few of them	average	many of them
3	R & D funding	none	working on it	implemented but not working	implemented partially	implemented and working
4	Instrumentation	none	working on it	partially instrumented	average instrumented	fully instrumented
5	Automatization of activities	none	working on it	partially automatized	average automatized	fully automatized
6	Total debt of the company	none	starting	partially	average	fully
7	The company's liquidity	none	starting	partially	average	fully
8	Bonita of the company	none	starting	partially	average	fully
9	Quality management	none	starting	partially	average	fully
10	Willingness to innovate by employees	none	starting	partially	average	fully
11	The level of education workers	none	starting	partially	average	fully
12	Own scientists and researchers	none	starting	partially	average	fully
13	Research centres and laboratories	none	starting	partially	average	fully
14	Design department	none	starting	partially	average	fully

15	Supplier-customer relations	none	starting	partially	average	fully
16	Cooperation with universities and scientific research centres	none	starting	partially	average	fully
17	Product Life Cycle	none	starting	partially	average	fully
18	Information Systems of the company	none	starting	partially	average	fully

Source: own processing

Figure 3 Scheme of double - levelled fuzzy system



Source: own processing

Indicators from Table 2 are grouped into sections. Each section is evaluated separately. First group is in Figure 2. Each input is in numerical values – e.g. number of patents, number of licences, amount of instrumentation in €, amount of automatization in € and number of research and development projects. Via fuzzy inference system (Mandami) partial indicator is evaluated. Together 4 groups of indicators are created. Selection of groups is visible from Table 2. This four groups are connected together in new fuzzy logic system, where final innovative potential indicator is evaluated. Each group have influenced final indicator according Mandami defuzzification system. Output of evaluation process is within range 0-1, where 0 is zero innovative potential and 1 is maximal potential.

We have to point, that for evaluation defuzzification method is used centroid, implication method is “min”, and aggregation method is “max”. For inputs – membership function is used

type – “trap” shape and for output membership function is used “gauss” shape. Each input has 5 membership functions and outputs have 3 membership functions.

Total score consists of a two-level fuzzy system (see Fig. 3) evaluated at three degrees - deep, vertical and horizontal. Depth evaluation means a number of questions in the survey. Vertical assessment says the number of selected and evaluated factors therefore assess every aspect of the (survey) separately through partial hypotheses. For horizontal evaluation is considered fuzzy two- level system.

On the basis processing can be results called two-level fuzzy system. First level where the answers of respondents are assessed individually and it enters the proposed system are the questions of the survey and then the second level assessment of the importance of responses as a whole, where enters the system are already in the overall results

Conclusion

This paper is focused on a system for assessing the innovation potential of the small and medium enterprises, using fuzzy logic. To meet the objective was necessary to identify indicators of innovation potential characterizing the sources of business, properly organize them and suggest ways of assessment so that it can be applied method, mathematical discipline – fuzzy logic for measuring innovations and innovative potential contribution in the area of new innovative methods for evaluation of innovation potential. New concept has been verified and evaluated in SME in different EU countries. Currently more SME are evaluated for wide statistical analysis. From evaluation first group has most significant influence on final innovative potential of SME.

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CREATION OF START CITY IN LVIV AS A MODEL FOR REGIONAL DEVELOPMENT

Yuliia Kleban

Abstract

The phenomenon of a smart city is studied in the paper. Based on the experience of other countries, the smart city is considered an innovative approach to the traditional view on the urban life. The European model of smart cities is taken as the main methodology, e.g. smart economy, smart governance, smart living, smart people, smart environment, and smart mobility. There were studied the smart cities in the Visegrad countries: Czech Republic, Hungary, Poland and Slovakia. The point of view of the smart city is motivated by the regional policy that is becoming a dominative one in Ukraine. The paper discusses the structure of the smart city and its main elements. The smart city may help to spur an entrepreneurship activity in the cities of Ukraine. Thus, the smart city framework is considered in the paper as a future for the Ukrainian cities, for instance, Lviv.

Key words: smart city, level of urbanisation, intelligent community, city systems, ICT.

JEL Code: A13, L90, O18, R12

Introduction

The smart city concept is close to the paradigm of regional development and urban studies. According to the United Nations World Urbanisation Prospects 2014 report, the 54 % of the population in the world live in the cities. The urban population was 30% in 1950. It is expected to increase to 66 % in 2050. Part of the world already is experiencing the urbanization process. The level of urbanization is high both in North America (82 %) and in Europe (73 %) in 2014. All parts of the world are forecasted to urbanize further over the coming decades. Africa and Asia are urbanizing faster than the other regions and are projected to become 56 % and 64 % urban, respectively, by 2050. Thus, the demand for the urban studies is only to be higher. The

new models and methodologies would be required. The smart city concept is a good model for addressing such global issues locally (Bélissent, J., 2014).

Based on the location of Ukraine in Europe and the European Union-oriented international policy, the study is conducted on the experience of the countries neighbors' like Poland, Slovakia, Hungary and Czech Republic. The regional development is a core element in the contemporary Ukrainian state policy. Thus, cities in Ukraine will play a new role in the society. The current paper goal is to discuss an idea and prerequisites to create a smart city in Lviv (West of Ukraine, close to Polish border). Lviv is a well-known city for its history, architecture and potential in IT sector of both Ukraine and Europe. Currently, there are many projects in the city of Lviv designed for the purpose of creating a smart city. The current paper explains what have been done already and the forecasts for the further projects to be supported.

1 The Smart City Concept

Forecasted population increase and urbanization will add 2.5 billion people to the world's urban population by 2050 (United Nations World Urbanisation Prospects, 2014). Close to half of the world's urban citizens reside in relatively small towns of less than 500,000 inhabitants, while only around one in eight live in the 28 mega-cities with more than 10 million inhabitants. As the world continues to urbanize, sustainable development challenges will be increasingly concentrated in cities with medium size of the population.

It is commonly argued that the best way for a city to develop and become a sustainable location for living all over the world is to be smart. The study of the Centre for cities (London, UK) covers the concept of "smart". "Smart" means the opportunities for the local communities to receive better public services, run the sustainable economic growth. Thus, the smart cities use within its structure the new technologies. The information and communication, economic, social and environmental changes in smart city are the results of the data application (Smart Cities, 2014).

The Forrester research (Bélissent, 2010) explains that information and communication technologies are providing the critical infrastructure components and services of a city — administration, education, healthcare, public safety, real estate, transportation, and utilities with more awareness, interactiveness, and efficiency (Bélissent, J., 2014). Each system that makes up a city's infrastructure can be made smarter by enabling real-time interaction — either human or machine — to facilitate decision-making based on the data produced. In the system of

systems that is a city (Bélissent, 2010), the potential for efficiency grows as more systems interconnect and interact. Computing technology transforms a city's core systems, enabling them to capture, analyze, and act on the data they produce. As a result, a smart city can optimize the use of and return from limited resources (Bélissent, J., 2014).

The data on Visegrad group countries and Ukraine shows that the world urbanization trend is also expected. The level of urbanization is to increase in the Visegrad countries and Ukraine, and in some cases reaching almost world level of 80 % forecast. The highest level in 2030 is for the Czech Republic 78 % than for Hungary 75.5 % and Ukraine 75.3 %, and the lowest for Poland 65 % and Slovakia 59 %.

Table 1 The Urbanisation level in Visegrad countries and Ukraine.

Country/Indicator	Level of urbanization,%		
	2010	2020	2030
Czech Republic	73.5	75.0	78.0
Hungary	68.1	71.8	75.5
Poland	61.0	61.7	64.9
Slovakia	55.0	55.7	59.2
Ukraine	68.8	71.9	75.3

Source: UN HABITAT, State of the world's cities 2012/2013

It is also projected that the share of youth will be on average higher. According to the statistic data, there is 44.9 million of the population in Ukraine, including 7 millions of youth (aged 10-24) or 6 %. The data for the Czech Republic is 10.7 million and 1.6 million (15 %), in Hungary is 9.9 million and 1.6 million (16 %), in Poland is 38.2 million and 6.4 million (17 %) and in Slovakia is 5.5 million and 0.9 million (17 %) (United Nations Population Fund state of world population) respectively. The youth is considered as a potential for the economic and social development. Each country is expected to build the appropriate infrastructure and prerequisites for the young people to fulfill their needs. The possible model is a smart city concept. The cities where youth lives in are to become supportive in terms of education, health, security, social standards, innovation.

Berry and Glaeser (2005) show, for example, that the most rapid urban growth rates have been achieved in cities where a high share of educated labour force is available. In particular (Berry and Glaeser, 2005) model the relation between human capital and urban development by

assuming that innovation is driven by entrepreneurs who innovate in industries and products which require an increasingly more skilled labour force. Thus, if the amount of youth will remain significant or continues to increase, then those entrepreneurs are be represented by the younger generation.

In the center of the prosperity of the city, according to the United Nations methodology (United Nations Human Settlements Programme, State of the world's cities, 2012/2013), are five elements: the infrastructure, the productivity, the environmental sustainability, the equity and social inclusion, the quality of life.

The approach of authors (Caragliu, A., Del bo, C., & Nijkamp, P., 2009) is the positive correlation between the wealth of a city and the main factors. Those factors are 1) the presence of a creative class, 2) the quality of and dedicated attention to the urban environment, 3) the level of education, 4) multimodal accessibility, and 5) the use of Information and Communication Technologies (ICTs) for public administration. The authors summarize the idea of the smart city as a system of clever solutions which enhance the city life through quantitative and qualitative improvement in productivity.

In order to create the smart city the common assets are needed, like Living Labs assets, Future Internet Research and Experimental facilities, as well as methodologies, tools and user communities (Komninos N., 2012).

Often the concept of the smart city is used in another term like an intelligent city. The Intelligent Community Forum (ICF) is an organisation that conducts the studies about the creation of Intelligent Communities (Intelligent Community Indicators, 2014). The ICF has also used a number of success factors for Intelligent Communities in both industrialized and developing nations. This vision includes collaboration and leadership. The collaboration means the cooperation among government, businesses, universities, and institutions. The leadership requires the appropriate share of persons that can identify challenges, set priorities, communicate a compelling vision and foster a sense of urgency in achieving it.

The authors are seeing the smart city as a combination of the elements (Caragliu, A., Del bo, C., & Nijkamp, P., 2009): the networked infrastructure, the business-oriented cities, the social inclusion, the high-tech and creative industries, the ability to learn, adapt and innovate, social and environmental sustainability.

2 The European model of the Smart City

The European Union promotes the project of the smart cities. For instance, the Digital Agenda initiative of the European Commission promotes Smart Cities and the Future Internet.

The Vienna University of Technology (TUWIEN) team works on the issue of smart cities. In cooperation with different partners and in the run of distinct projects financed by private or public stakeholders and actors the European Smart City Model (European smart cities, 2014) was developed. Basically, it provides an integrative approach to profile and benchmark European medium-sized cities and is regarded as an instrument for effective learning processes regarding urban innovations in specific fields of urban development. The European Smart City model includes the elements: smart economy, smart governance, smart living, smart people, smart environment, and smart mobility. The each element is studied according to the developed methodology. The smart economy element is calculated on the indicators: Innovative spirit; Entrepreneurship; Economic image & trademarks; Productivity; Flexibility of the labour market; International embeddedness. The smart people element is calculated on the indicators: Level of qualification; Lifelong learning; Ethnic plurality; Open-mindedness. The smart governance element is calculated on the indicators: Participation public life; Public and social services; Transparent governance. The smart mobility element is calculated on the indicators: Local accessibility; (Inter-) national accessibility; Availability of IT-infrastructure; Sustainability of the transport system. The smart environment element is calculated on the indicators: Environmental conditions; Air quality (no pollution); Ecological awareness; Sustainable resource management. The smart living element is calculated on the indicators: Cultural facilities; Health conditions; Individual security; Housing quality; Education facilities; Touristic attractiveness; Economic welfare. The elements are based – respectively – on theories of regional competitiveness, transport and ICT economics, natural resources, human and social capital, quality of life, and participation of societies in cities.

The authors using the methodology of the Centre of Regional Science at the Vienna University of Technology, provide the definition of a smart city. According to that a smart city is a the combination of investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure that fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance (Caragliu, A., Del bo, C., & Nijkamp, P., 2009).

In 2011, the European Commission has launched a Smart Cities and Communities Initiative with mostly attention to the energy efficiency issue. In Europe, now only big cities but as well the medium-size and peripheral cities are following the idea of the smart city. There are positive outcomes when following this idea, like mobilizing citizens, enterprises and research organizations for starting up new development initiatives (Komninos, N., 2012).

3 The Smart Cities of Visegrad countries

The current paper studies the smart cities in the Visegrad countries. The indicators on the smart city elements were chosen based on the approach (Caragliu, A., Del bo, C., & Nijkamp, P., 2009).

The Visegrad group cities are presented in the tables 2 and 3. Table 2 is the information about the smart cities of medium size. Each element of the smart city model is present in the dimension from -2 to 2 which mean the lowest and the highest level of smartness respectively. Thus, it can differentiate between the cities the level of the smart economy (business-oriented cities, high-tech and creative industries).

Table 2 The 14 smart cities among Visegrad countries (Cities from 100 000 to 500 000 inhabitants).

City/ indicator	Smart econom y	Smar t peopl e	Smart governanc e	Smart mobilit y	Smart environme nt	Smar t living	Averag e
Czech Republic							
PLZEN	-0.187	-0.142	-0.771	0.035	-0.242	0.243	-0.177
USTI NAD LABEM	-0.199	-0.371	-0.676	0.244	-0.093	-0.14	-0.206
Hungary							
GYOR	-0.518	-0.784	-0.224	-0.104	-0.039	- 0.457	-0.354
MISKOLC	-0.566	-0.751	-0.006	-0.385	-0.412	- 0.542	-0.444
PECS	-0.517	-0.72	-0.02	-0.528	-0.206	- 0.225	-0.369
Poland							
BIALYSTO K	-0.545	-0.63	-0.106	-0.347	-0.508	-0.24	-0.396
BYDGOSZC Z	-0.462	-0.662	-0.236	-0.135	-0.26	- 0.343	-0.35
KIELCE	-0.694	-0.605	-0.208	-0.421	-0.388	- 0.199	-0.419

RZESZOW	-0.49	-0.597	-0.155	-0.228	-0.182	-0.112	-0.294
SUWALKI	-0.519	-0.737	-0.238	-0.309	-0.468	-0.449	-0.453
SZCZECIN	-0.511	-0.526	-0.161	-0.213	-0.044	-0.369	-0.304
Slovakia							
BANSKA BYSTRICA	-0.729	-0.369	-0.153	-0.322	0.133	-0.071	-0.252
KOSICE	-0.858	-0.49	-0.368	0.05	0.074	-0.401	-0.332
NITRA	-0.924	-0.496	-0.394	-0.152	0.198	-0.19	-0.326

Source: European smart cities. (2014).

The highest one is in Czech Republic, Plzen and the lowest in Slovakia, Nitra. The smart people indicator (ability to learn, adapt and innovate) shows that the citizens are the readiest in Plzen in terms of ICT use and innovation, thus in Hungary, Gyor the least. The smart governance (number of government forms that can be downloaded from the website of the municipal authority, the number of administrative forms which can be submitted electronically, e.g. e-government), is the best in Slovakia, Miskolc, and the lowest level is in Czech Republic, Plzen. The smart mobility (the number of roads, railway, etc.) that is relatively the same among the countries on the first view is organised the proper way in the Czech Republic, Usti nad Labem. The lowest level of smartness in terms of mobility is in Hungary, Pecs. The smart environment is significant indicator according to the sustainable development issue. The smartest in the environment (social and environmental sustainability) is Slovakia (Nitra) and the least is Poland (Suwalki). The smart living (urban infrastructure) is the best in the Czech Republic, Plzen and the lowest in Hungary, Miskolc. Thus, on the average level the smartest medium size city in Visegrad countries is Plzen in the Czech Republic.

There was also studied the level of smartness of the big cities among the group. Relatively to the Ukrainian cities, the both types of the cities are interesting to study. Due to the statistic data available, the information on Hungary is not presented. Thus, on average the smartest is Brno in the Czech Republic and the least is Lodz in Poland.

Table 3 The 12 smart cities among Visegrad countires (Cities from 300 000 to 1 million inhabitants).

City/ indicator	Smart econom y	Smar t	Smart governanc e	Smart mobilit y	Smart environme nt	Smar t living	Averag e
--------------------	----------------------	-----------	-------------------------	-----------------------	--------------------------	---------------------	-------------

		people					
Czech Republic							
BRNO	-0.152	-0.115	-0.617	0.101	0.192	0.238	-0.059
OSTRAVA	-0.57	-0.253	-0.542	-0.072	0.082	-0.031	-0.231
Poland							
BYDGOSZCZ	-0.676	-0.497	-0.181	-0.161	0.124	-0.144	-0.256
GDANSK	-0.39	-0.139	-0.194	-0.085	0.194	-0.063	-0.113
KATOWICE	-0.531	-0.314	-0.22	-0.165	0.058	-0.093	-0.211
KRAKÓW	-0.272	-0.141	-0.193	0.059	-0.355	0.214	-0.114
LÓDZ	-0.686	-0.443	-0.094	-0.25	-0.395	-0.218	-0.348
LUBLIN	-0.575	-0.134	-0.105	-0.462	-0.31	-0.048	-0.272
POZNAN	-0.563	-0.26	-0.232	-0.047	-0.028	0.261	-0.145
SZCZECIN	-0.69	-0.273	-0.07	-0.208	0.251	-0.159	-0.191
WROCLAW	-0.395	-0.082	-0.176	-0.02	0.061	0.014	-0.1
Slovakia							
BRATISLAVA	-0.187	0.198	-0.535	0.346	-0.062	-0.118	-0.06

Source: *European smart cities. (2014).*

4 The Lviv Smart City

The case of Ukraine in the terms of smart cities building is interesting as the country is reforming several sectors like city infrastructure, provision of public services, security, enhancing social standards, etc. The IT sector influence on the world market and on Ukraine is significant (IT Ukraine from A to Z., April 2016). The future of the markets is designed taking into consideration the total use of IT based things.

The report on the Ukrainian IT shows that Ukraine is becoming the tech nation. Ukraine has the largest and fastest-growing number of IT professionals in Europe; its IT engineering workforce is expected to double to over 200,000 by 2020. There are more than 1,000 IT service companies. Ukrainian outsourcing companies offer a wide range of engineering capabilities. Most of them have already switched to agile development over the past few years. Ukraine is

home to over 100 R&D subsidiaries of global companies from a variety of industries, including telecoms, software, gaming, and e-commerce. The export volume of Ukraine's software development and IT services reached some \$2.3 billion in 2014, showing double-digit growth year after year (IT Ukraine from A to Z., 2016).

The idea discussed by Berry and Glaeser (2005) may be partly applicable in the example of the city of Lviv. The city of Lviv is known for its high level of education. Nowadays, the first three universities in the country rank are located in Lviv. The IT sector in Lviv is becoming significant because of the available potential of the skilled labour force. Lviv youth is becoming more entrepreneurship oriented. The high-quality level of the IT education provides the skilled labour force for new entities, startups.

The current projects in the city are also oriented on this trend. For example, there is a program at the Ukrainian Catholic University; Lviv Polytechnic University is launching a new program on Internet of things. Thus, the city of Lviv is attracting now even more skilled labour force. For example, during the internal migration within Ukraine, there are people who have chosen Lviv for their new location for living. The city is working on the development of the innovative infrastructure. There several creative hubs like Business-incubator Startup Depot, Beta place co-working, Coworking Godo, Communa co-working, Come in Café, IHUB business incubator, OkFactory co-working place. The creative class in Lviv is growing fast and has all the prerequisites to become a critical mass for the smart city creation.

The local community projects are also already oriented toward smart city elements. The citizens of Lviv are becoming very active in terms of the local and urban development which means the smart city concept is a appropriate core model for the projects. The project "Community in Action" is conducted by the Institute of the city and financed by the EU program "Neighborhood Civil Society Facility 2012 and Non-State Actors and Local Authorities in Development (NSA+LA) 2012 and 2013". The aim of the project is to stimulate local communities of the city of Lviv to become more active, e.g. the local activists' cooperation, to build a fruitful collaboration between the citizens and the local authorities in the processes like planning and decision-making.

Looking at the technology solutions that make city systems smarter (Belissent, J., 2010)., e.g. public safety, energy, waste management, education, city management, building management, transportation, healthcare, citizen services, there are both running projects and future projects

in Lviv. The transportation system with the support of the IT sector will use sensors and analytics to predict the arrival of a bus or train, and notify passengers via SMS or through information boards at city bus and train stations. The parking information is expected to become available in response to an SMS query or information signs advertising free parking spaces using sensors to detect available spaces. The healthcare projects already are covering electronics records management, health information exchanges, hospital and clinic asset management, and supply chain optimization and will cover the innovative telemedicine applications. The education system needs a lot of enhancing projects, e.g. access to educational content and improved collaboration among students and faculty through connectivity, content management, and unified communication technologies. In the area of public safety, the solutions are used sensor-activated video surveillance cameras, video analytics, and workflow to identify and route suspicious or anomalous observations to the appropriate authorities. The building Management is a critical issue in the city of Lviv. There is now a huge boom on the market of the new apartment blocks. Optimized and modernized heating, ventilation, and air conditioning alone can significantly reduce building energy consumption. There are the city council projects of the e-government and they are working further on the issue. The waste management project is crucial in city and has to be totally renewed.

The IT sector of Lvi may provide the following services to the city: 1) Consulting services for city governments, 2) Networking, telecommunications, and other hardware infrastructure, 3) Middleware infrastructure, 4) Sector-specific applications and solutions, 5) Smart city governance and city management, 6) Systems integration and 7) Telecom and managed services.

Conclusion

The idea was to build a vision of Lviv as an innovation playground in the Lviv region (oblast). There is a gap between the R&D of Internet technologies and use of Internet- based application in the city. Such applications may change the life in the city of Lviv like in the areas of healthcare and independent living, enterprising and SMEs, participative government, energy efficiency, environment and quality of life.

The opportunities of the existing city of Lviv in terms of creating the smart city is do follow the steps. Firstly it is important to evaluate the existing infrastructure in all the elements like Smart economy, Smart people, Smart governance, Smart mobility, Smart environment and Smart

living. The each element requires designing overall architecture of the system that has to be built or enhanced. It is significant throughout the every step to identify immediate needs and prioritize smart city initiatives. Then, the next is to develop and deploy prioritized projects. In terms of the Ukrainian economy, the funding options are the most crucial but when the appropriate business models are identified the financing can be found. For example, the proved option is to explore partnerships in public and private sectors, and even more with the approach of public-private-people partnerships.

There is also some side back effect of the smart city creation. The debate on the possible class inequality effects of policies oriented towards creating smart cities is, however, still not resolved. In the case of Lviv, there are ideas among the population that the significant success of the IT sector may lead to the social polarization. The economic history already knows the example of „Holland disease“ which may occur in Lviv.

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ON THE ISSUE OF THE MODERN PARADIGM OF THE MARKET STABILITY OF AN ENTERPRISE

Tatyana Klimenko

Abstract

Under the modern crisis and intensification of global competition today, the main indicator of efficient activity of an economy subject is the company's ability to meet the needs and requirements of consumers, i.e., its "marketing orientation". The question is still open, how and to what extent the market dynamics can influence the financial stability of an enterprise and change it. Basing on the abstract-logic and comparative-analytical methods, the theoretical approaches to the content of the notion "market stability" were analyzed; the concept of "market sensitivity" of an enterprise was formulated; the dominating role of "marketing orientation" for determining enterprise's performance results was revealed. The author proposes criteria of conceptual approach to estimating the market mobility of an enterprise. The existing approach to the content characteristics of the "market stability" notion is broadened; the company's ability for transformation is viewed as one of the main conditions of the market stability of an enterprise; the necessity is proved to elaborate new approaches to combining and uniting the existing analytical models for estimating the enterprise's market stability; categories of the market indicators of market stability are formulated and systematized into groups.

Key words: modernisation, market stability of an enterprise, indicators of the financial stability of an enterprise, market indicators of an enterprise activity, developmental state, economic systems.

JEL Code: P300, R220, O1

Introduction

Global competition is the main strategic goal of all successful companies, and it is only possible under the conditions of their stable functioning in the market. One of the main factors of the market position consolidation is the competitive advantages of an enterprise, its financial

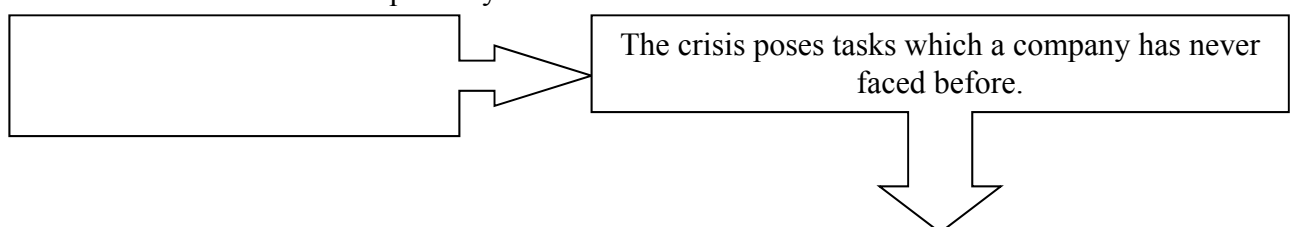
potential. One should always remember that the most important fundamental indicator of a company's efficiency is the ability of a company to fulfill the needs and demands of the customers. To define the content of such "market orientation" and the extent of its influence on the company's commercial success is the topical task for both the theoreticians and the practical workers under the modern conditions of a dynamically developing market. The object of the research is the mutual interdependence of the stable functioning of an enterprise under the dynamically developing market, and the marketing constituents of its activity. The research objective is to prove the concept of "market stability" of an enterprise as the basis of its financial wellbeing. Abstract-logic and analytical methods were used during the research. The main result of the research includes the study of the objective influence of the market stability of an enterprise on the results of the activity of an enterprise. Scientific novelty consists in the following: the concept of "market stability" of an enterprise is formulated and the leading role of "market orientation" in the results of enterprise's activity is shown. The practical significance lies in the proposed criteria of the conceptual approach to estimation of the market stability of an enterprise.

1 Conceptual framework and hypothesis

One of the most prominent representatives of the European school of marketing, Professor J.-J. Lambin (Lambin, 2001) pays a lot of attention to marketing criteria of the efficiency of an enterprise's everyday functioning. J.-J. Lambin was one of the first scholars to revise the traditional schematic idea of marketing as the combination of four basic patterns (4P), and reconsiders the role of marketing approach in the provision of an enterprise's efficient functioning. However, in our opinion, some aspects of this issue have been left out of attention so far.

The financial stability of an enterprise under the dynamic market conditions is subject, by I. Ansoff's terminology, to "strategic surprises" (Ansoff, 2007). Consequently, the unexpected changes of the external market environment inevitably result in crises (Fig.1). Under the crisis, the company must respond immediately, and often the usual control systems and procedures do not ensure the sufficient promptness of reaction.

Figure 1 Characterization of a crisis situation
The crisis occurs unexpectedly



The inability to solve these tasks leads to a large financial failure

Source: developed by the author

Thus, any emergency can prove to be critical, destroying the ordinary way of functioning of an enterprise, and require immediate response. The monitoring of the external environment allows just to state facts, trace new trends. However, one cannot say how and to what extent the traced market dynamics can influence and change the financial stability of an enterprise. In our opinion, under the modern conditions it is the most important are not the “own” indicators and the potential of an enterprise, but its “perception of the market”, sensitivity, flexibility, i.e. the ability to transform under the market changes quickly and without any harm to further functioning. Thus, the most important characteristic of an enterprise and its market stability is its mobile reaction on the changes in market processes and the consequences of “market surprises”.

2 Methodology and research

Several theoretical approaches can be applied to the content of the notion “market stability”, among which the following two are the fundamental: from the viewpoint of evaluating the potential of an enterprise as it is, and from the viewpoint of evaluating the market situation influencing the functioning of an enterprise. For example, S.A. Kucherenko defines the market stability of an enterprise as a complex of factors adherent to the enterprise as it is: “to survive in the market environment, a firm must be efficient, stable and have high profitability” (Kucherenko, 2008). This author analyzes the market stability of an enterprise by a system of indicators grouped into the following categories: efficiency, stability, liquidity.

As we can see, the market stability is evaluated here by certain “internal” parameters of an enterprise’s functioning, which describe the enterprise as a unit of market relations²⁷. However, it is still not clear if this enterprise, having the potential of “efficiency”, “stability”, and

²⁷ See also study by Kramin *et al* (Kramin, Fatkheiv, Kramin, & Grigoryev, 2015) regarding state-private partnership case.

“liquidity” is able to promptly respond to crisis situations. We can only partially agree with such interpretation of the notion “market stability” as it remains incomplete, in our opinion. Many theoreticians have attempted to clarify the determinants of the market stability of an enterprise by viewing not only the internal, but also the “external”, market of “marketing” indicators, as well as their reflection in the financial-economic activity of the market players. For example, N.A. Navrotskaya and N.Yu. Sopilko think that the market stability of any industrial enterprise is to a certain extent influenced by the conditions and trends of development of the whole industry sector, due to the market demand in the feedback system “consumer – industry – infrastructure”, and is based not only on the industrial and financial constituents, but also on the selected marketing strategy, production, pricing and servicing policy (Navrotskaya & Sopilko, 2013). A group of authors (Agapsov, Gryaznova, Dzhindzholiya, & Shakhovskaya, 2005; Dubova, Dzhindzholiya, & Shakhovskaya, 2014; Gryaznova & Yudanov, 2008; Zlobin, 2000), developing the concept of the quality of entrepreneurial activity, clarifies the notion of the enterprise’s economic stability. B.K. Zlobin (Zlobin, 2000) gives the following interpretation: “a special state of the economic system in the complex market environment, which guarantees its purposeful development at present and in the predicted future. Economic stability is a complex notion, including the following criteria as essential features: financial stability; competitiveness of production, its quality; competitiveness of technology; efficiency of production and marketing; innovative functioning; organizational flexibility; maneuver ability of production and its ability for diversification; reproductive complexity”.

At the same time these authors imply that under the modern conditions it is the innovative character that is the most important factor of enterprises’ survival. It is highlighted that any innovative economic advantage is temporal: changing the supply and trying to outstrip the competitors, the enterprise reduces the product’s life cycle. One can assume that in this case the innovativeness determines the “sensitive” behavior of an enterprise in the market, its market stability.

P. Drucker views “market stability” differently, from the viewpoint of the conditions of the company’s survival in the market. From this viewpoint he lists some “marketing” indicators, namely: market position, innovations, labor productivity, professional training of the staff, quality of the production and financial results (Drucker, 2001). A.N. Il’chenko and Wei He

consider that the market stability of an enterprise is its competitiveness, revealed in the competitiveness of its goods. The latter is the result of its efficiency (the consumer qualities of a goods), price, production and marketing costs, and the derivative of the production level, state of the equipment, raw materials, technology, quality of management, efficiency of marketing activity, etc (Il'chenko & Wei, 2007), and no doubt, competitiveness is a reflection of the strategic behavior of the enterprise (G.R. Taisheva & Valeeva, 2007).

Thus, the theoretical definitions of the “market stability” notion cannot fully and unambiguously explain the term. The above text aims at registering the notions in general by induction and comparative analysis. This is the basis for further formulation of the brief conclusions resulting from the research. The market stability is viewed not so much as the ability of an enterprise to sustain its financial stability under crisis conditions, but as its ability to promptly react to these conditions without detriment to the enterprise's activity. The main factor for the content of the “market stability” notion is selecting such market criteria, which would be able to reflect and describe the enterprise's ability for transformation under the dynamic market.

There is no doubt that in a broad sense the market stability of an enterprise is the overall level of its functioning. It is closely linked with the financial stability of an enterprise and depends on ability of adaptation to market risks (Ovcharov, 1997). Usually the high market stability of an enterprise is associated with the equally high financial stability. At the same time, to ensure the market stability and to ensure the financial stability are two different tasks. There are a lot of algorithms for evaluation of the financial stability of an enterprise, which proves that there is no single universal method of solving all tasks. It is logical that by uniting several methods one can significantly increase the quality of analysis. To our mind, there is an urgent need to elaborate the new up-to-date approaches to combining and uniting the models in order to evaluate the “market stability” of an enterprise.

The great variety of algorithms makes it difficult to choose the best model basing on objective criteria. The income, the net profit, the profitability, the share of assets in the sales volume and the profitability of assets are the broadly used criteria for the internal financial activity of an enterprise. It is known that the internal financial activity result from the impact the external indicators of the market activity of an enterprise. However, as it was stated above, the mentioned indicators do not provide an external, or market, idea of the efficiency of the

company's functioning. Having these results, we will not be able to say how the company responds to such external criteria, as the market growth, competitive prices, quality of the competitors' products and services, and the degree of customer satisfaction. Hence the conclusion, that the traditional financial indicators are being excessively relied upon when evaluating the company's efficiency and choosing the direction of its further development. To create an evaluation system of the "market stability" indicators of an enterprise (we term them as marketing indicators") from the viewpoint of its mobility and adjustability to crises is an important task for theoreticians and practical workers.

Let us view the "marketing indicators" of the market stability as a defined term, as it requires a more exact definition of its content. The marketing indicators of activity form the general strategic idea about the business efficiency. The management, determined by the market, possesses a great potential for the significance profit increase. One can conditionally assume that the market stability evaluation is based on the indicators, which are used to trace the efficiency and profitability of marketing at an enterprise.

Most marketing evaluation systems were created to control income, costs, manufacturing overhead, debts, current expense and profit. However, the marketing management unambiguously states that the most important asset and the only source of positive cash flow is the customer. That causes the necessity to search or quality and quantity indicators of the customer loyalty evaluation. It should be noted that the marketing efficiency indicators are not so much an important amendment to the traditional financial efficiency indicators, but are a primary source, as they allow to ensure the market stability.

3 Results and discussion

There is a large variety of models for prognosing crises at an enterprise, which have been developed mainly for the western companies: models by Beaver, Altman, Taffler and Tishaw and others. It should be noted that all such models have objective drawbacks. Thus, when forming the strategy under crisis, one should analyze not only the indicators of liquidity and financial sustainability, but also the indicators of marketing activity, which, in our opinion, would reveal the hidden negative processes and develop the commercial potential of a company. This leads us to the necessity to elaborate a quantitative business model of prognosing the company's stability under crisis, taking into account the modern realities of marketing. The

author has been monitoring the marketing indicators of companies' performance in the sphere of services, when solving the practical tasks of small business.

Thus, since 2000 the author has been monitoring the performance of 50 new small businesses in the sphere of services in Russia. According to the monitoring, 90% of companies went bankrupt or ceased their activity after 5-6 years, though their functioning had been thoroughly planned and was financially successful during the first two years (for convenience we accept that they were functioning in a non-crisis period). These processes were, undoubtedly, influenced by many factors, but some patterns should be pointed out. The performance of all bankrupt received low expert estimations of the basic marketing characteristics (Tab.1):

Table 1 Expert estimations of the companies participating in the research

No	Characteristics of the company activity	Average expert estimation (max – 10 points)
1	“Marketing activity” (research of the market demand, product modification)	1.3
2	Constant tracing the sector and competitors' trends	2.0
3	Coordination between the prices for services and the average prices in the market	0.8
4	Expanding the sales market	1.3
5	Understanding one's customer	0.8
6	Group of financial indicators	5-8.5

Source: calculated by the authors

As we can see, all firms were characterized by low marketing activity, availability of the initial guaranteed sales market due to personal agreements, as well as by the ignoring of the sector and competitors' trends, increased prices and lack of knowledge about the consumers and their changing demands. At the same time the standard financial indicators (different models were used in different companies, depending on the data available) varied and either corresponded to the average “norm” (5 points) or were optimal (8.5 points). Below we present the comparison of the profitability indicators of the studied companies with the average indicators in the local market.

Table 2 Correlation of some profit indicators

Financial indicators	Average indicators	
	Studied companies	Average market indicator
Net profit coefficient	0.19	0.20
Turnover on the investment	0.10	0.11
Net income on the own capital	0.17	0.16

Source: calculated by the authors

As one can see (Tab.2), during their functioning, all companies had satisfactory standard financial indicators of efficiency. However, though the policy of increased prices gave good results, its consequences were negative: the companies lost their competitiveness and left the market. As for the rest 10% of the companies under research, they had high expert estimations by the above marketing indicators. They deliberately decreased prices in accordance with the market demand, focusing on differentiation or focusing, and formed their sustainable market niche by either modifying the service package or changing the sphere of business. Thus they escaped the danger of catastrophic reduction of demand for the company's services, and were able to rapidly react to the customers' challenges. We can assume that these companies implement the business model based on sustainable pattern of interaction with the market, which relies on the marketing criteria, proposed by the author.

Summarizing the above, we can propose the following three criteria of the marketing indicators of the market stability:

1. indicators of the market efficiency. These indicators show the external market conditions and attractiveness of the markets. They comprise the characteristics of the market: growth rates, market share, market attractiveness, industry attractiveness and the market demand potential.
2. indicators of the competitiveness efficiency. These external indicators show the competitiveness of the company's products. They include evaluation of the company's efficiency in suggesting a competitive price, quality of products and services, brand and costs.
3. indicators of the customer activity. These external indicators show the extent of cooperation with the customer. They include the evaluation of the customer satisfaction, their loyalty, extent of awareness, the perceived customer value, etc.

All these indicators are important for correcting the strategy and the process of achieving the financial results by the company. It should be noted that, alongside with the above criteria, there are also the current and final marketing indicators. It is the former ones that are the leading indicators of the efficiency of market activity. The final marketing indicators are only suitable for registering the exact results, especially financial.

Awareness about the product, intention to buy it, product trial, customer satisfaction (non-satisfaction), customers' perception of the product and service quality, consumer value — all these are the current marketing indicators, the changes in which usually precede the actual dynamics of the customer behavior in the market. One can define them as the indicators of customers' opinion and attitude, which are the most important indicators of the future customer behavior, hence, income and profit.

The final marketing indicators include the market share, the product (enterprise) competitiveness, the percentage of customer outflow (or preserving the customer flow), the average bill size or average income from one customer. These indicators are, as a rule, summarized at the end of a financial period, each of them using a full range of diagnostic means. One should remember that the isolated marketing indicators are not always adequate indicators of the overall efficiency of an enterprise functioning. If we assume that the sales grow faster than predicted and the financial result appeared to be even better than expected, then such situation will be regarded as excellent by most companies. However, such marketing results may imply that the company loses its share in the growing market (i.e. the absolute growth rate of the market share is smaller than the growth rate of the market). The stable consumer traffic may be determined by the increase of the number of new customers (regarding the issues of market evaluation please refer to: Grigoryev, 2005; and issues of demand elasticity: Kramin, 2004). The increase in the average bill size may be due to the overall growth of prices in the sector. Thus, without the whole set of marketing indicators a company has a very limited view on the efficiency and prospects of its activity.

Summarizing the above, we should highlight that under the modern dynamically changing market conditions it is necessary to transform the idea of the enterprise's stable development, to search for new viewpoint at this issue. One of such integrative approaches, aimed at the successful development of companies under crisis in the market economy, is the marketing approach, which implies focusing the enterprise's strategy at forming its market stability,

determined by several indicators. In our opinion, the changing of the vector of efficiency evaluation based on financial indicators to the analysis of the company mobility, their “market sensitivity”, and promptness of responding to the changes in the external environment should be a promising direction of research.

4 Conclusion

1. Market stability should be viewed not as the ability of an enterprise to sustain its financial stability under crisis conditions, but as its ability to promptly react to these conditions without detriment to the enterprise’s activity.
2. An important element of forming the content of the “market stability” term is selecting such market criteria, which would be able to reflect and describe the enterprise’s ability for transformation under the dynamic market.
3. There is an urgent need to elaborate the new up-to-date approaches to combining and uniting the models in order to evaluate the “market stability” of an enterprise.
4. It is proposed to define the following three categories of marketing indicators of the market stability: indicators of the market efficiency, indicators of the competitiveness efficiency and indicators of the customer activity.
5. The mechanisms of the company efficiency evaluation should be changed from the ones based on financial indicators to the ones taking into account the companies’ mobility, their “market sensitivity”, and promptness of responding to the changes in the external environment.

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INNOVATIONS AND REGIONAL ECONOMIC DEVELOPMENT IN RUSSIA

Elizaveta Kolchinskaya

Abstract

To be competitive in the global economy Russia needs in production innovative products. According to the Government of the Russian Federation the innovative socially oriented model of development is the main method of long-term development of the country. The data for research were taken from Russians Federal State Statistics Service and portal of the State support of innovative development of business. The main method of this research is a production function which was constructed for the Russian manufacturing. Labour, capital, infrastructure indices (included innovations) were evaluated. I investigate 9 years (from 2005 to 2014) and almost all Russian regions. The coefficients for the selected function were obtained using the correlation-regression analysis approach. The result is that the coefficient of innovation in logarithmic production function is 0,1 and it's significant on the 1% level. One of the main factor except labor and capital is innovations that means that to increase manufacturing production in Russia the government should improve innovation infrastructure. And also two groups of regions were compared. The result is that regions with innovative clusters on their territory have a better economic indexes than regions without clusters.

Key words: manufacturing, innovations, production function

JEL Code: R11, L11, O14

1 Introduction

The Russian economy transition to an innovative socially oriented model of development is the main method of long-term development of the country according to the Government of the Russian Federation. This idea is reflected in the Strategy of Innovative Development of the Russian Federation by 2020 approved by the Government Order No. 2227-p dated December 8, 2011.

This Strategy mentions a range of measures of State support for domestic economy modernization processes. These measures include stimulation of creation and development of innovation clusters as well as efforts to refine innovative and market infrastructure in regions. The mentioned two measures are not an exhaustive list, however, this study will consider their influence exactly on the economy of the Russian regions, because significant efforts are aimed at their implementation.

Innovative development is equally important not for all sectors of the national economy (Crépon, Duguet, & Mairesse, J. 1998). In terms of the spheres to which attention of the State authorities is given in relation to this issue at most, then it is processing industry, medicine and education. All they are very different and it does not seem appropriate to study them in terms of one paper. Therefore the object of this paper is processing industry.

Innovative development of processing industry according to a number of researchers (Srithanpong, 2014) and public officials may become a locomotive of upsurge of the country economy and crisis recovery. It is related to the fact that a traditional problem of the Russian economy is its specialization in extractive industry. At present the lion's share of the domestic export is raw products of extractive industry. In 2014 this share was 69.5% according with official Russian statistic data (Regions of Russia, 2015). Respectively, only development of innovative processing sectors will help to overcome this scenario.

Thus, the purpose of this paper consists in determination of cause and effect relations between the measures taken by the government in the sphere of development of innovative economy of Russia and the effect obtained from the economy. This framework two tasks will be completed. The first task consists in comparative analysis of economic results of the regions of two groups – regions with innovation clusters and regions without these clusters. The second task is in study of influence of factors of innovative and information infrastructure on development of processing industry.

The verifiable hypothesis is the statement that at large the taken measures have positive effect on development of the Russian economy, however, not all of them to the same extent. Besides, it shall be verified which important factors are left out of account at preparation of the programs of support for innovative development.

2 Role of innovation clusters in economical indicators of the Russian regions

A center of formation of an innovation cluster is, as a rule, research institutions. Around this core the other cluster participants are concentrated — innovative companies and equipment suppliers. A distinguishing feature of the innovation cluster is application of radically new technologies, products or services, being in demand or capable to be in demand in the world or domestic markets. The very idea of creation of an innovation cluster consists in the fact that a new product inside it can pass through cyclical turnaround – starting from an idea to final output.

The innovation cluster is considered as an integral system of new products and technologies interconnected and focused on a certain time period and in a certain economic area (Rastvortseva, 2014). Thus, as defined above, the innovation cluster is a basis and complex of innovation derivatives which make it impossible to expand the economy in conventional lines. The USA experience (Silicon Valley phenomenon) shows that innovative (industrial) clusters can be formed at the regional level where concentration of interrelated industry sectors is high. A distinctive aspect of the Russian clusters consists in the fact that the state, as a rule, participates in their creation and operation. Clusters are not created on the spur of the moment, but they are also not absolutely artificial and therefore the region specialization in the corresponding industry sectors is equally important for the Russian cluster policy too.

Thereunder, in 2012 the State authorities selected possible variants of support and fixed the attention on the most advanced territorial clusters from their point of view. Selection was carried out by the experts according to the following criteria²⁸:

- Research-and-engineering and educational capacity of the cluster.
- Production capacity of the cluster.
- Quality of life and development level of transport, energy, engineering and housing infrastructure of the territory of the cluster location.
- The level of organization development of the cluster.

²⁸ in accordance with the data of the unified research and information portal of the State support of innovative development of business

According to the results of the competition the development programs of 25 innovative territorial clusters received the highest appraisal of the experts which were included into the list of the innovative territorial clusters were selected. I can distinguish 6 lines of technological specialization of the selected clusters (refer to Table 1).

Table 1 Lines of specialization of the clusters supported by the Government of the Russian Federation

Lines of technological specialization	The regions within which territory clusters are situated
Nuclear and radiation technologies	the Moscow Region, the Nizhny Novgorod Region and the Ulyanovsk Region, the Krasnoyarsk Territory
Production of aircrafts and space crafts, shipbuilding	the Ulyanovsk Region, the Samara Region, the Arkhangelsk Region and the Tomsk Region, the Perm Territory and the Khabarovsk Territory,
Pharmacy, bioengineering and medical industry	the Moscow Region, the Kaluga Region, the Novosibirsk Region and the Leningrad Region, the Altai Territory, Saint Petersburg
New materials	the Sverdlovsk Region, Moscow
Chemistry and petroleum chemistry	the Nizhny Novgorod Region and the Kemerovo Region, the Republic of Tatarstan and the Republic of Bashkortostan
Information technology and electronics	Moscow, the Moscow Region, the Republic of Mordovia

Source: Own elaboration

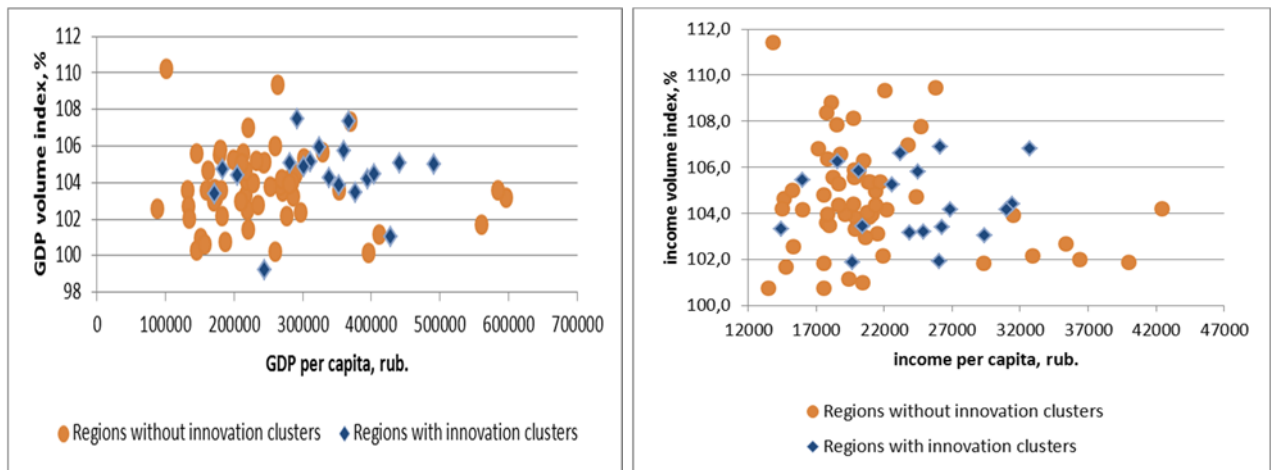
For the selected clusters comprehensive measures of stimulation of development at the federal, regional and municipal level are carried out. Also, the mechanisms of public private partnership are applied in terms of implementation of development projects of territorial clusters.

Within this framework it appears to be interesting to assess availability of any remarkable positive differences of the regions selected for this program the other regions by the development level. To carry out such assessment the regions were divided into two groups. The first group included the regions which were not selected for the above mentioned program of cluster support or just had no innovation clusters within their territory. The second group included the regions listed in Table 1. The Tumen Region and the Sakhalin Region, the Chukotka Autonomous District and Moscow were excluded from consideration. The first three among the mentioned regions have specialization in extraction of commercial minerals and due to this have GDP exceeding the national average GDP several times, therefore their presence

in the selection distorts the overall picture. Traditionally, Moscow is the richest region of Russia, therefore the same assumptions are true for it as well.

The left part of Figure 1 shows the results of distribution of the regions of these two groups by the scales of the GDP quantum index of the region for 2013 and average regional GDP quantum index for 2010 – 2013. Such limits of the analysis period are determined by the fact that till 2010 the Russian economy passed through the consequences of the world economic crisis of 2008, and after 2013 the indices reflected influence of new economic crisis started in Russia in 2014.

Figure 1 Difference of volume and rate of GDP change



Source: Own elaboration

The data given in the figure show that the regions with the innovation clusters within their territory have at large significantly high values of the regional GDP indices per capita than the regions of the second group. Also, difference in the indices of GDP growth is observed.

The right part of the figure shows the similar data but for the indices of population income per capita. This distribution also displays the higher absolute indices of the regions with the innovation clusters on average.

However, it is difficult to determine exactly whether presence of the clusters within the region territory is a stimulus for GDP growth and population income or such results can be explained by the fact that already successful regions were selected for participation in the program. Therefore for more detailed analysis, assessment of influence of the innovative development indices has been carried out, the procedure and results of which are described in the following paper section.

3 Innovation infrastructure as a factor of development of processing industry

Idea of such research may consists in plotting of production function including individual indices of development level of innovation and information infrastructure in the region (Crespi & Zuniga, 2012). To the end that the model will be full, it was also added with the labor indices (employment in processing industry to the regional population ratio) and capital indices (volume of investment to the capital assets of the processing industry companies) (Brown & Guzmán, 2014), as well as the indices of the other types of the infrastructure.

On the basis of the theoretical provisions and available statistical information 27 factor indices of the infrastructure development in the region were selected. All monetary indicators were brought to the prices of 2013. In addition, all indices were brought to the commensurable values, where it was required. After check of the selected indices for multicollinearity 7 from them were excluded from the subsequent analysis as they were correlated with the other indices.

To set up regression equations the panel data models were used. The Cobb–Douglas production function was taken as a basis (Brown & Guzmán, 2014). The indices for all Russian regions were collected for the period from 2005 to 2012 and used then as a panel data. All indices were taken from official Russian statistic data (Regions of Russia, 2006 - 2015). However, the data for the partial period were available for three regions therefore they were excluded from selection. More 25 observations were deleted after check for emissions. The index "Volume of shipped home-produced goods and works and services carried out without subcontracting" was taken as a dependent variable. As per this procedure 20 indices given in Table 2 were selected. It is important to note that division of the indices by infrastructure types is conventional to a certain degree in this case. For example, such indices of social infrastructure as population of students and educational establishments can also be related to the innovation and information infrastructure. However, in this case such distribution was made for analysis of the role of social factors in comparison with innovative ones as the former ones are given with relatively insignificant attention in the programs on development of the Russia's innovative economy.

Table 2 Indices specifying the development level of regional infrastructure

Item No.	Infrastructure	Index description	Units of measurement
1	innovation and information	number of personal computers	pieces per 100 employees
		share of companies using special software	%
		volume of communication services rendered to population	rubles per a resident
		employment in research and development to the region population ratio	%
2	social	population of students trained as per undergraduate program, specialist program and Master's program	persons per thousand residents
		number of higher educational establishments	pieces for beginning of the school year per thousand residents
		population of medical advisers of all specialties	persons per thousand residents
		population of low-grade medical workers per capita	persons
3	transport	density of public railway tracks	km of tracks per 10 thous. sq. m of territory
		density of public motor roads	km of tracks per 10 thous. sq. m of territory
		truck shipment	thous. t per thous. persons of population
		number of public buses,	units per 100 thous. persons of population
4	engineering	length of street sewerage networks	km per 10 thous. sq. km of territory
		length of heat supply and steam networks	km per 10 thous. sq. km of territory
		length of street water supply networks	km per 10 thous. sq. km of territory
		number of heating plants	thous. pieces
5	market	number of credit organizations	pieces per thous. region residents
		return on total assets of organizations by economic activities	%
		retail turnover	mln. rubles per thous. residents,

		wholesale retail	mln. rubles per thous. residents
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Source: Own elaboration

First of linear models of panel data were set up. This collection is heteroscedastic: the F-statistic for the Goldfeld–Quandt test is equal 249.66. To improve this situation I used the logarithmic models. For them the F-statistic for the Goldfeld–Quandt test is equal 0.499. This is to say that for these models heteroscedastic is not significant. The results for 3 types models with panel data (between, fixed and random) are submitted in the table 3.

Table 3 Results of regression analysis

Independent variables	Model		
	Random	Fixed	Between
Log of capital	0.312*** (0.07)	0.286*** (0.032)	0.356*** (0.105)
Log of labor	0.494*** (0.042)	0.445*** (0.482)	0.608*** (0.119)
Log of number of personal computers	-0.018 (0.020)	-0.007 (0.013)	-0.036 (0.062)
Log of share of companies using special software	-0.0001 (0.002)	-0.0002 (0.000)	0.0007 (0.001)
Log of volume of communication services rendered to population	0.0003* (0.159)	-0.075 (0.150)	1.721 (1.102)
Log of employment in research and development to the region population ratio	0.092*** (0.039)	0.030** (0.015)	0.355*** (0.048)
Log of population of students trained as per undergraduate program, specialist program and Master's program	0.025 (0.030)	0.380 (0.23)	0.162 (0.160)
Log of number of higher educational establishments	0.656* (0.325)	0.423 (0.233)	0.241 (1.133)
Log of population of medical advisers of all specialties	0.012* (0.005)	-0.004 (0.002)	-0.002 (0.003)
Log of population of low-grade medical workers per capita	0.015* (0.004)	-0.000 (0.002)	0.003 (0.002)
Log of density of public railway tracks	0.002** (0.001)	0.001 (0.003)	0.001 (0.001)
Log of density of public motor roads	0.0005 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Log of truck shipment	0.024 (0.027)	0.000 (0.000)	0.000 (0.000)
Log of number of public buses	0.003*** (0.001)	0.003*** (0.000)	-0.0007 (0.003)
Log of length of street sewerage networks	-0.0008* (0.000)	-0.001 (0.002)	-0.002 (0.003)
Log of length of heat supply and steam networks	-0.081	-0.142	-0.389

	(0.044)	(0.155)	(0.042)
Log of length of street water supply networks	0.127* (0.059)	0.001 (0.418)	0.131 (0.077)
Log of number of heating plants	-0.021 (0.015)	0.022 (0.041)	0.278 (0.23)
Log of number of credit organizations	-0.0003 (0.0001)	0.271 (0.231)	0.126 (0.152)
Log of return on total assets of organizations by economic activities	0.00026 (0.001)	0.443 (0.223)	0.244 (1.153)
Log of retail turnover	0.228 (0.237)	-0.008 (0.003)	-0.005 (0.001)
Log of wholesale retail	0.109 (0.367)	0.035 (0.033)	0.377 (0.213)
Constant	-2.18	-1.11	-5.133
Number of obs	546	546	546
Number of groups = 79	76	76	79
R ²	0.9463	0.6992	0.9166
	Prob > chi2 = 0.0000	Prob > F = 0.0000	Prob > F = 0.0000
	Wald chi2(5) = 2543.52	F(5,462) = 214.78	F(5,73) = 309.28

*Significance: *10%; **5%; ***1%. Numbers in parentheses are robust standard errors*

Source: Own elaboration

It can be seen that more significant coefficients are in the random model then in the others. Thus, upon completion of regression analysis of influence of separate innovation and infrastructure factors on industrial development of region I can conclude that among the analyzed factors only employment in research and development to the region population ratio is significant for development. Thereunder, the attention paid to development of this factor in the programs of the Government of the Russian Federation is fully justified.

Alongside with that, the fact that relationship with the factors of transport, engineering, information and social infrastructures is traced comes under notice. At that, it is interesting that among all considered factors of the transport infrastructure the most weighty is the index of availability of public buses in the region. Taking into consideration the fact that the social infrastructure indices have positive effect on development of the regional industry: number of higher educational establishments, population of medical advisers and low-grade medical workers (with relatively high values of coefficients, especially, of the education, but with ten per cent level of significance), it can be assumed that the conditions created for the residents

(company employees) are important for development of industry in the region. That makes sense as people of the most active working age want to move on there where the conditions not only personally for them but for comfortable living of their families are created. That is the objects of the social infrastructure which at first sight are not immediately related with innovations and development of industry, are of paramount importance for this process. They are schools, nursery schools, medical centers and hospitals. Therefore it can be assumed that development of social programs in the region will be encourage growth of industry rather than only more certain enterprises. However, development of this line is not given separate attention in the programs of innovative development support.

4 Discussion

I can state that the verifiable hypothesis on positive influence of the innovative development support measures taken by the Government on development of the Russian economy was confirmed. As mentioned in the part 2 of this article, the regions the territory of which locates the clusters supported by the governmental programs show significantly better results of economic development than other regions. They have higher absolute indices and coefficient of GDP growth and per capita income (Figure 1).

This brings us to the conclusion that the policy pursuing in this line is effective enough. However, drawing such conclusion it is necessary to consider that the part of the success effect of the regions with innovation clusters is reached due to the fact that initially the effective regions were selected for support. Therefore, it seems appropriate to suggest the innovative development programs for the other regions for equalization of living standard in different parts of Russia. It is possible that artificial formation of clusters within those territories where there are no prerequisites for this will not lead to good results, that is why it is not recommended to extend the list of the supported clusters. However, it seems feasible to stimulate implementation of innovative processes to extractive and other industry sectors, which are not enough involved in this process.

Besides it is determined which factors of innovation and information infrastructures have higher influence on development of one of the most sensitive to innovation sphere of processing productions. Among the considered indices only the employment in research and development to the region population ratio is significant in the regression model.

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USING DIGITAL TECHNOLOGIES IN SOCIAL ENTREPRENEURSHIP

Vojtech Kollár – Peter Polakovič – Jana Gasperová

Abstract

The aim of this paper is to highlight the importance of e-learning forms focusing on education in the field of social entrepreneurship. Gradually it deals with fundamental elements of digital learning - describes the methodology of e-learning, preparation of multimedia training materials and the possibility of publishing electronic content through management systems of education. Education of employees is now becoming an important instrument of employment. Special emphasis on education of employees should be paid in the field of social business where employees have to eliminate their social disadvantage with knowledge and skills in order to compete in the competitive environment. Modern digital technologies bring significant changes to the education system of employees worldwide. Digital technologies help employees acquire knowledge by various senses which results in higher efficiency of education in comparison with traditional forms of learning. E-learning, blended learning, or Learning Management Systems are currently considered the effective ways of the staff training.

Key words: Information society, e-inclusion, digital technologies, educational system, information strategies

JEL Code: I22, I25, I28

Introduction

Education of employees is now becoming an important instrument of employment policy. Special emphasis should be given to him in the field of social business where employees have their social disadvantage eliminate knowledge and skills so that they can enforce in a competitive environment. Modern information and communication technologies bring

significant changes to the education system employees worldwide. They help to perceive more knowledge senses, and thus when compared with traditional forms of learning will allow reaching higher activity in education. The aim of this paper is to highlight the importance of new forms of education and e-learning with a focus on education in the field of social entrepreneurship. Gradually it covers the basic elements of e-learning, e-learning methodology described, the creation of multimedia training materials and the possibility of publishing online content through learning management systems. The most effective way to implement staff training is currently considered e-learning - e-learning (Besio, 2004). E-learning can be formulated as a modern approach to the mediation interactive environment that is focused on the learner. This environment is readily available to anyone, at any time and may be provided in any location, using a variety of features and resources of digital technologies and other forms of educational materials that are suitable for open and flexible environment (Urban, 2006).

1 Importance of education in the Information Society

The information society is a concept that responds to the expansion and ubiquity of information. This expansion was strongly supported extending the ICT, which lets you work with a huge amount of information in a faster time than ever before possible. The term information society (Information Society) is taken from the seventies, in the last two decades, is gaining in popularity and is now widely used by social scientists, but also politicians (Sak, 2007, Kokles 2008, Kováč, 2014).

If we talk about the information society, we can find six analytically separable definitional approaches that appear (Kováč, 2013, ISTE, 2007). The first and most common definition of a right to information and communication technologies. Technology in this approach to define and develop information society. Economic approach uses the term Information Society to describe a situation in which a business with information on the major share of GDP. Employee access is closely related to Bell's theory of post - industrialism. Bell's book *The Coming of Post-Industrial Society* (1973) introduced the concept of the information society very first time and defined it as such, where most employment based on information work (lawyers, teachers, scientists, etc.). Time - spatial definition emphasizes the effects of the new organization of time and space and other changes, such as the ability to communicate in real time across the planet. Theoretical approach emphasizes that the information society is one in which the dominant theoretical knowledge (Green, 2007).

If we think of these analytically distinct definition criteria, easy to spot, they work together in today's society and it also converts together. We also found that none of the definitions entered into by its very nature, the absence of ICT. The information society is based on the historical development of capitalism and industrial society. This stage of development was achieved just through the introduction and use of technology throughout society. Let us focus now on some of the changes that occurred with the advent of the information society and put pressure on the transformation of the educational system and the whole concept of education (Zounek, 2009). Changes can be divided into economic and social so that we can direct them to draw economic and social arguments for introducing ICT into education. Not only is education training for future employment, but also to life in society (Zounek, 2012).

In the economic sphere has been deepened specialization of individual professions and increased dependence on the expert knowledge. In the information society leads to faster changes, manage exponential technological development. Economic pressures on the education and training systems are thus characterized by the need of the individual for life repeatedly deliver highly specialized knowledge (Gubalová, 2006). The economy is global in nature and trade relations are closely intertwined. Store in a modern economy requires in particular the ability to work with information and communicate with an important role time. Technology, however, apply only as a means of communication and source of information but also as a working tool. In the social sphere we can talk about two sources of pressure for introducing ICT into education. The first is the State itself, which introduces to its operation, a variety of processes dependent on the use of ICT. Concepts such as electronic government (e-government), electronic health (e-health), electronic commerce (e-commerce) and others have succeeded in policies at both national and international level. The ability to use these services and their potential, of course, depends on the information literacy of the population of individual countries. The second source of social pressure is the users themselves. Technologies are widespread in developed countries and begin to discover the deep divide between those who have access to them and can take advantage of them, and among those who do not have this option. This phenomenon in professional sociological literature and in the general political discourse called digital divide (Velšic, 2011). Research confirms that limited or no access to technology are primarily groups which are already in the company in some way marginalized (poor, the unemployed, minorities, etc.). Just introduction of ICT in education can be the

problem arising in the information society partly mitigated by providing equal opportunities in access to technology at least through modern technologies.

1.1 Information society and the transformation of education

According to analysts, the OECD, we can distinguish three sets of reasons to introduce ICT in education:

- Economic,
- Social,
- Education (ISTE, 2007).

Economic reasons focus on the needs of the economy that needs more and more employees with the skills to handle the technology. Knowledge of ICT thus becomes one of the basic assumptions of employability. Nations that are aligned with the advent of the information society the best will in the global economy also thrive best. Social pressures are based on the fact that the technologies are becoming a prerequisite for participation in social life. According to the OECD report even digital literacy a requirement of a right for all learners. The company distributes yet the more, the more is increasing online applications for public affairs.

Table 1 Development of educational systems under the influence of ICT applications.

Variable	Traditional model	Modern model
Role of teacher	Expert Facts	Collaborator Source
Teaching	Aimed at teachers	Aimed at student
Criteria for success	Demonstration of competence	Demonstration of progress and personal skills
Evaluation	Based on test	Based on the student's performance in real task
Educational paradigm	Content oriented Teacher oriented	Process oriented Student oriented
Grouping	Homogeneous	Heterogeneous
Student activities	Personal work	Teamwork

Source: UNESCO, ICTs in Education for People with Special Needs, 2006

So how education and training system under the pressure of information society change? UNESCO publication describes the changes in education related to the advent of the information society as follows (Green, 2007)

- In the information society becomes significantly shorter life knowledge,

- For greater specialization of knowledge, the necessary work in teams,
- The citizens need to be prepared for lifelong learning, be involved in team and project work as basic education,
- Innovation in education is essential if we are to meet the new demand. These innovations should have a strong educational focus on teaching and student-oriented educational approaches supported by ICT, where the teacher plays the role of a coach.

Another study ISTE (2007) find a more detailed analysis of the impact of the development of the information society for education. Transforming Perceptions of literacy is a shift from memorizing and learning the facts and rules to emphasize the ability to find the facts, and I can imagine choice. This puts pressure on education systems, after which the desired development of the personality of students, new teaching strategies, new educational content and transforming the role of teacher and pupil. One of the biggest changes in education that is often described as: general shift from teaching to learning (BESI, 2004). In other words, the displacement of a content-based instruction to the process-oriented teaching. Learning is no longer on the collection, production and reproduction of data, but the construction of mental representations of meanings of strategies to compare, combine and transform knowledge. This is a shift from static to dynamic, from product to process education in the Information Society is of many new attributes which we have in previous stages of developing the system sound. One of the most important is the above-mentioned concept of lifelong learning and the whole idea of education "anyone, anytime, anywhere." That anyone, anytime, anywhere" Moreover in the current sense to go into the "exactly what is needed precisely to those who need it." Variable environment of the information society as well as changing demands on the skills of their workers, create demand for institutions that will be able to meet these requirements throughout their lives and not only for a limited educational process. In the education system so creating new institutions such as called. virtual universities, which can be completed through ICT without regular attendance (Green, 2007).

With the advent of the information society has increased pressure on the fully equipped schools and supports them in the use of ICT. Schools and educational institutions require functioning as hardware and operating software and courseware. The trend is the use of ICT across many subjects in schools of all levels. This means that the technology already occur only in specialized classrooms, but in standard classrooms, where they serve to teach no informatics

subjects. With exaggeration we can say that the school thus becomes small technology centers. Although it might seem that argument Director of Slovak elementary schools in laughter, rector high school has certainly not. Computers have moved into classrooms, halls, libraries and laboratories, and become an instrument of productivity as well as communication points. Application of the principles of the information society is education related to the development of alternative forms of education, says Zounek (2012). Examples include e.g. virtual university and other forms of distance education. However, the authors recall the content changes in education:

- Changing attitudes to factual - the application of information technologies leads to a revision of the various curricula in terms of quantity and purpose of factual data to be reminded.
- Emphasis on analytical skills - ICT enables dramatically gathering of more information than was possible using conventional techniques. The more serious and important task became analyze and interpret this data.
- Application of teamwork and project-based approach - developing the ability to work in a team is a prerequisite for creating virtual companies. Project-based learning then cancels sharp boundaries between subjects (disciplines) and bring learning to the real application of the acquisition of skills and knowledge.

1.1 E-inclusion as a social movement

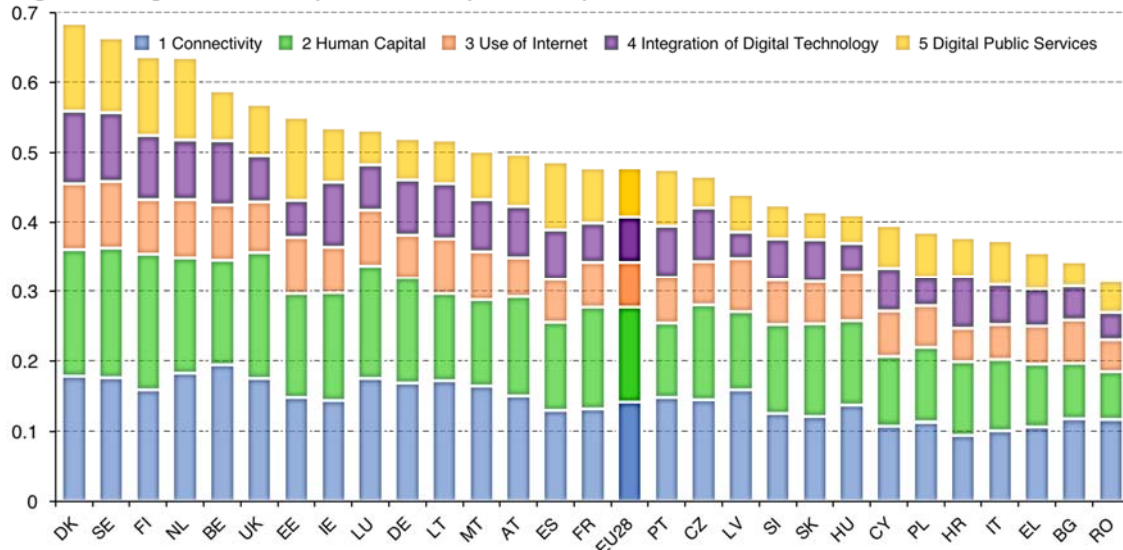
The term e-Inclusion we mean a set of activities designed to eliminate the existing digital divide in society is the difference between those who have access to modern information and communication technologies, as well as the skills and abilities to use them and those who have access and have the necessary skills. E-Inclusion is part of the process of social inclusion. Its aim is to create a European information society for all (European information society for all), as defined by the European Union in its strategic documents concerning the information society (Gubalová, 2009). e-Inclusion basically means that no one will be denied the opportunity to use the opportunities and benefits of the information society - whether because of age, health disability, education, social situation, geographic location (geographic disadvantage rural areas), and the like. Highlights of e-Inclusion can include:

- e-Accessibility (e-Accessibility) - make the application of information and communication technology (ICT) accessible to all, including people with "special needs" (i.e. for people disadvantaged),
- e-Competences (e-Competences) - within a lifelong learning system to provide citizens with the knowledge, skills and abilities necessary to increase social inclusion, employment and quality of life,
- Current e-Inclusion (Geographical e-Inclusion) - using ICT to enhance social and economic situation of people living in rural areas, geographically and economically disadvantaged areas.

Inclusive eGovernment - to provide better, more accessible and diverse government services to all in order to increase the use of ICT and participation of citizens in the democratic processes (<http://portal.egov.sk>). Index (DESI - Digital Economy and Society Index) is an index that summarizes the performance of digital Europe and follows the development of the EU Member States in digital competitiveness. DESI encompasses five major components:

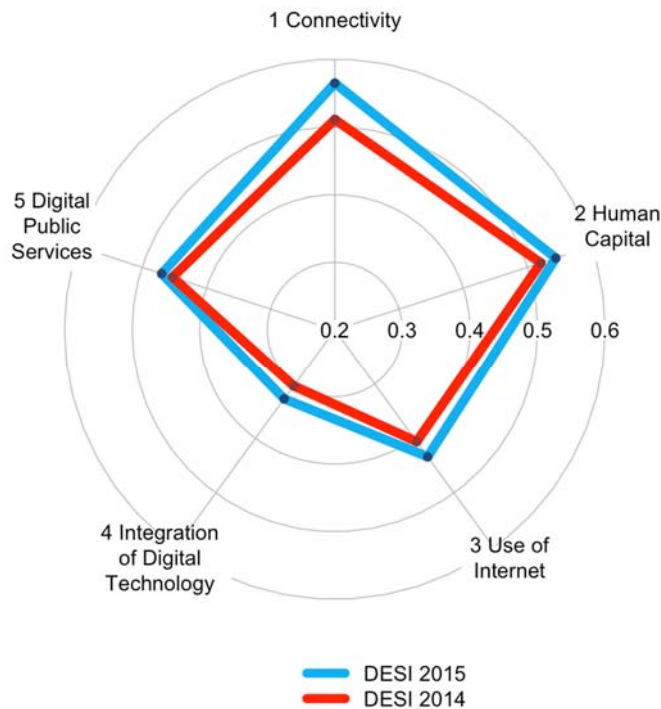
- Connectivity broadband infrastructure and quality, access to fast broadband services is a prerequisite for competitiveness,
- Human Capital and digital skills necessary to maximize the opportunities offered by digital society. This is a basic user skill that enables individuals to communicate on-line, for example. ordering of goods and services, to advanced skills that empower employees to use technology to enhance productivity and economic growth,
- Use of the Internet and the ability to perform routine operations on-line, these activities range from the consumption of online content (video, music, games, etc.), and the active use of online banking,
- The integration of digital technologies in enterprises and used under the direct online sales channels, improving access to a wider market of potential customers and business partners.

Figure 1 Digital Economy and Society index by main dimensions



Source: Compiled by the author, based on <http://www.europeandigitalforum.eu/>

Figure 2 The Digital Economy and Society Index improved from 2014 to 2015



Source: Compiled by the author, based on <http://www.europeandigitalforum.eu/>

Despite these positive results the digital divide is still present and becomes a new type of distribution companies. On the edge of an imaginary digital divide stands for several years older, less educated, less qualified, economically inactive (pensioners, unemployed),

underprivileged and rural population. Bridging the digital divide could help members of disadvantaged social groups to more equal participation in the digital society (including e-learning, e-government, e-health) and compensate for the fact that they are disadvantaged, increased employment opportunities. Digital development is uneven across the European Union; in 2015 the total score of the worst performing EU countries was less than half the score of the best performing countries. The digitization of public services is an area where we can see most fragmentation. European countries are doing likewise with regard to the use of the Internet, for example. Citizens have similar online position as soon as they have the ability to benefit from digital technologies. According to the performance, countries can be grouped into high, medium and low performance clusters: Denmark, Sweden, the Netherlands and Finland can be regarded as the most powerful country. Belgium, Germany, Estonia, Luxembourg, Ireland, Germany, Lithuania, Spain, Austria, France, Malta, Portugal and the Czech Republic belong to the group of central power band. Latvia, Slovenia, Hungary, Slovakia, Cyprus, Poland, Croatia, Italy, Greece, Bulgaria and Romania belong to the group of least-moving digitization and the need to try to catch up with other countries (UNESCO, 2015).

Conclusion

Quantitative and qualitative excess of information causes the learner is increasingly difficult to take a long time, or get enthusiasm for the subject of their activities, which can lead to superficiality and the so-called dispersed curiosity, which many of us have experienced firsthand. Just multimedia used in the educational process are becoming one of the factors that raises the bar for traditional teaching methods. The education world is due to appear before them "moving" like our living space in which we are almost overwhelmed by the amount paintings, fancy animations, perfect sound, and viral video. It is literally raises the primary needs to be able to work with different types of information they know to read, understand, selected by, even the form and not letting them just noisy and mechanically controlled. Information technology and communication brings with it changes that fundamentally alter our views of the outside world. These technologies and digital technology enable the creation of new multimedia services and applications that combine audio, video and text, which are accessible by means of telecommunications worldwide. Penetration of these new information - communication technologies in all levels of the economy and social life is what changes our society of information society. Today, we meet at every step with the changes that bring us the

information society. These changes most significant since the industrial revolution are far-reaching and global. They relate to us anytime and anywhere, the world cannot imagine almost no credit cards, telephones, television, computers and the like.

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THE TECHNOLOGY START-UP SCENE IN SLOVAKIA: NO WOMAN'S LAND?

Janka Kottulová – Ľudmila Mitková

Abstract

Low representation of women on the technological start-up scene is broadly addressed by both academics and policy makers. While academics focus on analysing the different causes of this phenomenon (varying from gender differences in abilities and behaviour patterns, through the role of education to the gender biased funding and support mechanisms, etc.), policy makers call for the better use of talents of the ever-increasing pool of highly qualified women. This paper contributes to this discussion by providing evidence from Slovakia. To collect this evidence analysis of the web-sites of the main start-up initiatives was carried out to investigate the level and forms of women's involvement in the Slovak start-up scene. Additionally, state funded programmes and tools promoting technologically oriented start-ups were evaluated to explore their potential to encourage or hinder higher participation of women in this type of entrepreneurial activities. The outcomes of the research confirmed assumption about low entrepreneurial activity of women in the technologically oriented start-ups and revealed mostly gender neutral (if not gender blind) character of existing funding and support measures. The last part of the paper therefore formulates a set of recommendations on how to make these measures more gender-inclusive.

Key words: technological entrepreneurship, gender equality, start-ups

JEL Code: M13, J16, L26

Introduction

Start-up culture has been booming in the region of East-Central Europe over the last few years. Technological entrepreneurship is believed to become one of the main boosters of the economic growth and therefore given a lot of attention by both business community and public sector policy makers. Number of support measures has been introduced to encourage the start-ups

creation and further growth of technological entrepreneurship. But while increasing the number of female entrepreneurs in general is already an accepted policy goal getting more women into technological start-ups does not seem to be high on the policy agenda. This “gender blind” approach bears two potential risks: it can foster the gender segregation and widen the gender gaps in the labour market and, as women’s educational achievements are growing, result in the loss of substantial economic potential.

This paper therefore aims to explore the level and forms of women’s involvement in the Slovak start-up scene and to find out how various funding and support measures promoting technologically oriented start-ups encourage or hinder higher participation of women in this type of entrepreneurial activities. The analysis will be centred around the several key topics as identified in the literature and briefly described below.

First, the article will focus on the specifics of female start-ups demographics. Women are not only less represented among the start-uppers, they also focus on different business opportunities. This is conditioned by their different educational and occupational backgrounds but can also be related to different motivations women have when setting up the businesses. Gender segregation patterns can be observed in the start-up scene: when women enter the technology sector they are more visible in the “soft” high-technology sectors like software publishing, computer systems design services, management and consulting services rather than in the very-high-technology manufacturing sectors (Dautzenberg, 2012, Mayer, 2006).

Another key issue broadly discussed in the relation to female underrepresentation in the technological start-ups entrepreneurship is an access to finance. Several studies suggest that female entrepreneurs face more obstacles in access to capital than men. Women tend to acquire less external equity sources such as angel investments or venture capital, which can be related to investors’ preference for the investments in certain sectors on one side and higher risk aversion and stronger preference women have for maintaining the control of their firm on the other (Coleman & Robb, 2006). Women are also often confronted with the lack of trust from the investors which can be to a high extent related to the persistence of gender stereotypes and discrimination. E. g. Bigelow and Parks (2014) report that investors are willing to invest considerably more in male-led firms than in the ones led by women. Finally provision of funding depends on those who decide about its distribution and these are mostly men, especially in the venture capital industry.

Besides the financial tools the whole range of non-financial support measures is used to encourage the creation of innovative start-ups: these are mostly provided by business accelerators and incubators and include services such as office space, business advice and training, introducing to potential investors, technical support or assistance in building up a start-up team etc. (Roštárová, 2015). The findings of Dahlstrand and Politis (2013) suggest that this type of start-ups support might be effective in its general goal but does not show any evidence of being able to decrease gender gap in the technological entrepreneurship. On the other hand McAdam and Marlow (2010) argue that non-financial support measures such as networking events and business incubators can help women gain the access to male networks and get familiar with “male” way of business thinking which might help them to succeed in the male dominated start up scene.

1 Women on the start-up scene in Slovakia: hardly visible and unexplored?

Before focusing on the participation of women in Slovak start-up scene, a brief look on their representation among the entrepreneurs in general might be useful. Slovakia has one of the lowest entrepreneurial activity of women among the EU countries. Only 29.1 % of Slovak SME's were owned by women in 2014 and women constituted for only 28.3 % of Slovak entrepreneurs in total (SBA, 2015). Women dominate among the entrepreneurs in the health, social work and education sectors, and represent also relatively high share of entrepreneurs in other services sectors. They are strongly underrepresented in the sectors such as construction and transportation and constitute approximately 20% of entrepreneurs in the ICT and manufacturing sector (European Commission, 2014). Women show considerably lower early stage entrepreneurial activity than men. Only 7.4 % of women in the age between 18 and 64 compared to 14.4 % of men in this age group were early stage entrepreneurs in 2014 according to Pilková et al (2015).

If we focus on the start-up scene, the picture is even less optimistic for women. KPMG Slovak Start-up Survey (2014) describes the typical Slovak “start-upper” as a young graduate of technological or business oriented school and, unsurprisingly, man. Start-ups are mostly set up by younger people (79 % between 25-34 years) with at least master degree (79 %) in computer science and/or business/management (82 %). Only 24 % of the start-ups had a female founder

according to the survey. As the following table shows, other surveys also report low level of representation of women in the Slovak start-ups.

Table 1 Selected studies on female start-uppers in Slovakia

Author	Sample size and method	Main findings
KPMG (2014)	Survey. Information about the sample size and structure is not available.	76 % of start-ups included in the survey were without a female founder.
<u>Kravec (2016)</u>	Survey on 33 start-ups	Only 15 % of the companies in the survey had a woman as a founder or cofounder.
<u>Voitášová (2015)</u>	The review of 125 start-ups registered on the startitup.sk portal	Only 25 (20%) of companies registered on the portal had a woman as a team member. Women were involved as cofounder of the start-up in half of the cases, the rest were involved mostly as PR and communication, marketing or sales managers

Source: Authors

With an aim to contribute to this evidence we reviewed 63 companies shortlisted as finalists for the Start-up Award, the largest and most renowned award for start-up entrepreneurs in Slovakia. Only 8 of the finalists participating in the Award over the five years of its existence had a woman among the cofounders or board members and only in the single case women was the only founder. On the other hand four of these start-ups were awarded a prize in some of the Award categories. Women were involved in the start-ups developing software applications facilitating the learning and communication processes. When they got involved in the “hard” technologies manufacturing they focused on the innovative design (design chandeliers, smart golf clothing) or environmentally friendly technologies (ecological housing). Technologies such as ICT hardware remained the male domain.

Table 2 Awarded start-ups with female cofounder or board member

Name	Product	Web
<u>Speekle</u>	Learning software for children with speech disorders.	www.speekle.sk
<u>InHiro</u>	HR management tool that facilitates the creation and distribution of job offers via social networks and subsequent selection of candidates.	www.inhiro.com
<u>Fosali</u>	Producer of Design chandeliers and luminaires made purely from optic fibres and LED technology	www.fosali.com
<u>Ecocapsule</u>	Compact mobile home which can enable off-grid living under specific conditions and in specific environments.	www.ecocapsule.sk

Source: Authors based on the data from startupwards.sk and companies websites

The Start-up Awards helps us to illustrate another problem of the (not only Slovak) start up scene: very low visibility of women in the whole start-up ecosystem. The Award jury, consisting of the renowned start up supporters and investors, included only one woman in the each of the last four years and was completely male dominated during the first year. Only one woman was invited as a speaker during the five years of the award existence.

Similar pattern can be followed in other events and initiatives. However there are reasons for the cautious optimism: Some of the start-up initiatives have a number of women in their mentors and advisors teams and organise the activities for women start-uppers (see e. g. impacthub.sk). Media (both sector specific and general) started to play more active role in the promotion of female start-uppers and helped to raise their visibility over the last two years.

Hopefully, higher visibility of the role models could help to unlock the potential that Slovak start up scene could find in girls and women and that could be higher in Slovakia than in many other countries for two reasons: first there are more women than men graduating in business and economics and second, there is high share of women among the STEM graduates.

The start-up survey (KPMG, 2014) shows that majority of start-up entrepreneurs in Slovakia have IT or business education. Women are strongly underrepresented among the IT graduates (Szapuová et al, 2013) but they dominate in business schools (more than 68 % of graduates in management and economics were women in 2014 according to the statistics of UIPS). One of the possible explanations why this is not reflected in their higher entrepreneurial activity might be that the majority of start-ups is established by two or more (KPMG, 2014) persons and we might assume that number of teams combines both types of expertise: one member brings in

technological and other business know-how and they use informal networking to set up the team.

As for the STEM graduates, the share of women is above the EU average in all fields excluding the IT, were only 13 % of graduates, compared to 21 % in EU were women. 28 % of graduates in engineering were women, which is slightly above the EU average. On the other hand 63 % of graduates in life sciences, 43 % in physical sciences and 48 % in mathematics and statistics were women. Slovakia is also one of the EU countries with the highest proportion of women in R&D with over 40 % in the long term (all information from European Commission, 2016). While the ICT and engineering offer the possibilities for faster commercial exploitation of research, other STEM disciplines with higher share of basic research could bring even more promising business ideas in the long run. And female researchers could help to bring them to the market. This should not be overlooked by the policy makers.

2 Start-up and women entrepreneurship support in Slovakia: parallel tracks divided by the wall?

Several public sector programmes and initiatives focusing on both start-ups and women entrepreneurs exist. However, as the following text will show there are no interconnections between them and possible synergies are not exploited.

The Slovak start-up support scene consisted of the private and non-profit actors for the long time. The government decided to take a more substantial role in the start-up scene in 2014 when Programme of start up support was introduced by Ministry of Economy of the Slovak republic (MHSR, 2014). The Programme introduces the whole range of non-financial support measures such as counselling, support services and assistance. Comprehensive Concept for Support and Development of start-ups and start-up ecosystem in Slovak Republic was adopted by Government in 2015 (MFSR, 2015). The concept identifies the main problems of the start-up scene in Slovakia, outlines the government's priorities in supporting start up entrepreneurs' activities and introduces set of measures that should contribute to improving the start-up environment in Slovakia. Unfortunately low representation of women did not make it on the list of key issues and not a single mention of attracting more women into start-ups is included in any of these documents.

The state also offers various funding possibilities for start-ups. National Investment and Technology Fund (part of the National Holding Fund) was established to provide the equity and

venture capital for innovative start-up companies. The Fund should support the business ideas in the field of environment, renewable energy sources, industrial innovations, e-commerce, information technologies, telecommunications, life-improving technologies or software solutions. As most private investors search for the ICT based project (KPMG, 2014), the Fund could help to rebalance this and develop the ideas also in other fields, including those where women are more represented. However up to this point only the ICT projects were supported according to the Fund website. Not surprisingly, not a single woman is represented in the management board of the fund. Other funding possibilities include the microfinancing scheme operated by National Holding Fund or investments provided by the Slovakia Business Angels Club (SBA, 2015) which is the association of private business angels established by Slovak Business Agency. No specific granting scheme for women entrepreneurs exists.

The funding tool which is very important as it should not only provide funding directly to businesses but also help developing the investors' ecosystem is the Operational Programme Research and Innovation, funded by the EU Structural Funds. Gender mainstreaming is one of the principles that have to be applied across the Structural Funds, the Programme therefore stresses the need to increase the share of female entrepreneurs. However, it only relates to women as one of disadvantaged groups and does not see them as a potential pool of innovative start-uppers (MERS&S 2014).

Beside the support mechanism for start-ups, programmes and networks supporting female entrepreneurs could have a positive role in increasing the share of women in start-up entrepreneurship. The public sector initiatives are covered by Slovak Business Agency. The Agency runs women's mentors program called Ambassadors in collaboration with Women's platform and organises The Female Entrepreneur of the Year Award. However, despite the fact the same Agency implements the support initiatives for start-ups development, hardly any synergies exist between the two areas of support. E.g. The Female Entrepreneur of the Year Award does not have any specific category which would award technological or innovative entrepreneurs although introducing such category could help to increase the visibility of women in technological entrepreneurship.

Conclusion and recommendations

The map of participation of women in Slovak start-up scene confirms what the numerous studies on this topic describe: women are strongly underrepresented among the start-uppers but

also among those who create the start-up ecosystem. On the same time potential represented by that large group of women graduating in business or STEM disciplines remains unnoticed by those who design policies on start-up support. In order to make the public policies and tools more effective in increasing the participation of women in the technology start-up scene following steps should be taken:

- The scope of programmes and policies supporting female entrepreneurs should shift from addressing women solely as a “disadvantaged group” to perceiving them as an “unexplored talent pool”.
- Synergies among the existing tools and initiatives focusing on start-ups on the one hand and female entrepreneurs on the other should be identified and exploited. This would mean incorporating the technological entrepreneurship in the activities of female entrepreneurs support on the one hand and mainstreaming gender into the start-up support initiatives on the other.
- Publicly funded initiatives should be used to increase the visibility of women on the start-up scene and promote the role models of innovative female entrepreneurs: representation of female speakers should be ensured in all publicly funded start-up events. Specific category for the entrepreneurs in the field of innovative technologies could be introduced within the “Women entrepreneur of the year” award.
- Representation of women in all public bodied supporting start-up entrepreneurs should be ensured (from advisors to board members of venture capital funds co-owned by public sector).
- Mentoring schemes for innovative female entrepreneurs should be developed. Introduction of the funding scheme for innovative female entrepreneurs should be considered. Opportunities provided by Structural Funds of EU could be identified and exploited to develop and test such measures.
- Programmes encouraging the entrepreneurial initiative among the female students especially in STEM and business disciplines should be introduced. Collaboration with existing initiatives should be used to reach the students.

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CREATIVE APPROACH TO THE INNOVATIONS BASED ON THE PRODUCT BENCHMARKING RESULTS

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Abstract

The article is aimed at the creative approach to the innovations based on the product benchmarking results. Benchmarking is the process of comparing the selected company's performance with the performance of the best competitor on the market and using the best practices to improve itself. The use of the benchmarking results brings many benefits to the company, e.g. lowering the costs, improving the quality, improving the products or the functions of it, increasing sales and profits, increasing customers' satisfaction or making better strategic decisions. The crucial issue when using a benchmarking is to utilize its results within the innovation process. It is very important to create an environment in a company which boosts the motivation of the employees in the field of creativity and innovations. Authors present the creative approach to the innovations in form of the Osborn's checklist application when making the product- and process innovations in a particular company. The main objective of the article is to outline the procedure of using creative approach within the innovation process in a particular company (which is based on the product benchmarking results) to improve the product and increase its success on the market.

Key words: innovation, benchmarking, creativity, Osborn's checklist

JEL Code: O31, M10

Introduction

A company has many options to innovate; one of them is to use benchmarking results as a base for the innovations. In the article, we carry out benchmarking to find the best product on the market of pellets and we use the results of benchmarking to outline the innovations. We show the creative approach to the innovations since we present the application of the Osborn's checklist as a creative product improvement technique. The technique was developed by Alex

Osborn and involves the series of words or questions to improve the existing product or service or their attributes.

1 Innovations, creativity and benchmarking – a theoretical framework

The creativity is closely connected with the innovations, as we assume the creativity is the precondition for the innovation. In the next sections of the article, the innovations, creativity and benchmarking process are shortly introduced.

1.1 Innovations and creativity

Innovation has been understood as a fundamental factor in economic growth (Lee, Florida & Gates, 2010). During the last thirty years, innovation has evolved as the synonym for the development of nations, technological progress and driver of business success. Innovation nowadays is not simply the “creation of something new” but also a panacea for the solution of broad range of problems (Kotsemin, Abroskin & Dirk, 2013). Innovations have been considered the main source of the competitive advantage of the companies, fostering innovations remains a major challenge for business executives (Elexa, 2012; Damanpour & Wischnevsky, 2006) and their significance has been researched by many authors, e.g. Klement & Klementová (2015); Lee, Florida & Gates (2010); Churski & Dominiak (2012); Kotsemin, Abroskin & Dirk (2013); Gumusluoglu & Ilsev (2009), Özçelik & Tayma (2004), etc..

Innovation through creativity is an important factor in the success and competitive advantage of organizations (Woodman & Sawyer & Griffin, 1993, in Gumusluoglu & Ilsev, 2009) as well as for a strong economy (Drucker, 1985, in Gumusluoglu & Ilsev, 2009). On the basis of Valgeirsdottir, Onarheim and Gabrielsen (2015), creativity is a critical component that feeds into all stages of innovation and design processes by promoting inspiration, ideation and implementation of ideas, revealing the need for thorough research to support design creativity. As August, Hohl and Platzek (2014) stress, it is undisputed that creativity is a major constituent for the development of innovations. Lee, Florida and Gates (2010) argue that human capital, creativity, and diversity operate jointly in the production of innovation. Innovation itself includes the creativity. According to Godin (2008, in Kotsemin, Abroskin & Dirk, 2013) there are 12 concepts of innovation while one of them is described as human abilities to creative activity and includes innovation as imagination, innovation as ingenuity and innovation as

creativity. There are many definitions of creativity and innovation in the literature and these two terms are closely connected. As Mostafa (2005) claims, the concepts of creativity and innovation are often used interchangeably in the literature. Based on the opinions of multiple authors, a widely accepted definition states that creativity is the production of novel and useful ideas, and innovation is the successful implementation of creative ideas within an organization. Thus, creativity is at the individual level, while innovation is at the organizational level (Amabile, 1983, 1998; Amabile & Conti & Coon & Lazenby & Herron 1996; Oldham & Cummings, 1996, in Gumusluoglu & Ilsev, 2009). The connection between creativity and innovation is evident as the creativity (at the individual level) is the base for the innovation (at the organizational level). It is the creative performance of all employees which provides the material for innovation. The basic source of innovation is people – employees and their brains, creativity, thoughts and ideas, hence the creativity of employees usually positively influences organizational innovation.

Osborn's checklist belongs, together with SCAMPER, to one of the mostly used checklists for concept development. Osborn's checklist consists of using the groups of questions such as: put to other uses, adapt, modify, magnify, minify, substitute, rearrange and reverse and SCAMPER was derived from Osborn's checklist and it is the acronym of substitute, combine, adapt, modify, put to other uses, eliminate and rearrange.

1.2 Benchmarking

According to Curpan, Nisulescu & Manea (2008), benchmarking comes from geology and has the meaning of reference point, which, situated upon a building is used as a reference point in order to determine the height and the position in the topographic prospecting. Nowadays, in business, it is used with the same purpose: the choice of a reference point in order to assess. The main purpose of using a benchmarking is to improve a company's practices on the basis of adoption the good practices of its competitors (mainly the best one – a benchmark). Jackson (2001) writes about the term benchmark as it was originally used in surveying to denote a mark on a survey peg or stone that acted as a permanent reference point against which the levels of various topographic features can be measured. It has also acquired a more general meaning as a reference or criterion against which something can be measured. The term is also used to denote excellence or a mark of distinction in a product or service. As Curpan, Nisulescu & Manea (2008) write, the process consists in the detailed evaluation and analysis of the

procedures and of the results of some economic entity considered as a pattern (a referential one) having as purpose the adoption of its good practices and the receiving of some results similar with those of the entities which already apply the benchmarking. It is based on the research of the quantity indicators and qualitative analysis of the leader products.

The main point of benchmarking is to discover the performance of the rivals and to strive for the changes in doing the things by the enterprise. An enterprise should adopt the best practices from the best competitor and exceed the results reached by the competitors. The benchmarking could be the base point for the “imovations” as the creation of something new (innovation) plus the imitation of best practices of the others (imitation). When carrying out the benchmarking, the product attributes (criteria) to be compared are set. The paired comparisons are used to find the attribute (criterion) with the greatest importance. As the average importance (v_i) is inappropriate for using, the real value of each attribute (w_i) is counted to be included in the benchmarking process. The formulas are used as follows:

$$CbD = (k_i - \bar{k}_i) * d,$$

$$w_i = v_i + CbD,$$

while: CbD means conversion by deviation and is used to convert the average value of the attribute to the real value of the attribute; k_i means coefficient of importance as it is counted through the paired comparisons; d means deviation and it is calculated as the ratio of the total importance to the sum of coefficients of importance. Next, the benchmarking has to be carried out to search for the best value in each attribute and to find the overall benchmark (product) on the market. The reduced values of importance (a_i), the values of attribute (b_i) and the overall benchmark value (B_j) are used as it is expressed in following formulas:

$$a_{ij} = \frac{x_{i \min}}{x_{ij}} \leq 1 \quad (\text{trend of the value „-“}); \quad a_{ij} = \frac{x_{ij}}{x_{i \max}} \leq 1 \quad (\text{trend of the value „+“});$$

$$b_{ij} = w_i + a_{ij},$$

$$B_j = \sum_{i,j=1}^{m,n} b_{ij}.$$

The procedure of using benchmarking process is the subject of the next section.

2 Creative approach to the innovations based on the product benchmarking results

In this section of the article, we carry out benchmarking and present it in form of simple case study. We use a real Slovak company dealing with the plant biomass for the energy purposes. The name of the company has been removed and replaced by the mark „X” due to the company requirements to protect the sensitive information. The vision of the company is to be a market leader in the field of biomass processing and delivering, especially for energy purposes. The strategic aim of the company is to sell the pellet fuels and briquettes in the particular region of Slovakia as well as on the foreign markets in Italy and Austria. The company is planning to expand its activities and to focus on building of boiler houses for the wooden pellets.

The aim of case study is to carry out product benchmarking in order to assess the product attributes (criteria) and to make the innovations by using the Osborn’s checklist as the creative improvement technique. We compare the product of the company „X” – pellets of the level A1, marked as product 1 – „P1”, with the best competitors on the market, marked as product 2 – „P2”, product 3 – „P3” and product 4 – „P4”. We don’t use the names of the rival products or the brands as we removed the name of the selected company and it would be unfair to compare one unknown product with three clearly marked ones. The attributes we have chosen are as follows: price (€/tonne), heating value (MJ/kg), moisture (%), ash content (%), chemical additives (points – yes/no) and delivery price (euros). As all the products were without chemical additives, we chose not to take them into consideration. For the attributes evaluation we have chosen the information publicly available on internet, as well as our own experiences, measurement and interviews with the responsible persons from the company. Based on the previously mentioned, we summarize the real values of the attributes (Tab. 1).

Table 1 Real values of the attributes

Nr.	Product marking	Price (€/tonne)	Heating value (MJ/kg)	Moisture (%)	Ash content (%)	Delivery price (€)
1.	P1	198	18,5	7,5	0,40	10,00
2.	P2	40	18	8,0	0,70	15,00
3.	P3	220,5	19,5	4,5	0,30	20,00
4.	P4	240	18,5	8,1	0,28	15,00

Source: Own processing.

In order to keep the objectivity, we performed the paired comparisons based on opinions of three customers and regardless the products at the same time. The particular scoring matrices were summarized and the placings was made. Counting the particular scoring matrices coefficients (k_i), we found out that the purchasing price of the pellets is the attribute with the greater importance. The placings is following: purchasing price of the pellets, heating value, delivery price, moisture and ash content. After we had executed the paired comparisons, we set the real importance of the attributes and carried out the benchmarking itself. As the average performance of the attributes would be inappropriate for using in benchmarking, we must have converted it to the real importance by means of deviation (conversion by deviation - CbD). We counted the real importance of attributes (w_i) by combining the average performance (\bar{Ov}_i) with the sum of the conversion by deviation, as it is shown in the table (Tab. 2).

Table 2 Setting the real importance of the attributes

Nr.	Attribute	\bar{Ov}_i	k_i	CbD	w_i
1.	Purchasing price	20	10	13,32	33,32
2.	Heating value	20	6	0	20
3.	Delivery price	20	6	0	20
4.	Moisture	20	5	-3,33	16,67
5.	Ash content	20	3	-9,99	10,01
	In total	100	30	0	100

Source: Own processing.

In the process of benchmarking itself, we used the real values of the products' attributes and search for the best value in each attribute (and consequently an overall benchmark on the market – in the limited conditions). We carry out the process of benchmarking by using the best value method, as it is shown in the Tab. 3.

Table 3 Product benchmarking by using the best value method

Nr.	Attribute	Unit	Trend	w	P1	P2	P3	P4
1.	Purchasing price	€/tonne	-	33,32	x = 198 a = 1 b = 33,3	x = 240 a = 0,83 b = 27,7	x = 220,5 a = 0,90 b = 29,9	x = 240 a = 0,83 b = 27,7
2.	Heating value	MJ/kg	+	20	x = 18,5 a = 0,95 b = 19,0	x = 18,0 a = 0,92 b = 18,4	x = 19,5 a = 1 b = 20,0	x = 18,5 a = 0,95 b = 19,0
3.	Delivery price	€	-	20	x = 10 a = 1 b = 20,0	x = 15 a = 0,67 b = 13,4	x = 20 a = 0,5 b = 10,0	x = 15 a = 0,67 b = 13,4
4.	Moisture	%	-	16,67	x = 7,5 a = 0,6 b = 10,0	x = 8 a = 0,56 b = 9,3	x = 4,5 a = 1 b = 16,7	x = 8,1 a = 0,56 b = 9,3

5.	Ash content	%	-	10,01	x = 0,40 a = 0,7 b = 7,0	x = 0,70 a = 0,4 b = 4,0	x = 0,30 a = 0,93 b = 9,3	x = 0,28 a = 1 b = 10,0
	In total			100	$\sum b = 89,3$	$\sum b = 72,8$	$\sum b = 85,9$	$\sum b = 79,4$
	Placings				1.	4.	2.	3.

Source: Own processing.

As implied from the table 3, the final placings of products on the market is following: P1, P3, P4 and P2. Even though the product P1 (the product of the company „X”) was placed as a leader on the market, there is still a lot of options to innovate it. The main attribute for innovation of “our” product P1 should be heating value and moisture. The result of the innovation should be an improved product (its main characteristics and technical specifications) as well as an improved production process (the increase in the efficiency, the improvement of quality and the delivery systems). The company „X” should be focused on the product innovation in order to build and maintain the market share, to increase the profitability and to ensure its competitiveness on the market. The moisture of the sawdust used for the pellets production should be reduced. This simple innovation could be performed as a small organizational change – by adjustment of technological procedure for sawdust desiccation. One of the options could be an increase in the amount of production machines as well as an increase in the amount of employees. The company should reassess the quality of wood for the pellets production. In order to increase the heating value, the sawdust from hard wood would be the best appropriate (instead of that one made from the soft wood). A new suppliers’ survey should be made, so the new opportunities of wood supplies (of better quality) can be found. The company has its own wood desiccators, therefore it’s almost inexpensive to ensure the increasing wood/sawdust moisture before the process of the compressing.

The creative ability is the precondition for the innovations. In order to improve the creative abilities of the employees, company can use the Osborn’s checklist as the creative improvement technique. This can be carried out as the brainstorming session or at the end of the brainstorming exercise in order to increase the flow of ideas. It is the form of vertical thinking, as the person builds on the ideas already generated, i.e. chooses the idea and asks the questions from Osborn’s checklist. The questions are arranged in the groups: adaptation, modification, magnification, minimization, substitution, rearrangement and reversion, combination. Based on the benchmarking results, we try to show the options for innovations of the product (pellets) and use the Osborn’s checklist to improve the product’s attributes. Using the questions from

„*adaptation*”, the company can cooperate with the research and development centres in order to adapt the proportion of wooden chips (better proportion of hard wood and soft wood). This could cause the decrease of the cost and the maintenance of the product quality features at the same time. Answering the questions from „*modification*”, the company can improve the location of the biomass storehouse, which is placed below the shelter now. The biomass absorbs the moisture which implies increased cost and desiccation time in the production process. Building the appropriate and covered storehouse would help increase the efficiency of the production process itself. The modification should be focused on the production staff training in order to eliminate the downtimes caused by improper handling of the production line. This should be concerning the motivation system in order to increase the quality of work conditions. Making use of „*magnification*”, company should invest in the efficient and powerful production equipment. This can increase the sales and amount of customers. It would be appropriate to realize a market research regarding the heating machines – ovens for wooden chips for the households. According to available information, we assume that many households have no heating machines – ovens for burning the pellets or briquettes. Widening (magnifying) the range of products by adding new heating machines – ovens can improve the market position of the company. In the case of „*minimization*” of the product, we don’t expect any changes in the production process as it would be inappropriate. There is no possibility to minimize (eliminate) the products parts or the amount of the parts. Company can reduce/minimize the production time. Many problems arise by inappropriate training of the employees, which consequently causes temporary shutdowns of the production machines. An appropriate system of trainings and courses would lead to increasing the downtimes caused by production line shutdowns. When answering the questions from “*substitution*”, company decided to start using the renewable energy resources. Renewable energy resources are not the competitors of the conventional ones as the cost for starting the operations is high, influenced by increased investments. The most promising and advantageous in that field is a biomass, which has been already used by a company as a tool of increasing the efficiency of the production process. From this reason, we don’t recommend to search for any substitutes in that field. There is, at the same time, no assumption that some components will be replaced by others, just the usage of the most quality wooden chips. In the production process itself, there is minimal amount of the elements and so there is no possibility to replace them by the other elements. Answering the

other questions („*rearrangement*” and „*combination*”) from Osborn’s checklist is pointless as the production line for pellets has its own arrangement which cannot be changed and the actual production line has been in the operation since 2015 so there is no intention to change or combine it.

Conclusion

The company striving for success must take into consideration that the best condition for the competitiveness is the preparedness to respond promptly to any change on the market. One of the options in order to achieve the results and improve the market position is benchmarking. According to the theory and based on the previous results from benchmarking and using the Osborn’s checklist, we can recommend the innovations as follows. A company „X” should be focused on decreasing the material costs – reassessing the suppliers of the materials needed in the production process, eliminating the downtimes connected with the production line shutdowns, orientation on the social development in the company – e.g. building the appropriate motivational system, training and education of employees as well as their support in this field, increasing the range of the products – the heating machines (ovens), building the appropriate storehouse, building the relationships between the company and the partners (research and development centres, departments etc.). This is the way to meet or exceed the customers’ requirements, satisfy them, to catch up with the competitors and succeed.

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ASSESSMENT OF THE DEGREE OF INVOLVEMENT IN THE IMPLEMENTATION OF THE COLLECTIVE ENTERPRISE DEVELOPMENT STRATEGY

Marina Krasnova – Marina Zemskova – Karina Nazvanova

Abstract

The article deals with the factors affecting the involvement of the modern organization employees of all hierarchical levels in the implementation of the enterprise development strategy. There were determined the roles of the employees (officials, managers, specialists of the initial echelon) and the ways of realizing their activities in the increase of the results at the enterprise being analyzed.

The paper represents the primary assessment of the company workers' interest in implementing the company strategy. The assessment is based on the results of the surveys. There were analyzed such aspects as the correspondence of the team's idea of the company development perspectives and the strategy being implemented, the degree of the coincidence of the company mission and the goal of an individual employee, their coordination. There were described the realized at the enterprise measures (according to the assessment of the measures assumed) aimed at forming such skills which will enable the workers to effectively fulfil the plans of the company development and successfully solve business problems (the correction of personal actions within the limits of the formulated mission, a wide application of various types of visualization in the process of delivering business messages to the colleagues, the use of the methods of emotional involving the subordinates in the company development process).

Key words: enterprise development strategy, personnel involvement

JEL Code: D 79, M14

Introduction

In order to achieve a commercial success in the present-day environment a company has to plan the strategy of its innovation development. It is aimed at searching and applying the innovative

solutions of the problems being settled and the new methods of activities which raise the enterprise competitiveness on the market.

Nowadays a high effectiveness of the company activity depends not so much on the manager's ability to foresee the future and assess the possible risks but mostly on the ability to make the employees understand the main idea of the generated strategy, or more exactly, on the ability to involve all the workers in the realization of the chosen strategy. The manager's knowledge how to unite the efforts of different people having their own opinion, ambitions, aims and to use their talents enables to achieve good results.

1 Research methodology

The company management spends much time, finance and forces on drawing the strategic plan of the enterprise innovative development. This process is long and laborious. The officials may be diverted from the current problems. They have to find compromise solutions for implementing some future ideas, to make up a set of alternative solutions in case when risky situations arise, etc.

The result of this process is the document which is the foundation of the further company development for the next 3-5 years. But very often the content of this document is not put into effect and remains on paper. One of the reasons for such a situation is that the company personnel is not interested in the development plans drawn by the management of the enterprise. Problem of personnel loyalty and formation of commitment to the enterprise development strategy are being studied by many foreign scientists for decades. Elton Mayo can be called the forefather of the research in the area of assessment of the impact of corporate culture on professional activity. He organized a series of experiments at "Western Electrics" factory during the period 1924-1932, named afterwards the Hawthorne experiment, with the aim of studying the influence of various factors (conditions and organization of work, salary, interpersonal relations and leadership style) on increasing productivity at industrial enterprise. Phenomenological and rational-pragmatic approaches to research of corporate culture are being pointed out among modern ones. Their representatives are K. Gold, A. Jackus, A. Cromby, D. Eldridge, S. Robbins, A. Shine and others. R. Sheridan J.A. Chatman made a noticeable contribution to assessment of correlation measurements of corporate culture. In order to analyze the individual values C.W. Crave theory of spiral dynamics of thinking and D. Beck & Ch.C. Cowan theory of dominant modes of personal thinking are used in respect to organizations and

individuals. Relationship between involvement in the labor process and the level of productivity of professional activity were being performed by american scientists J.H. Morris and D.J. Sherman in 60-80's of the last century, and also by soviet economist M. Moshensky. D. Howden is one of the famous contemporary scientists in the process of involvement. Also important is the contribution of followers of attitude theory and dispositional personal concept of V. Yadov to study of the problem of personnel motivation and their availability to certain behavior. Also not without interest is V. Gerchikov typological model of labor motivation, according to which were identified the basic rules of application of incentive systems for employees with differences by type of labor motivation. Certainly there were named not all the authors who study various aspects related to formation of personnel loyalty to enterprise development strategy, of its involvement in development as it is under the permanent influence of many factors and great potential for research (V. Kharsky, T. Solomanidina, Yu. Vershilo, J. Clifford, I. Hellevig, D. Howden and others).

Modern tendencies in the study of personnel involvement and its effects on various characteristics of a company activity are conducted by the leading research agencies and consultants in the field of organization development (Great Place to Work Institute, Hewitt Associates, Towers Watson, Gallup Inc. and others). Every single of them explains the meaning of "involvement" on the basis of the evaluated by the company factors.

Thus, Great Place to Work Institute conducts a survey called "Trust Index" which evaluate the rate of trust, pride and camaraderie in company working atmosphere. Also, Culture Audit is held for determining the main tricks inspiring company employees to maximum work involvement (M.Burchell, J. Robin "The Great Workplace: How to Build it, How to Keep it, and Why it Matters"). Hewitt Associates believes that the main indicators of involvement are the following: how positive an employee speak about the company with colleagues, potential employees and customers, how much an employee want to stay in the company and want to be its part, how much an employee makes extra efforts to contribute the company's success. Leaders of companies should put an emphasis upon the issues, which deals with current needs and problems of employees. As key ensuring instruments of personnel involvement they see the following: improving of prosperity, creation of productive working environment and redefinition of desired management behavior. Gallup Inc. pointed out 4 measures of personnel involvement which are reflected in 12 questions: basic needs (2 questions), management

support (4 questions), teamwork (4 questions), growth (2 questions), and correlate with labor productivity, customer loyalty and sales growth. Then all the ratings of these 12 questions are combined into index which can be used for division of employees onto three categories: involved personnel, noninvolved personnel and active “deactivated” personnel.

While using western methodologies of assessment of personnel involvement Russian companies come across the paradox when the index involvement rate of their personnel is higher than in western companies. This fact often misleads Russian employer convincing him of the high level of personnel commitment. They don't take into account a number of psychological and cultural features of Russian employees. High power distance under the pressure of patriarchal culture when the employees can not afford to criticize the leaders of their company and inability of giving the constructive reaction during the surveys are the most significant ones.

Taking into account all above mentioned features of Russian citizens mentality we offer another approach of assessment of the degree of involvement in the implementation of the collective enterprise development strategy. Since the straw poll does not allow employees to convey constructive feedback, we used indirect instruments of its production, in particular the observation of external experts. On the business meetings they filled the forms listed below on the workers' interaction.

The mission of the paper is to determine the significance of assessing the level of the employees' involvement in the company strategy, to systematize the tools of involving the staff in implementing the strategy of the enterprise innovative development and to justify the practical significance of controlling the level of the company personnel involvement.

In our research the staff involvement in the strategy implementation is interpreted as a moral and psychological, motivational and physical state of the enterprise team members which determines the degree of the staff participation in drawing, correcting and implementing the development strategy.

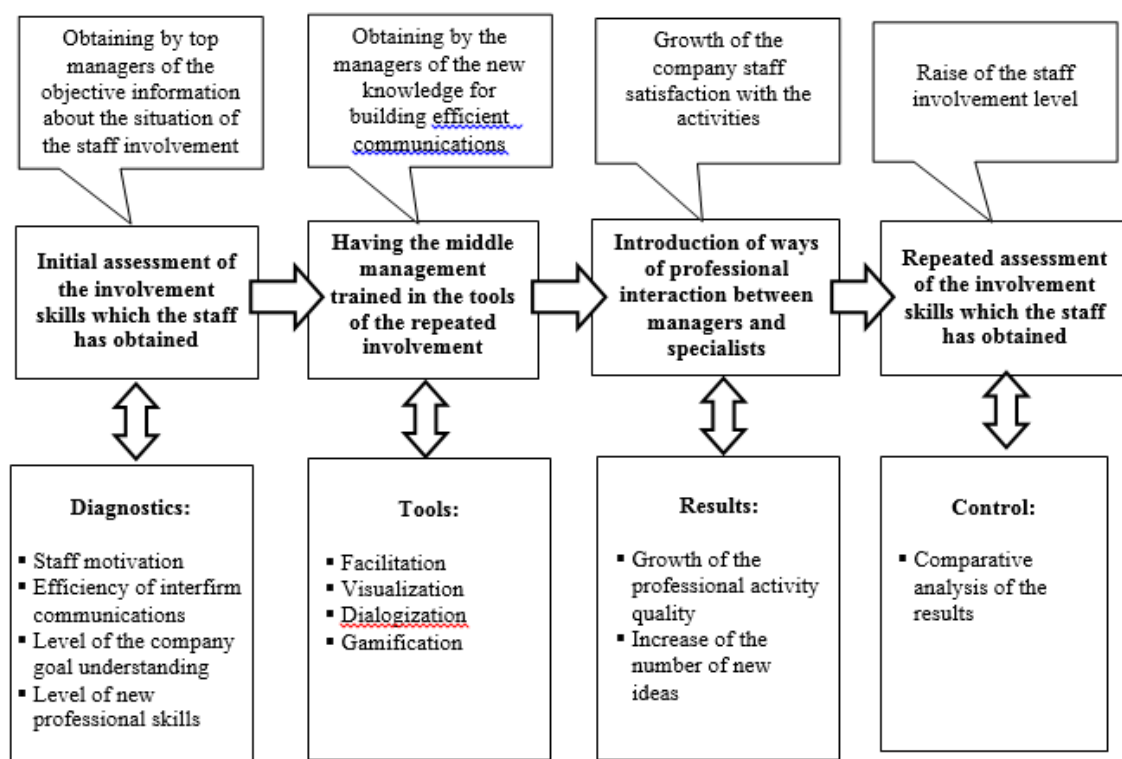
The workers' interest in implementing the projects is directly connected with the level of their motivation whose limits define the dependence of an employee's contribution on the reward size. This implies the possibility of promotion, creative realization, training, implementation of innovation proposals. Due to this process each member of the staff can have the feeling of his significance, responsibility for the result, stimulate the initiative, search and application of the

new methods increasing the employees' satisfaction. Understanding of your contribution and the feeling of your participation in achieving some common goal are among the strongest stimulie encouraging the activity.

2 Model of studying the staff involvement in the general enterprise strategy

The assessment of the staff involvement in implementing the enterprise development strategy was carried out in several stages which are given on scheme 1.

Figure 1 Model of studying the staff involvement in the general enterprise strategy



Source: author

At the first stage there were solved the problem of diagnosing the initial level of the staff involvement in the implementation of the company new plans and the problem of drawing up a program for improving the level with the company staff.

At the second level there were found the means of increasing the level of the staff interest. The middle management was trained to use the methods of the repeated staff involvement (such as facilitation, visualization, dialogization, gamification and others).

At the third stage of creating the company staff involvement in the enterprise strategy implementation the managers included into their activities new means of interaction in the team paying special attention to the dynamics of the staff satisfaction with the professional activities. The fourth stage consisted of summarizing the data obtained and assessing the efficiency of the tools used.

The model approbation was carried out on the premises of “Megatorg”, one of the largest trading centers in Vladimir region. The Company has been developing successfully for more than 11 years. The main areas of the Company activities are the development and management of the commercial capital facilities. To be a success in the realization of its activity the enterprise tries to find and use the most optimal and modern methods including the actual means of involving the employees in their professional activities. The Company conducts the policy of changing the strategy of its development trying to ultimately attract the staff to the realization of the policy. In order to get the objective comprehension of the staff involvement in the professional activities and of the dynamics in the course of applying the new methods by the managers interacting with the subordinates, there was carried out the assessment of the involvement of the personnel in the development strategy. 284 people of the Company staff (7 top managers, 16 managers, 161 specialists) took part in the polling. This approach is rather simple and informative in use and can be utilized by the majority of the commercial structures.

3 Research results

In order to find the criteria of the staff involvement in the strategy of innovation development there was carried out a discriminant analysis. Diagnosed indicators of the motivational sphere were taken as the criteria (G.Rotter’s methodology “The definition of the rate of motivating a success”), observation and diagnostics with the use of Minnesota polling.

The results of the diagnostics showed that a great part of employees needs the external stimulation to the activities. They can work only with the tasks set by the management. They do not make their own decisions. They need support and approval, otherwise they work worse. The other part of the personnel is characterized by the wish to acquire some new knowledge, the drive for self-development, self-actualization in profession. The analysis of the job satisfaction components demonstrates a low level of satisfaction with the work done, the admission of the necessity to upgrade professional skills, to change the company policy, to have a fair remuneration of labor. The analysis also showed that the employees are satisfied with the

facts that there exist the guarantees of having a stable occupation, possibilities to use professional skills, to be in charge of the people, to improve the ways of performance. There is also a satisfaction with independence, style of leadership, management competence, the variety of tasks, labor conditions.

In order to give a general assessment of the rate of the staff involvement in implementing the development strategy there was held the anonymous polling of the company employees. It was done in accordance with the authorized methodology and in the following areas: identification of the level of knowledge about the involvement in fulfilling the company plans, synergetic foundations of professional interaction, revealing the experience of applying organizational forms and methods stirring up the staff professional activity.

As the contribution of each of the respondents to implementing business processes of the enterprise is different, the questions which the respondents were asked gave every employee the possibility to assess the work done at various levels of the company hierarchy. The workers were offered to assess the activities by the 5-grade scale where 5 grades is an excellent level of activity, 4 grades is a sufficient level, 3 grades is a satisfactory level, 2 grades is a low level and, if there are no activities, it is equal to one grade. The interview was conducted in the areas, such as the system of forming the general understanding of the staff about the company potential goals; availability of the process aimed at coordinating the staff activity and the company goals; the arrangement of new skills development for the subordinates in the limits of the admitted strategy.

The work of the managers was analyzed from the point of view of: the correspondence of the company plans with the specific missions, new tasks, priorities with applying the urgent methods work standards, the arrangement of discussing disputable decisions, etc; of the coordination of interaction between your division and other departments; of the correspondence of the labor hours with the volume of the problems raised; of the uniform distribution of the problems among the employees taking into account the participation of everybody in the company development; of motivating and increasing the level of the subordinates' interest; of finding an optimal solution with different opinions in the team.

The activity of average executives was analyzed by such factors as: the availability of the necessary equipment and materials; the ability to plan their work and due to that to do the assigned tasks timely; realization of professional and open relations with the colleagues; the

desire for obtaining and analyzing the information about the company, its competitors, external trends, etc; the correspondence between the assigned task, the personal professional interests and the company goals; the degree of the subordinate participation in making important decisions connected with his responsibilities, goals, work methods; fair estimate of your own and your colleagues' results of work.

The efficiency of the company activity on the implementation of the chosen strategy was also analyzed by the process of coordinating the aims of some individual employee or department with the general goals of the company. The matter is that very often the company employees have to make their own decisions which must correspond to the idea of the enterprise development. The research carried out in 2014 and 2015 resulted in data which were later arranged in the blocks by the polling zones. The results are presented in Table1, 2, 3:

Table 1 The assessment of the top manager activity in the area of involving the staff in the strategy

The subject of the questions block	Score	
	2014	2015
The system of achieving the general understanding of the potential enterprise goals	1,7	3,9
The system of concurrence and formulation of the goals	3,1	4,6
The organization of training new skills in the limits of the accepted strategy.	3,9	4,8

Source: study of the authors of this article

Table 2 The assessment of the middle management activities in the area of involving the staff in the strategy

The subject of the questions block	Score	
	2014	2015.
Interpretation of the potential enterprise goals to the staff	2,8	4,1
Implementation of the process of coordination between the staff activity and the company goals	2,2	3,7
Training the subordinates new skills within the accepted strategy and motivating them to further apply these skills	3,5	4,3

Source: study of the authors of this article

Table 3 The assessment of the average executive involvement in the strategy

The subject of the questions block	Score	
	2014	2015
Understanding the potential company goals, areas of its development, the system of the staff activity.	1,3	3,6
Concurrence of people's own efforts and strategic goals of the company	2,1	3,3
Application and development of the skills required for the strategy implementation	2,4	4,7

Source: study of the authors of this article

The results of the first stage research (2014) showed that the process of transmitting the information about the aims of the company in a popular form is not functioning at the company. Most employees apprehend this information as the data for an acquaintance and stay with their own understanding of the company potential. The officials serve the interests of their departments rather than the general strategy interests preserving their significance. This situation results in the occurrence of the plans contradicting the proposals of other team members. The competition is going on within the enterprise and this decreases its competitiveness in the external environment. The development of the staff abilities is at a low level and the gained knowledge is applied rarely. This factor is also reducing the possibility of a successful realization of the company strategy.

The foundation of the actual solution of the strategic problems is the creation by the officials such environment in which the subordinates could realize the necessity of changes. It is necessary to create such conditions under which every team member feels as if he is the integral part of the general idea, realizes his significance and has a stimulus to suggest something new for the company activity. An employee having some definite job starts feeling his significance, his participation in the common business when his ideas are accepted, discussed and analyzed, when his opinion on professional problems is respected and when his proposals are rejected only reasonably.

The stimulus of changing and improving the company activity in the process of implementing the strategy is the modification interaction methods. In this case a dialog becomes a rather important form of communication. It enables to find the optimal means of doing intermediate tasks, stimulates the search for new ideas, to reveal hidden possibilities, to see invisible barriers. Another important aspect of attracting the company employees to the implementation of the enterprise strategy is visualization, i.e. the creation of visual patterns and the ways of managing them. Meanwhile, it is necessary to keep to some terms. In order to be resultative the aim must have a positive character, maximum specific features with the fixed date of implementation. The goal must be brightly colored. Particularly, there were introduced different visualization tools for facilitation of business information and problem-solving process at LLC “Megatorg”: SWON-analysis, “Road map”, Heijunka box, Moodboard and etc.

To attract the employees and raise their involvement in the new areas of the company activities, their interest to solve the required problems we used gamification, i.e. the use of approaches

typical for computer games, game thinking in non-game professional activity. The games help the employees better understand their aims and tasks, solve the problem faster and more efficient and without extra management. Gamification is based on the principles of the immediate feedback. A big goal is divided into a great number of small goals; a worker always notices even a little progress. The company started out the game “Creditable rating” the main goal of which is creation of database of useful tips from employees in the form of creative video clips; “Dearheart contest” is held for giving the employees extra bonus who have shown mutual assistance when solving business problems of their colleagues and others.

One of the most efficient means enabling to control the process of implementing the strategy is the use of facilitation by the managers of the company who work closely with the subordinates. Such methods help the employees do their job and minimize the common problems which they face during their joint work. Facilitation makes the process of accepting new ideas less antagonistic. It is more efficient to have an internal facilitator who is a company worker and there is no need to explain him the specific character of the problems occurred. The employee assuming these responsibilities can be paid less than some outside representative. There were introduced facilitation techniques at the enterprise, which were used at meetings, briefings, current issues discussing: “Brainstorming”, “Medical consultation”, “Polarization of opinions”, “Composition of group agreement”, “Step forward, step back”, “Listening in pairs”, “Speaking in a circle”, “Spectral lines”, “Methods of prioritization” and etc.

In the process of the strategy implementation it is necessary to develop skills and abilities at the company level, those which are required for realizing the accepted strategy. The course of study includes the tutors who are more experienced and possess a wide set of professional methods. They can teach less experienced workers and help to accept innovations.

After the above recommendations for realizing the company business-tasks had been implemented in November, 2015, the recurrent study of involving “Megatorg” workers was done (Tables 1, 2, 3).

The recurrent polling shows that the process of involving employees in implementing the strategy has become more coordinated. The development and application of integrated verbal options, which have no differentiations and contradictions and which are formulated in the language being clear to every worker, simplify the interaction and involvement in the business process. One can notice that the development and support of the changing way of thinking

influence favourably on how the staff understand their goals. This also helps combine the efforts and achieve good results. Having new skills the employees can evaluate the problem from another level (hierarchy, department, colleagues). This enables to get a single assessment of the situation taking into consideration the general perspective.

Conclusion

Thus, the process of the staff involvement under the conditions of transforming the enterprise activity stirs up many hidden resources of the workers and significantly influence on the level of achieving the objectives. Using the available means of involving the personnel in the company strategy, which include the dialog, image visualization, facilitation, gamification, and tutorship, the management enable to optimize the ways of solving intermediate problems, stimulates the search for new ideas, finds the hidden possibilities, reveal the invisible barriers, makes it easier to accept innovations.

Drawing the conclusions about the level of involving the wokers of “Megatorg” in the general strategy of the enterprise, it can be said that the officials have achieved a significant positive dynamics in the formation of the workers’ common understanding of the potential goals of the company. The managers exactly translate the company strategy, the average executives understand the idea and the activities of their enterprise. It should be mentioned that the picture of the general priority goals has appeared at the company. But it is still difficult for the management to oppose not only competitors but also some departments of the company dealing with the goals of their divisions as with the priorities. This fact affects the transformation of the company goals into the applied problems for the departments, and as a result, the average executives fail to understand the urgent areas of activity and their contribution affects the realization of the general company strategy.

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THE INTEGRATION FUNCTIONS OF HUMAN RESOURCES THROUGH REPOSITIONING FOR BUSINESS ADVANTAGE

Laurencia Krismadewi – Kristianus Oktriono

Abstract

The purpose of the study was to determine the effect of Integrating Human Resource Function in Repositioning to attain a competitive advantage in business. The method exerted is descriptive quantitative by using multiple regression. This study analyzed the influence of two independent variables, i.e. human resource development and repositioning of human resources function towards dependent variable, work ethics. The population sample involved about 240 people in the media industry in Indonesia. This study further recounted the complicity of human involvement in the process, company's vigor, and role implementation of human resources. The result expected is the ability in capturing and responding immediately to business dynamic alteration. It, moreover, is intended to transform the enterprise's discernment concerning the role of human resources that originally initiated 'people issues' to 'people related business issues'. The results indicated that human resource development and repositioning leavened positively and significantly on the work ethics of employees. Based on hypothesis testing using a technical regression and significance, it depicted that the two independent variables either jointly or partially impacted positively towards work ethics. It concluded that human resource development contributed a greater influence on the development in the employees' work ethics.

Keywords: development, human resources, management, repositioning, work ethics

JEL Code: J24

Introduction

The development of media industry increasingly fast and rapidly with a variety of changes in the business environment that has a strong influence and affects every aspect of the organization such as added value, complex structure, span of control, management, work groups, process activity and form of communication or the delegation of authority. The

influence of these changes will be demanded of the organization to open up to the business environment integratedly and strategically. In promoting of the change in an organization, it is required to make repositioning of behavior and human resources competencies to enhance the competitive edge in business that is inseparable from their resources. The human resources have become the prime mover and success of business processes in achieving the mission of the company.

The competitive challenges of the company are not only existed at the excellence of the product technology, processes, market and capital regulation, but also on the quality of human resources. The involvements of human resources for the business play prominent role and determine the success of the process of changes in organization because it is an important subject will implement the process of change and the results of it (Moran dan Brightman, 2000)⁵. In supporting the triumph of the company, the indispensable integration of the HR function required i.e. through the practice of HR practices in – business strategy that is meant to empower human resources have in the management of various work units in the company. Human resources involved in the process or activity of the company including human resources knowledge-based worker and range of multiskills. Changes in the business environment will be quickly followed by uncertainty, with many of the major issues are related to human resources, among others the management of human resources to create competence in management of workforce diversity to achieve competitive advantage.

In coping of these issues, the examination for a transformation is entailed in terms of the the role, capability of working, and a novel role for human resources repositioning including the repositioning behavior related to the improvement of human resources initiatives, an exceptional ethics, and repositioning of competence in regard to the improvement of the quality of human resources.

1 Literature Review

The role of human resources function is transforming radically in leading companies, in response to new business challenges and significant opportunities relating to the management of people. Operating unit management required specific and measurable human resources strategies and action plans that meet their business needs and that address overall business strategic thrust (Rubino, 1994)⁶. The illustration of the repositioning process to development

and establishment of the new structure, roles and human resources strategic objectives as follows:



Source: Alan L. Rubino. (1994). Repositioning the Human Resources Function at Hoffmann-LaRoche. HR Planning. ABI/Inform Research. 2(17) (2011) p.45.

According to Gerhart (2008)³, human resources management activities include transactional activities covering a strategic value, a traditional activity that has strategic value because of its moderate activity shaped the practices and systems to guarantee the implementation of strategies. It encompasses performance management, training, recruitment, selection, compensation and employee relations; and activities that creates transformational capabilities and adaptability of the long term for the company that includes knowledge management, management development, culture transformation and strategy to direct back and renewal. The five strategies for human resources i.e strategic staffing, performance management, development and learning, will appraise people and enhance employee's relations in human resources effectiveness. This practice will include work redesign, change management, quality improvement, and other organization development initiatives (Jones, 1996)⁴. The performance of employee is linked to enhance knowledge, skills, positive attitudes, abilities and confidence (Armstrong, 2009). That offers employees an intense way of learning that is suited to their individual needs and thus leads to greater career satisfaction (Zaleska & De Menezes, 2007)¹⁰. The most important outcomes of the repositioning for the human resources function are its improved business orientation (Rubino, 1994)² related ways

- Improved client focus, through operating unit HR plans and value-added corporate services
- Diminished functional barriers within the human resources function, with resulting increased flexibility

- Streamlining of human resources process and development of new capabilities of staff, managers and employees for implementing them effectively
- Increased business knowledge and operating area experience among human resources staff, through rotation of talent and through increased client contact
- Expanded development opportunities within human resources roles through continuous change and greater flexibility

Employee development is becoming an increasingly critical and strategic imperative for organizations in the current business environment (Sheri-Lynne, Parbudyal 2007)⁹. Fundamental changes in the business environment have created the sudden shift of importance of the HR function. These changes include rapid rate of business change; high uncertainty, rising costs; increasing competitive pressure on margins, rapid technological change; increasing demands for new skill through sourcing, education, and retraining, complex organizations; product, geography, technologies, business function, customers/markets, flatter, learner, more flexible organizations, changing demographics, limited labor organizations, responding to external forces: legislation and regulation, litigation, union relations and union avoidance, increasing multinational competition and collaboration; multilateral relationships.

These environmental changes are leading to the acknowledgement by line management that human resources (i.e people) are important to the business and growing uncertainty associated with key human resources issues (Schuler, 1990)⁸.

Companies are beginning to recognize the importance of people to the business's success – human resources issues really “people related business issues” in that influence the essence of the business-profitability, survival, competitiveness, adaptability, and flexibility. There is a growing level of uncertainty surrounding several key human resources concerns that companies can't be certain of a sufficient supply of people, how to attract, retain and motivate an increasingly diverse workforce, getting or having individuals with the right skills, knowledge and abilities, employees behaving in ways necessary for the company to be competitive, domestically and internationally.

The two human resources issues together are transforming how the HR function is regarded, and also how the organizations take action-to transform HR department from functional specialist to a management team player with a business understanding. The transformation of

the HR department to management is impossible without repositioning. The profitability of the business could be threatened by people-related business issues:

- Managing for employee competence. Increasingly, individuals coming into the workforce lack sufficient skills or as employees they become obsolete due to technological advances or organizational changes.
- Managing workforce diversity. This means attracting, retaining, and motivating individuals with diverse and varied backgrounds regarding race, sex, origin, age and language.
- Managing for enhanced competitiveness. A major recognition of organizations today is that success and survival depend upon greater levels of operational today is that success and survival depend upon greater levels of operational and strategic effectiveness efficiency. Broadly, this is being translated into restructuring and downsizing operations, reducing costs of operation, enhancing levels of the quality of goods and services and continuous and systematic innovation of new products and services.
- Managing for globalization. The entire world is the arena for the purchase of goods and services and for manufacturing. This area must be understood and mastered by organizations to compete successfully.

2 Problem Statement

The main objective of the study is to analyze the integration functions of human resources through repositioning for business advantage. The background of the study identifies some highlights i.e. the determination of differentiated qualification in the recruitment process, the training given to incommensurate employees, the employee performance decreased, the high frequency of employees' turnover.

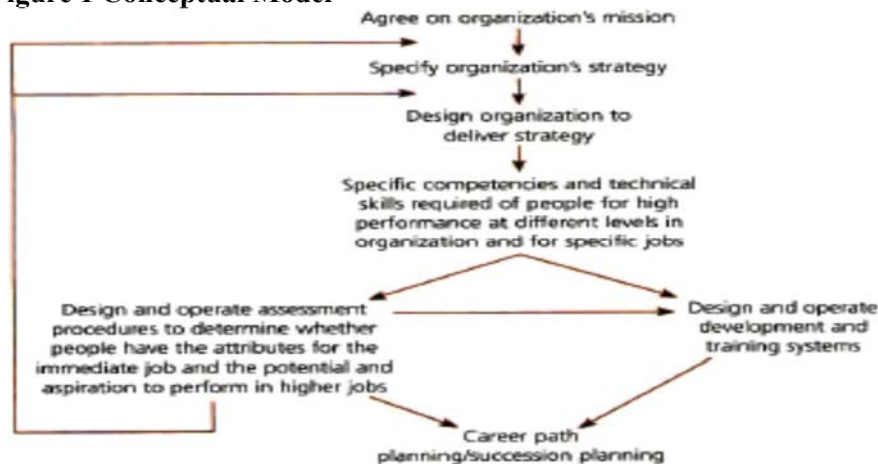
Authors address and formulate three key issues in the study as follows:

- a) Does the integration functions analysis of human resources have a significant effect on work ethics?
- b) Does performance have a significant effect on work ethics?
- c) Does the level of integration functions of human resources and performance affect on work ethics?

3 Conceptual Model

The conceptualization of the linking HR development to organizational strategy integrated with business process is depicted by figure 1.

Figure 1 Conceptual Model

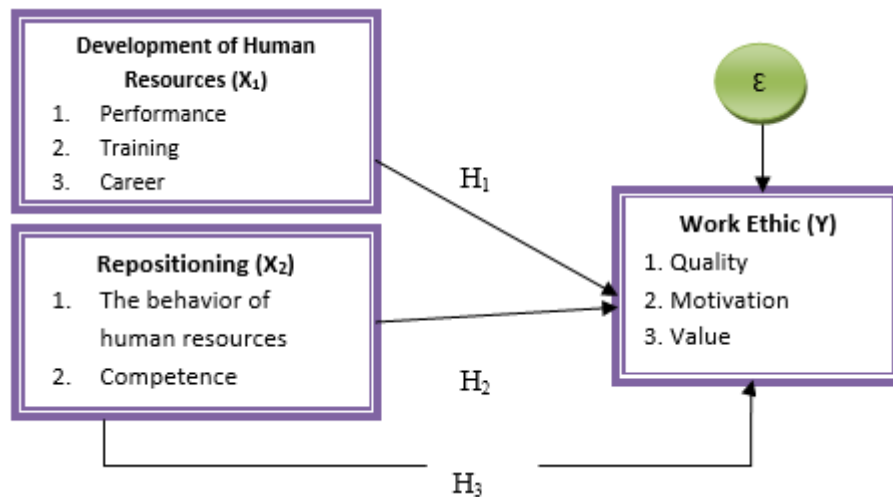


Strategies can only be effectively implemented if organizations hold a competent force of employees (Sanghi, 2009)⁷. An important role in redefining the role of human resources (HR) to the tune of a changing environment with the following model system:

Selection systems	All interviews are looking for the same set of abilities and characteristics
Training and development	It provides a list of behaviors and skills that must be developed to maintain satisfactory levels of performance Training helps to enhance productivity and performance of the associated employees which leads to increase quality of service and ultimately enhance financial performance of the organization (Bhatia, 2006) ² .
Sucession planning	It focuses on the same set of attributes and skills relevant to success on the positions under consideration
Performance management	It clarifies what is expected from the individuals
Appraisal system	It focuses on specific behavior, offering a roadmap for recognition, reward and possible advancement

The successful implementation of business strategies include total quality management, cultural diversity, value management and values for excellence depends largely on effectiveness in addressing people-related issues (Jones, 1996)⁴.

Based on the previous research, this study emphasized more on development of human resources, repositioning and work ethics as below:



4 Research Approach and Proposition

The study involved 240 respondents who work in media industry. The primary data are gathered and assembled through a structured questionnaire. The secondary data for this study are populated from scientific journal, and books which contributed to the literature review. The study proposed:

Hypothesis 1: The development of human resources in media industry in Jakarta has a significant effect on work ethics

Hypothesis 2: Repositioning in media industry in Jakarta has a significant effect on work ethics

Hypothesis 3: The development of human resources and repositioning in media industry in Jakarta affect on work ethics

5 Data Analysis and Findings

The study encompassed work ethics as the dependent variable. The independent variables comprise of development of human resources and repositioning.

Data analysis was performed using Statistical Packages of the Social Science (SPSS). Multiple regression analysis was utilized to determine the relationship between the independent variables and the dependent variable.

The results of data processing using SPSS are based on the following calculation:

Table 1 Analysis of Multiple Linear Regressions

Independent Variable	Regression Coefficient	Beta	t-value	Sig
(Constant)	2.514		8.771	0.000

Development of HR	0.219	0.296	3.907	0.000
Repositioning	0.232	0.271	3.571	0.000
R	0.469			
R Square	0.420			
F	22.168			
Sig F	0.000			

Table 1 depicted that the numbers R obtained 0.469 and it explained the correlation between variables of development of human resources and repositioning on the work ethics is 0.469. It denoted a strong relationship. The R square is also known as the coefficient of determination; to determine the contribution of independent variable (X) simultaneously in explaining the dependent variable (Y) may also indicate a wide. R square indicated the increase or decrease of the dependent variable explained by the linear influence of independent variable. The value of R square of 0.420 means contribution percentage of the influence of development of human resources variables and repositioning on work ethics amounted to 42%, whilst the remaining 58% is influenced by other variables not included in this research model. Test results of F count is 22.168 with 95% confidence level, $\alpha = 5\%$, and obtained value of F-table is 3.04. F calculate $>$ F table ($22.168 > 3.04$). H_0 is rejected, which implied the development of human resources and repositioning collectively influence on work ethics.

Dimensions Correlation

The Influence of Development of Human Resources on Work Ethics

To determine the strength of influence between variable dimensions of Development of Human Resources on work ethics variable which is described by the following matrix?

Table 2 The Correlation Matrix of Development of Human Resources on Work Ethics

Variable	Work Ethics					
Development of Human Resources (X _i)	Dimension	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
	X ₁₁	0.270	0.231	0.120	0.299	0.334
	X ₁₂	0.344	0.141	0.223	0.421	0.348
	X ₁₃	0.464	0.253	0.206	0.342	0.546
	X ₁₄	0.434	0.280	0.419	0.551	0.435
	X ₁₅	0.425	0.219	0.130	0.259	0.231

Description:

X₁₁ = Performance

Y₁ = Job Quality

X₁₂ = Training

Y₂ = Motivation

X₁₃ = Support

Y₃ = Contribution

X₁₄ = Career Information

Y₄ = Opportunity

X₁₅ = Career Needs

Y₅ = Behaviour

Table 2 indicated a weak relationship between performances on contributions in the amount of 0.120. Thus, the influence the assessment of the achievements of the work does not affect significantly on the contribution of employees in the company. Employees' engagement required improvement in management roles by providing the opportunity for employees to involve in the business processes. It provides positive impact for employees that their contribution emphasized an important role. Therefore, it will increase their internal motivation that affects the achievements and productivity of the company.

The greatest value presented on the dimension of the career opportunities is 0.551. This depicted a very strong relationship of information on career opportunities. Work ethics of employees will be increased along with the existence of the opportunity provided by the company. The employees' career embodied career information i.e. career planning and career management that is transparent, equitable and overt. Development and career planning enacted a major role in the part for ensuring that the organization has competitive workforce and knowledgeable.

The Influence of Repositioning on Work Ethics

To determine the strength of influence between variable dimensions of Repositioning on Work ethics variable is described by the following matrix:

Table 3 The Correlation Matrix of Repositioning on Work Ethics

Variable	Work Ethics					
Repositioning (X₂)	Dimension	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
	X ₂₁	0.224	0.341	0.120	0.222	0.290
	X ₂₂	0.310	0.256	0.342	0.411	0.367
	X ₂₃	0.314	0.212	0.227	0.309	0.340
	X ₂₄	0.161	0.227	0.227	0.179	0.143
	X ₂₅	0.339	0.189	0.134	0.284	0.304

Description:

X21 = Knowledge

Y1 = Job Quality

X22 = Skills

Y2 = Motivation

X23 = Technical capability

Y3 = Contribution

X24 = Concept

Y4 = Opportunity

X25 = Relation

Y5= Behaviour

The table 3 revealed a weak relation between knowledge on contributions is 0.120 so it was concluded that the knowledge is not significantly influential on contributions in the company, while the biggest value is presented by the dimension of skills on the chance is 0.411. This means there is a strong relationship between the work ethos on the opportunity that was given to employees for developing their potential and skills. Support from organizations or companies can be realized through the training both internally and externally.

Conclusion

This study has analyzed the influence of two independent variables, i.e. human resource development and repositioning of human resources function towards dependent variable (work ethics) in Jakarta media industry. The main findings on this study are listed below:

Based on the analysis of human resources development and repositioning in a positive and significant, it impacts on work ethics which means human resources development required way of working, thinking and a new role of HR repositioning. It will improve work ethics of employees in the company. The first variable is human resources development that influenced employees positively and significantly on the work ethics of employees, which means that by increasing human resources function, the employees will improve the work ethics. Secondly, repositioning variable that influenced positively and significantly on work ethics of employees, which means that transformation of human resources function i.e. repositioning or behavior will

increase the work ethics. Human resources development variable has a greater influence than repositioning variable.

Based on the analysis of the relationship human resources development and work ethics obtained, it is concluded that career information dimension becomes the dominant factor of work ethics to be improved. Meanwhile, the weak relationship is the performance evaluation of employee to contribution, which can be deduced that the assessment does not significantly influence the contribution or participation of employees.

Based on the correlation analysis of the repositioning and work ethics, it exhibited that skill dimension becomes the dominant factor of employees to be improved. The other analysis results of other dimensions specifically and fairly strong positive affected on work ethics i.e. relation and work quality, motivation and knowledge, skills and contribution, skills and behavior.

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SUPPLY CHAIN COLLABORATION AS AN INNOVATIVE APPROACH OF WAREHOUSE MANAGEMENT: A CASE STUDY

Tomáš Kučera – Jaroslava Hyršlová

Abstract

Supply chain management, especially supply chain collaboration is a very much discussed topic in the field of modern logistics in recent years. Supply chain management is the term for the systems, resources, activities and procedures that are used to coordinate the materials, products, services, finance and information flows from materials suppliers through manufacturers, transporters, warehouses, wholesalers and retailers to consumers. Effective supply chain management is an essential strategy for company success in global and e-markets to get products to market faster and at minimal total costs. Supply chain collaboration is a total coordination and integration function which enables company easier and more effective using of available resources, to successfully reduce total costs, to provide and sustain the sub-contracting relationships. The objective of supply chain collaboration is to achieve sustainable competitive advantage. This paper deals with supply chain collaboration issue as an innovative approach of warehouse management in a case study. The paper shows supply chain collaboration between supplier of logistic services and manufacturer of automotive parts and discusses options which can make a synergy effect in application to practice.

Key words: supply chain management, collaborative initiatives, logistic services, logistic costs

JEL Code: M11, M19

Introduction

The fact that logistics harmonizes material, spatial and temporal differentiation of production and consumption leads to cost savings, decrease in stocks and release of capital and thus to increased efficiency and improved economic results of the company (Sixta and Mačát, 2010). Logistics is a tool for attracting and retaining customers, because it gives them benefits; thereby

it contributes to maintaining or boosting competitiveness of the company and improving its market performance. It is a discipline focused on the overall optimization, coordination and synchronization of all activities throughout the supply chain; supply chain creation and management is essential for flexible and economical achieving the final (synergy) effect (Pernica, 1998). Effective supply chain management is an essential strategy for company success in global and e-markets to get products to market faster and at minimal total costs (Gunasekaran, Lai and Cheng, 2008).

In this paper, attention is paid to broader involvement of external logistic services provider (as one of actors in the supply chain) into the operations of manufacturing company. The provider will continue to carry out not only material handling and storage, but also will be involved in the manufacturing operations of the company. The entire issue is shown on the example of part of the logistic chain in the automotive industry.

1 Theoretical background and methodology

In recent years there are growing efforts for collaboration within supply chain management. A collaborative supply chain means that „two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation” (Simatupang and Sridharan, 2002). Studies show that more than 90% of the surveyed manufacturing companies are already involved in collaborative initiatives, or are preparing to do so in the near future (Hammant, 2011). Surveys confirm that logistic costs represent a significant portion of the product costs in many companies, they are therefore trying to find tools to manage these costs; reengineering of logistic processes is regarded as a basic tool (Christopher, 2005). The main reason for collaboration within the logistic processes are synergy effects resulting from cooperation (Horvath, 2001; Simatupang and Sridharan, 2005; Fawcett, Magnan and McCarter, 2008).

With increasing competition and growing pressure of globalization companies are trying within the supply chain collaboration to transfer part of competencies to the companies that through their expertise and qualified personnel can ensure an effective execution of logistic operations. The structure and behaviour of the logistic chain is based on a requirement to flexibly and efficiently meet the needs of end customers (Sixta and Mačát, 2010). The aim of the collaboration is to save operating costs due to optimization of logistic operations, reduce stocks, minimize capital expenditures and increase labour productivity (Sixta and Mačát, 2010). This

can be achieved by unambiguous definition of responsibilities and the corresponding transfer of information (including instructions and information contributing to control logistic operations in the desired way).

High levels of interconnection, mutual trust and information sharing are key elements for supply chain collaboration (Singh and Power, 2009). If such interconnection occurs, an increase in effectiveness can be achieved (Cruijsen, Dullaert and Joro, 2010). Collaborative initiatives, however, according to some studies do not bring the expected benefits (Fawcett et al., 2012). The main reason is according to Barratt (2004) failing to understand what all collaboration means and what it entails. It is also very difficult to understand the dynamics and complexity of the whole process (Fawcett et al., 2012).

The aim of this paper is to present a case study example of supply chain collaboration. Attention is focused on collaborative initiative in the field of logistic services; it is a broader involvement of logistic services provider (Ewals Cargo Care) into production operations of the company, which manufactures automotive seats (Johnson Controls Automobilové součástky/Johnson Controls Automotive Parts). Focus is on the effects of the collaborative initiative in the use of human resources. Case studies are among the most frequently used methods within the research focused on the implementation of different management approaches into practice of organizations (Hoque, 2014). Data used in the case study is based on real logistic processes in both companies. It was obtained based on an analysis of logistic operations at Johnson Controls Automotive Parts and its sister plant based in Lozorno near Bratislava. Economic calculations are based on accounting data of both companies, i.e. Ewals Cargo Care and Johnson Controls Automotive Parts.

2 Case study: supply chain collaboration between supplier of logistic services and manufacturer of automotive parts

The case study focuses on supply chain collaboration between the supplier of logistic services (Ewals Cargo Care, hereinafter ECC) and manufacturer of automotive seats (Johnson Controls Automotive Parts, hereinafter JCA). ECC is a globally active company, providing transportation, warehousing and other logistic services. ECC offers its customers primarily in the automotive, electrical engineering and heavy industry a wide range of services. Offer of storage services includes, in addition to providing warehouse space, taking responsibility for warehouse operation, inspection and keeping records of material and finished products. In

addition to storage service itself ECC offers complete input and output logistic services, i.e. material putting in stock, material inventory control, material supply for production line, removal from storage and despatch of finished products and packaging, quantity and quality control of finished products, including making out all required accompanying documents. Another link in the chain is JCA, a manufacturing company, which is engaged in production of car seat covers and assembly of car seats. JCA supplies its products to a wide range of customers from the automotive industry. At the time of making the case study company was preparing manufacture of car seats for the new model of Porsche. Within the framework of this manufacture, JCA considers the ECC involvement in the production process. It seems economically beneficial to deepen cooperation between the two companies so that ECC would be involved in performing logistic activities in pre-assembly operations, specifically, it would take responsibility for logistic operations in the process of sticking car seat heating systems, including sequential delivery to the assembly line of car seats.

The aim of the ECC involvement in the production process is to achieve synergy effects beneficial for the manufacturer of car seats and provider of logistic services. The resulting effect should be higher production capability of both partners and lower costs of the final product. This is a qualitatively new form of collaboration with the broadest possible involvement of logistic services provider, which in this case is directly involved in the production process. Case study only focuses on the effects of this collaboration in the use of human resources.

At the time of preparing the case study there was only available information about the current state of collaboration, i.e. the use of human resources within the existing scope of ECC services. Data on the need for human resources for logistic operations performed during the pre-assembly operations in the process of sticking car seat heating systems was obtained from the JCA sister plant based in Lozorno near Bratislava. This plant manufactures seat systems for the Porsche Cayenne model; manufacturing practices and capacity needs are in principle not different from the production of seats for the new model of Porsche.

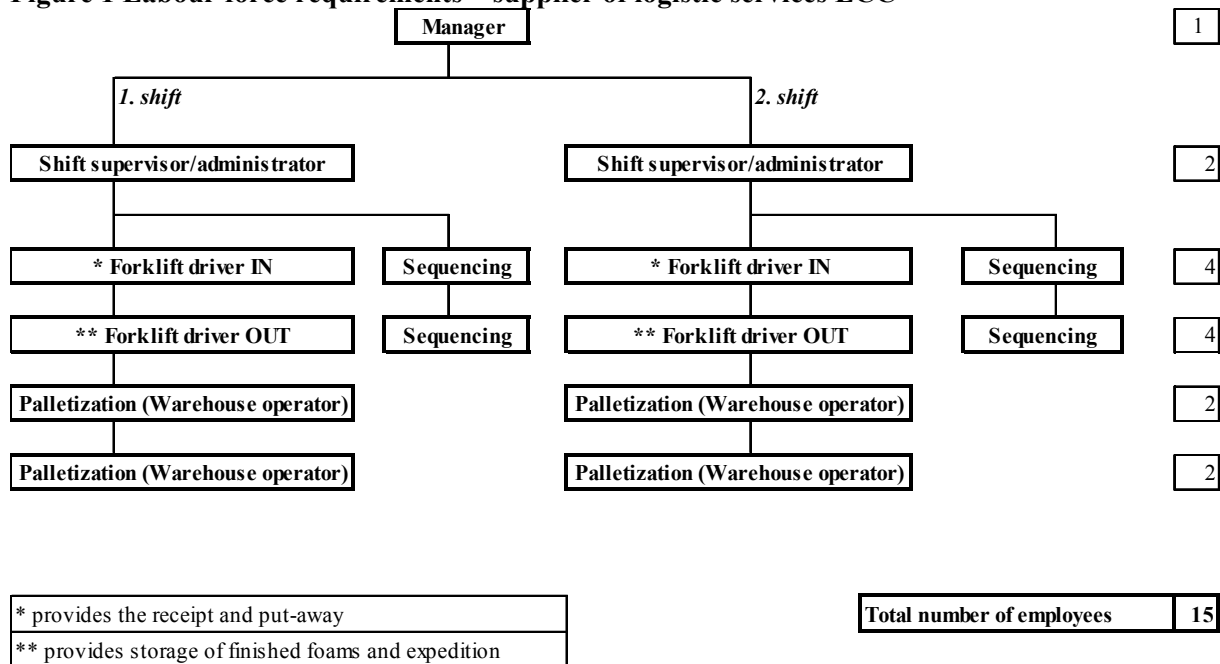
JCA expects from establishing deeper collaboration with external logistic provider streamlining logistic operations, reducing administrative burden, better use of logistic and production staff and more effective use of warehouse and production space. In this paper, attention is focused only on the effects in the area of labour utilization and in the area of personnel costs.

The case study compares two models of collaboration between ECC and JCA. The first model is a still used system of collaboration where the ECC performs for JCA only logistic services in the field of material storage; logistic services in the upcoming process of sticking car seat heating systems, including sequential delivery to the assembly line of car seats, would be ensured by JCA on its own. The latter model is a deepening of supply chain collaboration through the ECC involvement into manufacturing operations aiming to realize the synergy effects in the use of human resources and reduce total personnel costs.

2.1 Labour force requirements in the event of maintaining the existing level of collaboration

According to the still used model of collaboration between the two companies there was established the necessary number of ECC workers performing the range of contracted logistic services. Fig. 1 summarizes labour force requirements, including jobs and shift coverage. The total number of ECC workers involved in collaboration is 15 persons.

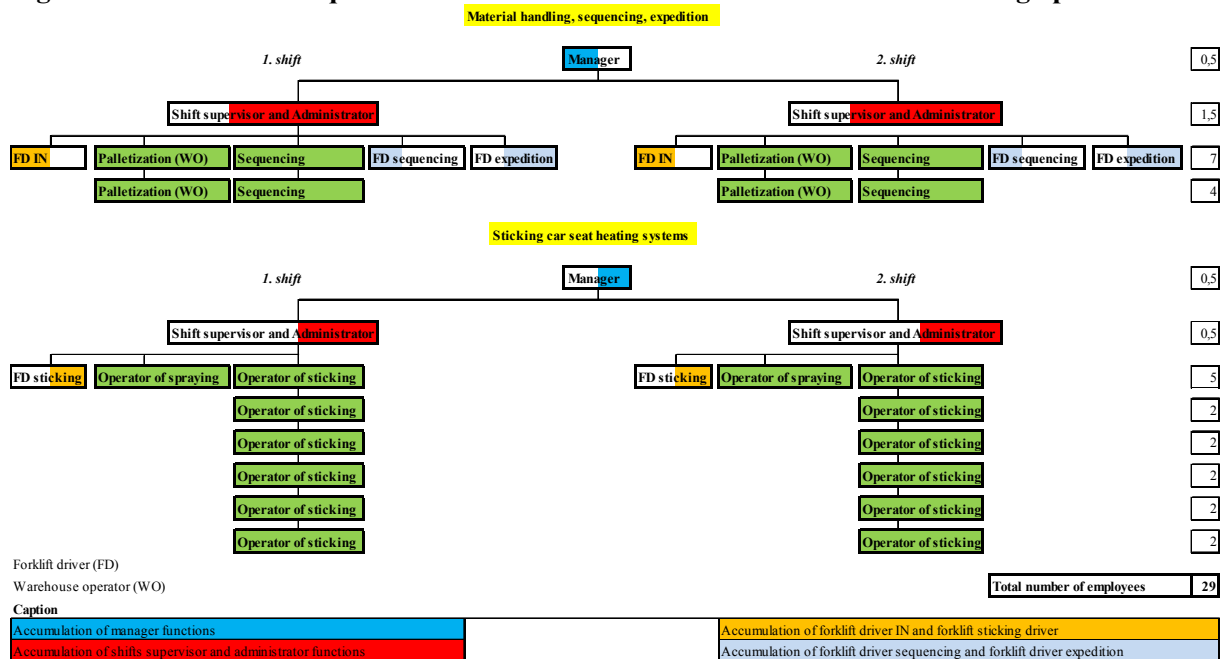
Figure 1 Labour force requirements – supplier of logistic services ECC



Source: Authors

Based on the experience of the Slovak manufacturer (plant in Lozorno) there were established labour force requirements to perform adequate logistic services in the process of sticking car

Figure 3 Labour force requirements – ECC involvement into JCA manufacturing operations



Source: Authors

2.3 Comparison of the two models of collaboration

It results from the above-mentioned analyses that the model of collaboration with the broader ECC involvement into JCA manufacturing operations would reduce the number of workers performing the required logistic operations (by 6 workers). This reduction of the number of workers is associated with savings of the total personnel costs. The amount of the potential cost savings in personnel costs results from Fig. 4. When making calculations, the rules of remuneration of workers in both companies and the jobs of individual workers were taken into account.

The total personnel costs for the existing system of providing logistic services amount to CZK 1,099,065 per month, in the event of expanding collaboration with ECC into manufacturing operations the personnel costs would be reduced by CZK 213,296 per month, representing an annual saving of more than CZK 2.5 million.

Figure 4 Total personnel costs – comparison of the two models of collaboration

Costs according to the standard model of cooperation			
Material handling, sequencing, expedition - ECC			
	Total per month		434,732 CZK
	1.Shift	2.Shift	Total
Staff (person)	8	7	15
Sticking car seat heating systems - JCA			
	Total per month		664,333 CZK
	1.Shift	2.Shift	Total
Staff (person)	10	10	20
Staff in shift	18	17	
Total staff (person)		35	
Total personnel costs based on the standard model (per month)		1,099,065 CZK	

Costs for participation ECC in the manufacturing operations			
Material handling, sequencing, expedition - ECC			
	Total per month		357,878 CZK
	1.Shift	2.Shift	Total
Staff (person)	6.75	6.25	13
Sticking car seat heating systems - ECC			
	Total per month		527,891 CZK
	1.Shift	2.Shift	Total
Staff (person)	8.25	7.75	16
Staff in shift	15	14	
Total staff (person)		29	
Total personnel costs based on the new model (per month)		885,770 CZK	

Source: Authors

Conclusion

The aim of this paper was to present a case study example of supply chain collaboration and discuss the effects resulting from this collaborative initiative. Case study shows that through deepening collaboration within the supply chain it is possible to achieve benefits that are presented in special literature. Expansion of collaboration between the two partners into the field of logistic services in the manufacturing process brings several effects. One of them is a reduction in the total number of workers who perform the required logistic services. Both collaborating companies could thus realize cost savings or improve their economic results. The actual impact on the economic results of both partner companies depends on an agreement between them, i.e. conditions which will be embedded into the contract for the provision of logistic services.

Another advantage can be found in the improvement of logistic operations. ECC workers are specially trained in the field of logistic services, JCA with the ECC involvement into production logistics should gain an advantage of this specialization; these advantages are pointed out by e.g. Pernica (2005). There are also improvements in operational management and some administrative operations are eliminated.

Deepened collaboration within supply chains may not always be equally beneficial for all partners (supply chain members). A company (that decides to involve external logistic services provider into its manufacturing operations) gains dependence on the provider and may lose

control over the course and quality of the production process. Deepened collaboration is also associated with the risk of loss of confidential information and important data.

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CSR AND SUSTAINABILITY REPORTING IN CR

Vilém Kunz – Štěpánka Hronová

Abstract

Worldwide as well as in the Czech Republic, increasingly more attention is being concentrated on CSR and sustainable business activities. The paper focuses on the communication process of a company with its stakeholders and the society alike about the social and environmental impacts caused by the firm's economic activity. The main aim of this paper was to uncover the current state of CSR/sustainability reporting by businesses in the Czech Republic through an own research; yet another goal was to identify major developments in this area within Czech business environment. The research was conducted on a sample of fifty most significant Czech companies based on their revenues (Czech Top 100) through an analysis of their non-financial reporting (separate CSR reports, annual reports, corporate websites). A comparison was made with KPMG research outcomes, which depict a number of major current global trends in reporting of business entities' responsible behaviour.

Key words: CSR, non-financial reporting, Czech business environment, sustainability, KPMG research.

JEL Code: M14, Q56

Introduction

Successful businesses in today's world do not doubt about the need of being socially responsible and they develop a number of very diverse activities that contribute to addressing a range of social problems and to improving society. At the same time, they are also aware of the fact that their activities in the area of responsible conduct should be given a certain long-term order. They are to be managed in compliance with principles of sustainable development at the maximum account of their internal and external environments' needs. (Visser, 2011)

International organizations, some governments but also businesses themselves have been paying growing attention to the issues related to corporate social responsibility (CSR) and sustainable business. (Mullerat, 2010) *“Whole industries have recently experienced*

'responsibility waves', times of swift shift toward more sustainable, responsible, and ethical practices." (Laasch & Conaway, 2015, p.8) According to some theorists, social responsibility may be considered an important feature of a new economy and also a reflection of the opinion that not only governments but also businesses shall bear their share of responsibility for social welfare, environmental protection, sustainable development and rational use of nonrenewable resources. (Pavlů, 2009)

The actual implementation of the CSR principles brings the need to include them into the corporate values, business strategies and processes at all levels of the company. One of the key prerequisites for effective implementation of CSR into corporate practice is to provide comprehensive communication about socially responsible activities to all key corporate stakeholders.

Attention of the authors of the paper is drawn to the very communication of CSR business activities. Their research attempts to figure out if and how important Czech firms use separate CSR/sustainability reports for communication about their CSR activities. Furthermore, the research aims to find out how firms communicate about the sustainable activities through their corporate websites. In the paper, a content analysis was used as a qualitative research technique. The research was carried out in sequences of several phases starting with determining directions of the analysis continuing through the choice of analytical techniques and the analysis itself leading to the final interpretation of the researched material.

1 CSR Concept

For several decades, the CSR concept has been developing very dynamically and spontaneously. As early as in the fifties of the 20th century, Bowen (1953) interpreted CSR as a commitment of entrepreneurs to implement such procedures, to make such decisions and to stick to such topics that are desirable in terms of goals and values of our society.

Formation of the CSR concept over the decades and its widening application in business practice today are influenced by many factors the most important of which are, for example: increasing globalization, the growing number of MNCs and an increasing pressure on socially responsible behavior by stakeholders.

A relatively large width of the CSR concept based on three pillars called *triple bottom line* (Segal-Horn & Faulkner, 2010) and inability to define the breadth of the definition of CSR activities as well as the constant unrestrained development cause a high terminological disunity

and a multiplicity of definitions. Some theorists consider the concept of CSR a process and organizational innovation leading to a change of norms and forms in arrangements within the company, yet others see it as an institutional innovation leading to the change of social rules. (Hlaváček Jiří & Hlaváček Michal, 2008) Having analyzed dozens of definitions, Dahlsrud (2008) defines five basic components which occurred most frequently in the CSR definitions. These are: environmental, social and economic areas, and areas of stakeholders and volunteers. This author believes that although the existing definitions of CSR are verbally different, they are actually harmonized or congruent as his analyses showed that four out of the five above mentioned areas can be found in 80 % of the definitions. One of the often-cited definition of corporate social responsibility can be found in the so-called *Green Paper* published by the European Commission in 2011: "*CSR is the responsibility of enterprises for their impacts on society*". (COM 2011) Another important definition can be found in the ISO 26000 standard which defines CSR as the responsibility of an organization for the impacts of its decisions and activities on society and the environment. (ISO 26000)

2 Communication of companies about CSR and its tools

It is important for the management of a company to consider future communication of corporate CSR activities as early as at the time of the CSR strategy compilation because it can contribute significantly to streamlining the corporate CSR policies. Communications of CSR activities should be directed not only towards customers, business partners or investors, but also company employees, the local community, consumer organizations or the general public. Companies behaving responsibly and communicating their CSR activities publically may significantly increase their attractiveness and reputation as good workplaces. (Catano & Morrow Hines, 2016)

Companies have a legitimate right to strive for the awareness of their sustainable activities among general public. They shall try to utilize all appropriate ways to communicate with their internal and external stakeholders. Possible ways to spread the information about the corporate CSR activities is via corporate sites, annual reports, packaging, prospects, brochures, leaflets, newsletters and newspapers, intranet, corporate information board, promotion of CSR during the corporate events for employees, customers or business partners. Another major opportunity for businesses to comprehensively inform its stakeholders about these achievements is called

CSR/ Sustainability reporting which is often generated in accordance with international reporting standards. (Kašparová & Kunz, 2013)

3 Non-financial reporting

CSR reporting represents a process of communicating the social and environmental impacts of economic activities on the company's stakeholders. (Douglas, Doris & Johnson, 2004) Lately, the volume of reporting on CSR/sustainability has been on an increase from a variety of reasons: strengthening brand's reputation, ethical reasons, etc.

Besides being a communication tool, CSR reports perform the role of a management tool providing enterprises with a systematic approach to CSR or a resource of management system for socially responsible activities. Firms which decide to publish such reports, may - as soon as in the process of their compilation - point at CSR issues which need closer attention including possible future risks and opportunities. Nevertheless, there still are numbers of reasons why companies do not deal with CSR reporting, for example insufficient knowledge of the issue or expectations of increased costs. (Van Wensen Katelijne, Broer Wijnand, Klein Johanna, & Knopf Jutta, 2011) Major trends to be observed in the CSR reporting in recent years are: CSR reports increasingly verified by an independent third party (auditor); financial evaluation of the benefits of CSR; CSR reports focused on the future; spreading reporting in the supply chain; creating the so called *integrated reporting* and the utilization of the internet potential. (Pavlik & Bělčík, 2010) Yet there still is a number of reasons (ignorance of the issue, expected cost increases, etc.), why firms do not deal with CSR reporting. (Van Wensen et al., 2011) The most frequently mentioned factors influencing this type of non-financial reporting are: company size, industry, public pressure of relevant stakeholders, cultural influences or striving for differentiation from competitors. (Douglas et al., 2004)

Attention of enterprises should finally be paid to the most appropriate forms of processing the CSR/ Sustainability reports and their communication. An effective tool for reporting is the Global Reporting Initiative (GRI) methodology. On their website, Business Leaders Forum in the Czech Republic (CR) defines CSR reporting according to GRI as ²⁹: an internationally recognized regularly updated tool for communicating and defending corporate CSR activities both: inside the company and towards the stakeholders. Following the GRI recommendations,

²⁹ Translation by the authors

every company may select only what corresponds to its functioning and the budget as there are three levels. A report produced becomes a useful document for the strategic development of CSR and a practical tool in the media presentation of CSR activities of the company.

An important factor to consider when making decisions about preparing such a report is the form of the concerned document. The most significant standards complementing the GRI guidelines which either make demands or express recommendations for reporting about certain areas of responsible activities are: the ISO norms 26000 and the 14000 series, SA8000, EMAS, AA1000, UN Global Compact or OECD guidelines. The most recent is the mandatory directive 2014/95/EU on non-financial reporting approved by the European Parliament in 2014. It obliges companies with more than 500 employees a duty to create the CSR report. This legislative action establishes a general flexible framework for non-financial reporting which will affect approximately 6,000 EU's companies. It shows companies how to integrate social impacts associated with their business activities into their decision-making.

Data published in a form of a CSR/ Sustainability report in accordance with the guidelines can provide stakeholders with information about how companies approach managing the impact of their activities on society, employment, local community, environment, etc.

Research

4.1 KPMG 2015 Research

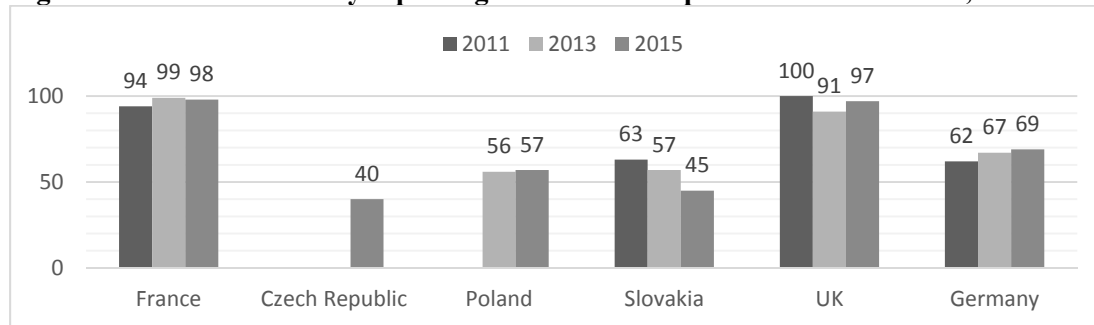
To determine the status of CSR reporting, multiple studies have been implemented in the world over the last ten years. The results of the latest research conducted by the consulting firm KPMG, a company publishing its reports every two years since 1993, capture a range of important contemporary global trends in CSR reporting activities in the world. The most recently published research from 2015 is more extensive than their previous surveys in this area. It focuses on CSR/Sustainability reporting in 41 countries within the sample of 4,100 companies.

The research has confirmed the global growth rate of reporting on socially responsible activities, even though the actual growth rate slowed between 2013 and 2015. It is equally evident that CSR reporting has become a part of corporate governance especially in large multinational companies. The report points out that almost three-quarters (73 %) of the 4,100 surveyed companies worldwide in 2015 dealt with CSR reporting (large companies in even 92

% of cases). Europe came third in terms of corporate CSR reporting in 2015 being overtaken by Asia and North America which was mainly caused by varying levels of reporting between the former Western (79 %) and Eastern European countries (61 %). In Europe, however, we expect a significant increase in the issuance of non-financial reporting during the year 2017, in connection with the already mentioned newly adopted directive on CSR reporting.

CSR reporting used to be, and in most countries still is, a voluntary initiative, but governments and stock exchanges around the world are increasingly imposing firms to report on non-financial matters. The obligation of reporting today can be seen in several countries: for example in the UK, France or Denmark. KPMG published the results of CSR reporting for the Czech Republic in 2015, with 40 % of businesses who have reported. (See Figure 1)

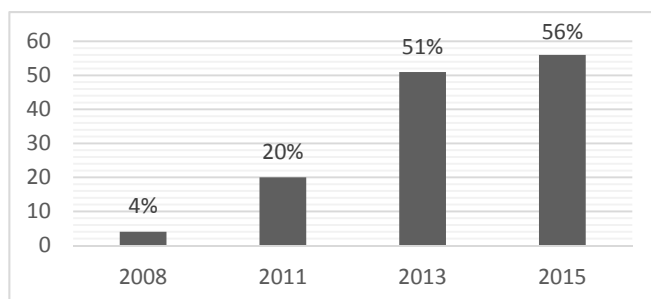
Figure 1 CSR/Sustainability reporting in chosen European countries in 2011, 2013 and 2015



Source: authors based on the KPMG report (KPMG, 2015)

The research by KPMG from 2015 indicates that the GRI standards still remain the most widely used voluntary reporting system, far beyond the use of national standards and other guidelines. Almost three quarters (72 %) of the 4,100 surveyed enterprises in 2015 reported using GRI guidelines.

Figure 2 CSR/Sustainability section in annual reports of companies worldwide in %



KPMG survey from 2015 also shows that more than half of the surveyed companies incorporate the non-financial information into their annual reports. The graph demonstrates the increasing trend in this area since 2008. (Figure 2)

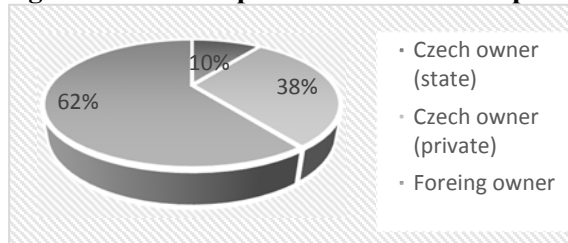
Source: authors based on the KPMG report (KPMG, 2015)

Most of the businesses that add CSR information in their annual reports (58 %) do so in a separate chapter rather than in sections on company performance or values. Increasingly higher amount of firms (42 %) begin to associate CSR with a business strategy incorporating CSR information in the Report of the Board. (KPMG, 2015)

4.2 Research 1 in CR

The goal of the first research conducted by the authors in January 2016 was to find out if the chosen companies use their internet sites for communication about their CSR activities. The sample of the population was made by the first 50 entities from the Czech Top 100 in the year 2014. During the research, websites of these 50 companies were examined in terms of their non-financial reporting posted.

Figure 3 Ownership structure of the sample in Research 1



Approximately two thirds of the researched companies were held by foreign owners, 38 % had prevailingly Czech owners and approximately 10 % were owned by the Czech Republic (government, regions, etc.). (Figure 3)

Source: authors

The authors investigated publicity of the corporate responsibility on websites from the perspective of the business ownership in larger detail where attention was paid to the interrelation of the CSR reporting and the ownership. (See Table 1)

It was discovered that out of the total amount of 19 firms with the Czech (majority) owner, the CSR concept was published and the company expressed their commitment to upholding its principles in about 63 % of cases. As far as Czech private companies were concerned, about 65 % publicly reported their CSR activities on their websites. Out of the 5 entities owned (mostly) by the Czech state, 60 % had a CSR section on their www sites. The 31 corporations with a foreign owner offered a section in Czech devoted to sustainable activities on the corporate websites in almost three quarters of cases.

Table 1 CSR section on websites of the researched companies

	TOTAL	CSR on the website	In %
All companies	50	35	70
Czech companies:	19	12	63

Private	14	9	64
State	5	3	60
Foreign owner:	31	23	74

Source: authors

Overall, the research revealed that 70 % out of the examined companies had a section devoted to responsible behaviour or sustainable business on their corporate sites. Furthermore, it was revealed that adoption of fundamental CSR principles is taking centre stage for business entities in CR where transparent communication with the stakeholders shall be ensured.

In increasing amounts, the companies use their corporate sites including special sections devoted to CSR which are often divided into subsections in accordance with particular topics or types of stakeholders. The research showed that the contents of these sections with non-financial CSR reporting are based on the corporate CSR reports supplemented by more current information from other main areas of CSR. It was revealed that the data presented via the virtual environment is most frequently focused on the economic area of CSR. Comparing at least one aspect of the individual CSR areas mentioned on the web, these were represented in the decreasing number as follows: economic, environmental and social. Foreign-owned firms were more likely to present the CSR concept on their sites compared to the Czech-owned companies.

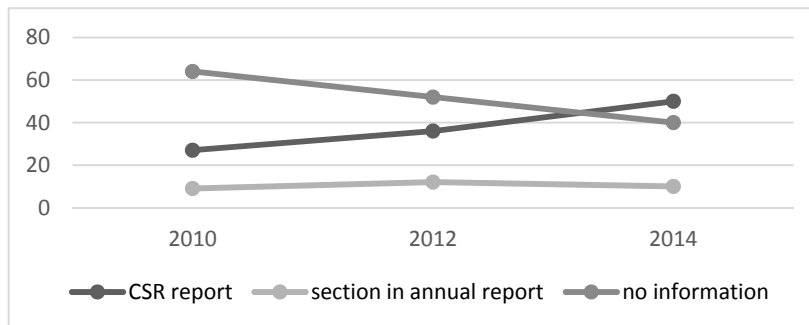
4.3 Research 2 in CR

A task for the second research conducted in December 2015 based on the reports published by companies during 2015 was to reveal the forms of CSR reporting among the sample of 50 best companies from the 2014 Czech Top 100. The main research questions were: 1. Do the companies publish a single CSR/ Sustainability report in Czech or English? 2. Can data about CSR/ sustainable activities be found at least in their annual reports? 3. Are internationally recognized GRI standards used by enterprises when creating their CSR reports?

The research indicated that in CR the amount of companies issuing a separate CSR/ Sustainability report is increasing. While in 2010 such a report was published by 27 % of the research sample, in 2012 it raised to 36 % of companies and in 2014 it increased to the level of 50 % of enterprises (broken down into the language mutations - 24 % of the reports were in Czech and 26 % in English). However, the research has also shown that the amount of firms in the Czech Republic that incorporate information about their CSR activities into their annual reports has not changed significantly in the course of time. In the language of numbers, 9 % of

companies in 2010, 12 % in 2012 and 10 % in 2014 integrated a section about responsibility in the annual reports.

Figure 4 CSR reporting within a sample of 50 Czech companies in 2010-2014 in %



The graph shows the increasing trend of the CSR reporting and at the same time the declining trend of CSR non-reporting. (Figure 4)

Source: authors

The results indicate slightly higher numbers compared to the 2015 KPMG findings, but the level of reporting by companies in CR is still below the global average. The study reveals that 46 % of the companies that issued separate 2014 Sustainability/CSR Report used the GRI methodology. This was significantly less than the global figure, as demonstrated by the research from KPMG in 2015 where 72 % of the 4,100 researched companies in the world reported in accordance with the GRI standards.

Conclusion

Due to a variety of reasons, CSR reporting has been enjoying increasing attention worldwide in recent years. Based on the results of studies and predictions of the trend, it can be expected that the volume of CSR reporting will be growing in the future. The importance of CSR/Sustainability reporting in CR is being emphasized only marginally, though. Likewise, the state of reporting in the post-communist countries is dealt with by a relatively low amount of studies. Moreover, some studies are focused mainly on comparing CSR reporting in several countries, which often prevents a deeper investigation. Sometimes, the attention is paid only to some aspects of reporting for example: an environmental research.

Our research as well as the 2015 KPMG study results confirmed that CSR reporting is not yet a priority area of interest for companies in the Czech Republic. The firms in CR drop behind the global average. It can be explained by the KPMG findings claiming that major motivators for companies to implement CSR reporting are those of enhanced image and ensuring a positive perception of the relevant public. The authors consider them to be factors of extrinsic motivation. It can yet be expected – not only in connection with the adoption of a new directive

regarding CSR reporting in EU countries – that the level of CSR reporting in CR will be gradually increasing in the years to come.

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INNOVATIONS IN MANAGEMENT OF SOCIAL ENTERPRISES

Katerina Legnerova – Marie Dohnalova

Abstract

This paper analyses the implementation of personnel management methods and processes in social enterprises comparing to profit organizations. The main findings are based on qualitative research in the Czech Republic in years 2010 – 2015. Social businesses are economic entities, which combine market competitiveness, values, and procedures with the social goals and mission of the non-profit procedures. Among the advantages of social enterprises we can include the ability to find innovative solutions to the social problems on the intersection of the profit and non-profit world, or the ability to combine own revenues with grants, subsidies, donations and volunteering. The mixed nature of the social enterprises puts demands on their management, on the harmonization of the care for employees and volunteers. Therefore, it is important from the perspective of long-term sustainability in social undertakings, properly implement proven personnel processes. The mixed nature of the social enterprises can create tensions between democratic, participatory management and the requirements of the effective management of the enterprise. The research confirmed that it is possible to adapt personnel management rules and processes from theories for profit organizations, with some innovations. The outputs can serve as guidelines for implementation of personnel processes in Czech social enterprises.

Key words: social enterprise, innovation, management, leadership, human resources

JEL Code: M12, M14, O35

Introduction

Recently, a growing attention focuses on social entrepreneurship and on management of social enterprises, and not only in countries of the European Union. Innovation in the management of social enterprises being able to harmonise economic and social interests in local communities

shall be based on knowledge of an essence of social enterprises operation. A necessity to implement principles of human resources management comparable to commercial environment emerges.

Interest in social entrepreneurship is based on an idea that public goods should not or cannot be provided only by the state and that is useful when public goods are provided also by business entities and by non-profit sector. New concept of social economy and social enterprises is coming; these become instruments for social issues settlement and provisioning of public goods. Social enterprises are entities of social economy, which combine market motivations, values and procedures with social objectives and non-profit motivations and procedures. Their position at the edge of entrepreneurship and non-profit sector represents a resource of benefits that are attributed to social enterprises. They encompass an ability to search for innovative settlement of social issues, to advantageously combine income with financial resources originating in grants, subsidies and donations and an increased sustainability of social solutions due to capability to generate own income.

1 Social Enterprise

Social entrepreneurship represents an umbrella term for a diverse number of activities and entities of different organisational forms; therefore it is important to specify, define and determine features of a social enterprise. According to several authors (for instance Defourny, 2012, Peattie, Morley, 2008), a social entrepreneurship is interpreted diversely depending on various contexts; there are several approaches how to define it, however it is not a charitable activity of corporations.

A concept of social entrepreneurship spread in the *U. S. A.* in 1990'. According to Defourny and Nyssens (2012), two directions of the American approach may be discerned. Within the first direction of „*market resources*“, it is highlighted that organisation of a non-profit sector through continuous economic activities gain resources to fund own social mission. They become a social enterprise, having own income from the perspective of multisource funding. The second direction focuses on *social innovations* that is linked primarily with personalities of social entrepreneurs. They perform activities responding to needs of society while involving not-yet-used methods of needs satisfaction. Social innovations relate to economic activities. Social entrepreneurship is connected in market environment with corporate social

responsibilities, social innovation and a triple bottom line (People, Planet, Profit) according to Hulgaard (2010).

There are different forms of social enterprises in the U. S. A., both commercial and non-profit. Common feature is that they are managed by methods typical for commercial market sector; however their market activities serve the social purpose. *In the European Union*, a definition by European institutions and documents is important for harmonisation of approaches in identification of social enterprises. Project activities of the research company EMES³⁰ and its current international project *International Comparative Social Enterprise Models* (ICSEM) are important both in European and global context. The ICSEM project is scheduled for period of 2013 to 2017, with participation of more than fifty countries worldwide. The Czech Republic is represented by Charles University in Prague, Department of Civil Society Studies of the Faculty of Humanities. Current results of the ICSEM project demonstrate several models of social enterprises that are represented in several countries, including Latin America and Eastern Asia.³¹ First results were presented during the 5th international research conference of social enterprises called „*Building a scientific field to foster social enterprise eco-system*“ held in Helsinki in July 2015.

EMES defines so called ideal type of a social enterprise (Defourny, Nyssens, 2012) and thus introduces a methodology for European and global research of social enterprises. Management of "ideal type" of a social enterprise is based on multiple sources funding, with participation of a wide range of stakeholders; the enterprise fulfils several different objectives. Indicators used in the research of social enterprises are divided in three subgroups. Defourny and Nyssens (2012) defined this classification in order to highlight particular forms of management specific for an ideal type of the social enterprise. In addition to social and economic perspective, aspect of participatory management of the enterprise is monitored.

³⁰ EMES is an abbreviation for a French title of an extensive research focusing on the Emergence of Social Enterprises in Europe, 1996–1999. It originally identified a network of researchers within a research programme financed by the European Commission. Title of the research programme was quoted in projects dealing with social enterprises and social economy and later became a title of an international network. The society is aimed at linking knowledge of existing university research centres active in the area social economy and at gradual development of a European database of theoretic and empiric knowledge on social economy.

³¹ EMES Focus Areas. *Focus Areas*. Emes European Research Network [online]. [cit. 2015-08-04]. Available at: <<http://www.emes.net/about-us/focus-areas/>>

Social aspect

1. Objective of a social enterprise – to benefit the society or specific group of people.
Mission of a social enterprise is to operate activities benefiting the society or specific group of people. At the same level, main feature of social enterprises is an interest to promote corporate social responsibilities at local level.
2. Social enterprises emerge from group initiative
Social enterprises emerge as result of common activities of citizens sharing a certain need or intention. Such collective dimension has to be preserved although enterprises are managed by elected individuals or group of managers.
3. Limited redistribution of profit
Social enterprises also include those enterprises that do not follow a condition of an absolute ban of profit redistribution; for instance co-operatives in certain countries may redistribute profit to stakeholders in a limited extent (Defourny, 2001). One of the main objectives of social enterprises is to serve community or specific group of people. Economic activities are driven primarily by an effort to deliver social benefit to the community (i. e. social benefits are not intended as by-product only). Comparably, an interest to support a sense for social responsibility at local level is also a main feature of social enterprises. Social enterprises become an outcome of collective dynamics. They emerge voluntarily from initiative of citizens who are part of community or a group with similar needs or interests; a collective dimension of social enterprises has to be preserved. Social enterprises are not only organisations following a condition of an absolute ban of profit redistribution, but also those who may redistribute profit to their stakeholders.

Economic aspect

1. Continuous activities focusing on production of goods and/or provisioning of services
The main objective of social enterprises is not, opposed to traditional non-profit organisations, an engagement in charitable activities or redistribution of financial flows (which is the case of foundations). They produce products and provide services to people. Economic activity is one of the main grounds of their existence.
2. Acceptance of economic risks

Those who found social enterprises anticipate certainly or partially risks related to economic activities. Opposed to majority of public institutions, their financial sustainability and viability depend on effort of their members and employees to secure necessary resources.

3. At least a minimal share of paid work

Similarly to non-governmental non-profit organisations, social enterprises may combine monetary and non-monetary resources, paid and voluntary work. However, activities of social enterprises require at least a minimal share of paid work.

Social enterprises continuously manufacture products or provide services to people. Ongoing provisioning of goods and /or services represents one of the main grounds of their existence and delimits them against non-governmental non-profit organisations providing charitable activities or redistribution of financial flows. Founders of social enterprises bear full or partial economic risk associated with their emergence. Opposed to majority of public institutions, financial viability of social enterprises depends on effort of members and employees to secure sufficient resources. Social enterprises may combine monetary and non-monetary resources, paid and voluntary work; however activities of social enterprises require at least a minimal share of paid work (Defourny, 2001).

Aspect of participatory management of the enterprise

1. High level of autonomy

Social enterprises are voluntarily created by groups of people who manage them through plans determined by themselves. Adequately, they may depend on public subsidies. However, they are not managed directly or indirectly by public institutions or other organisations (associations, private companies, etc.). They have decisive voice, i. e. they may extend or terminate their operation.

2. Right to decide is not based on amount of invested capital

A principle „one member, one vote“ should be respected in the decision-making process or at least a power of the voting right should not depend on amount of invested capital. The decision-making process is rather democratic.

3. Participatory character driven by involvement of all stakeholders of the performed activity

Co-operation with clients or customers, involvement of all stakeholders in the decision-making process and participatory management represent important feature of social enterprises. In number of cases, a support of democratic principles at local level through economic activities represents one of the objectives of social enterprises. Employees, clients or target group, volunteers, donors, etc. may participate. They may be involved either formally or informally, however the main purpose is supporting democratic principles at local level by means of economic activities. Defourny (2001) states that these defined indicators represent new or revived manifestation of civic society. In West Europe, concept of social enterprise emerges within a tradition of social economy and non-profit sector. Entities from both these sectors change their structures, offer new types of products and services and seek new pathways towards diversification of own resources. New types of entities focusing on achievement of social objectives do emerge.

2 Czech social enterprises

This article is following the research conducted in 2010 – 2015. Determination of Social Enterprises is based on secondary analysis of data from research studies performed in 2010, 2013, 2014 and 2015. These studies, through research case studies enhanced by in-depth interviews with managers and employees, map the area of social entrepreneurship in the Czech Republic. The research elaborated on a representative sample of 79 social enterprises (13 enterprises in 2010, 16 in 2013, 27 enterprises in 2014 and 23 enterprises in 2015), that were selected on the basis of EMES foreign definition. As demonstrated in the research, the Czech social enterprises are private entities independent from the state, including:

1. Public service companies, associations (civic societies) and religious legal persons, performing economic activities in order to fund their mission or finding employment for clients.
2. Co-operatives, commercial companies and sole traders. From economic view, economic activities and concurrent creation of working positions represent one of the main reasons of existence of these entities. The entities demonstrate a high level of autonomy in their performance. Activities benefiting the society or specific group of people belong to social features of these organisations.

3 Management in social enterprises

Management and decision-making in this type of enterprise is not based on a level of invested capital; a democratic style of management and involvement of all stakeholders (employees, clients, customers, etc.) play a decisive role. Social enterprises usually do not distribute the profit, or distribute profit only partially, sometimes rather a large share of the profit, however an effort to maximise the profit is never their ultimate goal (Dohnalová 2010).

From the perspective of economic activities of selected enterprises, they are entities operating in social services, services for households, gastronomy, retail, chemical production, etc. Social enterprises in great extent employ persons disadvantaged on the labour market.

Role of management is important in social enterprises, since it follows from the social enterprise definition stated above, primarily highlighting the following:

1. Independence (autonomy) in the management decision-making from external founders or establishing bodies and a high level of autonomy. Social enterprises are founded by group of individuals who manage them through plans determined by themselves. They have a decisive voice, and a right to extend or terminate their operation. This definition clearly places high demands on abilities of the social enterprises management. They cannot rely on instructions from the owner, but create their own plans and strategies, usually with participation of colleagues in the organisation.
2. Ability to deal with economic risks. Persons founding social enterprises are aware of risks related to economic activities. Opposed to majority of public institutions, sustainability and financial viability of the social enterprise depend on effort of their employees and voluntary members to secure financial resources. This definition clearly proves an importance of correct management and motivation of employees. It is more complex in social enterprises, since their resources are commonly limited and variable. Necessity to work with constant changes, changing conditions and circumstances plays a key role both for managers of social enterprises and for their employees. The ability to find innovative solutions to the social problems on the intersection of the profit and non-profit world, or the ability to combine own revenues with grants, subsidies, donations and volunteering is one of the key roles in management in social enterprises.
3. Trend towards paid work. Social enterprises should comply with the requirement of at least a minimal share of paid work. Similarly to traditional organisation of a civic

society, social enterprises may combine monetary and non-monetary resources, paid and voluntary work. However, activities of social enterprises require at least a minimal share of paid work. At the beginning, paid working positions do not have to be necessarily created. Enterprises may emerge on the basis of voluntary work at the outset, however a trend towards creation of working positions must be clearly visible. Creation of working positions is associated with responsibility for activities of new employees and ability to manage them. Initially, a social enterprise may operate on the basis of enthusiasm of employees; in a long term perspective it is necessary to develop human resources management processes in order to keep motivation of employees at high level. Performed research in social enterprises revealed that the meaningfulness of performed work is the strongest motivation for employees of these enterprises. Higher level of autonomy and creativity represents another specific feature of motivation for employees in social enterprises. Therefore, management method of social enterprises seems to be rather democratic up to liberal, involving a high level of co-operation. This establishes a ground for employees to develop and implement creative ideas and arrangements and enhances an environment allowing self-realisation and work satisfaction.

An importance of presence of well-operating human resources management has been confirmed during in-depth interviews conducted with the management and employees in social enterprises. Well set management processes support a sense of belonging among employees on one hand and on the other hand set a system, delegate authorities and responsibilities and eliminate duplicities. Top management focuses on achievement of goals of the organisation as such, is a vehicle of the vision and strategic operation of the social enterprise. Middle management focuses more on daily operations and support of subordinates. Management in non-profit organisations prefers democratic up to liberal style, with a high level of participation of employees. Up to 85% of enterprises involve employees in the decision-making process, which is a positive finding. Human resources management in the social enterprises plays a key role. A manager is a vehicle of the vision and mission of the social enterprise and his/her role is to support and motivate both employees and volunteers to deliver this mission.

Conclusion

This article focuses on human resources management in social enterprises. A long-term qualitative research performed in 2010 – 2015 established that the Czech social enterprises

usually emerge in the form of public service companies, associations (civic societies) and religious legal persons, performing economic activities in order to fund their mission or finding employment for clients. Some co-operatives, commercial companies and sole traders also act as social enterprises.

Management style in social enterprises corresponds best to a democratic up to liberal style, with a high participation of employees and volunteers. Ability to be involved in management, a certain level of freedom in decision-making and creative thinking play important role for people in social enterprises. A manager is a vehicle of the vision and mission of the social enterprise and his/her role is to support and motivate both employees and volunteers to deliver this mission. Innovative approach and creativity of employees (which are supported by a democratic style of management) are also emphasised.

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INNOVATION IN SUPPLY CHAIN MANAGEMENT

Xenie Lukoszová – Lukáš Polanecký

Abstract

This paper aims to introduce the latest innovative approaches to inventory management, which can be successfully implemented in both domestic and international supply chains. The basic scientific methods used in the preparation of this article include analysis, comparison and problem synthesis as a key source of information. Secondary research was conducted on the basis of studying domestic and foreign publications on the subject. Among the factors that were also taken into consideration by the authors was practical experience drawn from business. The authors of the paper first briefly characterize the supply chain and the concept of supply chains within the context of their development. Subsequently, an insight is given into inventory management with a key focus on innovations. Nowadays, supplies constitute a major problem in managing supply chains. Making improvements to the way supplies are managed significantly improves the quality of the overall supply chain management. The innovations investigated for this purpose include the application of advanced inventory management and the technological implementation of Vendor Managed Inventory (VMI) and Collaborative Planning Forecasting and Replenishment (CPFR). The aforementioned models and logistical management technologies are within the author's main fields of interest. An analysis of the proven advantages and disadvantages of each follows, and where relevant examples are given of companies in which these innovations have already been implemented.

Keywords: Stock, Supply Chain Management (SCM), improvement, Vendor Managed Inventory (VMI), Collaborative Planning

Introduction

Logistics is a tool that helps to considerably increase the competitiveness of enterprises. The material flows as well as associated information flows at the centre of logistics represents complex chains not only within an enterprise but also with its business partners. It is for this reason that the concept of logistics is often associated with the management of supply chains. As is the case for each form of management, logistics management is based on a permanent

process of making decisions which should bring positive changes to the enterprise as well as to its co-operating organisations. It is appropriate to call these changes innovations of the supply chain.

1 Research problem, requirements and methodology

The basic research problem addressed in this article is to explore an integrated supply chain as an environment for the application of innovative techniques within the supply management process.

Further to the research problem, the authors also define the main research requirements, including the following:

1. Basic models of supply management are the basis for innovations in supply chains.
2. Vendor Managed Inventory (VMI) represents an applicable and applied technology for enhancing the quality of supply management both within domestic and foreign supply chains.
3. Collaborative Planning Forecasting and Replenishment (CPFR) technology is applied by businesses in order to cut costs and increase the flexibility of supply within supply chains.

The research problem and the stated requirements are dealt with through an analysis of primary and secondary information. A comparative analysis is used to translate foreign knowledge and experience with innovative technologies to the conditions that prevail within the Czech business environment. The secondary information is collected from foreign monographs and domestic studies. The primary information is the result of non-structured dialogues with representatives from the business community in the Czech Republic and Poland during 2005-2015. These businesses are known to have implemented integration links within their supply chains in combination with the application of VMI and CPFR technologies.

2 Supply chain

The supply chain may be defined according to M. Christopher (2005) as “the network of organisations interested through the inter-connections with suppliers and customers in various processes and activities creating added value in the form of products and services delivered to the final customers”. Christopher (2005) also defines it in an alternative way by saying that “the supply chain is the network of inter-connected and dependent organisations functioning based

on the co-operation, collaborative control, management and improvement of physical and information flows from the suppliers up to final users”.

The configuration and core of a supply chain depends on enterprises of various types ranging from mining, through processing, to trading. It is possible to conceive a supply chain in which mining, production, and trading enterprises cooperate across various areas, including with their customers, with flows of goods, information and financial means.

3 Supply chain management

The historical predecessor of supply chain management (SCM) is the Keiretsu system from Japan. The system was first applied in the banking sector and later adapted and transferred for use in the industrial sphere (first of all in the car industry).

According to professional organisations representing professionals working in this area (*Council of Supply Chain Management Professionals*), supply chain management is defined as follows: SCM is an integrated function with primary responsibility for the connection of main trade functions and trade processes across the companies into a cohesive and highly effective trade model. It includes logistics management and the above mentioned activities as well as production operations and manages the coordination of processes and activities across departments for marketing, sales, product design, finances and information technologies.

According to the American Production and Inventory Control Society (APICS), the term SCM: includes all the processes connecting suppliers and users from the first material up to the final consumption of the finished products, represents the functions inside and outside a society which enables the creation of a value chain for the production of products and the provision of services to customers.

At present, supply chain management is inseparable from information solutions, including complex methodologies for the implementation of supply, production and distribution processes. These solutions are designed in such a way as to assure the maximization of profit through the optimization of prices for materials, sub-sets, sets, products, etc. whilst simultaneously maintaining minimum levels of stocks to assure the smooth course of the processes.

It is necessary to add that the current level of supply chain management as a key logistics tool is the result of forty years of development. Among the main aims (effects) of supply chain management are: higher level of customer service, stock reduction, minimization of costs along

the whole logistics chain, reduction in the lead time of orders, greater ability to react to market changes, dissemination of information between partners in the supply chain.

Based on the official declaration of *The Global Supply Chain Forum* Sodomka (2012), the comprehensive management of the supply chain is closely connected with eight mutually complementary processes, which are: Customer Relationship Management (CRM), service management, demand management, arranging orders, management of production process, Supplier Relationship Management (SRM), development and sale of products, complaints management.

The comprehensive logistics view of the supply chain follows the whole course of material flows through all the segments of the supply chain, including the supporting information flows which primarily serve management. One of the main reasons for the creation of the concept of supply chain management were problems with stock occurring in various enterprises at all levels of the supply chain.

4 Innovation in supply chain management

According to the research carried out for this article, the possible changes (innovations) in supply chain management being implemented by enterprises includes, among other things, Vendor Managed Inventory (VMI) and Collaborative Planning, Forecasting and Replenishing (CPFR) technologies. These technologies follow up on knowledge gained from progressive supply models.

4.1 Models of inventory management as starting point for innovative logistics technologies

The thinking behind inventory models is to decide at what point in time new supplies are ordered and in what quantities. Inventory models can theoretically be split into static and dynamic types Lukáš (2012).

Under static inventory models, the supply cannot be replenished again when already purchased (i.e. only this supply cannot be replenished), whereby this inventory should satisfy the needs of the enterprise. However, if inventory levels are insufficient, costs are incurred due to a lack of supply. In a similar way, costs are also incurred when inventory levels are too high as a result of the residual quantities after the end of period Plevný (2010). Under dynamic inventory models, replenishing warehouse stock levels is possible during the course of time. Furthermore,

the process of ordering supplies can also be changed over the course of time. This is based on a process of continual evaluation, or at defined time intervals, of the level of inventory Jablonský (2007).

EOQ model

Inventory models with a constant supply size - one product and additional pre-conditions - can be dynamic and deterministic. The EOQ model is the best known example of such a model, whereby demand is not interrupted and does not change over time. A literature review also highlights the Harris-Wilson model Lukáš (2012). The basic criterion for optimizing inventory management is that the total cost of the acquisition and maintenance thereof is kept to a minimum. Optimization covers the forecasting needs and a certain rate of risk or variations during the drawing of supplies. The security rate is also the subject of optimization with analogical criterion of cost minimization Kislingerová (2010).

The quantity of optimum supply may be characterized in such a way that total costs are minimized. The optimum supply helps to establish the minimum total cost function. This supply may be characterized by the following equation Vochozka (2010):

Equation 1- Optimal supply

$$q = \sqrt{\frac{2 * Q * N_s}{N_h}}$$

Source: Vochozka 2010

where

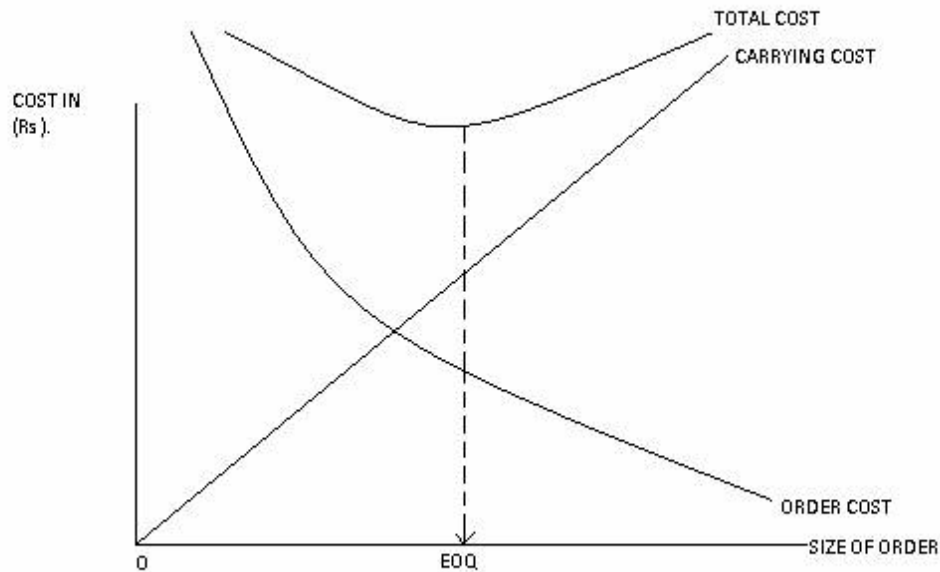
q - optimum supply quantity,

N_s – cost of supplies,

N_h – cost of holding 1 pc of stock for the whole period,

Q – quantity of supplied goods for the whole period.

Figure 1 EOQ model



Source: Lambert, Stock, Ellarm, 2000, p. 125

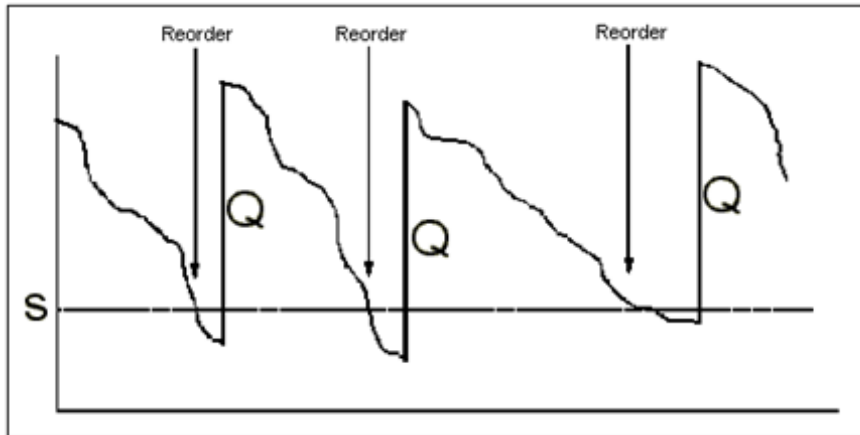
From the left, from top to bottom: Annual costs (in USD), Lowest total costs (EOQ), Total costs, Costs of maintaining stock, Order costs, Order size

As stated above, demand under a dynamic stochastic model is expressed as a random variable, whereby consideration is given to the demand which is accumulated (aggregated) over the whole period T Plevný (2010). This is best explained with a simple example: assuming an enterprise consumes material, delivered in batches of a constant size, the consumption of the material or product demand is given by the probability and random deviations from the mean value of the real consumption that occurs. There are two ways by which to balance the fluctuating demand (consumption). The first, by changing the frequency of deliveries under their constant size. The second, by changing the size i.e. the quantity of deliveries under their constant frequency. On the basis of this it is possible to distinguish between two systems of warehouse management Lukáš (2012):

- Q-system (fixed – order quantity model);
- P-system (fixed – time period model).

The Q-supply system works with a constant size/quantity of the ordered material and changes the frequency of orders. The P-supply system has the same frequency of orders but changes their size/quantity. Under the Q-system, the signal level of stock is set as that level of stock that covers consumption during fulfilment of a placed order. As soon as the stock of material drops to this value, new supplies are ordered Lukáš (2012).

Figure 2 Q-system inventory model



Source: Emmet, 2008

4.1 Supply management by the supplier

The Vendor Managed Inventory model (hereinafter referred to as VMI) transfers the responsibility for stock levels to the supplier. Based on information provided by the customer, the supplier decides on the quantity of goods and the frequency of supplies. Under this model, the customer (producer or distributor) must continuously analyse sales and determine the optimum size of its orders. Several definitions of the process of inventory management by VMI exist:

1. VMI is the process by which a supplier generates orders for its customer based on information supplied by the customer.
2. VMI is a system of planning and management not being directly connected with inventory ownership.
3. VMI is a means by which to optimize supply chain benefits based on accepting responsibility for the correct level of stock by the supplier. The producer thereby has access to information about the customer's inventory and is responsible for generating customer orders Ciesielski (2009).

This process has been used in practice by retail trade organisations since the beginning of the 1980s. Its application is typical for those goods with a quick turnaround time (food, drinks), whereby the aim is to involve suppliers in the improvement of inventory management processes and assure the availability of goods. The model is also advantageous for those products with predictable consumption whereby the cost of maintaining stock is the most significant element (not the cost price) and whereby the producer requires long-term contracts with the supplier. VMI was quickly adopted by the retail trade because at that time retail traders did not have information technologies at their disposal for automatized data collection, prognoses and the replenishment of product lines. They had to rely on the specialist knowledge of product suppliers.

The result of VMI is that inventories are replenished in various parts of the supply chain, for example between the warehouse of the supplier and the distribution centre of the retail trader, or the distribution centre and the retail trade network. VMI technology can also be supported by logistics operators who can preserve the stock ordered by the customer in a consignment warehouse. It is important to note that the goods in a consignment warehouse are owned by the supplier. The goods are only paid for after the actual delivery of the goods to the producer and an invoice is raised and issued.

4.1.1 VMI types

In reality several forms of VMI have been implemented by enterprises. It is the opinion of the authors that this represents the individual stages of VMI development within a particular supplier.

The first form of VMI involves regular visits by an employee of the supplier to the customer (e.g. daily), whereby the employee replenishes the inventory with a quantity of goods determined in advance. The second form of VMI is probably the most widespread among the interested partners of the supply chain. The aim is to replenish inventory based on immediate information on retail sales provided through EDI or the internet. The pre-condition for the third form of VMI is the existence of a consignment warehouse. The stock is paid to the supplier only when consumed for production or sold to the customer. The fourth form of VMI involves a supplier's employee becoming a direct member of their customer's organisation. The supplier's employee monitors the quantity of inventory and replenishes it in time. They also participate in the development of new products, including the launching thereof on the market

and involvement in promotional events in order to be able pro-actively modify supplies depending on current needs.

4.2.2 (Dis)advantages of VMI application

The quantification of the advantages of the application of VMI for suppliers as well as customers is given in Table 1 in the form of average percentage effects.

Table 1 Advantages of VMI for suppliers and customers

Typical improvements	Typical improvements
Decrease in inventory	30%
Decrease in transport costs	10%
Shortened delivery term	50%
Decrease in storage costs	13%
Increase in service level	>10%
Advantages for customers	Typical improvements
Increase in rate of return for shelf space	5-8%
Decrease in inventory	10%
Increase in sales	8-10%
Decrease in logistics costs	3-4%

Source: Modified according to (usluno.cz)

VMI technology has been adopted by multinationals such as Procter&Gamble, Nestlé and Coca Cola. Among the most important operators providing VMI services on the domestic market is the multinational DHL dhl.cz (2016).

4.1 Collaborative planning, forecasting and replenishment

CPFR (*Collaborative Planning, Forecasting and Replenishment*) is another technique for optimizing inventory and improving cooperation in the supply chain. In the professional circles this is seen as being part of a small group of e-business solutions. It is based on deepening the cooperation on the forecasting of demand, planning and decisions on replenishment between enterprises in the supply chain. In practical terms it is closely linked to the application of VMI. The method obliges the supplier to manage inventory with the collaborative involvement of customers and other partners. Data exchange (not EDI) by means of the internet has meant that CPFR technology has become a considerably cheaper and more attractive solution to implement. The lower costs associated with the introduction of CPFR enable partnerships in

the economic sphere to be established easier. The concept of CPFR differs from other methods because of its focus on the inter-connections in the chain from the raw material supplier to the producer. For successful inventory management, the optimization of the processes taking place between these chain segments is decisive, especially if a pressure strategy prevails.

The communication between the individual cooperating enterprises may take place, for example, on the basis of a direct peer-to-peer connection Sodomka (2012), whereby each of the business partners works with the CPFR application of its choice. The peer-to-peer communication in CPFR is based on reports of the same type, same method of transfer and important safety measures. Although there is no need for the partners to have the same software, it is necessary to share common data in a standardized format. The exchange of data and information enables forecasts to be made on the future development of business units, business plans and production activities to be drawn up, and the statistical evaluation of historical data to be conducted. In view of the fact that the data in the databases may be different, it is necessary to set certain criteria for exceptions which will be obligatory for both business partners. These criteria can either be defined identically for both CPFR applications, or only one application can bear their definition and the other one must respect them.

“The creation of the official CPFR model as a concept for serving effective inventory management was supported by the Uniform Code Council (UCC) and EAN International Standards of Management Processes (SMP), which provides the necessary level of credibility and professionalism to CPFR. The involvement of IS/ICT with the aim of supporting collaborative planning supposes in each case first of all the change of the present understanding of trade relationships manifested in the accommodation of enterprise processes and their harmonization with the aims of the whole chain.”

4.1.1 (Dis)advantages of CPFR application

The decisive benefit of CPFR is the creation of a shared information system. This enables the generation of more precise forecasts, clearly defined operative procedures, and provides a defence against duplicity in data. The basis for the forecasts is statistical methods incorporated in the information system. The acquired results are subsequently handed over to all the participating segments of the supply chain which subsequently compare them with the short-term and long-term plans. The collaborative forecast is created according to the precise setup of the CPFR system. The forecast is the basis for the coordination of the activities of all chain

segments, enabling them to decrease costs and increase profits. In the future, CPFR may also help in the development and use of new methods for forecasting demand.

The main disadvantage associated with CPFR is the demands it places on the technical equipment and software of the cooperating organisations.

4.1.2 Practical use of CPFR method

The method is often recommended for use by automotive component manufacturers. On the European market it is also applied by construction companies, particularly in Poland by window producers. The aim is to decrease costs due to reductions in inventory, increased levels of customer service and the quicker fulfilment of orders.

For communication purposes, this method requires high quality technical equipment. It is for this reason that CPFR is more likely to be (have been) adopted by large organisations which have sufficient capital to invest in information systems and technologies.

Conclusion

The application of progressive models to inventory management in combination with Vendor Managed Inventory or Collaborative Planning, Forecasting and Replenishment can be considered a suitable opportunity for innovation through which to improve the level of supply chain management. Interested enterprises can benefit in the form of reduced inventories, decreased transport and storage costs, shortened order periods, increased rates of return for shelf space in the retail trade and increased levels of customer service.

Prior to implementing the stated methods and technologies, enterprises should take into consideration a number of factors and possible risks. These issues include the: type and quantity of the goods to be delivered; frequency of orders; availability of IS/IT necessary for supporting these methods; suitable enterprise culture; ability to cope with “resistance to change”; and the level of interpersonal and inter-organisational relationships within the supply chain.

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THE STRUCTURE OF VENTURE CAPITAL RAISING BY COMPANIES IN POLAND AND CENTRAL AND EASTERN EUROPE: SELECTED ASPECTS

Joanna Malecka – Teresa Łuczka

Abstract

The ability to identify needs and accurately define ideas, willingness to take risks and the capability of taking up financing options available in the market are the features of every modern entrepreneur. Although capital market instruments are becoming increasingly popular, company owners still prefer classical money market instruments offered by the banking sector. Venture capital funds such as seed, start-up or later-stage venture funds are not a widespread source of development capital for most entrepreneurs in Poland and Central and Eastern Europe. This article outlines research results addressing the volume and number of funds raised in the countries of Central and Eastern Europe as well as their popularity among companies of different sizes. The results presented are based on source data from annual reports and publications that have been produced and made available by capital market institutions and from the authors' own research on Polish entrepreneurs. The scope and volume of venture capital used by companies for development are characterised, building on a linear regression analysis and comparisons. The article also attempts to determine the development trend of possible sources of financing through the capital market instruments (venture capital) and poses the research question about entrepreneurs' current awareness of opportunities to diversify companies' financial portfolios.

Key words: private equity, venture capital, source of financing, start-up, later-stage venture

JEL Code: L25, O12

Introduction

Capital has for many years been one of the most polysemic economic categories widely debated and disputed both from the theoretical and practical perspective, by, inter alia, A. Smith, J.

Robinson, F Modigliani, M.H. Miller, F.J. Busse, R. Milewski in foreign literature, and by A. Duliniec, J. Grzywacz, J. Czekaj, Z. Dresler, A. Bielawska, T. Łuczka in the Polish literature on this topic. From the point of view of financial management, capital is a source of investment financing for companies. Therefore, capital ownership and opportunities to diversify investment portfolios of companies that wish to develop effectively in today's market economy are becoming so significant (Modigliani & Miller, 1958, pp. 261–297; Muller et al., 2015; Myers, 1983, pp. 575–592; Acharya et al., 2015, pp. 551–552). Globalisation and internationalisation processes, which are affecting all macroeconomic indicators in individual European economies, are important, yet they after all influence the way companies choose their funding sources and their credit mentality much less than they affect GDP growth. Private equity solutions are relevant for all companies and their successive phases of development. For SMEs, venture capital is one of such riskier capital solutions. Investment is then made primarily in new companies having innovative projects that may achieve sustainable and dynamic growth thanks to the investment made by a fund (including the most advanced technologies in the high-tech group) (Gompers & Lerner, 2001, pp. 145–168; Małecka & Łuczka, 2016, pp. 93–110). The market value and growth of such companies depend on the funds so raised for the development of any young firm or a company just being formed. In the absence of collateral or credit history, such a company faces one of the fundamental barriers described by J.K. Galbraith, namely credit discrimination (Łuczka, 2013; Beck, 2006; Galbraith, 1957). The main goal of funds is to help developing businesses in the difficult start-up and growth stages. Venture capital is one of three major segments of the private equity investment alongside buyout and mezzanine capital. Buyout capital, however, concerns the acquisition by a fund of all or part of an existing business, usually together with its current or new management. Mezzanine capital is, in turn, defined as a high-risk debt provided to an enterprise for implementing its investment project and ensuring profit sharing if the project is successful. Given that, how valid are decisions on sources of financing entrepreneurship? Why are private equity funds still so rarely used by entrepreneurs? What is their structure like and which form is now the most popular, and is entrepreneurs' awareness of opportunities to raise funds for development through the capital market sufficient enough to make rational business decisions? This article attempts to identify the development trend of possible sources of financing through the capital market tools such as venture capital that are still less frequently used by

entrepreneurs, in particular SMEs. The data on Central and Eastern Europe³² has been supported by the outcomes of the authors' own research on the selection of financing sources conducted among Polish entrepreneurs.

1 Criteria for selecting the capital structure of companies

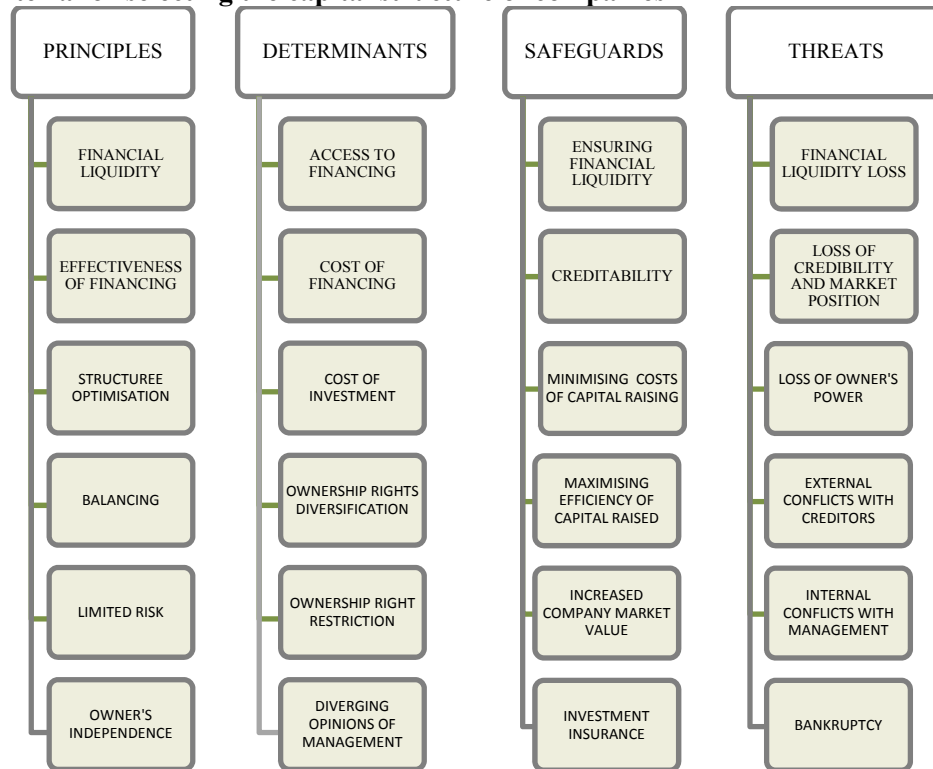
Despite questions asked by F. Modigliani and M.H. Miller in 1958 and by S.C. Myers, the president of the American Finance Association, in 1984, and attempts made by R. Elsas and E. Florysiak in 2008, now, after almost 60 years, the question of how companies select financing sources still lacks a clear-cut answer.

Generally, the relevant literature distinguishes two essential trends: (1) referring to the link between capital structure and the theory of finance and all processes within a company, which has attracted such supporters as S.A. Ross, R.W. Westerfield and B.D. Jordan, and (2) putting emphasis on the structure of the different financing sources, which can be found in the research by F.J. Busse, J. Grzywacz, T. Łuczka.

Nevertheless, in all cases, regardless of whether capital determines the structure of a company's finance or external factors condition its capital form, the criteria for classifying the decision on financing source selection are usually very similar (Figure 1).

³² CEE: Austria, Baltic countries (Estonia, Latvia, Lithuania), Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Other CEE (Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, Slovenia, Slovakia), Poland, Portugal, Romania, Spain, Sweden, Switzerland, Ukraine, United Kingdom.

Figure 1 Criteria for selecting the capital structure of companies



Source: the authors' own elaboration.

Solutions such as venture capital have many advantages: (1) they are an effective source of financing, (2) they minimise the cost of capital (no interest), consequently improving financial liquidity, but at the same time (4) they interfere with the owners' independence.

According to Polish Agency for Enterprise Development data, this concerns primarily companies classified as SMEs, which account for 48.5%³³ of the Polish GDP, meaning that they generate every second Polish zloty, with the smallest companies contributing approximately 30% to this macroeconomic indicator³⁴. According to Eurostat data, the structure of gross value added generation according to prices of factors of production in the enterprise sector by company size is similar in Poland and in the European Union countries: Poland: 44%, EU-28: 46%³⁵. Even the growth structure of economic sectors in Poland and in European countries, though differing in percentages, is identical to their internal shares of the economy –

³³ All companies generated 73% of the Polish GDP in 2012.

³⁴ Data for 2012.

³⁵ Data for 2011.

successively: services, industry, trade and construction³⁶. Why then do entrepreneurs seeking modern sources of financing so rarely resort to the capital market? Why do the approach to and opportunities to raise capital differ so considerably between neighbouring national economies?

2 Development of the private equity market in Poland and Central and Eastern Europe

The fundamental division affecting the opportunities to start cooperation with a private equity fund concern chiefly company development stages. Venture capital funds include (1) early-stage funds divided into seed and start-up funds, (2) later-stage venture funds and (3) balanced funds. However, there is a wider range of options to raise capital for development through growth capital, buyout and mezzanine funds mentioned earlier, and replacement capital, yet funds operate primarily in countries regarded as developed (Da Gbaddji et al., 2015, pp. 1213–1245; Metrick & Yasuda, 2011, pp. 619–654).

Given the specificity of the sector of companies seeking opportunities to cooperate with private equity funds, it should be highlighted that funds have different legal forms and structures and are not necessarily registered in countries where a given fund exists. The statistical data presented in this article concern the breakdown into sectors and countries according to where funds are invested rather than where funds that enable development through establishing cooperation are based. Private equity fundraising in Central and Eastern Europe increased its share more than threefold in 2014 (from EUR 409 million in 2013 to EUR 1.47 billion in 2014) (EVCA, 2015). In comparison to 2007, there was a marked decrease of 63.5%, with a 38% drop in the number of funds raising such capital. Venture capital funds were valued at EUR 176 million in 2014 as compared to EUR 62 million in 2013. This amount was 2.8 times higher and represented a considerable 12% of funds raised in CEE in 2014.

When analysing the financing according to company development stage (stage focus) in the period considered, it was noted that buyouts³⁷ invariably represented the largest share of the

³⁶ Services: PL: 29.7%, EU-28: 41.2%; industry: PL: 29.6%, EU-28: 24.5%; trade: PL: 25.8%, EU-28: 22.9%; construction: PL: 14.9%, EU-28: 11.5%.

³⁷ Buyouts resulting in a fund becoming the majority shareholder. Buyouts often comprise a company's management whose shares are expected to provide incentives to work more efficiently. It is a common practice to access new markets, perceived as an opportunity for the acquired company to develop fast and allowing it to catch up quickly with other companies in the sector that have a competitive advantage in a particular area of economic activity.

total private equity market. Venture capital funds ranked third, after the growth capital (Table 1).

Table 1 Private equity structure in Central and Eastern Europe in 2007–2014 [in %]

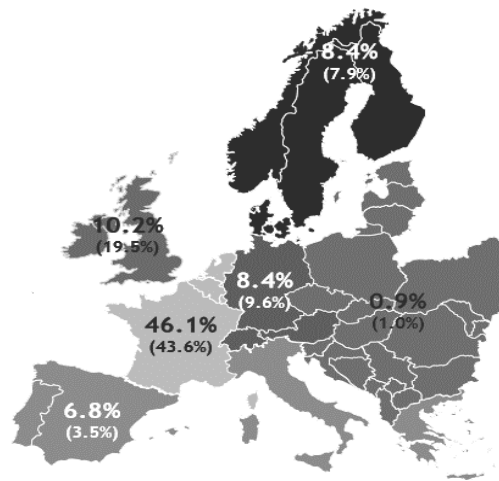
Stage focus	2007		2008		2009		2010		2011		2012		2013		2014	
	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL
Venture capital	8.6	9.0	11.8	7.9	15.7	0.4	8.7	0.5	8.2	3.9	8.7	1.9	9.4	4.1	8.7	8.8
Growth capital	6.2	23.1	12.6	3.5	21.2	23.3	15.0	17.4	11.5	24.0	10.9	22.0	9.8	39.6	13.4	26.1
Buyout	81.8	65.0	72.0	88.6	52.1	74.1	70.9	79.1	77.0	71.8	76.5	70.0	77.0	54.1	75.4	64.3
Rescue/Turnaround	0.7	0.3	0.6	0.0	2.9	2.2	1.2	0.5	1.0	0.3	0.9	0.7	0.9	0.0	0.5	0.0
Replacement capital	2.7	2.6	3.0	0.0	8.1	0.0	4.2	2.5	2.3	0.0	3.0	5.4	2.9	2.2	2.0	0.8
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

3 Venture capital market in Poland and in Central and Eastern Europe

The analysis of statistical data on sources of entrepreneurship financing through venture capital published by EVCA in cooperation with PEREP_Analytics in May 2015, showing the development of this capital market sector in the world in 2014 (2013), is clear: Central and Eastern Europe's share is only 0.9% (1.0% in 2013), although it should be noted that unclassified sources of investment capital represented a very large proportion of 6.1% (0.6% in 2013). Even if both results are taken into account, Central and Eastern Europe increases its share from 0.9% in 2014 to 7.0%, underperforming as compared to even one of these: Germany and Scandinavian countries (Figure 2).

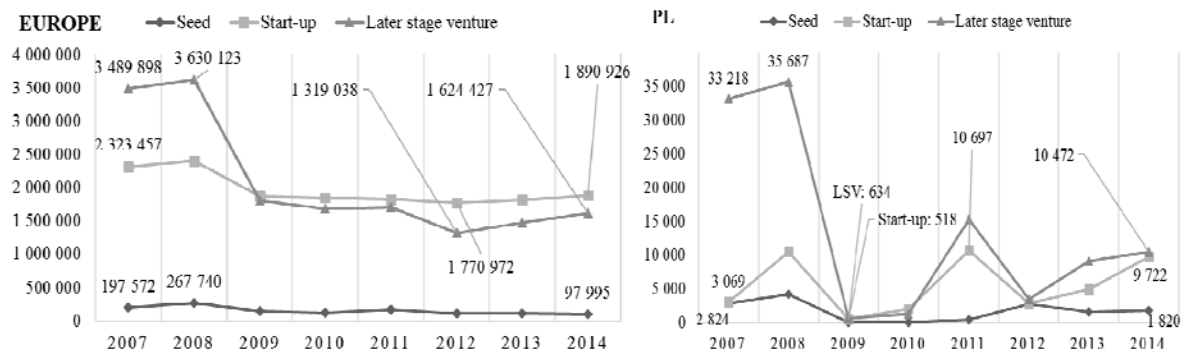
Figure 2 Fundraising geographic breakdown of venture capital – sources of funds in 2014 (2013) [% of total amount]



Source: EVCA 2015 and PEREP_Analytics

An in-depth analysis has shown that it is impossible to define a specific trend as regards the amount share of investment in successive stages of company development. In CEE, solely one correlation can be clearly noticed, namely that for early-stage venturing, specifically seed funds (Figure 3). Companies that seek financing in this way were and are far less numerous than those using start-up or later-stage venturing solutions.

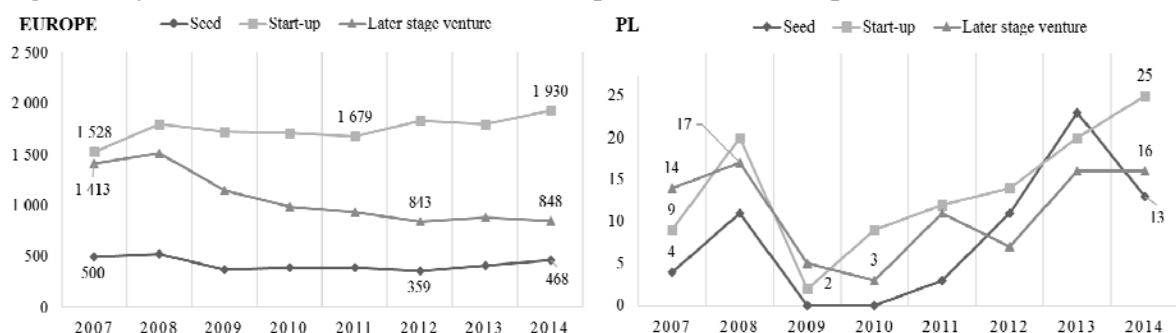
Figure 3 Dynamics of amounts of venture capital funds in Europe and Poland in 2007–2014 (in thousands of EUR).



Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

This correlation holds true both for the amount share of development capital raised and for the activity of funds cooperating with companies with certain survivability status, both in CEE and in Poland (Figure 4).

Figure 4 Dynamics of the number of venture capital funds in Europe and Poland in 2007–2014.



Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

In 2014, European investors were mostly interested in start-ups representing the 52% share and the amount of EUR 1.9 billion, with 1930 enterprises involved accounting for the 60% share of

venture capital investments in Central and Eastern Europe (Table 2). In Poland, this interest focused on later-stage venturing representing the 48% share with EUR 10.5 million invested in 16 companies. It should be stressed that start-up funds were definitely the prevailing solution in Poland as from 2010 (Figure 4). A prediction may thus be made on the basis of the activity of young entrepreneurs seeking development opportunities to raise capital for the development of their own enterprises beyond the traditional banking options (see: Gilson & Black, 1998, pp. 243–277; Vanacker & Manigart, 2013).

Table 2 Structure of venture capital funds by stage of companies financing in Europe in 2007–2014 [in %].

Stage focus	2007		2008		2009		2010		2011		2012		2013		2014	
	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL	E	PL
Amount share																
Seed	3	7	4	8	4	0	3	0	4	2	4	30	3	10	3	8
Start-up	39	8	38	21	49	45	51	62	49	40	55	32	53	32	52	44
LSV	58	85	58	71	47	55	46	38	46	58	41	38	43	58	45	48
Total VC	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Share of number of companies																
Seed	15	15	14	24	12	0	13	0	13	12	12	34	14	39	15	24
Start-up	46	33	49	43	55	29	56	75	57	46	61	44	59	34	60	46
LSV	42	52	41	37	36	71	33	25	32	42	28	22	29	27	26	30
Total VC	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

LSV – Later-Stage Venturing, E – EUROPE, PL – POLAND

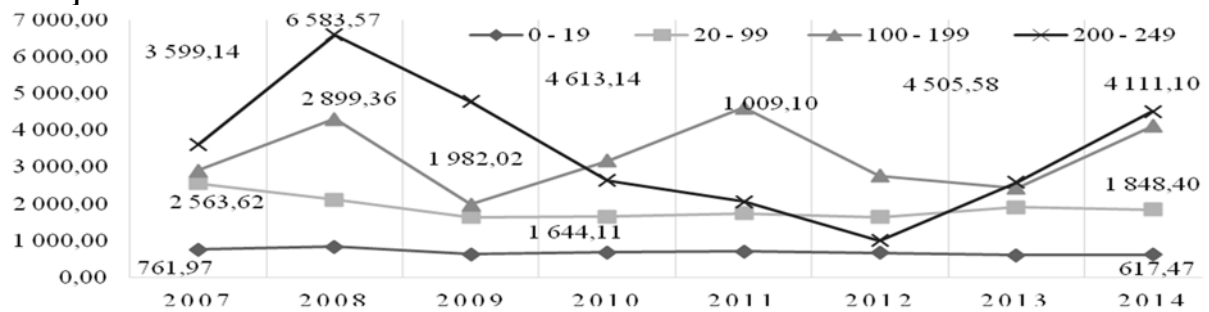
Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

An in-depth analysis has revealed that Polish entrepreneurs do not exploit the full potential of the financial market. All venture capital funds used in 2014 amounted to EUR 22 million, representing only 0.61% of funds invested in such development in CEE (EVCA, 2015). Generally, the venture capital market is not easy to predict, both in terms of the amounts raised and the number of funds investing money to support economic development (Figure 4).

Analysing further statistics on all forms of investment offered, later-stage venture definitely achieves the largest amounts for development in Poland (Figure 3). The situation in CEE is different. The results after 2009 allow defining further research questions: (1) are those companies with such a well-established financial position – of at least 5 years – and such high profitability that funds and investors are more willing to contribute larger amounts of co-financing, (2) do company age and maturity match the mature age of the company owner who has adopted modern solutions falling within the scope of capital alternatives that encourage

funds to invest, and (3) is it perhaps an established market position resulting from the company age – more than 5 years – that makes the owner a reliable partner confident about his/her decisions and choices in a company that shifted its SME mentality of autocracy and short-term liabilities towards a specialised managerial structure appreciated by funds? This issue is definitely worth exploring further and more research should be done on companies with 20–99 employees since small, medium-sized or large enterprises are classified differently by investors and legal regulations in force in the EU-28³⁸. Studying the performance of SMEs in 2007–2014, a steady trend can, however, be observed as regards the share of companies involved in financing (2007: 95%; 2008: 97%; 2009: 98%; 2010: 98%; 2011: 99%; 2012: 99%; 2013: 99%; 2014: 99%) and, from 2009 onwards, as regards the amounts of financing obtained by such enterprises (2009: EUR 3.5 bn, 2010: EUR 3.4 bn, 2011: EUR 3.5 bn, 2012: EUR 3.1 bn, 2013: EUR 3.3 bn, 2014: EUR 3.4 bn)³⁹ (Figure 6). The average amounts of development capital raised through venture capital funds by SMEs are shown in Figure 5.

Figure 5 Average size of investment obtained by SMEs in Europe in 2007–2014 [in thousands of EUR].

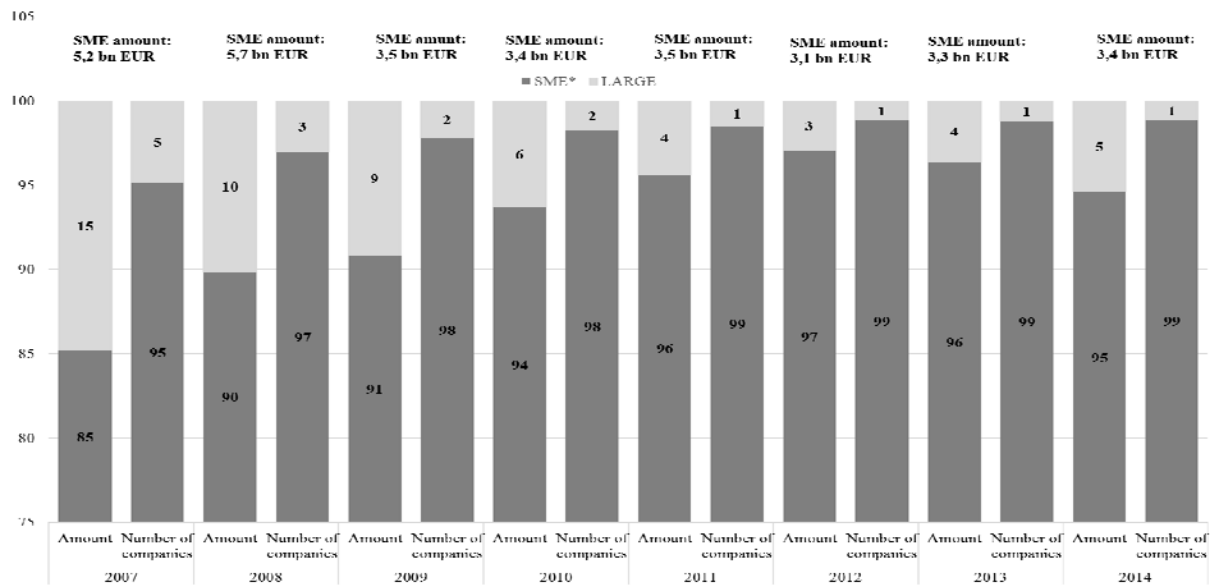


Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

³⁸The most popular division in the EU-28 refers to the number of employees: a micro-entrepreneur employs 0–9 people, a small entrepreneur 10–49, a medium-sized one 50–249 and a large entrepreneur more than 250 people. According to the EVCA data, investors attracted by funds, nonetheless, prefer the following breakdown: 0–19; 20–99; 100–199; 200–249.

³⁹ The SME sector raised EUR 5.1 bn for development in 2007 and EUR 5.7 bn in 2009 through venture capital.

Figure 6 Structure of venture capital used by amount and number of companies in 2007–2014 [in%]



* Breakdown of SME entrepreneurs as preferred by funds' investors: 0–19; 20–99; 100–199; 200–249.

Source: the authors' own elaboration based on data from the European Private Equity & Venture Capital Association.

4 Company age as a possible determinant of financing source selection in light of the authors' own research

The owner's equity is a special feature affecting most commonly used possible sources of financing for SMEs (Łuczka, 2013; Małecka & Łuczka, 2016, pp. 93–110). This was also confirmed by the authors' own research (Table 3). The following correlation is visible: the bigger the company is, the more limited use of its own equity. The amount of investment expenditure in Poland shows no steady trend, yet in SME sector it did not fall below the level reached in 2009 (Małecka, 2015, p. 50). The larger the studied company was, the wider the range of other possible external financing options, with trade credit being the most significant (see also: Łuczka, 2013).

Table 3 Company size and age and the SME capital structure.

Capital structure	Number of employees				Company age (in years)					
	Self-employment	1–9	10–49	20–249	up to 1 year	1–2	3–5	6–9	10–19	over 20
Own equity	91.1	78.7	71.6	58.5	84.9	80	73.5	79.5	77.7	78.8

Long-term credit	1.5	5.3	6.3	10.3	4.6	4.2	5.8	6.1	4.4	6.1
Short-term credit	2.2	3.9	5.2	7.6	1.1	3.8	4.2	3.4	4.7	4.2
Leasing	0.8	3.3	5.8	6.3	3.6	3	4.2	3.7	3.8	1.2
Trade credit	4.3	8.9	11.2	17.5	5.7	8.9	12.3	7.5	9.4	9.6

Source: the authors' own research.

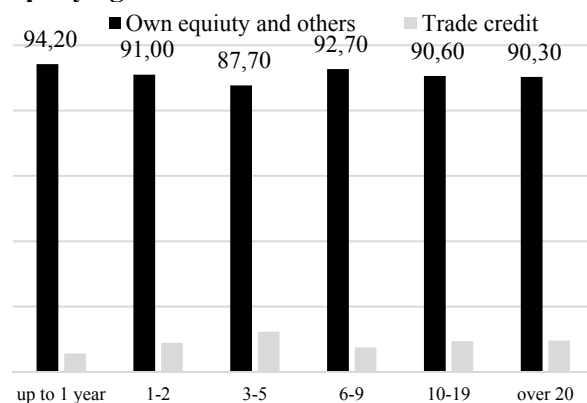
The company's survival rate strengthens its negotiating position and affects its credibility. History and experience show that this factor should be taken into consideration since business is based on trust, which grows in direct proportion to company age and size. The authors' own research has revealed a relationship between the use of own equity and the use of trade credit as a financing source in various development stages of the Polish enterprises studied (Figure 7). In examining the group, no similar correlation with company age was established (Figure 8).

Figure 7 Capital structure of Polish SMEs by company size



Source: the authors' own research.

Figure 8 Capital structure of Polish SMEs by company age



Source: the authors' own research.

The research has shown that SMEs prefer short-term commitment as a source of financing. A determinant may, therefore, exist that discriminates against capital offered by private equity funds, including venture capital, on grounds that it is third-party long-term (usually 3–7 years) capital. On the other hand, factors such as no need to pay interest, which allows for maintaining financial liquidity, and access to knowledge and experience of investors should encourage young, fast-growing capital-intensive companies to engage in such cooperation. This leads back to the question about the entrepreneurs' awareness of the opportunities offered by the capital market and a need to carry out thorough research in this area.

Conclusion

The market growth is promising since the numbers of both private equity funds and companies using capital they offer are increasing. In examining the use of venture capital funds by companies, what must always be borne in mind is the cycles that each time affect such financing. Poland is in this phase of divestment, with 38 companies having ceased cooperation on their projects. Some of them (28.2%) seized further opportunities offered by the capital market, exiting by means of an initial public offering (IPO). Other companies effected divestment by trade sale (30.8%). Throughout Central and Eastern Europe, there were 2483 enterprises, including 8.0% effecting divestment through the public market and 19.8% by trade sale. What is important, however, is a growing number of companies that consistently strive to develop, promote the culture of entrepreneurship and commercialise scientific research results. This requires involvement in research and development. Certainly, a key to faster success is international activity that contributes to more intensive development and creation of more jobs than companies operating in local markets only. Opportunities exist for both Poland and the whole Central and Eastern Europe and the presented statistical data appear to be promising. Taking actions for development, SMEs mainly resort to their own equity, thereby determining the extent of their economic expansion. They tend to be undercapitalised because of, inter alia, their limited use of solutions offered by today's financial market, namely capital market solutions, including venture capital. It is noteworthy that despite the difficulties in access to third-party capital, they take limited advantage of another type of financing, i.e. the private equity market offer. The low level of awareness may be a reason why SME entrepreneurs were and still are afraid to adopt such solutions. The concluding questions relate mainly to the effective promotion of the capital market among managers of modern enterprises. They might be answered correctly based on a thorough examination of the principles guiding the selection of financing sources by today's entrepreneurs and their awareness of the opportunities offered by the capital market.

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COMPARATIVE ANALYSIS OF LEADERSHIP STYLES IN COMPANIES

Milan Maly

Abstract

Main aim of our research was to do comparative analysis of leadership style of top managers in different countries, in this case in Austria and Czech Republic, because it creates the necessary preconditions for the implementation of the managerial, as well as technological innovation of the process of the real decision making.

Almost 600 top managers of the companies in Austria and the Czech Republic were questioned in the framework of longitudinal data analysis and the data were computerized.

According to Vroom-Yetton methodology we divide decision making styles into autocratic, consultative and participative ones and strive for identifying managers with the particular styles. Longitudinal data analysis starting in the beginning of 90ties of last century up to year 2014 shows that there are very slow changes in decision-making style of top managers in the Czech Republic, as the representative of the group of post-communist countries. Comparative analysis confirmed the tendency that top managers of Czech companies tend mostly to autocratic, partly consultative decision-making style and managers of Austrian companies to consultative, partly participative styles.

Faster changes and shifts for consultative or participative styles are recommended to Czech managers for improving their leadership style.

Keywords: Leadership style, Top managers, Comparative Analysis

JEL Code: M10, M12

Introduction

Leadership behavior is taken as one of very important factors of managerial, as well as technological innovation in knowledge society (Sternberg, 2007; Sternberg, & Vroom, 2002; Zaccaro, 2004; Zaccaro, 2007). Literature sources (e.g. Sternberg, 2007; Sternberg, & Vroom

2002; Zaccaro, 2004; Zaccaro, 2007) bring the evidence that certain forms of leadership style are more positively correlated with the technological and managerial innovations than the others. In other words the companies where managers apply more participative style are more innovative than the companies with mostly autocratic style. The main effort is to increase the percentage of the managerial decision making based on participative or consultative styles which brings higher level of innovation activity to the companies. The clear example in the Czech Republic is VW Skoda Auto Co., which will be discussed in our paper.

Main aim of our research was to do comparative analysis of managerial decision-making style of top managers in different countries, in this case in Austria and Czech Republic. We came from the hypothesis that the managerial style of managers from post-communist countries will match in relatively short time (3-5 years) the prevailing style in traditional market economy countries (Maly, 2000).

Longitudinal data analysis starting in the beginning of 90ties of last century up to now shows that there are very slow changes in decision-making style of top managers in the Czech Republic, as the representatives of the group of post-communist countries.

The main research question is what are the main reasons for such an unexpected development and what is necessary to do in the future to speed up the process of matching the level in both groups of countries.

1 Methodology

The data are not investigated by questionnaires as do the other researches today (Taras, Rowney, & Steel, 2009; Judge, Piccolo, & Ilies, 2004), but instead of questionnaires, a set of 30 cases is used, when the responses are close to behavior (Locke, & Latham, 1990; Szabo, Reber, Weibler, Brodbeck, & Wunderer, 2001).

This longitudinal research is based on Vroom- Yetton- Jago methodology (Vroom, Yetton, & Jago, 1976), where the main idea is illustrated by the equation

$$E = f(Q \times A)$$

where E ... Efficiency of decision-making

Q... Quality of decision

A... Acceptance by subordinates

Normative model of decision making consists of three basic areas:

- Managerial style (strategy of decision making)

- Diagnostic questions
- Decision making rules

Our analysis of leadership behavior is based on the Vroom-Yetton (1973) model. The model comprises three elements which are interconnected in the logic of the contingency theory: There is (1) no leadership strategy (style) which is successful in all situations, (2) therefore the situations have to be diagnosed, and (3) rules have to be found that explain which strategy best matches which situation.

Leadership strategies – according to the model (Reber, Auer-Rizzi, & Maly, 2004), a leader can choose from five levels of participation when making a decision (AI, AII, CI, CII, GII). These strategies range from an autocratic decision (AI) to a total group decision (GII). AI represents 0% and GII 100% participation. The assignment of different participation scores for the strategies between the extremes of the scale is based on empirical studies. „A“ stands for autocratic, „C“ for consultative and „G“ for group decision. „I“ stands for the concentration on one person (AI = leader alone, CI = one-on-one consultation with all subordinates who could be affected by the decision), and „II“ stands for the inclusion of two or more persons at the same time (AII= leader with passive participation of his subordinates, CII= consultation of the leader with the subordinates in a group meeting).

We can describe the strategies in the following way:

AI: You solve the problem or make the decision yourself using the information available to you at the present time.

AII: You obtain any necessary information from subordinates, and then decide on a solution to the problem yourself. You may or may not tell subordinates the purpose of your questions or give information about the problem or decision you are working on. The input provided by them is clearly in response to your request for specific information. They do not play a role in the definition of the problem or in generating or evaluating alternative solutions.

CI: You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then you make the decision. This decision may or may not reflect your subordinates' influence.

CII: You share the problem with your subordinates in a group meeting. In their meeting you obtain their ideas and suggestions. Then you make the decision, which may or may not reflect your subordinates influence.

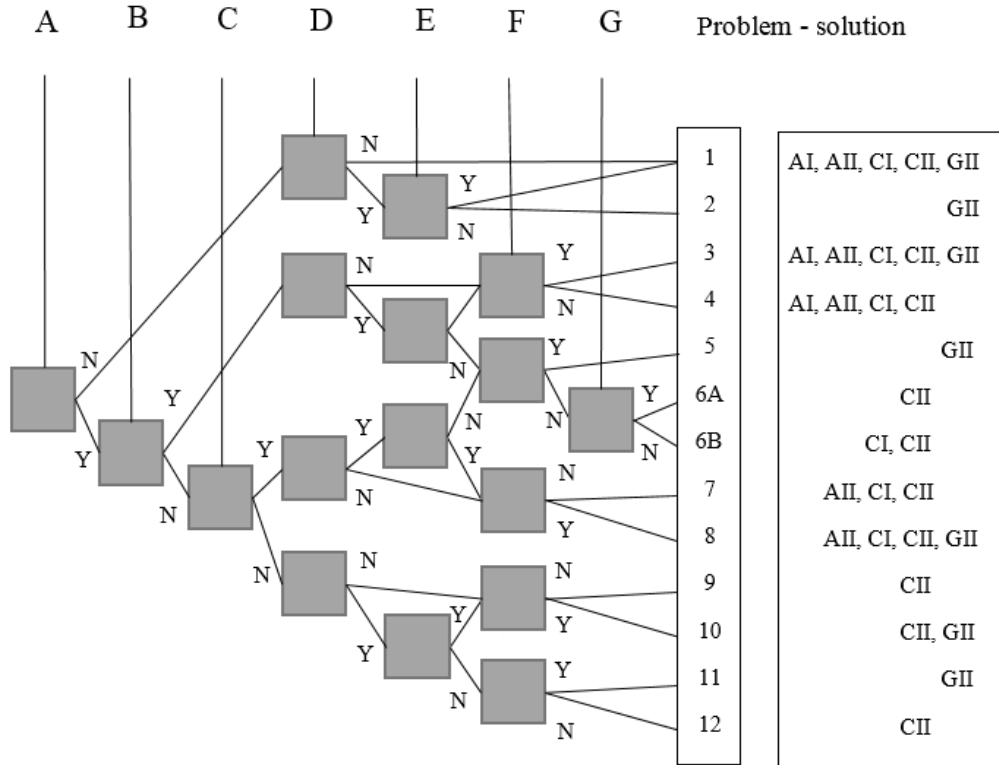
GII: You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of a chairperson, coordinating the discussion, keeping it focused on the problem and making sure that the critical issues are discussed. You can provide the group with information or ideas that you have, but you do not try to “press” them to adopt “your” solution and you are willing to accept and implement any solution, which has the support of the entire group.

Diagnostic questions then look for the answers of the following questions:

- (A) Quality Requirement: Is the technical quality of the decision important?
- (B) Leader Information: Do you have the knowledge, or is it readily available in on-hand manuals or documents, to reach a sound decision?
- (C) Problem Structure: Is the problem well structured?
- (D) Acceptance Requirement: Is it important that those who report to you commit to the decision?
- (E) Prior Probability of Acceptance: Are you confident that those who report to you would commit themselves to a decision that you would reach alone?
- (F) Goal Congruence: Do those who report to you share the organizational goals to be attained in solving this problem?
- (G) Subordinate Conflict: Are those who report to you likely to be in disagreement over the nature of the problem or over the alternatives each might wish or recommend?

Decision making rules are depicted in Exhibit 1. The diagnostic questions are answered one by one choosing YES or NO. The process finishes with indication of proper decision making strategy AI-GII.

Figure 1 Vroom/Yetton Decision Tree



Source: Vroom-Yetton (1973)

The applied method and data collection were dominated by a clear action orientation. No questionnaire was used and all data were collected by administering a „problem set“ in the form of thirty decision-making situations. The thirty cases were selected and rewritten from actual descriptions of real decisions provided to the authors (Vroom, Yetton, & Jago, 1976) by hundreds of real managers and were validated with the assistance of trained managers.

The problem set was administered to managers who, at the time of data collection, were unfamiliar with the Vroom/Yetton model. In addition to the cases, they only received the definition of the five strategies and were asked to select one for each case.

The data were collected prior to leadership training programs. In such a training program, the respondents were not providing a „favor“ for researchers since their main concern was the improvement of their own leadership behavior. All of the participants received feedback, in which their first reactions to the problem set were compared to a description of the model. Training was provided to assist the participants in using the diagnostic questions and the decision rules for upcoming leadership decisions in their home organizational environment.

For illustration, one of the thirty decision making situations follows:

Example 1: Nuclear Plant

Your Position: Maintenance Supervisor

A defect in the seating surface of a steam generator hand hole cover has been discovered during removal of the cover. The defect is serious and will require repair when you can gain access to it in about five days. Repair will be made difficult by high radiation levels in the area and the inaccessibility of the fault. It will be necessary to send in a team of two men to effect the repair. Time will be crucial since any delay will prevent restoration of the nuclear plant and significantly increase start-up costs.

As maintenance supervisor, your problem is to select the team members for the assignment. You have six maintenance men reporting to you. They vary both in experience and in qualifications for this particular job. You know all your men well, and selecting two who have the capacity to do the job is possible.

In the past, when a problem involving significant risks due to high radiation levels has come up, you have brought the men together as group and shared the problem with them and let them make the decision as to whom should carry out the assignment, this procedure has not been entirely satisfactory since the group has tended to choose the more junior members on the ground that they needed experience. You believe that such poor decisions have increased the amount of time to effect repairs such as this one.

However, it is apparent to you that the group members have been accustomed to having a part in decisions such as this one and might resent it if you were to choose the two men yourself. Since the location and nature of the job and high radiation levels make any close supervision impossible, the time taken to effect the repairs could be seriously affected by the willingness of the men selected to carry out the assignment.

Specification of the strategy: AI AII CI CII GII

2 Statistical sample

During this longitudinal study of almost 80 top managers of the companies in Austria and the Czech Republic were questioned and the data were computerized. Comparative analysis was carried out during the period 1993 to 2014 every year. The results in the first and the last years are depicted in Table 1 and 2. It confirmed the tendency that top managers of Czech companies tend mostly to autocratic, partly consultative decision-making style and managers of Austrian

companies to consultative, partly participative styles. Their managerial style does not indicate any substantial changes.

Table 1 Main Differences Between Czech and Foreign Managers in 1993

Country	Managerial style (No. of managers and percentage)					
	AI	AII	CI	CII	GII	Total
Czech Republic	18	156	42	48	30	294
	6.1%	53.1%	14.3%	16.3%	10.2%	100%
Austria	4	20	40	48	86	198
	2.0%	10.1%	20.2%	24.3%	43.4%	100%

Source: own research

Table 2 Main Differences Between Czech and Foreign Managers in 2014

Country	Managerial style (No. of managers and percentage)					
	AI	AII	CI	CII	GII	Total
Czech Republic	15	182	62	68	37	354
	4.1%	50.0%	17.0%	18.7%	10.2%	100%
Austria	4	20	43	66	93	226
	1.8%	8.9%	19.0%	29.2%	41.1%	100%

Source: own research

3 Findings

Former transition managers are typical with higher preferences for autocratic leadership styles, in higher disagreement with the prescriptions of the Vroom/Yetton models and in most of the main effects.

How can these results be explained for the former centrally planned economics, which politically brought about a revolution and a reorganization of its economy from central state planning and state ownership to a market system with a privatization campaign and an opening for international competition? Did more drastic changes remain on the national level and somehow manage not to penetrate the organizational and individual levels? The latter seems to be the reality, in spite of the fact that individual leaders show a high readiness for flexibility with high scores in their standard deviation. Is a „configurationally“ view the best approach to explain stability within a change process? In a simplified picture, we could argue that a model of three main levels would bring us closer to an explanation of this paradoxical situation of stability within the flux of change. The change took place on the societal /political level; the population worked and fought for the right to vote, to exercise the right of government participation, to express more individuality, and to support private ownership. At the individual

level, these are indicators that similar values and flexibility exist but do not have a place at the organizational level of private enterprises and it does mean that this potential can be tapped. Perhaps a change at this organizational level can only be brought about when the opportunity is administered congruently, and the „whole“ and its „parts“ can find an optimal (ideal). The existing „values“ need the appropriate situational conditions in order to be transformed into „actions“.

Several companies became part of international corporations. In these cases the managers are currently in conflict between the aspirations of the foreign company and their own culturally bound ways of doing things.

Very interesting results and the development of the managerial style we could observe in the situations, when Austrian companies created joint-ventures with Czech companies (Reber, Auer-Rizzi, & Szabo, 2000; Reber, Jago, & Maly, 2002; Reber, Auer-Rizzi, 2003; Reber, Auer-Rizzi, & Maly, 2004). In the cases, when Austrian company bought the majority of a Czech company the structure of top management logically changed and Austrian managers were appointed as CEO and other upper-echelon positions. Surprisingly, the Austrian managers applying the consultative and participative managerial styles in Austrian company after coming to Czech company changed it to autocratic style. Our findings show that the main reason for such a behavior is low trust in domestic managers and employees.

This was an example of relatively interesting, but in fact negative experience with the transfer of managerial experience to the neighbor country.

We can present an example of a very successful model of cooperation between Volkswagen and Skoda (Dorow, & Varga von Kibed, 2006; Maczynski, 2001; Vroom, 2003). In this situation, a Tandem System can be seen as a bilateral consensus-seeking program within one company, namely a structure with some elements of the partnership style on the national level. In this case the positive transfer of knowledge of the more advanced partner contributed to the very fast increasing of the level of domestic managers, mostly the junior and middle-level managers through the Tandem system, where one Czech and one foreign managers created international team working for relatively long time (1-2 years) together. Such a team is based on the rules, that there is no boss of the team. Both members have the same competencies and the same responsibilities. Decision making is characterized as a consensus of both partners. It means that before coming to final decision they discuss their proposals and look for common

solution. How this kind of cooperation influenced the managerial style in Volkswagen-Skoda company is depicted in Table 3. The results are very positive, close to the Austrian managerial style.

Table 3 Managerial styles in Volkswagen- Skoda in 2014

Company	Managerial style (No. of managers and percentage)					
	AI	AII	CI	CII	GII	Total
VW- Skoda	1	5	18	28	34	86
	2.1%	6.4%	21.3%	31.9%	38.3%	100%

Source: own research

Conclusion

In the issue of leadership behavior the unchanged inner hierarchical governance structure of the many directly or indirectly state-owned companies does not force managers to change their habits. In the leadership seminars, managers stated repeatedly: „I would like to include my subordinates in the decision-making process, but they expect me to make the decisions alone. That way if the decision is wrong, I alone take the blame“. Perhaps a communication problem exists (who tells whom first, what is expected in reality) or the leader forgets his/her responsibility as „model“ and has to be the front runner when it comes to admitting he/she does not have all of the information and therefore needs help and advice and depends on the commitment of subordinates to get the job done effectively.

Comparison of Austrian and Czech managers show the differences, influenced by former state ownership of almost hundred percent of companies in CR (Auer-Rizzi, Reber, 2013). The progress does not go further too fast. The example of Czech-Austrian joint-venture even shows negative influence of foreign managers. On the other side we are the witnesses of the positive development, when the proper methods are applied in case of VW- Skoda and managerial learning follows the desired development to more participative managerial styles.

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THE INTEGRATED MANAGEMENT (IM): NEW APPROACH FOR THE ADAPTION OF THE EDUCATIONAL PROGRAMS TO MEET THE LABOR MARKET NEEDS – AN INNOVATIVE MODEL

Mohamed Meri Meri

Abstract

The integrated management, based on the balanced score cards, plays a key success role in the adaptation of the educational programs to meet the labor market needs because it combines the contribution of the partnerships between “stakeholders (managers of public and private sector, NGOs and civil society) of the labor market / educative management/teachers/ Scholars and practitioners “. This integrated management approach sets the priorities and objectives of each institution, prepares the strategies and plans, provides all means and resources required, implements all the activities and tasks, evaluates the results, and develops the operation or process for achieving the objectives and having the expected outcomes.

The importance of this approach is very decisive to succeed the operations which will be integrated to be achieved in a perfect way in all of the activities.

The outcomes evaluation and continuous improvement will be one of the most essential activities because it gives the legitimacy to the results and the official certificates to graduates and students according to the national or local development plans requirements.

In order to succeed the activity, it should be practiced in common by (the educative management / teachers with stakeholders of the labor market)_because future graduates and students will benefit from it and they will know the real needs of Jobs profile (knowledge, skills and behaviors are required) and this will help in adapting the qualifications of graduates with the job profiles and real needs of the Labor Market.

This paper will present several practical Models used by the educational management.

The added value of the paper is to provide an innovative Model based on the integrated management using the Balanced Score Cards which includes the necessary components and

techniques to engage all of the participants in the activities and to apply the proposed approach in practice. It combines (Innovative management /business Model / Social Entrepreneurships).

Keywords: Integrated Management, Business Model, Entrepreneurships.

Introduction

The subject of integrated management (IM) based on the balanced score cards is very new in the academic fields and it plays a key role in the adaptation of the educational programs to meet the labor market needs because it combines the contribution of several participants as: “stakeholders (managers of public and private sector, NGOs and civil society) of the labor market / educative management/teachers/ Scholars and practitioners “. This integrated management approach is specified by setting the vision/mission/values and the priorities / objectives of each institution, preparing the strategies and plans, providing all means and resources required, implementing the activities and tasks, evaluating the results, and finally developing the operation or process for achieving the objectives and having the expected outcomes.

The importance of this approach is very decisive to succeed the operations which will be integrated for achieving all the activities in a perfect way.

The activities of (programs / curriculums, learning / teaching, assessment / evaluation, change and development, Etc. In theory and practice) are parts and parcels of the education process, and all these components can play an important role when we will develop the education system. But, this question remains: "how?" How to do it at the level of theory and practice? Is it enough to explore by topics?

The (IM) explores the theories and practices of all these components, especially the key influencers on this IM as: (stakeholders and youth workers, communities' educators/ Students, and management of education) for satisfying the Labor Market needs.

This paper follows the mixt methodology and proposes two parts, the first is theoretical which shows the literature review of the topic, the key elements of (IM) theory and practice, and the initiative of some scholars to move from traditional to innovative models. The second part is practical which proposes the new integrated management approach with the steps of application in the institutions.

Also, we propose in this paper an innovative model of integrated management (as practical model) designed and developed as part of our academic work to promote a developing project for the adapting of the qualification of graduates in (Faculties / Institutes) to meet the needs of the regional and inter-regional labor market .

This innovative model presents the collaboration required between the educational management, teachers, students, and stakeholders for developing and managing the educational system in each region or inter- region at the national level.

1 Theoretical part

1.1 Literature review

Some scholars and practitioners applied the topic of integrated management and showed its interests in the educational operation in general, whereas others proposed multiple topics which play different roles and have efficient impacts to the education as an engine of the educating system process.

Rhys Rowland-Jones said: "Integrated means putting all the internal management practices into one system but not as separate components. For these systems to be an integral part of the company's management system, there have to be linkages so that the boundaries between processes are seamless". (Rhys Rowland-Jones, 2008)

The effective management in the era of globalization is an innovative approach; it requires an effective, efficient and flexible management system. Effective means that it is interpreted as addressing all relevant stakeholders' concerns in a context of Corporate Social Responsibility. Efficient means that it does the job with low resource use. Flexibility requires changing conditions and new requirements can be easily included. Actually, many organizations are already working with Integrated Management Systems (IMS). (Abrahamsson Sten & All, 2009). IQA.2007 defines (IMS) as: " An integrated management system is a management system which integrates all components of a business into one coherent system to enable the achievement of its purposes and missions. Source : IQA.2007(Rhys Rowland-Jones (2008) .

TÜV NORD GROUP presents (IM) as purposeful interaction of all involved parties to ensure the highest possible company success: This is can be achieved with business management systems.

However, a multitude of different management systems often exists alongside each other. This results in additional pressure and makes it more difficult to gain a clear survey: Specialised management systems for different company areas often cover identical company functions and processes and this becomes apparent when all the company's operations are interlinked. The Integrated Management System (IMS) is the ideal solution to this problem since all the processes of the company are covered. The management requirements regarding environment, quality and labour protection are taken into account, such streamlining also reduces costs.

An integrated management system (IMS) combines all related components of a business into one system for easier management and operations. Quality, environment, and safety management systems are often combined and managed as an IMS. These systems are not separate systems that are later joined together, rather they are integrated with linkages so that similar processes are seamlessly managed and executed without duplication.(Sci Qual International Pty Ltd (SQI).

Also, integration means a combination; that is putting all the internal management practices into one system in such a way that the components of the system are not separated but linked to one integral part of the company's management system. In simple words, an integrated management system (IMS) is a management system which combines all components of a business into one coherent system so as to enable the achievement of its purpose and mission. (Chartered Quality Institute, 2007).

This has resulted in many organizations having two or more separate management systems run by different groups of individuals. As the implementation of the standards has been developed, companies are faced with the decision of whether to integrate their management systems or not. If integration is their goal, the level of integration they wish to achieve is going to be their next challenge. (Baldi, 1999).

Dick Hortensius said: "The international organization for standardization publishes surveys yearly on the application of ISO management system standards (MSSs) which shows a steady worldwide increase in certifications based on ISO 9001 (quality management) and ISO 14001 (environmental management). However, while these surveys do not indicate the size of the organizations that have implemented the standards in Netherlands and other countries, shows that a growing number of small to medium-sized enterprises (SMEs) are implementing multiple

MSSs, though some of them are facing difficulties in doing so and need help." (Dick Hortensius. (2013) http://www.iso.org/1.../home/news_index/news_archive/news.htm)

So, Integrated Management Systems means understanding the basic components of an organization such as integrated system of assets that includes:

- Corporate leadership given by top management including formulating vision, strategy, objectives, planning and resourcing; and management system comprising all the formally defined arrangements such as vision, strategy, objectives, rules and guidance for controlling and guiding the organization's assets and processes along with organization, culture, knowledge base, product production or service delivery system and processes (core, supporting and contingency); stakeholders (including the prime position of customers); and aspects of consciousness (awareness, creativity, stress). Dalling. Ian (2007).

1.2 Methodology and Hypothesis

The methodology followed in this research is based on analyzing the literature reviews of studies and researches already completed in the area of (IM), as well as , the practical models invented by scientists and practitioners. This methodology of documentary analysis presenting the paper in two parts (theoretical and practical). At the end, we propose an innovative model for applying it in the field of work. The hypothesizes here are:

- Can the concerned in education adopt and apply the integrated management in the educational institutions?
- What practical models will be relevant to applying this style of management?

1.3 The importance of the integrated management

Many benefits can be taken into consideration when any organization applies the IM such as: Meet all standard requirements with one set of policies, plans or procedures, define roles and responsibilities that highlighting common objectives, audit more than one system at a time to save money and resources, improve overall efficiency by removing the needs to duplicate tasks, make it easier to continually improve all your management systems, etc. (BSI, London, U. K).

1.4 Analysis of the elements of IM:

There are various components of the integrated management in organizations including: (Policy, planning, systems and process management, sustainability management, quality management, risk management, value management, knowledge's management, performance

assessment, management review, and change management). Stakeholders and educational management should deal with all those components.

- The Crucial Role of stakeholders to implement (IM) to meet labour market needs:

Stakeholders are here defined as all those are being affected by the organization such as: (owners, employees, Suppliers, customers, users, banks, neighbors, municipalities, governments, authorities, etc.). Some of the stakeholder needs are dealt with using standardized management systems, whereas other needs are taken up by different general practices. For example: (Customers ISO 9000, Customers/owners/general public/ food safety management ISO 22000, nature/ resources and environment ISO 14000, Global responsibility for man and nature/ Global Compact/ OECD rules / GRI reporting, Communities generally and in places of operation specially CSR/ISO 26000/SA8000, Customers/owners economic safety/transparency / Sarbanes-Oxley; AA1000Standards Governance, Customers/owners/general public – anti corruption – Transparency International, Company economic control – Financial and economic performance management system, Intellectual knowledge/personnel and customer integrity ISO 27000)etc. (Abrahams son Sten and All (2009).

- The roles of education that are important to implement (IM) to meet Labour market needs:

From the 2000s, studies have criticized the lack of functionally integrated programs of study in higher education especially in business and management programs. During the same period, it became increasingly clear that business activity had become dangerously disembodied from the social and ecological systems on which it depends and links causally to a series of major societal problems. As a result, whether one considers the relations between different functional specialties inside an organization or the relations between the organization and different external stakeholders, the requirement for managers who can articulate and reconcile issues from multiple perspectives continues to grow.

Integrated management in education means: The global challenges people are facing as a society and as managers are interrelated. Social, economic and environmental issues do not exist in a vacuum nor are they affixed to one discipline or sector. As societies evolve and become more complex, organizations and management education will need to adapt and offer

new modes of learning and managerial knowledge. <http://www.mcgill.ca/desautels/integrated-management/about-mdiim></ref>.

In education, a discussion process that engaged teachers, professors, students and managers of educational institutions in the education production process would eliminate the problem of adaptation between education production and labor market needs. all of them require national / international standards system to define the global currency of human capital because the economies in the world move from tangible to intangible capital assets, the ability to define and determine the value of human capital possessed by individuals, communities and countries becomes essential for a successful global knowledge economy. That is why the opportunity to create worldwide standards begins with the adoption of international quality standards, and the time has come for those responsible for education to come together to define and apply an ISO 2020 global standard for quality education. (Sams. Bill, 2013).

2 The Practical Part

2.1 Reasons to apply integrated management:

There are a lot of reasons to apply (IM) in education, described as the following:

- Be consistent within the organization.
- Improve internal and external communication.
- Avoid duplication and gain cost savings.
- Reduce risks.
- Expose conflicting objectives.
- Identify and rationalise conflicting responsibilities and relationships.
- Gain a structured balance of authority/power.
- Focus on business goals.
- Create a formalisation of informal systems.
- Harmonise and optimise practices
- Identify and facilitate staff training and development. (Rhys Rowland-Jones. (2008).

2.2 Results and Findings:

The significant social and economic issues with which our world is now fighting and managers are closely related. As these challenges grow, leaders of educational institution must be able to

appreciate the interconnectedness of different forms of capital and develop innovative solutions that create value for their organization and its stakeholders.

These solutions had been taken a kind of models to apply them in their institutions.

2.2.1 Integrated Management System Models:

Steve Maguire, Director of Marcel Desautels Institute for Integrated Management (MDIIM) said: The MDIIM model focuses on five thematic priorities. (Two are derived from activities which constitute integrated management: “Innovation” and “Robust Metrics and Risk Management. The other three are derived from values too often juxtaposed and assumed to be in conflict with economic value: “Health”, “Social Well-Being”, and “Sustainability”).

Whether one considers the relationships between different functional areas inside an organization or the relationships between an organization and its external stakeholders, there is a growing need for managers who can articulate and reconcile issues from multiple perspectives. The model is described as the following:

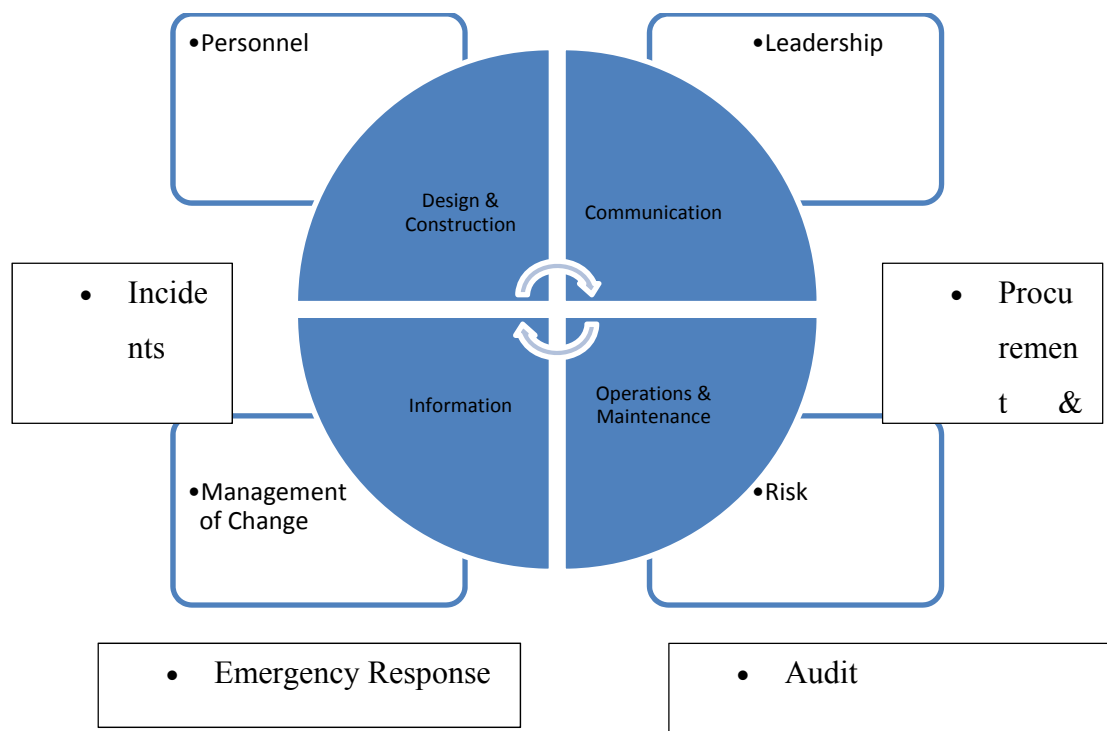
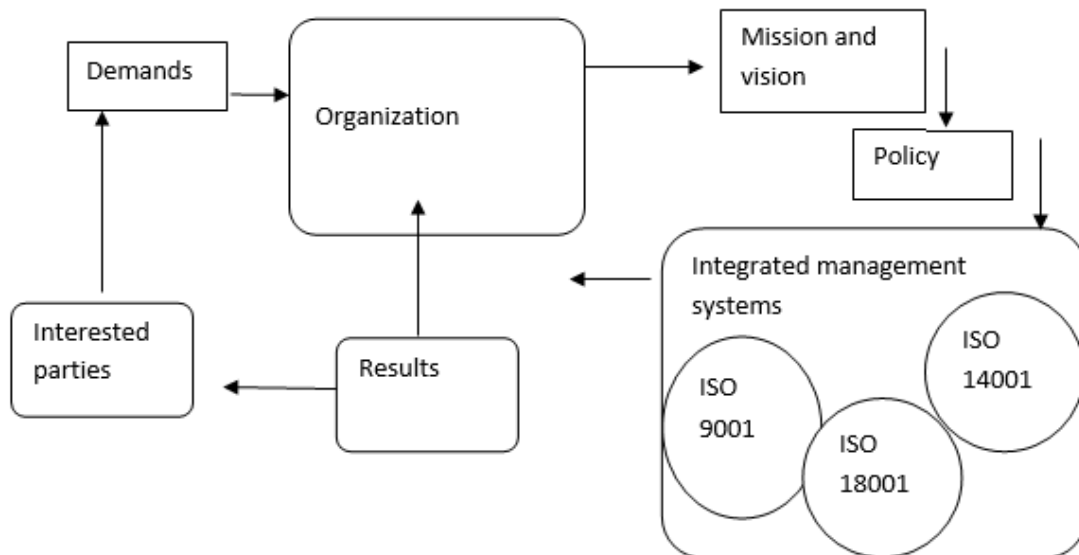


Figure 1 Marcel Desautels Institute for Integrated Management (MDIIM)

2.2.2 Mulu Mezoh Ajija Patience MODEL :

Mulu Mezoh Ajija Patience describes the (IMS) and different models or approaches which a company can achieve. He proposes a Model applied in a (Danish Companies), as presented in the figure below:

Figure 1 Summary of IMS; driving forces and benefits.

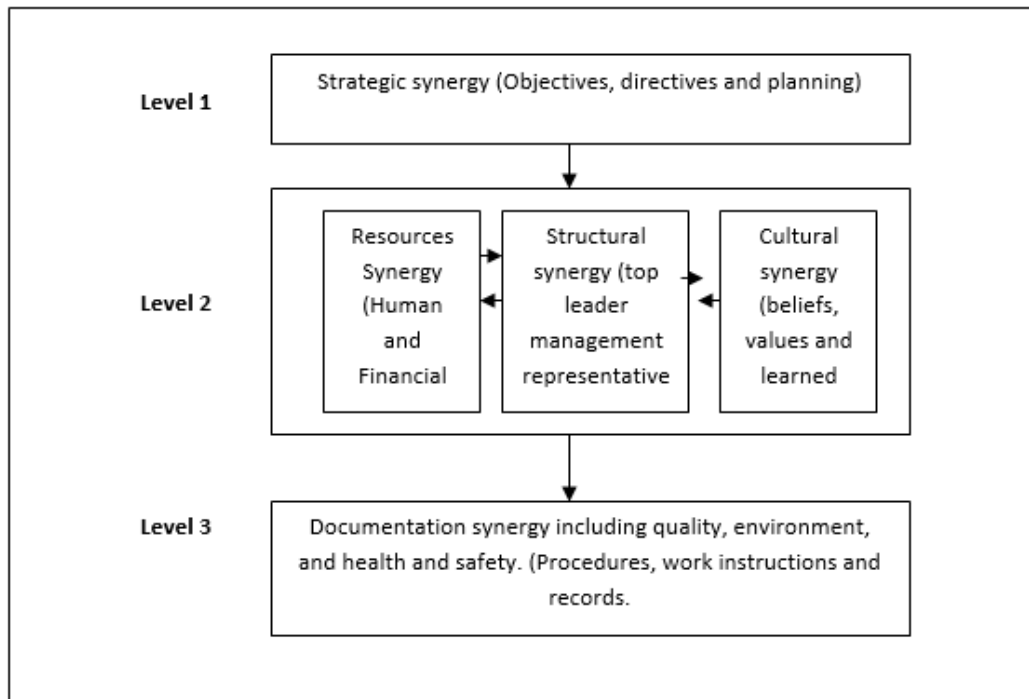


Source: Mulu Mezoh Ajija Patience (2008)

2.2.3 Approach based on multi-level synergetic model:

Zeng et al (2007) proposed this model focusing on the importance of synergies for implementing the integrated management system. This model includes 3 levels of integration represented in the figure below:

Figure 2 A synergic model of implementing IMS



Source: Zeng et al. (2007).

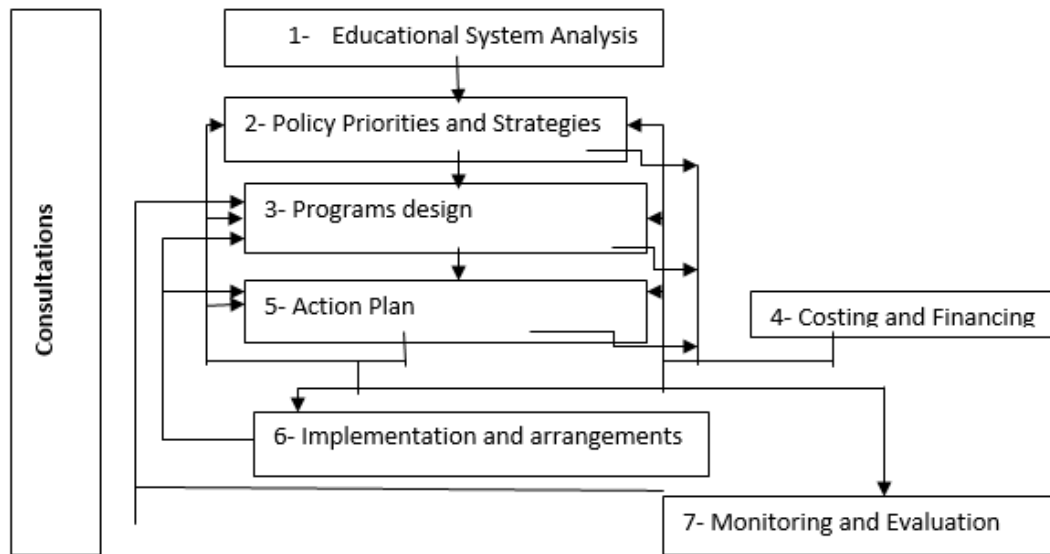
2.2.4 The New Perspective Education Development (IIEP – UNESCO MODEL):

UNESCO and another organization interested in education development designs present new education development plan. This plan forms the link between the long term goals of the education service in conjunction with the long term national goals expressed in the sustainable development plan and the requirement for each government department to have a 3 Year Strategic Plan which is fully budgeted. The (education development plan), together with the Sustainable Development Plan, will provide the long term vision that took 3 Years of putting Strategic Plans and will be delivered through more detailed resources and planning.

The Components of the Education Development Plan and their associated strategic objectives represent the areas that are crucial for improving quality and raising standards across all levels of education. The achievement of these objectives depends not only on the professionalism, dedication and practice of education, but also on the partnerships and involvement of parents and the wider community. (IIEP – UNESCO (2015)).

The Educational Development Plan shows the main components of educational development process and how they operate in an iterative way. The seven components are further described in the following Figure.

Figure 3 Main components of the ESP development process



Source: IIEP – UNESCO (2015)

2.3 Discussion:

After analyzing and realizing the literature review of the studies and researches, we note that most of the scientific works already cited have addressed the subject by taking into account some elements, but did not treat the subject of a global vision of integrated management. That is why, we presented our models which are very important to illuminate the contribution of scientists and practitioners in this field, and even to facilitate the presentation of what we have innovate as a part of our academic work.

Our Model highlights the contributions of others, and adds an innovative and new perspective or approach to study the issue of adaptation of educational programs and products to meet the needs of the labor market at the regional or national level.

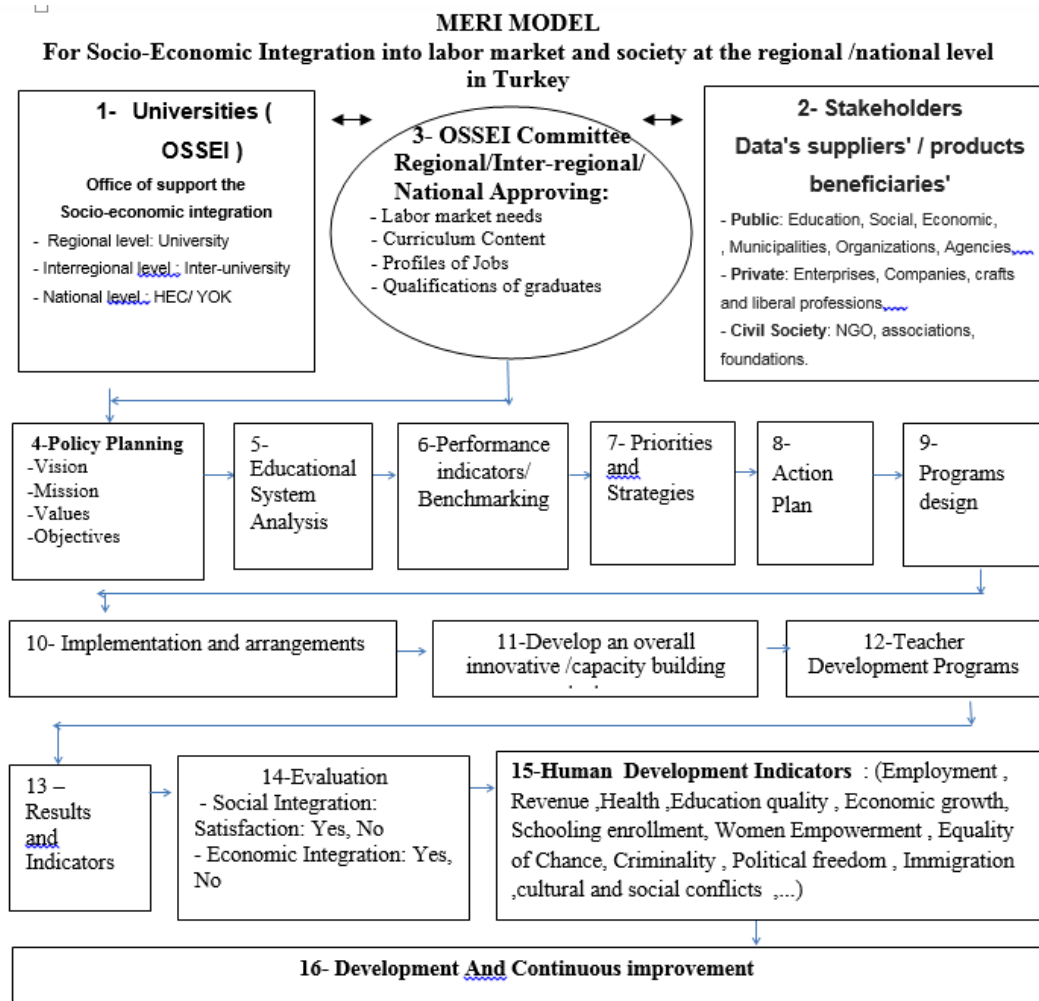
2.4 Management and research implication:

We have designed and developed a (practical model) as part of our academic university work at Gaziantep University in Turkey to propose a developing project for adapting the (Faculties / Institutes) programs to meet the needs of the regional and inter-regional labor market).

This Model presents the collaboration between the (Educational management/ Teachers / Students, and Stakeholders) for developing and managing the education system in each region or inter- region or at the national level.

For using this Model, every educational institution is required to formulate (Teamwork /Committees) to (analyze the situation ,study the indicators, set plans, provide means and tools, implement the programs of work, monitor, evaluate and improve).

The (practical Model) is an innovative approach for implementing (IM system) in the educational Institution, which presented by the figure below:



Conclusion and Recommendations

Limitations: this research is a step on the long road of integrated management. We make some contribution for spreading the approach and encouraging researchers and practitioners to complete and implement (IM) in educational institutions or in any other organizations.

Conclusion: we can conclude our research as follows:

- The role of stakeholders is crucial to implement (IM) vsv of Labour market needs

- The education responsible supports the new approach of (IM) vsv of Labour market needs:
- The concerned in the development of education have invented several models to be applied in order to improve the education.
- The education institutions leaders had adopted and applied some elements of the integrated management in the educational institutions.
- Scientists and practitioners invented practical models which will be relevant to apply a new style of management in the educational institutions.

Recommendations: we recommend everyone who is interested in education sector:

1. It is necessary to review all the components of education system at the regional, inter-regional national level for adapting these components to meet the needs of labour market.
2. Scholars and practitioners should move in their theoretical and practical work from (programs evaluation or educational development) to the (integrated educational management).
3. Beneficiaries of outcomes of education system must be invited to support the initiatives focusing on enhancing the interrelationship between education components and the labour market needs.
4. Integrated management in education and mainly the practical Model is one of the new approaches for improving the education system.

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SLOVAK BUSINESS ENVIRONMENT IN THE CONTEXT OF THE SITUATION ON THE LABOUR MARKET

Petra Milošovičová – Paulína Stachová

Abstract

The importance of the entrepreneurship for modern economies has been studied widely. This paper investigates the relationship between self-employment and SMEs and unemployment rate in Slovakia. The link between the labour market and the business environment is very close one. The researches made in this field found out that high unemployment rates may lead to start-up activity of self-employed individuals (the “refugee” effect), or on the other hand, higher rates of self-employment may indicate increased entrepreneurial activity reducing unemployment in subsequent periods (the “entrepreneurial” effect) (Thurik, 2008). The situation in the Slovak republic proves that small and medium enterprises, together with the self-employed persons, plays a crucial role in the employment, with their contribution of 69,6% to the total employment. The research based on the secondary statistical data allowed us to describe the situation of SMEs, hand in hand with the situation on the labour market. This analysis was strengthened by the correlation analysis. The relation between unemployed and start-up business motivation was proved. Only the group of long-term unemployed shows very low correlation. The findings of this paper may serve as a contribution to the discussion searching for the effective solutions to improve the situation on the Slovak labour market.

Key words: unemployment rate, labour market, business environment, SMEs

JEL Code: E20, J20

Introduction

Slovakia’s start of the real economic growth, compared to its neighbors in Central Europe, during 1990s was a bit slower. With the start of the new millennium the things started to change a bit more promptly, and after entering the EU in 2004 Slovakia was on the right way to increase its economic prosperity. Before the crisis of 2008/2009 it was one of the fastest growing EU

countries, and in the period after the crisis it seems to be one of those which are recovering faster than the rest. In 2015 the Slovak real GDP grew at the rate of 3,6 % (Eurostat 2015), the unemployment rate reached the post-crisis minimum of 11.5 % and many reforms took place in the Slovak economy. Changes in the business environment played important role in the whole process. Entrepreneurship is generally viewed as essential for the development of present market economies, as new firms are often source of increased productivity and innovation, leading to economic growth and growth of employment. The reality proves correct two different explanations of the relation between the unemployment rate and starting of business tendency. The so called “refugee” and “entrepreneurial” effects are at work.

The new trend in present world is to focus economies towards entrepreneurial economy, based on the knowledge as the main competitive advantage. Knowledge is mainly represented by R&D, human capital and patented inventions, so it seemed that SMEs and self-employed stayed sidelined. The last decade proved those thoughts incorrect, as small and young firms have returned as the engine of economic and social development. Small firms, in general, and new ventures, in particular, are the engine, not only of employment creation, but also of productivity (Thurik, 2010). This could be the case of Slovakia on which it can build its future economic growth. Unfortunately there are persisting several serious problems in Slovak economy as e.g. long-term unemployment, unemployment of youth, availability of childcare, position and conditions for SMEs compared to multinationals. How government choose to regulate business activities also plays a fundamental role in the development, performance and growth of individual companies and entire industries.

This paper is organized as follows. Firstly it explains the position of SMEs in Slovakia, then it shows the development of the unemployment rate during last decade. The last part discusses the results of the correlation analysis between number of SMEs and the unemployment rate. Conclusion offers short summary of the findings.

1 Small and Medium Enterprises in Slovak Business Environment

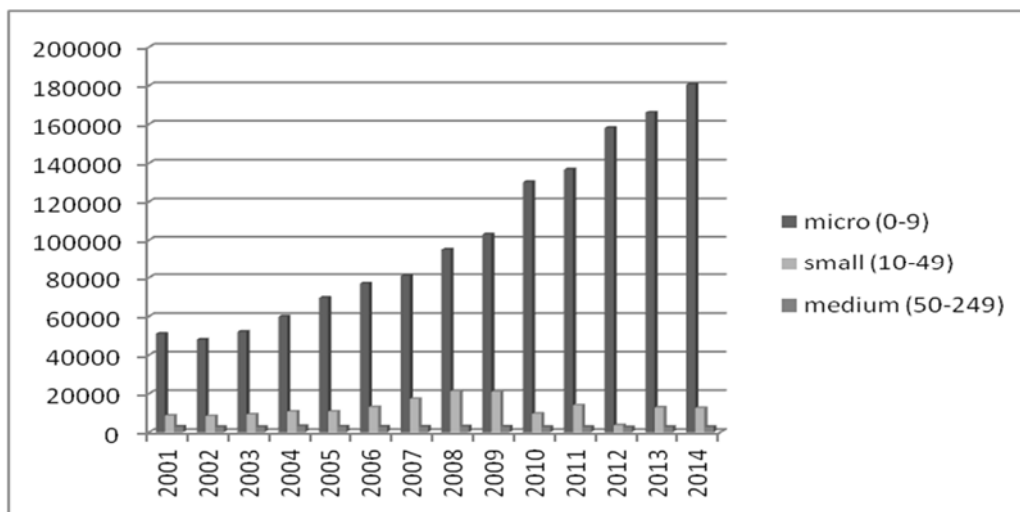
The business environment is formed and influenced by many different factors, but during the last years Slovakia is taking measures to improve it. Even though the role of foreign direct investment – mostly multinational enterprises, is presented much more (e.g. by politicians and media in general), it would be misleading to think that the Slovak economy is dependent on them. The opposite is true. Small and medium-sized enterprises (SMEs) play a key role in the

economy of the whole. The SMEs represented approximately 99,9 % of the total number of businesses in Slovakia in 2014. They are undoubtedly in the position of the backbone of the economic growth and prosperity, employment and social integration, and they play a key role in innovation and R&D.

The number of small and medium-sized enterprises in Slovak economy is growing over time. This positive development is based on the openness of business environment for establishing the SMEs. Low entrance barriers contribute to the growth of competitiveness, innovation and quality improvement. There were also several structural changes in the recent years. The proposal of the new law for the support of small and medium enterprises should from the beginning of the year 2016 facilitate establishing and running SMEs in Slovakia (note: at the time of finishing this paper – May 2016 - the law was still not adopted).

In Slovakia nearly 75 % of SMEs are actually micro enterprises with fewer than 10 employees. Their number is permanently increasing, even during the crisis period, when there was decrease in almost all other types of enterprises according to their size. See Figure 1.

Figure 1 The development of Small and Medium sized Enterprises in the period 2001-2014



Source: Slovak Business Agency, 2001-2014; SLOVSTAT, 2015b

Even though there is increasing tendency of the number of SMEs, in comparison to other European countries, Slovak business environment has still many weaknesses. Administrative and regulatory barriers and quite often legislative changes of different kind harm the business environment and make it less competitive externally. Despite improvements, the process of setting up and running a business in Slovakia remains relatively onerous. Administrative and

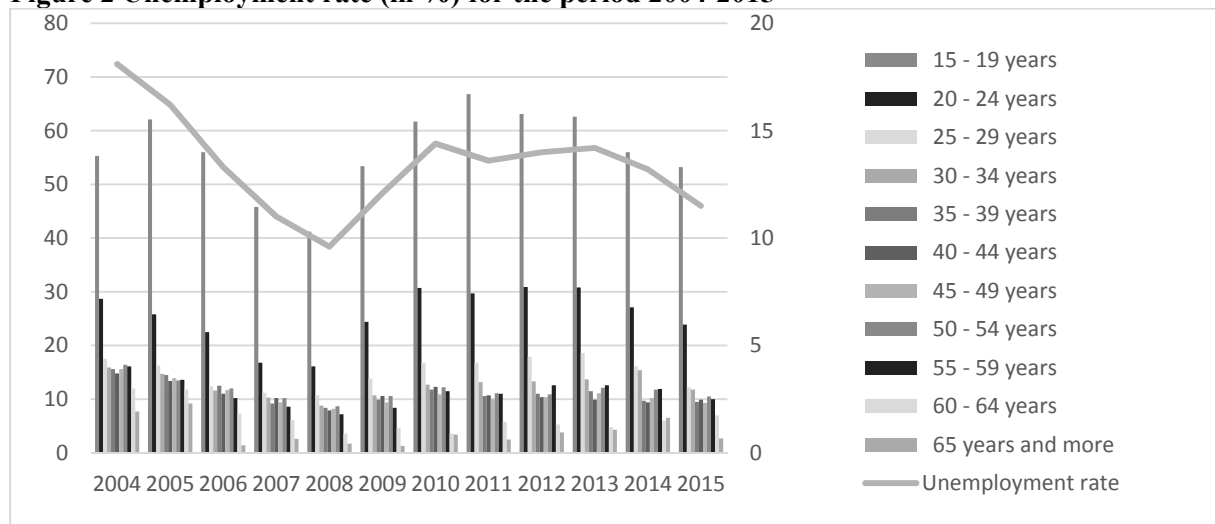
regulatory barriers harm the business environment, reducing external competitiveness and domestic economic activity. The weaknesses in Slovakia's business environment are regularly reflected in cross-country comparisons (e.g. Pilková, A. and col., 2015).

2 Characteristics of the Slovak Labour Market

The labour market has witnessed a cyclical improvement. The unemployment rate fell to 11.5 % in 2015 and is expected to further decline below 10 % in 2017. However, structural unemployment hand in hand with unemployment of the young people and long-term unemployed, continues to represent a key challenge, reflecting pronounced geographical differences in labour market conditions, accompanied by low labour mobility between regions. Low educational outcomes and inequalities linked to socio-economic background represent major obstacles to the improvement of human capital with potential knock-on effects for skill levels and growth potential (European Commission, 2016).

The labour market has been for a long time a big challenge within the effort to achieve an economic prosperity and growth. The situation within the labour market is not improving so smoothly together with the development of the rest of the economy. The unemployment rate in recent years was still very high (see Figure 2), and still exceeds the pre-crisis level. At the same time, the rate of employment is lower than the EU average, and the biggest problem is in the group of young people (15 – 29 years, see Figure 2).

Figure 2 Unemployment rate (in %) for the period 2004-2015

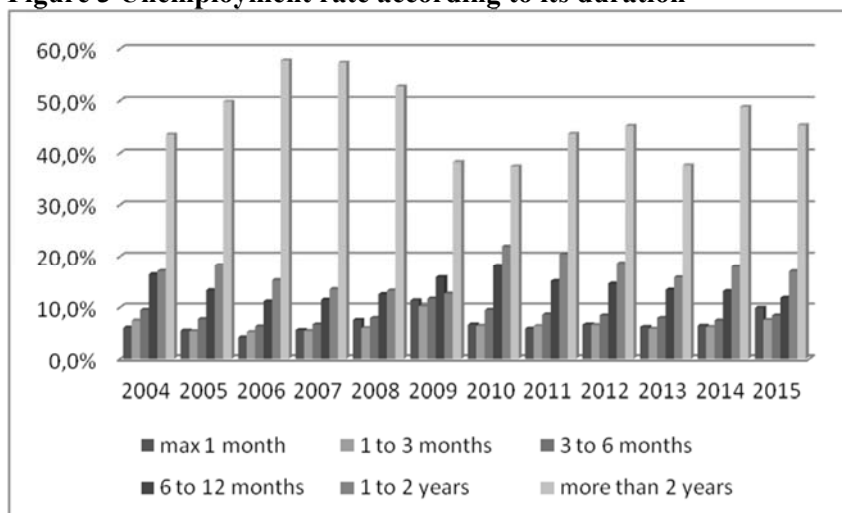


Source: Adapted according to SLOVSTAT, 2015a.

Within its report OECD pointed out that the poor labour market performance of Slovak youth is primarily the result of high unemployment rates among graduates from vocational schools, who account for nearly two-thirds of all youth graduates (Ministry of Labour, 2013). High youth unemployment is partly caused by the education sector where there is a missing link to the needs of the real economy. The youth guarantee and the dual system of education are seen as a reasonably good measures to reduce young people's unemployment (European Commission, 2014).

What makes problem even more serious is the fact, that Slovakia has a persistent high long-term unemployment (see Figure 3). Between the unemployed the biggest group are those, who are unemployed more than 1 year (this is what we call economically "long-term unemployment"), and even the biggest group of unemployed consist of those, who are unemployed already more than 2 years. The long-term unemployment is one of the highest within the EU and the OECD. That means, that unemployed people, even though they may fulfil the general conditions of being easily employed, given their age and obtained education, have a real problem to find appropriate job, as they are losing their job skills, working habits and even the motivation. This makes the problem of unemployment even more serious.

Figure 3 Unemployment rate according to its duration



Source: Adapted according to SLOVSTAT, 2015a.

The up-to-date trends of the global labour-market development give rise to a wide space for capable and qualified applicants trying to acquire various job positions (Kajanová, 2011). Such trends do not solve the serious problems of the Slovak labour market. The improving labour market has not translated into significantly lower levels of long-term unemployed. High and

persistent long-term unemployment represents a policy challenge, particularly affecting the low-skilled and young, while large regional disparities persist. The education system is insufficiently geared towards increasing Slovakia's economic potential.

3 SMEs as an Important Employer

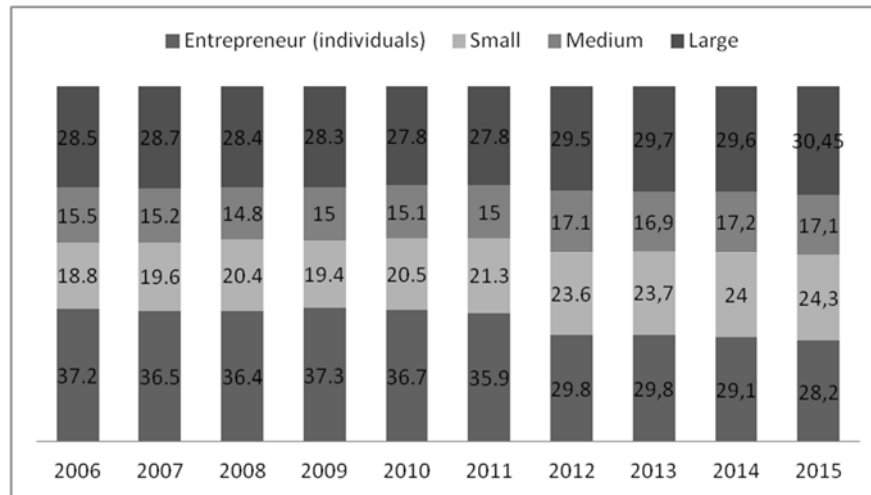
Some studies argue that entrepreneurial activity has a positive impact on economic growth, while others report significantly positive effects of new business formation on employment growth over time. Linking unemployment to self-employment dates at least to 1940s, when Oxenfeldt argued that individuals confronted with unemployment and low prospects for wage-employment will turn to self-employment as a viable alternative. Even earlier Knight defined that individuals decide between three states – unemployment, self-employment and employment. The prediction of a positive correlation between self-employment and unemployment has been the basis for a range of studies focusing on the decision of individuals to become self-employed, which suggest that increasing unemployment leads to increasing startup activity because the opportunity cost of starting a firm has decreased. This effect has been referred to as the *unemployment push*, or *refugee* effect. There is, however, an important counterargument to this theory. Entrepreneurial opportunities are not just the result of the push effect (the threat) of unemployment but also of the pull effect (the opportunity) produced by a thriving economy as well as by past entrepreneurial activities, the *pull*, or *entrepreneurial* effect is the motor. There is no accepted agreement if unemployment influences start-up activity, or the reverse is true, start-up firms hire employees, resulting in subsequent decreases in unemployment. Another issue is that the unemployed tend to possess lower prerequisites (e.g. the human and financial capital, or entrepreneurial talent) needed to start and sustain a new firm. This, in turn, would suggest that high unemployment may be associated with a low degree of self-employment (Thurik, 2008).

Small and medium-sized enterprises in the SR employed in the year 2015 approximately 41.4 % of the total number of employees (in absolute number it was 931 495 employees). The small-sized enterprises (this time counted also microenterprises) constituted 24.3 % of total employment, the medium-sized enterprises constituted 17.1 %. At the same time there is another big group of individual entrepreneurs (sole-traders), who consisted for the same period of time of 634 500 persons (traders including their employees), which is 28.2 % of the total

number of employees (SLOVSTAT, 2015b). The contribution of SMEs to the employment in the previous years can be seen in Figure 4.

Figure 4 Ratio of sole traders (entrepreneurs), small, medium and large enterprises in the total employment (in %) for the period 2006-2015

Source: Adapted according to Slovak Business Agency, 2006 – 2015.



This division of enterprises by the category of size with the reference to their proportion on employment copies the situation in the whole EU. It is sure, as already mentioned, that micro enterprises and individual entrepreneurs play crucial roles in overall economies. There was not a significant decrease in their ratio on total employment even during crisis. The relations between the number of self-employed people and number of employees in SMEs and the unemployment rate could be seen from the Table 1 containing Pearson correlation coefficients.

Table 1 Pearson correlation coefficients – relation between unemployment rate and number of self-employed/SMEs

Correlation of unemployment rate with number of self-employed vs. SME	2004 - 2014
Self-employed persons	-0,7170
Micro enterprises (0-9)	-0,1388
Small enterprises (10-49)	-0,6694
Medium enterprises (50-249)	0,1345

Correlation of long-term unemployment rate with number of self-employed	2004 - 2014
Self-employed persons	-0,3031

Correlation of unemployment rate within different age groups with the number of self-employed persons			
Age groups	2004-2014	2004-2008	2009-2014
15 - 24 years	-0,4369	-0,9660	-0,1016
25 - 49 years	-0,7375	-0,9877	-0,3265
50 - 65 years	-0,7934	-0,9793	-0,6370
30 - 34 years	-0,8793		
65 years and more	-0,8335		
55 - 59 years	-0,8278		
50 - 54 years	-0,7350		
45 - 49 years	-0,7214		

Data proves, that during the last decade, there was a negative relation between unemployment rate and self-employed persons. It is clear that self-employed persons play fundamental role in the Slovak economy. During the pre-crisis period people in all age groups were more courageous to start own business (as self-employed) once being unemployed. In the next years it started to be domain of the oldest part of the productive age population (50 – 65 years) - maybe because of missing possibilities to find employment, it is an example of the “refugee” effect, as older people in the Slovak labour market (mainly those few years before retirement age) are in a big disadvantage compared to younger people, so they are strongly pushed to solve their unpleasant situation. But still the biggest correlation is within the age group 30 – 34 (while looking at 5 years intervals of age). This could be explained as a motivation of young people to start an own business and using possibilities which are occurring more and more during recent years (e.g. donations to start-ups, the change in the focus of different study programs to the self-business orientation). This motivation could be interpreted as the “entrepreneurial” effect, young people are pulled by the opportunities.

The persisting problem are long-term unemployed, for whom the possibility to become self-employed is not a solution. Those people are mostly low-qualified, with lack of needed capital and knowledge for starting own business. Very special position have also disabled people, who are mostly overlooked by authorities. According to the Eurostat, people with disabilities compose more than 16 % of the EU population in working age; problem is that employed are

only 40 % of them (Treľová, 2014a). People with disabilities are particularly vulnerable group in the labour market. The inclusion of them into the workforce is a major form of the integration of these persons and also the prevention of unfavourable social situation (Treľová, 2014b). That is why government tries to focus on those groups of people within its measures to improve the situation on the labour market.

Conclusion

The present paper shows the important role that changes in self-employment can play in reducing unemployment. It is obvious that SMEs play a crucial role in the development of the Slovak economy, their role as main employers could not be overlooked. Thanks to their size they are more flexible to react to changes in the business, political, economic and social environment. Their business orientation is, compared to big, mostly foreign-owned companies, not so focused on just one main industry (automotive in case of Slovakia). At the same time, their position in the market is quite disadvantageous. SMEs due to their size have for example several handicaps: relatively difficult access to financing, limited resources, vulnerability to unexpected changes in the business environment. They also have difficulties in attracting qualified employees and they face difficulties when entering new markets. The Slovak business environment seems to have a lot of weaknesses, as e.g. frequent changes to legislation, the complexity of administrative procedures and burdensome requirements imposed by government regulations, but also disconnection between education system and the needs of the labour market, which results in skill mismatches on the labour market, very low investment in R&D and innovation and high energy prices. There exist deficiencies in the business environment in the area of law enforcement, lack of efficiency and transparency in the public procurement and the allocation of funds (including structural funds), corruption, clientelism and excessive bureaucracy. Due to their financial abilities and unfavorable position on the market SMEs are not able to adapt quickly to the global trend (Paškrťová, 2014). Business associations see as the main problem high taxes and social contributions. SMEs do not still have enough support from government, compared to the situation in some other EU member states (e.g. Netherlands and Sweden) (European Commission, 2014).

This paper attempts to unravel complex relationships between self-employment and the role of SMEs and the unemployment rate in Slovakia. Using a rich data set for Slovakia for a recent period paper shows the relationship between unemployment and self-employment is

negative. Changes in self-employment rates seem to have a clear impact on subsequent changes in the unemployment rate (especially in the age group 30 – 34, and above 50 years). The same is not true for the long-term unemployed, where the solution is not just motivation to self-employment as those people are lacking knowledge and capital to start a business. But fortunately there are positive tendencies in the development of unemployment rate. We can suppose that new policies, as e.g. the lowering of the tax wedge for the low-paid in recent years, in combination with the granting of in-work benefits for the long-term unemployed, could contribute to a reduction in long-term unemployment.

Even though the role of SMEs is significant for the Slovak economy, they are very sensitive to economic changes at the same time therefore, it is inevitable to pay attention to supporting the development of SMEs while creating environment where they can broaden their activities and help the economy to recover as soon as possible. The role of Slovak government concerning the weaknesses of business environment is very important nowadays as a systematic solution is needed.

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PROBLEMS AND ISSUES IN IMPLEMENTING INNOVATIONS: CASE OF THE SLOVAK AGRIFOOD SECTOR

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Abstract

Support of innovations in agriculture, food industry and biotechnologies has been defined as one of key priorities within the *Smart Specialisation Strategy for the Slovak Republic for period 2014-2020* in direct relation to the *Europe 2020* strategy and the *Innovative Union* initiative. Importance of innovations in agrifood sector is underlined also by the fact that food security represent a contemporary global problem. The authors describe the situation of thirty five agrifood SMEs in Slovakia regarding the problems and related issues in the process of implementing innovations and innovation-driven entrepreneurship. The data from questionnaire survey and information from interviews conducted in 2015 are interpreted in a case study paper. Majority of responded SMEs identified a lot of barriers, particularly financial and institutional. On one hand, they declared willingness to manage the innovations but on the other hand they declared non-readiness to cooperate with R&D institutions and universities in the field of technology transfer. The research was realized within the project of *Establishing AgroBioTech Research Centre* and research findings have been used for purposes and activities of the Transfer Centre at the Slovak University of Agriculture in Nitra.

Key words: innovation, agrifood sector, SMEs, innovation management, innovation implementation

JEL Code: O30, O32

Introduction

The field of innovation represents a fundamental challenge for the European agriculture and food industry, involving not only technical or technological approaches, but also strategy, marketing, organisation and design. The innovation process in SMEs differs substantially from

that of large firms. In contrast to many large firms, SMEs often do not have a structured R&D process, nor people working on innovation on a permanent basis. Some authors address a set of characteristics of SMEs that can be considered as special potential for innovation (e.g. highly motivated personnel, effective internal communication, little bureaucracy, and much internal flexibility). However, SMEs are traditionally confronted with many obstacles to innovation and therefore they usually establish relations with external actors. There are specific drivers for SMEs to move towards an open innovation strategy, that may be different from the drivers towards open innovation in large firms. (Battering 2009; Menrad, 2004; Hoffmann and Schlosser, 2001; Rogers, 2004; Nooteboom, 1994)

In fact, innovation results from different forms of “entrepreneurial” thinking and doing things, as well as recombining existing knowledge in an innovative way. Innovation means more than just the creation of new products, processes and services and may also include innovation of business models, management techniques and strategies and organizational structures. (Fortuin, 2007; Hamel and Prahalad, 1994) Innovation is about solving problems and taking advantage of opportunities, and is characterised by a combination of technical, economic, organisational and external drivers. Innovations in agrifood sector are rather young policy issues, they have become an important objective of national and regional development policies. They face new challenges, including climate change, impacts of financial and economic crisis as well as energy crisis. Innovation includes a wide range of different actors which have different interests and objectives and belong both to the public and private sector. (Moravčíková and Adamičková, 2014)

1 Agrifood Sector within the Slovak Economy

In general, the Slovak SMEs lag behind the EU average and this situation is primarily caused by low costs into research and development and also by the focus on activities with lower added value. The conditions on the market with agro-food products have changed dynamically over the past two decades. Transformation of ownership relations in the business base was the most influencing factor followed by penetration of foreign investors into particular fields in food industry. Formation of business environment has been significantly affected by the accession of Slovakia to the EU in 2004, what have brought the need to adapt to new conditions of unified market. In the past, Slovakia was considered as agricultural country, mainly from production point of view. However, it is possible to say that role of agriculture in Slovak economy is fading

– industrial production is preferred and agriculture has been declining. It has also affected decrease in rural employment. The situation in agriculture is opposite to trend in national economy and GVA decreased. When we deal with shares of GVA on economy, it is possible to see that in the case of food industry this share is twice as low as in the case of agriculture. On the other side, macroeconomic situation in food industry is more or less stable, although the development trend is decreasing. Its cause may be the trade liberalization, high import of food products or pressure from suppliers.

Table 1 The share of agriculture and food industry in basic economic indicators in Slovakia in period 2009-2014

Indicator Year	Share in %						Δ 2014 – 2013
	2009	2010	2011	2012	2013	2014	
Share of agriculture on:							
Gross value added (CuP)	2.53	2.08	2.57	2.70	3.10	3.74	0.64
Employment	4.56	4.39	3.31	3.12	3.37	3.28	-0.09
Average wage	78.6	76.98	78.77	79.13	77.67	79.95	2.28
Share of food, beverage and tobacco production on:							
Gross value added (CuP)	1.68	1.61	1.56	1.56	1.34	1.18	-0.16
Employment	1.78	1.71	2.06	2.06	1.95	1.85	-0.10
Average wage	91.45	90.77	89.19	90.06	88.96	89.96	0.9
Share of foreign agro-food trade on:							
Export	4.87	4.59	5.14	6.01	5.01	4.24	- 0.77
Import	7.17	6.65	6.68	7.06	6.5	6.3	- 0.2

Source: Own processing. Data obtained from Ministry of Agriculture and Rural Development (2009-2015)

Note: CuP – current prices; CoP – constant prices

Derived from the Table 1, it is possible to see that there was also negative balance of foreign trade in case of agrifood companies, what confirms the high rate of import. As it could be seen in the table, the average monthly wage increased in both, agriculture and food sector, although its level is still low in comparison with average wage in economy.

Structure of business environment in Slovak agriculture, agricultural services and food industry is created by a wide range of business entities. However, their amount, share and size structure have been changing constantly as well as their share in the area of cultivated land. Whole

agricultural sector is influenced by the EU Common Agricultural Policy (CAP), Slovak agrarian policy (state aid) and development in social and political area. According to the latest available data from Farm Structure Survey 2013, their amount has decreased by around 149 companies (1.8 %) in comparison with 2010. However, this decrease is smaller when compared to period 2007-2010, since there were 650 farms less (7.3 %). The biggest increase in amount of holdings (29.6 %) was in case of commercial companies. This trend has copied its previous development in the period 2007–2010, as we can notice increase by 18 %. The amount of commercial has risen mainly due to the increase in amount of limited liability companies - in 2013, there was 444 more companies than in 2010. It is possible to notice similar situation in the case of other legal entities – where their amount increased by 20.7 %. On the other hand, opposite situation is in the case of cooperatives, where their share in total amount has been continually decreasing. In comparison with 2010, their share dropped almost by 3 % in 2013. Generally, the total amount of companies in agriculture decreased. The biggest share on this decline can be assigned to registered physical entities, since within three-year period, their amount decreased by 619 entities.

In terms of food industry, we can also notice decrease of companies since 2010 - there were 119 companies less in 2013. However, the biggest drop (45 %) of food companies happened in 2011. After one year, small increase was observed but it did not remain on this level and the amount of food holdings has started to fall again. In 2014, there was only 5.2 % companies less on the year-on-year basis. This fall was mainly affected by significant decrease of limited liability companies (33.1 %) and legal entities (26.5 %).

2 Methods and sampling

Conducted innovative audit represents the first period of the ongoing survey. This thematic area is not well known, therefore the combination of quantitative and qualitative methods was used. The first one was a questionnaire survey carried out by electronic questioning, within which individual subjects were directly addressed through telephone call and two electronic calls. When approaching companies for survey, we created the database of 205 agricultural companies and 125 food enterprises using sources as Slovak Agriculture and Food Chamber (SPPK), Agroportal.sk, Agroregister of the SR, catalogues and other information portals (some contacts were inactive). The aim was to prepare a database of existing SMEs that operate in the observed field. The realization of the first period of the questionnaire survey was preceded by

the selection of individual SMEs, which demonstrated the interest to communicate and the willingness to respond. The questions asked were constructed without using any complicated terminology and most of them were constructed as semi-open questions. The qualitative part of the survey was realized through personal interviews with representatives of 11 selected enterprises in order to map particularly the area of innovation management and evaluation of innovation. The interviews lasted between 30 and 45 minutes and were organized during two events in Nitra region - International Agricultural and Food Exhibition Agrokomplex 2015 and National Field Days 2015.

Another important step was the segmentation of selected businesses, thus not only the identification of individual SMEs but also identification of enterprise groups according to various characteristics. When segmenting SMEs, the following aspects were taken into account:

- Geographical coverage - companies from all over Slovakia were chosen for the analysis.
- Size of the enterprise - SMEs were the main subject of the analysis, with regard to the number of employees to 250, in accordance with definition of the EU.
- Sector - selected were enterprises from the agricultural sector with a focus on relevant applied research, according to the topics of newly established Research Centre AgroBioTech, particularly in the areas of agriculture and food industry.

The individual subjects were addressed directly during the months of June, July and August 2015. Altogether, 35 enterprises participated in the research. In terms of size, mainly small enterprises employing up to 50 people participated in the survey. 82 % of the participants were agricultural enterprise. Legal form of enterprises were primarily the cooperatives, mainly focusing on crop and livestock production, processing of milk, meat, services in agriculture, precision farming, or the operation of the biogas plant. Selected were those entities that can be considered as innovative representatives of the business sector with high potential for possible future cooperation.

3 Innovation and the Slovak Agrifood SMEs

3.1 Area of decision-making

Deciding whether to implement certain business idea or thought and then its translation into innovation depends on many factors. Therefore, the aim of this part of the questionnaire was to find out what is the incentive for innovation activities and what are the reasons for their

initiation. Based on the results of this scaling question (options degree of importance from 1 to 5, where 1 meant the least significant and 5 meant the most important factor), it is apparent that improving the quality of production is of the most importance in the initiation of innovation activities (average degree of importance 4.8). Furthermore, increase of companies' competitiveness and cost savings are as well very important for respondents (average degree of importance 4.4 and 4.6). On the contrary, entering new markets is the least important factor for the companies to initiate innovation (average degree of importance 3.0).

The next question maps the barriers to develop innovation activities in similar manner:

Table 2 The barriers for innovation in SMEs

What prevents your company to innovate?	Average degree of importance*
lack of finance for innovation	4.60
innovation processes are usually associated with high costs	3.75
malfunction of technology transfer from the research and development centres' environment	3.40
lack of sufficient qualified employees	3.20
lack of partners on innovation, and problematic collaboration with partners	3.20
unwillingness of universities and scientific research institutions to cooperate	3.00
lack of information about new technologies	2.60

** 1 – the least significant, 2 – less significant, 3 – neutral answer, 4 – significant, 5 – the most significant.*

Source: Own processing based on the questionnaire results.

Based on the results, it can be assumed that if a company undertake innovation activities, it is so mainly because of financial or capacity reasons. Companies that does not innovate did not take part in the questionnaire survey, since it was irrelevant for them. At this stage, it was not possible to determine how such companies perceive barriers to innovate and what the main factors that would stimulate their innovation activities are. Therefore, there arises a question arises: how much would companies be willing to pay for services related to supporting of heir innovation activities. For companies within this area, it is crucial that they have simple access to the solution of a problem or the innovation itself and that outputs related to the payment of particular services are applicable in practice.

3.2 Area of Innovation Implementation

This section of the questionnaire examined the innovation activities in terms of material, financial and human resources implementation. The first issue was dedicated to ascertain whether companies have introduced some innovations in the last three years, particularly new products and new technologies. Altogether, 37 % of companies indicate they introduced a new product and new technology as well. 18 % of respondents in both cases stated they introduced a new product or a new technology. In addition, 27 % of companies said they have not introduced any innovation during the last three years. Answers of respondents again implies active innovative activities of land management companies as well as their interest to develop their technology and product portfolio. During the cooperation, it is necessary to apply an individual approach for various types of companies and so to take into account all of individual needs and specificities.

Other two questions dealt with the material aspect of the innovation process. Companies were asked to indicate whether they have established the Department for Innovation, respectively own research and development base. In line with the results of the issue dedicated to self-development of the companies, most of the companies in this case also stated that they have not set up any special innovation department or laboratory, testing, etc. It thus confirms the result that SMEs mostly do not implement own research and development. Only one respondent stated that the company set up a laboratory equipped with the necessary human resources to realize its own development activities. It was a food medium-sized company (up to 250 employees), which deals with the pastry production.

In case of implementation of innovation from financial point of view, the resources the companies use to finance innovation were mapped. The answers showed that companies usually do not use only one source to finance their innovations, but rather a combination of several sources. These include in particular the EU funds, which had 91 % in responses. In addition, companies use also own resources, since 82 % of the respondents indicated this option. In many cases (55 % of respondents), companies use also bank loans. Resulting from this, companies often rely on their own resources, but to large extent use other external sources, usually because their own are not sufficient. Other sources, such as risk capital were not mentioned despite the fact that they are as well considered as a promising form of support of innovative activities.

However, when financing innovation, risk capital is used to very small extent in Slovakia in overall situation.

The other two questions were dedicated to innovation support services. Based on the answers, the most important service was consulting the use of EU funds, as well as advice on financing the business plan. Almost 64 % of companies marked them as very significant activities. In case of 36 % of respondents, the answers often indicated that training and development of employees in the field of innovation, support of collaborative research with universities, exchange of information with other entities, and the creation of partnerships are very important to companies as well. The responses of food companies included also the options associated with patent protection and intellectual property protection. This area is more important the food makers than for agricultural companies, since it is more typical for food industry that the outcomes/results produced more often require some form of intellectual property protection (e.g. formulas, technological processes, etc.).

As for the real use of services for promoting innovation, 91 % of companies answering this question has previously used advisory services regarding the EU funds. The next most frequently used service (with representation in more than 73 % of answers) was consulting for the financing of the business plan. In about 55 % of responses occurred activities such as the support of the information exchange and networking, and establishment of partnerships. Regarding the use of external competences and resources while implementing the innovation, companies were asked to indicate what is the need for these resources, and to what extent they are willing to invest time and money into this form of cooperation. The results show that companies usually need external resources, are willing to invest time and money, but usually are not willing to pay for the service at current market prices. This is especially true when using services related to project development and the development of market analyses. Only a small percentage of the companies indicated that they might be willing to accept those services at current market prices. Based on these results, it is also necessary to appreciate services of the transfer centre in such way that it is accessible for entrepreneurs, and thereby stimulate the demand for such services.

The questions related to the implementation of specific innovation projects funded by national or other sources, nearly 82 % of companies that participated in the survey said they have experience in project implementation. Usually it was projects related to the modernization and

renewal of technological equipment and facilities, purchase and implementation of new technologies, improving production quality, the use of renewable energy, or projects that lead to increase the overall competitiveness of business through better use of production factors by the application of new technologies and innovations.

3.3 Area of Innovation Management and Evaluation

Within this area, more than 80 % of companies stated that they have not established system of management innovation. Even though, more than half of enterprises (55 %) are actively involved in the questionnaire survey uses information technology for support and automatization of the innovation process. In regard to intellectual property protection, it is usually implemented by food companies. In case of farmers, not even one indicated they carry out activities connected to the protection of intellectual property. The reason may be that they are too expensive and too administratively difficult processes that require personnel, time and financial capacity. An important role here can be in hands of transfer centre, for example through licensing or consulting in the field of intellectual property.

The final part of the questionnaire contained three questions. The first was concerned with the means how to measure the success of innovation. Most frequently, companies evaluate this innovation through rate of return of invested resources. On the other hand, only 45 % of companies do not deal with the success of their innovations. It is not easy for the companies to assess whether a particular innovation activity ended unsuccessfully. In the majority of the answers, respondents have not experienced unsuccessful innovations - reported by 82 % of the companies. The reason may be that companies are mostly venturing into relatively certain and low risk innovation. Even in the case failure occurs, it was rather in the terms of the expectation of payback period that was greatly extended, in case of innovations considered as partly unsuccessful.

Finally, respondents were asked to indicate whether they use the results of innovation projects in further activities and whether it brings them the expected return on investment. Results of the survey show that 73 % of businesses uses these results. Regarding investment returns, the answers were very different. It depends on the particular activity or project, and on many other factors. An important role is played again by the riskiness of innovation to which the entrepreneurs enter.

Conclusion and Recommendations

Globalization is also affecting the agricultural sector – therefore, agrifood companies cannot be successful without implementing innovations. Innovations interfere into their activities despite the fact that companies and their management often do not even realize it. Innovation often emerges from the resolution of certain problem with which companies encounter in their daily activities, sometimes it may be targeted efforts to modernize and reconstruct technological equipment, facilities, or the production process and so on. Based on the results of the questionnaire survey, it is possible to distinguish three groups of the companies:

Group A consists of the companies that are innovative and simultaneously cooperate with various subjects when developing their innovations.

Group B includes companies that are innovative, but have not cooperated with other subject till now. Despite this, they are interested in cooperation.

Group C involves companies that are currently not interested in the cooperation respectively have not expressed interest in innovation.

Based on the assessment of the application potential of the Research Centre AgroBioTech on one side and innovation demand of the business sector on the other side, it is clear that the Transfer centre will play a crucial role in linking and strengthening the mutual cooperation between the two spheres and in the transmission and exploitation of knowledge. Within the partner organizations in the project, there are considerable experiences in the transfer of knowledge into the practice, and as shown also by the questionnaire survey, the entrepreneurs have extensive experience of cooperation with scientific and research entities. However, the activities of cooperation should be continuous in the future and to develop them in the future, along with the support modern innovation and cutting-edge equipment and facilities.

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DESPERATE ENTREPRENEURS: NO OPPORTUNITIES, NO SKILLS

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Abstract

Promoting entrepreneurship has become an important policy strategy in Europe in the hope to stimulate the crisis-shaken economy. In this paper, we caution against undue expectations. Using data from the Global Entrepreneurship Monitor, we find that a considerable proportion of the new entrepreneurs start a business despite a negative perception of business opportunities as well as lack of confidence in their own entrepreneurial skills. We extend existing entrepreneurship theories to account for this phenomenon. Testing the hypotheses derived from our model, we find that these people turn to entrepreneurship due to lack of other options to enter the labour market.

Key words: Entrepreneurship, economic crisis, entrepreneurial skills, opportunities

JEL Code: L26, E24

Introduction

With the outbreak of the economic crisis, promoting entrepreneurship has become an increasingly important labor market policy in many European countries. Overall entrepreneurial activity figures seem to prove a positive development of individual involvement in enterprising efforts (GEM 2006, GEM 2012). This seemingly indicates a desirable trend. However, a closer look at the set of new entrepreneurs reveals that a considerable number of these individuals became involved in starting-up a business despite a negative perception of business opportunities as well as a lack of self-confidence in their own entrepreneurial skills. We call such individuals “nons-entrepreneurs” (no opportunities, no skills).

In 2012, almost every tenth early-stage entrepreneur in our sample was a “nons-entrepreneur”. Translated to real numbers using extrapolation to national populations, this would mean that about 2.1 million individuals in the 17 countries under review may be involved in

entrepreneurial activity without actually seeing opportunities or believing in own skills. Compared to 2006, this number has almost doubled (from 1.1 million).⁴⁰ In order to achieve sustainable growth and higher levels of employment, this phenomenon may be counterproductive, as the quality and success of business ventures performed by “nons-entrepreneurs” is questionable (Block & Wagner, 2010; Caliendo & Kritikos, 2010). The existence of nons-entrepreneurs presents not only a potential economic problem, but also a theoretical puzzle. The Krueger-Brazeal-Model (Krueger & Brazeal, 1994) posits that perceived feasibility (i.e. the perception of opportunities and the belief in one’s own skills) is a *necessary* condition for the development of entrepreneurial intentions. Yet, if this is the case, how is it possible that people actually start a business without having optimistic perceptions concerning opportunities and skills?

We argue that these people are “desperate entrepreneurs”, who act out of necessity. Lacking any other options to succeed on the labour market, they are pushed into entrepreneurship – especially in times of economic crisis. We test this hypothesis based on data from GEM’s Adult Population Surveys in 2006 and 2012, thereby comparing the situation before the crisis with the situation at the peak of the crisis. Our analysis confirms that while necessity has not been of much influence in 2006, it has indeed become a driving factor behind “nons-entrepreneurship” in 2012.

1 The who, when and why of entrepreneurship

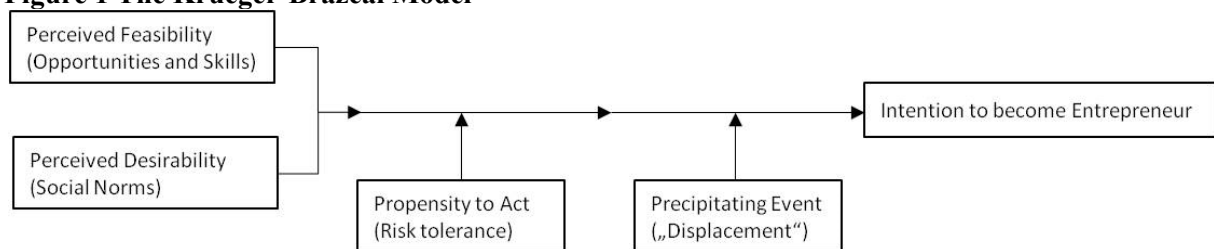
Results of research on the factors influencing the decision to engage in entrepreneurial activity by setting up a venture are heterogeneous. The main psychological characteristics that are associated with entrepreneurial activity are internal locus of control, propensity to take risk, self-confidence, need for achievement, innovativeness and self-efficacy. Concerning more objective attributes like age, gender, and formal education, research showed that all these indicators influence entrepreneurial activity (Blanchflower, 2004; Brandstätter, 2011; Brockhaus, 1980). Besides individual characteristics, external factors such as institutional and economic circumstances influence individual decisions and serve as push or pull factors for entrepreneurship (Dawson & Henley, 2012). Push factors often have negative connotations (e.g. job loss). Alternatively, pull factors draw people to start a business (business opportunity)

⁴⁰ Source: own calculations based on GEM data.

(Kirkwood, 2009). Important institutional aspects that may act as pull factors (or boost the effect of push factors) are, for example, the nature of rules adopted and their enforcement and the influence of regulations on the level of risk involved in business formation and start (Baumol and Strom, 2007). Two macro-economic factors are also considered to be of special importance for entrepreneurship, the general economic development of a country and, more specifically, the national or regional unemployment rate (Carrasco, 1999). Favourable economic conditions may act as pull factors, because prospects for both successful business creation and job search in case of venture failure are better (Carrasco, 1999). Bad conditions, in contrast, may be push-factors, forcing individuals into self-employment due to lack of other opportunities. Yet, the actual effect of macro-economic conditions remains unclear: especially evidence regarding the effects of the national or local unemployment rate, theoretical predictions are ambiguous (Carrasco, 1999) and empiric results are likewise inconclusive (Parker, 2004).

Instead of identifying those who are most likely to become entrepreneurs or analysing favourable and unfavourable conditions for the development of entrepreneurial intentions, another prominent strand of the literature draws on behavioural approaches in order to better understand why individuals decide to start their own business. One of the most influential micro-founded models of entrepreneurial activity is the model on entrepreneurial intent elaborated by Krueger and Brazeal (1994), which is based on the Theory of Planned Behaviour by Izek Ajzen and Martin Fishbein (Ajzen & Fishbein, 1980). The Krueger-Brazeal model suggests that two factors are antecedents of the intention to start a business: the perceived desirability and the perceived feasibility of being an entrepreneur. Beyond that, two further factors influence the final formation of entrepreneurial intentions, the propensity to act and a precipitating event like a displacement (Krueger & Brazeal, 1994). In the following paragraphs, we will shortly describe the individual components of the model, which is depicted in Figure 1.

Figure 1 The Krueger-Brazeal Model



Source: simplified version of Krueger and Brazeal (1994, p. 95)

Perceived feasibility constitutes of opportunity and skill perception and is often equated with perceived self-efficacy. Perceived self-efficacy refers to a person's confidence in his or her own capacities to successfully execute a target behaviour and accounts for the fact that an intended behaviour will only be carried out if a person has the perception of being in the possession of the necessary skills, abilities and further internal resources (Fishbein & Ajzen, 2010, p. 336). *Perceived desirability* is conceptualised as subjective norms and individual attitudes. *Attitudes* towards the act define whether a person positively or negatively appraises a specific behaviour. In respect of venture creation, this appraisal can be conceptualized as a person's motivation to engage in entrepreneurial activities. *Social norms* are defined as a person's belief that significant others think that certain behaviours are desirable. The theory thus implies that people develop their subjective norms by evaluating the perception of other important people or the society as a whole in respect of a specific behaviour in question (Ajzen & Fishbein, 1980). An individual's *propensity to act* refers to its desire to gain control over adversity and uncertainty by taking action. In this respect, the task-specific propensity to act is mirrored in an individual's propensity to take risks. A *precipitating event*, such as job loss or other changes in the personal situation, finally triggers the formation of the intention to become an entrepreneur. The intention, in turn, is the best predictor of actual behaviour (Krueger & Brazeal, 1994).

The Krueger-Brazeal model has been criticised for its overly positive perception of entrepreneurship (Zali, Faghih, Ghotbi, & Rajaie, 2013), where entrepreneurial activity is the desirable outcome and people become entrepreneurs because they are capable and desire it. Yet, this is not necessarily the case. Thus, based on the macro-level concept of push and pull factors, a more recent approach distinguishes between necessity entrepreneurship (push) and opportunity entrepreneurship (pull). While opportunity-driven entrepreneurs are motivated by internal personal objectives and goals, necessity-driven entrepreneurs are motivated by external opportunities or constraints (Dawson & Henley, 2012). These may be personal or situational factors and individual circumstances of life, like caring responsibilities, unemployment or belonging to the "working poor", or environmental influences that are not person-specific but refer to macro-environmental factors, such as funding schemes, interest rates, or welfare state regimes (Haas, 2013). Necessity driven entrepreneurship is not necessarily a desired outcome. Being pushed into self-employment bears the risk of not being well prepared before engaging in entrepreneurial activities (Carrasco, 1999). The probability that these endeavours are

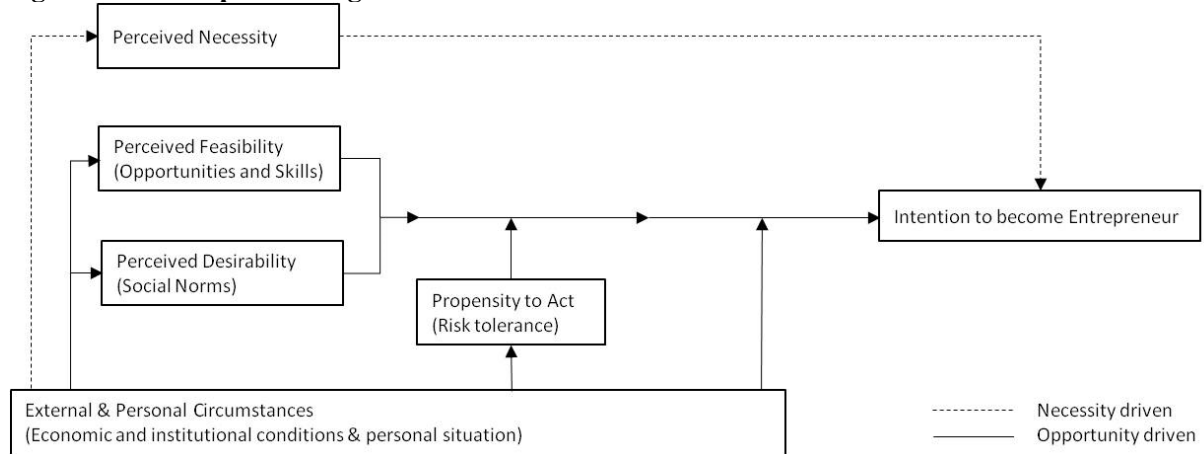
successful in the long run is thus limited. Furthermore, previous studies have shown that necessity entrepreneurship is associated with smaller growth expectations and less innovation (Block & Wagner, 2010; Caliendo & Kritikos, 2010).

2 The possibility of „nons-entrepreneurship“

Within the field of entrepreneurship studies, the model by Krueger and Brazeal (1994) is well established. Yet, the model explicitly precludes the existence of “nons-entrepreneurs”. As one of the necessary conditions for entrepreneurial intentions, perceived feasibility, is not fulfilled if people neither believe in their own skills nor in good business opportunities, it should be impossible that those individuals develop the intention to start their own business, let alone to become entrepreneurs. Hence, to account for the possibility of “nons-entrepreneurs”, we extend the original model to include the important motivational distinction between necessity and opportunity driven entrepreneurship. We propose four adaptations to the original model: First, in line with the differentiation between opportunity and necessity driven entrepreneurship, we refine the Krueger-Brazeal model by including necessity as an additional antecedent of entrepreneurial intentions. This allows for the fact that the intention to become an entrepreneur may not be due to the wish to seize a business opportunity, but may instead be caused by the feeling that there are no other options to (re-)enter the labour market than to become self-employed. Second, we assume that not all antecedents (desirability, feasibility and necessity) have to be present for entrepreneurial intentions to form. Instead, we replace the original principle of complementarity between desirability and feasibility (and necessity) by the principle of substitution. This adaptation is crucial to properly anchor the motivational distinction between necessity and opportunity in the model. It expands the explanatory potential of the theory, as “nons-entrepreneurship” becomes theoretically explicable instead of being regarded as an empirical artefact or mere decision error. Third, we argue that the original chronology of the model does not adequately reflect the individual intention formation process. Contrary, we suggest that the formation of entrepreneurial intentions is a dynamic process over time, where personal circumstances do not only act as precipitating events and thus final triggers for the formation of intentions, but already influence the perceptions of feasibility, desirability, and necessity, as well as the propensity to act. Finally, it is not only the personal circumstances, but also general institutional and economic conditions that influence this process. By incorporating external circumstances, the model by Krueger and Brazeal, which is

micro-founded and explains the individual decision making process as a function of personal characteristics and perceptions, becomes accessible for macro-level determinants (such as national regulations concerning entrepreneurship, unemployment rate, etc.). The adapted model is presented in Figure 2.

Figure 2 The adapted Krueger-Brazeal Model



Source: Own adaptation from Krueger and Brazeal (1994, p. 95)

According to the adapted model, “nons-entrepreneurship” should be observed if the lack of perceived feasibility is substituted by necessity. If no other options are available to enter or remain in the labour market than to become self-employed, people may be pushed into entrepreneurship. Additionally, the lack of perceived feasibility could also be substituted by perceived desirability. If social norms are favourable towards entrepreneurship, for example when entrepreneurs enjoy a high reputation in society, even those individuals may be attracted who are not confident that they have the necessary skills and opportunities to start their own business. As a result, people who feel that entrepreneurship is highly valued by others may be more likely to enter entrepreneurship, even as “nons-entrepreneurs”. This may be especially true for people with high risk tolerance. People who are not afraid of risking a potential business failure should be more likely to become “nons-entrepreneurs”.

In addition to the above-mentioned micro-level factors, macro-level economic and institutional conditions may influence not only the propensity to start a business, but also the propensity to do so without believing in the feasibility of the endeavour. However, the direction of such effects is difficult to predict. On the one hand, a poor economic situation and tight labour market conditions may increase the rate of “nons-entrepreneurs”, as more people may turn to entrepreneurship out of necessity and regardless of feasibility perception. On the other hand, if

chances of business success are extremely low, entrepreneurship may not even be considered as an option. Likewise, institutional factors may have diverse effects. If institutional regulations enhance business freedom by facilitating the foundation of new enterprises or dealing with business failures, this may increase the share of “nons-entrepreneurs” because the hurdles that have to be overcome are smaller and individuals may easier be pushed into entrepreneurship. We thus expect that three individual-level factors enhance the probability of “nons-entrepreneurship” – first and foremost, perceived necessity, second, perceived desirability, particularly in combination with, third, high risk tolerance. For macro-level indicators, the predictions are less clear. A bad economic situation and a high unemployment rate may increase (but at a certain level also decrease) the rate of “nons-entrepreneurs”. Business freedom may increase the rate of “nons-entrepreneurs”. In the next section, we will test these expectations. Before doing so, however, we will present some descriptive evidence concerning the existence of the phenomenon of “nons-entrepreneurs”.

3 Analysis

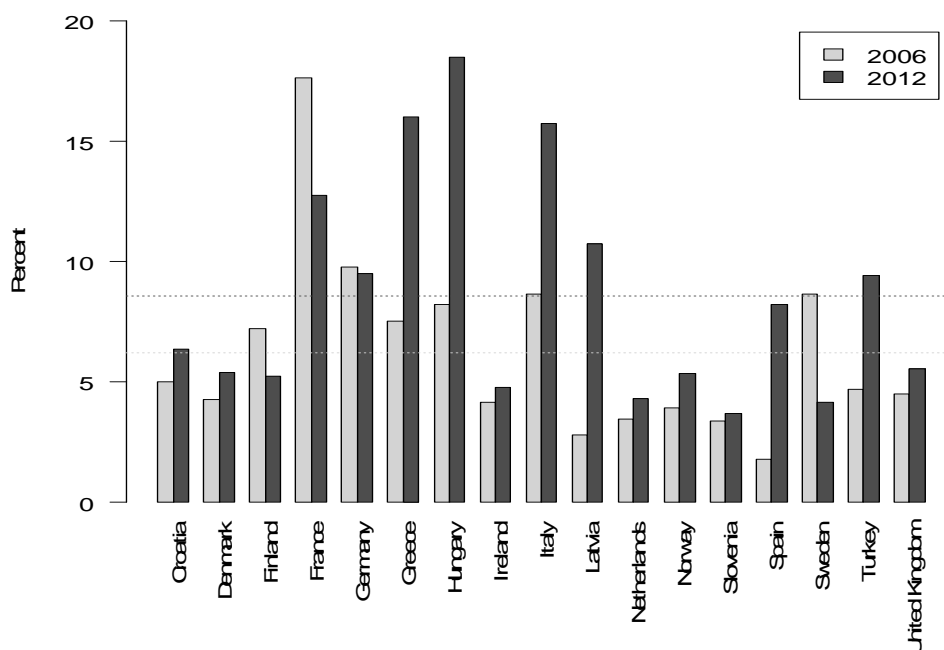
We use data from the Global Entrepreneurship Monitor’s (GEM) Adult Population Surveys 2006 and 2012 to compare the incidence and determinants of “nons-entrepreneurship” before the outbreak of the European economic crisis with the situation at the peak of the crisis. We include all EU member states for which GEM-data is available for both years (Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Slovenia, Spain, Sweden, and the United Kingdom) and two associated countries (Norway and Turkey) for reference. Our data is restricted to early stage entrepreneurs, i.e. those people who are about to start a business as well as those who have started one at most 3.5 years earlier.⁴¹ Figure 3 displays the share of nons-entrepreneurs among the total population of early stage entrepreneurs in each of the 17 countries in our dataset in both 2006 and 2012. As can be seen, there is quite some variation between countries and between years. In 2006, France had by far the greatest share of nons-entrepreneurs (about 17.6% of all early stage entrepreneurs).⁴²

⁴¹ More precisely, early-stage entrepreneurs are defined as individuals aged 18-64 who are either currently actively involved in setting up a business they will own or co-own, or have already started a business but this business has not paid any wages or salaries etc. for more than 42 months. This is the definition used in the GEM project.

⁴² This may be explained by the fact that already before the outbreak of the economic crisis, in France, a comparably high unemployment rate was mixed with unfavorable institutional conditions for business start-ups and low trust in own capabilities to start a business among French.

Finland, Germany, Greece, Italy and Sweden had between 5% and 10% nons-entrepreneurs, while the rest of the countries ranged below 5%. In 2012, in most countries, the share of nons-entrepreneurs has risen considerably compared to 2006, with values above 15% in Greece, Hungary and Italy, and values between 10% and 15% in France and Latvia. The other countries mostly range between 5% and 10%; only Ireland, the Netherlands, Slovenia and Sweden display values just below 5%.

Figure 3 Predicted probability of nons-entrepreneurship in 2012 depending on whether someone is motivated by necessity or not



Source: GEM data for 2006 and 2012; own calculations. Demographic weights applied. Dotted lines indicate means for 2006 and 2012

The figure illustrates the rising prominence of nons-entrepreneurship in most countries during the economic crisis, with on average 8.6% of the early stage entrepreneurs in a country neither believing in business opportunities nor in their own skills in 2012 (compared to 6.2% in 2006). Furthermore, in many of the countries that were most affected by the crisis (Greece, Hungary, Italy and Spain), this increase has been particularly high.

To test which factors influence the probability to become a nons-entrepreneur, we run separate logistic regression models for the years 2006 and the year 2012 on individual-level data. The dependent variable thereby takes the value 1 if an early stage entrepreneur is a nons-entrepreneur and 0 otherwise. We include individual-level indicators for perceived *Necessity*,

perceived *Desirability*, and *Risk tolerance*, as well as an interaction effect between *Desirability* and *Risk tolerance*, to account for the fact that the lack of perceived feasibility might be substituted by high desirability in combination with high risk tolerance according to our adapted theoretical model. In addition, we include controls for gender, age and the level of formal education as well as the fact whether the business has already been started. To account for country-level differences, we either use country dummies, or include indicators for the state of the economy (*GDP per capita*, *GDP per capita growth*, and the *Unemployment rate*) and institutional factors (*Business freedom*).

Table 1 Logistic regression of nons-entrepreneurship for 2006 and 2012

	(1) 2006	(2) 2012
<i>Individual-level Variables</i>		
Gender (1=female)	0.506* (0.243)	-0.010 (0.175)
Age	-0.184*** (0.049)	-0.080 (0.056)
Age ²	0.002*** (0.001)	0.001 (0.001)
Education (1=high)	-0.228 (0.170)	-0.512** (0.171)
Desirability	-0.229 (0.259)	0.071 (0.230)
Risk tolerance (1=high)	-0.845** (0.305)	-0.690** (0.262)
Desirability x Risk tolerance	0.109 (0.354)	-0.231 (0.226)
Necessity	0.444 (0.274)	0.709*** (0.185)
Business already started	-0.722** (0.229)	-0.207 (0.230)
<i>Macro Variables</i>		
Unemployment rate	0.090 (0.054)	-0.000 (0.016)
GDP per capita / 1000	-0.003 (0.007)	-0.025* (0.011)
GDP per capita growth	-0.104 (0.053)	-0.038 (0.027)
Business freedom	0.024*** (0.007)	0.031 (0.018)
Constant	-0.971 (1.140)	-2.552* (1.173)
Observations	5099	3157
McFadden's Pseudo R ²	0.076	0.067

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Notes: demographic weights applied; the variable *Desirability* is not available for two countries, Denmark and Sweden, in 2012. Thus, these two countries were omitted from the 2012 analysis. However, a separate model (not reported) without *Desirability*, but including the two countries provides the same results.

Table 1 presents the results of regressing nons-entrepreneurship on the individual and macro-level determinants for the 2006 and 2012 data. We control for the nested structure of the data

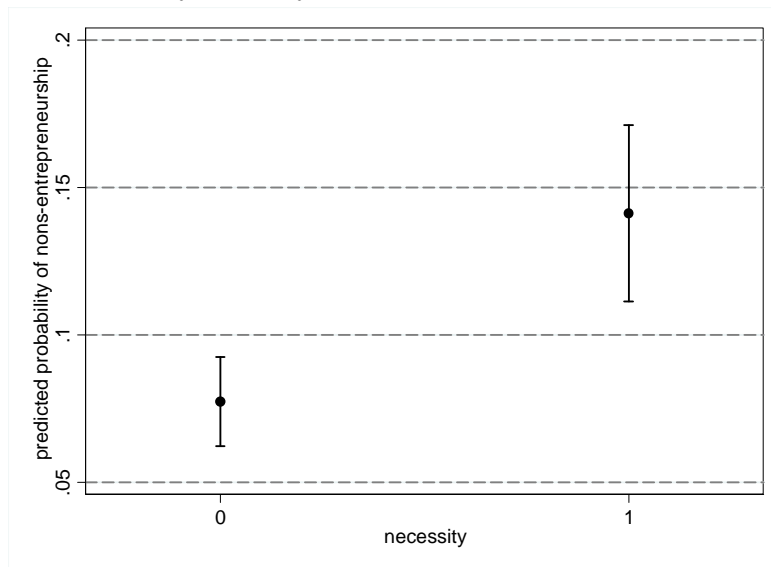
by using country-clustered standard errors.⁴³ As can be seen from the models, *Necessity* has a positive, yet not statistically significant effect on nons-entrepreneurship in 2006. The coefficient of *Desirability* is not significant either. At the same time, and contrary to the original expectation, *Risk tolerance*, has a significant negative effect on becoming a nons-entrepreneur. This means that contrary to the assumption, it is not the people with high risk tolerance who tried to start or started a business despite seeing not much potential in doing so. Instead, people with higher risk aversion were more likely to do so. In addition, we find that women were more likely to become nons-entrepreneurs than men. Age has a non-linear effect: all other things equal, for people aged 39 and less, the probability of nons-entrepreneurship is predicted to decline with increased age, while for people of 40 years or older, the probability of non-entrepreneurship increases again the older they become. People who had already started their business were significantly less likely to be nons-entrepreneurs than nascent entrepreneurs. Concerning the country-level effects, *Business freedom* has a positive effect, indicating that the easier it is to start or to close a business, the more likely it is that people become entrepreneurs despite failing to believe in their skills or in good opportunities. Neither GDP nor GDP growth nor the unemployment rate seem to influence nons-entrepreneurship.

The results based on the data for 2012 differ slightly from those for 2006 concerning the country-level effects (e.g. differences between countries became larger, potentially due to differences in economic development) and differ considerably from those for 2006 in regard to the individual-level effects. Most importantly, *Necessity* turns out to have a significantly positive effect on nons-entrepreneurship. The size of the effect is illustrated in Figure 4, displaying the average marginal effects of *Necessity*. As can be seen, the predicted probability to be a nons-entrepreneur raises from about 8% to about 14% once someone acts out of necessity. This corroborates our hypothesis that if people lack other choices on the labour market and turn to entrepreneurship out of necessity, they are more likely to become entrepreneurs who neither perceive that they have the necessary skills for running a business, nor that there are generally good opportunities for new businesses in their region. The fact that these relationships cannot be found to such an extent in the data for 2006 is in line with the

⁴³ Similar results are obtained from a model replacing the macro-level variables by country dummies and a multi-level model (not shown here). However, a likelihood-ratio test demonstrates that a multi-level specification is not necessary in our case. It may also be flawed due to the low number of observations on level-2 and their non-random selection.

assumption that nons-entrepreneurship among entrepreneurs aggravates in times of economic crisis. At the same time, *Gender* and *Age* have no significant effect in 2012. Instead, we find that in 2012, people with a low level of formal education are significantly more likely to become nons-entrepreneurs than people with higher education. Like in 2006, high *Risk tolerance* again leads to a lower probability of nons-entrepreneurship, hence furthermore undermining the original hypothesis that nons-entrepreneurs may be individuals that are simply not afraid to risk a potential business failure. At the same time, this further strengthens the argument that nons-entrepreneurs are necessity driven and will even try to start a business if they are risk averse. As they have no other options on the labour market, trying to become self-employed is less risky for them than for individuals who are already in well paid employment, especially if they are simply aiming for solo-employment, thus creating a job for themselves but without the need for high ex ante investments. Hence, even if they are risk averse, perceived necessity leads them to become nons-entrepreneurs – they are, so to say, “desperate entrepreneurs”.

Figure 4 Predicted probability of nons-entrepreneurship in 2012 depending on whether someone is motivated by necessity or not



Note: Average marginal effects based on model 2 in Table 1.

4 Conclusion

Classical theories of entrepreneurship like the Krueger-Brazeal model (Krueger & Brazeal, 1994) assume that individuals start their own business because they deem it both desirable and feasible, due to good business opportunities and a firm belief in their own capabilities and skills.

In this paper, we argued that especially in light of the current economic crisis, these theories need to be expanded to be able to address the phenomenon of “nons-entrepreneurship” – individuals who try to start a business without the perception of opportunities and skills. Based on data from the Global Entrepreneurship Monitor for 17 European countries, we find that there is a considerable share of such individuals among early stage entrepreneurs, which increased since the outbreak of the crisis. Therefore, the phenomenon should not be ignored.

We thus incorporate the distinction between necessity and opportunity driven entrepreneurship into the Krueger-Brazeal model, hypothesizing that “nons-entrepreneurs” are likely to be motivated by the fact that they have no opportunities to (re-)enter the labour market other than being self-employed. Our empirical analysis supports this hypothesis. Individuals that are driven by necessity and individuals with a low level of formal education are more likely to become nons-entrepreneurs. Moreover, it is not a low risk aversion that leads them to start their own business without being convinced to succeed. Rather, they are afraid of failure but still turn to entrepreneurship. Thus, we conclude that nons-entrepreneurs are in fact *desperate* entrepreneurs, without opportunities, skills, or better options.

However, our analysis also indicates that the phenomenon of nons-entrepreneurs is by far not fully explained by necessity. Furthermore, while there is reason to believe that “nons-entrepreneurs” may be less successful and, as a result, less beneficial for the economy than “classical” opportunity driven entrepreneurs, this hypothesis still needs to be confirmed by empirical analysis.

Yet, if enterprises of nons-entrepreneurs are indeed found to be unlikely to sustain, this would imply that for such individuals, entrepreneurship leads to further disappointment and increased debt, while offering little more than a short-term break from unemployment. In this case, recent labour market policies encouraging entrepreneurship should be rethought and adapted, in order not to encourage nons-entrepreneurship – or better, in order to provide potential nons-entrepreneurs with the necessary skills (and belief in these skills) to sustain a business and to break the cycle of unemployment and failure.

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SOCIAL ENTREPRENEURSHIP AND SOCIAL ENTERPRISES: THE CASE OF SLOVAKIA

Ladislav Mura – Monika Orlíková

Abstract

Social entrepreneurship is a new area of economic activity, which is characterized by linking economic and social objectives. It is such a new dimension of unconventional entrepreneurial dynamism that it is also the bearer of social innovation and social development, as well as a new impetus for economic growth. Social entrepreneurship is a response to the ongoing social and economic changes, incentives and challenges of social development. Experts perceive this type of business as an innovative form of business activity with added social value. So it is also a business, the primary goal is not profit, but a wider social mission with a permanent solution of social problems. Such business can be classified as a possible instrument of employment policy especially in relation to specific segments of the labour market. Social enterprises create an area for the realization of the disabled and marginalized groups. This paper focuses on the evaluation of social entrepreneurship and assesses the current situation in the field of social entrepreneurship and social enterprises in Slovakia with emphasis on comparative analysis at the international level and critical analysis of legislative definition. In solving the research problems, we use logical and cognitive methods with various procedures and critical analysis. Finally, the contribution results in suggestions and recommendations for further development of social entrepreneurship in Slovakia.

Key words: social entrepreneurship, social enterprises, social development

JEL Code: L26, L31, L32

Introduction

In market-oriented economy, entrepreneurship represents a basic and extraordinarily important element of the development of society and economy. In the current economy where economy is significantly formed by both globalization and internalization, especially the ongoing

integration processes determine entrepreneurship. Mainly economic and managerial aspects of entrepreneurship are in the foreground of interest of many experts (Ubrežiová et al., 2015; Šimo – Mura, 2015). However, a new form of entrepreneurship comes to the foreground at present where it is possible to identify both social and commercial constituents (Rey-Martí – Ribeiro-Soriano – Palacios-Marqués, 2016). Social entrepreneurship is a reaction to the ongoing social and economic changes, stimuli and challenges of the social development. In this way, social enterprises come into existence and their main role is not to perform commercial activities and make profit, but to satisfy the owner and employees' social needs. In professional circles, such a type of entrepreneurship is perceived as an innovative form of business activities with added social value. Owing to social enterprises, social entrepreneurship connected with social economy is developed. The pillars of social economy are anchored first of all in the social policy of a state, aiming especially at the social well-being of its citizens. According to Korimová (2008) and Lubelcová (2012), the inception of social economy is determined by several factors, such as interdisciplinary inputs of social and economic character; different acceptance and interpretation of public policy, economic policy, social policy and systems of re-distribution of public resources; different views of the state function; unacceptable growth of the global social stratification – the growth of poverty, modern slavery and social exclusion; and methodological problem – social economy still has not been accepted as cross-section (interdisciplinary) part of economic and social sciences.

Within the European Union, the concept of social entrepreneurship has been dated since 1980, while this type of entrepreneurship really started to gain ground only after 1990. Therefore, social entrepreneurship represents a new dimension of unconventional entrepreneurial dynamics, which, at the same time, bears social innovations and social development, as well as a new impulse of economic growth.

1 Theoretical background

Social entrepreneurship proceeds from social economy where entrepreneurship is understood as one of the ways of solutions of social problems of regions, municipalities and individuals (Bočáková – Kubíčková, 2015). In the past years, many initiatives of establishing and operating of social enterprises have come into existence, but the practise has shown that an adequate legislative definition of social entrepreneurship absents in Slovakia. In this context, it would be required to extend the effect of legal norms in the sphere of social services and consulting

(Mura, 2015), and generally of social work (Slovák, 2016), where there arises a more effective possibility of carrying out such types of enterprises in the environment of helping professions (Dudžáková, 2015) than in the commercial sphere of entrepreneurship.

Social entrepreneurship still represents a relatively new sphere of entrepreneurial activities characterized by connecting economic and social goals. The priority of social entrepreneurship is not focused on making profit, but on a wider social mission with a permanent solution of social problems of entrepreneurs and their employees. Such entrepreneurship can be classified as one of the possible instruments of employment policy, especially in connection with special segments of labour market (Bencsik – Juhász – Machová, 2014). Social enterprises create an area for handicapped and marginalized groups of inhabitants where they can make use of their skills. According to Dudžáková and Slovák (2015), this is a distinct area for a wider use of helping professions.

A legislative definition of social entrepreneurship can be found in the Act on Employment Services No 5/2004 Coll. as amended, where social entrepreneurship is described as such where entrepreneurs employ so-called persons disadvantaged in the labour market. Such persons are given support and professional assistance and the means obtained by their activities are used to create of new jobs and improve labour conditions of employees in social enterprises.

According to Korimová (2012), social entrepreneurship is an innovative process within regional development, since marginalized groups of inhabitants leave the labour inter-market in a social enterprise and enter the classical labour market, and this can be considered one of the prerequisites of not only the economy growth, but of the growth of life quality of citizens as well.

From the point of view of an international definition of social entrepreneurship, Defourny and Nyssens (2008) can be mentioned as an example. According to them, the basic criteria are as follows:

- ✓ an explicit definition of social goals,
- ✓ social entrepreneurship is based on the initiative of a local community,
- ✓ decision-making is not based on property relations determined by the invested capital,
- ✓ a participatory style in social enterprise management,

- ✓ owing to the social dimension of entrepreneurship, the profit re-distribution is limited.

In connection with social entrepreneurship, it is necessary to also characterize the term “social entrepreneur”. There are several views regarding the characteristics of this term. The basic typology deals with the Anglo-Saxon and European models of comprehending its content. While in Anglo-Saxon countries individual dynamics prevails, in European countries it is collective dynamics. In European Union countries, the social enterprise is comprehended as an organizational player of social entrepreneurship and it is characteristic for the third sector. In Anglo-Saxon countries, social entrepreneurship is comprehended as an added value of the social dimension of entrepreneurship. In our view, the roots of differences in the comprehending and meaning of social entrepreneurship can be found in the historically different development of society and economic system, as well as in different conditions for entrepreneurship.

2 Material and Methods

The submitted paper is focused on the evaluation of social entrepreneurship and social enterprises in the conditions of Slovakia. The aim of this paper is to evaluate the current situation in the sphere of social entrepreneurship and social enterprises in Slovakia with the emphasis on a comparative analysis of the international level and on a critical analysis of the legislative definition.

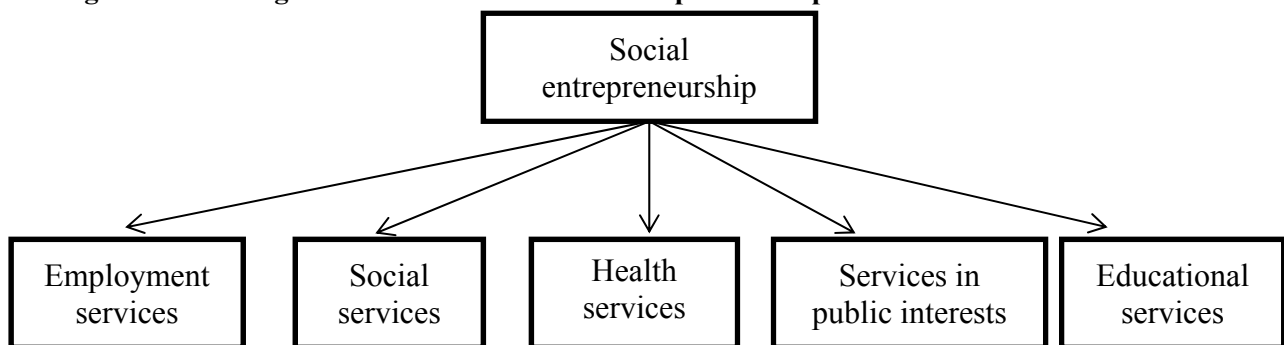
For the purpose of this paper, it was necessary to concentrate the required factual material from both primary and secondary sources. As for the secondary sources, we used mainly scientific literature, special publications, scientific papers of renowned authors registered in scientific databases, and the valid legislation. The primary sources are represented by the field data obtained within institutional research and solution of the cultural and educational project of KEGA 001UCM-4/2016. In the solution of the studied problem, we used logical and cognitive methods with individual procedures and critical analysis. In the paper conclusion, we tried to formulate subjects and recommendations, which could help further development of social entrepreneurship in Slovakia.

3 Results and Discussion

In the following part hereof, we turn our attention to revealing the present state of social entrepreneurship by means of logical and cognitive methods and critical analysis.

In our study of social entrepreneurship, we ran into some theoretical, methodological and practical problems. The basic problem lies in its insufficient anchoring in legal norms, starting with the definition of the position of social entrepreneurship in a country's economy through a definition of its functions and supporting means to a definition of control mechanisms. In our view, the cardinal problem lies in the absence of a coherent (administrative) body, which would define, coordinate and control social entrepreneurship in its overall width. However, from the point of view of the Act on Employment Services No 5/2004 Coll. as amended, or from the point of view of employment of disadvantaged citizens, the Ministry of Labour, Social Affairs and Family of the Slovak Republic seems to be the professional administrator, the problem is much more complex. It is a type of entrepreneurship and therefore the Act on Sole Trading No 455/1991 Coll. as amended or the Commercial Code No 513/1991 Coll. as amended can be applied. However, they are not under the auspices of the Ministry of Labour, Social Affairs and Family of the Slovak Republic, but under those of the Ministry of Interior and the Ministry of Economy of the Slovak Republic. From the above reasons, it would be very necessary to unify the definition of social entrepreneurship and to appoint one complexly managing body of state administration.

Figure 1 The integration character of social entrepreneurship



Source: Korimová, edited by authors

In Figure 1, the integration character of social entrepreneurship can be seen. As comes clear from the Figure, such a type of entrepreneurship contains several elements concentrated in one place. Social entrepreneurship gives its citizens integrating services because it connects some

services: employment services, social and health services, services in public interests, and educational services. Social entrepreneurship represents an integrating element not only in economy, but also in society as such.

Social entrepreneurship deals not only with the performance of business activity and with satisfying mainly the social needs of participating parties. This form of entrepreneurship brings many side- and favourable effects, such as employment of disadvantaged citizens in the labour market, a contribution to the regional development in the form of maintaining of traditional values, habits and products, the development of social services in municipalities and regions, the strengthening of social inclusion and social assistance or concrete people, and the adoption and performance of decentralized competencies of local bodies on the local level.

To compare the situation in social entrepreneurship in the territory of the European Union, we present alphabetical examples from its most developed countries that can inspire also Slovakia. In Austria, social entrepreneurship has a comparatively significant position and due tradition. The main difference between Austrian and Slovak social enterprises consists in their financing. Austrian enterprises are financed by the state as a prevention from long-term unemployment and social exclusion and due to self-realization of disadvantaged citizens. It is estimated that only in the capital of Vienna there have been created approximately 700 jobs in this way. On the other hand, Slovak social enterprises had mostly been financed from EU structural funds, or with aid of charities and donors. However, with some exceptions, they were all dissolved after the time of their support passed. The direct participation of the state absents here.

Until recently, social entrepreneurship in Denmark had had no tradition and social enterprises had not been developed. Their development was helped by the development of innovative forms of entrepreneurship. There are no special limitations, with some exceptions where this type of entrepreneurship comes under a special consent. The most frequent legal form is a limited liability company. The assistance given to social enterprises is important in this country because of their integrating function and distinct social function in economy. Denmark is an example of convergence of universal institutional elements such as partnerships in the commercial, public and civil spheres of life.

Germany is a copybook example of how social entrepreneurship should function. Through connecting the state coordination of social-entrepreneurial activities and the development of the individual regions, the German economy managed to absorb socially and medically

disadvantaged citizens, who were thus given an area for work and subsistence. We have to mention in this connection that the European Commission started to change the standards for social enterprises in 2014. If they want to receive supporting means, they have to sustain a measurability of their social importance. By way of defining a firm position of social enterprises in the Programme for Employment and Social Innovations, there arises a possibility of applying for European funds to support social entrepreneurship.

In Great Britain, there is a typical form of the institutionalized context of social entrepreneurship. Public administration in this country is decentralised, which makes supporting the local or regional specific types of entrepreneurship easier. The long-term liberal tradition has created an area for various forms of self-supporting organizations established by municipal social enterprises on the local level.

The following activities could be positive stimuli for the development of social entrepreneurship in Slovakia:

- ✓ creation of effective and mainly directed instruments of state support of social entrepreneurship on the national level,
- ✓ creation of proactive public policy (first of all social and economic) supporting creation, existence and sustainable development of a specific form of entrepreneurial activity; formulation of a national strategy of social entrepreneurship support with setting real material and time goals of its fulfilment.
- ✓ comprehending the multi-branch orientation of this type of business and the cross-sectional character with overlapping social and economic goals,
- ✓ support of the local state administration and self-government given to social enterprises in the respective region or municipality,
- ✓ creation of area for realization of entrepreneurial ideas responding to the skills, knowledge and experience of a social entrepreneur,
- ✓ active cooperation of third-sector institutions in establishing, management and development of social enterprises,
- ✓ development of cooperative and networking forms of social entrepreneurship by way of creating networks (clusters) of social enterprises with subsequent production activities and with a similar target customer.

Conclusion

Social entrepreneurship represents a part of the social sphere of our life with applying the entrepreneurial spirit and satisfying the basic social needs (job, steady income, social contacts, social communication, self-realization, etc.). Social entrepreneurship is characterized by innovative search for new jobs and realization of entrepreneurial ideas, with an active interconnection of several levels of different sectors, mainly those social and economic.

Just like any other entrepreneurial activity, social entrepreneurship is carried out, besides other goals, with the purpose of being economically self-sufficient for its own reproduction. Social enterprises prefer to employ medically, socially or otherwise disadvantaged citizens in the labour market, what brings, on the other hand, much lower labour productivity as in commercial businesses. Therefore, social enterprises need to be supported from public and private sources to be able to ensure their sustainable development and existence. Based on the comparison of the present situation in Slovakia and in the chosen European Union countries, as well as on the critical analysis of the current legislative specification of social entrepreneurship, we have formulated the following suggestions and recommendations regarding its further development:

- ✓ based on the model of developed European countries (Switzerland, Germany, France, Ireland, Belgium, Denmark, and Finland), to create conditions for establishment of social cooperatives, i.e. cooperatives of social enterprises, which are able to better enforce the needs of their members in society and, in this way, to renew the lost trust in cooperative forms of entrepreneurship,
- ✓ higher engagement of the third sector (NOGs, non-profit organizations, non-investment funds, consulting institutions) in enforcing the development of social entrepreneurship in Slovakia,
- ✓ the absent detailed legislation which would in every respect precisely specify the character, position and support of social entrepreneurship is probably the biggest obstacle in its development,
- ✓ the legal framework of social entrepreneurship should be elaborated in detail,
- ✓ a social enterprise and social entrepreneur in the national conditions of Slovakia should be unambiguously defined,

- ✓ the specification of social entrepreneurship should be interconnected in the subsequent legal norms (Act on Employment Services, Act on Social Services, Act on Social Aid, Trade Business Act and some other legal norms),
- ✓ from the point of view of organizational ensuring of this type of entrepreneurship, there is an inadequate organizational ensuring of social entrepreneurship at present. From the point of view of a unified methodology and supporting means, it would be desirable to define a managing body (a responsible ministry or some other body of state administration) for this specific type of entrepreneurial activity with a precise specification of its competencies and control mechanisms,
- ✓ to open a wider nation-wide discussion (not only in the scientific community) regarding the essence, importance and existence of social entrepreneurship with the aim of creating an effective framework for a real functioning of social enterprises.

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NEW INNOVATIVE BUSINESS MODELS: CIRCULAR ECONOMY CASE

Valentinas Navickas – Akvilė Feiferytė

Abstract

The concept of circular economy is receiving increasing attention worldwide as the way to reduce the demand for primary resources focus on urban and industrial waste to achieve a better balance between economic growth, environment and society. Circular economy prompts innovation for reuse, manufacturing and recycling activities. The importance of circular economy implementation is seen by many politics, scientists and manufacturers. Today's business must adopt principles of circular economy in their business models to improve production, reduce pollution and stimulate continuously economic growth. The purpose of this paper is to present theoretical business model incorporating the concept of circular economy. A literature review and data analysis covering the issues how circular economy will affect business models and economic structure. Main contribution (the novelty) of this paper is our proposed circular economy business model for the economy and natural environment.

Key words: business model, circular economy, waste recycling, competitiveness

JEL Code: Q50, Q53, Q55, Q57

Introduction

Economic activities are rooted in a unidirectional concept of production (linear production) – natural resources entering one end of the production process and economic products emerging at the other end. Linear model based on principles “take-make-consume and dispose” where resources are abundant, available, easy to source and cheap to dispose of is no longer effective. The market economy is focusing on the value of economic products and ignoring the depletion of natural resources and economic waste. A supply chain in the linear economy involves multiple suppliers: farmers, miners, refiners, product assemblers, wholesalers, transportation companies for these reasons the costs of the final product is high. The linear economy is

generated to improve the efficiency of each step along the chain, thus ensuring maximum outputs at minimal cost. Returning, repairing and recycling create additional costs which are not required (Schulte, U. G. 2013). The linear economy based on the natural resources as inputs but do not use recycled or reused materials. Irrational natural resources and waste management leads to the reduction of natural resources and global ecological problems such as pollution of water, land and air and diseases.

Replacing linear supply chain with a circular model that maximizes the effectiveness a new business model will ensure prosperity in spite of growing populations and the demands it makes on finite resources.

The concept of the circular economy was introduced in the 1960s by Professor Kenneth E. Bouling who had understood the limitation of the resources (George, D., Chi-ang Lin, B, & Chen, Y. 2015). Circular economy seeks the transition from the linear economy to a circular one reducing the using amounts of natural resources. Today more and more countries in the world implement circular economy principles. Japan, Austria, Germany and the Netherland are already developed strategies compatible with circular economic activities (Circular Economy related international practices and ... (n.d.). The European Union in 2014 published communication „Towards a circular economy: A zero waste program for Europe“. This document defines further waste management policies across Europe and includes the areas of the economy such as manufacturing and economic competitiveness. From this point forward the concept of the circular economy gets more attention from the scientists.

The aim of this paper: to present innovative business model incorporating the concept of circular economy activities. The circular economy model appears in the literature. This model natural input replaces with recyclable inputs offering the new perspective on achieving sustainability.

1 The concept of circular economy

The research of circular economy is taking first steps. Scientists look for the new ways for production effectiveness which leads to economic growth. Despite growing interest in resource efficiency and competitiveness, the concept “circular economy” is relatively low analyzed. Most publications are in government and companies’ level. Such countries as China, Denmark or Sweden circular economy defined in the legislation level. Most of the published articles are focused on the China as a result of the “Circular economy Promotion law of the People’s

Republic of China” (Lieder, M., & Rashid, A. 2016). Sweden is the other country which has a long time successively introduced various incentive programs through public education. Sweden, Germany, and other European countries incorporate green political parties in their political systems and process of decision making to encourage and eased a transfer towards a circular economy (Heshmati, A. 2015).

The circular economy is concentrated on the effectiveness of waste management policy. Considered the technology development of the industry, waste recycling and reuse not only helps to increase the efficiency of production but also to reduce the use of natural resources (Preston, F. 2012). Circular economy implementation becomes an important aspect of waste management effectiveness. This change occurred when the politicians and businessmen’s understood that increasing global competitiveness access to natural resources makes increasingly complex.

The sheer appeal of the circular economy is reflected in the July 2014 European Commission landmark communication “Towards a Circular Economy: A Zero Waste Programme for Europe” where are set the basis for the future waste management in Europe (Velis, C. A. 2015). European Commission seeks to boost global competitiveness, foster sustainable economic growth and generate new jobs.

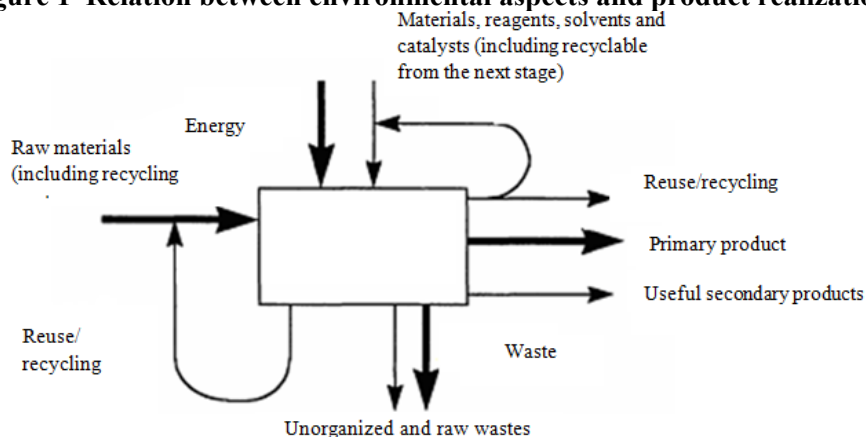
The circular economy model is built to create minimal waste or materials to be upgraded or reused and keep the added value in products for as long as possible. This will help to reduce waste generation and solve the pollution problem. In the circular economy, value creation is built on new forms of consumption and resources longevity (Schulte, U. G. 2013).

Circular economy approaches “design out” waste and involves innovation through the value chain. Today most of the business production chain convert all material inputs to non-usable waste and still using primary resources for the further production. For this reason, the amount of waste is rapidly growing past few decades. States waste policy is not effective and about 50 per cent of waste still goes to landfills. Growth-oriented business models seeking to reach market saturation by increasing frequency of products replacement. Boosting demand through mass production, reducing costs of production and improvement in labor efficiency. Ignoring of resources efficiency leads to pollution problems, rapidly reduce of natural resources and slow economic grow. Waste recycling and measures to improve efficiency can help to reduce the need for extraction of raw materials. In a circular economy, resources are reused. Other products

can be made from plant-based materials. This means basic structural changes in the industrial sector (Preston, F. 2012).

Recently, most of the manufacturers note that the linear production system increases the risk of rising resource prices and supply disruption. Due to the unpredictable price of the stock markets and growing competition, the production price of the last century has tended to decline. Industry sector is one of the main driving forces of economic development. Continuous technological development helps to reduce costs and improve value add of products and services (Wang, K., Kovacs, G.L., Wozny, M., & Fang, M 2006). Circular economy includes waste in the value chain process as inputs. Fig. 1 shows the environmental aspects of the product and waste realization link of the value chain based on theoretical assumptions. Waste, raw materials, and semi-finished products are understood as costs in the value-added process and they are necessary for manufacturing. Products, semi-finished products, or waste are thought to be the output at the end of manufacturing. They will be used for recycling or other manufacturing processes.

Figure 1 Relation between environmental aspects and product realization



Source: Emblemståg, J., & Bras, B. 2001.

Waste is as a resource and as a final product in the value chain which can be recycled into resources for other manufacturing processes. Recycled waste can replace part or all primary natural limited resources. Because of the re-use and constant renewal waste occupy an important place in the value chain. Using circular economy principles can change primary resources to recycled waste using as an input.

Research methodology

Recently the discussion on the concept of the circular economy has intensified. However, while theoretical projection analyze potential economic, environmental and social benefits of the circular economy are promising, practical research are limited. Using literature review and data analysis this paper presents the circular economy business model for the economy and natural environment.

2 THE MODEL OF CIRCULAR ECONOMY

Circular economy model raises several practical challenges that require experts from diverse disciplines to ensure proper and effective circular economy implementation in practice. The circular economy must provide the economic incentives to ensure that post-consumption products are integrated into the manufacturing process. Manufacturers are interested to in declining their expences in the production. Circular economy implementation is usually more expensive to manufacture durable long lasting products (Sauvé, S., Bernard, S., & Sloan, P. 2015).

The circular economy also requires to re-orient consumer thinking towards assessing alternative products, collect wastes and recycling them. Scientists are calculated that a potential consumption bomb will lead to inevitable resource constraints. Around 3 billion people are expected to join the ranks of the middle class by 2015. By that time the population will growth about 1.1 billion people, food spending expenditures increase 57 percent, packaging materials will increase 47 percent. Meanwhile, a number of end-of-life materials will increase 41 percent (ICCE n.d.).

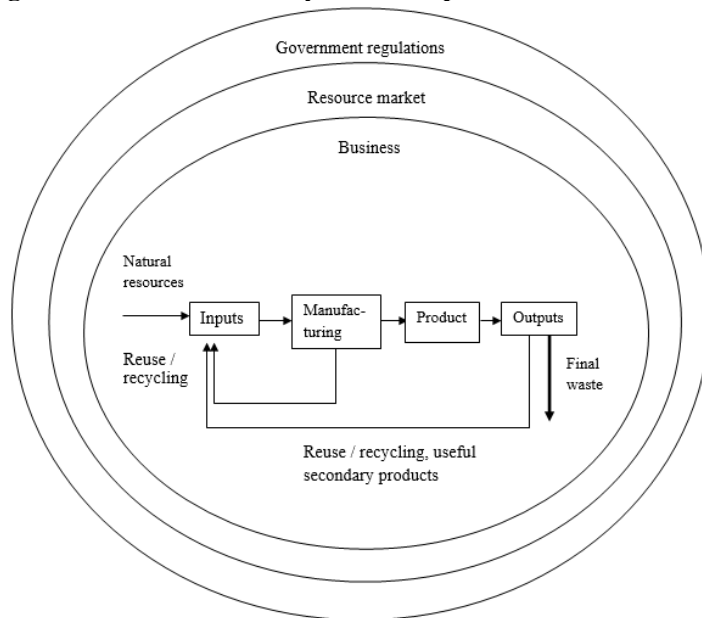
The circular economy presents radical break where materials should not be cast away and expended, but they should be re-used and replenished. The circular economy is more like „new industrial model“ which replace „ends-of-life“ concept with restoration, opting for reusable materials in design, ending wasteful manufacturing processes, waste pollution and developing new markets for repurposed products (Henley, W. 2013).

Today many companies extract materials and use them to manufacture a product, sell it to the customer who then discards when it no longer services its purpose. In 2010, about 65 billion tonnes of raw materials entered the economic system and this number is expected to grow to around 82 billion tonnes in 2020.

The linear economy also increases business exposure to risks with higher resource prices and supply disruptions. Business today is facing two problems: rising and less predictable prices in resource markets and high competition and stagnating demand for certain sectors. Business leaders are in search of a „better hedge“ and many moving towards an industrial model that decouples revenues from the material input. Circular economy model replaces the end-of-life concept with restoration, aims for the elimination of waste through the design of materials, products and business models (Towards the circular economy... n.d.).

We are proposing circular economy implementation model based on the theoretical analysis (Fig. 2).

Figure 2 Circular economy model implementation



Source: prepared by authors

Based on this circular economy implementation model, the business sector is affected by limited resources, growing costs and government decisions. Lacking in natural resources, environmental problems, growing prices encourage governments to look for new solutions. Governments stimulate circular economy implementation by the legal regulation of the business sector and resource market. Linear production is based on the natural resources consumption that follows a take-make-dispose pattern. In the circular economy model companies are concerned to use natural and recycled / reused resources to reduce costs and improve product lifetime. All wastes due to the manufacturing and consumption process are considered as a

resource for further production. All cycle must be repeated all the time to ensure the minimum amount of generated final waste.

Conclusion

Based on the review and analysis of prevailing research circular economy is a solution to the need for reducing the environmental impacts and growing amounts of waste. Although the implementation of the circular economy worldwide is still at an early stage of development. The linear economy is no longer effective because of the lacking natural resources and slowing economic. The circular economy model can maximize the effectiveness ensuring the prosperity despite growing population and their needs.

Only a few countries decided to implement the circular economy model in their economy. Such countries are China, Denmark and Sweden. They had reviewed their legislations and use economic measures conserving the environment and resources. The circular economy is concentrated on waste management effectiveness (reusing, recycling) using them as a primary resource for the product manufacturing, energy and heat production. The circular economy model is built to increase the amount of the waste and keep added value in products as long as possible.

Based on literature review and data analysis this work proposed the circular economy model where successful circular economy implementation requires conjunction between environmental requirements and needs, government decisions and business capabilities. Waste, used products parts, reused products and recycled waste should be implemented in the production process replacing natural resources.

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DEVELOPMENT OF PRODUCTS PROMOTION PROGRAMS OF OWN BRANDS BY RETAIL NETWORKS BASED ON DEFINING LOYALTY INDEX

Ksenia Nefedova – OlgaYares

Abstract

Nowadays the Russian audience loyal to its own brands of retail networks and hypermarkets is only being taken shape, the given products market is unstable and demand subjects to significant fluctuations. Further market development will, for the most part, depend on the policy of retailers and measures taken by them in creation of trust relationship to these products. The given article deals with the analysis of the empirical data collecting at large trading enterprises of the main trends that enable to develop customer loyalty to the products of own brands found in retailer networks of the city.

A portrait of a potential buyer of own brand products has been created as a result of carried out analysis. This portrait enables to evaluate prospects of private labels development at the territory of specific region. The qualitative characteristics of the given products necessary for positioning in their promotion and competitiveness on the market relating to more well-known brands have been developed. The obtained results lay the foundation of methods and programs of own brands promotion at regional markets.

Key words: own brands, loyalty, promotion, brand, retailer networks, positioning

JEL Code: D12, D19, M39

Introduction

The Russian retailer market is characterized by dynamic development of production sector and promotion of own product brands (OPB). Despite the fact that penetration of OPB is significantly inferior to leading indices (about 3 %), the given products play an important role in interaction with key market players. OPB have spread the world over as business incentive

tool of large trading companies. On the one hand, their emergence results in sales growth, profitability of retailer networks, OPB manufacturers and increase of buyer's loyalty. On the other hand, they may deteriorate the position of national brands manufacturers at the expense of reduction of negotiating position or advertising support at the shops. For consumers it may have the positive and also negative result due to multidirectional OPB impact on average price in the category products range and their quality (Homik, 2013, p.77-80).

Problems of OPB development at the Russian market

OPB appear for two reasons. At first, retailer wants additional competitive advantages and growth of sales profitability. Russia has not got such competitiveness among trading enterprises as compared to the West. The number of super and hypermarkets has rapidly and consistently increased in Russia. This growth will be halted in 7-10 years and each trading network will have to survive due to its own inner reserves.

Secondly, OPB began their history as the cheapest and popular ones.

However, they will occupy the "Premium" segment very soon. Today this product range has divided into such subgroups:

- leader copy, but cheaper
- more expensive than leader in the category, but better in quality
- brand of a leader
- the cheapest product in the category (Ageev, 2006).

Under favourable conditions of introduction of OPB on the market retailer networks have to develop effective branding oriented to long-term consumer preference in this category of goods.

Factors effecting OPB selection

The customers should have trustworthy and kindly relationship to OPB and positive image of shop brand itself. In some other words, it is necessary to develop such retailer brand that will enable to mark and promote fearlessly some commodities under their own names within target segment (Lewinski, 2013).

Firstly, to attract the customers to the shop it must offer products of lower prices than those of brand analogs and provide their high quality. Guarantee of OPB may be provided due to thorough selection of high-class firm-providers of products and more strict requirements to specification and quality standards of given products.

As far as lower prices are concerned the solution of the problem firstly is the opportunity of making bulk orders which result in saving scope effect and in the long run reducing products cost. Secondly, all deliveries are made on the basis of clearly lined up logistic schemes and availability of distribution centres that enable to prepare goods for sale in centralized way and reduce costs significantly. Reduction of expenses for OPB promotion is considered as the third trend because advertising has already made the trading company famous and customers have trustworthy and favourable relationship to the shop name. The result of obtained saving due to the presented items of expenditure may be lower price of 15-20% under private label in comparison with brand analogs.

Certainly, one can not believe that only price and product quality affect the preference of the customer to buy this or that product. Complex study of OPB sales at hypermarket “Globus” has been made with a view to define factors effecting their realization. The study was aimed at obtaining original data of customer’s relationship to OPB at “Globus”.

In September 2009 the first products under label “Globus” appeared at the shop shelves. These commodity groups were: freezing, diary, fish, nuts and dried fruits. Totally, in September 2009 the shop had 24 vendor codes and now it has 1240 ones. The share of OPB in the company turnover comprises about 4%.

Nowadays network of hypermarkets is represented by such OPB as “Globus”, “Vash Vibor”, “Romashkin Lug”, “Natuvelt”. The trade mark “Globus” is the most popular among customers. The experiment (or observation with the elements of experiment) is the most reliable and trustworthy method due to behavioral aspect of investigation. However, it does not give the opportunity to answer the questions relating to cognitive aspect of OPB impact on customers. We have selected the process of polling the people as the main method of investigation because most of assigned tasks and hypotheses are of cognitive character.

All citizens of the town of Vladimir over 18 years have been taken as parent population. The quotas selection has been made as the main method to obtain representative sample at low level of expenses and convenience of the process itself.

The calculation of the sample was carried out according to the formula 1:

$$SS = \frac{Z^2 * (p) * (1-p)}{C^2} \quad (1)$$

Where: Z - factor (e.g. 1,96 for 95% confidence interval), p – the percentage interest of the

respondents or responses in decimal form (default is 0.5), c -confidence interval, in decimal form (for example, of 0.04 = ±4%)

$$SS = \frac{1,96^2 * (0,5) * (1-0,5)}{0,04^2} = 599$$

Total sample size was 600 people.

Control characteristics have been defined on terms of made hypotheses relating to personal features that effect purchase of OPB: sex, age and availability or non-availability of higher education.

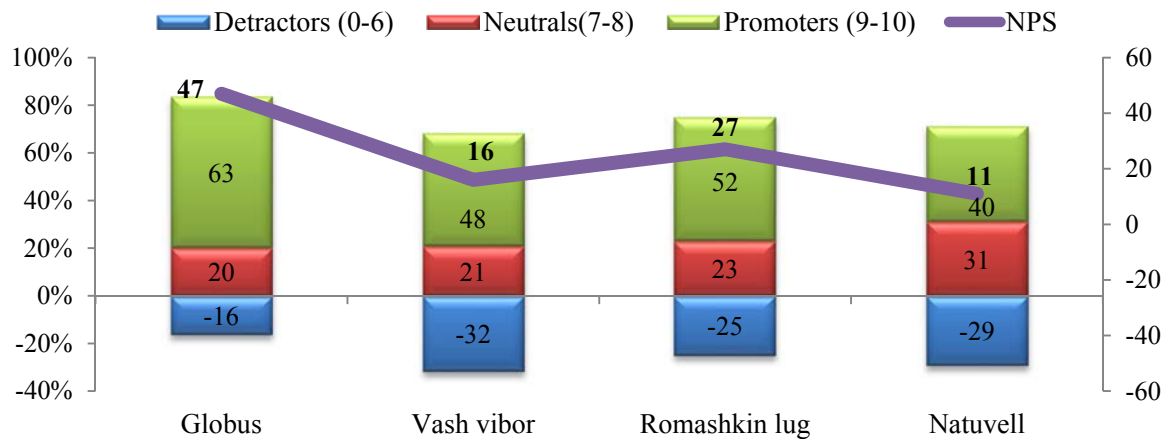
The loyalty index Net Promoter Score has been calculated to evaluate the customer's loyalty to OPB. The essence of the NPS method is based on the fundamental situation when customers of each trade mark are divided into three groups: "promoters", "neutrals" and "detractors". It is possible to define these groups and evaluate the OPB by the eyes of the customers by asking one simple question "Is it possible for you to recommend Label "X" to your friends or acquaintances? While answering this question about probability of the recommendation clients give mark using 0-10 scale.

If the customers enthusiastically recommend trading mark to a friend or acquaintance they put the highest score from the possible ones (9-10 marks). They practically launch their co-branding program of their own reputation with that one of the brand. These are "promoters". The second part of customers, as a rule, is satisfied with the the brand (7-8 scores) but is not ready to recommend it ("neutrals")/ and finally the third part of customers- these are clients, having negative experience of handling the brand (0-6 scores) and being against their sale because of "counter-recommendations" they give at the market ("clients-detractors").

NPS index is calculated as the difference between percentage ratio of "promoters" and "detractors". The higher is the share of "promoters" the larger is NPS label, the more positive information the market obtains about it and the more potential buyers will select it. Besides, promoters are the most profitable part of client brandl base. They are always less sensitive to the price and increase the volume of purchases faster than other customers.

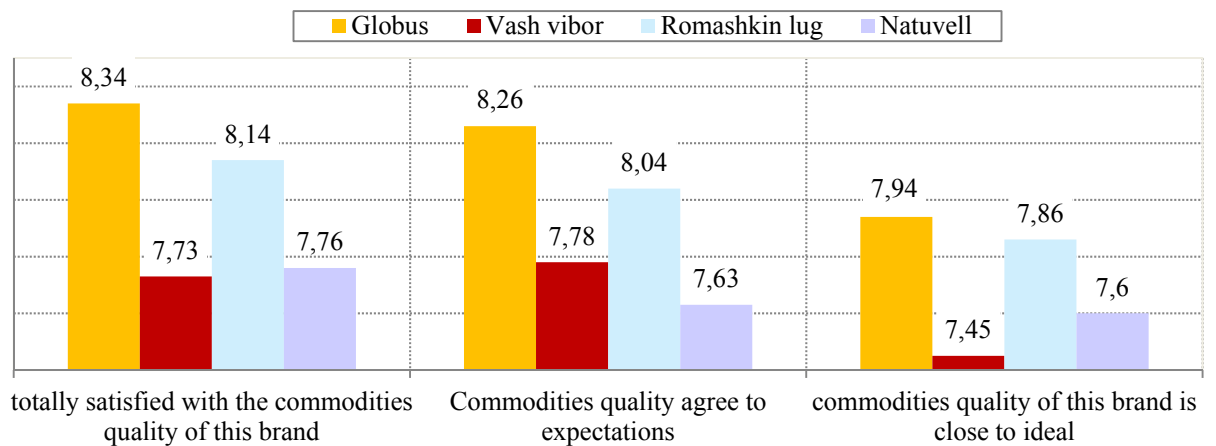
The brand "Globus" has got the highest NPS index (47%), the lowest one- "Natuvel" (18 %). Obviously, the low level of brand recognition contributes to this situation. (Fig.1)

Figure 1 Loyalty Estimate to OPB⁴⁴



The carried out analysis of customer's relationship to OPB at hypermarket "Globus" showed that they are satisfied with the presented quality of OPB in investigated retailer network. The highest estimate has been given to "Globus" and Romashkin Lug. Quality of brand "Vash Vibor" agrees to customers expectations. (Fig.2)

Figure 2 Quality Estimate of OPB⁴⁵

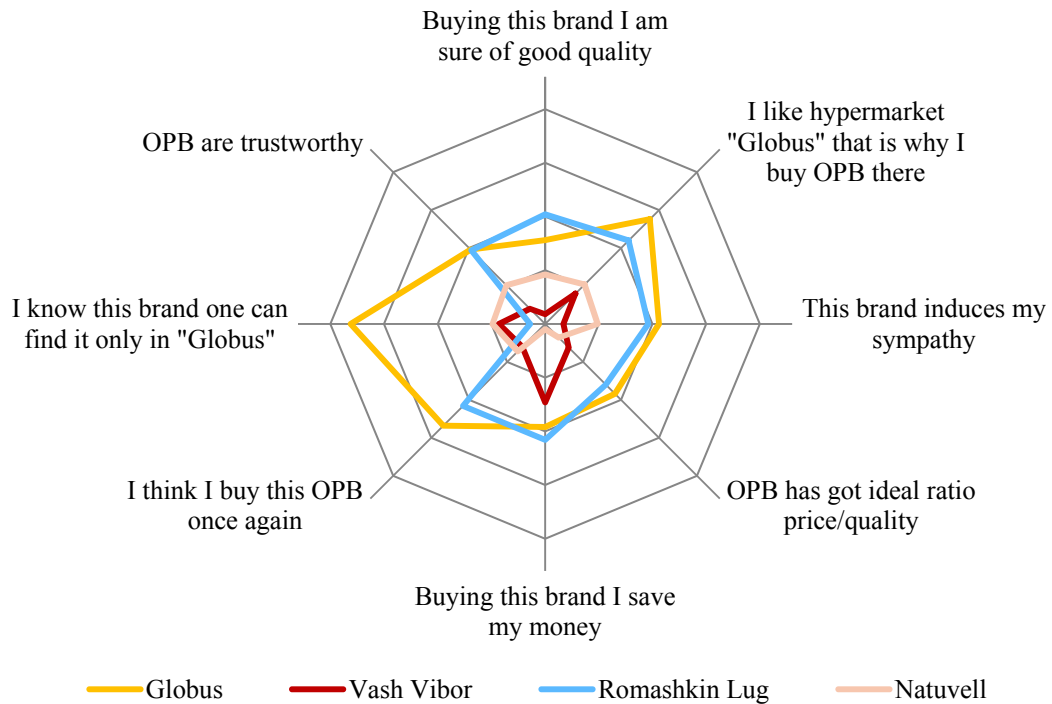


Besides the estimate of customers relationship to commodities under private brands at the retailer network "Globus" has been given (Fig.3)

⁴⁴ Source: Author

⁴⁵ Source: Author

Figure 3 OPB profile in comparison made on 10 score scale (10 – agree completely)⁴⁶



In average the “Globus” brand is highly evaluated by the customers. The positive answers were “I know one can buy such brand only in “Globus”, “I like hypermarket “Globus” that is why I buy commodities under this brand.” The evaluation of the OPB made by respondents is given below.

Customers are not satisfied with the products quality under “Vash Vibor” brand (7.29 scores from 10). As a whole the brand has been evaluated not so high according to the estimates of the customers. Products under brand “Romashkin Lug” have been evaluated positively. Especially high is the estimate of the brand connection with the network “Globus” on the one hand, and on the other hand respondents are not sure that brand “Romashkin Lug” is sold only in the given retailer network. That is why positive image of “Globus” effects the relationship to this brand.

Prospects of OPB development

Possible ways of overcoming stereotypes relating OPB are presented below (Tab. 1).

⁴⁶ Source: Author

Table 1 Ways of overcoming main customers stereotypes relating to OPB⁴⁷

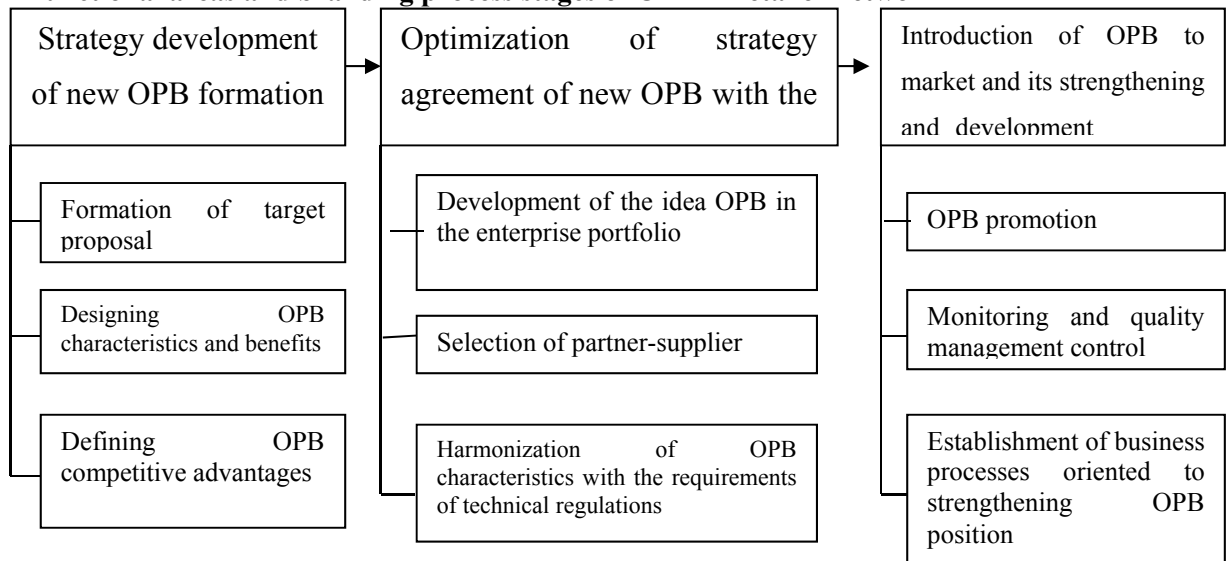
Stereotype	Ways of overcoming
OPB are always cheap	<ul style="list-style-type: none"> - Positioning OPB on the basis of their unique advantages; - Development of commodity concept on the basis of competitive benchmarking; - Introduction of Premium private brands with emotional positioning.
OPB are cheap, it means they are of low quality	<ul style="list-style-type: none"> - Getting the customers informed of quality structure and its standard; - Getting the customers informed about the place and terms of production; - Development of high quality of packaging; - Promotion the idea of high quality and prestige of products under network brand along with the development of the network itself.

Thus, the given products should be regarded as brands to ensure the customers positive relationship to OPB. OPBing as a managerial process is carried out by some interchangeable stages, the full sequence of which forms single branding process (Fig.4)

If you haven't managed to win the customer in case of "Globus " brands, the next stage i.e. OPB promotion program is the most important. At this branding stage the retailer network combines different forms and means of marketing communication and concentrated impact on potential customers at the shops using demand incentive ways. The customers receive information by means of marketing communications that is why retail networks must coordinate information in order to avoid ambiguous interpretation by the customer (Zagorskiy, 2014, p.3)

⁴⁷ Source: Author

Figure 4 Functional areas and branding process stages of OPB in retailer network⁴⁸



In the process of OPB promotion the main task is to provide customers impressions laid in this concept about:

- 1) the level of concern on perfection and stability of consumer qualities to evaluate OPB assortment;
- 2) control reliability of sanitary-hygienic, ecological, social conditions of production and handling OPB assortment content;
- 3) effectiveness of providing expected benefits and functional advantages of OPB assortment content.

Conclusion

Practically this problem is solved by means of monitoring and control arrangement of OPB assortment content by network retailer, production conditions provided by commodity producers and by systematic testing series samples by random sampling of OPB assortment content to find out their conformity to specifications agreed upon to commodity producers. The measures mentioned above serve as the main system of factors control that threaten the target OPB status and its reputation (Zagorskiy, 2014, c.4).

Thus, the mentioned above ways to overcome arising stereotypes relating to OPB and suggested branding trends may lay the foundation for developing complex program of OPB promotion to the market and consistent increase of their share in the volume of sales.

⁴⁸ Source: Author

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INNOVATION-BASED MODEL OF ECONOMIC DEVELOPMENT AS A STRATEGY FOR SUSTAINABLE GROWTH IN RUSSIA

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Abstract

The necessity of profound changes in many areas of innovation system is the primarily goal for a new economic model in Russia. For Russian reality the implementation of the tools of strategic innovation management, sustainable development, and entrepreneurship is highly important. However, lack of finance, the superimposed narrow strategic focus, the rigidities of local business networks, the weakness of external infrastructure for innovation and the absence of state support of innovative enterprises seriously impede attempts to implement radical changes.

In this article we specify our understanding of innovation-based scenario of economic development where innovations are directly associated to the sustainability that moves from exploitation to exploration, from corporate environmental management to sustainable entrepreneurship, and from efficiency to innovation. We indicate the need for radical innovation via entrepreneurial start-ups or new ventures connected to science and educational institutions within existing corporations. Presenting conceptual research, this article addresses the theme of how we can create economic sustainability and produce innovative businesses. The article brings a broad discussion of the intersection of sustainability, innovation and entrepreneurship.

Keywords: Innovations, economic growth model, entrepreneurship, incentives for growth, sustainability

JEL: E6, H11, O1, O4, P4

Introduction

Hit by the crisis of 2013-2014, the Russian economy is faced with new challenges. The Russian economy which demonstrated impressive growth between the two financial crises of 1998 and

2009, and up to 2013 when the GDP grew by 83%, productivity grew by 70%, and expenses for accumulating fixed capital doubled in real terms, by year of 2013 failed in recession. The unexpected drop in oil and gas prices in a global market in 2014 made the Russian economy (that was busted up due to the increasing prices of oil, gas and other raw materials in the first decade of the century) absolutely not competitive. The export revenues stopped to be the growth drivers and the existing economic model based on non-efficient factors of exporting commodities is not able to ensure economic growth anymore. By the predictions of experts and analysts the favourable hydrocarbons prices that accumulated resource-based pattern of economic development is dead-ended. The necessity to find solutions to improve economic efficiency and to define the main steps to be taken in building a new model of economic growth in Russia is the theme of the present work.

The outline of the innovation-based economy

The world is in transition from an industrial stage of development to an innovative one. This means that during the industrial stage there were plenty of cheap mineral raw materials and their wide use was an important driver of high growth rates. However, now the innovations and high-technologies become the predominant factor of efficiency and key economic driver. In this respect there is a need for institutional change which encourages innovation. In the long run, the relative advantages will go to those who are able to accumulate the largest innovation potential.

Looking at Russian innovative activity (Table 1.) one has to admit that it is obviously lagging behind the world's leading economies, relying upon imports of modern technology. Domestic manufacturers currently prefer to buy technologies that have been proven in the West, thus not being associated with high risks.

Table 1 Indicators of innovative activity, 2012

Country	Specific weight of companies pursuing technological innovations	Total level of innovative activity
Russia	9.0	10.3
Brazil	41.2	76.0
Poland	16.2	28.1
Turkey	35.2	51.4
South Africa	65.4	73.9

Source: HSE, 2014.

Russia has spent on Research & Development in 2015 in per cent of GDP a mere than 1.4%; the percent of innovative products and services out of total exports was 3.8%; while the share of Russian companies involved in innovative activities did not exceed 9%. Russia put into 75th place among world economies by innovation and business sophistication factors (Table 2.)

Table 2 The Global Competitiveness Index 2014–2015: Innovation and sophistication factors

Country/Economy	Innovation and Business sophistication factors	
	Rank	Score
Switzerland	1	5.74
United States	5	5.54
Israel	10	5.16
France	19	4.86
Canada	24	4.72
China	33	4.14
India	52	3.86
Russian Federation	75	3.54

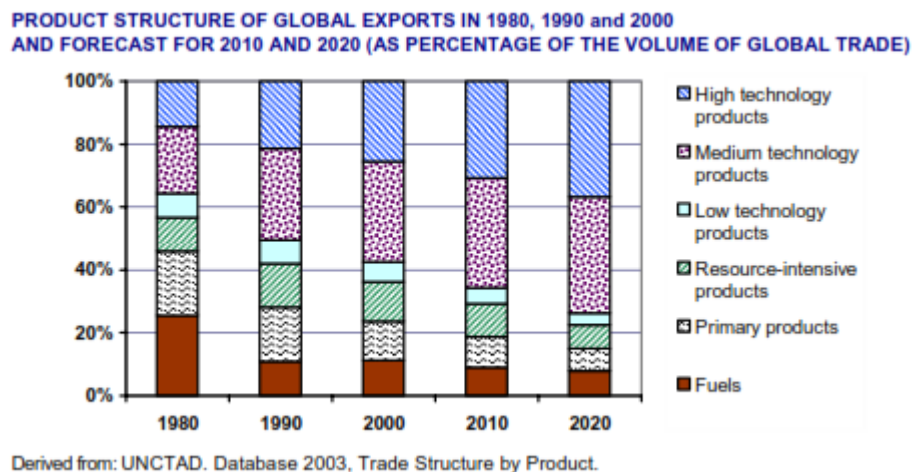
Source: The Global Competitiveness Report 2014-2015

Currently, the innovation sector in Russia is extremely insignificant compared with the general scale of the economy. The key element of the innovation sector of the Russian economy is at present represented by research units of foreign corporations that rely on intellectual outsourcing. The main problem that hinders development of the innovation sector of the economy is the lack of demand for innovations in the domestic market. A paramount objective of Russia's economic development is to modernise industrial capacities, which will promote demand for innovations.

To Russia, development of an innovation-based economy is an urgent priority because in terms of its economic development Russia is 1-2 stages behind leading countries (stages 5-6 in developed countries and stages 3-4 in Russia). E.g., developed economies are dominated by

biotechnologies, nanotechnologies, information technologies, etc., whereas the domestic economy is still in the industrial stage. If this situation continues the gap in economic development will inevitably widen and Russia will be fated to end up in secondary roles in the global labour distribution structure. At the same time, Russia positions itself as a peer in the group of developed countries (G8) and the innovation project is needed to secure this position. Already 75-90% of GDP increase in the developed countries of the world comes from growth in the innovation sector while in Russia this figure is still as low as 10%; this affects the overall efficiency of the economy. E.g., according to the existing estimates, Russia's lost profits from the innovation gap amount to \$1214 billion a year.

The share of fuels and raw materials in global exports is on the decrease and is predicted to fall below 10% by 2020. Therefore, resource-based development means to Russia not only losing importance in the global economy but also having to compete very hard with other producing countries with much more favourable conditions for the extraction of minerals.



The global competition is driven now by the factors of innovative systems, primarily, highly qualified human resources, investments into new knowledge, and technologies. Knowledge has become the driving force of economic growth, social development and the source of competitiveness in the world markets. The western economies have moved from resource-based economies to knowledge-based economies since the emergence of new information technology. Russia has to achieve this transition, to remain competitive in the long run. Essential tasks involved in this process are: creating a favourable business environment, improving the quality of human capital and business infrastructure, and increasing the efficiency of the innovation system radically. Boosting innovation in Russia is of utmost importance and it will require

mobilising Russia's most ill-used asset, the important stock of human capital with scientific expertise and engineering knowhow. Seeding innovation and technological breakthroughs inside the country has to become a major initiative of our national leadership.

Innovation-based growth: signs of innovation potential and problems of innovation-based scenario of economic development

The fairly high potential of Russia's innovation sector is witnessed by the fact that research centres of major international corporations have been actively set up in Russia in recent years. Many Russian innovation solutions are already widely used in the world; Russia has tangible advances in nanotechnologies and other promising innovation areas. There are many ideas and theories however very few practical applications. On the whole, there are quite a few promising developments and technologies that could be implemented into real innovation products. The main problem is the lack of skills for implementation and product launch. In this respect, there is a need to create a national innovation system within which innovation products would be created from the stage of ideas to the stage of practical implementation. To this end, it is necessary to establish links between enterprises in the innovation technological sector with educational institutions and scientific centres. There is a need to create science centres for consolidation and processing of innovation projects in corporations and at enterprises and bringing them to the production stage.

During implementation of practically applied projects associated with launch of new products, there is a tremendous gap in comprehension of objectives and tasks by scientists and investors. E.g., while the business plan, commercial profit, etc. are top priority ideas to investors it is the scientific interest that is of primary importance to scientists. It is possible to try to remedy the situation by placing emphasis, in determining financing priorities, on the introduction of scientific developments in production; it is this approach that must become the indicator for financing by the state. The most relevant task is to develop such innovation technologies that can be brought to final use in Russian conditions.

The state dominates in the structure of investments in science while in an innovation-based economy funds of private corporations must predominate, as witnessed by the experience of developed countries. In assessing the efficiency of funds allocated from the state budget for support of domestic science, many experts are of a negative opinion. The misfortune of

academic science is that often to administrations of institutes, when spending funds, the important question is how to spend state funds rather than the result efficiency.

An important role in the development of innovations is played by the human (personnel) factor, i.e., education, science, engineering staff. Russia has a high but extremely fragmented scientific potential. A significant obstacle to universal development of innovations is the collapse of the sectoral research and development complex. The personnel strength in industry research centres is consistently falling.

On the whole, the scientific potential of Russia is quite low; Russian science is alienated from Western science; Russian scientists are not familiar with modern trends and cannot correctly choose the vector in the development of innovation technologies. Institutes of higher education do not graduate niche specialists that the economy needs. The situation will change if institutes of higher education will train specialists at the request of individual enterprises. There is a need to enhance the prestige of engineering professions as well. It is necessary to create large and up-to-date centres of science and education as the problem of the lack of personnel for continuing scientific traditions remains relevant and can even be aggravated.

The situation in science and education must be taken seriously as at present, science, modernisation, education, health, etc. are moving to the forefront in the context of innovation-based economy.

Currently, the USA and Europe are the main sources of demand for Russian innovations. It is major private corporations from these countries that are now actively establishing their research units in Russia, forming the backbone of Russia's innovation sector of the economy. E.g., while in the past foreign companies for the most part invited domestic specialists to join their 'home' R&D units now, owing to development of communication facilities, it is cheaper to set up research units in Russia, which also does not complicate competition among specialists in their domestic market. Russia is becoming an intellectual outsourcer for developed countries.

This negative tendency has to be solved by domestic manufacturers who would set up research units, being compelled to assure competitiveness of their own products. In this way the state must facilitate the emergence of innovations by special conditions for such businesses. E.g., obstacles to development of leaders in branches of the economy must be eliminated and for that the state must support exports and entry of domestic companies into the global market.

The analysis of economic development mechanisms permits the statement that crises in the technological sphere of the Russian economy are unavoidable and in this scenario the will of the state, pressure from science and the interest on the part of business in innovations, together must yield a positive result.

The state's role in innovation-based development

The state must create incentives for the development of innovations. Development of innovations must be stimulated by a national innovation system that, unfortunately, does not exist yet. An innovation infrastructure must be formed in the context of the national innovation system: organisations that facilitate the establishment and development of innovation companies (business incubators, technoparks, coaching centres, special zones, etc.); consulting organisations (market reviews, preparation of business plans, strategies of development, patent research, competitive advantage studies, audit, legal matters, etc.); technology transfer centres; hi-tech stock exchanges.

The state must stimulate (also by taxes) those targets of the innovation system that do not need or do not imply commercial investments, e.g., patenting.

The state must perform primarily the strategic function of planning and stimulation of innovations. So far, Russia has no scientific and technological programs and no centre of decision-making on innovations at the state level, no clear understanding as to what trends in the innovation sector must be developed. For example, there is no clear understanding as to why emphasis was placed on nanotechnologies. There must be a minister of innovation-based development in the government who would coordinate the totality of matters relating to innovation-based development.

The state must determine priority development trends in the innovation-based economy and support them. The main criterion of expediency of innovation projects must be their profitability, which will ultimately make this sector attractive for investors in the context of the extractive industries and solve the problem of asymmetry in redistribution of investments between the innovation sector and 'classical' branches of the economy. In determining state priorities in development trends of the economy (innovation-based economy), there is need to clearly understand what place in the global labour distribution system Russia lays claim to. The state must develop the private-state partnership, which will permit the sharing of existing risks in projects with business and the attraction of additional investments.

The state can exercise technological regulation of the activities of private companies by adopting appropriate laws.

The state must determine the necessary trends in innovations development for business, e.g., by obliging oil companies to spend certain funds on bioethanol research.

For successful innovation-based growth, a state strategy encompassing the totality of objectives, mechanisms for the implementation of plans and financing is needed. At the same time, a system of market incentives, including differentiated taxation, is required. It is necessary because enterprises are in unequal conditions: innovation enterprises are less stable and face more risks. The state must provide privileges to those who implement the breakthrough strategy.

The state must support liberal values and freedoms as the prerequisite an efficient innovation-based economy where environment of freedom implies freedom of creativity, enterprise and competition. In Russia, there is need for the development of the culture of trust, personal competition, which will stimulate people to achieve success through creativeness and innovations.

Providing sustainable development of economics in many ways is connected to establishment of small business which allows providing more profound usage of entrepreneurial potential on new basis – basis of innovative activity. The current economic situation in Russia prevents innovations' mechanism from starting up within structure of small business. There are factors restrict innovative enterprises from developing and effective functioning: deficit of own funds; shortage of skilled staff; lack of informational support and paucity of guidance papers which regulate functioning of innovative enterprises; full or partial absence of production and technological infrastructure; high level of economic and legal risk; imperfection of Russian legislation. In this way the state must be in charge of creating an favourable environment for small innovative enterprises including fundraising and improving the law.

Conclusion

Analysis of Russia's recent socioeconomic development shows vividly that the opportunities of the post-transformational restoration growth model, which has been in effect since 1999, have been fully depleted, as have those of the raw material model of the economy, which has already become traditional for Russia. The slowdown that started in mid2012 has turned into sharp deceleration, and in 2013 the growth of the Russian economy practically stopped. The

model of the first decade of the 21st century that enabled rapid production growth, a record increase in wages across all industries and social transfers, and increasing macroeconomic stability turned out in low business efficiency and competitiveness of the economy on a global scale by year of 2013-2014. The economic model exploited the ideal conditions of oil-gas prices under which it was shaped and there is little chance for the Russian economy to stop stagnating without creating a new growth model.

The new model should focus on knowledge and high technologies, innovations and creating favorable business environment. Science and education together with commercialization of innovations have to be considered as new sources of economic growth and welfare gain. Russia's world leadership can be achieved only through innovation-based growth.

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ASSESSMENT OF INFLUENCE OF HUMAN CAPITAL QUALITY ON THE INNOVATIVE DEVELOPMENT OF THE TERRITORY

Ilya Panshin – Maria Tobien

Abstract

Nowadays the prospects for the socio-economic development of territories are largely determined by the level of innovation development, which is based on the use of high technology and information technology, intellectual resources, factors of production. Human capital is becoming one of the major resources for the innovation development. This paper observes and predicts the territory innovative development relying on the econometric modelling and on the correlation and regression analysis, depending on the parameters that determine the quality of human capital. A new interpretation of "human capital" category was suggested and its structure, features and form factors were considered. There were singled out the unique properties of this category including such the characteristic of capacity with respect to the knowledge, intelligence, information, mobility, innovation, creativity, self-learning, etc., which determine the ability of a person to perceive and create innovations. There was developed the model of innovative advance of the territory on the basis of the indicators which characterize the ability of the region economy to reproduce innovation: the efficiency of the research and educational spheres, the population cultural and moral potential, the efficiency of the public health system.

Key words: innovative development, modelling, quality of human capital.

JEL Code: O15, E24, C15

Introduction

Among the main factors of economic modernization in the regions of the country and getting it on the innovative path of development, the most important thing is the human capital. Innovation activity, suggesting the creation of new or significantly improved products as well

as the adoption of improved production processes, requires that employees should have new professional and social qualities, creativity and innovative thinking. In turn, in order to achieve human capital development and improve standards of the population life, it is necessary to actively use innovations, to introduce new technologies, to update the whole technological base of the economy. In other words, along with the advancement of innovative economy the person becomes a key resource for the development and the main value, which determines the development of the territory.

The original concept of human capital is associated with such american economists - Nobel Prize winners in economics – as T. Schults, G. Becker, S. Smith. A great contribution to the development of human capital theory were also made by such foreign scholars as W. Bowen, J. Kendrick, K. Marx, A. Marshall, F. Machlup, W. Petty, D. Ricardo, A. Smith, et al. Problems of the influence of human capital on economic growth and innovative development researched in the works of such scholars as J. Mincer, R. J. Barro, J. Forrester, D. Meadows, A.V. Koritskiy and others.

1 New features of human capital

The analysis of the processes taking place in the modern economy revealed a number of regularities of its development and highlighted some new features of human capital. With regard to the analysis of human capital, the main trends of modern society and the economy are:

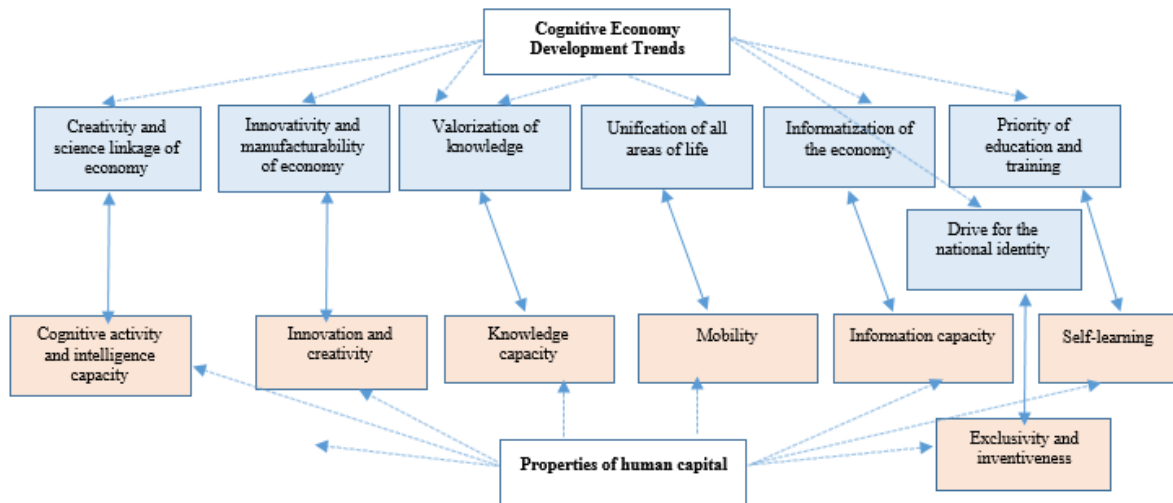
- the cognitive society formation - the system whose main purpose is to create conditions for self-improvement through the development of human capital;
- the emergence of creatosphere or creative economy associated with the increasing role of creative activity and the perspective of its dominance;
- innovativeness and high manufacturability of economics - economic activity is based on the flow of innovations, constant technological improvement, manufacturing and exporting high-tech products with a high added value and the technologies themselves, as well as the intensive exchange of "high-techs", all these acting as a catalyst for the economic development;
- computerization of the economy, "digital revolution" and "Internetization" - high information density, transition to the digital media and the ability to quickly transfer data via the global Internet network, which contributes to the rapid development in all

spheres of social life, the intellectualization of processes in management, industry and social sphere; distribution of "remote jobs" for intellectual spheres, contacts with the employer by means of telecommunication (Internet);

- trend towards unification and standardization in all spheres of human life - ensuring uniformity of various objects that make up a single entity (product specifications, documentation and means of communication, religious dogmas and rituals, laws and regulations; structural elements; etiquette rules, etc.)
- increasing civic, entrepreneurial and innovative activity in the society;
- valorization (the increase of value) of knowledge in the economy in both developed and developing countries having an access to new scientific discoveries, trends, technologies, and the possibilities of their use;
- need in qualified staff, basic and applied researches for high-tech industries;
- diversification of education in the form of expanding the range of formats and technologies of education (external studies, remote, additional education, targeted training, corporate training, etc.), transition from the "compulsory education" to "proactive education" which is based on the educational activity of a student and self-education (Efimov, 2012).

The above development trends characterize cognitive economy where knowledge plays a crucial role and the knowledge production is becoming a source of growth. The economy development based on the knowledge is impossible without the improvement of human capital and the formation of its new features such as knowledge capacity, intelligence capacity, information capacity, exclusivity and mobility of human capital, as well as innovation, creativity, self-education and others. Fig. 1 shows the human capital properties needed for its improvement under the conditions of the knowledge economy.

Figure 1 Trends in the development of the economy and the cognitive properties of human capital



Source: compiled by the authors

The foregoing enables us to define the category of "human capital" which is actual for a cognitive society and economy: human capital is a system of knowledge, skills and abilities of a person, represented by a set of specific properties such as knowledge capacity, intelligence capacity, information capacity, exclusivity, mobility, innovation, creativity, self-learning, which are formed and developed through the investments in education, science, culture, health and which are the main factor of manufacturing and the source of growth in the knowledge economy.

2 Prediction of innovative development territory on the basis of indicators of human capital quality

In connection with the development of cognitive economy and the countries transition to the innovative development, special attention should be paid to predicting innovative development and studying the economy innovativeness and the indicators responsible for the quality of human capital. After all, a man with his individual abilities and a unique set of properties is becoming a key factor in the growth in the knowledge economy. The efficiency of the development and introduction of high-tech innovative technologies in a particular country or territory directly depends on the quality of the human capital (Pivovarov, 2015).

It should be noted that the adequate reflection of processes taking place in the environment of innovation and their objective forecasting requires the selection of the most informative

indicators that influence the innovative development of the territory. To build a model of the territory innovative development we identified two classes of indicators:

- indicators of "input" (factor indicators) characterize the quality of the human capital and its ability to reproduce and introduce innovations;
- the "exit" indicator (result indicator) reflects the effectiveness (recurrence) of the innovation segment of the area economy.

In this research we used the statistics over the regions of Russia for the last 13 years; the information being represented by the Federal Service of State Statistics of the Russian Federation⁴⁹.

We have chosen the "volume of innovative products (works, services)" as the main indicator that determines the level of innovative development of the area. Actually, a large number of different parameters influence on the effective indicator. The analysis of works of home and foreign researchers on the subject being considered and the statistics being publicly available enabled us to calculate 21 indexes which are in charge of the human capital quality and can affect the innovative development of the territory in case they are changed.

All indicators were grouped into five blocks: unit 1 - the level of public health development; unit 2 - the level of education development; unit 3 - the level of the research development; unit 4 - the level of culture development; unit 5 - the standards of living. There is example of indicator blocks 1 and 2 calculation in Table 1. Calculations of the example were made for Vladimir region as the average Russian region.

⁴⁹ Federal Service of State Statistics of the Russian Federation (2015)

Table 1 Quality indicators of human capital, affecting the innovative development of the territory (blocks 1-2)

Unit	Indicator	Example of indicators calculation for Vladimir region, year 2013
1. the level of public health system development	x_1 – providing the population with doctors	$x_1 = \frac{\text{Optimal population per 1 doctor}}{\text{Population of region per 1 doctor}} * 100\%$ $x_1 = \frac{36,2}{294,44} * 100 = 12,29\%$
	x_2 – providing with nursing staff	$x_2 = \frac{\text{Optimal population per 1 nurse}}{\text{Population of region per 1 nurse}} * 100\%$ $x_1 = \frac{89}{92,5} * 100 = 96,22\%$
	x_3 – providing with hospital beds	$x_3 = \frac{\text{Hospital beds per 10000 of region population}}{\text{Optimal number of hospital beds per 10000 population}} * 100\%$ $x_1 = \frac{85,3}{162} * 100 = 52,65\%$
	x_4 – sickness rate of population	$x_4 = \frac{\text{Sickness rate per 10000 population of the state}}{\text{Sickness rate per 10000 population of the region}} * 100\%$ $x_4 = \frac{448,7}{923,99} * 100 = 48,56\%$
	x_5 – life expectance	$x_5 = \frac{\text{Life expectance in the state}}{\text{Life expectance in the region}} * 100\%$ $x_5 = \frac{69,13}{78,84} * 100 = 87,68\%$
2. the level of the educational sphere development	x_6 – providing the students of higher schools with teachers	$x_6 = \frac{\text{Optimal number of students per 1 teacher}}{\text{Number of students per 1 teacher in the region}} * 100\%$ $x_6 = \frac{4}{21,78} * 100 = 18,37\%$
	x_7 – providing the students of secondary vocational schools with teachers	$x_7 = \frac{\text{Optimal number of students per 1 teacher}}{\text{Number of students per 1 teacher in the region}} * 100\%$ $x_7 = \frac{6}{13,74} * 100 = 43,67\%$
	x_8 – providing organizations with graduates (the ratio of the number of graduates of educational institutions to the required by the public employment services organizations needs in workers)	$x_8 = \frac{\text{Providing organizations with graduates in region, \%}}{\text{Maximal providing organizations with graduates in region, \%}} * 100\%$ $x_8 = \frac{99,96}{100} * 100 = 99,66\%$
	x_9 – completion of postgraduate and doctorate courses with the protected thesis per 10000 people	$x_9 = \frac{\text{Completion of postgraduate and doctorate courses with the protected thesis per 10000 people}}{\text{Maximal number of postgraduate and doctorate courses graduates}} * 100\%$ $x_9 = \frac{48}{288} * 100 = 16,67\%$

Source: compiled by the authors

Table 2 Quality indicators of human capital, affecting the innovative development of the territory (blocks 3-5)

Unit	Indicator	Example of indicators calculation for Vladimir region, year 2013
1. the level the research sphere development	x_{10} – innovative activity of organizations	x_{10} – the ratio of the number of organizations implementing technological organizational or marketing innovations to the total number of surveyed over time period organizations in the country, industry, territory $x_{10} = 10,7\%$ (Federal Service of State Statistics of the Russian Federation, 2015)
	x_{11} – inventive activities	x_{11} - the number of applications for patenting invention and utility model per 10000 people $x_{11} = 2,1\%$ (Federal Service of State Statistics of the Russian Federation, 2015)
	x_{12} – utilization of advanced technologies	$x_{12} = \frac{\text{Number of advanced technologies per 1000 enterprises}}{1000} * 100\%$ $x_{12} = \frac{93,55}{1000} * 100 = 9,36\%$
	x_{13} – rate of innovation introduction	$x_{13} = \frac{\text{Number of developed innovations per 1000 enterprises}}{\text{Number of used advanced technologies per 1000 enterprises}} * 100\%$ $x_{13} = \frac{3}{3310} * 100 = 0,09\%$
	x_{14} – the proportion of researchers with academic degrees in the total number of researchers	$x_{14} = \frac{\text{Number of researchers with academic degrees}}{\text{Total number of researchers}} * 100\%$ $x_{14} = 7,99\%$
	x_{15} – the efficiency of innovators work	$x_{15} = \frac{\text{Number of patents granted}}{\text{Number of applications for patents and inventions}} * 100\%$ $x_1 = \frac{300}{300} * 100 = 100\%$
2. the level of cultural sphere development	x_{16} – number of visits to the museums per 1000 people	$x_{15} = \frac{\text{Number of visits to the museums per 1000 people}}{1000} * 100\%$ $x_1 = \frac{1178}{1000} * 100 = 117,8\%$
	x_{17} – the number of visits to the theaters per 1000 people	$x_{16} = \frac{\text{Number of visits to the theaters per 1000 people}}{1000} * 100\%$ $x_{16} = \frac{121}{1000} * 100 = 12,1\%$
	x_{18} – internetization of the population	x_{18} – weight proportion of households with the access to the Internet $x_{18} = 55,6\%$ (Federal Service of State Statistics of the Russian Federation, 2015)
	x_{19} – crime rate	$x_{19} = \frac{100000}{\text{Number of reported crimes per 100000 people}}$ $x_{19} = \frac{100000}{1315} = 76,04$

	x_{20} – readability factor	$x_{20} = \frac{\text{Library visitors}}{\text{Total population}} * 100\%$ $x_{20} = \frac{551700}{1413300} * 100 = 39,04\%$
3. the standards of living	x_{21} – the proportion of people with the income above the subsistence level	$x_{21} = 86,5\%$ (Federal Service of State Statistics of the Russian Federation, 2015)

Source: compiled by the authors

Further, we can have a closer look at specifications of each of the five above-mentioned blocks. The level of public health system development. The economic value and significance of health are unconditional for human capital accumulation. Health is one of the most important components of the human capital, and it is not only a value by itself, but it also affects the accumulation, quality and use of other components of the human capital.

The level of the educational sphere development. The effectiveness of the educational system depends on the level of public education, readiness and ability to solve intellectual problems, to support scientific and technological progress. The quality of education, its practical orientation, correspondence of the university graduates qualification to the international and domestic businesses' requirements are an important criterion in the development of innovative programs of the area.

The effectiveness of the research sphere. Research sphere provides a circulation in the economy of scientific knowledge, and is responsible for creating high-tech products and systems and for their distribution in mass production. The effectiveness of introducing innovative technologies in the country or territory directly depends on the success of this sector.

The level of the cultural sphere development. The cultural sphere is responsible for the reproduction and preservation of spiritual and material values and intellectual products of human activity. It is the cultural level of the population that provides the recognition of the society existing system of values, of culture, ethics and moral norms, which determine the human behavior in relation to work, things and other people.

The standards of living of the population. Low income levels of the population restrains consumer demands, which in the chain of "buyer - producer" hinders the development of the market of technological innovations and socially-oriented innovations for households.

To determine the relations between the resultant index and the variable number of factors, and to identify one of those that have a significant effect on the dependent variables, it is proposed to use a correlation and regression analysis. The process of statistical research tends to confirm

that any economic indicator is influenced by many factors, but only a small part of these significantly affects the resulting index and facilitates its change (Koritskiy, 2013). There is the formula of correlation coefficients calculation below (Baldin, 2015):

$$Correl(X, Y) = \frac{\sum(x - \bar{x}) * (y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 * \sum(y - \bar{y})^2}}$$

where x – indicators of human capital quality (x1-x21 in Tab.1-2);

y- volume of innovative products (works, services).

It should be noted that we used stationary correlation coefficients in the model. The analysis of the pair correlation coefficients between the factor and the resultant indexes allows us to identify the factors having a small effect on the final index. This implies the need to remove some of the factors from the model. Thus, analyzing the model of the territory innovative development we found the following factors insignificant: x1, x2, x3, x4, x6, x7, x8, x16, x17. Table 3 shows the significance coefficients of the regression equation.

Table 3 Significance coefficients of the regression equation

Significance coefficient	Result	Explanation
R-squared	0.9999487	The degree of accuracy of the description of the modelled process shows the high accuracy of approximation (model almost 100% describes the process)
standard error	217.48	
t-stats	y=-11.17462402 x ₅ =8.759728125 x ₉ =1.192050998 x ₁₀ =31.22519052 x ₁₁ =12.27887115 x ₁₂ =-1.610918818 x ₁₃ =9.190662685 x ₁₄ =16.81966146 x ₁₅ =18.04484898 x ₁₈ =5.808296108 x ₁₉ =-12.19107012 x ₂₀ =13.06685936 x ₂₁ =-13.03815638	

P-value	$y = 0.0486922572$ $x_5 = 0.042362482$ $x_9 = 0.444366228$ $x_{10} = 0.020381053$ $x_{11} = 0.041732595$ $x_{12} = 0.353672344$ $x_{13} = 0.048996679$ $x_{14} = 0.037805235$ $x_{15} = 0.035243812$ $x_{18} = 0.018541156$ $x_{19} = 0.022103521$ $x_{20} = 0.048625401$ $x_{21} = 0.048732031$	p-value of coefficients x_9 and x_{12} greater than 0.05, then they may be considered null and can be eliminated from the equation
F - test	1626.63	$F < 0.05$, model is significant (reliable)

Source: compiled by the authors

After the analysis of the results and the exclusion of a number of correlated indicators and consideration of all possible options of the model, the most significant multiple regression equation was drawn up by calculating the coefficients. It looks like that:

$$y = -568797 + 2422.57 * x_5 + 1771.63 * x_{10} + 23634.91 * x_{11} + 7697.09 * x_{13} + 6279.82 * x_{14} + 263.38 * x_{15} + 283.08 * x_{18} - 717.37 * x_{19} + 9638.31 * x_{20} - 877.356 * x_{21} \quad (2)$$

Thus, the model are significant and can be used in practice to predict the innovative development of territories.

The economic interpretation of the linear regression equation allows to draw the following conclusions:

- with an increase of life expectancy by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 2422.57 million rubles;
- with the increase of the organizations innovation activity by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 1771.63 million rubles;
- with the increase of the inventive activity by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 23634.91 million rubles;
- with the increase of the innovation introduction by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 7697.09 million rubles;

- with the increase of the proportion of researchers with academic degrees in the total number of researchers by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 6279.82 million rubles;
- with the increase of the coefficient of innovators efficiency by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 263.38 million rubles;
- with the increase of the population internetization by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 283.08 million rubles;
- with the increase of the crime rate by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will decrease by 717.37 million rubles;
- with the increase of the population readability coefficient by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will increase by 9638.31 million rubles;
- with the increase of the proportion of people with incomes above the subsistence level by 1 unit (with constant values of the other factors fixed at the average level), the volume of innovative products (works, services) will decrease by 877.356 million rubles.
- the inverse relations between the proportion of people with incomes above the subsistence level and the volume of innovative products (works, services) may indicate that high standards of living decrease the innovative activity of citizens.

Conclusion

In conclusion, it should be noted that well-being of the people and the sustainable development of an area depends on the quality of the human capital. This idea has been proved in this research. Therefore, a well thought-out and consistent policy is needed in the field of human resources development and balanced investment in the human capital. This policy should be followed both at the level of individual firms, and at the level of the whole territory and state. Based on the analysis of the regression models, we can say that the greatest influence on innovative growth is by factors such as the level of inventive activity of the population, the rate

of innovation, the number of researchers with advanced degrees, the readability factor. Further, presents the main tasks of the state's and regions' authorities, as well as ways of their solutions.

Task 1- increasing inventive activity of the population. Solution:

- improving the protection of intellectual property rights;
- effective use of the inventions must be made the subject of special support from the state;
- the state should provide tangible financial support for the development, patenting and the use of the most effective inventions;
- at the enterprise level should be encouraged any employees' offers to improve the efficiency of the production.

Task 2 - the growing of number of advanced production technology. Solution:

- ensuring close cooperation between science, education, business and government;
- set up a quality monitoring system for training, finding that one of the criteria for the quality of such training are the results of the participation of regional and industry teams in the national championships of professional skills;
- to update the material and technical base of educational institutions of the country;
- ensure access to high-tech companies and innovative products in international markets;
- ensure coordination of federal target programs of scientific and technological orientation with technology providers;
- ensure state funding of key scientific and technological development projects;
- to form a stable government orders for high-tech products;
- to develop technology transfer centers, engineering centers, centers of excellence, to create federal and regional network of industrial prototyping and engineering design to improve the efficiency of commercialization of research and development.

Task 3 - increasing the number of researchers with academic degree. Solution:

- the integration of science and education on the basis of different forms of participation of workers and students of higher professional education institutions in scientific research and experimental development;
- expanding opportunities for defense of thesis for the degree of candidate and doctor of sciences in the regions;
- expansion of opportunities for research activities of the most competent and talented researchers;

- stimulation research and innovation activities by means of economic and other measures, and benefits;
- the development of the national scientific community, integrated in the Russian and international scientific and research space.

Task 4 - increasing the number of researchers with academic degree. Solution:

- ensuring access to knowledge and information in the vicinity of the place of residence;
- create an attractive image of libraries (public awareness about the goals and objectives of the library, advertising services, the library features in the media, libraries participation in social, educational projects, the establishment of prizes, awards for the public supporting the library);
- state support for libraries, creation of public centers of computer literacy on their basis;
- development of public and educational reference portals, "digital libraries" and "virtual museums", including them as a single system of information resources available in the "on-line" for different levels of the management hierarchy, as well as for citizens and businesses;
- to modernize the library by creating a modern comfortable environment, provide libraries with new equipment and technology.

In conclusion, it should be noted that well-being of the people and the sustainable development of an area depends on the quality of the human capital. This idea has been proved in this research. Therefore, a well thought-out and consistent policy is needed in the field of human resources development and balanced investment in the human capital. This policy should be followed both at the level of individual firms, and at the level of the whole territory and state. And the application of mathematical and statistical tools enables to perform qualitative monitoring and to make rational timely adjustments in the course of various processes.

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DISSEMINATION OF SUSTAINABILITY IN MULTINATIONAL CONSTRUCTION COMPANIES: EVIDENCE FROM THE CZECH REPUBLIC

Jaroslav Pašmík

Abstract

The construction industry is one of the most greenhouse gas producing industries in the world. For corporate sustainability science it is therefore crucial to deal with the industry to find solutions towards sustainable governance and management to lower its negative impact.

This inductive study of four multinational construction companies examines how organizations manage sustainability of its operations in its central locations and subsidiaries. Drawing from literature reviews, interviews, observations and company reports I have developed insights into how the companies disseminate sustainability tools and best practices within multinational operations and what are the main drivers and obstacles for a higher level of sustainability.

During the research I discovered there are significant barriers to sustainability dissemination. The best sustainability practices remain limited to a small number of projects. The levels of sustainability performance remain heterogeneous among subsidiaries. On the other hand: rotation of managers and sustainability experts, product premium opportunities, brand reputation as well as level of regulation, subsidies and public awareness are identified as main drivers.

Key words: sustainability, construction, management, multinational

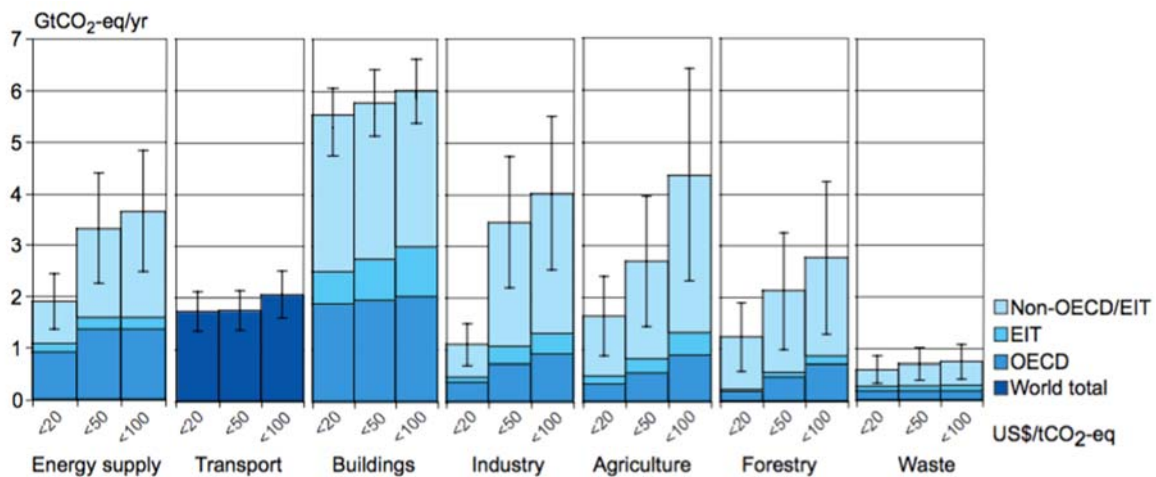
JEL Code: L, M, Q

Introduction

The construction industry contributes greatly to greenhouse gas (GHG) emissions. Cement and metal production alone is responsible for 35 % of global GHG emissions not accounting for emissions from waste incineration, indirect GHG emissions from electricity generation and the usage phase of buildings (IPCC, 2014). If unabated, those emissions could have devastating

consequences for the world economy and human civilization. We can expect, for example, the sea level to rise more than a meter by the year 2100 and more than 15 meters by 2500 caused by climate change (DeConto, Robert, Pollard, 2016). That would of course be a catastrophe, because the majority of world metropolises and business hubs are located in coastal areas. But, as shown in Figure 1., the construction industry and buildings have also the most promising potential to mitigate their emissions. For corporate sustainability science it is therefore vital to deal with the industry to find solutions towards sustainable governance and management to lower its negative impact.

Figure 1 Estimated sectoral economic potential for global mitigation for different regions as a function of carbon price in 2030 from bottom-up studies, compared to the respective baselines assumed in the sector assessments.



Source: IPCC, (2007). *Mitigation of climate change. Contribution of working group III to the fourth assessment report of the Intergovernmental Panel on Climate Change.*

In this research paper I deal primarily with multinational construction companies, with good reason: In 2014 construction accounted for 12,4 % of global GDP, which is about \$9.585 trillion (Global Construction Perspectives, 2015). In the same year the top 250 global construction companies made almost 15 % of that economic performance (Top 250 International Contractors, 2015). Dissemination of sustainability practices in multinational construction companies is the key interest of this paper. Understanding and enhancing of sustainability dissemination in those companies is an important part of lowering the negative impact of the entire industry. To support my investigation I formulate two research questions for this paper: How selected companies disseminate sustainability tools and best practices within their

multinational operations? What are their main drivers and obstacles for higher levels of sustainability?

1 Literature review

Starting sustainable construction practices and integrating them into mainstream construction is seen as a quite recent phenomenon, about 15 years (van Hal, 2009). The wider recent adoption is attributed to the notion that integrated sustainability can bring additional profits to companies (Eichholtz, Kok, Quigley, 2013), therefore companies generate more capacity for environmental management activities, which results in consolidation of environmental management and sustainable practices (Gluch, et al., 2014). However, many researchers indicate problems in real sustainability advancements in construction processes and their outcomes, naming organizational and procedural difficulties, additional costs, lack of customer demand and lack of communication among stakeholders as main barriers (Kaatz, et. al., 2006; Ryghaug & Sørensen, 2009; Häkkinen & Belloni 2011; Hwang & Tan, 2012).

While reviewing literature of sustainability dissemination in construction industry I found out the theoretical frameworks are more anchored to topics of sustainable organizational development, innovation diffusion and adoption, and knowledge management. For the purpose of this research I decided to adapt the dominant diffusion theory stated by Everett Rogers in his book *The Diffusion of Innovations* (Rogers, 2003). I also take in account other research, which applies Rogers' concept in construction sector and explained differences and specifics such as uniqueness of buildings as products and limitations of R&D investments in building industry (Yang & Hua, 2014).

2 Research methods and sample

I use the descriptive case study method of four multinational construction companies that operate in the Czech Republic. I selected my sample companies according to their perceived achievement in sustainability obtained from general and professional media, local professional conferences and other social events. All the selected companies declared, that in recent years they have constructed high performance buildings in local passive standard or with independent international certifications of sustainability. All the companies are active in the construction and real estate industries as investors and contractors and have foreign owners. One of the companies has headquarters in the Czech Republic; the other three, outside the Czech Republic.

My data collection for description, content analysis and interpretation consists of: annual reports, sustainability reports of selected companies, open and semi structured interviews with managers, observations of building sites, and tours of finished buildings in use.

3 Research results

Although all companies in my sample construct similar types of buildings (commercial, residential and industrial), methods, levels and rates of sustainability dissemination vary significantly.

3.1 Brief description of the cases and main sustainability dissemination tools

Case 1 company developed its internal environmental assessment system centrally. The system measures landfill waste, water and energy consumption and CO₂ emissions. It is designed to primarily measure building phases of projects. Usage phase and the end of life phase are not considered. The company implements “moving targets” for sustainable buildings (called actually “green buildings” internally). It moves according to building codes of a particular country where a subsidiary operates. To be “green” a company requires a building to be 25% better than the required lowest threshold according to local building codes or other local standards. Internal assessment designed by company’s headquarters was spread to subsidiaries. It is a good tool for disseminating sustainability, but not all projects are measured. Subsidiaries are ordered by the company headquarters to start assessing their projects according to maturity of local market conditions. Czech branch is now obliged to use the scheme, but not all subsidiaries are ordered to use it.

Another strong tool for dissemination of sustainability used in Case 1 Company is a manager exchange program among subsidiaries. As recorded in interviews, specialists and managers from other subsidiaries, who come for a 6 month working visit, are often responsible for achieving higher sustainability standards of local projects, for example: they propose ambitious sustainability innovations and higher certification ratings.

The Case 2 company implements two centrally developed internal assessment schemes for the construction phase of their projects: One for building processes and one for projects’ building sites. As oppose to Case 1, Case 2 is not tied to the outcomes of local building codes. The assessment scheme measures over 60 sustainability indicators during project construction. The

projects are selected on a voluntary basis. Other tools for sustainability dissemination are international seminars, which Case 2 Company organizes for particular units and specialists once a year, and international study trips for internal health-safety-quality-sustainability auditors to other subsidiaries.

Case 3 Company has no companywide system for sharing sustainability. Company meetings across subsidiaries are organized along geographical segments and business functions. There is common system for financial calculations and planning, but not for sustainability issues. Sustainability agenda is realized more on a case-by-case basis. Since 2014 Case 3 Company has decided to adopt Michael Porter's shared value philosophy. But adopting shared value principles is realized only in the headquarters country. Management says there are difficulties implementing this concept to subsidiaries.

The Case 4 Company adopted British sustainability certification system BREEAM as its sustainability standard. Dissemination of sustainability is tied primarily to the BREEAM certification. Managers are obliged and financially motivated to achieve certain levels of sustainability certification for their projects. Progress in sustainability levels is totally dependent on development of BREEAM and local building standards.

3.2 Analysis and interpretation

From the interviews and observations of the sample companies it is obvious that one of the most effective tools for sustainability dissemination is rotation of managers and specialists among subsidiaries. The managers or specialists come as "outsiders" and are not tied to particular routines and relations within host subsidiaries. And, as one interviewee puts it: "They act as viruses which spread sustainability." From other observations it seems that this does not function in the opposite direction: It is harder to come back from a visit to another subsidiary and implement some sustainability measures back home.

From another observation I conclude, independent third party certifications such as BREEAM or LEED function in some ways better as sustainability disseminators than internal standards. They are more visible for all employees and stakeholders; they have "business edge" (customer is willing to pay for them). But internal sustainability assessments can be very important in other dimensions of sustainability dissemination. They can be more ambitious than independent certifications.

However, there seems to be one significant problem with the sustainability dissemination in the sample companies. The best sustainability practices remain limited to very small number of projects. From the whole portfolio of sustainability leaders the share of projects, which could be described as sustainable or “green”, can be around 1 % in one case to several percent in other cases. Rates of sustainability dissemination and performance remain very heterogeneous among subsidiaries and it seems to be hard to elevate them to a higher rate or level. One popular tool for top managers is simple bottom line, or profit, which can be increased by achieving prestigious sustainability certifications offered by third parties (mostly LEED or BREEAM), but demand for such buildings is limited. Subsidies are seen as strong motivators for sustainability and its dissemination. Top management is especially sensitive to them. Other softer drivers identified are brand reputation and public awareness, which could cause problems to companies with unsustainable practices.

Conclusion

Some managers speak about sustainability as some kind of a game, not the real thing. A metaphor of the game refers to a belief, that it is a pretense. If we see the share of sustainable projects remaining under a few percent, we can believe that the “game” metaphor is actually true; at least this is the situation in the sample. The companies can have circulating experts, internal assessments, and external certification as strong dissemination instruments. They can also have on-line available case studies of best practices, video calls and email communication. But it still makes very little difference. It is almost paradoxical, if we remind ourselves the opportunities outlined by IPCC’s GHG emissions mitigation potential of the construction industry. But there is hope: All of the companies in my sample have long term plans for significantly increasing sustainability of their operations.

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KEY PRINCIPALS OF FAMILY BUSINESS COMPREHENSION WITH HELP OF THE HISTORICAL ANALYSIS

Anastasia Petlina

Abstract

Family business is the most extended and permeant form of business over all the history. The issue of family business started to pay attention of scholars relatively a while ago, thus there are some non-clarified points. The purpose of the paper is to investigate definitions of family business and define tendencies in specification of that. For insight into that phenomenon, it was decided to study the historical sources of the family business concept development during the twenty and twenty-thirst century, after evaluate them with the help of Vallone's three key principals of determination of family business. The paper was prepared on the basis of research of the most cited scientific papers relating to the definition of family business with help of general theoretical scientific methods, in particular analysis, synthesis, analogy, comparison, generalizations, deduction and methods of expert estimates. As a result, it was found, that majority of family business definitions were created based on ownership criteria, the second most popular criteria is family members' involvement in the business. The third offered criteria "intention to the succession" was used the least, despite that, criteria contributes to investigate the small and micro-family-owned enterprises. Although, for facilitation the identification of a family business with the help of the third criteria, it was suggested to examine a family ties of family business. The results of this study have allowed the finding of a definition for the family business, thereby, the structure of family ties of the biggest Czech family companies was determined.

Key words: family business, business, ownership, definition, family ties

JEL Code: D10, M50, R10

Introduction

Family business is as old as the human civilization itself. However, the field of academic study of family business is relatively new in comparison with the established fields such as strategic management, finance or organization (Ramona *et al.*, 2011). The development of family business subjects to theoretical and empirical studies of well-known international companies and many universities. The real wealth of any nation consists in a developed sector of small and medium-sized business, as evidenced by the experience of American, Asian and European countries. The family business covers a wide range of companies engaged in various sectors ranging from small to large international companies and amounting to more than 60% of all European business (Mandl, 2008). An interesting fact is that the oldest world companies are those like the Japanese construction family business company "Kongo Gumi", founded in 578. Other family companies having more than 1,000 years of successful experience in the family business e.g. are: Hoshi Japan (hospitality), Marinelli family in Italy (casting of church bells) or the Gulen de France family (wine-producer). The modern European family business operates in all of business sectors including food production, trading, running of restaurants or hotels, providing construction or financial services.

The family business plays very important role in the developed economies. This topic of family business is independently taught in various universities. The issue of family business is also the subject of many investigations, where many research programs are added. It should be also noted that the family business is the theme of worldwide interest. The countries like Spain, Austria, Italy, Germany, Switzerland, Norway or the United Kingdom are the typical ones of the European Union showing a high level of family business. The small and medium-sized family companies do play very important role in the overseas countries, like the United States or Canada, where the dominant representation is also in the category of up to ten employees (Wilson, 2011). Furthermore, in viewing the family business in terms of its share in the total number of all registered firms in the respective national economies, we can see an evident share thereof, namely between 70 and 95% (Owens, 1994). For example, in the European Union, 85% of all registered companies are the family firms and, in the USA, it is even more than 95% (Pistrui *et al.*, 2000).

In the paper two terms are used: family business and family company. The term family business is used to designate an economic activity that earns money on a continuous basis. The term family company is used as a separate entity where individuals do their business.

1 Family Business Definition

Before starting to analyze different definitions, it is significant to state why having a generally accepted definition within the family business academia is primary for future extension of that field (Hanuska, 2014). Most of the definitions were created to suit of certain research. Heck and Trent (1999) maintain the argument of having a widely acknowledged definition by stating that "...a proper definition and count of family businesses is important to future research and current policy, practice, service, and education". Promoting definitional consensus among researchers may increase the likelihood of theory development, in-depth empirical analyses, comparative studies, and replication" (Heck *et al.*, 1999). Furthermore, distinction in definitions obstructs comparison of international investigations of family business. Using a common definition would therefore allow making clearer and comparable statistics of this entity, especially in case of its contribution to the economy (Mandl, 2008). Vallone (2013) is of the same opinion that an elaboration a generally accepted definition would "...circumscribe the field of investigation, and obtain a comparable sample for international researches; to individualize the presence and the specific characteristics of the family business in comparison to nonfamily business; in addition, it means to be able to compare more easily the empirical studies" (Vallone, 2013). For full understanding the development of family business study and that definition, it was decided to overlook historical tape of that field development.

1.1 Main Principles of Family Business Definition by Vallone

One of most interesting study belongs to Vallone, C., who published his literature review paper in 2013. He made a conclusion that in the family business discussion are three key principals: the degree of ownership, the intention to the succession, and the involvement of the family members in the business (Vallone, 2013). He understands ownership as "*...the percentage of capital possessed by the family (by shares or quota) or the dominant influence represented by the family members' ability to effect the remarkable and strategic choices*" (Vallone, 2013). According to that expression determining the family business, family must have full control or must be the most influential unit in making strategic decisions. Concerning the expectation of

transferring the company to the next generations (succession), Vallone (2013) states that “family business should concern only the companies managed by a family where the second generation is present or where there is a precise wish to transfer the business and family culture and the management to heirs, so that it is possible to exclude occasional business initiatives managed by two brothers, or by an individual with the aid of the partner” (Vallone 2013). He claims that because there are many examples, where husband and wife manage the business but not intend to transfer the business to the next generation. There are many explanations therefore, for instance, they have no children or, none of their children wants to keep on the business like the parents. In this way, in spite of full ownership of the firm, the “*familiarity*” thereof is slack due to the absence of intention to transfer the firm and business culture to the next generation (Hanuska, 2014). Another most essential element of family business, according to Vallone (2013), is the involvement of the family members in business. This element occurs as a decisive aspect in differentiation between the family business and non-family one, especially in case of small business. So, the author proposes to include this element as attribute of family business, because most of family companies are small companies, where founder works in the continuous way with the relatives (Hanuska, 2014). Nevertheless, Vallone (2013) in his work makes a conclusion that constant involvement of family members or their relatives in the business is not crucial, because it can lead to a limiting effect - elimination of some big companies which are hired not only by/to the non-family members, but also have external employees.

1.2 Historical Definition of Family Business

For understanding the historical tendencies of comprehension of family business, it was decided to follow the main historical investigations in that area and evaluate results with help of Vallone’s three key principals, which relate one of the most catchall determination of family business.

If we look through the history, that it is an interesting fact that family business is one of the favorite subjects of business historians and nowadays, it represents one of the promising subfields of the business history (Coli, Rose, 2008). The family business started to attract business historians during the 1990s (Jones and Rose, 1993; Rose, 1995). According to A. Colli, there can be described as some “reactions” against the dominant Chandlerian approach interpreting the persistence of family capitalism as a dominant form of ownership and management in large, capital-intensive firms of the Second Industrial Revolution as a signal of

inefficiency and backwardness (Colli, 2011). As she notes, the recent accent on family companies and family capitalism does not mean that business historians noted it as unworthy of attention. In business research before the 1990s, there was a lot of research about family business at both the “micro” level, i.e. about the dynamics internal to family firms and, the “macro” one, i.e. the research regarding the relationships between family firms and the more general environment, as well as respective national economies (Colli, 2011). Donnelley (1964) was likely the first to define the family business. His definition included one or more of the following conditions: (1) existence of family relationships as a key factor in succession; (2) presence of family member on board of directors; (3) reflection of family values in business; (4) actions of family member reflected on reputation of business; (5) presence of relatives involved and who felt obligated to hold stock for more than financial reasons; (7) entering the firm being a part of family member’s career decisions. Donnelley’s definition reflected early consulting observations of family business but it was difficult in meaning, empirically complicated to implement and so, it was not utilized in subsequent research studies (Zachary *et al.*, 2011).

A lot of definitions were created in that period of time, but they did not explain how the family business differs from non-family one. An example of definition, where the authors do not differentiate between the family business and non-family one was created by Backhard and Dayer (1983). They define the family business as a system that includes the family, the business, the founder, and such linking organizations as a board of directors (Chua *et al.*, 1999).

Classical family systems of theory (Bowen, 1985) developed from clinical work with actual families, but that theory did not include any specific recognition that owning and operation business might change the family life (Zachary *et al.*, 2011). An importance in the family business research belongs to Rosenblatt *et al.* (1985). That qualitative research of family business explored both systems: family and entrepreneurial ones and included an overlap between those systems, tensions, role carryovers, compensation, and management of the business, working with relatives, and succession and inheritance (Zachary *et al.*, 2011).

The most cited definitions of family business during the twenty and twenty-first century are listed in the Table 1 and evaluated with help of Vallone’s three key principals of determination of family business: the degree of ownership (designated by code A), the intention to the succession (designated by code B), and the involvement of the family members in the business

(designated by code C) (Vallone, 2013). For uncertain principal of determination, the code D is used.

Table 1 The list of main family business definitions of twenty and twenty-first century

Author (s)	Definition of family business	Code
Donnelly, 1964	"A business is considered as a family business when it has been closely identified with at least two generations of a family and when this link has a mutual influence on business's policy and on the interests and objectives of the family"	C
Barry, 1975	"An business, which, in practice, is controlled by the members of a single family"	C
Barne <i>et al.</i> , 1976	"Controlling ownership is rested in the hands of an individual or of the members of a single family"	A,C
Bernard, 1975	"An business which, in practice, is controlled by the members of a single family"	C
Arquer, 1979	"Family-owned business is that, held by a group of people, being in a family relationship"	A
Alcorn, 1982	"A profit-making concern that is either a proprietorship, a partnership, or a corporation. If part of the stock is publicly owned, the family must also operate the business"	C
Davis, 1983	"It is the interaction between two sets of organization, family and business that establishes the basic character of the family business and defines its uniqueness"	D
Beckhard <i>et al.</i> , 1983	"The subsystems in the family business system . . . include the business as an entity, the family as an entity, the founder as an entity, and such linking organizations as the board of directors"	D
Rosenblatt <i>et al.</i> , 1985	"Any business in which the majority ownership or control lies within a single family and in which two or more family members are or at some time were directly involved in the business"	A, C
Davis <i>et al.</i> , 1985	"A business in which two or more extended family members influence the direction of the business" (quoted in Rothstein, 1992)	C
Stem, 1986	"[An business] owned and run by members of one or two families"	A, C
Dyer, 1986	"A family business is an organization in which decisions regarding its ownership or management are influenced by a relationship to a family (or families)"	A,C
Stern, 1986	"Owned and run by the members of one or two families"	A, C
Pratt <i>et al.</i> , 1986	"One in which two or more extended family members influence the direction of the business through the exercise of kinship ties, management roles, or ownership rights"	A, C

Churchill <i>et al.</i> , 1987	'What is usually meant by 'family business' . . . is either the occurrence or the anticipation that a younger family member has or will assume control of the business from an elder"	B
Babicky, 1987	"Is the kind of small business started by one or a few individuals who had an idea, worked hard to develop it. and achieved, usually with limited capital, growth while maintaining majority ownership or the business"	A
Ward, 1987	"[A business] that will be passed on for the family's next generation to manage and control"	B
Lansberg <i>et al.</i> , 1988	'A business in which the members of a family have legal control over ownership"	A
Handler, 1989	"An business whose major operating decisions and plans for leadership succession are influenced by family members serving in management or on the board"	B, C
Dreux, 1990	"Are economic company that happen to be controlled by one or more families (that have) a degree of influence in organizational governance sufficient to substantially influence or compel action"	C
Leach <i>et al.</i> , 1990	"A company in which more than 50 percent of the voting shares are controlled by one family, and/or a single family group effectively controls the firm, and/or a significant proportion of the firm's senior management is members from the same family" (quoted by Astrachan, 1993).	A
Vogler, 1990	Family business is described by following criteria: interest of family members in the business, ownership (the majority of voting rights belong to family), family members are involved in the management.	A, C
Dimckels <i>et al.</i> , 1991	"If family members own at least 60 percent of the equity"	A
Gallo <i>et al.</i> , 1991	"A business, where a single family owns the majority of stock and has total control"	A
Lymann, 1991	"The ownership had to reside completely with family members, at least one owner had to be employed in the business, and one other family member had either to be employed in the business or to help out on a regular basis even if not officially employed"	A, C
Hollan <i>et al.</i> , 1992	"Any business in which decisions regarding its ownership or management are influenced by a relationship to a family or families"	D
Welsh, 1993	"One in which ownership is concentrated, and owners or relatives of owners are involved in the management process"	A,C

Carsrud, 1994	"Closely-held firm's ownership and policy making are dominated by members of an "emotional kinship group"	A
Litz, 1995	"A business may be considered a family company to the extent that its ownership and management are concentrated within a family unit, and to the extent that its members strive to achieve and/or maintain intraorganizational family-based relatedness"	A
Chua <i>et al.</i> , 1999,	"The family business is a business governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a smaller number of families in a manner that is potentially sustainable across generations of the family or families"	A
La Porta <i>et al.</i> , 1999	With family business, the authors mean that one which is partly owned by one or more family members who together control at least 20 per cent of the total votes outstanding.	A
Goehler, 1999	Family business is a business activity, where the development depends on decisive and significant influence of family (equity capital or membership in statutory authority).	A
Famili enunte rnehm en, 2000	Family business is a business activity in which there are at least two individuals, directly involved in the company management and, when those individuals together or their families own 50% of the relevant business shares as a minimum	A,C
Astrachan <i>et al.</i> , 2002	There are three definitions of family business, which vary by the level of involvement of families in business.	C
Mandl, 2008	Family business is described by the active involvement of family members in the everyday's company activities, intention of current owner/manager to transfer business to the next generation, activities connected with family business must be the main sources of income/wealth of the family	B, C
Koráb <i>et al.</i> , 2008	A family-owned business is that one owned and possibly controlled by family or families or by selected family member(s), whereas its delivery to the next generation is supposed	A, B
Vallo ne, 2013	Definition of family business is based on three key principals: the degree of ownership, the intention to the succession, and the involvement of the family members in the business. But he concludes that constant involvement of family members or their relatives in the business is not crucial	A, B, C
Hanus ka, 2014	Family business is the business where founder works in the continuous way with the relatives	D
Hnilic a, Mach ek, 2014	Family business is described as business activity where 1) are at least two individuals with the same surname among the owners, or 2) there are at least two individuals with the same surname within the supervisory board, and 3) there are at least two individuals with the same surname within the management board	D

Source: Handler, 1989; Chua, et al., 1999; Brockhause, 1994; De Massis, et al., 2012; La Porta, et al., 1999; Litz, 1995; Vallone, 2013

Family business researchers are confronted with a definitional dilemma similar to that facing entrepreneurial researchers (Lansberg *et al.*, 1988). Some researchers argue that at least one of family members should be active in the management/or ownership of the company, others think that there should be at least two active members of family. Still others require the family business with family members of different generations active in the business (Brockhause, 1994). Some scholars see the family as the owner of at least 51 % of the stock while others suppose the family has to have influence on decision making in business.

It could be said that clear definition of family business will not be set up soon and agreed by most scientists because of wide difference of definition options. Despite of that, the Table 1 shows that the most generally used attribute in the studied definitions during the twenty sentry is the criterion of ownership equaling to 58 per cent. The authors of many researches support it, because most of scholars state that ownership is the main tool in legalization and keeping the power to influence a firm. The number of definition criteria occurrences in absolute as well as relative terms. Please note that the sum of percentages exceeds 100 per cent due to the fact that most definitions use multiple criteria. Involvement of the family members in the business is the second most used criteria, respectively 51 per cent of them. Intention to the succession is in 15 per cent of the identified definitions as less used criteria of family business. Thereby, it can be seen that criteria for family business describing “intention to the succession”, unfortunately, is not taken into account in many definitions, because that criteria could help to distinguish small family business from not-family.

2 Discussion

In last years, it could be seen that such huge diversity of family business definition leads to problems in practice (Koráb *et al.*, 2008). It is not only about comparativeness of researches' results, dealing with “family business” (under this concept, many different types of business can be seen), but particularly also about comparativeness of statistic data about family business. Because of that, in the end of previous century, scholars tried to make an order in that chaotic situation. First of those were Shanker and Astrachan, who recommended, based on their research, to use three definitions of family business, that vary by the level of involvement of

families in business (Astrachan *et al.*, 2002). Despite of the fact that the attempt seemed to be auspicious, in practice, it completely did not take hold. As it was confirmed, the majority of family business definition are based on ownership criterion, slightly less are related to involvement of the family members in the business. These definitions specifically enable to research also the small and micro-family-owned enterprises in the Czech Republic, playing the role of natural persons and cooperating with family members. Nevertheless, it is needful to investigate the type of family relationships in this case. On the base of the assessed definitions owing to the family-owned enterprises, the following definition applied to the Czech suburbs may be appointed:

„A family-owned enterprise is that one owned and possibly controlled by family or families or by selected family member(s), whereas its delivery to the next generation is supposed “.

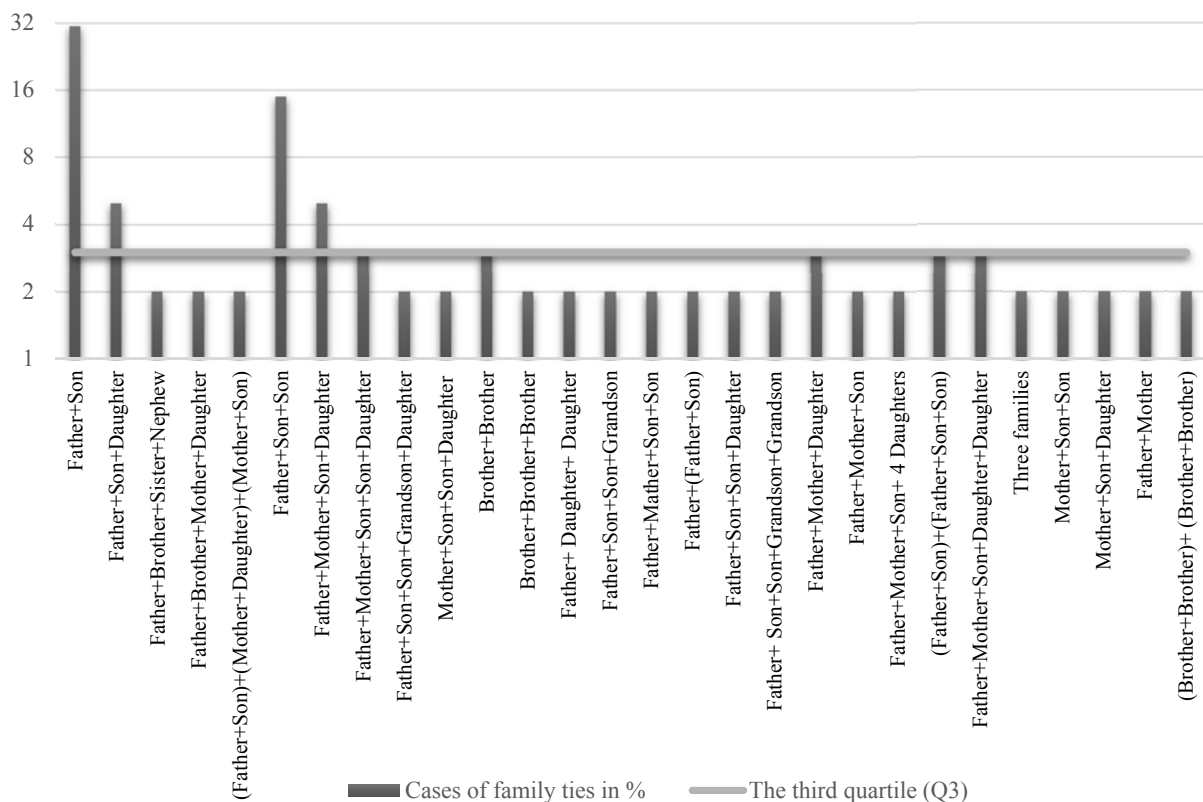
This definition presumes a company establishment under the § 5 of the Act No. 513/1991 Sb. (Commercial Act), where a company is described as a complex of material, personal and non-material business components. The term of “family” is not precisely defined within the Legal Code of the Czech Republic. However, a family is constituted by marriage. Author has defined the family as „a group of persons mutually associated not only by matrimony or relational bonds, but also by a common life-style”.

One of author's scientific interests is business succession in the Czech Republic. For studying that field, it is necessary to analyze the family ties of family business in that country. Generated definition of family business was used for analyzing of family ties and the succession level of the biggest 65 Czech family companies. For that, secondary data by Forbes.cz were used (Mašek *et al.*, 2015). Only the companies managed or owned by at least two generations of one or more families could be included into the identification of representatives. Also the sibling business was taken into account. On the contrary, the married couples in business were eliminated due to the absence of followers within the family business. For the ranking calculation within the list of companies, the family revenues and the EBITDA data were compared. Generally, 8 female establishers, 62 male establishers, 72 sons, 20 daughters and 5 siblings represent the Czech family big business in 2015 (Mašek *et al.*, 2015).

After analyzing the family ties of represented family companies, 28 types of family ties were detected. Only four of them represents the highest 25% represented cases. That was identified with help of the third quartile (Q3), which equals to 22 (n=28), it is clear that the cases with

data lower than the value of indicator are equal to 75 % of the values of selection (see Fig. 1). The third quartile splits the lowest 75% of the data from the highest 25%. The results have been rounded to whole units. Those highest cases (25% of the data) are as follows: “Father + Son” (31 %), “Father+ Son+ Son” (15%), “Father + Son + Daughter” (5 %), “Father + Mother + Son + Daughter” (5 %). This research has shown an approximate average of big family business in the Czech Republic that may be presented as company, where family ties are represented by one father-establisher, 1.1 of sons and 0.3 of daughters (Mašek *et al.*, 2015).

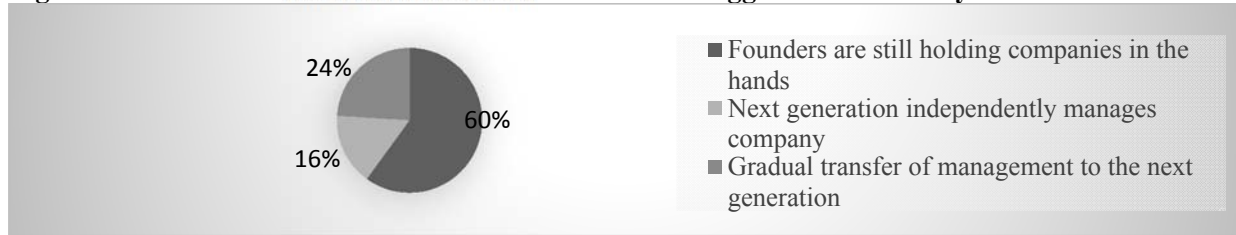
Figure 1 The Structure of Family Ties of the 65 Biggest Czech Family Companies



Source: Authors' own creation with data providing by Mašek et al., 2015

A detailed research has shown an interesting peculiarity, namely the fact that the most of founders of those 65 biggest Czech family companies are still holding the companies in the hands (Mašek *et al.*, 2015, Petlina *et al.*, 2015). Only 16% of family companies are independently managed (or better owned) by the next generation (Fig. 2).

Figure 2 Actual Situation in Business Succession of the Biggest Czech Family Firms in 2015



Source: Mašek et al., 2015

Approximately one quarter of the represented companies handovers the business to the next generation (Mašek *et al.*, 2015). Thereby statistics show that the establishers, rather tightening their business positions, are in no hurry to retire. This result can have several causes: a lack of decent business receivers; a difficulty in choosing a successor; the heirs are not ready to ascend the throne or, they have not enough experience and skills (Mašek *et al.*, 2015).

Conclusion

Family business is the most prevalent and pervasive form of business throughout all the history. Family business consists of two main components: family and business. This combination determines the specification of that kind of business. Both have influence on each other.

During scientific investigation of family business essence, it was detected, that huge diversity of family business definition leads to problems in practice. Particularly there is a problem with comparativeness of statistic data about family business. After analyzing the historical development of study and definition of family business, it was noted that majority of family business definitions were created based on ownership criteria, on the second place is family members' involvement in the business. The criteria of intention to the succession is used very little, that does not let to investigate also the small and micro-family-owned enterprises in the Czech Republic, that represents substantial part of all business operating in the country. According that situation, the definition of family business was created, which should describe well representative family firms in the Czech Republic. Based on this, the research has shown that there are dominant family ties of the biggest Czech family companies, in cases where the father and son do manage the family business. See also the family ties of the biggest Czech family companies: father and two sons; father, daughter and son; father, mother, daughter and son. It was interesting to ascertain that 60% of father-establishers in representative companies are holding the business and they are in no hurry to retire. In 16% of the cases, the next

generation manages the family business and 24% are in the succession process. That result will aid in the future research about family succession in the Czech Republic.

One note should be said regarding the created definition, which will be used in further quantitative research of family business in the Czech Republic with using primary data. Although, for facilitation the identification of a family business with help of criteria of intention to the succession, family ties of representatives will be examined.

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SENIOR ENTREPRENEURSHIP IN CENTRAL AND EASTERN EUROPEAN COUNTRIES: GEM EVIDENCES

Anna Pilková – Ján Reháč – Zuzana Jančovičová

Abstract

The paper examines level of the senior entrepreneurial activity at Central and Eastern European countries (CEE) based on regional comparative analysis of the senior inclusivity indices in Europe, USA and CEE countries and senior and youth inclusivity indices in Europe, USA and CEE countries both at early entrepreneurship stage entrepreneurial activity (TEA) and at stage of established business (EstBu). Further, based on Pearson's correlation matrix, we analysed at which extent differences exist at the key drivers of the TEA of seniors in CEE countries and Europe. We exploit the Global Entrepreneurship Monitor (GEM) datasets for 2011-2014. The results show on one side much lower senior entrepreneurial activities in both stages of entrepreneurial process at CEE countries, and on the other side much higher early stage entrepreneurial activity of youth in CEE countries in comparison to Europe and USA. We also found out that there are no significant differences between key drivers of senior's TEA at CEE countries and Europe.

Key words: entrepreneurship, senior entrepreneurship, Global Entrepreneurship Monitor

JEL Code: L26

Introduction

Nowadays the world economy copes with many challenges. Among them, aging of population is one very serious issue. In Europe this issue is recognized as one of the most significant challenges together with geopolitical uncertainties, globalization and climate change. Aging of population in Europe started to be challenge for the last few decades. While in 1994, the median age of the EU's population was 36,2 years in 20 years later it had risen by six years to 42,2 years. (Eurostat, 2015). According to Eurostat projections this trend will continue and

during 2014 to 2080, the median age of the EU-28 population is projected to increase by 4.2 years to reach 46,4 years. Eurostat projections further foresee a growing number and share of elderly persons (aged 65 and over) with a particularly rapid increase in the number of very old persons (aged 85 and over). These trends already have and will continue to have both negative and positive implications. Negative implications are mainly older workforce, increased retirement age, which will have a higher demand for employment and increased pressure on social security systems. On the other hand there are also positive facts like growing population of healthy older people with the skills, financial resources and time. We can expect that these people will create new type of demand for products and services like life-long learning and they will have different lifestyle knowing as active aging. But they will need self-actualization and independence. Nevertheless, there are and will be the other diverse sociological effects with yet not fully known consequences. However, what is well known now that the elderly tend to suffer from the long-term unemployment, barriers in their recruitment like age discriminatory practices, lack of attractive employment options, perceived reduced mobility and flexibility in the workplace and higher labor costs which are expected in relation to this age of employees. One option to solve these problems is to develop and support senior entrepreneurship. In developed economies this option has already attract an increasing amount of policy interest and research (Kautonen, 2013). However, this still is not the case as far as CEE (Central and Eastern European) countries are concerned. Even in these countries current and mainly future situation in employment and aging of population is expecting to be more severe than in developed countries. According to Eurostat (2015) in 2080 in central, eastern and southern EU member states, there is likely to be a large reduction in population and in many of them median age is expected to be higher than the EU-28 average. Due to that, policy interest and academic research of senior entrepreneurship in CEE countries is inevitable. The main goal of this paper, based on GEM datasets, is focused on the following a/ to present status of senior entrepreneurship in CEE countries based both on regional comparative analysis of senior inclusivity index in Europe, USA and CEE countries and senior and youth inclusivity indices in Europe, USA and CEE countries; b/ to study at which extent differences exist among significant drivers of the entrepreneurial activity of seniors in CEE countries and Europe.

1 Literature review

In spite of the fact that aging of population and issues connected to this process are serious, in general, there is still a shortage of research studies on this subject especially in CEE countries. On the other side research realized so far on this topic is very heterogeneous which reflex complexity of studied matters. As senior entrepreneurship is emerged topic various terms have been employed to describe this topic including “grey entrepreneurs,” “senior entrepreneurs,” “seniorpreneurs”, “third age entrepreneurs,” “elder entrepreneurs,” and “second career entrepreneurs.” (Seymour, 2002). Very often the term “senior entrepreneur” refers to an individual over 50 who owns a business regardless of its size. According to GEM categorization senior entrepreneur is an individual at age of 55-64 who is either nascent and new business owner (up to 42 months) or owner and manager of established business (more than 42 months). One of the most frequent research topics is relationship between age and entrepreneurial activity. Key findings are that the number of seniors starting new businesses is about a half compared to their younger counterparts (Hart et al, 2004; Kautonen, 2008). Lévesque and Minniti (2006) explain the age effect through the opportunity cost of time as an increasing function of age. This can be explained not only by different preferences of seniors but also by the other negative factors such as health issues and lower energy levels at the older age (Sing and DeNoble, 2003).

According to Kautonen (Kautonen, 2013; Kautonen et al, 2014) age has a direct effect on the probability of entrepreneurial behavior, being this effect different according to the kind of entrepreneurial preference. In these papers, three groups of mature individuals are defined according to their different entrepreneurial preferences: owner managers, self-employers and reluctant entrepreneurs. The results suggest that the probability of entrepreneurial behavior for the self-employers increases with age even for people in their 60s. By contrast, with owner-managers and reluctant entrepreneurs the function of probability of entrepreneurial behavior vs age shows an inversed U shape. Besides age there are the other identified factors that influence entrepreneurial activity of seniors such as human capital accumulated by seniors through their experience, knowledge and skills which support level of entrepreneurial activities (Botham and Graves, 2009). The sort of previous work experiences plays important role where entrepreneurial or managerial experience has a significantly higher influence on entrepreneurship (Weber and Schaper, 2004). However, accumulated human and intellectual

capital of seniors reflects in their lower innovativeness in comparison to younger entrepreneurs (Kautonen, Down and South, 2008).

The other very important studied topic is environment and its influence on senior entrepreneurship. In this respect formal institutions have been studied from the perspective of laws, policies and programs that aid or constrain entrepreneurial activity in this group. Studies suggest that well implemented programs and policies, focused on development of ventures, education or skills development have mostly positive effect on senior entrepreneurship (Botham and Graves, 2009). At the same time, constraining senior programs or generous and benevolent pension schemes have a negative influence on senior entrepreneurship (Kautonen, Down and South, 2008). Informal institutions such as cultural openness and positive attitude towards seniors in a society have a strong positive effect on the entrepreneurial activity in this age cohort (Kautonen, Tornikoski and Kilber, 2011). Ageism on the other hand, is argued to have a negative effect on senior entrepreneurship (Ting Zhang, 2008). From the perspective of motivation, age discrimination can have a positive effect on the determination of a senior individual to become an entrepreneur, through the challenge of the obstacles created by the society (Kilber et al., 2011). According to a study of Estrin and Mickiewicz (2011) both formal and informal institutions significantly influence senior entrepreneurship, especially in the former Communist countries of Central and Eastern Europe, and former Soviet Union countries. The transition economies lack certain formal institutions and even though there were many changes in the past decades in formal institutions there is a considerably higher level of corruption. In the informal institutions, they discovered that many transition economies still have social norms and conditions that are influenced by communism, and argue that these change slowly over time. This is the reason for a missing generation of senior entrepreneurs in these countries, so called generation gap. Wyrwich (2013) builds on these findings and confirms that socioeconomic heritage has an impact on the entrepreneurial propensity of seniors.

2 Methodology and Data

At the *first stage* we have analyzed level of inclusive entrepreneurship of seniors in Europe, USA and CEE countries applying own developed TEA and Established Business (EstBu) Indices (TEA Index Youth, TEA Index Seniors, EstBu Index Youth, EstBu Index Seniors). The calculation of inclusivity index is following: EI_{jk} is the summary inclusivity index of individual

category j of population (youth, seniors) for the country k , EI_{jki} is the inclusivity index in the year i , country k and n is the number of years where data for the country k were available:

$$EI_{jk} = (\sum_{i=1}^n EI_{jki})/n$$

EI_{jki} is the inclusivity index (TEA or EstBu) in the year i , for particular category of population j in country k . For start-up business (up to 42 months) EI_{jki} is calculated as follows:

$$EI_{jki} = (TEA_{jki} / TEA_{ki})$$

Where TEA_{ki} – percentage of population 18 - 64 who are nascent or new business owners (up to 42 months businesses); TEA_{jki} is percentage of population of particular category j (youth, seniors) in country k and year i . If we replace TEA for established business EstBuki (more than 42 months old) than EI_{jki} is inclusivity index for established business for category j and country k and year i . Calculation principles are equal as for TEA.

At the *second stage* we applied correlation analysis using correlation matrix based on Pearson's correlation coefficient in order to explore behavior between total early stage of entrepreneurial activity (TEA) and studied factors for each of under-developed groups of entrepreneurs. The studied factors are divided into four groups. The first group represents human capital and demographic variables: gender (except in women model which is binary variable: 0 for males and 1 for females; age of individual which is continuous variable in range 18 – 64 years, education where individuals reported their highest educational attainment. The second group contains social attitudes of people towards entrepreneurship and is measured by GEM variables high status to successful entrepreneurs where respondents indicated whether they agree that in their country successful new entrepreneurs possess high levels of status and respect (yes=1, no=0), entrepreneurship as a good career choice where the respondents were asked whether they consider starting a new business a desirable career choice (yes=1, no=0), media attention on entrepreneurship where the respondents were asked whether they often see stories in the public media or internet about successful new businesses (yes=1, no=0). The third group represents self-confidence in own knowledge, competencies and experiences measured by GEM variables perceived capabilities where individuals were asked whether they had the knowledge, skill and experience required to start a new business (yes=1, no=0); fear of failure

where individuals were asked whether fear of failure would prevent them from starting a new business (yes=1, no=0); and knowing entrepreneurs where individuals were asked if they know personally someone who started a business in recent two years (yes=1, no=0). The fourth group is focused on GEM perception of business opportunities where individuals were asked if they believe in good opportunities for starting a business in the area where they live in the close future (yes=1, no=0). For each studied segment (youth, seniors) we merged all data disregarding the country and year elements and applied correlation matrix based on widely used Pearson's correlation coefficient which measures a linear relationship between two variables.

Key sources of *data* on which is our research based are individual Adult population surveys (APS) datasets of the Global entrepreneurship monitor (GEM) for four consecutive years 2011 – 2014 in Europe and Central and Eastern European countries (CEE) participated in GEM. Within APS each year representative sample at least 2,000 people has been interviewed at each country each year. Out of that datasets contains 15 408 respondents for seniors in CEE countries and 50 141 respondents for seniors in European countries.

3 Results and Discussion

In our paper to study *level of the entrepreneurial activity* of seniors in CEE countries we applied comparative analysis based on countries and regions (Europe, USA, CEE) and age (seniors, youth and young adults) through inclusivity indices of seniors, youth and young adults both at the early stage of entrepreneurial activity (TEA index – businesses from 0 to 42 months age) and at the stage of established business (EstBu Index – businesses at age more than 42 months). We also studied *significance of the key drivers of the TEA* of seniors in CEE countries and the other European countries with aim to find out differences among these two regions.

3.1 Level of the entrepreneurial activity in CEE countries

Our analysis suggests (see Table 1) that seniors in CEE have the lowest level of entrepreneurial activities both at the early stage (TEA) and in the stage of established businesses (EstBu) in comparison to Europe and USA. This our finding for Europe is in line with those authors who found out that percentage of seniors starting new businesses is about a half compared to their younger counterparts (Further, et al, 2001; Hart et al, 2004; Kautonen, 2008). Lévesque and Minniti, 2006) but for CEE this ratio is only one third. The most entrepreneurially active are seniors in the USA. However, according to our comparative analysis in the USA are the less

entrepreneurially active young people. In opposite while CEE countries have the less entrepreneurially active seniors as far as starting of businesses they are leaders in entrepreneurial activity of young population. But we have identified the common pattern valid for all compared regions: senior entrepreneurs have multiple higher

Table 1 TEA and EstBu indices for youth and seniors in years 2011 – 2014

Country	TEA Index Seniors	TEA Index Youth 18 – 24 Y	TEA Index Youth 25 – 34 Y	EstBu Index Seniors	EstBu Index Youth 18 – 24 Y	EstBu Index Youth 25 – 34 Y
EUROPE	0,51	0,91	1,38	1,21	0,19	0,63
USA	0,72	0,87	1,20	1,56	0,19	0,56
CEE	0,41	1,07	1,48	1,12	0,21	0,71
Slovakia	0,31	1,20	1,37	1,18	0,16	0,75
Czech republic	0,40	1,23	1,48	1,17	0,09	0,65
Hungary	0,56	0,91	1,13	1,35	0,20	0,61
Poland	0,51	0,84	1,64	1,07	0,20	0,95
Slovenia	0,53	0,86	1,41	0,94	0,16	0,54
Estonia	0,35	1,11	1,56	1,31	0,12	0,60
Bosnia i Herzegovina	0,41	1,19	1,41	1,13	0,29	0,62
Croatia	0,47	0,94	1,69	1,09	0,32	0,56
Latvia	0,34	1,13	1,61	1,12	0,19	0,77
Lithuania	0,32	1,23	1,58	1,08	0,19	0,62
Romania	0,41	1,12	1,42	1,13	0,33	1,00
Russia	0,40	1,03	1,44	0,63	0,15	0,82

Source: GEM 2011-2014, Authors

entrepreneurial activity at the established business stage, which is perceived as more profitable and productive as far as income and job creation is, than their young counterparts. Indirectly it confirms that young people are less risk averse as far as starting new business is but many of them (particularly youth) are not able to overcome the first stage barriers and stop their business within the first 42 months. Among CEE countries Hungary has the highest entrepreneurial activity of seniors at both stages. Slovakia has the lowest TEA of seniors while Russia has the lowest senior entrepreneurial activity index at the established business stage. Gap between level of senior entrepreneurial activity at CEE countries, Europe and USA asks for further investigation. But no doubt that former regime heritage has impact on this gap.

3.2 Key drivers of entrepreneurial activity seniors in CEE and Europe

Our findings from the first stage analysis challenge question about key drivers of the entrepreneurial activity of seniors at the early stage (TEA). We studied four groups of potential drivers and their significance for TEA at CEE and Europe. According to our results (Table 2) in CEE seven out of 10 factors have a statistically significant correlation with TEA. If we compare results for Europe (table 3) and CEE one of our key finding is that there are no differences in significance of the key studied drivers for CEE and Europe but one related to high status in society which appeared to be significant only in Europe but negatively related to TEA. That means that the likelihood of a person being engaged in early-stage entrepreneurial activity, on average, decreases with high status in society. In general *social attitudes towards entrepreneurship* (second group of studied factor) are not significant in CEE and Europe for seniors. This is very important finding as social attitudes are interconnected with cultural factors and these are closely related to entrepreneurial environment. From this perspective social attitudes indirectly influence TEA. However, entrepreneurial environment is a key factor that fundamentally influences the entrepreneurial activity (Holienka, 2013).

Table 2 Correlation matrix CEE model

	1	2	3	4	5	6	7	8	9	10	11
1 TEA	1										
2 Gender	-0,0763**	1									
3 Age	-0,0578**	-0,0074	1								
4 Education	0,0817**	-0,0547**	-0,0266**	1							
5 High status in society	-0,0161	0,0440**	0,0069	-0,1099**	1						
6 Media attention	0,0032	0,0459**	-0,0023	-0,0646**	0,2071**	1					
7 Good career choice	-0,0064	0,0324**	0,0155	-0,1228**	0,2218**	0,1721**	1				
8 Entrepreneur skill	0,1799**	-0,2007**	-0,0612**	0,2145**	-0,0615**	-0,0138	-0,0403**	1			
9 Fear of failure	-0,0647**	0,0871**	-0,0544**	-0,0124	0,0106	-0,0061	-0,0086	-0,1055**	1		
10 Knowing entrepreneur	0,1126**	-0,0808**	-0,0568**	0,1207**	-0,0038	0,0461**	-0,0123	0,2179**	-0,0227**	1	
11 Perceived opportunities	0,0736**	-0,0034	0,0006	0,0484**	0,0872**	0,1323**	0,0995**	0,0981**	-0,0573**	0,1441**	1

Source: GEM 2011-2014, Authors

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

Table 3 Correlation matrix: European model

	1	2	3	4	5	6	7	8	9	10	11
1 TEA	1										
2 Gender	-0,0696**	1									
3 Age	-0,0601**	-0,0243**	1								
4 Education	0,0824**	-0,0738**	-0,0609**	1							
5 High status in society	-0,0117*	0,0169**	0,0215**	-0,0311**	1						
6 Media attention	-0,0016	0,0050	0,0166**	-0,0166**	0,1767**	1					
7 Good career choice	-0,0091	0,0077	0,0278**	-0,1013**	0,1789**	0,1438**	1				
8 Entrepreneur skill	0,1748**	-0,1937**	-0,0392**	0,1860**	-0,0526**	-0,0074	-0,0360**	1			
9 Fear of failure	-0,0621**	0,0879**	-0,0488**	-0,0766**	0,0328**	-0,0190**	0,0069	-0,1276**	1		
10 Knowing entrepreneur	0,1441**	-0,0826**	-0,0403**	0,1154**	-0,0147**	0,0293**	-0,0128*	0,2189**	-0,0476**	1	
11 Perceived opportunities	0,0857**	-0,0507**	0,0127**	0,1250**	0,0865**	0,1239**	0,0525**	0,1110**	-0,1036**	0,1481**	1

Source: GEM 2011-2014, Authors

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

In the *first group* that represents human capital and demographic variable, all three factors are significant for TEA both at CEE and Europe. Factor *age* shows that the likelihood of a person being engaged in early-stage entrepreneurial activity, on average, decreases with age ($r = -0.0578$ and -0.0601). Significance of age in our finding is in line with many research works which confirm that being entrepreneurs is not a typical for a specific age group (Isele & Rogoff, 2014 etc.) but decrease with age. As far as education is those seniors who have higher education are more likely engaged in early-stage entrepreneurial activity ($r = 0.0817$ and 0.0824). Our evidence on importance of education for entrepreneurial activities in CEE and Europe is in line with other GEM research that indicates that education plays a major role in entrepreneurial activity. The more educated the person, the more likely that person is to start and develop sustainable business (Singer et al., 2015). As expected males are more likely engaged in TEA than females ($r = -0.0763$ and -0.0696). Importance of gender at entrepreneurial activities is broadly studied and empirical evidences confirms that gap still persists in venture creation and ownership activity even its positive narrowing is evidenced (Kelly et al., 2015). In the *third groups of factors* as expected, confidence in one's own skills, lacking fear of failure and knowing a successful entrepreneur are positively related to engagement in TEA both at CEE ($r=0.1799$; $r=-0.0647$; $r=0.1126$) and Europe ($r=0.1748$; $r= -0,1937$; $r=0,1441$). The fourth group which measure perceiving opportunities to start own business is also positively related to engagement in TEA both in CEE and Europe ($r= 0,0736$ and $r=0.0857$). Our finding that all variables in the third and fourth groups of factors refer positively to TEA both at CEE and

Europe is in line with many research studies and findings related to general populations (Shane, 2003, Singer et al.2015).

Conclusion

Senior Entrepreneurship is one option to solve implication of aging population. In academia, there is an evident growth in research interest on this topic and policy makers are looking for formulation and implementation of relevant policies to support senior entrepreneurial activity. However, these policies should be based on relevant research results, too. In our paper, studying the level of senior entrepreneurship at CEE countries, we found out that this is much lower than in Europe and USA even those countries complain about lower level of starting businesses by seniors in comparison to youth. This finding is on one side contribution to the existing research, which is mostly focused on developed economies but on the other side raises further research questions of importance to study senior entrepreneurship in these regions from historical, cultural and contextual points of view. However, there are other interesting findings of our research, which are based on the identification of common significant drivers of entrepreneurial activity of seniors in CEE countries and Europe. These findings could contribute to formulation of senior entrepreneurship model which is still missing and asks for further empirical studies both at CEE country level and in Europe. This model may give an answer to the question what could work and what will not work for senior entrepreneurs in terms of the support of their activities in studied regions. **Acknowledgment**

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MANAGEMENT MECHANISM FOR IMPLEMENTATION OF « QUICK RESPONSE MANUFACTURING » CONCEPT IN THE ENTERPRISE

Viktor Popov – Galina Ostapenko

Abstract

The article presents the results of research in the field of change management approaches for production systems. The changes in the effect of resource and process approaches in the management of production systems as they evolve are defined; emphasized five types of production systems and their main features are characterized. The authors present a way of developing the mechanism of organizational change management, which can be applied to improve production systems through the use of the modern concept of "Quick Response Manufacturing (QRM)". Practical examples of QRM implementation mechanism in Ural region's manufacturing enterprises producing in small quantities are shown. The structural model and clear logic of implementation process of QRM concept could help industrial leaders and specialists in majority of sectors of the Russian economy.

Keywords: change management, models of production systems, quick response manufacturing concept, management mechanism for QRM implementation

JET Code: M 11; O20

Introduction

Change management as a science (Adizes, 2008, Management of change, 2007) is the basis for building effective enterprise development management systems. Emerged in recent years, a stable trend for implementation of "lean production" (Womac, Jones, 2005), "Six Sigma", "total quality management" concepts in enterprises, as well as the growing interest in "quick response manufacturing" concept (Suri, 2013; Luzin, Babanov, 2016) sets targets for forming models and building mechanisms of implementation of progressive production management concepts (Popov, Ostapenko, 2015). This article presents a way to construct organizational change

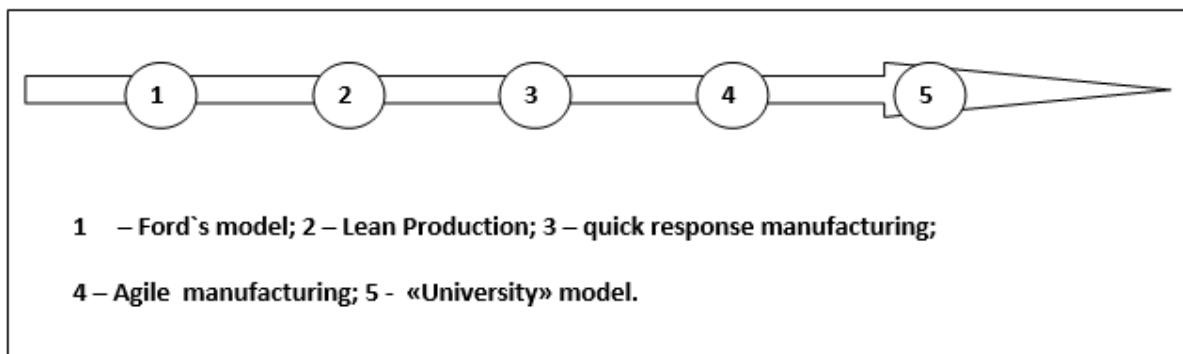
management tool that can be applied to the improvement of production systems (PS) through the use of the concept of "quick response manufacturing» (Quick Response Manufacturing, QRM). Development of the production system, in the framework of this paper, is considered as an integral part of the company's internal development and includes: introduction of management techniques, the alignment of business - processes, improvement of the value creation`s stream.

The basis for a universal mechanism for change control, used in the development of production systems, lies on the intervention system technology (Popov, Ostapenko, 2015), which assumes a consistent implementation of the three phases: diagnosis of the situation, design of innovations, and implementation of developed action plan. Each phase can be explicated using a different set of tools and techniques. Of fundamental importance is the question of how not to "drown" in a sea of popular concepts (Assen, 2011). For each phase selected the most rational, in our view, set of methods and tools.

1 The evolution of production systems` management models

In general, trends in the development of production systems at the level of graphical models are presented in Figure 1.

Figure 1 Models of production systems



After a fairly long period of domination of Ford`s mass production model, in the 50s of the last century in the Japanese company «TOYOTA» was born and has been successfully implemented the concept of building a lean production, which continues to spread throughout the world. Practically at the same time in the 90s two new concepts emerged: quick response and agile manufacturing. "University" model, indicated in Figure 1, is sometimes mentioned in the scientific community, but its detailed description is not given. Most likely it can be effectively

applied to fix the boundary condition of the production system focused on high-end individual science-related orders.

From the standpoint of resource - process approach, Ford model is characterized by technological processes of conveyor type provided with the necessary resources and capacity constraints. Production activity is broken down to the level of simple operations. The "push" scheme of the production process is used. No need for a highly skilled workforce exists. For managing enterprise the linear - functional organizational structure with the leader at the head is applied. The market is not saturated; virtually no competition exists; everything that is produced is being sold. Despite the fact that this model has emerged over a century ago, some of its elements are still used in the industry control systems, not allowing to ensure their competitiveness in a condition of saturated market and production in small volumes.

The concept of "Lean Production" was a response to the emergence of strong competition with scarce resources. Japanese producers, using a variety of techniques and tools, managed to create a production system that provides a significant cost reduction in the production of high quality products. Studying TOYOTA production system, it is easy to notice that it's based on massive attraction of initiative "from below". This allows the implementation of diverse tools, such as: the system of organization of workplaces; elimination of waste; value stream mapping; balancing of production; "just in time" system; generalization of equipment maintenance; standardized operating procedures; quick changeover of equipment; training in the workplace; involving staff in the process of improvement and others. At the same time there is a change in the organizational structure of management: reducing the amount of management levels; wide using of divisional, matrix and project structures. The concept of "Lean Production" found recognition and practical implementation not only in Japan but also the United States and European Union countries. There is an attempt to introduce the concept of "Lean Production" both in the mass and in small-scale production. At the same time it was observed that the greatest effect is achieved in enterprises with a large production flow, although in a small-scale (Custom) production is also observed a slight increase in efficiency.

The concept of "quick response manufacturing" appeared relatively recently [4]. In the last few years, dozens of companies have implemented QRM strategies with astounding results. Typical results include reduction in lead times of 80-95% (both in manufacturing and in office operations), reduction in product cost of 15-50%, on-time delivery performance improving

from 40% to 98%, and reduction in scrap and rework by 80% or more (see the Tables later in this article, as well as the numerous case studies in three conference proceedings (Suri, 2000; Suri et al., 2001; Suri and Rath 2002). However, a close study of this concept from the perspective of resource - process approach to management allows to identify its obvious advantages. Firstly, it does not contradict the concept of "Lean Production" and unites all known tools to improve the processes under the banner of a single resource: TIME. Secondly, this concept leads to the idea of changing the traditional organizational structure - the transition to multi-functional cells. Liker, Jeffery (2004). Thirdly, a special approach to the planning of logistics and deciding about batch sizes is proposed. Fourthly - it is not a guild strategy, but the strategy for the whole enterprise. It includes research and development, planning, supply chain management, office operations, customer orders 'fulfillment. The foundation of the concept is the idea that the main thing - it's not reducing costs in certain operations but a decrease in the total lead time. By reducing the time of the order it is possible to increase the volume of work performed. This becomes crucial for companies who are forced to produce more and smaller parties of various products for which minimum duration of order execution becomes a critical importance. The concept contains a number of non-trivial statements. For example, it is assumed that the capacity utilization should not exceed 80% in order to use the remaining resource in the case of need. Quick response manufacturing involves the construction of a flat organizational structure. Organizational changes are made "top down". Furthermore, the concept requires a revision of the traditional method of calculating production costs, including the need to: give up the calculation and use of the 'standard' costs and overhead costs; consider overheads as variable, rather than as fixed; consider the costs associated with time lost for "waiting" both in industrial and office branches. By year 2016 there were several hundred examples of the successful implementation of the concept in companies (mainly in the US) of different size, sector and production profile. All of them have chosen the strategy of development, the increment in market share and the opening of new market niches.

The concepts of "active manufacturing"(Suri, 2013) and "university" are currently the least developed. For "Active manufacturing" is typical to have a scenic strategy and constant readiness to change in the conditions of high uncertainty; maximum intellectual and least tangible assets; high flexibility of material resources; the presence of a limited number of permanent key members of staff and a large number of salaried support staff; an extensive

network of partners; flat organizational structure; the predominance of project-based work organization. For "Active production" is common to have an implemented ability to quickly rebuild the human and material resources in the shortest possible time and with minimal cost to use the unexpected opportunities. The concept of "Active production" is focused on the production in small quantities according to orders. "University" model is more typical for high-tech unit production - knowledge production or the production of unique products and services. It is characterized by the following features: strategic management of innovation projects; an integrated infrastructure that supports the implementation of projects; the formation of highly qualified cross-functional teams, aimed at the implementation of innovative projects included in the register of prospective business directions for the enterprise.

Described above, features of production systems' management concepts are structured and presented in Table 1.

Table 1 Features of management concepts for production systems

Factor	Ford Model	Lean Production	Quick response manufacturing	Active production	University model
Type of production	Mass	Large-scale	Small-scale	Custom	Individual
Strategic orientation	Profit	Costs	Time	Change time	Innovations
Processes	Normalized	Improving	Generalized	Adaptive	Hi-tech
Resources	Fixed	Limited	With reserve	Minimum of tangible resources	Knowledge-intensive
Organizational structure	Linearly functional	Matrix	Cells	Project	Network

In terms of competition and existing technological structure there is a steady trend of transition from mass to small scale and custom production. According to the content of the above table, the most suitable for the formation of a better enterprise management system at the present stage is the concept of "quick response manufacturing."

2 Management mechanism for QRM concept implementation

The first step toward an effective manufacturing change process is understanding how change is initiated and managed in your organization. For diagnostic phase when initiating the development of production systems based on the use of the concept of "quick response

manufacturing" it is proposed to use: the EFQM Excellence model; SWOT and STEP analysis; Derek Pugh matrix; approach of Kurt Lewin.

The European model of quality management of business processes is carried out to assess the achievements, including those in manufacturing, through the self-assessment process, comparing them with international best practices, to bring all the procedures in a single framework, conceptualize them. The main advantages of the EFQM model lie in the fact that the system provides a look at the quality of management in the enterprise, identifies strengths and areas for improvement, emphasize "growth points". However, application of the model requires great effort on the understanding of its substance, causing resistance on the initial stage of use, and system itself is not a panacea for all management and organizational pathologies. The other two tools: SWOT and STEP - analyses are common instruments applied in the phase of diagnostic of the production systems. SWOT - analysis can be applied to internal audit: identifying strengths and weaknesses of the enterprise, potential opportunities and threats. The use of STEP - analysis allows to make an external audit of the company and its production system, taking into account technical, economic, political and social factors. SWOT and STEP analyses are advisable to carry out using the forces of key personnel.

The development of the enterprise through changing the concept of production system is a radical organizational change and may meet strong resistance from the staff of the enterprise. (Cameron, 2002). It is known that the hope for the success of the reforms can only exist when the "critical mass" of involved people is reached: 30 or more percent of like-minded people. Determining the presence of a "critical mass" can be done using the data collection procedure of Derek Pugh matrix. The point is that the information is collected on the basis of an anonymous questionnaire according to following range of topics: a) how the staff assesses the present situation in the company (in production); b) how the staff assesses the future of the company; how people relate to the proposed strategic changes; what people think and feel; what they intend to do when the reforms begin; what new challenges they see for themselves and how they are going to interact with the environment. If there is no "critical mass" involved it is possible to use the approach of Kurt Lewin, which is about consistent use of the three types of operations: "unfreezing" of the situation; making changes; "Freezing" the situation. For the diagnosis phase of fundamental importance is the operation of "unfreezing", which means choosing and implementing a number of activities aimed at achieving the "critical mass"

participation. These activities may be seminars and workshops, study the experience of leading companies, etc.

During the phase of designing the system for controlling the process of development of production system on the basis of QRM concept it is necessary to solve four fundamentally important tasks: define the vision, strategy and implementation policy of the production system; determine the infrastructure that supports the development of PS; determine the shape of the personnel training system at the stage of implementation of PS; develop a system of personnel motivation to support the development program of PS.

The starting point of the program for PS development based on the QRM is the definition of Vision - the public statement of the Customer (the Sponsor) of the project, which should present his/her views on how the production system will look like in a few years. There should be target reference points; methods, tools and technologies that will be applied in the development of PS; key stages of transformation; principles of involvement of staff in the change process. The development strategy of PS determines the objectives and deployment plan. The deployment plan should reflect how to start individual subprograms, and program management policies should reflect the fundamental principles on which the development of the PS will be based. With the introduction of the QRM concept these principles should be minimizing the time of execution of orders and the creation of multifunctional cells.

The infrastructure that supports the development of PS based on QRM, should have two - three-tiered structure of the network. At the top level of management general corporate development issues must be solved, and on the lower level - the issues of continuous improvement of departments. Regular operation of the upper-level management infrastructure will largely determine the success of the reform of the production system. The infrastructure of the second and third level should provide project management of the production system development.

The system of training the personnel of methods for developing the PS should facilitate the participation of a significant number of people, form the expert knowledge and skills of employees. It is assumed that at least 3-5% of average headcount should be prepared at the level of experts. Experts should have deep knowledge about instruments applied in the development program of PS; carry out projects; perform workers-oriented training on the job with the maximum ease. Personnel training system's work will largely help to reduce the level of resistance to change.

The system of personnel motivation to support PS development programs should ensure the promotion of various initiatives of employees aimed at achieving development goals of the production system. The amount of remuneration shall depend directly on the complexity and importance of the project. It should be noted that the problem of formation of effective motivation system cannot be solved quickly and requires several iterations. In addition to monetary compensation, there can also be applied elements of competition that reduce resistance and increase staff motivation.

The phase of designing at the initial stage of work should be carried out with the participation of top - management and key staff of the enterprise. A convenient form of realization of the design phase is to carry out strategic sessions. On the strategic sessions there should be a generation of ideas, simulation of options and the selection of areas for practical implementation. The phase of designing at the level of departments will be happening during a long time, since the enterprise reform process may take 3-5 years. Design at the level of departments will be covering a very wide range of issues such as the definition of target market segment; roles and functions of the members of the staff; mapping and changing the value stream and others.

A fundamentally important question that must be answered when planning options for the implementation of planned activities is the nature of the implementation process. There are three approaches: the "big bang"; the parallel functioning and trial implementation. The production concept changes simultaneously in case of "big bang". This approach is fraught with great risks. In case of parallel functioning new PS's shoots appear and develop concurrently with the operation of the old PS. In case of very high risks a trial implementation is applied. It is when the concept of the original QRM is being checked on one, especially dedicated process (branch). Generally, both parallel functioning and trial implementation are used in the development of PS.

The main management technology that permits the implementation of planned activities is project management. Effective project management is crucial to achieving the goals of the PS. Project Management - is activity of planning, organization, coordination and control of resources and tasks aimed at achieving these goals. As a rule, international standards for project management give a description of environment and project life cycle, provide recommendations on construction of project management organizational structure, describe the groups of project

management processes, concretize fields of knowledge in project management (PMBOK@GUIDE).

Generally accepted documents identifying the project are the Statute (passport) and the Project Management Plan. For example, when implementing the concept of "quick response manufacturing" at the level of creation of a production cell in these documents should be reflected:

- objectives and content of the work to change the production process, the composition of the equipment, layouts;
- deadlines for separate stages of the planned activities;
- the budget of the planned actions; the conditions under which the required quality parameters are ensured;
- composition of the production cell and procedure for development of related professions;
- project risks and methods of dealing with them;
- contact groups and methods of work with the stakeholders and others.

Due to the fact that the application of the concept of QRM is a form of re-engineering of the company, at the stage of its implementation is necessary to apply some of the recommendations given in this work (Хаммер, 2008). In particular:

- It is necessary to ensure the rational combination of centralized and decentralized actions in the implementation of reforms;
- It is necessary to minimize the control of the staff, maximizing their powers;
- Executives of created multi-functional cells should not only be leaders, but also "playing coaches";
- Reforms should be performed "top-down";
- The resources should not be excessively spread towards individual projects;
- The reforms should not be unnecessarily prolonged. Getting the main results should be planned in a year after the start of reforms

3 Practical Testing the Change Management Mechanism

The effectiveness of the proposed change management mechanism when implementing QRM concept is tested in three enterprises engaged in various types of industrial activity:

- the enterprise "1", that provides telecommunications services: long-distance and international telecommunication, satellite, broadband internet access, interactive TV;
- the enterprise "2", that develops and manufactures sensors and systems for navigation
- the enterprise "3", which does the development and production of new machinery objects

The main characteristics of enterprises and features of the use of change management mechanism described above are shown in Table 2.

Table 2 Using the change management mechanism in enterprises

Factors	Enterprise «1»	Enterprise «2»	Enterprise «3»
The total number of employees.	400	2000	7000
The boundaries for implementation of the QRM concept	Troughout the whole company	Troughout the whole company	Core business-process
Applied instruments during the diagnostic stage	SWOT, STEP – analyses, Derek Pugh matrix	EFQM Excellence Model	SWOT, STEP – analyses
The approach to implementation	Trial implementation	Parallel functioning	Trial implementation
Features of the change management mechanism	Top down management	Timely spread creation of production cells	Network management and control

Despite the peculiarities and different industrial branches, project management technologies are widely used when controlling organizational changes in all considered companies. Achieved initial results are well described by the rule "the sixth degree." For example, the reduction of the critical path of the main production process at the enterprise "1" by 60% (the execution of the order on laying fiber-optic cable) resulted in a reduction of total costs of the process by approximately 15%.

Conclusion

A change management mechanism that can be used in the construction of program for the development of production systems is proposed. The mechanism is based on the use of a

sufficiently broad range of methods and tools, and covers all stages of the process of implementing innovations. Considering the characteristics of the reengineering process this mechanism is recommended for use when implementing QRM concept.

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ENTREPRENEURSHIP AND REGIONAL DEVELOPMENT IN RUSSIA: FACTORS AND TRENDS

Irina Prosvirina – Galina Ostapenko

Abstract

In this article the authors examine socio-economic development of Russian regions in conjunction with a large number of factors. The principle hypothesis of the study is the existence of the connection between the level of socio-economic development of regions and the level of entrepreneurial activity. This hypothesis is based on systematization and analysis of published studies on the nature of entrepreneurship and the factors affecting it. In order to test the hypothesis the correlation-regression models were used to process the large amount of statistical data on the regional development. The findings revealed that there is a negative correlation between the growth of the Russian regions and the level of entrepreneurial activity. The authors made assumptions about the reasons of this relationship and discussed the conditions enhancing entrepreneurial activity in Russian economy. The findings might be relevant in the context of economic recession and numerous attempts of the government to increase the level of entrepreneurial activity.

Key words: entrepreneurial activity, Russian regions, System of Factors and Indicators of Regional Development

JEL Code: L26, 047, R 58

Introduction

Entrepreneurship development is considered from two perspectives: first, as a factor for regional development and, secondly, as a result of regional economy as a whole. The research of entrepreneurship development and entrepreneurial activity from regional perspective is needed because of two reasons. The first reason stems from the fact that entrepreneurship is a phenomenon on a regional scale, in contrast to the levels of national and global economy, which is influenced by factors that are formed at the regional level. The second reason has to do with

the different conditions of development of regions, which also requires taking into account the peculiarities of regions development.

The main purpose of this study is to analyze the relationship between the level of entrepreneurial activity and regional development indicators as well as to identify the factors influencing entrepreneurial activity in the regions. The influence of a large number of factors on the effectiveness of regional development is presented. The results of these analyses show the complexity and ambiguity of impact of level of regional development on the growth of entrepreneurial activity.

1 Conceptual framework and hypothesis

Entrepreneurship has been identified by many researchers as a major driving force of a free market economy. However, it was only recently that economists began to synthesize the knowledge about entrepreneurship and analyze its impact on regional economic growth. Several studies have analyzed the complicated relationship between entrepreneurship and regional economic growth. Popli and Rao (2010) state that the objectives of industrial development, regional growth and employment generation depend upon entrepreneurial development. Audretsch and Keilbach (2004) argue that a region must be endowed with entrepreneurship that enables the channeling of innovation into the market and thereby contributes to economic growth. González et al. (2009) argue that this process could trigger a virtuous cycle of development: «while region's innovation capital and entrepreneurship capital may affect the achievement of higher levels of productivity, competitiveness and economic welfare, it is also true that the level of prosperity may as well affect the enrichment of innovation capital and entrepreneurship capital». Precisely, this phenomenon can explain in part the persistence of the disparity among regions in their respective levels of welfare as well as the impact of certain regional capabilities (such as innovation and entrepreneurial success). It is also a distinctly spatially uneven process, reflecting path dependence in industry structure, institutions and culture (Saxenian, 1994), that vary widely across regions and countries (Stam, 2010). The entrepreneurial activity, particularly the activities of small and medium-sized enterprises, creates a significant part of gross domestic product and is considered to be a basis for the development of national economies, maintain social and economic stability in both developed and developing countries (Amini, 2004; Peters, 1982; Radam, 2008). Governance is an issue

for all regions but it is particularly critical for those regions where coordination (and co-operation) is weakly developed and where more or less unregulated competition prevails (Scott & Storper, 1992). Especially the last group of regions faces many problems and predicaments that compromise and threatens long-run viability and development.

The relationships and interdependence of entrepreneurship and regional development was studied in the works of Russian researchers. For example, V.G. Basareva (Basareva, 2010) on the basis of modeling and simulation proved the dependence of small business development level on supply and demand equilibrium in the regional labor market. The conclusion made by I.V. Panshin (Panshin, 2008) is directly proportional relationship between the level of entrepreneurship development and regions welfare: the less developed the region, the lower the level of entrepreneurship development.

This study aims to examine the entrepreneurial activity as a factor, and as a result of regional development. As a research hypothesis we put forward the idea of the existence of a significant correlation between the entrepreneurship development and the results of socio-economic development of the Russian region. We tried to test this hypothesis on the example of Russian regions development.

3 Methodology and research

3.1 Research methods

The influence of a large number of factors on the effectiveness of regional development is presented in this research. For this purpose, a system of regional development indicators and the important influencing factors of intensive regional development are formed. Factors reflect the objective conditions of Russian regions development as well as the level of entrepreneurial activity in the regions; regional governance efficiency and policy particularly upon small and medium enterprises (SME); management resource and others. In order to eliminate the influence of the size of different regions on research findings, the relative indicators, reflecting the efficiency of resource use in the region, are included to the system of factor indicators. Research is based on a regression analysis of statistical data of n Russian regions with $n=80$.

Choice of the year of research was influenced by the necessity to eliminate the impact of economic downturns and crises on the results of study, therefore the data for the calculations

was selected from the year 2012, which was favorable for the economy of the Russian regions. Calculations were carried out in year t with $t = 2014, 2015$. Only the objective data of state statistics was used to measure factor and target indicators for the construction of regression. The system of result indicators includes those that reflect the economic, investment, innovative, socio-economic and external economic development of the regions: the ratio of gross regional product to the economically active population (R_1), the volume of investment in fixed assets per 1 ruble of GRP (R_2), the volume of shipped innovative products per 1 ruble of GRP (R_3), per capita income (R_4), the volume of foreign trade (exports) per 1 ruble of GRP (R_5). Verification of these indicators for the presence of cross-correlation showed that there is no any correlation in fact, except the significant correlation between indicators of GRP per 1 person of economically active population and per capita income (Table 1). However, due to importance of per capita income as a result of development of the region, this indicator was kept in the proposed system.

Table 1 Coefficients of correlation (Pearson) between indicators of economic development of the regions R_j

Indicator	Symbol	R_1	R_2	R_3	R_4	R_5
GRP to the economically active population ratio	R_1	1,00				
The volume of investment in fixed assets per 1 ruble of GRP	R_2	-0,03	1,00			
The volume of shipped innovative products per 1 ruble of GRP	R_3	0,35*	-0,14	1,00		
Per capita income	R_4	0,77*	-0,10	0,21	1,00	
The volume of foreign trade (exports) per 1 ruble of GRP	R_5	-0,01	-0,15	-0,03	0,14	1,00

* Correlation is significant at the 0,01 level (2-tailed criterion)

Source: calculated by the authors on the basis of Russian Statistical Agency data

Generally, datasets grouped around the regions of Russia cannot be considered as homogenous – according to the outcomes of both parametric and non-parametric tests, the distributions of three resulting factors deviate from the normal distribution at a significant level. Given the results of model based on panel data (Verbeek, 2004) and Chi-square Pearson and Kolmogorov-Smirnov tests (Kobsar, 2006) the datasets of factors R_1 , R_2 , R_5 (GRP to the economically active population ratio, the volume of investment in fixed assets per 1 ruble of GRP, the volume of foreign trade (exports) per 1 ruble of GRP) underwent the logarithmic transformation as being suitable enough to present log-normal distribution. This transformation was applied in

order to to facilitate an establishment of an optimal and significant specification of the regression model (see chapter 3).

Thus, in a view of the described transformations, the datasets of all resulting factors R1-R5 obey the normal distribution law, which is proven by Kolmogorov-Smirnov statistics values (Table 2). Although p-values are not very close to 1, they exceed the critical value of 5% significance.

Table 2 Results of the one-sample Kolmogorov-Smirnov test applied to the result factors

Factor	Test Statistics	Asymptotic Significance (2-tailed)
Ln (R ₁)	0,082	0,2
Ln (R ₂)	0,09	0,162
R ₃	0,103	0,087
R ₄	0,095	0,13
Ln (R ₅)	0,102	0,121

2.2 Objectives and selection of results indicators

When deciding on the choice of the factors to assess their impact on the socio-economic development of regions, we relied on the opinions of scientists, recommending the use of multivariate statistical analysis methods. These methods allow to: a) take into account the impact of a significant number of factors on the development of economic processes in the regions of Russia (Pilasov, 2003); b) identify and justify the overt and hidden patterns of ongoing transformation of regional economies (Drobyshevskiy, 2005); c) identify and assess how results of development is dependent on economic indicators of the regions (Zarova, 2006). The system of factor indicators includes 18 indicators that reflect the diversity of regional material, innovative and managerial resources. All indicators are objective and available, presented in a database of the Russian Statistic Agency. Indicators of use of traditional resources include the characteristics of the main resources used by regions, with an estimation of the environmental aspects of their use (wherever it is possible): fixed assets, energy facilities, the use of water and air for production purposes, human resources, financial resources (including deposits and loans). Managerial resources are characterized by such basic indicators as the economic return of management resources in the region, the import of technology, business and entrepreneurial climate which primarily affect the intensive and qualitative development of the Russian regions (Table 3).

Table 3 The system of factors and indicators determining the level of regional development

Type of resources	Factor	Indicator to measure the factor	Cond. Symbol
Environmental	Environmentally friendly production processes	Turnover ratio of used and fresh water	env_prod
	Contamination of water sources in region	Discharge of polluted wastewater per 1 million m ³ of used fresh water	wat_sour
	Air quality in the region	Capture of pollutants per 1 ton emitted	air_qual
Labor	Energy consumption per an employee	Electricity consumption per an employee in manufacturing	en_cons
	The use of labor resources	The percentage of the unemployed among economically active population	lab_res
Financial	Balance of regional budget	The ratio of income and expenditure in the region	reg_bud
	The balance of financial resources in the region	The ratio of deposits / loans	fin_res
Infrastructure	The intensity of the use of railways	The turnover of goods per 1 km of railways	use_rail
	The intensity of the use of roads	The turnover of goods per 1 km of roads	use_road
Technical and Technological	The quality of research and development	Production of innovative products per one ruble on R & D costs	res_dev
	The rate of renewal of fixed assets	Investments in fixed capital per 1 ruble of fixed assets	ass_ren
	The intensity of introduction of advanced technologies	The ratio used / created advanced technologies	adv_tec
	Input intensities of produced innovative products	Expenditure on technological innovation per 1 ruble of innovative products	inn_pro
	Tensions in the region power grid	Using the power plants	pow_grid
	Percentage of technology of imports	The volume of imports of technology per 1 ruble of imports	tec_imp
Managerial resources	Governance efficiency in the region	The volume of gross regional product per 1 official	gov_eff
	Business climate	Foreign direct investment per 1 ruble of investment in fixed assets	bus_cli
	Development of small and medium-sized enterprises	The turnover of enterprises of small and medium-sized businesses per 1 ruble of GRP	sma_med

Source: developed by the authors

3 Results and discussion

In order to test the hypothesis was treated a large array of objective statistical indicators of Russian regions development on the basis of correlation and regression models. In the system of factor indicators, the indicator describing the quality of entrepreneurial resources is represented by the share of small and medium businesses in the structure of gross regional product F17 (see Table 2). In the first stage of the study a regression model of dependence of resulting from the performance factor, which meets the reliability requirements, is constructed.

The model is represented by the following regression equations (standard errors are marked below the coefficients).

$$R_1 = 6,64 - 116,9 \cdot e^{\text{en_cons}} - 2,94 \cdot e^{\text{lab_res}} + 0,14 \cdot e^{\text{fin_res}} + 0,0005 \cdot e^{\text{use_road}} + 0,009 \cdot e^{\text{inn_pro}} - 0,63 \cdot e^{\text{bus_cli}}, R^2 = 0,86 \quad (1)$$

(0,17) (37,31) (0,46) (0,05) (0,0002) (0,002)

$$R_2 = -1,63 + 0,0008 \cdot e^{\text{use_road}} + 5 \cdot e^{\text{ass_ren}} - 0,006 \cdot e^{\text{inn_pro}}, R^2 = 0,6 \quad (2)$$

(0,2) (0,0002) (0,7) (0,0016)

$$R_3 = 0,028 + 0,016 \text{wat_sour} - 11,01 \text{en_cons} - 0,117 \text{lab_res} + 0,009 \text{fin_res} + 0,0008 \text{res_dev} + 0,0005 \text{gov_eff}, R^2 = 0,56 \quad (3)$$

(0,026) (0,021) (9,57) (0,11) (0,011) (0,0001)

$$R_4 = 26064,0 - 2529883,9 \text{en_cons} - 1,1 \text{pow_grid} - 30144,6 \text{lab_res} + 1581,7 \text{fin_res} + 206,6 \text{use_rail} - 2,5 \text{use_road} - 6,5 \text{res_dev} + 0,2 \text{inn_pro} + 186,6 \text{gov_eff} - 118,9 \text{bus_cli} - 5690,3 \text{sma_med}, R^2 = 0,68 \quad (4)$$

(3313,85) (779650,5) (0,39) (9459,45) (1014,40) (688,85)

$$R_5 = -0,001 \cdot e^{\text{pow_grid}}, R^2 = 0,4 \quad (5)$$

(5,12) (10,05) (0,01) (31,88) (192,03) (2196,9)

(0,0004)

A set of factors that determines the performance of the Russian regions is described by the above equations. Some of the factors in this case fall into several equations, which indicate their connection with several areas of regional development. Factor «Development of small and medium-sized enterprises» which reflects the effect of entrepreneurial activity is included in the regression equation describing indicator R4 (per capita income) only. Thus, the result shows that the entrepreneurial resources cannot be considered as the determining factor of the development of Russian regions. All regression models mentioned above are discerned as significant (Table 4); the explanatory power varies from one to another, however, tends to be high or moderately high. Obviously, additional research is required for the resulting indicator «The volume of foreign trade (exports) per 1 ruble of GRP» (R5) – new explanatory factors or a different mathematical specification of the model should be tested.

Tab. 4: Assessment of model significance

Result factor (R)	Model type	R-square	Model significance (f-factor)
R ₁	Exponential	0,86	9,45E-23
R ₂	Exponential	0,6	1,47E-10
R ₃	Linear	0,56	9,536E-10
R ₄	Linear	0,68	6,585E-13
R ₅	Exponential	0,4	0,002703

Source: calculated by the authors

In the next step the strength and direction of the relationship between indicators of regional development and factor indicators (value of pair correlation coefficients are shown in Table 5 is examined. As it can be seen, the level of entrepreneurial activity (sma_med) has significant negative correlation coefficients with indicators of the value of GDP per person employed, and per capita income. This means that in most regions with the highest rates of GRP per employee and per capita income, entrepreneurial activity is lower than in other regions. Therefore, the hypothesis of the presence of positive relationship of entrepreneurial activity and regional development indicators was not confirmed. Moreover, the strong negative correlation was found.

Tab. 5: The coefficients of pair correlation (Pearson) between indicators of regional development and factor indicators

Factor	R ₁	R ₂	R ₃	R ₄	R ₅
env_prod	0,019	-0,079	0,034	0,065	0,126
wat_sour	-0,065	-0,219	0,134	0,070	0,064
en_cons	-0,351**	0,124	-0,217	-0,450**	-0,271
pow_grid	0,181	-0,301	0,027	0,122	0,373
air_qual	-0,108	-0,040	-0,030	-0,070	-0,090
lab_res	-0,245	0,196	-0,197	-0,323**	-0,267**
reg_bud	-0,116	0,031	-0,060	-0,094	-0,121
fin_res	0,472**	-0,011	0,304**	0,381**	0,130
use_rail	0,276**	0,127	-0,114	0,157	0,167
use_road	0,614**	0,126	-0,105	0,300**	0,181
res_dev	0,361**	-0,030	0,781**	0,139	0,472
ass_ren	0,000	0,672**	-0,077	-0,031	-0,032
adv_tec	0,039	0,012	0,081	-0,010	0,132
inn_pro	0,023	-0,004	-0,212	0,183	0,049
gov_eff	0,773**	-0,194	0,275*	0,685**	0,638
bus_cli	0,145	-0,044	0,089	0,106	-0,017
sma_med	-0,780**	-0,163	-0,058	-0,743**	-0,350
tec_imp	0,159	0,196	0,004	0,070	0,158

* Correlation is significant at the 0,05 level (2-tailed criterion)

** Correlation is significant at the 0,01 level (2-tailed criterion)

Source: calculated by the authors on the basis of Russian Statistical Agency data

To explain this situation, the authors analyzed the features of activities of the regions with the best values of GRP per employee and per capita income. These regions have well developed machine building, food industry and other industries; as a rule, they have a high rate of employment. Based on this, the results can be interpreted as follows.

1. The economically active population of the Russian economy is focused, first of all, on working as employees in large companies operating in stable industries. According to the authors, the reasons for such behavior can be, firstly, unfavorable environment for business development. Signs of an unfavorable business environment include the following: volatility and high level of taxation; unavailability of financial resources due to the high interest rates on loans; high competition from big businesses; inability to compete for qualified personnel; other risks. Second, entrepreneurs' income is lower than the average wage in stable industries, so people prefer less risky and more profitable forms of employment.
2. The negative nature of the ratio between of the value of GDP per person employed and the proportion of small and medium-sized enterprises in the region can be explained by the lack of human resources, which are demanded by large-scale industries in the times of active development of the regional economy, hence a smaller number of economically active population engaged in SMEs. Labor resources are redistributed between big businesses on one hand, and small and medium businesses on the other. It is known that big business offers higher wages, good working conditions, social benefits and, therefore, attracts the most qualified workers in the labor market. In the next decade, this problem will only worsen due to demographic factors and the decline in the share of the economically active population.
3. The share of small and medium business is reduced because the large industrial enterprises in Russia practice outsourcing insufficiently. means transferring non-profile functions to suppliers. Small and medium-sized enterprises occupy, as a rule, the high proportion of those suppliers. This model is inherited from the former socialist economy, when large enterprises were created as huge conglomerates that cover related functions and the full range of manufacturing processes for the production of any product. Currently, a low affiliate discipline and other similar scourges support this model. Therefore, while creating large enterprises and developing their activities, the resources of small and medium-sized businesses are still poorly used, it means that the share of the latter in gross regional product falls.

As a result, a significant level of negative statistical relationship can be seen between the entrepreneurship development in small and medium-sized businesses and regional development

indicators. This problem could be solved by increasing the regional management efficiency. The following actions for every regional governance (the executive power) will be appropriate for entrepreneurship development: tax support for small and medium-sized businesses, expanding entrepreneurship educational programs, consulting on business efficiency, financial support of new business, the creation of a number of small businesses around large enterprises.

Conclusion

The article presents the results of a study conducted by the authors in order to confirm the hypothesis of a link between the level of socio-economic development of regions and the level of entrepreneurial activity in small and medium business. To construct the correlation-regression model a system of regional development indicators was created, reflecting all aspects of development at the first place (economic, investment, innovation, social, economic and external economic). Moreover, the system is constructed from factors, which include both indicators reflecting the region traditional resources (material, labor, financial, etc.) as well as the indicators characterizing governance, business climate, development of small and medium-sized enterprises. The model showed that entrepreneurial activity is not included in the group of factors that determine the development of the Russian regions. At the same time, we found a significant negative relationship between the level of entrepreneurial activity and two (out of five) indicators of development of the regions. This result indicates the presence of managerial problems that lead to a weak business development in the Russian regions.

In general, the results refute the statement about the leading role of small business and its impact on intensive regional development in Russia. This indicates the ineffectiveness of government measures to revitalize small and medium enterprises in the Russian economy.

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NEW WAYS TO INNOVATION FINANCING FROM PUBLIC RESOURCES IN THE CZECH REPUBLIC

Marcela Příhodová – Miroslav Špaček

Abstract

The paper deals with new approaches to innovation financing in the Czech Republic. Inasmuch SMEs are considered the key driving force of the Czech economy the government places emphasis on the development of financial instruments which would ensure an ongoing financial support of innovation. The Ministry of Industry of the Czech Republic followed up on the Europe 2020's strategy in terms of "mobilising the financial instruments" and executed several programmes aimed at innovative financing for SMEs. These programmes differ in their nature, such as subordinate bank loans provided by the state owned banks, goal-directed subsidies provided through the government institutions. Moreover The Czech government arranges financial support for institutions which is provided through the EU and national budget. The paper evaluates pros and cons of various types of government financial subsidies with respect to payback periods.

Key words: innovation financing, venture capital, private equity, R&D and SME support

JEL Code: 032, 038

1 Introduction

Small and middle-sized enterprises (SMEs) are considered to be the key driving force of the Czech economy. In order to keep sustainable growth these companies are looking for the sources of competitive advantages. One of the most important underlying factors of their competitiveness is their ability to innovate (Lewandowska, L., 2013). Companies which are able to base their competitive advantage on innovation are ranked among innovative companies. A company is considered innovative if at least one of following four criteria is met (Pisano et al., 2009):

- 1) the company has introduced new or significantly improved products (goods or services) on the market,
- 2) the company has new or significantly improved processes for producing or supplying products (goods or services),
- 3) the company has been involved in activities – including R&D activities, which are aimed at the development or the market introduction of new or significantly improved products (goods or services) that are still ongoing (I.E. not completed),
- 4) the company was involved in innovation activities similar to the aforementioned point, but these activities were untimely aborted.

The innovation potential of the company is contingent upon several factors among which the main roles are played by availability of resources (financial, human, technical and information). The other factor is pro-innovative corporate culture which creates environment that stimulates creativity, mutual trustworthiness and sharing ideas and competences. The underlying factor of functional pro-innovative corporate culture is corporate communication which is oriented both inwards and outwards. Companies should not leave behind technology base and knowledge which originates outside the company's borders. Companies which have an ambition to play roles of branch leaders should adopt flexible organization structures (matrix, network or virtual etc.) that helps them react more effectively to market needs. As for human resources to be effective in innovation process, the typology of innovation roles should be taken into consideration. Paying respect to innovation role typology, the innovation champions, leaders and sponsors should be proportionally represented (Galbraith, 1999).

From macroeconomic point of view it is advisable for the state to establish innovation policy which is aimed at the support of innovative companies. The state has to establish policy which provides start-ups and company in early development stage with legal, consultancy and financial support. Moreover, well established companies or organizations with a proven track record may benefit from a goal-directed or institutional financing innovation. It was proven that public subsidy enhances company liquidity and thus may boost the probability of a company survival (Ebersberger, 2011).

Ministry of Industry of the Czech Republic followed up on the Europe 2020 strategy in terms of "mobilizing financial instruments" and executed several programs aimed at innovation financing at SMEs. These programs differ by their nature like subordinate bank loans provided

by state owned banks, goal-directed subsidy provided through government institutions like Grant Agency of the Czech Republic or Technology Agency of the Czech Republic. Moreover the Czech government arranged for the institutions of financial support which are provided through the state budget.

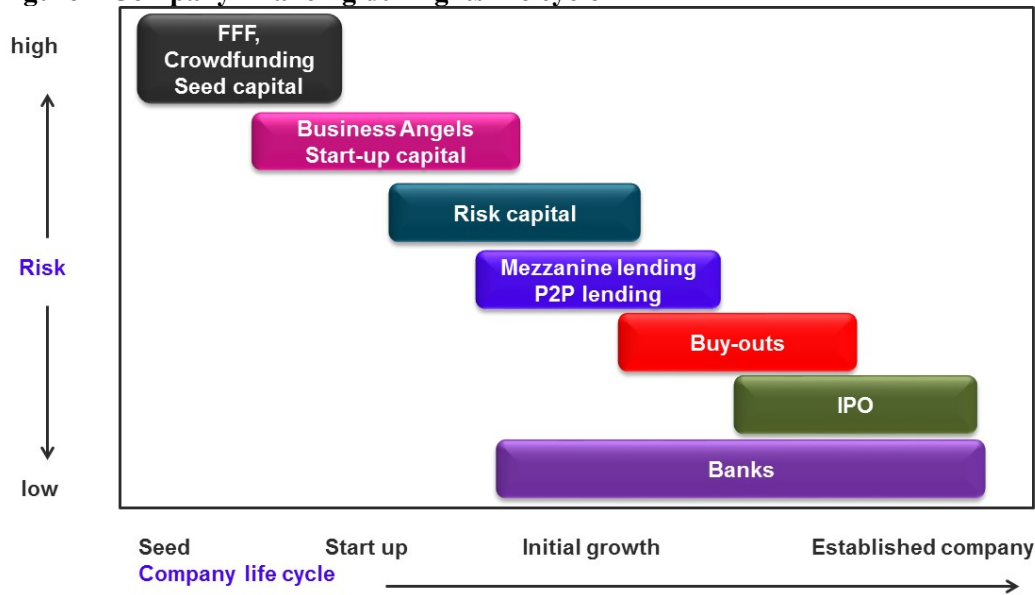
2 Research methods used

The research was based on literature search and critical comparison of methods to be used for innovation financing. The paper also uses results of questionnaire survey performed by the Ministry of Industry and Trade to find out if capital needs of innovative companies are properly saturated by the financial supply from finance providers. Furthermore a case study demonstrating the approach of the Ministry of Industry and Trade of the Czech Republic to financing innovative companies is presented.

3 Innovative company financing

An important factor of innovation is its financing. Financing is a critical issue for the survival and development of small and medium sized enterprises. Needless to say that the profit which is generated by the innovation lags behind the expenditure to innovation development. Therefore the availability of financial sources to be sufficient both for the development and commercial launch of the innovation is crucial. Moreover, innovation decisions are highly risky. Properly structured innovation financing is thus a condition for further success of the innovation. It has become apparent that an innovative company which goes through its life cycle operates with alternating risk profiles which are typical for each life cycle period. The subjects which are in charge of financing an innovative company operate with a different “*reference risk level*” (Špaček, 2009). This term can be explained as the maximum level of risk which is the financing subject or institution willing to accept. Figure 1 demonstrates possible approaches to company financing during its life cycle.

Figure 1 Company financing during its life cycle



Source: own elaboration

The most risky approach to innovation financing is FFF (Friends, Family and Fools). This approach is applied at the seed stage of the company's existence. Mostly it represents financing the plain idea because the company has not come into existence yet. Seed capital is also applicable in the rudimentary stage. As opposed to FFF, an innovative company financing through seed capital usually requires co-financing from private sources.

Company which finds themselves in early-development stage can be also financed by crowdfunding or crowdsourcing (Hossain, 2015). This approach is based on publicly announced money collection which is dedicated to a specific purpose. Individuals can freely decide, if at all or at what extent they provide investment project with financial support. Crowdfunding is thus believed to democratize both financing and the commercialization of innovation (Mollick and Robb, 2016). From the technical point of view crowdfunding is organized on electronic marketplaces which balance money supply with money demand. Crowdfunding platforms dramatically lower the costs of these campaigns by leveraging the geographic and social reach of the internet to connect fundraisers to millions of potential backers (Fleming and Sorenson, 2016). If the requested sum of money is actually raised, then the project is implemented. If not, the money is given back to investors. Through crowdfunding various innovative products like the Pebble watch, book issues or cultural events are subsidized.

Compensation of investors varies from “having a good feeling from the investment” to a direct engagement in the company. Typically acquiring the stake in the company.

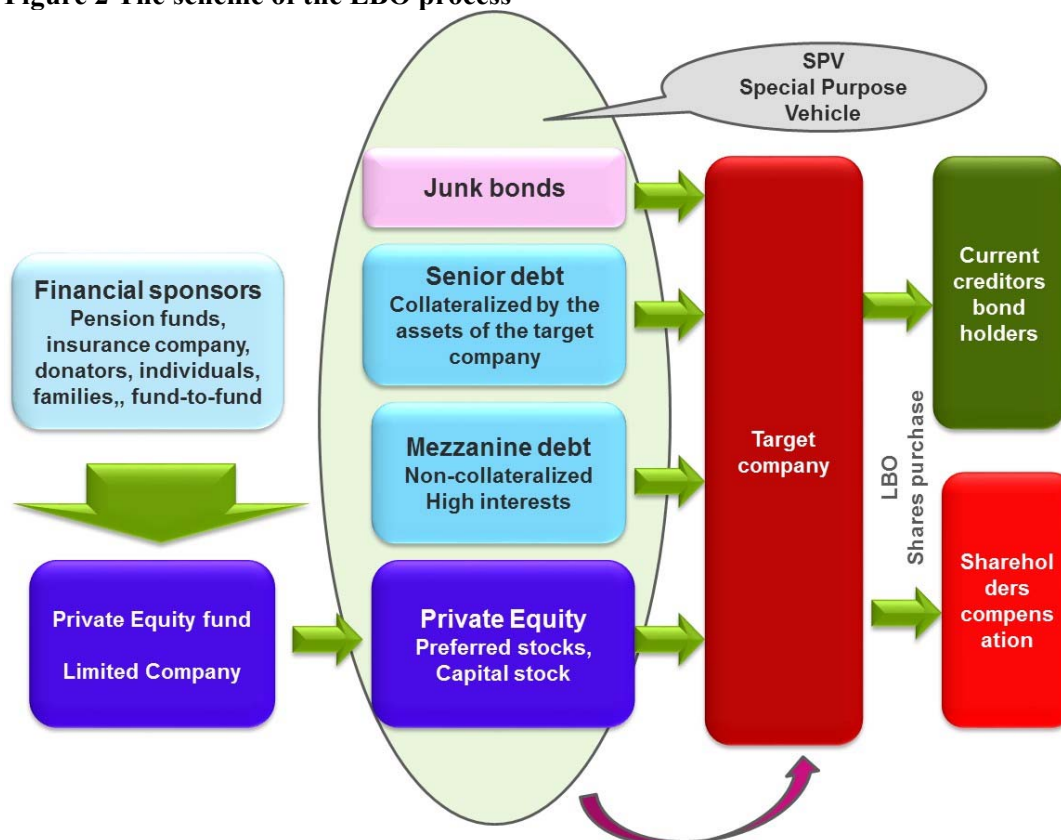
Another source of innovation financing are Business angels. They deal preferably with wealthy individuals who have had successful track record in management or entrepreneurship. They are usually able to perform a reliable assessment of an investment opportunity and quickly make a final decision. Business angels fill the gap between founders, family and friends on one side and institutional venture capital funds on the other side as a financial source. In addition to providing money they are hands-on investors and contribute their skills, expertise, knowledge and contacts in the business they invest in (Ramadani. 2009). They invest in seed, start-up and early stage enterprises in exchange for acquiring a stake in these companies. The precondition for the investment is high growth potential. Business angels secure high risk capital and are motivated by something larger than money. Even today their emotional relationship to the investment plays an important role. In the Czech Republic, business angels' investments rank from hundred thousand to several million CZK. In contrast, Amazon's CEO Jeff Bezos, who is believed to be one of the most important Business angels in USA, subsidized 11 projects at minimum 1.5 M USD each (Prive, 2013). In terms of scope of the investment Business angels cannot compete with investment funds. Business angels may operate either on individual basis or as an investment conglomerate. Some of them may be publicly known, while others are anonymous. In the meantime, some sub-categories to Business angels were developed. One of them are Founding angels (FAs) which operate on a bit different ground than usual Business angels. FAs join the startup team of a new technology based firm (NTBF), complementing the scientific members coming mainly from universities and research institutions with business expertise and scientific understanding. They make significantly fewer investments than in the case of Business angels. FAs play more the roles of a founder and an entrepreneur rather than that of an investor because of their early engagement in the venture (Festel and Cleyn, 2013).

A very effective way of innovation financing is the involvement of risk capital funds. These funds can be roughly split between Venture Capital Funds and Private Equity Funds and which mainly invest into companies listed in Stock Exchange with later stage development. The prerequisite for Private Equity or Venture Capital fund engagement in innovative company financing is a competent management and viable business plan. Venture capital is a medium-term and long term investment where the investor buys interests in an unlisted company to sell

them after the company has been successful (Lewandowska, 2013). Risk capital fund usually buys a minority stake in the target company and then pushes company management to boost the company's performance. The expected company valuation ranks between 20-30% per annum. After some period which is tentatively 4-7 years the fund exits the company and sells its stake which was in the meantime significantly revaluated to company managers (*management buy-out – MBO*), external managers (*management buy-in – MBI*) or strategic investor which can further benefit from incorporating a target company into its network (Schwienbacher, 2008). Ebersberger (2011) argues that public subsidies, when successful in fostering innovation, indirectly affects the exit of firms. Subsidized firms are significantly less likely to exit than they would be without subsidy. Moreover subsidies do not have a significant effect on the closure of firms. Subsidies for innovation do not keep innovation alive which would have to close without subsidies.

A risk capital fund can also participate in a leverage buy-out which aims at the purchase of the target company by means of using financial leverage (borrowed money). Schematic outlay of LBO process is depicted in Figure 2.

Figure 2 The scheme of the LBO process



Source: own elaboration

The LBO process works rather simply but sometimes at the border of the law. At the beginning there is a private equity fund which was established by the support of pension funds, donors or other providers of financing. Such a fund gets together with a limited company which was formed by the investors (which may include target company managers as well). They found a one-off purpose company which aims to buy a target company. This company is called “*special purpose vehicle*” (SPV). To raise money for these transactions, SPV floats a loan which is collateralized by the assets of the target company. In special cases, the SPV can issue bonds which are usually characterized by poor rating. The reason that stands in the background is that these bonds are issued by excessively indebted company. Debt burden may exceed 80% of the total company liabilities. That is why they are called junk bonds. Once a SPV raises enough money it is able to acquire the target company. At first the shareholders of the target company are compensated. In the wake of the shareholders compensation the SPV is merged with the target company and all the liabilities are transferred to a newly established company which is pushed to its maximum performance so as to repay all the debts (senior and mezzanine debt as well as to satisfy the claims of bond holders). Needless to say that banks are prone to finance LBO because they can afford to charge high interest rates. When using LBO the investors can purchase the target company even with minimum private financial funds. It stands to reason that LBO is a very risky operation, success of which is dependent on the target company's operation performance which is the condition for a timely debt repay.

Mezzanine lending is used almost preferably for further expansion of existing firms in situations when the company needs additional financing while all company assets are collateralized. Mezzanine debt is not collateralized and therefore it is very risky. Finance providers then charge high interest rates (20% or more) to compensate for excessive risks. In case of default the company may run *debt-equity-swap* so as to minimize potential losses. Nowadays peer-to-peer (P2P) lending grows in importance. This approach which leaves out the banks as financial brokers is very promising. P2P uses electronic marketplace to balance the supply and demand for money. Despite some initial mistrust to this concept, especially SMEs took fancy in this model of financing. Both parties concerned (lender and debtor) benefit from the partition of profit margin which originally belonged to bank. This inspired traditional banks to establish subsidiaries or other affiliated entities to grab a stake in this new business. The portfolio of

loans which is offered through P2P comprises one-off repaid loans, stepwise repaid loans, overdraft loan etc. *Initial Public Offering (IPO)* represents the most traditional approach to raising money for further development of the company. Notwithstanding the fact that IPO was indicated at start-ups, this approach is usually reserved for well established companies with proven track record which are able to persuade potential investor to purchase company shares. “*Going public*” as it is termed in USA is arranged through an investment banker who is in charge to prepare shares underwriting. Investment banks act as a financial intermediary for businesses and other large organizations, connecting the need for money with the source of money. An investment bank helps an organization, which may be a company, or a government or one of its agencies, in the issuance and sale of new securities. The most critical point is to determine the initial share price so as to be in consonance with investors’ demand. Any overpricing or underpricing the shares is detrimental to the company. A good investment banker should be able to place all newly issued shares by IPO date (Higgins, 2015). IPO is very costly and therefore it is advantageous preferably for big companies.

There is an example to follow in the Czech Republic. In late 1990s the biggest Czech pharmaceutical company Zentiva got together with a venture capital fund Warburg Pincus which acquired 66,6% stake. After having minority shareholders squeezed out, the stake was even increased up to 99, 25%. Upcoming expansion was financed by IPO on the Prague and London Stock Exchange in 2004. During the IPO the company sold 11.2 M pieces of shares at more than 5.5 M CZK which accounts for 30.2% stake. This stake thus became freely tradable. The rest of shares was kept by Warburg Pincus (53.9), management and employees (13.8%) and other minority shareholders (2.2%). After the IPO the company's market capitalization reached the value of 18.5 bill. CZK (Nývltová, 2007). After the exit Warburg Pincus sold its stake to the strategic investor Sanofi-Aventis in 2009. During this period Zentiva's share was valorized by 120%. Financing innovative companies by a bank loan is one of the most favorite approaches. In the Czech Republic bank loans still remain prevalent way of financing innovative companies (Kislíngerová, 2010). This conservative approach exhibits many advantages. The loan is relatively easily accessible due to the increasing competition on the Czech bank market. New banks like Air Bank, J&T bank, Zuno bank, Fio bank and others approach clients very aggressively by offering them relatively low interest rates. They are also able to slash bank fees which are considered one of the highest in EU. There is also good

experience with the Czech bank sector which went through financial crisis 2008-2012 almost unshaken (Wolf and Kain, 2006). Czech banks offer a variety of loans at conditions which can be tailored as per company needs. Moreover, Czech companies are allowed to resort to any bank in abroad to ask for a loan which increases the competitiveness of the Czech loan market.

4 Goal-directed and institutional financial subsidy of innovation in the Czech Republic.

The Ministry of Industry of the Czech Republic followed up on the Europe 2020's strategy in terms of "mobilizing the financial instruments" and executed several programs aimed at innovative financing for SMEs. The Ministry has prepared the Ex-ante Analyses for the implementation of innovative financial instruments under Operational Program of Enterprise and Innovation for Competitiveness. Nowadays there are established the suitable processing issues for providing such instruments with cooperation the EIF, EIB and other institutes. The key role will be played by national development banks as the Czech-Moravian Guarantee and Development bank. The Czech government arranges financial support for institutions which is provided through the EU and national budget.

Institutional financing provides R&D institutions with financial subsidy which is aimed at the support of their research activities. Such a subsidy targets long-term development of R&D institutions. Among the organizations which are supported from the state budget belong The Czech Academy of Science, universities and other research institutes in proportion to the results they achieved.

As opposed to the institutional financing the goal-directed financing is focused on the support of a specific project which went through a demanding selection procedure in the Grant Agency of the Czech Republic (GAČR), Technology Agency of the Czech Republic (TAČR) or respective sector of the Ministry. GAČR specializes in the support of basic research while TAČR is active in the support of applied research. Over the past ten years TAČR executed several purpose oriented programs (Alfa, Omega, Epsilon Competence centers etc.). In the past, the Ministry of Industry and Trade executed specific grant subsidies which were oriented not only on the achievement of specific R&D results but also on the strengthening of collaboration between Universities and industrial companies (TRIO program). In addition, the Ministry of Industry and Trade channeled the subsidy of innovation coming from the ESI funds (POTENTIAL - R&D for innovation, Application, Cooperation programs.)

A great deal of emphasis has been already placed on public subsidy of innovation. It was proven that public subsidy enhances innovation performance of companies (Abors-Garrigos, J. and Rodriguez Barrera, 2011). Ministry of Industry and Trade is going to set up Národní inovační fond (National Innovation Fund – NIF) which is aimed at the subsidy of entrepreneurs in the initiation stage of their business, so that they can become competitive on the international markets (MPO, 2015). By the execution of this program the Ministry of Industry and Trade pretends to become the key institution concerning the support of starting entrepreneurs. NIF is the answer to the scarcity of capital to be available for starting entrepreneurs. NIF will be investing money in parallel with the investments of a private capital that makes the acceptant of the subsidy handle this capital in more responsible way. The sense of the establishment of NIF is not to squeeze out private capital but to extend its investment possibility. NIF will be also enabled to focus on areas where private investors are not sufficiently active. Therefore NIF effectively complements on private capital investments. By 2020 NIF is determined to invest 10 M EUR per year. NIF also reckons on using both EU funds in the amount of 50 M EUR and private financial resources in the amount of 32 M EUR.

5 New approach of the EU and implications for the Ministry of Industry and Trade

InnovFin - EU Finance for Innovators - is a joint initiative launched by the European Investment Bank and the European Commission under Horizon 2020. It consists of a series of integrated and complementary financing tools and advisory services offered by the EIB Group, covering the entire value chain of research and innovation (R&I) in order to support investments from the smallest to the largest enterprise. InnovFin targets R&I-intensive industries like ICT, manufacturing, life science/health and renewable energy (Malo, 2015).

InnovFin SME Guarantee, the first and current product, targets R&I-driven SMEs and small midcaps requiring loans of between EUR 25 000 and EUR 7.5 million. A loan of more than EUR 7.5 million can be considered on a case-by-case basis.

Another instrument is the InnovFin SME Venture Capital. It is designed to improve access to risk finance by early-stage R&I-driven SMEs and small midcaps through supporting early-stage risk capital funds that invest, on a predominantly cross-border basis, in individual enterprises. SMEs and small midcaps located in the Member States or in the Associated Countries are eligible as final beneficiaries (EC, 2016).

Access to risk financing for Czech innovative businesses is one of the key factors regarding the effort to improve the status of Czech economy. Financial resources for funding via Horizon 2020 are limited and Czech enterprises have to face fierce competition amongst their European companions. The biggest added value for the needs of the Czech economy lies in the support provided to the SME instrument. Significant level of investment under SME Instrument program is needed in order to succeed at least in Phase 1 and receive €50 000 in funding for the purpose of carrying out the feasibility study. InnovFin is a very important tool for overcoming these obstacles and enabling them to continue their development. The full portfolio of the tools provided by InnovFin can be seen on the Figure 3.

Figure 3 InnovFin Product Overview



Source: (Malo, 2015)

Conclusion

The paper demonstrated the flexibility of corporate financing which is available on the financial market. It is apparent, that due to different reference risk levels to be typical for the company in the discrete phase of a company life-cycle, companies may opt between limited numbers of alternatives. The reason is that financial providers are reluctant to operate beyond some

acceptable risk level. The paper accentuates the role of the Ministry of Industry's involvement in providing financial subsidy to entrepreneurs upon the foundation of their business. Ongoing data shows that the subsidy, when provided rationally, can influence company performance towards boosting its efficiency. The establishment of NIF fills the gap in financing entrepreneurs who find themselves in the initial stages of their business.

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IMPACT OF THE INNOVATIONS ON REGIONAL GROWTH OVER TIME: DYNAMIC ECONOMETRIC MODELING

Svetlana Rastvortseva

Abstract

Technological change leads to the rapid growth of the knowledge-based economy and service industries, allowing those regions to increase their total factor productivity and to become more competitive in the global economy.

Innovations are key determinant of regional development but their impact becomes noticeable often over time. For regional policy it is important to understand in what period of time the results of innovative projects can affect on the social and economic indicators.

The role played by the innovations in economic growth was recognized and introduced into the neo-classical approach and R&D theories. We used a pooled regression model for panel data to look at the affects of innovations on regional growth over time. The empirical analysis based on a large sample of Russian regions from 2002 to 2014 supports the hypothesis that innovation can impact on economic development in just a few years.

The aim of the paper is to reflect the nature of innovation influence on economic growth in the region taking into account time factor.

It was determined that influence of patent activity on regional economic growth is positive and statistically significant with lagged value of two years, a share of highly educated employees has positive influence on the rates of economic growth after three years.

The findings of the research are useful for policy applications and policy-makers by providing them with a better understanding of the impact of innovation factors of regional growth and length of time needed for the general development.

Key words: innovations, regional economics, economic growth over time, dynamic econometric modeling, regions of Russia

JEL Code: O30, R11, O47

Introduction

Technological change leads to the rapid growth of the knowledge-based economy and service industries, allowing those regions to increase their total factor productivity and to become more competitive in the global economy.

Innovations are key determinant of regional development but their impact becomes noticeable often over time. For regional policy it is important to understand in what period of time the results of innovative projects can affect on the social and economic indicators.

The issues on regional economic growth have agitated scientists for more than hundred years. The scientific doctrines and theories which are considered to be classical require actualization and revision due to the environmental changes where the corresponding provisions shall be fulfilled. Separate factors of the economic growth, including the innovations to which significance was not given, develop momentum and require adjustments of economic models. The earlier original study showed that such innovative factors as internal expenditures for research and development, expenditures for engineering innovations, personnel capacity, involved in research and development as well as volume of innovative goods, works, services, have positive effect on economic development of the territory (which was estimated by the gross regional product index). The results of the empirical analysis show that the most significant factors for development of economics are expenditures for engineering innovations and internal expenditures for research and development. Influence of innovative activity on GRP is not statistically significant.

The results of the research also revealed that the innovations have positive influence on economic development of the regions since 2012 only.

The aim of the paper is to reflect the nature of innovation influence on economic growth in the region taking into account time factor.

1 Theoretical background and bibliography

The role played by the innovations in economic growth was recognized and introduced into the neo-classical approach and R&D theories.

Up-to-date theories of growth focus on determination of factors through aggregate modeling. From such standpoint economic development shall be considered as growth of income per capita in equilibrium. From these models, based on capital allocation, of the Harrod–Domar model type to neoclassical models of growth (the Solow model, 1957), economic development

was considered as a linear process. It was assumed that it was possible to influence on it by changing existing resources and factors both in theory and in practice. Later, in 1980s the theories of endogenous growth disputed the priority of engineering factors and underlined importance of human capital assets (Romer 1990, Lucas 1993, Grossman and Helpman 1993). At the same time neglect of engineering factors of economic growth does not allow to reflect influence of non-market processes and social and institutional indices on economic efficiency. Let us consider the manner in which innovation factors of economic growth are represented in economic literature (Table 1).

Table 1 Basic economics approaches deals with innovation and economic growth

Authors	Theory
Solow, 1956 and Swan, 1956	Diminishing returns to capital imply that in the absence of technological change, growth would stop. As empirically long-run growth does not stop, technological progress was assumed to be exogenous.
Arrow, 1962 and Sheshinski, 1967	Discoveries immediately spillover to the entire economy as knowledge is non-rival
Romer, 1986 and Lucas, 1988	Competitive assumptions can be maintained and determines an equilibrium rate of technological progress but the growth rate is not Pareto optimal. At the end, growth and knowledge can increase boundlessly.
Romer, 1987, 1990 Aghion and Howitt, 1992	R&D activities reward firms through monopolistic power. The equilibrium is not Pareto optimal, but rather one with monopolistic competition. The stock of human capital determines growth, but too little human capital will be devoted to R&D. Also, integration into world markets increases growth rates, and large populations are not sufficient to generate growth.
Gordon, 2012	The industrial revolution from 1870 to 1900 was more important than the others and was largely responsible for 80 years of relatively rapid productivity growth between 1890 and 1972. Once the spin-off inventions from the industrial revolution (airplanes, air conditioning, interstate highways) had run their course, productivity growth during 1972-96 was much slower than before. Many of the original and spin-off inventions of the industrial revolution could happen only once - urbanization, transportation speed, the freedom of females.
Promoting Growth in All Regions, 2012	Innovation can have a positive impact on long-run (ten years or more) growth.

2 The innovations and regional growth over time

At present Russian economy faces a range of external challenges. There is high dependence on global prices of *Brent* oil – it correlates with the national currency rate, complication of the

conditions of access to foreign capital markets for Russian companies – appreciation credit resources, reduction in influx of foreign direct investment in economy and many other phenomena. In this connection search for internal (endogenous) reserves of economic growth assumes critical importance.

For further consideration of the indices of economic growth it is necessary to take into account inflation factor and to put GRP into comparable prices (for example into prices of 2002). Note that the price index varies significantly among the regions. Thus, in 2002 the highest inflation rate was observed in the Krasnoyarsk Territory (18.4 %), and low one – in the Republic of North Ossetia-Alania (7.8 %). In 2013 maximum price advance took place in the Kaliningrad Region (15.6 %), minimum price advance – in the Chukotka Autonomous District (4 %). For further work we will suggest the indices of GRP, GRP per capita, labor efficiency to comparable prices – prices of 2002.

For period of 2002-2014 Russia's real total GRP was increased by 7.16 % per year on average. In 2014 the highest index of real GRP was observed in Moscow (22.32 % of total GRP of the Russian regions), the Khanty-Mansiysk Autonomous District (5.29 %), the Moscow Region (4.54 %), Saint Petersburg (4.23 %), the Republic of Tatarstan (3.07 %), the Yamalo-Nenets Autonomous District (3.03 %). In 2014 42.49 % of total production was accounted for six country-subdividing regions.

Let us consider economic growth of the regions by some indices (Table 2).

Table 2 – Real GRP, GRP per capita and labour productivity in Russian regions, 2002-2014

	Change in real GDP	Change in real GDP per capita	Change in GRP per worker (labour productivity)
Minimal growth	2,1 % (Magadan region)	3,8 % (Magadan region)	11,7 % (The Republic of Buryatia)
Maximum growth	15,8 % (Sakhalin region)	16,9 % (Sakhalin region)	in 4 times (Sakhalin region)
Range	13,7 pp	13, pp	288,3 pp
For comparison: regions of OECD countries, 1995-2005*			
Minimal growth	-1,7 % (Berlin, DEU)	-1,8 (Adana, TUR)	-3,8 % (Champagne- Ardenne, FRA)
Maximum growth	8,5 % (Southern and Eastern, IRL)	7,1 % (Southern and Eastern, IRL)	7,1 % (Podlaskie, POL)
Range	10,2 pp	8,9 pp	10,9 pp

Note: pp refers to percentage points, DEU- Germany, TUR – Turkey, FRA – France, IRL – Ireland, POL – Poland.

** Source: How Regions Grow: Trends and Analysis. Paris. OECD Publishing. 2009*

High indices of economic growth are observed in the Sakhalin Region (on average for 2002-2014 – 15.8 %), the Republic of Ingushetia (15.6 %), the Nenets Autonomous District (13.62 %), the Republic of Dagestan (12.76 %), the Tyumen Region (12.66 %). For the period of analysis 38 regions of Russia had the higher rates of economic growth than average one on an aggregate basis, 45 regions – lower than average one. Falling of the mentioned regions within the leaders can be explained by two reasons. Firstly, in a number of the regions extractive industry grows rapidly which provides high rates of growth. Secondly, the regions which had poor development have a high rate of growth.

Initial level of economic development is an important factor of growth. Up to the last decade of XX century the concept of convergence of economic growth trajectories was very popular. The conclusion from this concept consists in the fact that poor regions shall grow faster than rich ones as at a modern rate of diffusion of technologies intensification of production shall have similar rates and therefore capital-labor ratio in the regions with a low initial level shall grow faster. This assumption often comes into conflict with empirical research. Let us consider relationship between the rates of economic growth of the Russian regions and initial level of region development (let us represent it as GRP per capita) (Fig. 1).

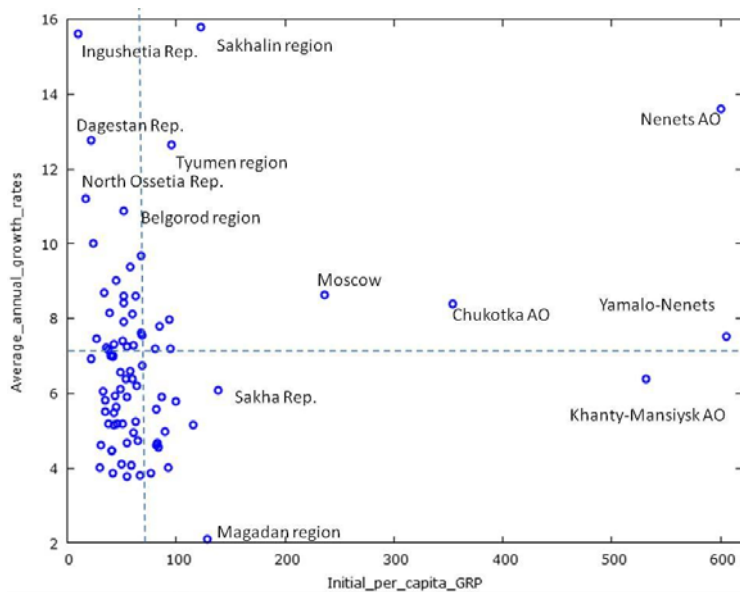


Fig.1. Initial GDP per capita and annual average growth rates in real GDP among Russian regions, 2002-2014

Quantity of obtained patents for inventions and for useful models can be considered as innovation factor in the region. Creation and patenting of inventions and useful models is the most important result of research and development. A patent for invention or useful model is a

protection document certifying the priority, authorship and exclusive right to utilization of intellectual property for the patent duration. The main source of information on submission of patent applications and issue of protection documents for inventions and useful models in Russia is the Federal Service for Intellectual Property (Rospatent).

Note that in the Russian regions inventions much oftener than useful models are patented. A share of inventions in 2002 is 73.54 %, and in 2014 it was reduced to 65.28 %. In 2014 we can qualify Moscow (33.27 % of total number), Saint Petersburg (6.85 %), the Moscow Region (6.62 %), the Republic of Tatarstan (4.57 %), the Samara Region (2.38 %) and the Sverdlovsk Region (2.37 %) as regions with maximum number of patents. Thus they are not only leading economic but also industrial centers of the country. In 2014 56.05 % of total number of issued patents is accounted for six regions.

In 2002 the geographical coverage of patent activity was more diversified – 47.83% is accounted for a share of six leading regions. As per the index the leaders were Moscow (22.9 %), Saint Petersburg (8.81 %), Moscow (6.74 %), Sverdlovsk (3.32 %), Samara (3.25 %) and Nizhny Novgorod Region (2.81 %). At large, for the analyzed period, number of patents is increased by 71.61 %, which indicates weakness of this trend of innovative development.

A share of higher education employees is one more index characterizing innovations and quality of labor. In this sphere the situation is much better: if in 2002 22.7 % of employees in Russia had higher education, then in 2014 their percent was increased up to 32.2. The most educated human resources are in Moscow – it was 50 % (2013), as well as in the Republic of North Ossetia-Alania (42.2 %), the Moscow Region (41.5 %), Saint Petersburg (41.1 %), the Yamalo-Nenets Autonomous District (39.8 %). The lowest share of highly educated employees takes place in the Jewish Autonomous Region (20.3 %) and the Chechen Republic (19.4 %).

It is worth mentioning that if across Russia a share of highly educated employees steadily grows, then in terms of regional make-up the dynamics of this index is variable. This fact evidences migration of educated population to more attractive regions.

3 Research methodology

We can distinguish three approaches to research of influence of innovations on economic growth. The first approach consists in linear modeling. In case of linear modeling we proceed from the fact that innovations and inventions stimulate increase in labor productivity and result in economic growth. Empirically, at such approach relationship between research and

development and patent activity shall be studied and then influence on economic growth shall be evaluated. The higher volume of expenditures for research the higher innovative capacity and rates of economic growth, by extension. Thus a linear model allows us to determine the key innovative factor of economic growth.

The second approach consists in overall evaluation of regional innovation system. In case of such approach innovations shall be considered as an integral part of regional development. Here, interacting institutes created in the region can attract, or vice versa, deter, generation of innovations. Capability of these institutes to act as catalysts depends on social and structural conditions created in the region. In separate literary sources a combination of such conditions is called "social filter". To the number of institutes which enable innovations in the region, we can relate arrangement of interaction between companies and institutes, finance, engineering subdivisions, legal services, research establishments, as well as relations with the regional authorities. Major drawback of such approach consists in complexity of rating of institutes to carry out empiric studies.

The third approach is also complex enough for empiric implementation. It covers diffusion and assimilation of knowledges and assumes that we can observe such spillovers in both quality and quantity. This approach is implemented at microlevel inside innovation establishments – companies, universities, research centers, regional institutes, between entrepreneurs. Internal and external interaction results in knowledge transfer and its diffusion.

We used a pooled panel data model to observe the effects of influence of the above mentioned factors on regional growth in the course of time. A panel specification has some advantages as compared to cross-sectional specification consisting in measurement of annual influence of independent variables on economic growth considering interregional interrelation and time effects.

Panel data approaches allow for lagged effects on the phenomenon to be explained, so if a particular variable, say infrastructure, takes time to have an impact because it needs to be built and used, these models allow us to pinpoint the time needed for that impact to emerge.

To use lagged values we applied the Tinbergen and Alt approach (distributed lag model). Such approach allows to determine balance between accuracy of the model (value of lag variables) and assessment quality (multicollinearity). It assumes sequential assessment of models:

$$\begin{aligned}y_t &= a_0 + b_0 x_t + \varepsilon_t \\y_t &= a_0 + b_0 x_t + b_0 x_{t-1} + \varepsilon_t \\y_t &= a_0 + b_0 x_t + b_0 x_{t-1} + b_0 x_{t-2} + \varepsilon_t \dots\end{aligned}$$

Termination of process is recommended when any of the factors at lagged variables changes the sign or becomes statistically insignificant, which is a consequence of multicollinearity. Besides, such situation, when observations are not enough for further increase of number of lagged variables, is unlikely but possible.

4 Model specifications

To assess the impact of innovation on regional economic growth over time, we will use a power-mode regression model with constant elasticity:

$$\hat{Y}_{i,t} = \alpha \prod_{i=1}^m x_{i,t-1}^{b_i}, \quad (1)$$

where \hat{Y}_t is average growth of gross regional product (GRP), predicted in the time period t ;

α is absolute term of equation;

x_i is innovative and other factors, included in the regression model;

b_i is equation parameters - regression coefficients, particular elasticity coefficient of GRP growth on investigated factors;

i is serial number of the factor;

m is number of factors, included in the model.

In linear representation the model looks in the following way:

$$\ln \left(\frac{\hat{Y}_{i,t}}{Y_{i,t-1}} \right) = \ln \alpha + \sum_{i=1}^m b_i \ln x_{i,t-1}. \quad (2)$$

As a productive indicator we denote the average growth of gross regional product for 2002-2014. Let's define factor indicators (Table 3).

Table 3 Factors of economic growth used in analysis

Factor	Theory	Indicators
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Initial level of GRP per capita	Convergence hypothesis Neo-classical	GRP per capita for the previous year
Human capital	Endogenous growth	High attainment rate: the share of the labour force with high education
Innovations	Endogenous growth	Patent intensity: the number of patents granted

Source: Own research, 2016

Basic factors which are considered to be included into the model are initial level of GRP (for 2002), number of issued patents, share of highly educated employees in aggregate number of employees involved in economy. It is also important to note that economic growth is not achieved only by means of the mentioned factors – their influence will be insignificant. Including such variables as infrastructure development level, fixed investment, human resources, etc. into the model will allow increasing determination coefficient, but at that we cannot catch the value of innovation factors for economic growth of the territory. Thus, following the task assigned in the study, we accept the following as independent variables:

Initial GRP – initial GRP in region *i* in 2002;

Patent – number of issued patents in region *i* for time period *t*;

High Edu – share of highly educated employees in aggregate number of employees involved in economy.

Value of innovations will be reflected in the model by number of patents and level of education of human resources. Value of labor will be reflected only by the index of share of highly educated employees. Value of capital was purposely not included into the model due to complexity of regional infrastructure development level assessment. Preliminary assessments show that such indicator as road density is not statistically significant at analysis of economic growth. This can be explained by immense territory of the country – in many regions roads are not basic element of transport infrastructure. Railway, sea and air transport is preferred for shipping in the regions of Siberia and Far East. Consequently, degree of the infrastructure development shall be assessed by an integral index, development of which is not included into the tasks of this study.

The data used in this study comes mainly from a Russian Federation Federal State Statistics Service, Statistical Data Book *Regions of Russia. Economic and Social Performance* for 2002-

2015. The data has been collected in 83 regions, with the exception of the Republic of Crimea and Sevastopol.

5 Interpreting the results

The results of the conducted analysis regarding modeling pair regression are presented in Tab.4.

Table 4 The results of the empirical analysis-characteristic of pair regression models

	Initial GRP per capita	Patent	High Education
b	-0,024***	-0,0007	-0,069***
R ²	0,028	0,0001	0,0198
Adj R ²	0,027	-0,0009	0,0188
F	28,08	0,14	20,01

* Significant at the 5% level

The results of the empirical analysis prove that the most significant factors for the economic growth initial GRP per capita. In order to determine the best combination of effective factors, we carry out a distributed lag model (Tab.5).

Table 5 Results of the empirical analysis (distributed lag model)

	Model 1	Model 2	Model 3	Model 4
Constant	0.19 *** (0.025)	0.18 *** (0.056)	0.17 *** (0.058)	0.22 *** (0.056)
Initial GRP per capita	-0.032 *** (0.006)	-	-	-0.028*** (0.006)
Patent – lag 1	-0.025*** (0.009)	-	-0.035*** (0.009)	-0.034*** (0.009)
Patent – lag 2	0.026*** (0.009)	-	0.034*** (0.009)	0.034*** (0.009)
High Education – lag 1	-	-0.102** (0.034)	-0.061* (0.035)	-0.045 (0.035)
High Education – lag 2	-	-0.017 (0.035)	-0.034 (0.036)	-0.028 (0.035)
High Education - lag 3	-	0.082** (0.032)	0.060* (0.033)	0.057* (0.032)
R ²	0.047	0.020	0.033	0.065
Adj R ²	0.043	0.016	0.026	0.057
F	12.83	5.14	4.78	8.0
n	783	744	706	706

* Significant at the 5% level

Thus, we constructed 4 models. Low determination coefficient takes place due to insignificant influence of the factors, selected for the analysis, on economic growth. Initial level of Gross Regional Product per capita is reflected adversely on economic growth rates. At stable statistical significance of the factor we can conclude that richer regions have indeed lower rates of economic growth than poor ones.

Such factor of innovative development, as issued patents, has no significant influence on economic growth without regard to time lags (model 2), but in case of more detailed study we can see that positive influence of the factor is significant with two-year lag. Here we shall note that patent activity of the Russian regions is at low enough level. Patents are only becoming a significant index of innovative development in the Russian regions, as procedure of patenting is only starting to take roots.

The level of population education is a significant factor of economic growth. However, we see that high share of highly educated employees positively reflects only after 3 years.

Increase of share of highly educated employees by 1 % will add 0.057-0.082 % to the rates of economic growth after three years. Increase of patent activity of a region by 1 % will add 0.026-0.034 % to the rates of economic growth already after 2 years.

Conclusion

This paper shows the nature of innovation influence on regional economic growth with respect to time factor. To use lagged values we applied the Tinbergen and Alt approach (distributed lag model). The model includes such factors as initial level of GRP (for 2002), number of issued patents, share of highly educated employees in aggregate number of employees involved in economy. Initial level of GRP per capita is statistically significant, but has an adverse effect on regional economic growth. This allows us to reach the conclusion that richer regions have indeed lower rates of economic growth than poor ones (which confirms the concept of convergence of economic growth).

Influence of patent activity on regional economic growth is positive and statistically significant with lagged value of two years. Therefore, the patents for inventions and useful models issued in the region contribute in economic growth only after two years.

The level of population education is weighty factor of economic growth, and a share of highly educated employees has positive influence on the rates of economic growth after three years.

The factors considered in the paper are not exhaustive, but the carried out analysis is enough for reflection of the fact that positive influence of innovations on economic growth of territory is not instantaneous, but takes place after 2-3 years. This allows to pursue a regional policy aimed to all-round innovative development

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SUSTAINABLY RESPONSIBLE LEADERSHIP AND INNOVATION

Mathias Schüz

Abstract

Innovation is more than invention and creativity. Most importantly, it should refer to responsible leadership since it creates wealth that might serve parts but not the whole economic, social and ecological environments. Moreover, responsible leadership is linked to the dimensions of sustainable corporate responsibility. It manifests itself in the three main types of leaders: the doer, the coordinator, and the visionary. Each type has different capabilities such as “managerial skills” of the “Knowing-How”, “interpersonal skills” of the “Knowing-Whom”, and the “reflective skills” of the “Knowing-Why”. Ideally, a responsible leader expresses all types, but can also cooperate with others complementing his/ her deficiencies in the one or the other capabilities. Thus, responsible leadership comprises technical skills (cognitive intelligence: IQ); ethical competencies (emotional intelligence: EQ); and esthetical insights (spiritual intelligence: SQ). An empirical pre-study underscores the importance of all the three aspects of responsible leadership. However, it verified them only by surveying 41 leaders and their importance for successfully taking steps of their career ladder. Other empirical studies should verify the importance of the complementing capabilities of sustainably responsible leadership.

JEL Code: M12, M14, O15

Introduction

Recent incidences such as the emission-scandal at Volkswagen or the corruption issues at FIFA have reinforced the discussion about leadership. What does it need for a leader to take on responsibility - or in other words - be able and willing to acknowledge the far-reaching consequences of a decision?

Naturally, an answer depends on how responsible leadership is defined. The common understanding of the term has changed considerably in recent years (cf. Pless/ Maak, 2011). It

has been recognised that companies no longer pay attention solely to their profitability, but also take into account the social and ecological environment. Otherwise, they would face a significant risk of damage to their reputation and brand position. For organisations, being discredited from the social and natural environment might entail consequences of enormous proportions. Furthermore, the established notion wrongly deduced from Adam Smith. The current economic, social and environmental crisis clearly indicates that the blind pursuit of self-interest is not automatically transformed into common welfare by an "invisible hand". (cf. Binswanger, 1998, pp. 47-64)

Besides technical knowledge of managerial work and social competences of co-ordinating stakeholders, the widely neglected ecological sensitivity for activities fitting into the greater whole, should become an important capability of a sustainably responsible leader. Consequently, he should possess different forms of intelligence such as cognitive, emotional and spiritual intelligence. While the first is naturally demanded and trained in business schools, and the second is more and more considered, the latter has rarely found recognition in leadership development. Since it is also a key element for innovative entrepreneurship, it should be emphasised more deeply.

Sustainably responsible leadership can support innovation when it balances and develops the mentioned intelligences and the related capabilities. Throughout this paper, the term as well as its relationship to cognitive and emotional intelligence, is elaborated on and discussed. Firstly, some reasons for reflecting sustainably responsible leadership, especially when being innovative, will be presented. Secondly, the meaning of sustainably responsible leadership will be worked out. Thirdly, a new responsible leadership model with related leadership types and capabilities will be outlined. Finally, an empirical pre-study regarding the three main competences of successful leaders will be summarised.

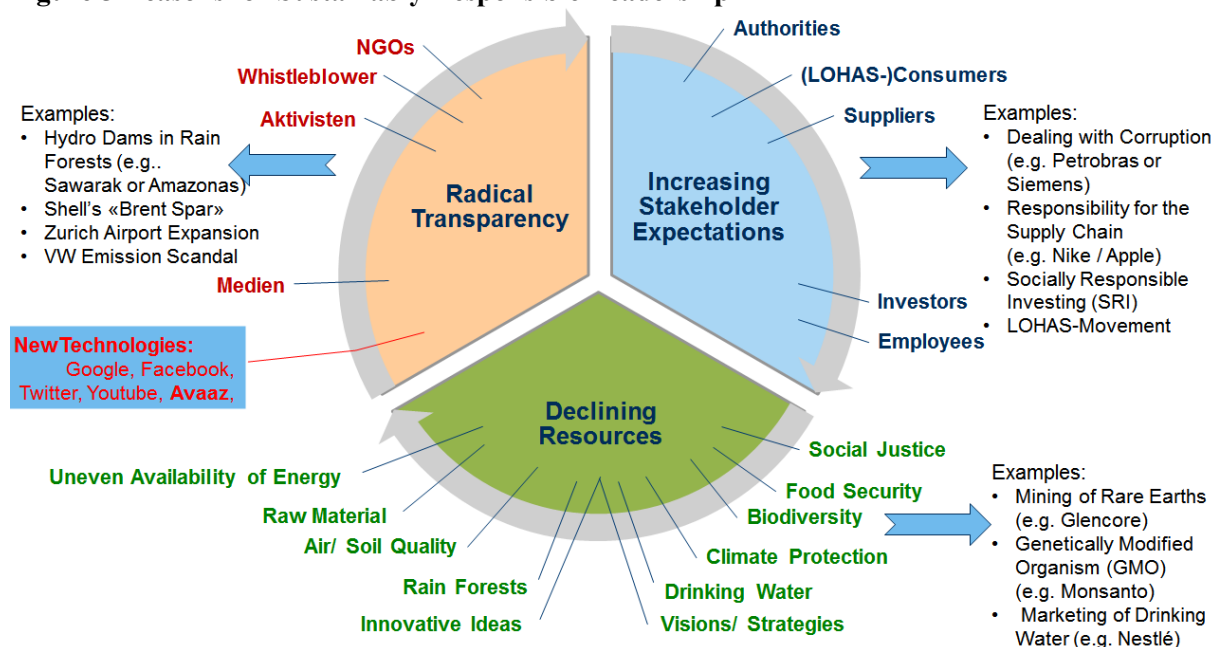
Reasons for sustainably responsible leadership and innovation

According to Joseph Schumpeter, innovation is more than invention. Like the latter, it combines "new or existing knowledge, resources, equipment, and other factors", but moreover, it has a "social function" with a commercial purpose (as cited in: Shah et al., 2015, p. 3). Peter Drucker emphasises this consideration as well. According to him, innovation firstly, creates wealth through new products or services, secondly, turns societal needs into business opportunities, and thus produces profitability (ibid. p. 4). Accordingly, creating wealth is the core purpose of

innovation. But, what does wealth mean, and for whom? Economically, wealth can be quantified as prosperity for enterprises but also for society allowing its members to earn a living. By contrast, wealth has its shadow-side, systematically destroying our environment and fostering social dislocations. Thus, innovative products and services create new challenges that can be only managed with more innovation. In this sense, wealth should also be created by offering solutions for problems threatening all living beings and future generations. Therefore, sustainable responsibility is indispensable when creating wealth.

As a rule, three main reasons compel enterprises to take on responsibility for the manifold consequences of their innovative products and services: (a) declining resources, (b) radical transparency, (c) increasing stakeholder demands. It is not only scarce financial and natural resources which have to be treated with care, but also social and mental resources. The scarcity of mental resources is an increasing challenge due to the need for new ideas to solve strategic, operative, product, and market related problems. Social resources are for example, the trust of stakeholders, which can easily be destroyed by the creation of a bad reputation, resulting from radical transparency to which companies are increasingly exposed. Disappointed stakeholders' expectations might lead to extreme compensation claims.

Figure 5 Reasons for Sustainably Responsible Leadership



Source: Author refined from Braga, 2012.

Volkswagen's emission scandal is an example. Due to the investigations of the International Council on Clean Transportation (ICCT) the fraudulent software in some of Volkswagen's Diesel motor types was identified and became public in September 2015. Although the "innovative" software created "wealth" for Volkswagen for many years, now, multibillion US\$ compensation payments for affected stakeholders might be the consequence.

Therefore, responsible leadership is requested to carefully deal with cases like this. Every wrong word might create even more resistance and higher amounts of punitive damages charged by courts. Whether Matthias Müller, the current CEO of Volkswagen, demonstrated such responsible leadership, when he recently responded to the question of an American journalist, how he would like to change the "ethical problem" connected with the Emission-Scandal, is questionable:

„Frankly spoken, it was a technical problem. We made a default, we had a ... not the right interpretation of the American law. And we had some targets for our technical engineers, and they solved this problem and reached targets with some software solutions which haven't been compatible to the American law. That is the thing. And the other question you mentioned — it was an ethical problem? I cannot understand why you say that.“ (Müller, 2016)

Even one day later, in an improved version of his interview, Müller was not able to respond to the blame of an ethical problem adequately. Obviously, he did not understand what is meant by the term "ethical". In contrary, he saw the reason of the technical problems in misunderstood US-laws.

Müller's lack of understanding of ethical issues is a widely spread phenomenon even within top-management. Ethical leadership is often demanded but rarely delivered (cf. Brown/Treviño, 2006). What does ethics mean? According to a simple definition, ethics deal with the "getting along well with each other" (Schüz, 2012). But, with whom should firms and leaders get along well? Obviously, they should get along well not only with the shareholders, but also with all groups affected by their activities – in our example at least with all VW customers who bought an environmentally friendly car, shareholders who invested in VW, environmentalists who trusted in VW's promise of low emission motors, governments granting tax concessions and now, see themselves having been cheated. For them, VW has acted unethically. With hair-splitting excuses, they see reinforced in their opinion.

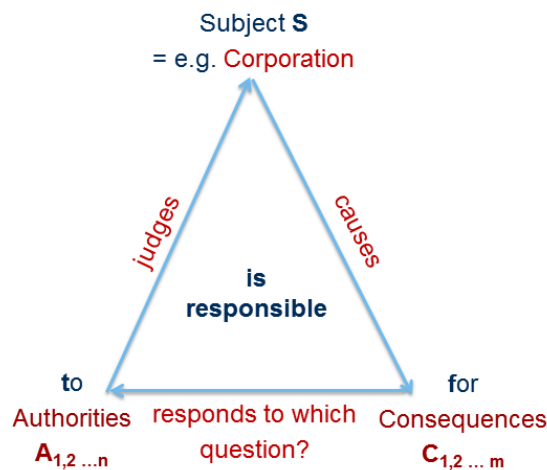
Such behavior might lead to a significant increase of the expected punitive damages. Consequently, it is economically reasonable to take on ethical responsibility and to get along better with all concerned as quickly as possible. But what does responsible respectively ethical leadership mean?

Generally speaking, responsible leadership deals with the question to whom and for what leaders are responsible (Pless/ Maak, 2011, p. 4). Nicola Pless defines responsible leadership as a “relationship between leaders and stakeholders” with the purpose of “achieving sustainable values creation and social change” (2007, p. 438). In order to specify sustainably responsible leadership we refer first to the model of sustainable responsibility and then combine different leadership types with it.

The model of Sustainable Responsibility

According to Schüz (2012), “responsibility” is a concept of action that justifies all the consequences $C_{1...m}$ of a subject’s action towards authorities $A_{1...n}$, who might bring the acting subject to account. It responds to their question: What have you done? What are you doing? What will you do? In a business context we can identify such authorities with all stakeholders who might blame the responsible subject.

Figure 6 The Structure of Responsibility

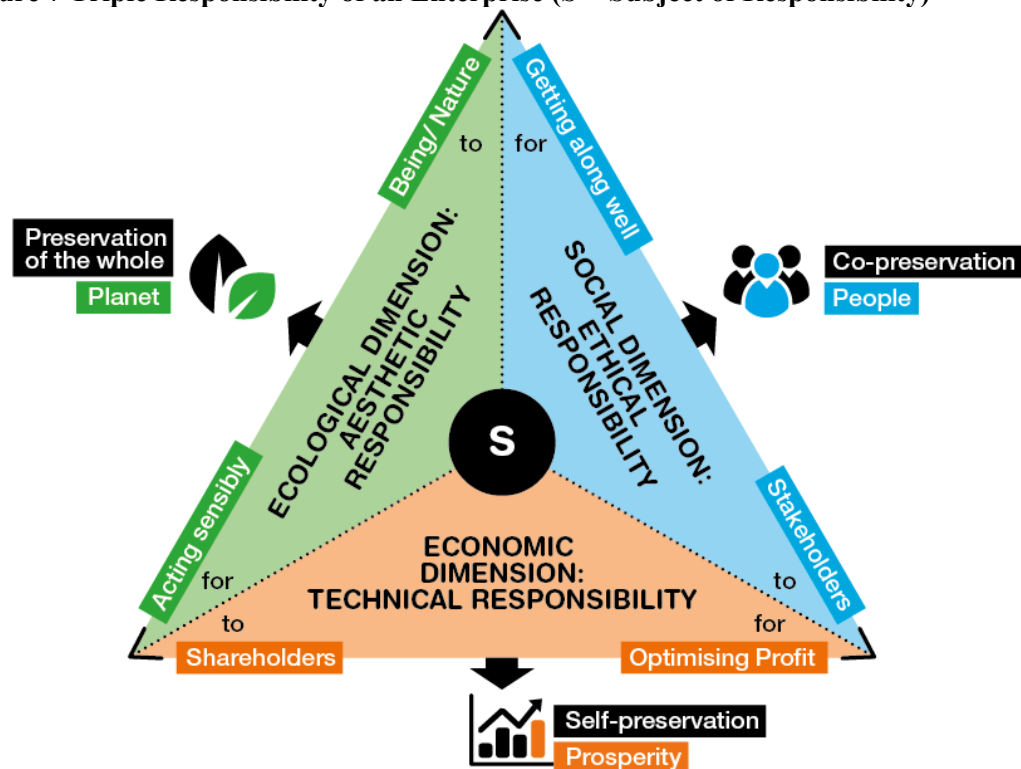


Source: Author, cf. Schüz, 2012, p. 9

Consequences to be justified can be economic, social or ecological. They can be intentional and non-intentional. They might be questioned by different authorities representing the economic (e.g. shareholders), social (e. g. consumers, unions, government) and ecological sphere (e. g.

WWF, Greenpeace, nature itself). These authorities might raise questions regarding a company when it is responsible e. g., for a catastrophe such as the oil spill in the Gulf of Mexico caused by BP. The former CEO, John Hayward, had to respond before the US Congress regarding BP's corporate misconduct. Not only due to his "ineffective" and "flat apologies" his handling of the crisis was assessed as "disastrous". A responsible leader should act differently (cf. Wakeman, 2010). He should serve not only for prosperity, but also for the people and the planet.

Figure 7 Triple Responsibility of an Enterprise (S = Subject of Responsibility)



Source: Author, cf. Schüz, 2012, p. 10.

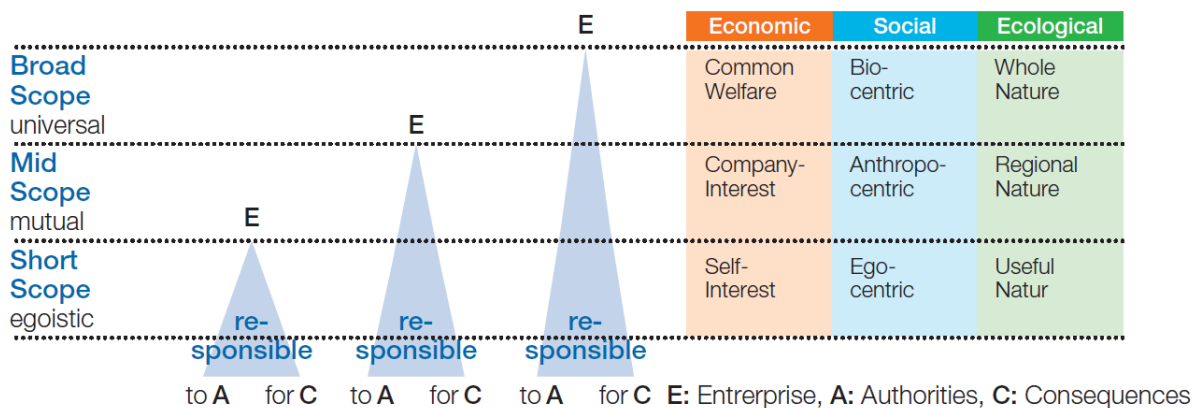
Aside from the economic, social and ecological dimensions, sustainable corporate responsibility also encompasses the time dimension. Thus, sustainable corporate responsibility is the skillful use of valuable responses satisfying the natural, social and economic environment. It responds to the following questions:

1. Is my action or decision economically useful?
2. Is my action socially acceptable?
3. Is my action ecologically sensible?
4. Is my action sustainably beneficial for future generations?

A responsible leader has the capability to justify the consequences of her/ his activities towards different authorities such as shareholders, customers, suppliers, the public and other interest groups, but also to nature and future generations.

Furthermore, different scopes of responsibility can be identified. The scope of economic responsibility might stretch from egoistic success to universal objective, which means it can serve just the self-interest or also the common welfare. Social responsibility can encompass ego-centric to bio-centric interests, while ecological responsibility can serve a useful part of nature, or nature as a whole. (Schüz, 2012, S. XXX)

Figure 8 Scopes of Corporate Responsibility

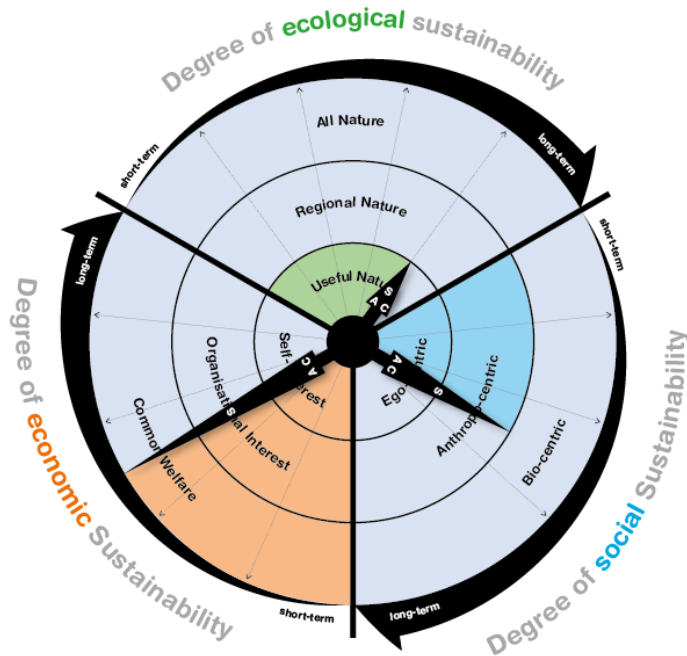


Source: Schüz, 2012, p. 11.

The time-dimension of responsibility refers to the globally accepted definition of “sustainability” developed by the Brundtland-Commission (1987): “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” Obviously, this means: “Sustainable development should satisfy current requirements so that future generations are not disadvantaged.” It is not specified whether future generations covers future generations of mankind or also of all living beings. Moreover, it does not postulate concrete measures how not to disadvantage future generations. For our model of *Sustainable Corporate Responsibility* (SCR), it was a challenge how to combine the time dimension with the three space dimensions of responsibility. A clock with three clock-faces was the solution. They represent the three dimensions of economic, social and ecological responsibility. Each face is indicated by a clock-hand representing the triangle of responsibility (subject S, consequences C and authorities A). Its related length indicates the scope of responsibility. The model allows drafting how far an enterprise has announced and/ or

realized sustainable corporate responsibility (SCR-profile). The new model of Sustainable Corporate Responsibility can be outlined as following:

Figure 9 The model of Sustainable Corporate Responsibility (SCR)



Source: Schütz, 2012, p. 12

Which type of responsible leadership induces this SCR-model? Which capabilities should a leader provide in order to take on his responsibilities holistically? The following chapter answers these questions.

Types of Responsible Leadership

Leadership might be as old as mankind. It has been reflected since ages (Bass, 1995). Even the issue of “responsible leadership” is not new. In a letter to his younger brother Quintus, Marcus Tullius Cicero (106 - 43 v. Chr.) admonished him to fulfill his leadership task as governor of the Roman province Asia responsibly: „Everyone exercising power about someone should direct his total thinking and acting towards conveying the maximum of happiness to his followers.” For their benefit and utility, he is bound “to serve those for whom he took on responsibility” – be they citizens, slaves or even the cattle (translated as cited from Nickel, 1992, p. 735). In contradiction to the classical top-down perception of leadership, where the followers serve the leader, Cicero outlined a concept of “servant leadership”, where the leaders serve the followers, as Robert K. Greenleaf worked out in detail 1977 - centuries later (2002).

But responsible leadership is more than just serving the followers. As Maak and Pless state, its “central motivation is not to *serving* others but rather *responding* to others’ interests and needs, including those of outside stakeholders and society at large” (2011, p. 7). According to the SCR-model, a responsible leader responds to the needs of all concerned – even to the needs of the whole nature and future generations – for the intended and unintended consequences of his activities. Thus, a responsible leader serves neither exclusively for his self-interest nor alone for the interest of his followers but, complementarily, serves the greater whole. As Maak and Pless recognize, responsible leaders “mobilize others to serve, engage in, and support objectives tied to a mutually desirable social purpose” (2011, p. 7) and, it should be added, to the basis of life. In short, responsible leaders occupy themselves for the prosperity (economy), the people (society), and the planet (nature).

Responsible leadership can be divided into three dimensions (see figure 6). Three types of leaders can be related to these dimensions: the doer, the coordinator, and the visionary (cf. Jetter/ Strotzki, 2008, S. 43 f). One can link them with different areas of knowing: the knowing-how, the knowing-whom and the knowing-why (Arthur et al., 1995, p. 10). Moreover, they are connected with different intelligences (cf. Gardner, 2011) and skills: “managerial skills” (Katz, 1974), “interpersonal skills” (Rungtapiyakarnchai, 1999), and “reflective skills” (cf. Schon, 1983; Laughran, 2002; Roberts, 2008).

The Doer

The *doer* is the classical manager “doing the things right” as Drucker once stated (2007, p. 2). He is a “transactional leader” (Burns, 1978) who motivates his followers to fulfill the given objectives. The first dimension describes the functional, or “knowing how” part. This means, the doer possesses technical knowledge of how to manage a company successfully. Arthur, Claman and DeFillippi state that this form of competency can be expanded through formal learning (e.g., at school or self-study) and practical ‘on-the-job’ experience (1995, p. 10). Gulik’s (1936) POSDCORB abbreviation (Planning, Organising, Directing, Coordinating, Reporting, Budgeting) summarizes the typical work of a doer. Since he normally works as an agent for a principal, he manages all things prescribed by the latter neglecting how meaningful they are. The acquisition of knowledge is associated with cognitive intelligence (IQ) and “managerial skills” which enable to transform theory into practice and to use their acquired knowledge in daily work tasks (as cited in Javadin, Amin / Ramezani, 2010, p.171).

The Coordinator

The *coordinator* or integrator transforms the relations to the different stakeholders. As a “transformational leader” (Bass/ Avolio, 1994), he co-ordinates and cultivates the “network of stakeholder relationships.” (Maak/ Pless, 2011, p. 9) In this social dimension, a leader should know how to interact with stakeholders ethically, which is attributed to the “knowing whom”. He does not only coordinate his direct followers within the organisation, but all internal and external stakeholders. He should be able to deal with diversity and different belief systems, and to act ethically and empathically towards the others. In other words, he should act as an “ethical leader” (Brown/ Treviño, 2006). This in turn, can be attributed to emotional intelligence (EQ), as it is described by Daniel Goleman et al. (2013), and to “interpersonal skills”, in order to develop a meaningful dialogue with important stakeholders, through careful listening, empathy, and compromising agreements (Wilson et al., 2006, p. 26). **The Visionary**

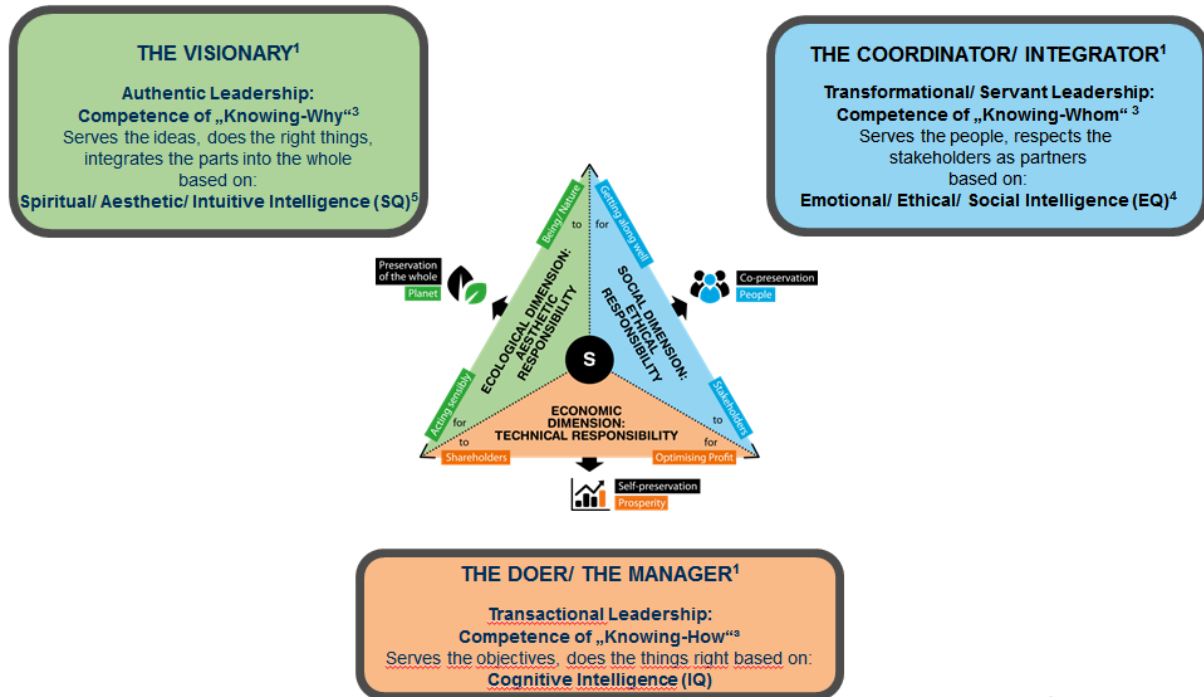
The visionary is expected to also pay attention to the ecological dimension. The vision should outline new forms of survival. Vision-building is a result of extensive deployment of one’s senses, hence, can be described as an esthetical answer of “knowing why”. Accordingly, the visionary should be capable of weighing the consequences of his or her actions towards society, nature, and future generations. The visionary (cf. Nanus, 1992) inspires his network for the vision of a desired future giving to their activities direction. Without such a direction, all the other activities of an organization might be arbitrary. Visionary leaders are “open to new information”, possess “mental mind’s eye”, are “highly sensitive”, make “good predictions”, have a “vivid imagination”, “strong conviction”, and a “quality of persistence” (Turner, 2013). According to Arthur et al. (1995), the “knowing why” competency is based on personal beliefs and values (p. 9).

This sense for responsibility is linked to spiritual intelligence (SQ) which has been researched for the last two decades (Zohar/ Marshall, 2001; Emmons, 2000; Vaughan, 2002). It should be clarified, that the term “spiritual” is not equal to “religious”. The term itself stems from Latin “*spiritus*” which means “breath”, “energy”, “inspiration”, “mental condition”. Our breath connects our inner with the outer world. It keeps us alive. Furthermore, it inspires us to find our niches of survival. “Spiritual leadership” is more than a form of Christian entrepreneurship as some publications induce (cf. e. g. Sanders, 2007). It is rather the source for one’s quest for meaning in life, insight into oneself, and interconnectedness with the world and other beings as

Zinnbauer et al. (1999, p. 895) point out. In the context of ecological responsibility it comprises also esthetical and intuitive capabilities which allow to intuitively see opportunities for problem solutions.

Furthermore, the visionary has “reflective skills”, which allow dealing with complexity and "understanding of both internal organizational relations and external social, economic, environmental and cultural dynamics“(Wilson et al. 2006, p. 22). “Self-reflection” and “self-awareness”, hence self-leadership (cf. Furtner/ Baldegger, 2013), is also required, because they disclose hidden motives of self-interests that might suppress decisions serving the whole. Therefore, a visionary should also develop “authentic leadership” which refers to one’s self and its intuitive force of imagination (cf. Luthans/ Avolio, 2003).

Figure 10 New Model of Responsible Leadership



Source: Author

Only a balance of these three dimensions of responsible leadership can lead to sustainable success since they provide complementary aspects to solve complex problems in our world. Hence, neglecting one of the aspects may weaken the effectiveness of leadership and eventually result in damage also to business. It does not matter whether the different types are connected in one person or divided over a team of responsible leaders. But they should all be represented

and respected: in the innovative enterprises as well as in all the other more traditional companies.

Combinations: Charismatic, Traditional, and Pragmatic Leaders

Responsible leaders might also be combinations of the basic types. For example, a visionary who is also a great coordinator transforming his followers and inspiring all the external stakeholders might be seen as “charismatic leader” as described by Max Weber (1980, pp. 140-148) and Conger & Kanungo (1988). The combination of a visionary and a doer might result in a “pragmatic leader” well characterized by Jim Collins as a Level-5-Leader (Collins, 2001, pp. 17-40). The combination of a coordinator and doer is the basis of a “traditional leader” (Weber, 1980, pp. 130-140) whose original top-down management is nowadays evolving into a collaborative approach. They engage in optimizing the followers’ capabilities for the fulfillment of the corporate objectives.

Whether these complementary capabilities are actually deployed in sustainably responsible leadership activities has not yet been verified empirically. However, a pre-study initiated by this author and executed in a research paper at School of Management and Law of ZHAW (Serratore, 2012) provides a first glimpse regarding their importance for career development. Capabilities important for successful careers suggest also being relevant for sustainably responsible leadership creating wealth through innovative products and services. Therefore, the results of the pre-study will be summarized briefly in the next section, with an emphasis on interpersonal and reflective skills.

Empirical Pre-Study for Capabilities of responsible leaders

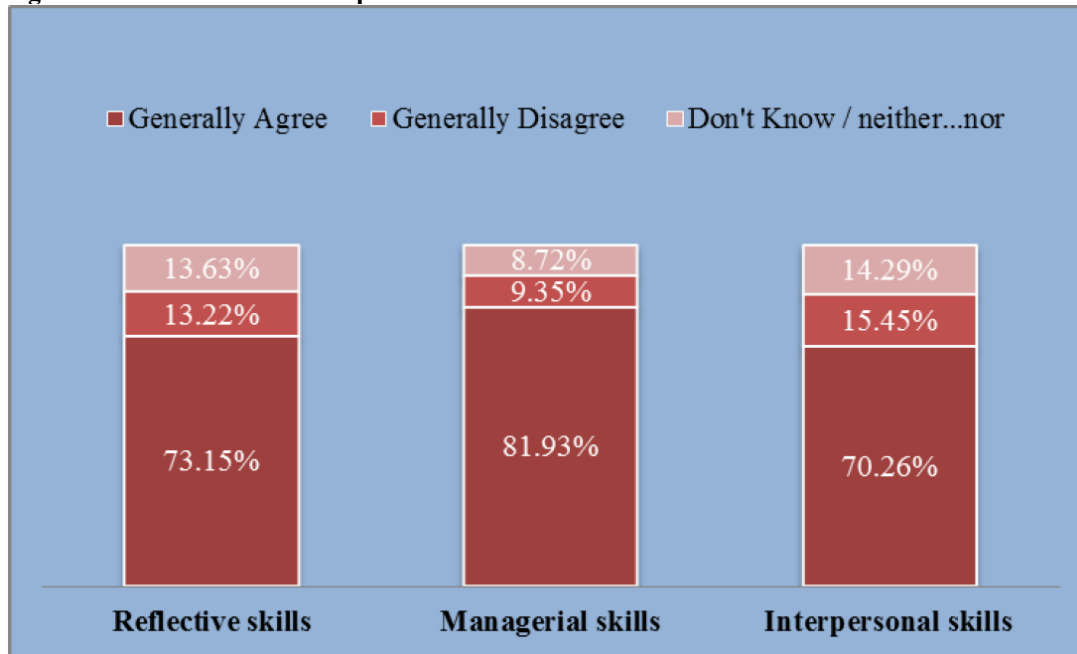
The paper in question examined which capabilities successful leaders assess as key drivers for their career. In the study, 41 executives (13 Top Management, 16 Senior-level, 12 Junior level) from different branches were surveyed and questioned what factors they see as critical for their successful careers (Serratore, 2012, p. 38). The survey confirmed the triple-fold aspects described above. More than 70% of the participants stated that the following three competencies were important for their career outcome:

- importance of expert knowledge (managerial skills, generally agreed by 81,93 %),
- importance of a good network of relationships (interpersonal skills, generally agreed by 70,26 %),

- importance of orientation-knowledge (reflective skills, generally agreed by 73,15 %).

Over 10% did not know whether all three factors were necessary. The remainder disagreed on the importance of the respective factors.

Figure 11 Results of Core Competencies for Careers.



Source: Serratore, 2012, p. 42.

Most of the respondents agreed (above 80%) that high managerial skills gained through education, previous experiences and performance are important preconditions for good careers. However, the high rates of interpersonal and reflective skills are also seen as important as well. This result indicates that leaders do not trust only in their technical expertise and in their good relationships, but also in their inner attitude towards the outer world and their self-reflection. They indicate that leaders also see themselves as responsible leaders who trust in their intuition and feel committed to ethical behavior. They also demonstrate a variety of “virtuous leadership” pointed out by Kim Cameron (2011).

Interpersonal Skills

The high level of agreement with statements for interpersonal skills demonstrates a commitment to ethical values and virtues. Successful leaders do care about others’ feelings, try to treat others fairly, have empathy and build relationships.

Figure 1 Statements for Interpersonal Skills

	Reflective Skills	Generally Agree
1	My promises can be trusted.	90.20%
2	I know how to handle myself in different social situations.	85.40%
3	I really enjoy being a part of a group. / I take care about my relationships.	80.50%
4	I share my success with others.	75.60%
5	Even if I do not like someone, I treat him or her fairly.	73.20%
6	Compromising is an important part of who I am.	65.80%
7	I am always willing to take risk to establish a relationship.	63.40%
8	I go out of my way to cheer up people who appear down.	60.90%
9	I try to add some humour to whatever I do.	60.20%
10	I am good at sensing what other people need.	58.60%

Source: Author according to Serratore, 2012, p. 48

In committing to these statements the respondents also relate to ethical virtues including: acceptance, accountability, caring, compassion, cooperation, empathy, friendliness, helpfulness, honesty, integrity, justice, openness, reliability, tact, tolerance, and trustfulness as described by Popov et al (2006).

Reflective Skills

Since the “reflective skills” are the most neglected in training programs, the graph below presents an overview of this dimension. The reflective skills are carried out with following statements:

Table 2 Statements for Reflective Skills

	Reflective Skills	Generally Agree
1	I live my life with joy and optimism.	90.30%
2	I am flexible and adapt to meet the needs of the situation.	87.80%
3	I am aware of my surroundings and quickly recognize opportunities.	82.90%
4	I always identify reasons for my actions.	80.50%
5	I accept life and people as presented without having to change them.	80.40%
6	I recognize my opportunities and know how to make use of them.	78.00%
7	My intuition tells me when to change my life.	65.90%
8	I was oftentimes lucky	65.80%
9	I act responsibly to help the social and natural environment.	61.00%
10	I sacrifice my personal ego and do what best serves others – even strangers.	60.90%
11	I am searching for meaning and purpose in my life.	41.40%

Source: Author according to Serratore, 2012, p. 46

Commitments to such statements imply a developed mental or spiritual virtue (Aristotle: “dianoetic virtues”) such as beauty, commitment, contentment, creativity, detachment, devotion, enthusiasm, excellence, faith, gratitude, hope, humility, idealism, independence, joyfulness, mindfulness, self-discipline, unity, and wisdom as described by Popow et al. (2006). Furthermore, the statements reveal to what degree the respondents rely on factors like intuition, luck, joy or optimism. Those capabilities are vital when it comes to perceiving “windows of opportunity” that allow for new ideas, business opportunities, positions or career steps to be realized. Regardless of what origin “good luck” is, if opportunities are not seized, they disappear as fast as they arose.

The ancient Greeks related the “windows of opportunity” to a god named “Kairos”, who also symbolizes the “right time”. They portrayed him as a winged man whose hair grows only on his the front of his head but not on the back. This represents luck, which appears very fast. If one is not able to “grasp the opportunity by the forelock”, the hair slides off his skinhead to the back. By hesitating too long, fearing or reflecting the pros and cons one might lose the chance – be it a new career opportunity or an innovative idea.

Figure 12 The Greek God of Opportunity: Kairos



Source: Author designed by Hilde Hof.

Conclusion

Innovations that serve the social and natural environment are dependent on sustainably responsible leadership. Responsible leaders should develop their capabilities in regard to managerial, interpersonal and reflective skills. While the first is extensively taught in business

schools and the second is often fostered in leadership development programs, the third is rarely considered - if at all.

Therefore, it is a key issue to develop aside from ethical virtues also mental or spiritual virtues. These capabilities facilitate breaking new ground. Even if one acts according to rational reflection it can bare quite significant risks. However, at this point a highly developed intuition comes to play and indicates whether presented chances are serious "windows of opportunities". It is exactly this intuitive expertise that is demanded from present responsible leaders. They should be able to navigate in a highly dynamic and complex world and make decisions in uncertainty. Such decisions cannot be based on cognitive and emotional reflections alone. The later, especially is important for creating an atmosphere that employees appreciate to work in and increases efficiency and effectiveness significantly as Daniel Goleman, Richard Boyatzis and Annie McKee worked out in their "Primal Leadership" (2013). Cognitive and emotional intelligence are necessary, but not sufficient. The capability of "trained intuition" is complementary to them.

Evidently, intuitions that cannot logically be derived from pre-knowledge are often called spiritual experiences. Being open to them is a sign of spiritual intelligence. It can be defined as the capability of being sensible for the meaning-giving opportunities in our inner and outer life and allows changing situations and finding niches of survival creatively.

Danah Zohar and Ian Marshall associate different capabilities with spiritual intelligence, such as (Zohar/ Marshall, 2001, 15):

- Self-awareness: Knowing what I believe in and value, and what deeply motivates me
- Spontaneity: Living in and being responsive to the moment
- Being vision-led and value-led: Acting from principles and deep beliefs, and living accordingly
- Holistic thinking: Seeing larger patterns, relationships, and connections; having a sense of belonging
- Field independence: Standing against the crowd and having one's own convictions
- Humility: Having the sense of being a player in a larger drama, of one's true place in the world
- Tendency to ask fundamental "Why?" questions: Needing to understand things and get to the bottom of them

- Ability to reframe: Standing back from a situation or problem and seeing the bigger picture or wider context.
- Positive use of adversity: Learning and growing from mistakes, setbacks, and suffering
- Sense of vocation: Feeling called upon to serve, to give something back

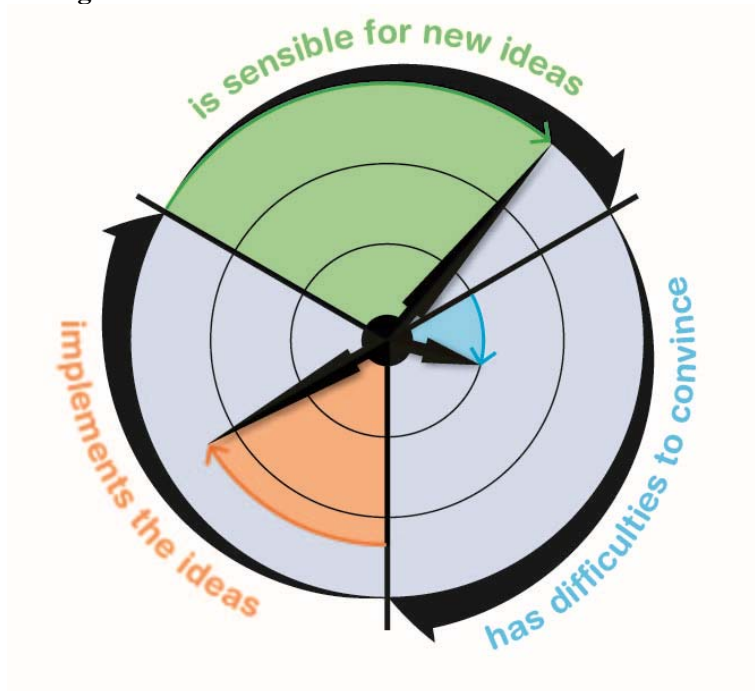
Surely, the question of whether and how spiritual intelligence can be trained arises. In addition to the East and West traditions, offering a variety of methods for self-reflection such as meditation, contemplation and various Yoga methods, there are also art, outdoor experiences, and different deep psychological methods initiated by Carl Gustav Jung or Viktor Frankl.

Which path one might take to develop sensibility for the inner and outer world, depends on the personal psychological type. According to Jung there are thinking, feeling, sensing and intuitive types each with intro- or extraverted access to their environment. (Jung, 1993) They approach to the world differently and, thus, develop themselves differently. Dannah Zohar and Ian Marshall related different methods of “inwards movements” such as fulfilling duties, nurturing others, understanding more deeply, transforming own personality, integrating in a brotherhood, living servant leadership or centering oneself. (Zohar/ Marshall, 2001, pp. 225-275).

Developing spiritual intelligence results in sustainably responsible leadership. Their value for successful business activities cannot be denied any more. Therefore, the mentioned forms of exercises should also be offered within organizations in order to elevate the level of consciousness of all its members. This would serve the integration of companies’ activities within the greater whole of society and nature.

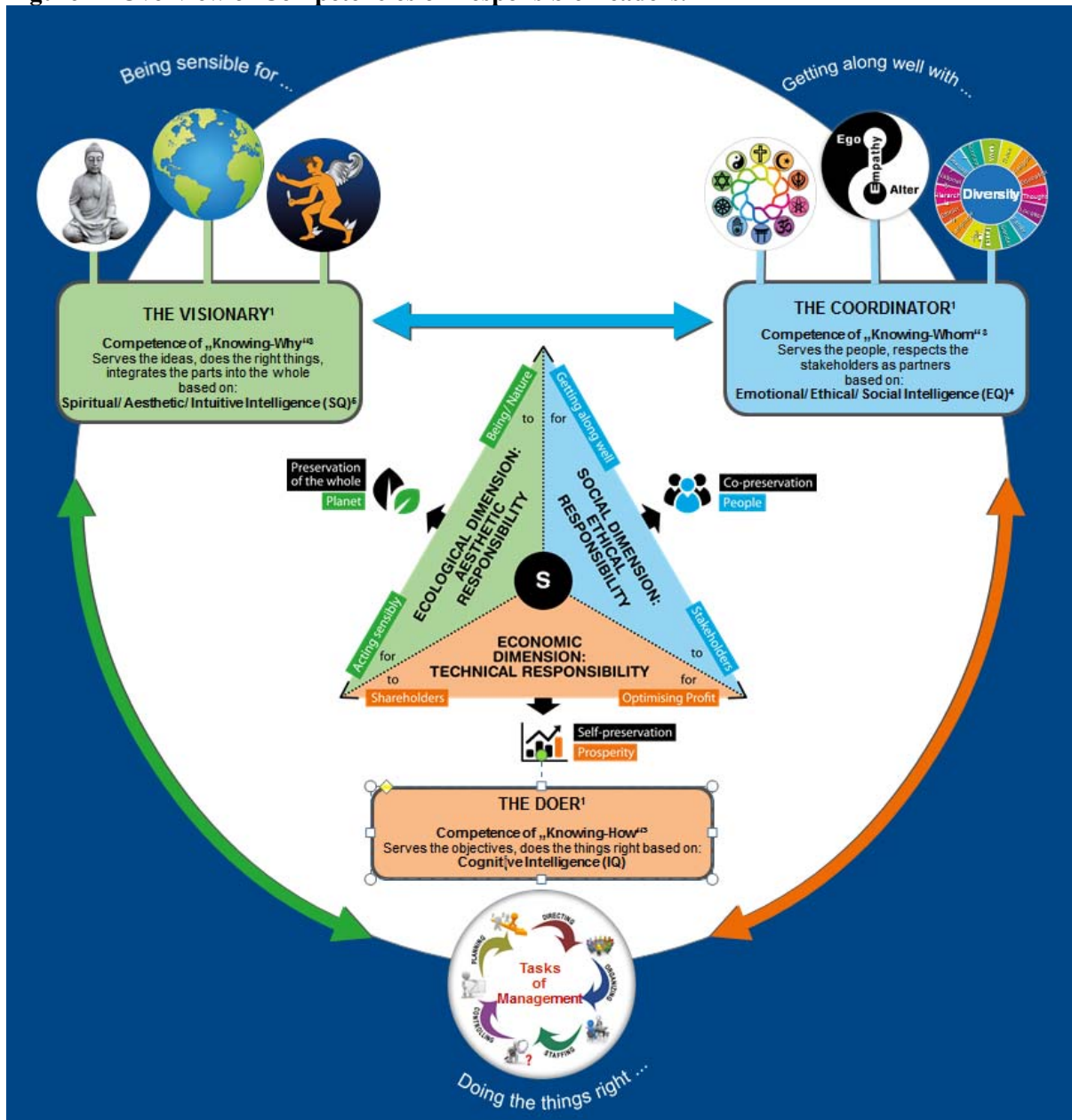
On the other hand, without developed managerial and interpersonal skills the spiritual leader might not find the people and the management resources implementing the ideas in an innovation. His leadership profile might look like in Fig. 9.

Figure 13 Typical Profile of a Responsible Leader: Strong visionary with interpersonal but few managerial skills



Source: Author

Figure 14 Overview of Competencies of Responsible Leaders.



Source: Author

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CUSTOMER-ORIENTED APPROACH IN RETAIL NETWORKS MANAGEMENT

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Abstract

Background: Despite the diversity of theoretical and methodological approaches to the formation of customer focus in the management of companies, theoretical and methodological provisions are necessary, including approaches to the management of consumer value of trade service, assessment of efficiency of trade networks, personnel management system, which allow us to implement customer-oriented approach in the trading networks taking into account specifics of trade service.

Methods: In this article, based on comparative analysis and sociological study, the analysis was carried out as to 5 trading networks in Russia and Moldova.

Results: The customer value of trade service, including the value of goods and the terms of its acquisition are identified; the key benefits and costs for the buyer are disclosed, when purchasing the trade service; the strategies of retail network development are determined in application to each level. The problems constraining the development of customer focus are identified in the Russian and Moldavian trade organizations, including the weak awareness and lack of understanding the customer focus from management and staff, lack of qualified personnel, high turnover of line personnel, lack of necessary knowledge and experience of the staff. The organizational and economic support has been developed to assess the efficiency of retail networks on the basis of customer satisfaction. The new method for negotiations in services is based on meeting the most individual needs of potential buyer.

Key words: retail networks, client-oriented approach, value of trade service, efficiency, strategies of development

JEL Code: M31, F23

Introduction

The economic, social and democratic reforms in Russia reinforce the processes of globalization, including the retail marketplace. Nowadays, on the Russian market it's common to find major international companies, operating modern technologies of winning and keeping customers. In such conditions when the competition increase, Russian companies that mostly implemented assortment and pricing strategies are forced to seek new management approaches, unreachable for competitors that permit the achievement of long term competitive advantages. World experience of development of services shows that one of the most effective management technologies became the customer-oriented approach. Particularly successful when implemented in the areas where the competition for the buyer is the most acute: banking, insurance and telecommunication fields. Because of this, modern, scientific researches are mainly customer-adapted to these areas and do not address particularities of a specific organization.

Despite the variety of theoretical and methodological approaches to the formation in the management of companies that are customers focused, the need of theoretical and methodical know how, including approaches to the management of the consumers value of trade services, evaluation of the efficiency of a trade network, human resource management system, permit to implement the customer-oriented approach in the trading network with specific trade services. Theoretical aspects of the client-oriented strategy are reflected in the works of R. Ackoff, A. K. Anderson, R. Best, P. Brown, H. Wiseman, P. Doyle, P. Drucker, G-G Lambeo, George MIKitarian, F. Kottler, R. Koch, T. Levitt, H. Mintzberg, John. O'Shaughnessy, Michael Porter, M. Stone, K. Sewell et al.

Highly appreciating the contribution of scientists in solving the problems of management of development of the trade networks, it should be noted that the organizational and economic aspects of management based on customer focus, remain poorly understood. The relevance and practical importance of continually increasing of the problem, determined the choice of the theme, the object and the subject of study.

The purpose of the study is to develop an organizational and economic support for the effective development of trade networks based on customer oriented approach.

Following the purpose of the present work we will try to solve following set of interrelated tasks:

-explore and systematize the theoretical principles that characterize the nature and specifics of client-trading networks; establish the value of services in retail, to develop a definition of customer oriented specific trade services;

-summarize existing theoretical, methodological and practical achievements in the field of assessment and develop client-oriented organizational and economic support for the formation of a client-oriented approach in relation to retail chains, including instructional techniques of managing personnel, technology, improve the efficiency of trade management, based on corporate standards.

The object of study are retail chains that operates at the federal and regional markets of retail services.

The subject of the study are administrative relations and processes that contribute to the development of commercial networks based on customer orientation.

Scientific novelty lies in the development of scientific and methodological foundations and practical recommendations for the management in the development of commercial networks based on customer orientation. (Valeeva, 2015)

The practical significance of the study lies in the fact that the conclusions and recommendations made in the article meant to improve the efficiency of retail chains on the basis of customer-developed organizational and economic support that can be implemented in practical activities of retail chains.

It is known that the value of trade services to consumers is not only the material of the product, but also the conditions, the atmosphere of its acquisition, the characteristics of communication with potential buyer of sales staff, the interaction of customers with each other and so on. Depending on the quality of the components proposed to differentiate trade services on four levels: Base expects potential, advanced. Determine the value of commercial services for each level and the corresponding development strategy (Table 1).

Table 1 The levels of the value of trade services

Values Levels	Elements of the value of commercial services	Development Strategy Trading
------------------	----------------------------------------------	---------------------------------

		networks
Basic	The material component of goods The minimum functional properties that appear under the goods to the destination. Price gains	Strategy values, based primarily on the price benefits
Anticipated	The ability to make full use or consumption of the product. Compliance with all customer requirements. Benefits: price-quality ratio"	The strategy of the operational efficiency
Enhanced	It includes everything that can distinguish the product from its market peers in terms of additional features or characteristics. Benefit: quality comes first	Quality Strategy Merchant Services
Potential	Emotional benefits	Client-oriented strategy

It is well known that the value of trade services is determined by the following benefits and costs for customers: quality in the first place; optimal price - product quality; discounts, bonuses and other benefits of the price; Save time on making a purchase; emotional benefits and costs. It was found that the customer-oriented approach to managing the value of commercial services account for the emotional benefits.(Martynova et al., 2015)

Analysis of the client-oriented literature brings up that there are a sufficiently large number of definitions of client-oriented foreign and domestic scientists, but they do not reflect the peculiarities of trade services. Taking into account the value of the trading services offered to define customer orientation as a system management solutions retailer aimed at shaping a positive customer experience and the ability to extract the distribution network continued profitability in the long term by managing customer value.

Table 2 Map of consumer experience

Dot contact	Possible problems	Remedy
Pre visiting contacts		
Call a call-center	Missing Employee of call-center	Optimizing of the personnel management system The selection of employees,
	Incompetence and poor culture of communication	Development of corporate standards. Trainings. The motivation system
Site	The lack of a site on the first pages in the search engine results for the main selling needs.	The organization designed and structured program of promotion and optimization. Creation of advertising companies in the contextual advertising system.

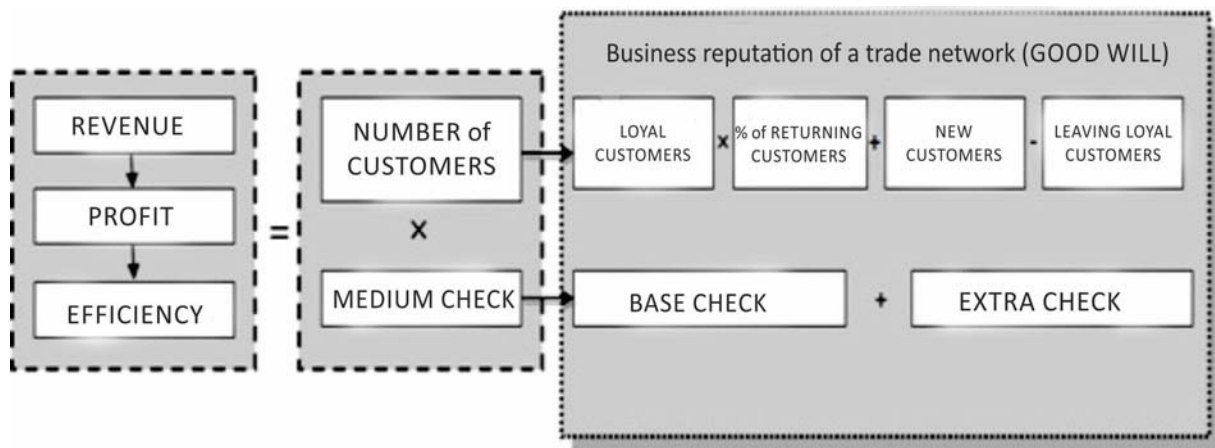
		Website promotion
	The complexity of information retrieval, Lack of information	Website optimization based on monitoring conducted by consumer preferences. Outsourcing companies, optimizing Internet resources
	Irrelevant information	Support Site
	The problem of finding the location and driving directions	A detailed description of driving directions using maps (free web map services)
Visibility of Organization from the roadway or access areas	Poor exterior advertising of the company, the difficulty of the search	Outdoor advertising Providing transportation to the store
Parking	Not enough parking places Not equipped with special traffic patterns and symbols	Increased parking spaces Valet parking Arrange special signs
Signboard	The absence of the necessary information (brand name companies, operating mode)	The development of clear and accessible information on the sign
Storefronts	Unattractive windows. The item in the window is not for sale	Training for window dressers Invitation of experts on window dressing
Design Store	Unattractive design	Upgrading the building facade

The proposed schematic of existing experience allows you to control the value of trade services at each point of contact and form a positive consumer experience.

It is proved that the traditional indicators based on the measurement of sales and market share in terms of customer orientation are losing their relevance. In the context of a client-oriented management requires other methodological procedures, it is not based on sales and market share, and other objects of measurement principle. With a customer-oriented approach, such an object of measurement becomes the customer loyalty(Etzkowitz, 2011).

To interpret the performance of retail chains, we proceeded from the assumption that revenue is determined by the number of customers and average check (Figure 1).

Fig. 1 Evaluation of the impact of trade-based network -customer satisfaction



The proposed contact group indicators for measuring customer satisfaction are shown in Table 4. Each of the five indicators group is characterized by a number of individual indicators derived from the analysis of foreign and domestic scientific publications.

Table 3 Indicators to assess customer satisfaction

Group rate	Individual performance
Retention and growth of regular customers	-Profit for the period of active buyers (CLV customer lifetime value)
	-Customer equity trading network (customer equity)
	-Index of net support (NPS / net promoter score)
	-The index of customer satisfaction (csi / cdi - customer satisfaction / delight index)
	The coefficient of limitations, frequency and cost (RFM - regency, frequency and monetary value)
	-The share of regular customers to the total number of customers
	-Increasing the share of repeated visits
	-Size Single purchasesloyalty;
	-The average size of the purchase of existing customers,
	-The average frequency of visits to the store
Attracting new buyers	-Customer retention rate
	Expenses for customer retention
	-.Profitfrom investment in the buyer (ROIC return on investment in customer)
	-The average frequency of visits to the store
	-The average size of new customers buying
	-The cost of attracting new buyers on the ruble revenue
	-The share of attracted customers to total customers
	-Revenue from new customers
	-Coefficient of increase in the number of new buyers
	-The growth rate of purchases of new buyers
	-Factor turnover growth of new buyers

Planning for the buyers lost	-Coefficient of apostasy (defection rate) -Level Retention customers (retention rate) -The Number of claims and complaints from customers
The increase in the average ticket cost	-Turnover of Impulse sales -Turnover of Cross-selling
Business reputation	-Three * M (measuring, management, monitoring) relationship management of all groups interested in the activities of the trade network
Trade Network (GoodWill)	-The degree of fame trade network in the target market

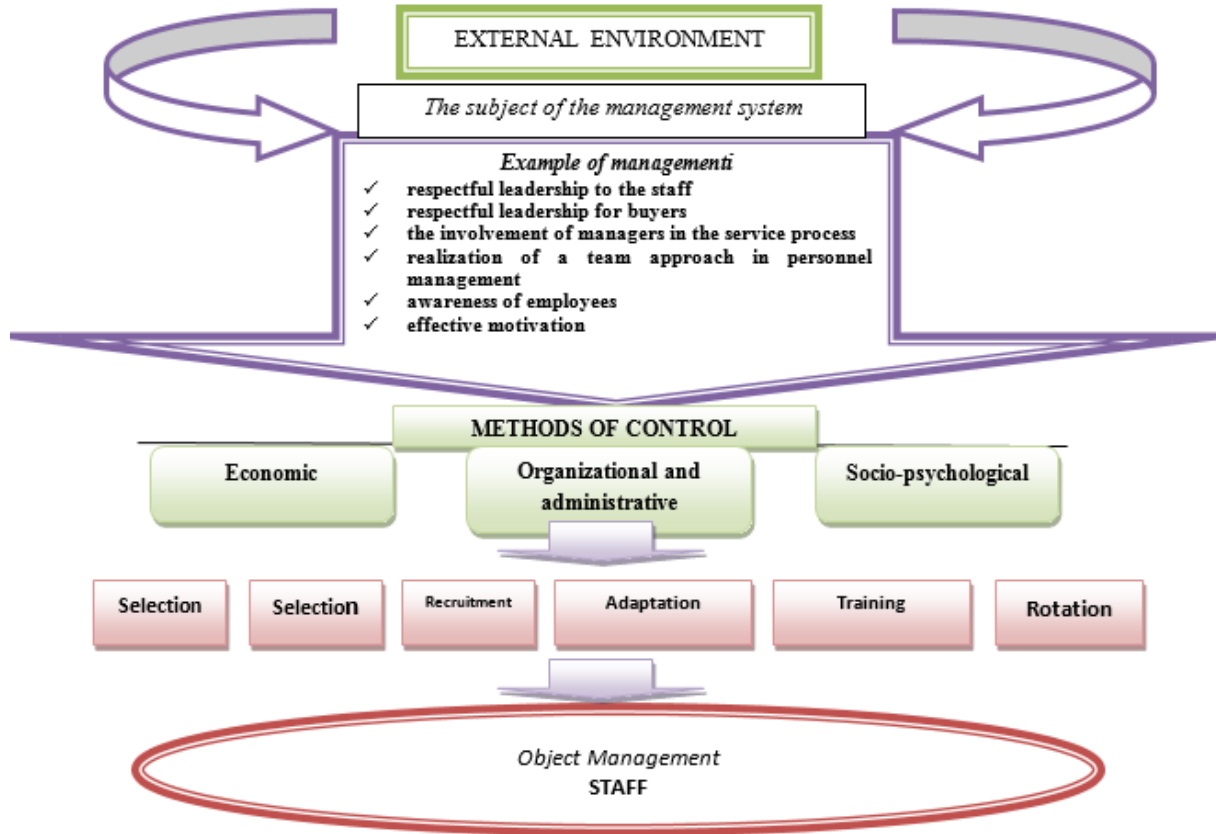
On the basis of expert method, which was attended by heads and specialists of 52 network trading structures of Russia and Moldova have found that customer focus in the management of trade organizations of the city is rarely used: only 4 organizations representing the respondents, it is implemented to the full extent and 6 organizations –just part of them. Among the obstacles to the implementation of customer orientation, 14% of the total number of respondents cited lack of qualified staff and lack of understanding of colleagues, the main part of the respondents - 72% - pointed to the lack of adequate knowledge and skills to implement it. It is noteworthy that the lack of financial resources is not noted, by none of the respondents. The main source of information about the client-oriented approach in the management of most of the respondents named the Internet and training in educational institutions.(Riemer et al., 2005)

It was established that at least a significant problem in the way of customer orientation in the management of trade organizations is the lack of understanding of the essence of this category by management. When selecting the characteristics that best describe this term, the majority of experts (54%) are inclined to the fact that the process of the formation of customer satisfaction; 15% - the process of creating a positive customer behavior, 4% - indicated that they do not know the term and only 27% of the total number of experts pointed out that the customer-oriented - is the process of improving interaction with customers.

The special role of the personnel management system in the formation of customer orientation (Figure 3). Established principles of improving the management of personnel of customer-oriented trade organizations: respectful leadership to employees and customers, the involvement of managers in the service process, a team approach to the management of personnel, awareness of employees and effective motivation. The implementation of these principles will help to organize the customer service at a high level, which is one of the

prerequisites for the effective implementation of customer orientation in the network of trade organizations.

Scheme 5 The main element of personnel management



The close relationship of the quality of service of the staff makes it necessary to find effective tools to manage the quality of trade services. One such tool is the corporate standard.

It was established that the corporate standards affecting different aspects of trade management, not only in the effective management of human resources, business processes, material-technical base, but also in the formation of socially oriented business that has the potential to become one of the main prerequisites for expanding the client base and the formation of satisfaction and customer loyalty.

The basic rules for the development of corporate standards:

Rule 1. Corporate standards should not contradict the mandatory requirements of state standards and industry standards;

Rule 2. It is necessary to allow the quantitative measurement of the standard requirements to the object of standardization;

Rule 3. The standards should include organizational and methodological support necessary for their implementation, including the interaction of structural subdivisions of the company; resources and personnel; responsible personnel; documentation (log books, reports, protocols, conclusions, records, reports, etc.).

A list of corporate standards for network trade organizations, determine their role in the formation of customer oriented businesses. For example, corporate environmental safety standards show the main stages of the formation of a substantial part of the standards. Defined principles for the development of standards for waste prevention by the use of synthetic packaging materials:

- 1) Careful attitude to the containers and packing materials;
- 2) Complete the transition from disposable to returnable containers;
- 3) Priority natural materials;
- 4) Rejection of unnecessary packaging.

The results of the implementation of corporate standards in the trade network "Assorti" for saving energy and water resources. The main goal of these standards - the rational use of natural resources, which is one of the indicators of socio-oriented business, that allows to increase customer loyalty to the trade organization. High savings of utility payments is due to water supply, from 19.5% in 2011. to 30% 2013. compared with 2010. The costs for energy consumption decreased by 5.2% to 11.6%. As for the not so great economic effect of lowering utility payments (for 2011-2013. He was 8.4 thousand. Rub.), There is a need to take into account the cost of installation of meters that have been produced in 2011. at cost of 149.1 thousand rubles. However, the company did it consciously, understanding prospects and social significance of the project for the implementation of customer focus.

Conclusion

Carrying out a research allows us to establish the following main conclusions and recommendations:

1. Revealed the essence of the value of trade services. It is proved that values become less material production, as part of the intangible that includes indicators of the availability of goods and services in general, the atmosphere of the purchase, the buyer characteristic of communication with sales staff, customer interaction with each other.
2. Assigned to the base, is expected to expand the potential and the level of the values.

3. Given the specificity of the trading services offered to define customer orientation, with respect to retail chains, as a system of administrative decisions aimed at shaping a positive customer experience and the ability to extract the distribution network continued profitability in the long term by managing customer value.
4. Organizing an economic approach to the management of commercial networks based on client orientation. It includes the management of the value of trading services for the contact point. Spend detailing trade services identified point of contact, which are structured into three groups: pre visiting, during the visit, after-sales. Formed consumer experience, comprising of: contact points of possible problems and ways to prevent problems at each point.
5. To assess the effectiveness of client-trading networks developed a methodical approach based on evaluation of customer satisfaction. The system of indicators to assess customer satisfaction: increase and retention of old customers, attract new customers, Planning care of old customers, increase the value of the average check, goodwill trading network. Synthesis satisfaction rate is determined based on individual and group performance.
6. Examined the special role of the personnel management system in the formation of a client-oriented approach in the trading networks. The problems and developed the principles of personnel management in order to improve the efficiency of trade organizations.
7. Define rules and procedures for the development and implementation of corporate standards in order to create customer focus. For example, environmental standards define the main steps of forming a substantial part of corporate standards. The results of the implementation in the trade network "Assorti" corporate standards for saving energy and water resources, whose main objective - the rational use of natural resources, which is one of the indicators of socio-oriented business, in turn, allows to increase customer loyalty to the trade organization. Parallel trading organization received economic benefits in terms of reduced utility payments

The results of the studies are theoretical and practical significance in the management of commercial networks based on customer oriented business.

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THE STUDY OF INNOVATION IN TOURISM DEVELOPMENT IN A TOURIST-RECREATIONAL CLUSTER (ON THE EXAMPLE OF THE LIPETSK REGION OF THE RUSSIAN FEDERATION)

Olga Skrobotova – Raisa Ivanova – Irina Polyakova

Abstract

The tourism industry is considered as a condition of the economic growth and the society development in modern Russia. The level and direction of the innovation process become a factor of competitiveness in a tourism industry. The problem of innovations on the level of a regional tourism development is very important in this context. The Federal Target Program “The development of the inbound and outbound tourism in the Russian Federation (2011-2018 years)” is being realized since 2011 in Russia. According to this program the tourism and recreational clusters and automobile tourist clusters were established in the different regions of the country. This article focuses on the studying of the practice of the innovative approaches to the tourism development in the Lipetsk region of the Russian Federation. The relevance of the present studying is determined by the necessity to analyze the experience and results of realization of cluster approach in tourism in the region mentioned. Nowadays there are five clusters established in the Lipetsk region. The innovative approach to the tourism development in the tourism and recreational cluster “Yelets” becomes the object of studying. The different types of innovations and conditions of the innovative process are described in this article.

Key words: a tourist cluster, innovations in tourism, regional tourism development, innovative business activity.

JEL Code: D, L83

Introduction

The modern condition of tourism in the Russian Federation causes using the innovative approaches to its development. Many regions consider tourism as an economic branch or cross-

industry network which can accommodate economic growth. The cluster approach to the development of tourism allows to achieve the greatest effect.

1 Conceptual framework and hypothesis

"Initially cluster theory was formulated by A. Marshall concerning industrial production in the late 19th century. But more detailed theory of industrial clusters and their role in enhancing regional competitiveness was presented in the works of M. Porter (1998, 2000, 2002), whose works became the methodological basis of clustering and in the tourism sector" (Danko and Dovhal, 2013). Firstly the term "cluster" was used by M. Porter, who determined it as «a geographic concentration of interconnected companies, specialized suppliers and service providers, firms in related industries and institutions associated with them (for example, universities, standards agencies, trade associations) in a particular area, that compete but also cooperate with each other. " (Porter, 2000) M. Beny identified a tourist cluster as a "a group of tourist attractions within a limited geographical area which is ensured a high level of infrastructure and services and has also established social and political relations, as well as improved management in the companies that make up the network for the production of tourist services that provide strategic competitive and comparative benefits" (Shilchenko, 2015). The works of such scholars as O. Kostryukova, E. Karpova, I. Shepelev are devoted to the study of characteristic features of cluster development of tourism in the Russian Federation. In Russia the principles of cluster policy are put behind in the Concept of long-term socio-economic development of the Russian Federation until 2020. (Cluster Strategy: from theory to practice). Special attention should be paid to the idea of cluster development of tourism made by A. Aleksandrova:" The tourism industry has a number of features that give relevance of the cluster approach in the development of recreation and travel. The tourism industry is distinguished by the breadth of the interbranch relations, fragmented structure, which gives some researchers reason to doubt the validity of classification of tourism to the economic sector, the predominance of small and medium-sized businesses, the intangible nature of the tourism product, its unequal perception of producers and consumers etc. All this makes especially important the appearance and development of tourism clusters. They help each of their members see themselves as part of the whole." (Aleksandrova, 2007).

2 Methodology and research

2.1 Research methods

Our research is connected with the study of processes and results of cluster development of tourism in the territory of the Lipetsk region of the Russian Federation. We consider the experience and results of the implementation of projects of cluster development of tourism in Yelets relying on the study of quantitative indicators reflecting the results of the practice of interaction between government, business and science in order to develop tourism.

2.2 Objectives and selection of results indicators

The formation of ideas about the institutional processes in the development of tourism as a result of the cluster approach on the example of a particular area (the city of Yelets in the Lipetsk region) is primary for our research. The most important indicators for us are the indicators of the integration processes in the development of tourism; indicators related to the growth of business activity in the tourism sector; changes in the tourist product of the area. These indicators can lead to an understanding of institutional change in the development of tourism in this cluster.

3 Results and discussion

Since 2011 in Russia the Federal Target Program “The development of inbound and outbound tourism in the Russian Federation (2011-2018 years)” is being realized, according to which the tourism and recreational and autotourist clusters were created in many regions of the country.

According to the Federal Target Program “The development of inbound and outbound tourism in the Russian Federation (2011-2018 years)” projects of two clusters - the tourism and recreational cluster “Yelets” and the autocluster “Zadonshchina” are being realized since 2011 in the territory of the region. These projects are supported and included into the first stage of realization of the Federal Target Program “The development of inbound and outbound tourism in the Russian Federation (2011-2018 years)” with the release of federal funds for the period from 2012 till 2017.

During the realization of the project on the territory of the Lipetsk region a complex of tourist infrastructure objects aiming at increasing of the quality of tourist service and its corresponding to the necessities of tourist market such as hotels, catering facilities, sports, recreational and

entertaining objects is created. The building of providing infrastructure including the power supply, communication, heat, gas, water-work systems, transport infrastructure and municipal improvement is being held.

Besides the tourism and recreational cluster “Yelets” and autocluster “Zadonshchina” one begun to develop three more tourism clusters which have federal support and whose concepts are already collaborated. They are a tourism and recreational cluster “Dobriy” in Dobroye District, a tourism and recreational cluster “Shukhovskiy” in Dankov District, an autocluster “Oranienburg” in Tchaplyigin District. The cluster approach to the development of tourism correlates to the trends noted by T. Shilchenko: “The implementation and formation of tourist product, business, contract work with the staff and its training, development of the tourist infrastructure of the company or the society are an absolute prerogative of the production units ... enterprises and associations themselves should determine the feasibility of establishing regional and international systems, groups, corporations, councils and other entities of the tourist profile.” (Shilchenko, 2015). That is why, in our opinion, the cluster approach to the development of tourism is widespread in the Lipetsk region.

Creation of tourism clusters in Yelets became possible due to initiative of the Administration of the Lipetsk region, Bunin Yelets State University, Administration of Yelets. This initiative was adopted and supported by the business community. In 2006 according to the Act of the Lipetsk region # 316-OZ of August, 18, 2006, “About special Economic Zones of Regional Level” (the Act of the Lipetsk region # 316-OZ, 2006) a special regional economic zone of tourism and recreation type “Yelets” was established. The tourism and recreational cluster established in 2011 according to the Federal Target Program coincided in the terms of location with the borders of the special economic zone of tourism and recreational type “Yelets” and thus gained efficiency to the cluster development of the region.

The new processes and tendencies have appeared as a result of cluster tourism development. They are:

- activation and widening of scientific research mix, aiming at studying of tourist potential in the region;
- the increase of capital investment in tourism in the territory of Yelets;
- involving the enterprises which were not connected with tourist service before into the tourism community;

- the number of new enterprises oriented on working in tourism;
- the proliferation of varieties of tourism in Yelets;
- the changing of characteristic features of tourist product which is offered by the destination on the tourism market.

In 2007 the scientific conference “Special economic zone of tourist-recreational type: economic, legal, socio-cultural aspects of creation and development” was held in the Bunin Yelets State University with the support of the Russian Foundation for Humanities. The main problems which were discussed during this platform were the new approaches to the tourism development both in Russia and in the Lipetsk region. The problems requiring the high-priority solving were noted. Primarily, the forming of tourism territorial system, the functional characteristics of its subsystems and coordination of different enterprises with the aim of tourism development were discussed. One of the most important conclusions was that the business community and local population had a very limited knowledge about the opportunities of economic activity in the sphere of tourism on that moment. A very wide PR-campaign was held in the territory of the city. Its aim was to motivate people to develop tourism. In order to promote Yelets as a tourist destination Tourist Information Centre whose director became Olga Skrobotova was established in 2006.

The cluster approach to the development of the city's economy has found expression not only in the creation of tourism clusters. An industrial-production cluster was created in the territory of Yelets. In order to effective management of cluster development a department of developing the special economic zones was established in the Administration of Yelets. The very department establishes strategy of tourist cluster development in the territory of the city and is also responsible for the attracting investment into the tourism development. Among the first tourism development successes in the territory of a special regional economic zone of a tourism and recreational type “Yelets” it is necessary to note the attracting of such a significant investor as VAO Intourist which leased out the only hotel “Yelets” at that time. After the reconstruction the hotel “Intourist-Yelets” became the main hotel of the city.

At the beginning of the cluster development of tourism in Yelets mainly cultural tourism was developing. The tourist product was established by excursions, included visiting the historical and cultural landmarks (Ascension Cathedral, Torgovaya Street, the Sign Convent), museums of the city and a brand shop “Yelets lace”. The objects of traditional Yelets lace were practically

the only local souvenirs which tourists bought in the city. Besides the brand shop “Yelets lace” by 2009 two shops selling souvenirs worked in the historical part of the city but they offered souvenirs which were traditional for Russia and these shops did not practically have the local original souvenir goods in stock.

In 2006 the number of visitors coming to Yelets with the tourist purposes was about 40,000 people. The overwhelming majority (more than 90 per cent) were excursionists. In 2009 the management aimed at changing of structure of the tourist product of the territory was established. The number of tourists in a given amount, according to various estimates, is from 30 to 60 %. Change of types of the tourist product, represented in the tourism market, described in Table 1.

Table 1 Types of the tourist product of the destination

№	Typology of product	2009	2015
1.	Cultural excursions with visiting museums and cultural landmarks	*	*
2.	Religious tours of excursion purposes	*	*
3.	Guided tours including animation programs	-	*
4.	Event tours	-	*
5.	Gastronomy tours	-	*
6.	Tours with medical treatment	-	*
7.	Tours with visits to crafts and trades enterprises , master classes	-	*
8.	Active ecological tours	-	*

Source: Documents of the Department for the development of special economic zones of the Administration of Yelets.

Integration processes are based on realization of projects settled on the scientific researches of the scholars of Bunin Yelets State University. A striking example of this integration can be observed in the process of development of event tourism in Yelets.

The projects of fests “The Russkaya Zakvaska” and “The Antonovskiye Yabloki” were created in a Department of socio-cultural service and tourism of the Bunin Yelets State University. These fests were planned as tourist events. On one hand, these are projects laid the foundation of the development of event tourism which was new for the city. On the other hand, these events

became the key players, inspiring the interest to tourism in a local business community. Start of implementation of these projects was initiated in 2010.

These fests have been designed with the taking into account the current trends in the tourism market on the basis of local tourist resources. The fest “Antonovskiye Yabloki” is based on the actualization of the artistic legacy of the Nobel Laureate in literature Ivan Bunin. Life and work of the writer are closely connected with Yelets and its suburbs. This fest became one of the tourist brands of the city by now. In 2015 the event gained grand prix in the National Event Awards. The fest is held in the end of September annually.

The fest “Russkaya Zakvaska” is connected with the traditions of the national life of the Russian people, particularly with the traditions of national cuisine. In 2015 this fest gained the third place in the National Event Awards in the category of gastronomic events.

From a technological point of view, the organization and holding of festivals required combining and cooperating a variety of enterprises. Many of them didn’t have practical experience in the sphere of tourism. In Tables 2 and 3 the information about cooperation of different types of enterprises and self-employed entrepreneurs in organization and holding the fests is systematized.

Table 2 The cooperation of enterprises and self-employed entrepreneurs in organization and holding the fest “Antonovskiye Yabloki”

№	Category of participants	2010	2015
1	Producers of souvenir goods	12	34
2	Crafts and trades enterprises	4	9
3	Catering enterprises	6	11
5	Leisure enterprises	9	27

Source: Documents of the Department for the development of special economic zones of the Administration of Yelets.

Table 3 The cooperation of enterprises and self-employed entrepreneurs in organization and holding the fest “Russkaya Zakvaska”

№	Category of participants	2010	2014
1	Producers of souvenir goods	10	31
2	Crafts and trades enterprises	4	7
3	Catering enterprises	6	14

5	Leisure enterprises	9	24
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Source: Documents of the Department for the development of special economic zones of the Administration of Yelets.

During cluster development in Yelets investment activity in tourism is stimulated by public-private partnership. Funding is established by means of some financing sources such as:

- Federal funds in the amount of 29 %;
- Funds of federal subjects of the Russian federation and municipal units – 7 %;
- Extrabudgetary resources (private investments) – 64 % (10).

The volume of investment in the development of tourism in the city of Yelets within the Federal Target Program "Development of inbound and outbound tourism in the Russian Federation (2011 - 2018 years)," is described in Table 4.

Table 4 The volume of investment in the development of tourism in the city of Yelets within the Federal Target Program "Development of inbound and outbound tourism in the Russian Federation (2011 - 2018 years)", million rubles.

Financing source	All absorbed investment	Absorbed in 2015
Federal funds	629,7	75,7
Regional funds	279,1	79,9
Extrabudgetary funds	959,1	71,2

Source: Documents of the Department for the development of special economic zones of the Administration of Yelets

In the territory of the tourist cluster “Yelets” the number of enterprises and self-employed entrepreneurs oriented on service of tourists increased. The increase was due to the inclusion of tourist services in the activity of already existing companies, as well as by creating new ones. When comparing the number of companies providing tourist services in the historical center of the city which is a part of tourism and recreation cluster, in 2009 and 2015, one can see a significant growth.

Table 5 Enterprises and self-employed entrepreneurs providing tourist service in the territory of a historical center of Yelets.

№	Type of enterprise	2009	2015
1.	Hotels	1	7
2.	Catering enterprises	3	11

3.	Museum, including private ones	5	12
4.	Tour operators and travel agencies providing reception of tourists in the region	4	7
5.	Crafts and trades enterprises	1	2
6.	Producers of souvenir goods	3	8
7.	Sellers of souvenir goods	1	14

Source: Documents of the Department for the development of special economic zones of the Administration of Yelets

One of the innovative tools that enhance the quality of tourism services is cooperation in the production of tourist products and services. One of the traditional definitions of cooperation is the definition proposed in the dictionary of Yefremova: "A special form of work organization, with which a large number of people involved together in the same or in different, but related to each other, working processes" (Explanatory Dictionary of Yefremova). Economist of the nineteenth century A. Marshall said that the entrepreneurs association played the important role in the clustering (Blaug, 1994). As an example of such association the producers' cooperative "The Yelets Tourism Centre" can be considered. According to the Federal Act "About the producers' cooperatives" it unites LLC "Yelets Felt Boots Factory" and five individual persons. Raisa Ivanova became the chairwoman of this Centre. The main goal of this enterprise is establishing of a complex tourist product and producing tourist goods.

Conclusion

Nowadays the cluster approach to the tourism development in the region allows to increase the activity of enterprises of the Lipetsk region in different economical branches, to attract extra investments into tourism in the conditions of public-private partnership, which in its turn make a positive impact on the image of the Lipetsk region as a region having got all the significant opportunities for the tourism development. The experience of cluster development of tourism in Yelets shows that the success is possible when there is the initiative both on the part of officials of the territorial management of tourism and business community. Experience has shown significant growth in business activity during the developing of tourism and recreational cluster "Yelets". The growing number of companies and entrepreneurs providing tourist services demonstrates the interest of the participants of cluster associations in getting the

economic benefits from the activity in the sphere of tourism. Changing the structure of the tourist product represented by the destination in the tourism market shows the growth of interaction and cooperation of producers of tourist services and goods. Disclosure affects both the productive promotion of the local tourist product and the promotion of service activities in the sphere of tourism in the cluster. New technologies in the organization of production, sales and managing of the tourist product in the branch and territorial levels are supported by the scientific research, and the support of the initiative in the sphere of tourism on the part of the federal, regional and municipal authorities also promotes the innovative development.

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ETHICAL RESPONSIBILITY OF SOCIAL SERVICE MANAGER

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Abstract

Ethical responsibility we perceive as a moral responsibility manager in social services and counseling, which is necessarily required for the application of professional management. Preserving ethical aspects in the context of professional intervention in client care at facility, means respecting the individuality of the individual, specific personality traits and behavior. Our research investigation were focused on learning about awareness and actual enforcement of moral responsibility of managers of social services. Based on comparison of theoretical approaches to solving real issues and implementing approaches the object of this paper identify important factors determining the behavior of manager in terms of respect for ethical responsibility. In addressing the issues set we use logic and cognitive methods and various procedures that allow to understand the specific aspects of the management of social services. Through semi-structured interviews, we complement the important informations to research issues. Based on the transcription and segmentation we created categories that according to the results of research investigations have meaningful interpretation value given to research objectives. The conclusions are applicable in the context of continuous monitoring of the implementation of the rules of ethics in practice managers of social services and counseling, as well as in the training of future professionals.

Key words: Ethical responsibility. Manager. Social service facility.

JEL Code: D63, D64, D69

Introduction

A social worker as an expert in the area of social services and counselling performs managerial tasks and tackles problems that occur in this sphere. In common usage, this term refers to a wide variety of positions ranging from social work assistants to counsellors, therapists up to

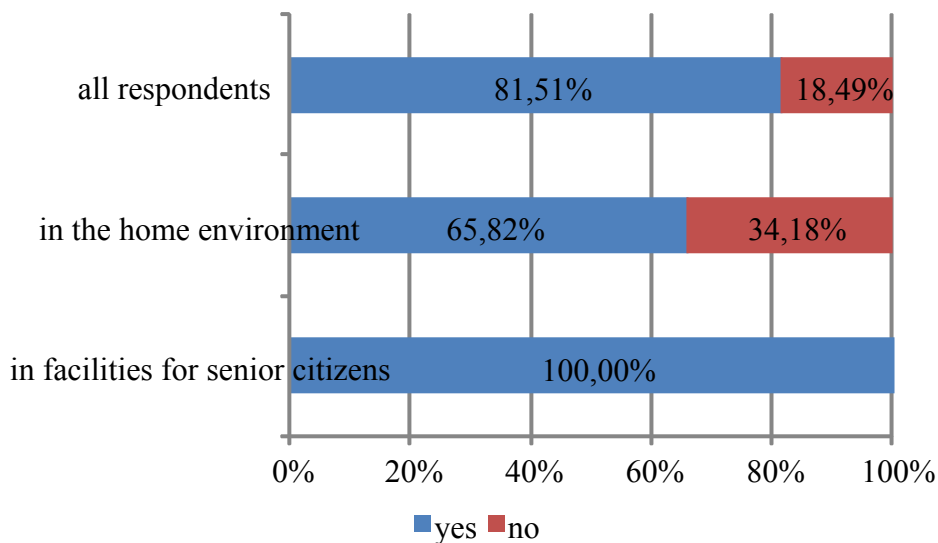
managers of social care facilities. This wide range of positions clearly shows a social worker as a human potential manager at different levels. Therefore, it appears to be important that professional social workers do not only demonstrate theoretical knowledge of ethical norms and principles but they are also able to take personal responsibility for adopting them into practice. In this case we talk about multi-spectral moral responsibility of a social service manager. It means moral responsibility for a person who is vulnerable in their social situation and greatly dependent on a professional social worker. Managers of social care facilities also have to assume responsibility towards the founder, professional community, and naturally towards themselves when doing their job. A specific ethics indicator in the management of social care facilities or home care agencies is how this management is perceived by their clients. (Dúbravská - Mura - Kotulič - Novotný, 2015). Therefore we focused on this aspect in our research. A social service manager is a professional who works with people and is still in close contact with them. As a result, besides ethical responsibility, a social service manager must possess specific moral qualities like honesty, fairness, truthfulness, willingness to work hard and help others, trustworthiness, politeness, responsibility and patience. A social service manager is also supposed to demonstrate empathy, which is an ability to sense other people's emotions and experiences. Empathy helps managers better understand processes that occur in individuals, clients as well as employees who ensure the running of the whole facility. However, social service managers need to show their own initiative and bear ethical responsibility.

A social service manager job can be described through a broad range of duties that involve activities like assisting people in creating a balance between possibilities and requirements of their social environment, promoting the adoption of positive attitudes to life and socially acceptable behaviour, teaching individuals to develop and improve their ability to solve problems and helping them to develop a sense of social responsibility. This job is not done in a vacuum. A social service manager has to fulfill requirements imposed by the society, its laws, rules, needs and changes that occur in the specific socio-cultural environment. Then there are requirements imposed by clients, their relatives or interest groups as well as employees who work under them. (Hambálek, 2010). Social service managers need to possess cognitive behavioral skills, demonstrate intellectual abilities and emotional intelligence to do their job in a professional way. Social work is always demanding for many reasons, the most important of which are necessary cooperation with clients, decision making and meeting targets. It is naturally

based on the principle that every professional social service manager sets their targets with regard to clients and their environment. It means, as Strieženec suggests, in social work we have to set targets in compliance with social conditions. Besides, these targets have to be formulated clearly and comprehensively. They cannot be ambiguous. (Strieženec, 2001). Managers of social care facilities are also required to gain systematic and scientific knowledge of social sphere, in which they work. The combination of practical and up-to-date theoretical knowledge through research is necessary in order to achieve quality in management.

Our research was conducted in a facility for senior citizens. The results were compared with the views of clients who receive care in the home environment. Ethical responsibility of a professional social worker was perceived mainly through ensuring proper living conditions. The fundamental question was if managers of social care facilities or home care agencies should take primary responsibility for the quality of life of their clients.

Graph 1 Responsibility for the quality of life of the clients



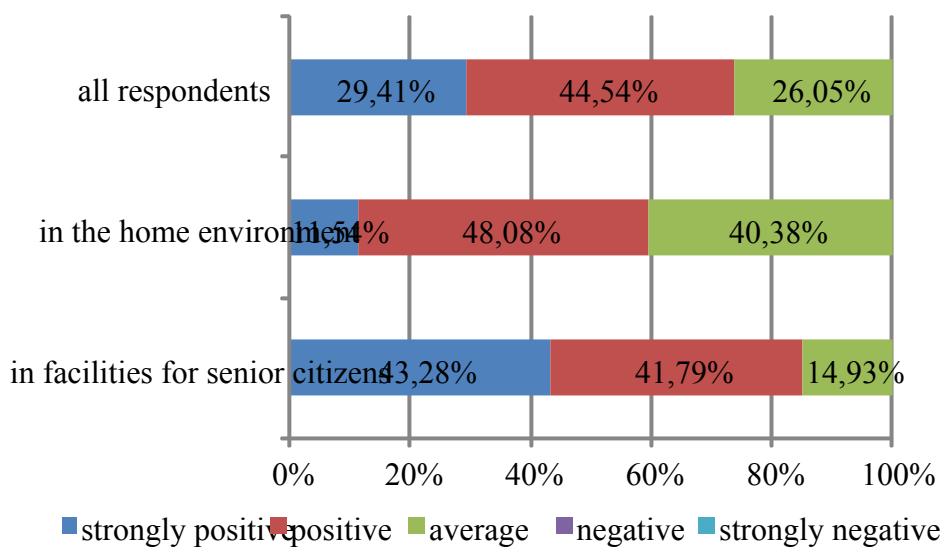
Source: author

As many as 81.51% respondents are convinced that a social service manager bears primary responsibility for the quality of life of their clients. Only 18.49% of all the respondents do not associate responsibility for the quality of life with this job. All the respondents living in facilities for senior citizens consider it to be a necessary attribute for a professional social worker holding a managerial position (100%), whereas the number of respondents who receive care in the home environment and share the same opinion is smaller. Only 65.82% of the respondents living in

the home environment consider it to be an essential attribute in agency management. 34.18% of these respondents believe that a carer with whom they come into contact on a daily basis should take professional responsibility. Therefore, the manager's responsibility starts with the choice of suitable carers who manage to meet criteria of ethical conduct and proper approach towards clients.

How do you feel about the respect for the rules of ethical conduct and ethical approach adopted by managers of facilities for senior citizens or home care agencies in relation to you, your personality and your requirements?

Graph 2 Respect for the rules of ethical conduct and ethical approach adopted by manager

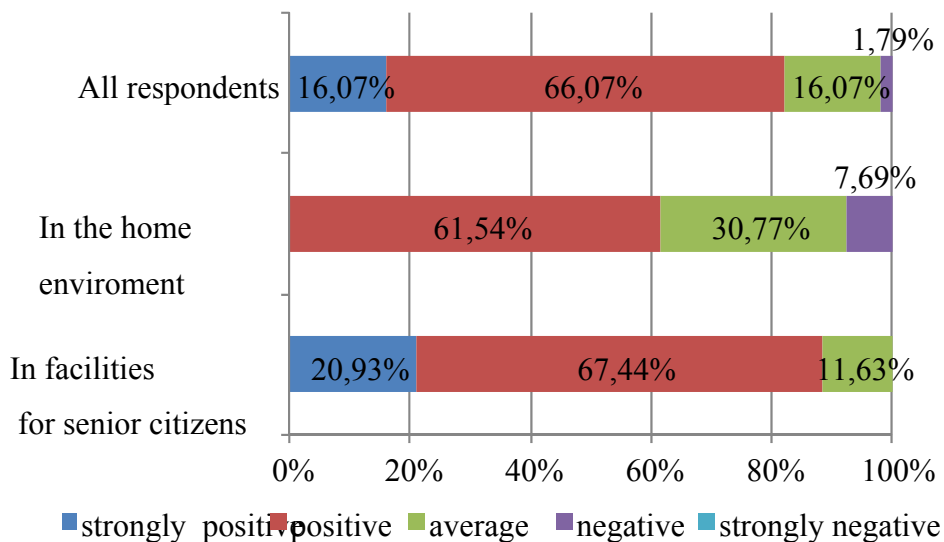


Source: author

On the whole the respondents, using their own experience, positively evaluated the respect for the rules of ethical conduct by managers. Almost three quarters of all the participants rated the activities of managers in social services and counselling as positive. 29.41% of all the respondents generally felt strongly positive about their work and 44.54% positively responded to their activities. None of the respondents held a negative view of their activities in social services. 26.05% of all the research participants evaluated their activities as average. The division of respondents into two groups - those receiving care in the home environment and those living in social care facilities enables an analogous interpretation of the research results. However, frequency of meetings and direct contact with managers of social care facilities or home care agencies also play an important role.

Another significant factor that has to be considered in connection with professional conduct is preserving client rights. As the Code of Ethics states, with regard to natural rights, social workers are committed to serve their clients in the way that shows commitment, loyalty and proves great professional skills and competencies. Professional social workers do not discriminate against any person on the grounds of race, sex, sexual orientation, age, religion, nationality, social status, political orientation, mental or physical disability, etc. (Bočáková – Kubičková, 2015). They provide clients with precise and detailed information on the extent and nature of services as well as their potential risks. Besides, they are supposed to ensure the continuity of services and support for a client if they stop providing these services and there is still need for them. When implementing the rights into a client's life, basic ethical principles like beneficence, nonmaleficence, autonomy, fairness, trustworthiness and truthfulness are applied. (Mojtová et al., 2008). Within the context of these principles the clients were asked to express their opinion on how their rights are preserved. Their opinions were formed on the basis of personal communication and interaction with a social service manager.

Graph 3 Preserving client rights in social service management



Source: author

In terms of the preservation of client rights and satisfaction of their interests the respondents viewed the communication and interaction with managers of social care facilities or home care agencies mostly positively. 82.14% of all the respondents positively valued the help provided

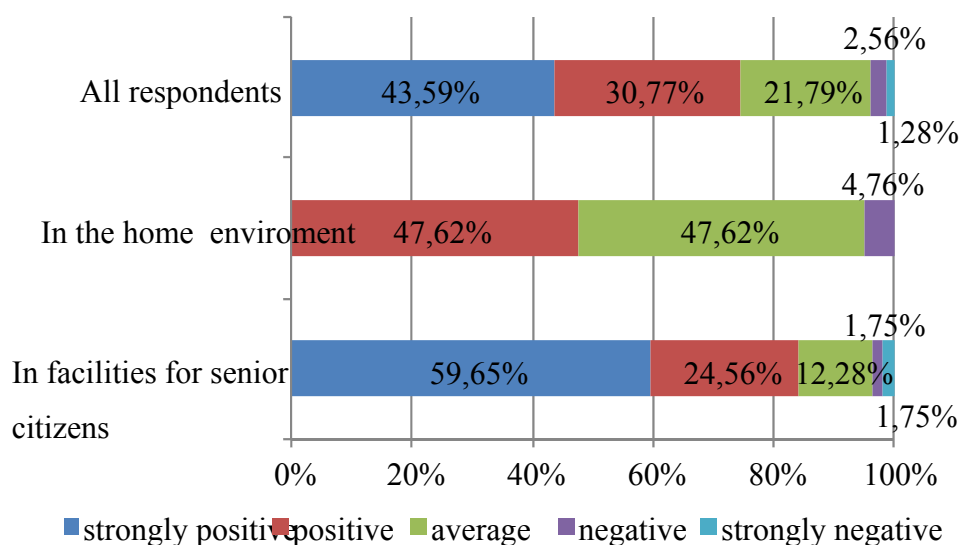
by social service manager. 16.07% of these respondents felt highly positive about it and 66.07% took a positive view. Only 1.79% of all the respondents rated the assistance provided by social service manager as negative and 16.07% of all the participants evaluated their assistance as average.

Satisfaction of client needs is considered as a key component of ethical responsibility of social service manager. In the USA the term best practice is used within the context of social services provision. This term refers to integrated practice based on experience and results, with respect for ethical principles. (Matoušek et al., 2013).

However, it does not mean unlimited and instant satisfaction of client needs. On the basis of personal experience and current results a social service manager chooses the way which ensures the maintenance of personal integrity. With regard to personality and individual differences clients cannot be forced to accept activities or satisfaction of such needs they are not particularly interested in as they have never considered them as their priority.

To what extent were your requirements observed by managers of social care facilities or home care agencies when satisfying your needs?

Graph 4 Respect for client needs



Source: author

The respondents positively evaluated the activities of social service manager in connection with satisfaction of their needs. 74.36% positively responded to their assistance in satisfying client

primary and secondary needs. 43.59% of these respondents held a highly positive view and 30.77% felt positive about their assistance in satisfying client needs. Their assistance was rated as negative by only 3.85% of all the respondents. 2.56% of these respondents held a negative view of their assistance and 1.28 % rated it as very negative. This negative view can be explained by the fact, that in some cases quality care is associated with an authoritarian approach to when, where and what needs have to be satisfied without regard to specific client needs. 21.79% of all the respondents rated the assistance of social service manager in this area as average. Obviously clients receiving care in the home environment have higher expectations. The results obtained on the basis of dividing the respondents into two groups (those receiving care in the home environment and those living in facilities for senior citizens) can be interpreted in this ways.

The job of a social service professional, social worker, social advisor, mainly in the managerial position, involves adequate intervention in compliance with ethical principles and improvement in client satisfaction if clients are unable to meet their needs through their own efforts or their environment. Adequate need satisfaction prevents the occurrence of unfavourable social situations, strengthens relationships and interactions of clients in the social environment, encourages a client to adopt proper attitudes and helps to overcome problems associated with adaptation. A social service manager is supposed to meet a complex set of client needs with respect to their personality and specific needs. When working with social service clients it is important to monitor activities performed by a multi-disciplinary team that includes health care workers, carers, social pedagogues, priests and other specialists. Each member of this team has their own area of ethical responsibility towards a client. All of them participate in applying ethical principles in practice and a social service manager in particular takes responsibility for continuous evaluation of the observation of ethical values. A social service manager should primarily be a professional, capable of reflection on the basis of which they apply such ethical categories that a specific interaction requires. (Mura, 2015).

Conclusion

Considering different categories of ethical responsibility of social service manager, their role extends mainly into the areas of individual work and individual planning. Our research revealed that social service clients generally expect a social service manager to meet mainly these requirements – responsibility for quality of life and observation of ethical rules. Similarly,

preservation of rights and interests as well as satisfaction of individual needs are expected to be met.

We need to realize that social service managers come into contact not only with clients but also their relatives, the primary environment from which a client comes. (Garaj – Machyniaková, 2015). Therefore ethical responsibility of a social service manager has to be associated with the respect for specific social situations influenced by age, mental and somatic state of clients and their relationship to their environment. The growing dependence of a client on the other person's help can result in underestimating the observation of primary ethical principles by social service managers. In social care facilities – in the sense of ethical responsibility – the principle of participation in adaptation of a client in the new environment and new situations is applied. Further it is quality social work and counselling, socio-legal protection, the opportunity to have contact with their families and other social interactions as well as help that is offered if clients need to claim their rights and legally protected interests. Intervention in the home environment involves dealing with losses in life which requires professional social and psychological support. Direct service care lies in training simple daily activities, helping clients with personal hygiene, the use of tools and aids, maintenance of cleanliness, supporting self-reliance, the development of basic social contacts and satisfying psychosocial needs, provided that freedom in decision-making and personal autonomy are maintained in compliance with ethical principles. The same applies to health and social care provision and the related activities in which individual, human approach is a basic ethical rule. Managerial monitoring of anti-oppressive practice in complex care is an important factor in maintaining an ethical approach towards social service clients. Anti-oppressive practice means that under no circumstances should a contact worker favour any single individual when satisfying their needs, providing personal and health care or other forms of social care.

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INCREMENTAL INNOVATION, PERFORMANCE AND FINANCING AS KEY ELEMENTS IN LOGISTIC CONTROL OF CONSTRUCTION COMPANY

Adam Sorokač – Branislav Mišota - Eduard Hyránek

Abstract

Currently, there is constant pressure to increase efficiency of company in construction sector, as in other industry. One of lesser-used methods for increasing efficiency in the construction companies is control of logistics with respect to its performance. These methods can be identifying by incremental innovation with an interdisciplinary approach, which uses correlation of incremental innovation and efficiency of logistics via gradual introduction of information and communication technologies (ICT). This is meant, increasing efficiency of traceability of material flow (logistics information system) at construction. Incremental innovation will be identifying by formulating innovative model with a central model Stage-Gate® Xpress and described the methodology to entry additional methodologies from various disciplines of the construction.

Modular application was designed with initialization innovation and next increment based on outcome of 3I model. The application is in this paper verified by simulation model of one technological operation. This process operation was simulated before and after upgrade. Application suitability has been verified by an expert evaluation.

Application was designed by means of industrial automation and technology with contactless reading of information - Radio Frequency Identification (RFID). We point to connection financial effects in the logistics segment by incremental innovation.

Key words: incremental innovation, construction, logistic information system, automation

JEL Code: L74, O14, O31

Introduction

Now, ICT for increasing traceability efficiency of material flow and logistics performance are clearly defined and used. Applicability of these technologies as well as non-contact transmission of data is verified by realized projects (Wang, Lin, & Lin, 2007) (Lu, Chen, Shen, Lam, & Liu, 2007). Therefore, using of RFID (not only in building logistics) can be considered returnable investment. Limiting factors for implementation of innovation of construction companies are funds and human capital (Forés & Camisón, 2016) (Arbe, 2012). Constrain initiate demand to create a method, which can implement ICT in lower cost in short time frame. The solution can lie through incremental innovation bringing progressive and complex increase of logistics efficiency. Each incremental innovation is a functional contribution to improvement.

Not only, problem solution of constrain, also ensure correct specification of requirements for a technology or other change as the upgrade process (Harty, 2008). Correctness can be achieved by an interdisciplinary approach as a cross-sectional area, which will touch suggested improvements. Interdisciplinary means consideration of possibility of mechanisms for construction site - logistics, requirements for technological procedures of construction - construction technology, flexibility in reflection to customer changes - holistic marketing.

1 Current state of solve issue

Construction industry and production in the construction sector is characterized by individuality of their products (building structures). Virtually, every building is unique and production is on-site product with storage facilities and pre-assembly. Situating warehouses, pre-assembly stage determine a material flow on construction site. Entire supplier chain effect on logistics construction (Saad, Jones, & James, 2002), it includes not only the logistics of construction site as well as all participants on production. The basic document of construction logistics is construction site layout plan. The construction site as a production space is given by building, it is unique in most cases. Therefore, application of logistics information system (LIS) will be designed with a sufficient degree of flexibility and modularity. Flexibility means possibilities to transfer for the new construction site. Modularity as a characteristic of LIS application is given by varying construction site size.

Small and medium enterprises usually do not have sufficient capital to create a separate R & D department (Sexton & Barrett, 2003). Product differentiation is determined by added value of

construction which is contained in projects. Project respectively realize project is a drawings and text (Keegan & Turner, 2002).

A possible way is using potential of human capital for innovation. Alternatively, cultivate cooperation between academia and enterprises, where some authors (Arbe, 2012) (Oslíková & Tichá, 2016) regarded this cooperation as insufficient. Important is find ways of financing investment projects of construction companies. Incremental innovation creates opportunities to minimize costs, because final version of the solution may consist of several separate functional increments.

2 Research goal

Aim of research in this paper is identify way, which at minimum input costs through innovation can increase the efficiency of the logistics information system of construction logistics as a production process in construction industry. Effectiveness of logistics information system and hence, the efficiency of logistics (Wegelius-Lehtonen, 2001) is given by measure of traceability of material flow. Incremental innovation using an interdisciplinary approach, which was created by an innovation model for open methodologies from other disciplines in the construction industry. We can consider one way to increase logistic efficiency. If one takes objective defined above, then we can talk about following assumptions:

- Creating an innovation model introduced in construction company and its production
- Create solutions based on an innovation model will increase rate of traceability of material flow and efficiency of construction site logistics

Incremental innovations divide concrete solution to several increments, so that it is possible to set up an investment project in a short time frame, as well it is possible to divide financial burden on companies.

To increase efficiency and achieve stated research aim were chosen ICT with means of automation from other industries to minimize investment costs.

3 Methodology of creating interdisciplinary incremental innovation model – 3I model

Starting point is innovation model Stage-Gate® Xpress (Cooper, 2008), which has been indicated in introduction, model allows entry required criteria of disciplines. The new-

generation Stage-Gate® is modified with advantage of shortening time for innovation, and thus suitable for incremental innovation (Ettlie & Elsenbach, 2007).

Innovation model Stage-Gate® Xpress has been modified for individual processes in terms of control access methodologies of disciplines in innovation process. Methodologies are chosen as a cross-section through whole production process or part of this process, which require transfer of material or persons.

From perspective of control access of methodologies in innovation process, it has been determined superior methodology, in our case Stage-Gate® Xpress, which determines performance and innovation time frame of investment project.

3.1 Superior methods as a control function of innovation process

Control function has implemented decision step, which it applies strict criteria for continuation of subsequent events. Decision criteria may be changed only at beginning of innovation process, which is defined in initialization phase, and then it will not change and it must be strictly observe. In some investment action may appear demanding defined criteria as a complication. But, when we talk about the innovation processes, which are repeated at shorter intervals, they can't retain in ongoing process, because they will be block source for next increment. Criteria should be set, so that it can stop the innovation process when the criteria doesn't satisfy. The criteria are creating by closed questions, or by bounded real value based on empiricism of real projects. It is important to set achievable criteria.

Control function in the form of innovation methodologies should support parallel course of operation. It is an important feature of the methodology, because it minimizes time of one increment. The idea of concept is to set short investment, but with given frequency of increment. In general control methodology may divided into the following parts (see Fig.1.):

Initialization part – It determine criteria for throughput of innovation, or may be change of frequency of increments, also it will identify sources for investment and whether it is realized with the identification of sources.

Analytical part – this part identifies shortcomings via creating model of existing production process, bottlenecks in logistics

Implementation part – when is create new model of production process with innovation, then it is possible to create a project (technical project for the purposes of documentation, production

materials) on which it will be implement changes, and also recovery new system and its testing operation

Part of evaluation - term real benefits

3.2 Methods with control access to innovation process

The concept of incremental innovation model, in general, in the first phase make current production model and search bottleneck of production through the selected methodology or empiricism bottleneck of production. The second phase will include change in the new model. Methodology for creating model of production process should be:

- *clear*, graphic representation of production or other processes should be transparency, mainly in the case of larger process
- *easy* to apply changes, it should be providing by a manager without in-depth knowledge of the technology
- *modular*, the overall production process consists from various operations that are linked together into a whole, and therefore the selected graphic language should be allow the creation of a database of production operations - modules
- *implemented* (not necessary) respectively expandable through a module included in enterprise software.

3.3 Methods for identification bottleneck

The methods have to allow for specificities of shortcomings and specify of time frame established control methodology. The starting point choice of method is acquisition of added value by manufacturing part, which means method of production:

- *Piece production*, for example construction industry is characterized by individuality of the product. In construction is used project management and production of one product will typically takes a few months or years
- *Series production*, characterized by production of the same or partially different product in a short time

It is not excluded use several methods as follows:

- *Cascade follow-up*, progressive scheme methods, where one method narrow down and follow methods describe the problem in detail

- *Cascade supplementary* scheme methods, where one method can determine the problem alone, but in case of a more detail parameters is used supplementary methods

4 Research result

4.1 Created 3I model creation

According to methodology described above has been formulated 3I model (see Fig.1.) respectively interdisciplinary incremental innovation model. The model is read from top to bottom, when we talking about the time period in 4 parts: initialization, analysis, research and implementation, evaluation of investment. The time frame is guarded by control functions – Stage-Gate® Xpress, where access methods we read from left to right.

3I model has a matrix structure, where y-axis reflects time plane and x-axis reflects process plane.

4.2 Implementation of industry automation means with RFID

Proven technology in logistics of construction is contactless technology - radio frequency identification (RFID). Contactless technology RFID stores information in the, and then readers read data at distances up to several meters. We can read information from tags witch are fixed to logistic means and tracking entities supply chain in the construction. RFID technology is applied with acceptable results to practice (Wang, Lin, & Lin, 2007).

4.3 Autonomous monitoring of concreting

In this part, we didn't set processes within 3I model, but we directly determine technical solutions for implementation. The initial solution is modular concept. Concreting is operation of technological steps - foundations. Concreting is pouring concrete to pre-pit of certain sizes and shapes. Concrete is transporting to construction site by mixer truck and distributed to pit by concrete pump. Quality of concrete evaluate by a paper certificate of truck mixer driver. Concrete pouring must be continuous, so that the layers joined together, either directly from truck mixer, or with a concrete pump with a radius up to 70m.

Table 1 Innovation cost

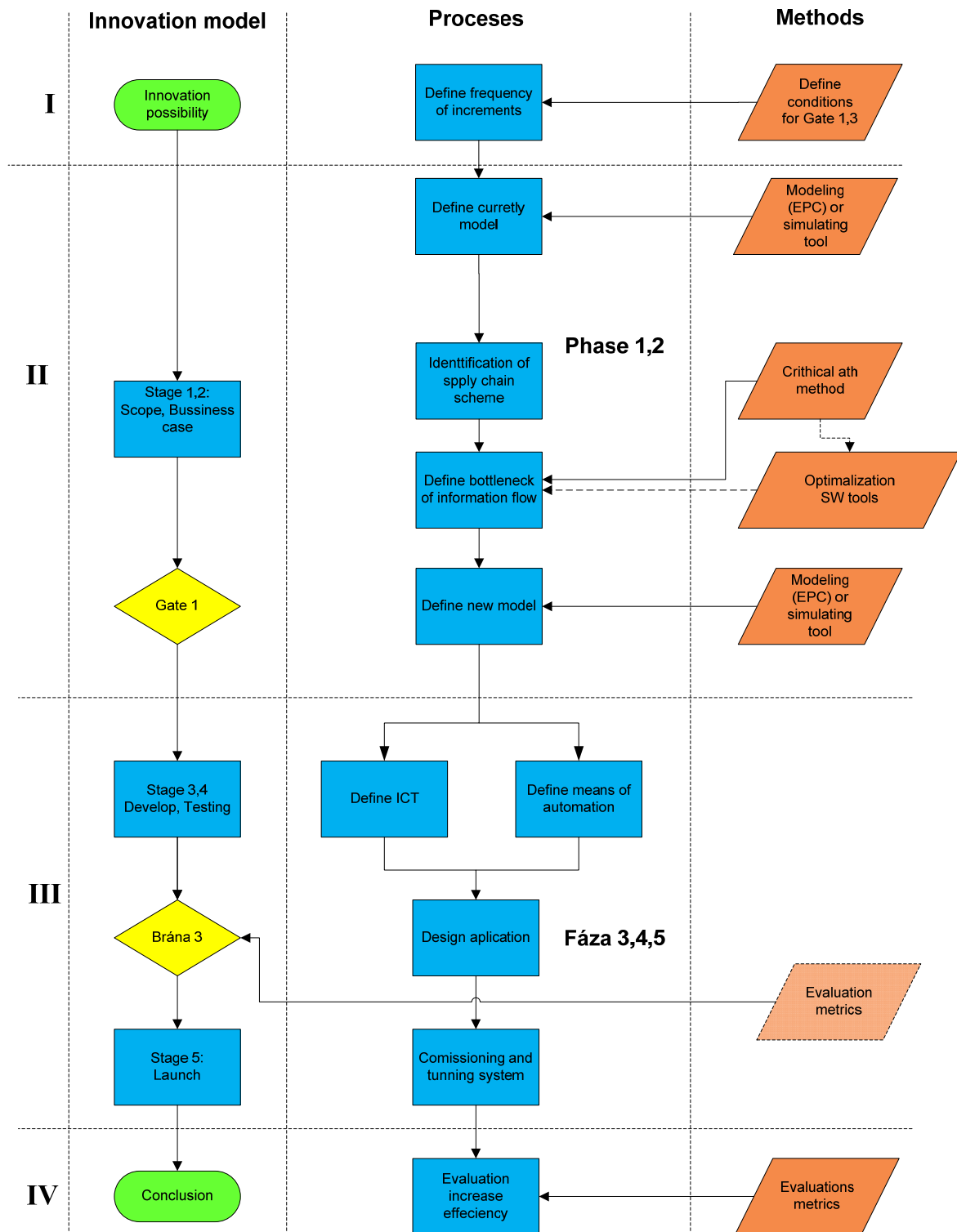
Initialized innovation – Gateway with web server		
Item	Describe item	Sum
1	Tags for mixer trucks, RFID antennas with 4m radius and reader, evaluation device with web server	4 099 €
2	Steel construction for antennas and switchboard	1 280 €
TOTAL Initialized innovation		5 379 €

Source: Author

5 Discussion

We can talk about a closed area on construction site with imaginary entry in case of concreting foundations. It will be considering one entrance / exit for mixer trucks, on which will be positioned passive tags (without power supply) with information about the quality and quantity of concrete, vehicle identification (driver's name or registration number of the subcontractor) or vehicle license plate with the name of the driver. Information will be read via RFID reader with antennas and central processor unit with web server will be provide this information on website.

Figure 1 3I model



Source: Author

5.1 Simulation

Simulation model was created by simulation software Witness Lanner Group. Where elements were used with the following specifics:

- Mixer trucks with a capacity 7 m³ of concrete.
- Shift has 10 hours
- It was defined one operator, construction manager

Table 2 Results of simulation

Status	Name	% Busy	% Idle	Quantity	No. Of Jobs Started	No. Of Jobs Ended	Avg Job Time
Before	Labor control	0.84	99.16	1,00	42,00	42,00	0.50
After	Labor control	5,76	94.24	1,00	42,00	42,00	3,43

Source: Author

Conclusion

Paper does not disclose procedures details of creating and then implementing innovations, but it describe application, currently model of technology operation – concreting and model of concreting with innovation. Experts expect contribution mainly to determine location of mixer trucks on construction site during continuous concreting of large concreting foundation (about 500m³). The simulation model takes account of control quality and quantity of incoming concrete to construction site by site manager. Simulation model after innovation includes initialized investment and one increment. About Table 1 we save time less than 5% of the time fund site manager, but about expert's greater benefit has been seem other benefits:

- Increase transparency of the material flow at construction site
- Improve the reaction times for response of concrete plants as a guarantor of continuous supply of concrete with a maximum guaranteed downtime between mixer trucks
- Potential reduce of plying mixer trucks
- Remotely overview of construction material inputs via Internet
- Increase efficiency of material flow management on construction site

Information and communication technology constantly progressing to optimize the production process. Trends in industrial automation and mutual communication are continuously deployed into production, but in construction industry, this trend is not applied as in other sectors. Character of construction industry production respectively construction of buildings has

relevant difference, which makes it difficult to implement new ICT innovations and industrial automation means. And therefore the aim of this paper was to identify way of implementation in form 3I model, which we can be implemented new technologies to enhance efficiency of logistics in construction. Design solutions must be fully modifiable, flexible because of the individuality construction production.

Designed applications using ICT with industrial control system wasn't implemented in real production but the benefit has been verified by simulation and proven by experts. Simulation results quantify direct benefits of saving time of construction manager, but more important are the unquantified benefits, that they contribute to higher efficiency of management.

When we correctly adjusted the funding and set up intervals of possible investments for incremental innovation, then is a possible way of implementation of ICT in construction production.

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CROWDFUNDING AS A CAPITAL SOURCE FOR REAL ESTATE PROJECTS

Paulína Srovnalíková – Donatas Ditkus

Abstract

This paper aims to present the conception of crowdfunding and its application to real estate projects. Real state crowdfunding is still in its infancy therefore is very important to understand it in order to properly prepare for possible opportunities and threats. Results of the study are obtained through qualitative research methods, such as content analysis, open and axial coding and sentiment analysis of scientific literature also cases of most promising crowdfunding campaigns were studied. Findings of this study provide a deeper understanding of the abilities and limitations of the crowdfunding usage as an alternative capital source for real estate projects. The Authors have summarized that crowdfunding might become significant and attractive way to invest in real estate at the same time providing with capital new real estate projects.

Keywords: Crowdfunding, Real Estate, Finance, Investment.

JEL Classification: D81, D92, G32.

Introduction

The concept of crowdfunding derives from crowdsourcing, which describes the process of outsourcing tasks to a large, often anonymous number of individuals the “crowd” in the form of open call application to obtain ideas, feedback, assets, resources, knowledge and expertise to develop corporate activities. Some entrepreneurs have relied on the Internet to directly seek financial help from the general public (the “crowd”). This technique, called “crowdfunding”, has made possible to seek capital for project-specific investments.

Crowdfunding used web technologies and existing online payment systems to facilitate transactions between sponsors (people who request funds) and funders (people who give money). The crowdfunding process was typically divided into three different phases. The first

phase was publication of an entrepreneur's concrete project idea, including the budget target, the time limit to raise the necessary sum, as well as the compensation for investing in the project. In the second phase, potential funders had the opportunity to gather information on the project, pursue its developments and read comments about the project by other investors. To increase success rates in terms of funding, the initiator could also promote the project through the use of social networks. During a crowdfunding campaign the second phase was often the most critical, as the mobilization of potential funders was essential for the success of a project. The third phase was implementation or payback. In the case of successful funding, the project moved forward and funders received the predetermined rewards at its completion (Lakhani, et. al., 2014).

Real estate is the largest asset class worth an estimated \$40 trillion only in U.S. market according to December 2015 report⁵⁰ from the Federal Reserve. The accessibility of property is a critical factor in real estate investment due to the close link between market entry probability, liquidity risk and market transparency (Lieser, Groh, 2014). As crowdfunding is currently working, even if not to its full content, it is now a suitable moment to analyse its chances to succeed and so there arises a need to take a closer look at the phenomenon. We discuss crowdfunding as an alternative way of financing real estate projects.

The object of the paper is the real estate crowdfunding.

The purpose of the paper is to analyze and describe crowdfunding as a potential capital source for real estate projects.

The goals of the paper are:

1. To describe characteristics of real estate crowdfunding;
2. To describe present scope and magnitude of real estate crowdfunding;
3. To analyze prominent real estate crowdfunding platforms.

The methods of the study are systematic, logical and comparative analysis of scientific literature and synthesis, open and axial coding techniques and case studies of selected crowdfunding campaigns.

⁵⁰ <http://www.federalreserve.gov/releases/z1/current/z1r-5.pdf>

1 Literature review

The Oxford Dictionary defines crowdfunding as, “the practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet.”⁵¹ The Internet can greatly decrease the cost of pooling small investments and allowing individuals to target specific opportunities. Crowdfunding is a new internet-based method to raise capital - pool small amounts of money from individuals and a global and promptly emerging novel financing option for businesses, ideas and projects (Belas, et al., 2016; Mura, et. al., 2015; Valanciene, 2013). Different interested parties are willing crowdfunding would be successful and prosper, including governments, seeking to create jobs and foster economic growth (Sigar, 2012; Gobble, 2012; Kitchens & Torrence, 2012; Bounds, 2013).

Various legal issues have so far largely restricted equity crowdfunding (Cholakova, Clarysse, 2015). However, there are the good signs in this field. On April 5, 2012, President Barack Obama signed into law the Jumpstart Our Business Startups (JOBS) Act, dramatically changing the landscape for many companies raising capital. One of the most interesting sections of the Act is Title III, the CROWDFUND Act, which enables entrepreneurs and small business owners to sell limited amounts of equity in their companies to a large number of investors via social networks and various Internet platforms. Prior to the CROWDFUND Act, selling equity interests in companies via crowdfunding was for all practical purposes illegal under United States securities laws. The Act attempts to exempt crowdfunding from expensive registration requirements and allow crowdfunding websites to avoid the classification of broker, which would impose substantial registration costs on such sites. Through the CROWDFUND Act, equity-based crowdfunding has the potential to open funding opportunities to countless underfunded entrepreneurs and businesses. In addition, it can provide investors with new ways to diversify their portfolios (Stemler, 2013).

The great number of studies carried out shows that there were no certain answers formed about decisions choosing finance alternatives in real estate industry, very often the option for a form of financing real estate projects is influenced only by the “level of accessibility” of the resources available on the financial market and the financing policy of many companies is guided rather by the constraints of the financial market than a coherent company’s strategy (Skačkauskienė,

⁵¹ http://www.oxforddictionaries.com/us/definition/american_english/crowdfunding

et. al., 2015). Communications technologies enable sponsors and other entrepreneurs from anywhere to access capital globally (Agrawal, et. al., 2015). Real estate crowdfunding provides an open access to direct real estate investments for general public.

The popular perception in the crowdfunding community has been that reward-based platforms are more likely to attract individuals who invest because they “like” and “enjoy” a project or an initiative and want to “support” it (Schwienbacher, Larralde, 2010), whereas equity-based platforms are seen as attracting people who are largely interested in backing projects for a return on their investment. However, the bundling of financial and nonfinancial incentives in crowdfunding campaigns can be an effective new strategy for raising finance on the platforms (Cholakova, Clarysse, 2015).

Sources of financing can broadly be divided into two main categories: equity and debt. When money is invested against equity, it goes directly into the capital of the company for which investors receive shares. As a consequence, they obtain some control over the company, while at the same time bearing risk. On the other hand, those who give finance for debt (mainly bank loans) remain external parties, linked to the company by a detailed contractual agreement. They bear lower risk thanks to collateral and seniority of their claims over equity (Virglerová, et. al., 2016; Šúbertová, 2014; Schwienbacher, Larralde, 2010).

Equity/investment type is the collective effort of individuals who network and pool their money, usually via Internet to investing for equity, or profit/revenue sharing in businesses or projects. Contributors are rewarded an equity stake in a company in return for their investment. The value proposition being offered is ownership or voting rights (Gulati, 2014). This embodiment provides range of solutions to assist projects in early stage of development. Project initiators and their partner platforms define a time period and a target amount of money which serves as a threshold (Hemer, 2011). Money target is divided into equal slices which are offered via the platform as equity shares (or stocks) to the crowd at fixed prices. Collecting money lasts until the threshold is reached and then investment phase begins (Pazowski, Czudec, 2014).

Lending-based crowdfunding enables the direct borrowing of funds, bypassing the traditional financial institutions, such as banks. This type of crowdfunding is largely an evolution of the peer-to-peer model of lending. Two approaches can be distinguished: microfinance (P2P microfinance) and social lending (P2P lending). Payment plus interest might be returned in a lump sum or along some sort of payment schedule. Social lending relate to higher amounts

making it the second largest category of world crowdfunding market, as measured by the money raised. Crowd lending is considered a threat to the big lending businesses as global banks (Pazowski, Czudec, 2014). Knowing that real estate investment is related to the general economic activity and prosperity of a region or country there is a must to properly investigate new sources of capital for real estate investments.

2 Research methods

This descriptive research examines the real estate crowdfunding in order to provide more comprehensive understanding how it can be used as a capital source for real estate projects. First we analyzed scientific literature using content analysis techniques such as open and axial coding. Then we have done case studies of five selected real estate crowdfunding campaigns. We chose three crowdfunding Web sites from United States, one from Asia and one from Europe. They are listed as follows: www.prodigynetwork.com; www.realtymogul.com; www.fundrise.com; www.coassets.com; www.mayfairandmorgan.com. Chosen sites are leading in their categories. After finishing case studies we provided descriptions and characteristics which can lead us to testable hypotheses and allow us to study phenomenon in order to get deeper understanding. In the next chapter we present our results and discuss the key contributions of crowdfunding to real estate projects.

3 Results and discussion

As crowdfunding for real estate has gained greater acceptance, the emphasis has shifted from this kind of niche lending to raising equity, mezzanine financing and debt for larger commercial properties and multifamily investments. There are more than 10 crowdfunding sites that have successfully raised equity capital for real estate sponsors from accredited⁵² investors. To date, most of the real estate crowdfunding Web sites have approach which begins with finding

⁵² According to Investopedia, "Accredited Investor is a term used by the Securities and Exchange Commission (SEC) under Regulation D to refer to investors who are financially sophisticated and have a reduced need for the protection provided by certain government laws. Accredited investors include individuals, banks, insurance companies, employee benefit plans, and trusts. In order for an individual to qualify as an accredited investor, he or she must accomplish at least one of the following:

- 1) earn an individual income of more than \$200,000 per year, or a joint income of \$300,000, in each of the last two years and expect to reasonably maintain the same level of income.
- 2) have a net worth exceeding \$1 million, either individually or jointly with his or her spouse.
- 3) be a general partner, executive officer, director or a related combination thereof for the issuer of a security being offered. An employee benefit plan or a trust can be qualified as accredited investors if its total assets are in excess of \$5 million.

credible real estate sponsors. Crowdfunding platforms like Realty Mogul, Fundrise look for real estate sponsors that have previously raised capital through private syndications. Crowdfunding Web sites with external sponsors emphasize their ability to find outstanding sponsors and perform careful due diligence on these opportunity providers and projects.

Each investment that is listed generally contains the information one would expect in an institutional investment committee memo. The memo and other attachments discuss: the location, the market, historical financials, underwriting assumptions, sponsor track record, risks and exit strategy. For some deals, the crowdfunding sites hold webinars or conference calls to introduce the sponsor and the deal to investors who are registered on the Web site and are interested in the property. Some projects are of good underlying quality while others are not: thus investors face asymmetric information about the identity of projects. Some investors have informative but imperfect signals of project quality while others do not, but everyone invests limited funds in one of several competing projects.

Prodigy Network is one of the largest Crowd-investing platforms in the world with projects around the globe worth over \$850 million and \$300 million in equity. Prodigy Network's crowd-investing model was developed as an innovative way to give smaller investors access to large real estate assets. Prodigy Network and its affiliates have led six international and U.S.-based projects, raised more than \$300 million from 6,200 investors around the world, and are currently developing projects globally with a projected value of more than \$850 million. The major banks like Deutsche Bank, CIBC and Bank of America have provided traditional mortgage financing for Prodigy's Manhattan projects⁵³. Prodigy had been vertically integrated until now. Rodrigo Nino, founder and CEO of the company said: "I wanted to control the process from A to Z before opening up to third party developers. Now, with six projects worth an estimated 850 million dollars and over six thousand investors contributing more than 275 million dollars, we will open our platform to other developers in order to create a true exchange. We will focus on curating and underwriting projects that meet our criteria and we will work only with proven developers and operators. In due time, we will look back and see that the change was bigger than anything we may have tried to anticipate today. Crowdfunding will level up the playing field in real estate forever," he predicted (Lakhani, et. al., 2014).

⁵³ <https://www.prodigynetwork.com/en/about.aspx>

RealtyMogul.com is a marketplace allowing accredited investors to pool money online for crowdfunding real estate investment opportunities. Realty Mogul arose in 2012, though it did not launch at www.RealtyMogul.com until 2013. Their mission then was the same as it remains: to simplify investing in real estate by connecting real estate investors and entrepreneurs via cutting-edge technology. Fast forward to four years later and you will see that Realty Mogul has transformed into a leader in the real estate capital online marketplaces. They provide both commercial debt and commercial equity products throughout the United States, educate their interested investors, and consolidate the company which they genuinely believe will alter the way that real estate is financed and invested in for all time⁵⁴. RealtyMogul.com has raised \$9 million in Series A and \$35 million in Series B funding⁵⁵.

Fundrise is an American real estate crowdfunding platform. It facilitates transactions from individuals, allowing them to invest in real estate projects with initial investments. Fundrise created a transparent online marketplace to revolutionize commercial real estate investing, and is trying bridge the gap from small real estate deals to the larger commercial real estate deals. Fundrise charges investors 0.3% to 0.5% of invested capital annually to service and asset management of the investments⁵⁶.

⁵⁴ <http://goldiraguide.org/realty-mogul-review/>

⁵⁵ <https://angel.co/realty-mogul>

⁵⁶ <https://investorjunkie.com/44326/fundrise-review/>

Table 1 The characteristics of analyzed real estate crowdfunding campaigns

Platform (Name on the Website)	Type of Property and Type of Investment	Headquarters	Sponsor	Type of Investor	Portfolio of Properties (Estimated 2015.12)	Equity Raised (Estimated 2015.12)	Minimum Investment	Amount of Investor- Sponsor Interaction
Prodigy Network	Commercial Equity	USA (New York)	Internal	Accredited, Foreign	\$850 MM	\$300 MM	\$20,000 for native investors and \$100,000 for foreigners	High
Realty Mogul	Commercial & Residential Equity & Dept	USA (Los Angeles)	External	Accredited, Foreign	\$700 MM	\$35 MM	\$5,000	Low
Fundrise	Commercial & Residential Equity & Dept	USA (Washington DC)	External	Accredited Non- accredited, Foreign	\$3000 MM	\$30 MM	\$1,000	Medium
CoAssets	Commercial & Residential	Singapore (Singapore)	External	Accredited Non- accredited,	\$140 MM	\$30 MM	\$10	High

CoAssets is southeast Asia's first real estate crowdfunding site. CoAssets Platform is a business networking and educational platform for real estate and crowdfunding enthusiasts. This crowdfunding site from Singapore, that lists properties from around the world, has raised US\$733,000 in series A funding from undisclosed investors. This values the company, believed to be the first real estate crowdfunding platform in Southeast Asia, at S\$13 million, or about US\$9.53 million post-money⁵⁷.

Mayfair and Morgan is Europe's first international real estate crowdfunding platform. International property management and investment firm Mayfair & Morgan has launched a investment crowdfunding platform that allows its members to invest in residential property from £1,000 and up. The company wants to allow investors to generate long-term returns without the need for house hunting, mortgage acquisition, tenant recruitment and property management⁵⁸.

⁵⁷ <https://www.techinasia.com/singaporebased-real-estate-crowdfunding-site-nabs-733k-investment>

⁵⁸ <http://www.crowdfundinsider.com/2014/10/52667-mayfair-morgan-launch-europes-first-international-real-estate-crowdfunding-platform/>

The process of crowdfunding very much depends on the way each intermediary perceives and organizes it. There appear significant differences in the application and project selection process – it can be done by just filling a form on the internet, include meeting with consultants or involving an exhaustive background check. The background check is very important in real estate crowdfunding. Many real estate crowdfunding platforms allow only experienced sponsors to list their properties for potential investments.

A need to present a project or an idea for broad public is a feature of crowdfunding and the key findings of the study reveal that crowdfunding has a marketing benefit that translates into sales (Valanciene, Jegeleviciete 2014). Thus, there appears a possibility for the broad public, including backers or investors, to express their opinions and suggestions, so the product, project might be modified and perfected with their help also local communities could provide necessary support for legal approval. But developers should be cautious about time of project publication because it can also be harmful for the real estate project.

Conclusions

We have examined the platforms of real estate crowdfunding that connect sponsors with funders. We have analyzed five prominent real estate crowdfunding campaigns which have already from 7 to 300 million U.S. dollars raised for their listed investment opportunities. We explore whether and how these platforms differ. Three of studied platforms allow only accredited investors invest in listed investment opportunities. Platforms provide different investment conditions and amount of investor-sponsor interaction and focus on different asset classes.

Research shows that real estate crowdfunding may become a significant source of capital for many real estate developers. The identification of worthwhile investments and monitoring recipients of funds may be a key challenge for crowdfunding. It will be interesting to see how crowdfunding evolves over the next years. Considering future research, the phenomenon of crowdfunding could also be studied through theories of motivation to get better understanding what drives individuals to invest in real estate projects via crowdfunding platforms.

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MOTIVATION TO START-UP A BUSINESS IN RELATIONSHIP TO INNOVATIONS: DOES “GOOD” MOTIVATION REALLY MATTER?

Jarmila Šebestová – Zuzana Palová

Abstract

A motivation to start up could affect all near future of the business unit. This situation is described on case of Moravian-Silesian Region. These results are based on field survey study between 215 entrepreneurs in the Moravian-Silesian region in 2015, where we found a significant relationship between start up motivation and innovations, then affected by company location. The paper argues that level of innovative behaviour is higher in SMEs which have owner-managers who were pull motivated in start-up and lower in those which have owner-managers who are not satisfied with local entrepreneurial conditions. Product innovations are closely connected with opportunity seeking motive to start up (52%). Some start-up entrepreneurs only begin because they would otherwise remain unemployed (5%). In final part of the paper, factor analysis is made to find out main factors, which lead to innovations as stress on size, willingness to participate in education process, strategic thinking or start-up motivation.

Key words: motivation, start-up, innovation, Moravian-Silesian Region

JEL Code: L26, O31

Introduction

Successful entrepreneurship is based on a myriad of factors impacting on future business performance, particularly in the area of creativity and innovation (Watson, Scott, 1998). In long term business observations, regional differences in entrepreneurial capital and their output are mentioned and we found only a small group of true entrepreneurs (in the sense of innovators). Some are content with the same wage rate as is usual in the given region and therefore they avoid taking risks in their future business, these are some of the reasons, why they do not plan any innovations. (Santarelli, Vivarelli, 2006).

The main goal of this paper is to compare and contrast the relationship between the self-motivation to start-up a business and the innovative spirit based on inter-district differences in the Moravian-Silesian region. Primary research data from 215 “established” companies was used, when new positive trends between the motivation to start-up a business and innovations were identified as a source of sustainability, Hayward et al., (2006). The uniqueness of the presented data can be seen in the connection between two factors (innovation and motivation) in established business which are not mentioned in published studies in current literature (Viturka, 2010; Šúbertová, Kinčáková, 2014). Many studies exist regarding start-up aspirations and motivation, but these studies mainly concentrate on "new" businesses (Lukeš, Jakl, 2012; Cassar, 2006).

1 Individual motivation to start-up and innovativeness

The individual motivation of an entrepreneur affects not only the perception of the business environment, but also future business success (Lukeš, Zouhar, 2013; Rauch, Frese, 2007). Unfortunately, when higher social security payments are available in certain regions, most people will not be interested in taking the risk of starting their own business and as such to be innovative. (Hessels, van Gelderen, Thurik, 2008)

The motivation to start-up a business with the idea of growth by innovation is often low. Previous studies showed us that this idea is supported by only 33% of business founders. Most of them could be described as “irrational economic entities”, who place greater value on their own satisfaction than their need for approval by society for being innovative (Wang, Walker, Redmond, 2007). Stevenson, Jarillo (1990) reminded us that entrepreneurial success is based on entrepreneurial characteristics (personality, background, skills) and the influence of a socio-economic environment.

On the other hand, this is not the only influence for start-ups; entrepreneurial self-efficacy also plays its part and could indeed mould the future of a specific business – i.e. whether to play the role of survivor or innovator. To sum up, the motivation to start-up a business may well directly affect the future success of the business, particularly in the field of innovation (Hopp, Stephan, 2012). The existence of sub-regional differences is one theoretically plausible explanation for spatial variations in innovative activity within districts and it is necessary for Community-Led Local Development planning within EU requirements.

2 Innovative potential of SMEs in the Moravian-Silesian Region

Innovative potential of small businesses means finding a new combination of resources and opportunities in a way enabling an enterprise to adapt to new conditions as soon as possible by innovative way. Unfortunately, the sustainability of entrepreneurship is difficult to estimate because similarly as with objectives, it reflects a future situation.

2.1 Primary data collection and data sample description

The key task of the questionnaire based research is to ascertain the respondents' awareness of and attitudes towards the basic elements of cooperation between the region – municipality and the entrepreneur and the definition of factors influencing small and medium-sized enterprises in the Moravian-Silesian (MS) Region. From the point of view of the analysis of entrepreneurship sustainability in the Moravian-Silesian Region, enterprises under three years of age were not selected, i.e. the sample was required to contain businesses that existed on January 01, 2011. Classification of the enterprise age was based on the methodology of the Global Entrepreneurship Monitor research (GEM), which considered an enterprise operating for a period of more than 42 months to be an established business. (Lukeš & Jakl, 2012).

Surveyed companies fulfilled the criteria of (1) being designated as small and medium sized companies by their number of employees – fewer than 250, (2) operating a business in the area of the Moravian-Silesian Region and (3) agreeing to a personal visit during autumn 2014.

The questionnaire covered four significant areas which form the basis of the analytical part and are the foundation for model generation. The questionnaire structure corresponded to the cross-section of activities connected with their business:

Main motivation for founding an enterprise and the evaluation of the environment for micro-financing, cooperation, change of the legal status.

Description of barriers or problems, which could lead to the termination of activities in an industry, based on the Porter forces analysis within an industry.

Relations to institutions (MS Region, municipality).

Evaluation of strategic thinking, innovativeness and behaviour (strategy, personnel policy, innovation activities).

To identify factors that currently influence innovativeness of small and medium-sized enterprises in the Moravian-Silesian Region and have impacts on the sustainability of their

business activities, owing to the quantitative nature of the acquired data, the factor analysis was applied.

During data collection more than 400 respondents were randomly selected. Finally, we obtained 215 valid responses (response rate of 53.8%). Researchers conducted several random checks for internal consistency in responses when Cronbach's Alpha was in whole sample 0.845.

The research was conducted throughout the Moravian-Silesian Region, and the representation of individual districts was as follows: Bruntál (2.8%), Frýdek-Místek (18.1%), Karviná (29.8%), Nový Jičín (10.2%), Opava (7.0%) and Ostrava – město (32.1%). Percentage of the respondents in each district corresponds to the structure of economically active enterprises within Moravian-Silesian Region. As was mentioned we focused on primary impulse to their start up (according Lukeš & Jakl 2012 divided as push and pull motives). We understand that some respondents could evaluate their starting point more optimistically, but in addition to this we compared this motive with their innovations and their satisfaction with condition for providing business in their district. It is logical, that respondents, who were more satisfied, they had “pull motive” as starting point.

Table 1 Relationship between entrepreneurial satisfaction and start-up motives

	Scale	Bruntál	Frýdek-Místek	Karviná	Nový Jičín	Opava	Ostrava - město
Overall satisfaction	Likert scale	1.17	2.10	2.52	2.64	2.07	2.17
Push motives	percent	50%	23.1%	39.8%	13.6%	13.3%	25%
Pull motives	percent	50%	76.9%	60.2%	86.4%	86.7%	75%

Source: own research

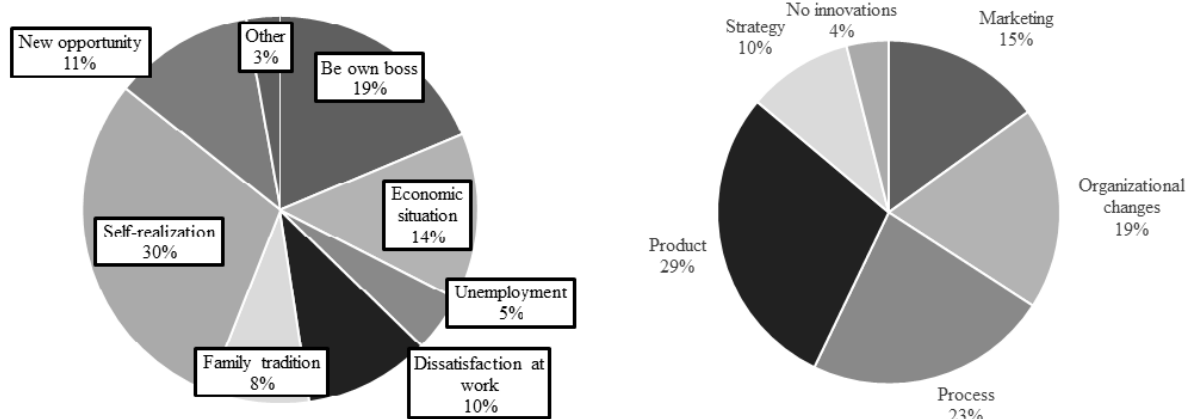
As being illustrated in table 1, the relationship between overall satisfaction and main start up motives was significant in four from six districts. Different values we obtained in Bruntál, where overall satisfaction is high, but motives are in average. In opposite situation is district of Nový Jičín, where many businesses in the sample are in age of 5 years and less, so they are more critical on business environment.

2.2 Results of Innovative activity

The main positive result was that nearly 96% of respondents answered, that they produced innovation in last three years. We compared results from motive and main innovation in the sample. (Fig. 1). There are dominating self-realization motives and product innovations.

It has been founded a strong relationship between the localization of enterprise in the region and innovation (Cramer's $V = 0.524$, sig = 0.063, the level of $\alpha = 0.1$). The inter-district comparison, innovations are the most important indicator for the district Ostrava-Město (Cramer's $V = 0.665$, sig = 0.002, the level of $\alpha = 0.05$) and Frýdek-Místek (Cramer's $V = 0.391$, sig = 0.003, the level of $\alpha = 0.05$).

Figure 1 Main motive to start-up and type of innovation



Source: own research

Secondly, we confirmed positive relationship between main start-up motive and type of innovation (Cramer's $V = 0.544$, sig = 0.075, the level of $\alpha = 0.1$), when product innovation is dominating in case of self-realization motive. In comparison to previous results a detailed analysis was made (Tab.2).

Table 2 Innovations in relationship to start-up motive

Main motive to start-up	Innovations						Total
	Marketing	Organizational changes	Process	Product	Strategy	No innovations	
Be own boss	21%	13%	34%	17%	6%	9%	100%
Economic situation	20%	14%	20%	31%	11%	3%	100%
Unemployment	25%	17%	17%	17%	17%	8%	100%
Dissatisfaction at work	12%	23%	35%	19%	8%	4%	100%
Family tradition	14%	14%	29%	33%	5%	5%	100%
Self-realization	13%	23%	16%	32%	13%	3%	100%
New opportunity	7%	28%	14%	52%	0%	0%	100%
Other	0%	14%	29%	14%	43%	0%	100%

Source: own research

When the innovative approach to start-up is applied (new opportunity), then product innovation is dominating in this case. On the other hand, when the entrepreneur was motivated by own unemployment, main area of innovations is not significant. The factor analysis (see the Tab. 3) revealed most of the important areas relating to innovative entrepreneurship, where six factor groups were extracted and the explanatory power of this model is 62.5%. Basic tests to rate the adequacy of the sample for the analysis were conducted (Kaiser-Mayer-Olkin measure of sampling adequacy, KMO = 0.571, Communalities variance was 0.6).

The method of principal components (PCA) was applied for extraction of factors. The objective of this method is to find underlying and therefore hidden (artificial, non-measurable, latent) variables (hereinafter referred to as components) that sufficiently explain the original variability of the variables, for which the VARIMAX factor rotation was employed. After that procedure we were able to model our table of significant factors of innovative entrepreneurship in the region.

Table 3 Determinants of Innovative Behaviour

Factor	Component		
Sources of innovative potential	R & D (0.581)	Number of employees (0.818)	Turnover (0.859)
Main motivation	Main motive to start up (0.622)	Product (0.812)	
Technical innovations	Innovations in Process (-0.443)	Organizational changes (0.918)	
Strategic innovations	Marketing innovations (0.814)	Innovations in Strategy (0.473)	
Cooperation with Universities	Graduates for employment (0.759)	Conference participation (-0.444)	
Willingness to participate in education process	Student training and thesis cooperation (0.899)		

Source: own research

The figure in brackets is the value of the correlation coefficient of the given factor which is referred to as factor loading. The factors of the value exceeding 0.4 are considered as significant. The sign of “ - ” shows the negative tie in the factor. We could divide those factor into those groups:

Innovation input factors, which are defined as sources of innovations – sources of innovative potential (people, financial issues, research), motivation (opportunity seeking on the market).

Innovation output factors, which cover implemented innovations in area of technical or strategic innovations.

Innovation impact factors, which motivate owners to extend their activities into cooperation and motivate them to participate actively in education process.

Unfortunately, negative ties could be seen in cooperation at conferences in relationship with graduates (companies expect some results before hiring a graduate) or negative tie between new process and organizational change, which, in many cases cause reduction in number of employees.

Conclusion

Our research highlighted local impact of entrepreneurship activity, what is a main limitation of presented study. Consequently, ownership motivation must be taken as a starting point to understanding the issue of SME innovativeness. Despite these limitations, the relationships between the type of individual motivation and innovation activities on the one hand and willingness to cooperate on the other hand show the potential for motivation and support of networking.

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DRIVERS FOR CORPORATE SUSTAINABILITY: AN EXAMINATION OF POLISH FIRMS

Maria Urbaniec

Abstract

Sustainable development is widely perceived as a key trend of global environmental policy and socio-economic development. From the microeconomic point of view, the concept of sustainable business development assumes that the company should strive to achieve broad benefits for all stakeholders, local communities and the environment, and not just care about its economic interests. Many companies are already undertaking a number of different actions associated with sustainable development, in order to promote greater environmental and social responsibility. There are a number of factors that influence the environmental and social responsibility of enterprises. This paper aims to examine the relevant influence factors for the implementation of corporate social responsibility in Polish companies. The research question is: what are the principal drivers for the implementation of sustainable development in Polish companies? The paper addresses key implications for corporate managers and other affected decision-makers. It concludes that corporate social responsibility is becoming increasingly important as an instrument for the implementation of sustainable development in Polish companies and contributes to environmental and social changes.

Key words: sustainable development, corporate sustainability, corporate social responsibility

JEL Code: M14, Q01, Q56

Introduction

Sustainable development is now a new trend of socio-economic and ecological development at the international level both in terms of macro- and microeconomics (Redclift, 2005, p. 213). It is considered to be the overarching principle of global environmental policy and development policy, taking into account economic, environmental and social issues. Sustainable development should be understood as a consciously shaped process requiring far-reaching

changes in institutional structures, in technological progress and human consumption patterns and behavior, e.g. in energy-producing technologies, as well as in the distribution of products and services, while contributing to innovative economic, technological and structural solutions (Urbaniec, 2014). The growing importance of sustainability issues can be seen primarily in large companies that carry out various activities, e.g. implement social and environmental standards. An exemplary instrument is the concept of corporate social responsibility (CSR), which supports companies in the implementation of sustainable development.

This article aims to analyze the impact of corporate social responsibility on the implementation of sustainable development in Polish enterprises. On this basis it will be possible to identify which factors influence the integration of sustainable development in core business. Therefore, the importance of sustainable development and the possibility of its implementation in companies will be presented first. Subsequently, on the example of Polish enterprises, the reasons for CSR implementation with regard to its barriers and benefits will be identified.

1 The definition and assumptions of sustainable development

The idea of sustainable development was initiated as a result of ecological problems emerging in the 1960s and '70s (Elington, 2004). Of crucial importance in the development and dissemination of the concept of sustainable development was the so-called “Brundtland Commission” of the World Commission on Environment and Development, which published a report titled “Our common future” in 1987. According to this report, the objective of sustainable development is “... development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 43). The Brundtland Report was an important document in the preparation of the United Nations Conference on Environment and Development (UNCED), which took place in Rio de Janeiro in 1992. During this conference, a declaration on the implementation of the principle of sustainable development as the world's environmental and development policy was signed by 178 states. This declaration includes the postulate that all people, all societies and all generations are entitled to a healthy and productive life and to development in harmony with nature. Sustainable development consequently means a process directed at meeting the development objectives of the present generation in order to meet the needs of the next generation.

In definitional terms, sustainable development is understood as a normative concept, taking into account the values and ethical standards prevailing in society and necessary for its development.

Starting with the classic definition contained in the Brundtland Report, current literature on sustainable development provides many new interpretations, depending on the level of aggregation or thematic area (Kates, Parris & Leiserowitz, 2005). However, one can still notice the lack of accurate and consistent meaning of the term. Depending on the economic school, ethical traditions of thought, or types of stakeholders, sustainable development can be interpreted differently. The general consensus concerns long-term targeting, as well as the taking into account environmental, economic and social dimension (Diefenbacher, 2001, p. 65). The assumptions aim to create a sustainable and environmentally friendly pattern, which will only be possible to achieve if its interdisciplinary dimension is taken into account, and it is implemented not just at the political level, but also by enterprises as the main entities of socio-economic development. Enterprises, as well as other users of the environment, should significantly increase the efficiency of natural resources, e.g. by reducing the consumption of materials, water, energy and intermediates and by optimizing products and services at the given level of production. Therefore, enterprises have different possibilities of doing business in accordance with the principles of sustainable development, implementing voluntary actions for social and environmental responsibility.

2. Implementation of sustainable development in enterprises

The implementation of sustainable development in companies is currently at the initial stage of development, thus it is difficult to predict the pace and shape of its development (Cohen, 2011, p. 146). In general, however, this term determines organizational management practice and, more specifically, the production and consumption, which leads to the reduction of negative impact on the environment and the protection and re-use of raw materials (Cohen, 2011, p. 1-2). According to the nature of sustainable development, enterprises implementing this concept should take into consideration, within the framework of their management system – in an integrated manner – economic, ecological and social aspects. On the one hand, this means that appropriate economic objectives, including environmental and social aspects, should be determined, and, on the other hand, the goals, strategies, and ecological and social activities that will have a positive impact on the economic objectives of enterprises should be in focus (Schaltegger, Wagner, 2011, p. 227). Examples of sustainability management objectives should include the following (Schaltegger et al., 2007, p. 15-17):

- the economic dimension – ensuring the economic development of the company through a focus on profit, increasing the company's value, improving profitability or the introduction of cost-reducing production,
- the ecological dimension – protecting the environment by reducing the impact on it by enterprises as a result of production processes, products/services and investment/innovation,
- the social dimension – the implementation of social responsibility via the company's internal and external stakeholders.

In practice, business issues related to sustainable development are often difficult to define and operationalization. A key role in the transformation of classic management into management for sustainable development is played by managers at all levels of organizational structures. However, not all of them can manage the organization according to the principles of sustainable development, since their managerial attitudes and beliefs are not based on values aimed at taking responsibility for the environment or for operations concerning economic objectives as well as social issues.

Sustainability managers are often described as people having knowledge and experience in this area and are able to create and develop an organization striving to achieve not only economic, but also ecological and social goals (Cohen, 2011, p. 147). Taking into account objectives and activities in the field of sustainable development requires the ecological and pro-social behavior of the company management. Without the support of the top management and the lack of strategic objectives in this regard, the involvement of enterprises may be only occasional, e.g. by way of occasional campaigns. It should be emphasized that taking into account the principles of sustainable development in management complicates the process and creates new challenges for managers. In this regard, Ehrenfeld stresses that managers should critically evaluate the primary value as well as the mission of their business with a focus on sustainable development, thus creating new opportunities (Ehrenfeld, 2005, p. 23-25). The discovery and exploitation of business opportunities must be the result of conscious actions and must actively search for new solutions.

In practice, there are many opportunities to take action for the sustainable development of companies, such as: the development of environmentally friendly products, an increase in efficiency, reducing emissions, financing of social and/or environmental projects. The current

level of implementation of sustainable development in enterprises allows us to observe two major trends:

- in recent years, good progress has taken place in environmental management and social aspects in enterprises, which is the domain of mainly large companies,
- social aspects are still considered to a lesser extent in the management of sustainable development than ecological aspects.

In summary, it can be stated that there are many concepts and systems, supporting the implementation of sustainable development at the company level (Schaltegger et al., 2007, p. 19). An example of an instrument supporting the solution to the economic, environmental and social problems is the concept of corporate social responsibility, the effects of the implementation of which, by enterprises, are presented in the next section.

3 The impact of sustainable development on Polish enterprises exemplified by the concept of CSR

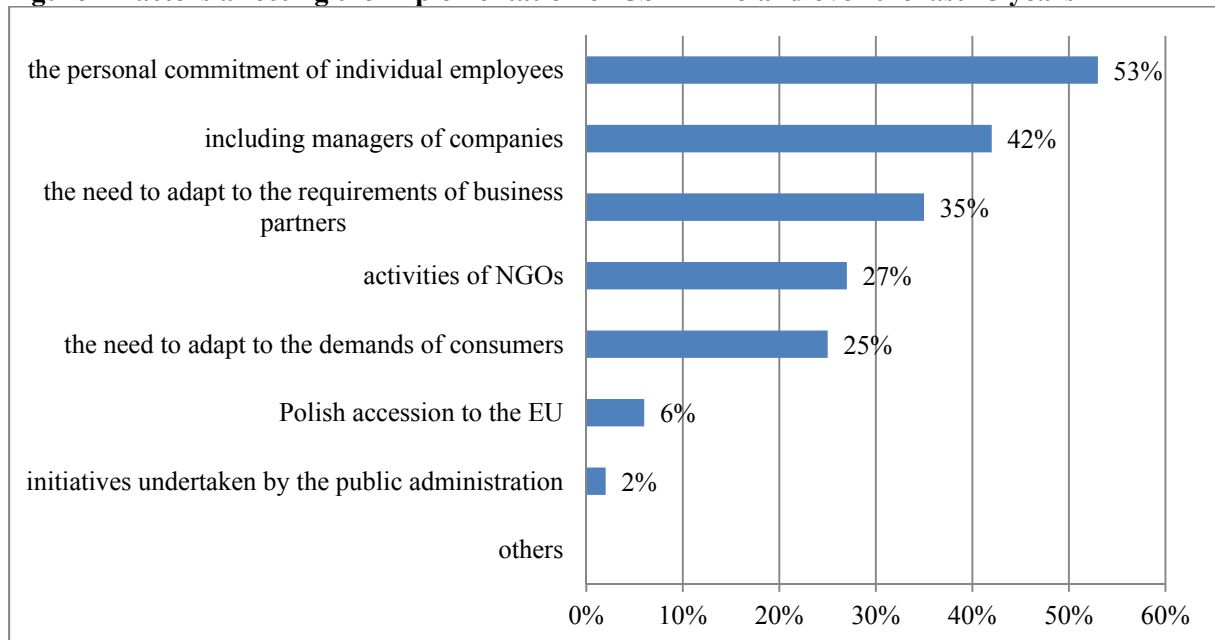
Implementation of sustainable development is perceived as both a challenge and an opportunity for companies (Hörisch, Windolph, 2014, p. 21-22). Based on the study titled “CSR Managers”, conducted by the Responsible Business Forum in Poland, among the persons engaged in corporate social responsibility, a positive trend of development can clearly be seen (Andrejczuk, Grzybek, 2015). It should be noted that the survey was carried out in the form of two components – quantitative (133 interviews) and qualitative (16 respondents). The study was conducted by the research agency PBS in 2015 (Andrejczuk, Grzybek, 2015, p. 11).

The results of this survey show that a significant impact of CSR on the functioning of the business is noticeable over the past 15 years. This is discernible in up to 81% of the managers surveyed. This impact is visible mainly in the range of changes in the manner of shaping the companies (62%), greater attention to environmental issues (30%) and the needs of society (29%) (Andrejczuk, Grzybek, 2015, p. 13).

The results of the study show that the important factors supporting the implementation of CSR in Poland mainly include the initiative and involvement of individuals in the popularization of the idea (78%), including company managers (53%). Essential for the development of CSR were also the growing demands of more and more informed business partners (42%) and consumers (27%). Surprisingly few respondents (6%) indicate the initiatives taken by the public

administration, but only a few managers have expressed the opinion that the dissemination of CSR in Poland was mainly due to multinational corporations, which, by opening their headquarters here. Business development in compliance with the concept of CSR would also not be possible without the educational activities of NGOs (including the Responsible Business Forum). Nevertheless, especially valuable is the focus on the appropriate interpretation of the concept of CSR (also based on good practices and the publication of reports), as well as promoting the value of building good, not based on the exploitation of capitalism (cooperation rather than competition, the promotion of dialog between different communities). A summary of the most important CSR factors influencing businesses in Poland is presented in Figure 1.

Figure 1 Factors affecting the implementation of CSR in Poland over the last 15 years



Source: Andrejczuk, Grzybek (2015, p. 14).

The beginnings of CSR in Poland were not easy. The main barrier was the mentality of company management staff – the lack of understanding of the concept (46%), the belief that CSR is unprofitable and does not bring about any benefits (45%), and also a very common perception of typical sponsoring activities as measures of corporate social responsibility (40%). It should be added that the understanding of CSR in the category of sponsoring activities is a serious obstacle to the development of social responsibility in the past and currently leads to the distortion of the idea also in the public perception. Reducing CSR for charity activities or sponsorship contributes to the instrumental use of the idea as a tool of promotion and

advertising; derivative of this understanding of CSR is its recognition as a way to rebuild lost trust. An elementary problem, however, seems to be the lack of the adequate education of the managerial staff and certainly its solution would translate into a reduction of the remaining barriers. Among the major obstacles, the lack of pressure on the part of consumers (32%) emerged.

However, CSR managers definitely see positive results from the implementation of CSR in their companies. As a result of conducting business in a responsible manner, respondents indicated: growing employee awareness of ethics (74%) and an increase in their involvement (71%), growing recognition of the brand concerned as being responsible (70%), improved relations with the local community (69%), overall improved reputation (62%) and increased customer confidence (61%). The most important benefits and barriers to the implementation of CSR in Poland are presented in Table 1.

Table 1 The main obstacles and benefits of the implementation of CSR in Poland over the last 15 years

The main barriers to the implementation of CSR in Poland	In %	The main benefits of the implementation of CSR in Poland	In %
lack of understanding of the concept by the managing staff of companies	46%	raising the level of ethical awareness among employees	74%
the conviction that CSR is “unprofitable”, without any benefit	45%	raising the level of employee engagement	71%
lack of proper education for the management personnel	41%	increasing brand recognition as a responsible/sustainable brand	70%
understanding of CSR in the category of sponsorship efforts	40%	improved relationships with local communities	69%
lack of pressure from consumers	32%	improved reputation	62%
the lack of incentives from public administration	26%	raising the level of customer confidence	61%
economic crisis	19%	implementation of new, innovative solutions (e.g. products, services, processes)	47%
lack of information in the media and public debate	18%	cost reduction	22%
unwillingness to invest by businesses	14%	reducing the number of accidents at work	22%
Others	1%	reducing the level of employee turnover	19%
there were no problems	0%	others	3%
		it is difficult to say	2%
		we have not achieved any benefits	0%

Source: Compiled from Andrejczuk, Grzybek (2015, p. 15, 21).

Taking into account the motives as well as the benefits and barriers to the implementation of the concept of corporate social responsibility, it must be emphasized that the dissemination of the idea of CSR in Poland is mainly reflected in a better understanding of its substance by both managers and employees that modern companies are expected to (Andrejczuk, Grzybek, 2015, p. 13):

- raise awareness regarding the needs of the local natural and social environment,
- make a profit ethically, based on the continuous improvement of the standards of cooperation with different groups of stakeholders (customers, employees, local communities),
- care for the positive image, a key dimension of which is to maintain the company's operations in terms of sustainable social development; company image is one of the basic elements of increasing competitiveness, and therefore profits.

Significant changes occurring in companies in Poland, through the spread of CSR, include (Andrejczuk, Grzybek, 2015, p. 14):

- an increase in the awareness of the rights of workers (introduction of anti-discrimination policies, anti-mobbing),
- an increase in the number of initiatives for the non-wage motivation of employees (e.g. private medical care, the introduction of elements of work-life balance, enabling the development of a passion, e.g. by establishing and funding sports sections),
- taking into account the good of the consumer (“ethical promotions”, no commission remuneration of traders – helping to make a good choice, they do not tend to buy goods at any price, resignation from zero percent loans, which drive the spiral of debt),
- perception of the needs of business transparency (reporting of its activities),
- corporate management on the basis of codes of ethics, the implementation of which is constantly monitored not only by the public but also by firm-internal departments,
- taking measures or declaration of environmental actions,
- involvement in philanthropic activities, participating in social campaigns.

It can be concluded that the changes in the companies will have a long-term impact on socio-economic development, including the shaping of the knowledge-based economy and the building of social capital. Therefore it can be assumed that the business models will change and will be associated with new styles of consumption and the growing expectations of society.

Conclusion

The implementation of the sustainable development of enterprises is a process of achieving economic, environmental and social goals by businesses. This may be reflected in various areas of functional, normative and strategic areas of the enterprises, e.g. in the company's strategy. This may be implemented based on the application of different systems and instruments simultaneously. In order to contribute to the greater dissemination of this concept, it is necessary, among others, to promote good practices among executives. Its prevalence in the practice of companies offers a chance to change consumption and production patterns, which are designed to meet intergenerational needs.

Based on the results of a survey among Polish managers, which focused on the impact of the implementation of one of the instruments of sustainable development, which is corporate social responsibility, it can be generally assumed that the impact of CSR on business in Poland has contributed to many positive changes in the functioning of businesses in the last 15 years. The development of responsible business would not be possible without the involvement of both internal stakeholders (i.e. company employees, including CSR managers), as well as external stakeholders, thanks to the growing demands of business partners and consumers.

An important fact is also that CSR is not regarded – as it was a few years ago – as a reputation-building and communication tool but, firstly, the benefits of an ethical approach and commitment of employees are mentioned by managers. This shows that CSR is no longer associated only with social shares and charitable activities, but that it's becoming part of the company philosophy. In contrast, as the most important barrier to the development of CSR in Poland, a lack of understanding for this idea among top management staff, failure to recognize the benefits of its implementation, as well as overemphasis on sponsorship and philanthropy are indicated now and in the future, which is a major challenge for further development. However, a positive trend is the fact that the awareness of CSR among management executives from year to year is growing. In this regard, a strong leadership interested in the understanding of CSR as well as the appropriate education of managers are needed, which are seen as important drivers for the growth of responsible business in Poland.

In the literature it is emphasized that the need for sustainable development is increasingly transforming contemporary management organizations, especially their innovation and competitiveness. Many companies are involved in environmental and social activities.

However, progress in this area is insufficient. Within these developments, it should be further endeavored to integrate the various requirements in the management of sustainable development.

To conclude, the implementation of sustainable development is seen both as a challenge as well as an opportunity for businesses. Both in science and in practice sustainable development is the new mainstream of development, which is not due to the needs of individual organizations or sectors of the economy, but has grown from the global need for environmental protection. With the emerging environmental problems its importance will continue to grow, but it should be emphasized that the implementation of this concept is also related to certain limitations, e.g. limited growth in production and consumption. Therefore, an important issue is not only the theoretical development of this concept, but also the search for solutions useful in practice. This will increase the motivation to take actions, the faster perception and better understanding of the many negative effects, and control over their progress.

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SOCIO-ECONOMIC ASPECTS OF INDUSTRY 4.0

Jiří Vacek

Abstract

Recently, the number of publications about Industry 4.0 has been steeply increasing. However, the concept of “Industry 4.0” is primarily being explored from a technical point of view – robotics, Internet of things, big data, smart objects, smart factories. There has been very little inquiry into the question of what it means for people and the society as a whole. Increasing digitisation will not only have an enormous impact on machines, factories and sectors, but on societies, economics and management as well. That is why we must look more closely at these aspects. Where are the risks – but also where are the opportunities for social innovation and progress?

Industry 4.0 still has not entered the mainstream academic research, it is much more frequently treated in reports of leading consultancies as McKinsey, Deloitte, Accenture, BCG, World Bank and recently it became one of the main topics of discussion at the WEF 2016. However, as it can profoundly affect the future of jobs, management, education, and social systems, academic research in related disciplines should not stay aside and supplement the activities of technically oriented colleagues

Key words: Industry 4.0, automation, structure of jobs, skills and competencies, intellectual capital

JEL Code: M10, O33, E24

Introduction

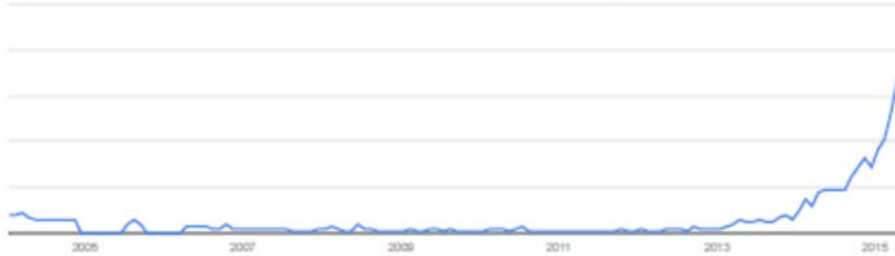
“It is difficult to make predictions, particularly about the future”. Mark Twain

Recently, the number of publications about Industry 4.0 has been steeply increasing. Figure 1 illustrates the rapidly increasing number of searches for “Industry 4.0” on Google. Current total number of related documents is higher than 200 mil.

However, the concept of “Industry 4.0” is primarily being explored from a technical point of view – robotics, Internet of things, big data, smart objects, and smart factories. There has been

relatively little inquiry into the question of what it means for people and our society on the whole.

Figure 1 Number of documents related to Industry 4.0 (March 20, 2016)



Source: <http://www.google.com/trends/explore#q=Industry%204.0&cmpt=q&tz=Etc%2FGMT-1>

The Czech Republic share of manufacture on the GDP is the highest in the EU (26%, while the EU average is 24%), therefore it is highly important to catch the train in time. However, it deserves attention that there still remains 76% of the GDP created in other sectors and proper attention should be paid also to them.

Increasing digitisation will not only have an enormous impact on machines, factories and sectors, but on societies, economics and management as well. That is why we should look more closely at these aspects. Where are the risks – but also where are the opportunities for social innovation and progress?

Industry 4.0 still has not entered the mainstream academic research – at the date of this paper writing, there were 41 references to Industry 4.0 (title) in the Web of Science and 135 references in Scopus. The topic is much more frequently treated in reports of leading consultancies as McKinsey, Deloitte, Accenture, BCG, World Bank and recently it became one of the main topics of discussion at the WEF 2016 (Foreign Affairs, 2016). However, as it can profoundly affect the future of jobs, education, and social systems, academic institutions should not stay aside.

The contribution is based on the systematic literature review of resources described above and its goal is to contribute to the broader discussion of related issues. Naturally, only a small part of available information may be reproduced in a limited space. In some aspects are expressed personal views of the author not always representing the prevailing thinking.

The driving force of the current progress is the convergence of three significant trends:

- Exponential growth of the computing force. Computers and memories are ever faster and cheaper (the price of the fastest computer in 1975 was \$5mil., the current price of the iPhone4 with the same performance is approx. \$400). The nearly linear trend (as the first member in the Taylor's expansion of exponential function) is currently changing to steeply rising exponential growth of SW and HW capacities.
- Vast amounts of digital data resulting from expansion of cheap sensors embedded into physical objects and their connection through wireless networks – Internet of Things (IoT). Data collected by these sensors (from smart phones through refrigerators, jet engines and other devices to people using them) can be transmitted, stored, copied and processed for practically zero costs.
- Combination and recombination of digital technologies create a new wave of innovations. E.g. combination of Internet with cloud technologies provide new collaborative tools for team work using mobile devices.

With the diffusion of intelligent digital processes, four new work practices will become much more prevalent in leading organizations: edge-centric decision-making, real-time adaptation, human and digital recombination and experiment-driven design.

„Three foregoing industrial revolutions were caused by the boom of mechanic manufacturing machines driven by steam, introduction of mass production with the use of electricity and by incorporating electronic systems and computing technology into manufacturing processes. The current phenomenon is the linking of internet of things, services and people and related immense volume of data generated by communication machine-to-machine, man-to-machine and man-to-man ... The Industry 4.0 initiative is not only digitization of manufacture, it is a complex system of changes in many human activities not only in industrial production.” (Mařík 2015)

We need to answer the following questions:

- What is the impact of technological advance on company management?
- What competencies and skills will be needed to work with smart machines?
- Will people still matter?
- And, most importantly, how can we best prepare for a fast-changing world?

As MIT's Eric Brynjolfsson and Andrew McAfee outline in their recent best seller *The Second Machine Age* (Brynjolfsson, McAfee, 2014), along with the benefits technological progress will leave many without work as routine tasks, including cognitive ones, are increasingly automated.

1 Will there be any jobs left? If so, which ones?

In the fall of 2013, economist Carl B. Frey and information engineer Michael A. Osborne at the University of Oxford published a blood-curdling paper, "The Future of Employment," in which they argue that over the next two decades, nearly half of U.S. jobs (47%, to be precise) are at high risk of being automated and 19% are at medium risk. They argue that the "safest jobs"—the ones that are impossible to automate—are associated with high levels of education and high wages. Those jobs require high-level cognitive skills and creative, social and emotional intelligence. (Frey, Osborne M, 2013)

Technology has been displacing workers since the Industrial Revolution—the First Machine Age—which began in the late 1700s. The steam engine and its descendants automated routine manual labor. The computer revolution of the 1990s changed that. Suddenly, it wasn't just muscle work—or "unskilled jobs"—that was being handed over to machines but also routine cognitive tasks performed by knowledge workers. (Mokyr et al., 2015)

Today, thanks to the exponential advances in mobile robotics (MR), machine learning (ML) and artificial intelligence (AI), many non-routine cognitive and manual tasks are increasingly susceptible to automation.

As emphasized by Eric Brynjolfsson and Andrew McAfee, machines equipped by artificial intelligence will be in many cases able to decide faster and better than people do (e.g. even today the control systems in complex situations as airplanes, nuclear power plants, etc., take over the work of operators; lawyers would be lost in the twists of current legislation without the support of expert systems, intelligent diagnostic systems assist doctors, language technologies are replacing minute keepers and call centers, etc.). People get bored, people get headaches. Computers don't.

On the other hand, decrease of production costs and resulting decrease of product prices can lead to higher demand, what will imply more work and therefore create new jobs.

Quote attributed to a 1965 NASA report advocating manned space flight: "Man is the lowest-cost, 150-pound, nonlinear, all-purpose computer system which can be mass-produced by unskilled labor."

In recent article „Will Humans Go the Way of Horses?” (Foreign Affairs, 2016) Brynjolfsson and McAfee quote Nobel prize winner Wassily Leontief referring to the effect of introduction of the combustion engine: “The role of humans as the most important factor of production is bound to diminish in the same way that the role of horses . . . was first diminished and then eliminated.”

Unlike horses, people can protect themselves against getting economically meaningless. They can influence their situation by democratic processes. Electorate decides about minimum wage, legality of shared economics (e.g. Uber and Airbnb) and other socio-economic issues as taxing, pensions, etc. Legislation can restrict some jobs destroying technologies.

We can ask, if and what two types of work will be in demand: those that can be performed only by people or those that cannot be performed by machines? If the demand for human work will be decreasing, it will not be possible to maintain the trajectory typical for the industrial age – increasing employment and wages. Even today the work productivity is increasing faster than wages,

It is not probable that automation and digitization will replace all jobs, rather it will radically change requirements on skills, talent, and creativity. It will lead to further opening of scissors - greater concentration of wealth and power. Developed economies are bifurcating into a small educated elite and the rest. There will be no comfortable “middle.” The elite—about 10% to 15% of the population—will be those with skills that are highly complementary with computers. The ability to harness the speed and power of machine intelligence will allow the elite to be hyper-productive and super wealthy. Others will endure stagnant or falling wages.

The best way how to maintain jobs is to equip people by proper competencies. The governments should foster reforms of education, immigration, support entrepreneurship (it is different from business and in the Czech context often not correctly distinguished), investments into infrastructure and basic research. They could support activities actively supporting human work. Unfortunately, all of that demands strategic thinking going beyond the length of the election period.

It’s highest time to start thinking about the society us and our children will live in times with decreasing demand for work:

- How will be shared benefits arising from such economics?

- How to overcome the tendency of contemporary capitalism to increasing the inequality between people and at the same time maintain the ability to effectively allocate resources and reward initiative and effort?
- How to reasonably spent free time?
- How to change education, social networks, taxes and other important components of the civic society?

1.1 Cost disease of personal services, Baumol's disease

In 1993 democratic senator Patrick Moynihan (Moynihan, 1993) draw attention to so called Baumol disease, originally introduced by Baumol in the 1960's and more extensively treated in (Baumol, 2012) . With increasing share of the service sector on the employment and GDP creation (and also on increasing importance of services in industry) their role in society is increasing. Moreover, many of those services cannot be in foreseeable future replaced by machines. The productivity of personal services does not grow, or grows very slowly compared to the productivity generally in the economy. Moynihan (1993) puts it this way:

"In 1793 to "produce" a Mozart quartet required four persons, four stringed instruments, and, say, 35 minutes. To produce a Mozart quartet today requires -- four persons, four stringed instruments, 35 minutes. Productivity -- output per person per hour -- has hardly changed. You can play the "Minute Waltz" in 50 seconds, but it isn't the same."

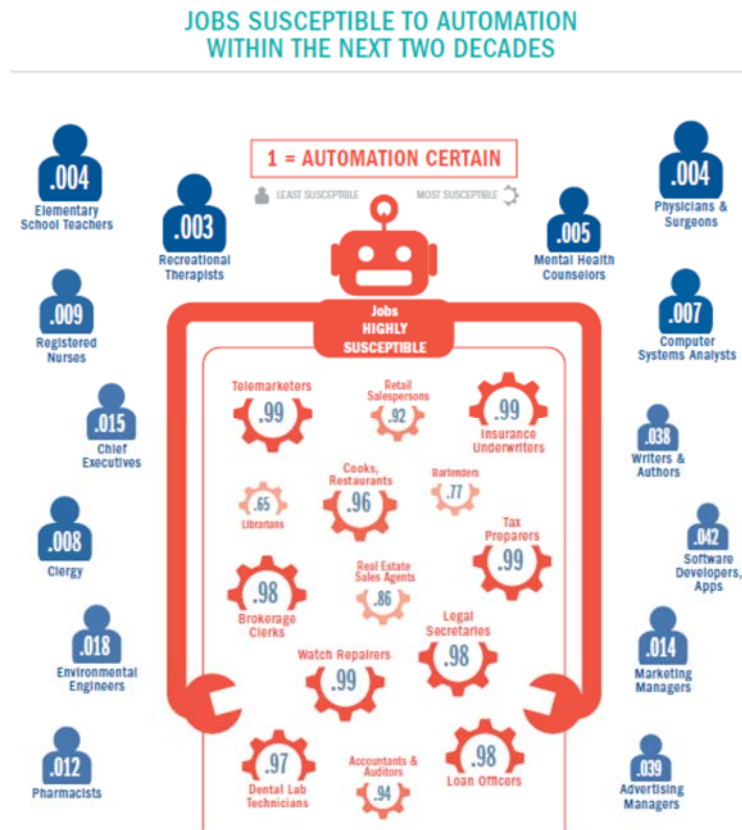
1.2 What jobs are most susceptible to automation

In autumn 2013 economist Carl B. Frey and IT engineer Michael A. Osborne concluded that within next 20 years in the USA will be endangered by automation with high probability 47% and with medium probability further 19% of jobs. (Frey, Osborne, 2013)

The least endangered are jobs that are impossible or difficult to automate. Such jobs are typically occupied by highly educated people with high salaries. They demand high level of cognitive skills, creativity, social and emotional intelligence. Exponential growth of mobile robotics, machine learning and artificial intelligence threatens non-routine cognitive and manual jobs. Big data algorithms can replace human work in broad spectrum of non-routine cognitive tasks. Advanced robots with many degrees of freedom can perform more manual tasks.

Frey and Osborne suggest the methodology for estimation of the probability of jobs susceptible to automation based on the routine task intensity (RTI). Some results are summarized in Fig. 2.

Figure 2 Jobs susceptible to automation



Source: Batten Institute (2015)

It can be concluded that routine jobs will be the most susceptible to automation, while new jobs demanding knowledge, creativity, innovative and entrepreneurial thinking will flourish.

However there exist a serious, not very often mentioned problem: the people whose jobs will disappear will have to undergo substantial requalification and not all of them will have the personal traits and ability to find new jobs of quite different character from their former one. Into being can come a new class of not only unemployed, but even unemployable. Nevertheless it will be important to prevent their social exclusion.

Some countries (Switzerland, the Netherlands) started experimenting with basic income available to all people, independent of their employment. However, such a concept implies extreme demands on public budgets. In the Czech Republic, social benefits even today consume 42% of the state budget. (Státní rozpočet v kostce,, 2015)

It will be necessary to reconsider the basics of the system of taxes, social and health insurance that in today's system will not be paid by robots, automatic systems, etc. There remains a question if those losses can be compensated by increased VAT tax and other taxes resulting from increased salaries or progressive tax.

Another possible approach is flexicurity, made up of the special mix of labour market flexibility combined with social security. The purpose of flexicurity is to join various kinds of flexibility with different degrees of security. (Flexicurity, 2016)

2 Management in the age of Industry 4.0

"Managers and machines, unite" - Accenture

Intelligent machines support better and faster decision making. They allow to managers to focus more on the specifically "human" activities. They complement knowledge and experience of managers, their ability of experimenting and innovating.

Accenture research (Shanks, Sinha&Thomas, 2015) included 37 managers from seven industries and 9 countries. They valued most the decision making support of new technologies. Real potential they see in releasing the organisation creative potential, identification of new opportunities and leading of dynamic workers.

84% of managers suppose the machines will help them to increase effectiveness and efficiency and make the work more interesting; 57% of them replied their current competencies are not satisfactory. However, only about fifth of managers considers interpersonal skills important. It may be a problem, as they will have to inspire and motivate their teams.

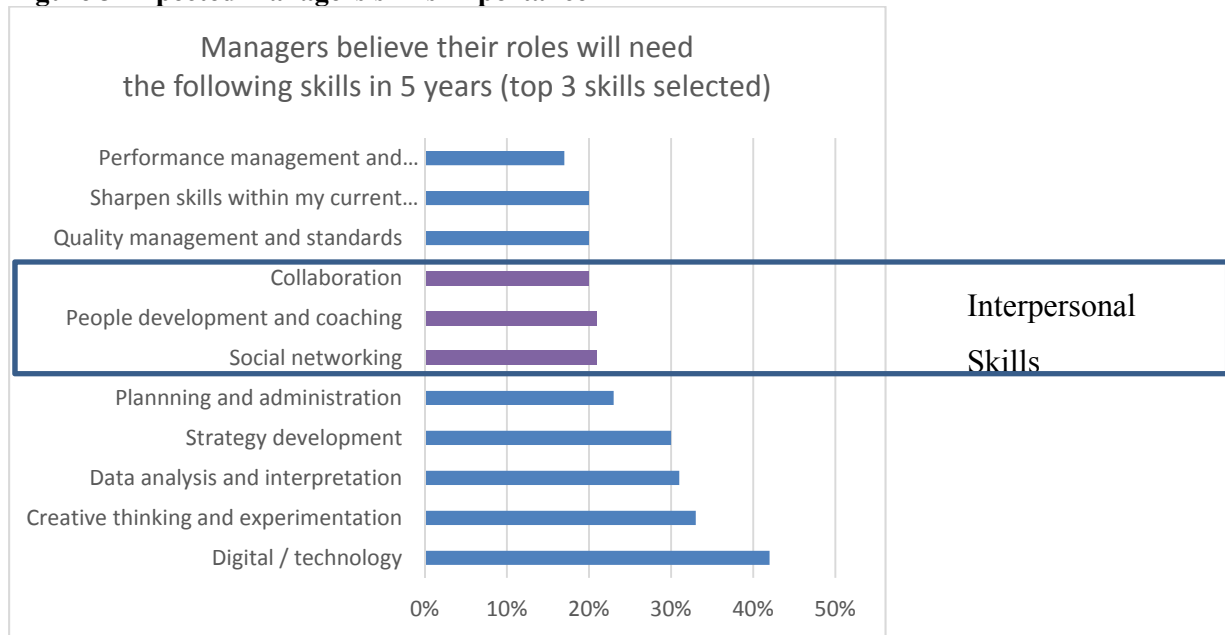
Only 46% would rely on the advice of intelligent systems in decision making. Without trust it is improbable that the organisation would do more than automating some routine managerial tasks. What could increase their trust?

60%: better understanding of principles of systems working and generating advice

55%: selection of a system with good references

49%: selection of a system explaining logics of its decisions

Figure 3 Expected managers skills importance



Source: Adapted from (Accenture, 2015)

5 Conclusions

Over the next five years, new digital technologies promise to dramatically change work outcomes and work experiences for employees of all sorts – manual workers, knowledge workers and managers alike – across a wide array of industries. To move from looking digital to being digital, companies must engage in a deep shift in the way they do business.

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USING NEUTRAL NETWORKS TO DETERMINE THE FINANCIAL PLAN

Marek Vochozka

Abstract

Planning of financial statement is annual and one of the most important activities of financial managers of all companies. The well assembled plan is the first step to the success of a company in the following period. There exist several methods how to do it: intuitive method, statistic methods, causality or combination of all of them. The aim of this paper is to utilize artificial intelligence for planning financial statements of a concrete example.

Data of a company founded by ČEZ were used – ČEZ renewable resources. Complete financial statements from 2004 to 2014 are available.

The following networks were used: a linear network, a probabilistic neural network, a generalised regression neural network, a radial basis function network, a three-layer perceptron network and a four-layer perceptron network.

The analysis resulted in a concrete model of an artificial neural networks usable for planning financial statements. The neural networks should be able to determine with more than ninety per cent accuracy of predictable variables. The text also includes the basic statistical characteristics of the examined sample and the achieved results (sensitivity analysis, confusion matrix, etc.).

The model can be utilized in practice by financial managers for planning financial statements of their companies.

Key words: financial plan, financial statements, neural network.

JEL Code: G31, G32, G39

Introduction

Financial plans are a part of an enterprise's financial management, the task of which is to provide a survey of financial situation and relations within the enterprise's economy (Umansky,

2004). Generally, we understand the term 'planning', according to Kislingerová (2007) the priority management function of an enterprise, the decision-making process on the design and choice of enterprise goals and their evaluation, including achievement goals. Financial planning is the deciding about the way of funding (obtaining capital sources) and its investing into the enterprise property (Kislingerová, 2007). Compilation of such a plan has a crucial influence on competition strategy in general, and it is a key to business success (Eschenbach, 2000).

Financial planning has several principles. Among them is the fact that it follows an enterprise strategy, mission and goals, it follows an acceptable finance policy and the goal it follows is the maximization of enterprise market value (Marek, 2006). In addition, planning is a collective activity (not only the financial manager takes part), while the quality of financial plan is being assessed according to its influence on the development of enterprise market value (García, Bedoya a Ríos, 2010). According to Umansky (2004) financial planning is needed because investment and financial decision-making are related, they influence each other and because of that they can not be done independently. The interesting point is that until recently the enterprises did not pay the needed efforts to planning. The reason was the persistent negative attitude due to state economy planning (negative experience with planning in the past), instability of conditions within the business, and insufficient knowledge of the techniques and methods of financial planning (Marek, 2006).

The plan output are, according to Kislingerová (2007) financial statements (planning balance sheet, profit and loss sheet and cash flow plan sheet), which are compiled for the whole planned period and are elaborated in individual accounting periods and further even in individual months. Most authors indicate the division of financial plans in the following way. Strategic plan (5 – 20 years), a long-term plan (1-5 years) and a short-term plan (up to 1 year).

The goal of the strategic and long-term plans is, according to Eschenbach (2000), besides compiling a plan balance sheet, an income statement and a cash-flow balance sheet, it is especially guessing the future sales volume, creating the plan of investment activities and a plan of long-term financial sources. These goals have both financial and non-financial character and are meant rather universally than in value (García, Bedoya and Ríos, 2010). On the contrary, the goal of short-term plans is the assets, capital and profit state planning for a certain period, the management of liquidity or revenue and costs (Eschenbach, 2000).

Nowadays we recognise three main methods of financial planning – intuitive, statistical and causal (Baldacci, Boschetti, Christofides, N. and Christofides, S., 2009). The intuitive method is based only on experience and subjective guessings of the person creating a financial plan, while remissioning causal relations, and that only goes on in the person's head (Gansel, 2008). The disadvantage of this method is, according to Marek (2006), the simplification and a high probability of omitting significant mutual relations. The result may prove an unrealistic plan.

The meaning of statistical method is the extension of time series in future (Baldacci, Boschetti, Christofides, N., and Christofides, S., 2009). It includes especially the method of regression analysis or proportional property growth, liabilities growth and costs in relation to planned sales (Kislingerová, 2007). The weak point of this method is, according to Marek (2006), an unreal presumption that in-the-past-developing economic variables will stay the same in the future. Better results may be often brought by intuitive and causal methods.

Causal method is understood to be the most optimal possible method. The input data is based on the information about the current enterprise property and the current economy results, on the output and other economic plans, while the source is the prediction of macroeconomic indicators' development (Kislingerová, 2007). Variables express the desirable values of a part of the indicators in the area of costs, liquidity and asset turnover ratio. Other variables in the planned form of financial statements, that are calculated through a certain formula in which the input or wanted variables are contained in the output variables (Marek, 2006). Control is important as well, checking whether the economy output values, calculated in the planned statement respond to the value in planned sheet. This act is secured by control variables (Baldacci, Boschetti, Christofides, N. and Christofides, S., 2009).

In the past, the intuitive method was in the forefront, which is by far insufficient nowadays, and so other methods of financial planning and predictions of enterprise sufficiency have started to develop. It is the discriminant analyses, regression analyses, time series methods and artificial neural networks, in the first place (Kislingerová, 2007). Prediction of enterprise efficiency should use both financial and non-financial indicators (Joshi and Lam, 2006).

Gansel (2008) states that entrepreneurs should understand the financial range of their decisions, and therefore he suggests a certain framework of financial planning which deals with decision-making, revealing of information and corporate strategy based on an exact financial plan. According to Umansky (2004) the current business environment is very complicated, and often

unfavorable. Due to that it is important to focus oneself on strategic planning of a financial situation of an enterprise.

The non-artificial neural network system is an efficient method for solving a number of economic classification and regression problems and it represents a modern, widely used computational tool especially where it is impossible or too difficult to use traditional approaches. (Zhang, Z. and Zhang, C., 2002). Artificial neural networks' task is to replace human thinking which, let's face it, doesn't always need to be able to take in and interpret a huge amount of information (Slavici, Mnerie and Kosutic, 2012).

During the process of financial planning are neural networks useful because they are able to learn and having learned they can express both - latent and strongly non-linear dependencies (Zhang, Z. and Zhang, C., 2002). According to Slavici, Mnerie and Kosutic (2012) the partial disadvantage may be the impossibility to guess the error size and state the reliability intervals. Wang, Stockton and Baguley (2010) claim that the success of an enterprise is, up to a point, dependent on the exact prediction of a future development. According to Russel (2011), the application of neuroscience onto financial planning is interesting, but relatively problematic. To be useful in practice it demands a structurally and practically applicable framework. There are several methods for compiling financial plans nowadays, neural networks are, however, partially unappreciated in this sense, because they are used rarely, and financial managers probably cannot fully appreciate their benefits (Zhang, Z. and Zhang, C., 2002). Truth is that a few of the traditional methods are applicable and the problem of neural networks is relatively difficult to be applicable even more (especially for smaller enterprises). It contains a wide range of construction alternatives thanks to which it may be often difficult to choose the right network for a specific requirement (Wang, Stockton and Baguley, 2010). Nevertheless, as Mengel and Wouters have found out, a compilation of a financial plan is very beneficial even for beginning enterprises. A problem rises when their owners claim that they are too busy for developing a planning strategy or they do not have the financial plans in a written form (Marek, 2006). These persons should take part in a dialogue with a qualified financial planner who will certainly confirm the importance of financial plan compilation (Umansky, 2004). Besides artificial neural networks, other intelligent techniques, such as different expert systems, fuzzy logics or genetic algorithms, are employed. (Zhang, Z. and Zhang, C., 2002). Artificial neural networks are used nowadays, in the enterprise sphere especially for predicting future development of the

enterprise, the costs development or stating whether the enterprise is or will be bankrupt or creditworthy. According to Wang, Stockton and Baguley (2010), they can ensure a better source planning, monitoring, coordination, but also management as a whole. For the financial plan of an enterprise, compiled according to the neural network methodics, the data and indicators of the whole financial analysis spectrum are important, while often this information is gathered separately and not only is the access to it very easy (Umansky, 2004).

Numbers and money is the language of business. If an individual wants to be successful in running a business, they need to learn this language. The key factor, however, is to understand it and know how to use it (Davenport, 2015).

The goal of this contribution is to outline the possibility of use of artificial neural networks compiling a short-term financial plan on the basis of an exemplary given enterprise.

1 Methodology

The enterprise chosen and used as an example for a case study is the CEZ Obnovitelne zdroje s.r.o. enterprise. It is an enterprise which falls under the CEZ group and focuses on gaining energy from renewable sources. Publicly issued sources validated by the Albertina database are available. Particularly, it is the Reports of Financial Statements (balance sheet, profit and loss planning sheet, cash flow sheet) of the enterprise from 2004 to 2014 (it is the currently available data sources).

For the purpose of this text an enterprise's financial plan will be compiled for 2015. With the help of artificial neural networks (specifically time series) the starting variable values which are significant, will be set. It will be either the statements' totals to which we will add their partial values or, on the contrary, it will be significant partial statement items, which will be added consequently, to reach the form of totals.

In the case of balance sheet the values for 2015 will be set with the help of neural networks for the following variables: Total Assets (to check the sum), Long-term Assets, Long-term intangible assets, Long-term tangible assets, Long-term financial assets, Current assets, Stock, Long-term claims, Short-term claims, Financial assets, Other assets, Accruals, Total liabilities, Equity, Basic capital, Reserve fund and other fund created from profit, Profit/lost of past periods, Profit/lost of current period, Debt, Reserves, Long-term obligations, Short-term obligations, Other liabilities, Accruals. For Profit and Loss Planning sheet the following items will be used: Sales of own products and services, Material and energy, Services, Salaries,

Bonuses to board and members of cooperatives, Costs of social security and health insurance, Social Expenses, Taxes and fees, Depreciation of fixed assets, Revenues from sales of fixed assets, Net fixed assets and raw material price sale, Change in reserves and provisions relating to operating activities and complex deferred expenses, Other operating revenues, Other operating costs, Interest income, Interest expenses, Other financial expenses, Income tax payable, Income tax deferred. In case of Cash-Flow we issue through the case of the Indirect Measurement Method from the change of balance-sheet accounts and Costs-and-Profit correction. Therefore only the following items will be used: Net operating cash flow, Net cash flow from investments, Net financial cash flow.

For the calculation of time series the DELL Statistica software will be used, specifically the Neural Networks Module. The data will be transferred from MS Excell file into Statistica. It is possible to calculate neural networks for individual variables, for individual statements or for all financial statements at once. With regard to the range of the contribution it is suitable to calculate all variables using one calculation and so determine an acceptable (demonstrative) number of networks reached within the circuit. The first line of imported file will be regarded as a description of values in columns. Further, the Intelligent Problem Solver tool will be used. Time series will be set. All variables used for the calculation are continuous. Years will be given as the independent variable. We examine the wanted variables of individual items in Financial statement as the dependent variables.

A software will generate random 1000 artificial neural ones, out of which 5 most suitable will be kept. If the error in each additional generated network increases it is possible to terminate the calculation earlier than 1000 artificial neural structures are reached. For the calculation, the following neural networks will be used:

- Lienar,
- GRNN (Generalized Regression Neural Network),
- Radial Basis Function (further RBF),
- Three Layer Perceptron,
- Four Layer Perceptron.

Numbers of neurons in hidden layers of individual networks will be rated more than advised (to overcome the risk that suitable neural structures will be forgotten), RBFs will be designed for 1 to 9 neurons in the hidden layer. Three Layer Perceptron networks will use 1 to 100

neurons in their hidden layer. Four Layer Perceptron will be able to use 1 to 100 hidden neurons in their second and third layer.

Each iteration will be made of, as needed, 1 to 10 steps. Models will distribute the results based on the linear function or logit function. Networks characteristics will be calculated only for the resulting best five. Others will not be taken into account.

The results will be interpreted for the whole package, always divided into the training, validation and testing set of data.

Consequently it is necessary to insert the individual results for 2015 into the Reports of Financial Statements and calculate other variables. In case of balance sheet it is necessary to calculate the partial items. That will be marked, based on the part of partial item from 2004 – 2014, on the calculating item. In case of Profit and Loss Statement that will be a combination – i.e. if we know the totals, the division will happen analogically, the way it would in a balance sheet. In other cases we will know all the partial items and subsequently be able to add them up in one single total. In cash flow statement it is possible to gain individual items based on the knowledge of balance sheet and Profit and Loss Statement. Calculated individual cash flow will serve as control values.

In the last step it is suitable to rectify the result with the intentions of the enterprise, or with significant changes in the environment in which the enterprise operates. It is not possible to read these changes out of the time series based on data taken from the past.

2 Results

2.1 Neural Networks Neuronové sítě

On the basis of the analysis conducted five best neural networks have been obtained. Particular characteristics are given in table no. 1.

Table 2 Five best Neural Networks

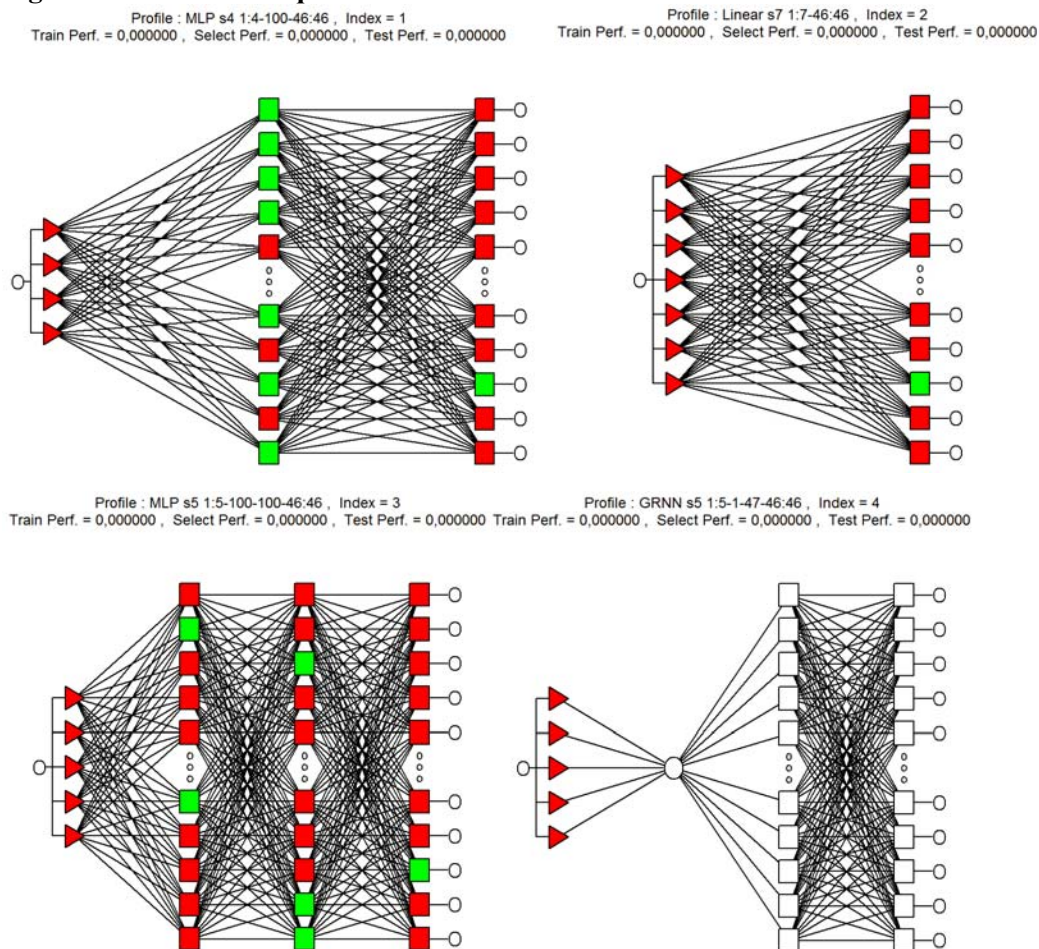
Profile	Train Perf.	Select Perf.	Test Perf.	Train Error	Select Error	Test Error	Training/ Members	Inputs	Hidden(1)	Hidden(2)
MLP s4 1:4-100-46:46	0,00	0,00	0,00	0,000000	0,00	0,00	BP28b	1	100	0
Linear s7 1:7-46:46	0,00	0,00	0,00	0,000000	0,00	0,00	PI	1	0	0
MLP s5 1:5-100-100-46:46	0,00	0,00	0,00	0,000000	0,00	0,00	BP2b	1	100	100

GRNN s5 1:5-1-47-46:46	0,00	0,00	0,00	0,000000	0,00	0,00	SS	1	1	47
RBF s5 1:5-1-46:46	0,00	0,00	0,00	0,000000	0,00	0,00	KM,KN,PI	1	1	0

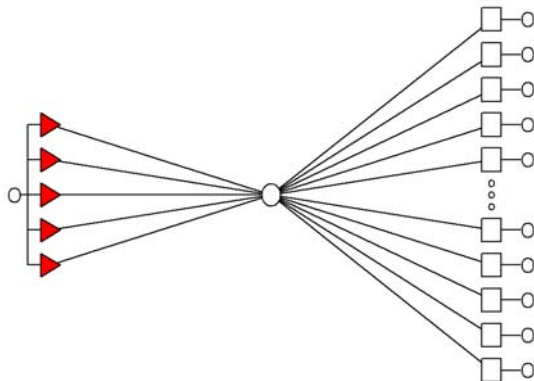
Source: Own

All networks show zero error in all sets. That may be given by the fact that the time series is relatively short. Nevertheless, according to other characteristics, such as prediction analysis, sensitivity analysis or residue analysis, we are able to find out which network is the most suitable one. With regard to the goal of this contribution it is not necessary to analyse each result in detail and deal with the choice of the most suitable neural structure. Picture No.1 represents the schemes of the neural structures.

Figure 1 Schemes of acquired neural networks



Profile : RBF s5 1:5-1-46:46 , Index = 5
Train Perf. = 0,000000 , Select Perf. = 0,000000 , Test Perf. = 0,000000



Source: own

6.2 Financial Plan

Based on the sensitivity analysis, prediction power and residue analysis especially, the simplest network, Linear s7 1:7-46:46, seems to be the most suitable one, in regard of its structure.

That is why it will be continuously used for plan compilation for 2015. Table No.2. offers a shortened balance sheet of CEZ obnovitelne zdroje s r.o. company for 2015.

Table 2 Shortened balance sheet of CEZ obnovitelne zdroje s.r.o. company in 2011 – 2015.

	Item	2011	2012	2013	2014	2015
	TOTAL ASSETS	4 389 358	389 972	497 999	433 917	372 947
A.	CLAIMS FOR OWN SUBSCRIBED CAPITAL	0	0	0	0	0
B.	LONGTERM PROPERTY	4 232 116	173 045	168 331	161 662	138 947
B.I.	Longterm intangible property	396	493	341	90	77
B.II.	Longterm tangible property	4 109 172	45 004	40 442	33 628	28 903
B.III.	Longterm financial property	122 548	127 548	127 548	127 944	109 966
C.	CURRENT ASSETS	156 221	216 847	329 609	272 129	233 892
C.I.	Stock Zásoby	823	692	287	5	4
C.II.	Longterm Claims Dlouhodobé pohledávky	0	3 400	17 907	44 270	38 050
C.III.	Shortterm Claims Krátkodobé pohledávky	155 373	212 740	311 415	227 854	195 838
C.IV.	Financial property Finanční majetek	25	15	0	0	0
D.	OTHER ASSETS – temporary asset accounts	1 021	80	59	126	108
D.I.	Accruals	1 021	80	59	126	108
	TOTAL LIABILITIES PASIVA CELKEM	4 389 358	389 972	497 999	433 917	372 947
A.	OWN CAPITAL VLASTNÍ KAPITÁL	2 319 608	263 864	249 887	200 499	172 327
A.I.	Basic Capital Základní kapitál	1 404 353	118 000	118 000	118 000	101 420
A.II.	Capital Funds Kapitálové fondy	0	0	0	0	0
A.III.	Reserve Funds and other Profit Funds	29 790	33 725	33 725	0	0
A.IV.	Economic Results of the Past Years	806 766	99 589	112 139	33 887	29 125
A.V.	Economic Result of Current Reporting Period (+/-)	78 699	12 550	-13 977	48 612	41 781
B.	FOREIGN SOURCES	2 060 274	126 105	248 112	233 411	200 614
B.I.	Provisions	44 239	18 780	96 770	91 240	78 420
B.II.	Longterm liabilities Dlouhodobé závazky	1 928 356	0	0	0	0
B.III.	Shortterm liabilities Krátkodobé závazky	87 679	107 325	151 342	142 171	122 194
B.IV.	Bank loans and assistance Bankovní úvěry a výpomoci	0	0	0	0	0
C.	OTHER LIABILITIES - temporary liability accounts	9 476	3	0	7	6
C.I.	Accruals	9 476	3	0	7	6

Source: 2011 – 2014 Albertina, 2015 author

The 2011 – 2014 period was inserted to demonstrate the trend and the-at-first-sight- logical corectness of the prediction. The same is true for the shortened version of Profit and Loss Statement for 2014 – 2015, which is the subject of Table no. 3. 2015 is given in a financial plan again.

Table 3 Shortened Version of Profit and Loss Statement of CEZ obnovitelne zdroje s.r.o. in 2011 to 2015.

Item		2011	2012	2013	2014	2015
I.	Revenues from sale of goods Tržby za prodej zboží	13	21	15	18	0
A.	Costs incurred for the sale of goods Náklady vynaložené na prodané zboží	5	15		6	0
II.	Performances	813 525	888 366	2 172 638	2 095 865	1 804 772
B.	Power Consumption	137 437	678 075	1 627 826	1 865 082	1 603 016
C.	Personal Costs	97 043	95 470	86 922	39 923	34 313
D.	Tax and Fees	79 032	92 309	396 436	140 616	120 858
E.	Depreciation of longterm intangible and tangible property	258 177	7 447	4 163	2 219	1 907
III.	Revenues from longterm property and material sale	2080	1187	1240	8432	7 247
F.	Amortized cost from the sale of longterm property and material	2 996	685	539	5 142	4 419
G.	Change in Provisions and corrective items in the operating area and cmplex costs in future periods	3 322	-32	85 035	-7 464	-6 415
IV.	Other operating revenue	1 245	21 716	760	476	409
H.	Other operating costs	4 473	19 419	612	3 111	2674
V.	Transfer of operating revenue					
I.	Transfer of operating Costs					
*	ECONOMY OPERATING RESULT	234 378	17 902	-26 880	56 156	51 656
VI.	Revenues from the sale of securities and shares					
J.	Securities and shares sold					
VII.	Revenues from longterm financial property	0	0	3 946	3 946	0
VIII.	Revenues from shortterm financial property					
K.	Costs from financial property					
IX.	Revenues from CP and derivatives revaluation					
L.	Revenues from CP derivatives revaluation					
M.	Change in provisions and corrective items the the financial area					
X.	Revenue Interest	161	351	27	65	56
N.	Cost Interest	116 084	3	56	52	45
XI.	Other financial Revenue	1				
O.	Other financial cost	82	131	173	88	76
XII.	Transfer of Financial Revenue					
P.	Transfer of Financial Cost					
*	ECONOMY FINANCIAL RESULT	-116 004	217	3 744	3 871	-64
Q.	Regular Activity Income Tax	37 165	3 619	-4 699	11 415	9 811
**	REGULAR ACTIVITY ECONOMY RESULT	81 209	14 500	-18 437	48 612	41 781

Source: Rok 2011 – 2014 Albertina, rok 2015 autor

Table No. 4 submits individual items of cash flow during the period of 2011 – 2015, where 2015 is a prediction again.

Table 4 Aggregated cash flow of CEZ obnovitelne zdroje s.r.o. Company in 2011 - 2015A

	2011	2012	2013	2014	2015
Net operating cash flow	473 835	-51 926	133 574	-81 111	-69 714
Net cash flow from investments	-120 345	-5 776	-1 075	7 022	6 035
Net financial cash flow	-354 557	57 692	-143 526	74 089	63 679

Source: Rok 2011 – 2014 Albertina, 2015 author

Conclusion

The goal of this contribution was to outline the possibility to use artificial neural networks while compiling a short-term financial plan based on an example of a specific company. The goal has been fulfilled. A financial plan for the CEZ obnovitelne zdroje s.r.o. company has been set, based on the application of neural networks, wpecifically it was a linear neural network called Linear s7 1:7-46:46. The result proves that neural network method is applicable. Time series respect the development of previous years (even when there were fluctuations during the individual years). Nevertheless, neural networks do not respect the plans and intentions of the company's management. It is then suitable to incorporate such a financial plan within the set of companywide plans, i.e. marketing, production, ensurance of capital goods, etc. To make it reflect the investment intentions of the given company. The method is then limited, however:

1. Neural networks are applicable in an environment of a stable company (not necessary to be growing) .
2. Through neural networks the financial manager will manage to prepare the first variation of financial plan.
3. Financial plan, which will develop through neural networks, is necessary to be rectified based on the management's intentions – i.e. the company strategy, and incorporate it within the structure of other company plans.

Observing the deviations from the real fulfillment of a financial plan within the next few years always occurs to be the next research problem. Even such residues may help rectify and re-train another suitable neural network for the upcoming years.

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FACTORS SUPPORTING GROWTH OF ADDED VALUE, PERFORMANCE AND COMPETITIVENESS OF SMES AND SELECTED EU COUNTRIES

Marek Vochozka – Mariana Psárska

Abstract

Added value, as a default quantitative and qualitative indicator of performance, is one of the most monitored variables in all SMEs. It describes not only the growth of the value of goods and services in all phases of production from the microeconomic point of view but also the growth of value in all phases of production from the macroeconomic point of view (where it is expressed in the form of GDP).

The objective of this paper is to find key factors which support growth of added value and its possible changes in selected countries in the context of potential positive development of the added value. The pattern consists of data about SMEs interested in production in the fields with the highest added value in the country. The methodology includes an economic analysis of the given data. The data make it possible to obtain detailed information about creation of added value. The results are important because they can be potentially applied in practice, i.e. in the Czech Republic, Slovak Republic and in other EU countries.

Key words: added value, key factors, small and medium enterprises, growth.

JEL Code: D220, D240, O470

Introduction

Efficiency of economic processes and activities of economic entities must be monitored, measured, analyzed and evaluated. The results provide information about efficiency and factors that improve performance at the microeconomic level and, consequently, also at the macroeconomic level. Without this interconnection it is not possible to identify factors behind growth of added value and measures to increase it. Performance of a particular economy is to a

significant extent based on functioning of small and medium enterprises⁵⁹ that account for over 99% of the number of businesses in EU, create on average 58 % of added value and employ approximately 66% of the workforce – 2011 (Jeck, 2014, p. 5).

At the macroeconomic level the indicator of added value is a basic pillar which indicates production and performance and it is used in calculation of the gross domestic product. This production indicator is calculated as a sum of added values in a given country over a monitored period of time for all enterprises, included the value added tax and net import taxes (Lisý, 2005, p. 10).

A more detailed view of added value is provided by microeconomics which says that, in simple words, it can be calculated as a difference between the company revenues and the costs spent to purchase raw materials, other materials, services and energy (i.e. intermediate products) from other companies.

The development of added value is a result of many internal and external factors and we will now select those that we consider the most significant.

1 Added value

The growth of the added value indicator ranks among the strategic but also operative goals of every business. According to Veber (2014, p. 60), the term and its perception are continually developing. From the accounting point of view the added value represents the costs and the profit added to the material, intermediate product and other purchase components, including services in the course of further processing or distribution. From a broader managerial perspective, it anticipates the most effective revaluation of company's available resources. However, the ratio, which on one side seeks to maximize benefits, gains and effects and on the other side it seeks to minimize costs and consumption of available resources, remains constant. It represents the baseline for calculation of other indicators, such as labor productivity of one worker.

Small and medium enterprises in EU 28, as defined above, excel in creation of added value when compared to big enterprises, particularly in businesses dealing with real estates,

⁵⁹ based on the EU definition of small and medium enterprises. This category includes all enterprises with 0 – 250 employees and the turnover and/or the total balance sheet smaller than 50 mil. Eur.

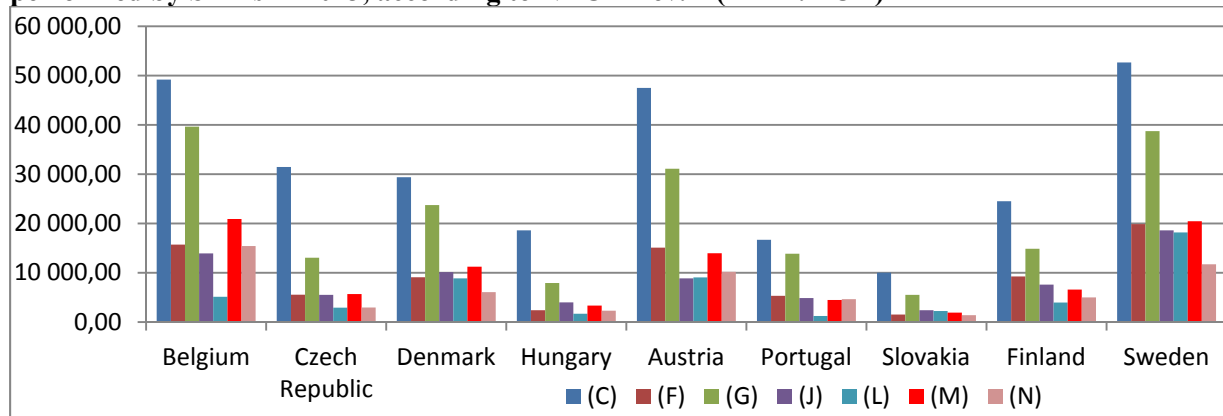
wholesale, retail and repair services, building sector and services (distribution, hospitality and accommodation sectors, administrative services and also in specialized, scientific and technical activities). In the mentioned economic activities⁶⁰ SMEs account on average for creation of 75% ⁶¹ of the total added value. For this reason I have focused in this paper mainly on the above-indicated economic activities.

1.1 Development of added value in selected countries

The added values achieved by selected economic activities⁶² in selected EU countries are very diverse, as indicated in Figure No. 1.

The EU countries have been selected not only based on their size, population and economic characteristics but also based on interesting development of their key indicators which influence growth of added value. Figure No. 1 shows the economic activities that create the highest added value in the individual countries (the countries are selected based on the prevailing economic activities conducted by SMEs in the Czech Republic and in Slovakia) and the difference between them.

Figure 1 Development of added value in selected EU countries based on prevailing activities performed by SMEs in 2013, according to NACE Rev. 2 (in mil. EUR)



Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

The absolute values of added value, including the processing industry, are the highest in Sweden, Belgium, Denmark and Finland. The lowest values are achieved in Slovakia and

⁶⁰NACE Rev. 2

⁶¹ Calculated from the Eurostat data for 2014

⁶² Economic activities and the symbols used: C- processing industry, F- building industry, G- wholesale and retail, repairs and maintenance of motor vehicles, J- IT and communication, L- real estate activities, N-administrative and supporting activities, M- specialized, scientific and technical activities.

Hungary. In the structure of activities, apart from the processing industry, the prevailing activities are wholesale and retail, repairs and maintenance of vehicles, specialized, scientific and technical activities, followed by building industry at the third position.

The situation in development of added value is particularly interesting in Denmark. This country has no mineral resources and therefore it has been developing industries with low consumption raw materials but requiring qualified workforce, such as manufacturing of devices and instrumentation or household technology. The country has a highly developed food industry which also accounts for a big part of its exports. In comparison with the other countries and with regard to its size, it achieves very high added value in scientific and technical activities, which is also supported by high investments into research and development that amounted to 3.08% ⁶³ of GDP in 2013 and 2014. Another similar country is Belgium which is strongly oriented at foreign trade, while goods with high added value represent its big part. As an example, we can mention processing and trading of diamonds or chemical and pharmaceutical industries. The country's position therefore depends on its focus on the most convenient selection of economic activities which provide the highest possible proceeds which benefits not only the individual enterprise but eventually also the macroeconomic standard of the country.

1.2 Factors affecting growth of added value

The differences between the achieved added value in the individual EU countries therefore depend on many variables. It is the strategic controlling in development and evaluation of the strategy that defines and characterizes long-term key factors of successful functioning of enterprises. According to Steinöcker (1998, p. 30), the main indicators monitored in small and medium enterprises include the share of investments, creation of value, market position, quality, costs and potential for growth. These indicators make it possible to identify the key factors in macro-environment of the enterprise and subsequently in the immediately relevant environment of the enterprise. According to Steinöcker (1998, p. 84), the relevant **macro-environment** of an enterprise includes:

- social factors and components of environmental protection,
- politics and law (development trends in the economic policy and legislation, share of foreign companies on the market, issues of export and technology transfer).

⁶³ Eurostat database – available at: <http://apl.czso.cz/pll/eutab/html.h>

The factors of immediately relevant environment of an enterprise include productivity, investment intensity, innovations, quality of products, marketing, vertical integration and customer-related factors (consulting, servicing and contracted services) and workers (qualification, fluctuation, remuneration system).

To compare the selected countries we will initially use the indicator of economic survival ⁶⁴, which represents the share of total added value on production and sales for which we used the turnover indicator – see Table No. 1; the table provides the first comparable variable available not only at the macroeconomic level but also at the microeconomic level to compare individual enterprises. The higher the value of this indicator the better the country or enterprise is doing and its survival is more probable (it has a higher ratio of the added value to the turnover).

One of the most important factors supporting growth of added value is innovations which, according to Eschenbach-Siller (2012, p. 79), require suitable business environment of the enterprise and also sufficient resources for research and development. The other conditions include development and assessment of the company innovation strategy and management of acquisition of ideas, checking of innovation results and actually an overall monitoring of innovation development. A percentage indicator of research and development expenditures made in the business sector (BERD) makes it possible to compare the selected countries. This indicator is characteristic for a given country in a given period of time, regardless of the source of funds. It is reported as an indicator of research and development intensity, as a percentage of GDP - see the following Table No. 1.

Table 1 The ratio added value and the turnover in selected EU countries – non-financial sector (in mil. EUR and in %) for 2013 and the research and development expenditures in % of GDP

	Turnover	Added value	Added value / Turnover	R &D 2013	R &D 2014
Czech Republic	251 560,50	45 761,40	18,19%	1,91%	2%
Hungary	92 994,80	16 866,40	18,14%	1,41%	1,38%
Austria	429 085,90	103 834,10	24,20%	2,96%	2,99%
Portugal	146 414,40	29 967,60	20,47%	1,33%	1,29%

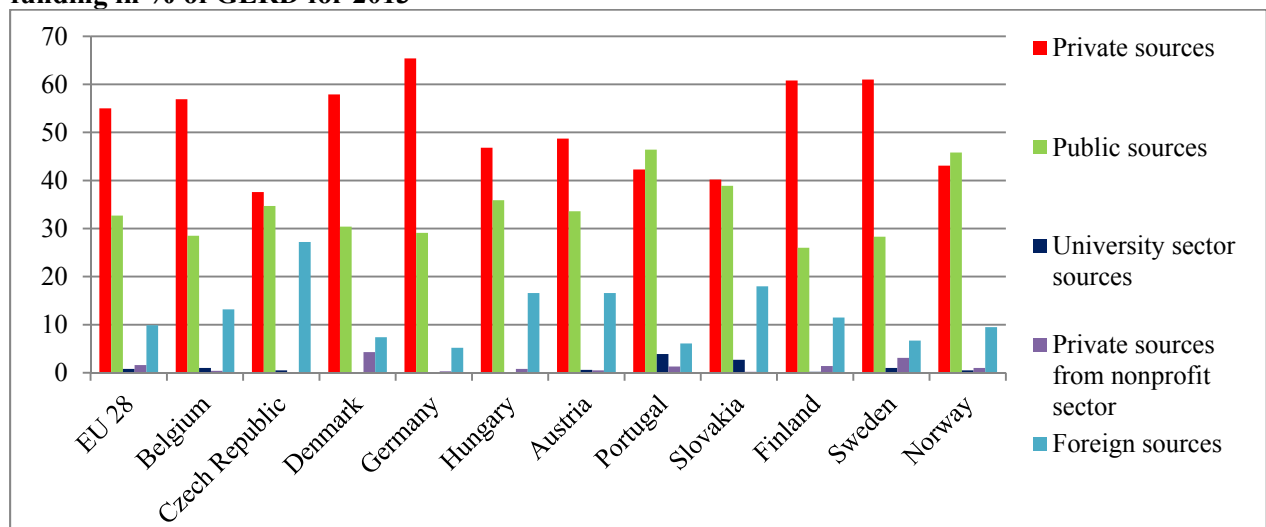
⁶⁴ The indicator is included in the criteria of economic survival as reported by the Ministry of Agriculture of the Slovak Republic in the Countryside Development Plan for the Slovak Republic, Annex D1.

Slovakia	88 508,10	18 055,40	20,40%	0,83%	0,89%
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Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

A more detailed view of research and development expenditures is provided in Figure No. 2 which shows relative shares of various financial resources on research and development expenses, i.e. the percentage of GERD (Gross Domestic Expenditures on Research and Development), funded from private business sources, public sources and sources of university and private non-for-profit sector and from foreign sources. Research and a development involves significant flows of financial means between individual entities, organizations, sectors and countries. The Lisbon Strategy targets set in Barcelona defined the structure of representation of the individual sources for funding of research and a development as follows: 1/3 from public sources and 2/3 from private sources. The target has been met by Belgium, Denmark, Germany, Finland and Sweden. In the Czech Republic and Slovakia the shares of public and private expenditures on research and development are approximately the same and it is expected that the missing private sources are obtained from abroad.

Figure 2 Gross Domestic Expenditures on Research and Development (GERD) by the source of funding in % of GERD for 2013



Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

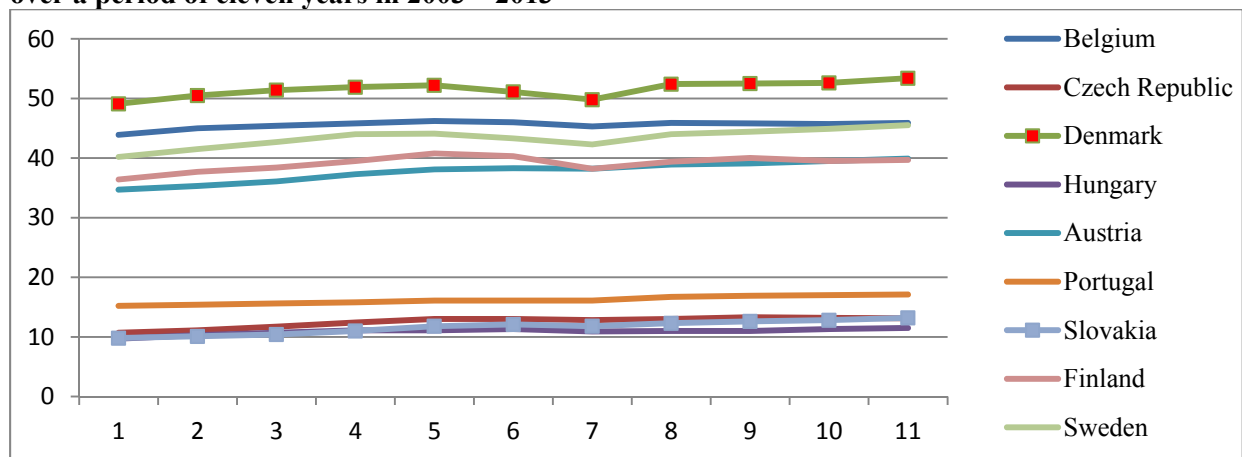
Another factor affecting growth of added value which takes into account added value per one employee is the productivity indicator⁶⁵; according to Havlíček (2011, p. 196-197), it is strongly dependent on the business orientation (e.g. in production companies this indicator is lower than

⁶⁵ Added value per employee

in consulting companies). It provides information whether the company is able, before investing and paying interest on credits, to cover the wages of its employees and whether it is prepared for further investment development.

From the macroeconomic point of view it is more convenient to express productivity per one worked hour (see Fig. 3) which provides a more comprehensive picture of productivity development in a specific economy than productivity per one employee because it balances differences between countries and years with a given setup of workforce made up of full-time and part-time jobs. This indicator confirms the leading position of the already mentioned countries, i.e. Denmark, Belgium, Sweden and Finland throughout the entire 11 years.

Figure 3 Real productivity of labor in EUR per hour and per employee in selected EU countries over a period of eleven years in 2003 – 2013



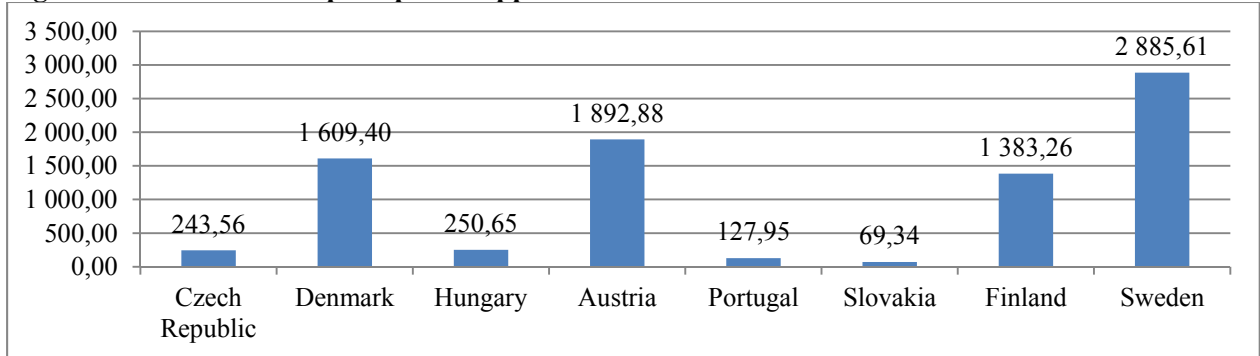
Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

A derived indicator which affects the level of innovation and productivity of labor is e.g. the number of patents⁶⁶; they are affected positively if the number of patents increases, as indicated in Fig. 4. From the microeconomic point of view an even more important role is played by innovation and requirements for appropriate macroeconomic and microeconomic climate and observation of the corporate values supporting innovation because the innovation processes particularly require consistency, creativity and courage to overcome habits, traditions and risks

⁶⁶ Patents are granted to inventors, i.e. to technical solutions which are results of inventor's activities and which are new worldwide and can be utilized in the industry. This means that patentable inventions do not include discoveries or scientific theories, mathematical methods, aesthetic creations, plans, regulations and methods of performance of mental work, provision of information, computer programs, new plant and animal species or treatment methods for humans and animals.

and innovation represents a driving force for growth of added value as such, including inspiring cooperation between the business sector, non-for-profit sector and university sector.

Figure 4 Number of European patent applications⁶⁷ in selected countries in 2013

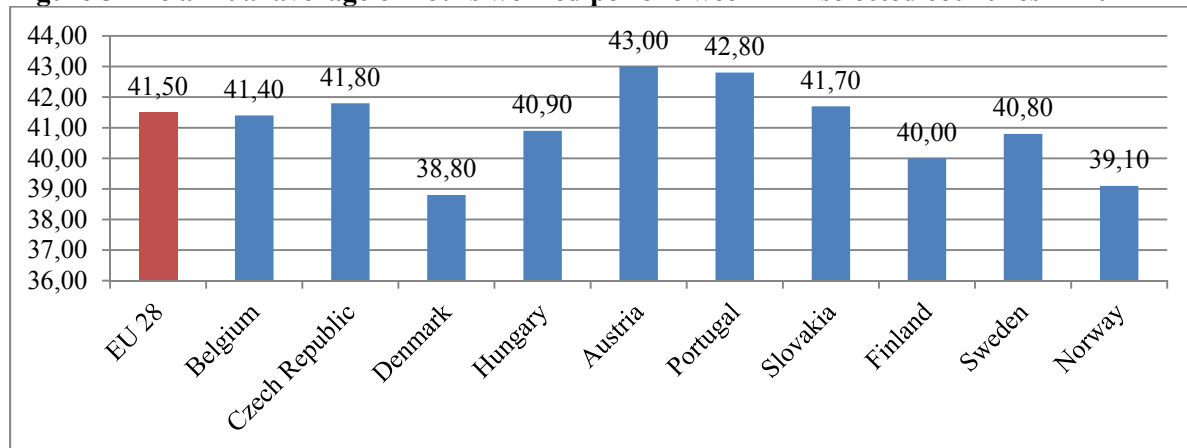


Source: Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

To complete the picture provided by the indicator of real productivity of labor, we have also provided an indicator of annul average of hours worked per one week. Fig. 5 illustrates that the high added value reported by some countries was achieved by higher effectiveness and efficiency of labor and not by more working hours. This eventually affects quality of life of the employees and their families.

⁶⁷ The European patent applications relate to applications for protection of inventions submitted either directly to the European Patent Office (EPO), or under the Patent Cooperation Treaty(PCT) and designed for EPO (Euro-PCT). The applications are counted regardless of whether the patent was granted or not. The data indicate the total number of patent applications for the individual countries. In case of several inventors from several countries the applications are counted proportionately to avoid duplicity.

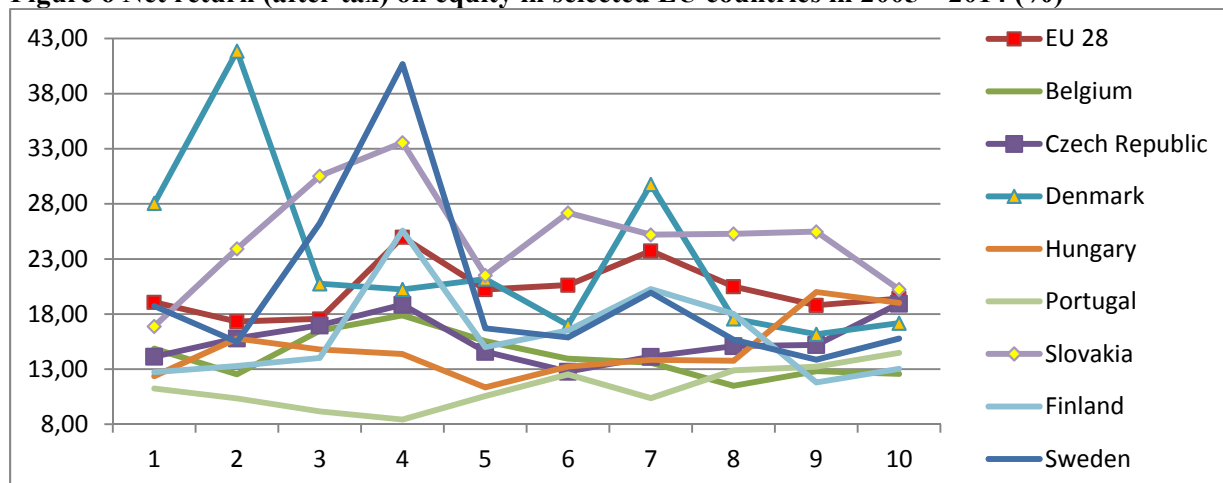
Figure 5 The annual average of hours worked per one week ⁶⁸ in selected countries in 2014



Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

The last monitored factor affecting growth of added value is the return on equity and investment intensity. The return on the own investments is reported through a net return (after tax) on equity of non-financial enterprises⁶⁹ which is decreasing in the monitored countries (except in Portugal, Hungary and the Czech Republic) as indicated in Fig. 6.

Figure 6 Net return (after tax) on equity in selected EU countries in 2005 – 2014 (%)



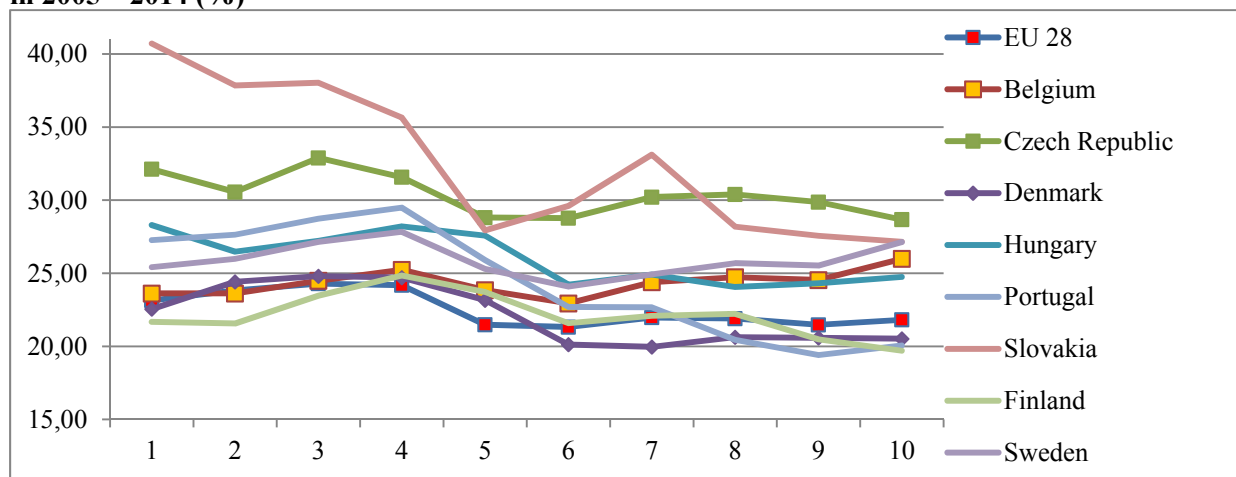
Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

⁶⁸ The average number of hours corresponds to the number of hours normally worked by a worker. This includes all worked hours, including extra hours, either paid or unpaid. The number does not include time spent traveling between home and workplace or lunch break.

⁶⁹ is defined as net entrepreneurial income (code ESA 2010: B.4n) minus usual taxes on the income (D.5PAY) divided by shares / certificates of investment from investment funds (AF.5) - liabilities. Detailed data and methodology are available at <http://ec.europa.eu/eurostat/sectoraccounts>

The rate of investment⁷⁰ is understood as an element in evaluation of the investment intensity where the technology selected by an enterprise determines how much investment capital and operating capital is needed to obtain one unit of added value. From the microeconomic point of view it means that the higher the investment intensity, the higher the break-even point; in our case – see Fig. 7 – the situation is inverse and therefore the companies improve their return on investment and profitability. According to Steinöcker (1998, p. 102), in small and medium enterprises the investment intensity can be seen as a strategic commitment which, on the other hand, limits flexibility of the concerned business unit.

Figure 7 The rate of gross investments made by non-financial enterprises in selected EU countries in 2005 – 2014 (%)



Source: The chart is based on Eurostat data – available at: <http://apl.czso.cz/pll/eutab/html.h>

Conclusion

Our empirical research has confirmed that certain business preconditions significantly influence success of enterprises. A positive development of profit and growing added value, as the indicator of revaluation of available sources, can be expected on a well-managed market, with high flexibility, its own dynamics (ability to adjust the range of products to the market) and under conditions of effective and economical functioning. These are the factors that increase performance of enterprises at the microeconomic level and, consequently, also at the macroeconomic level, with a focus on small and medium enterprises.

⁷⁰ The rate of gross investment of non-financial enterprises is defined as created gross fixed capital (code ESA 2010:P.51g) divided by gross added value (B.1g). This ratio relates investments made by non-financial enterprises into long-term assets (building, machinery etc.) to the added values created by the production process. Detailed data and methodology are available at: <http://ec.europa.eu/eurostat/sectoraccounts>

The achieved added values, based on the prevailing economic activities in the selected EU countries, were quite diverse which is also documented by different status and application of factors that affect growth of added value; the group of countries consisted of more successful ones with high added values, such as Sweden, Belgium, Denmark and Finland, and countries with poorer results, such as the Czech Republic, Hungary and Slovakia. Monitoring of most of the factors that affect growth of added value has confirmed this division and indirectly explained why strengthening of some of the factors may improve the situation. The key factors we have selected included the ratio of total added value to the turnover, research and development expenditure expressed as a percentage of GDP, structure of the sources used for research and development expenditures from the viewpoint of sectors and their shares, and also the number of European patent applications. A specific group of factors includes labor productivity in EUR per hour and per employee, along with the average number of hours worked per one week. The last group of factors focused on investments where we monitored net return (after tax) on equity and rate of gross investments.

Growth of efficiency of economic processes, added value and overall business success in small and medium enterprises in the Czech Republic and Slovakia depends on selection of the right sphere of business, application of research and development, as well as on adequate investments and cooperation between individual sectors or on the level of investment activity.

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MIT ENTREPRENEURSHIP ECOSYSTEM WITH FOCUS ON START-UP DEVELOPMENT

Marian Zajko

Abstract

MIT entrepreneurship has become a renowned term due to the impressive results of MIT alumni and students in innovation and entrepreneurship. It is an outcome of specific university culture of excellent research and pedagogy but also close collaboration with industry and entrepreneurship among MIT students and teachers within the unique MIT entrepreneurship ecosystem. The intention of this paper is to show the positive impact of leading entrepreneurial university (MIT) on its environment in relation to the key driver of this success - its entrepreneurship ecosystem. Particular attention will be devoted to the framework „Disciplined Entrepreneurship“ for development of innovation-driven start-ups playing a substantial role in their development and survival. This may serve as an inspiration and impulse for leading Slovak and Czech universities with ambition to adopt a more entrepreneurial model of operation.

Key words: Massachussetts Institute of Technology, entrepreneurship education, entrepreneurship ecosystem, innovation-driven start-up, Disciplined Entrepreneurship.

JEL Code: M13, O31

Introduction

There is an extensive literature on the entrepreneurship/entrepreneurial ecosystem covering this topic through the lense of country or region up to a city or individual organisation, typically a high education institution. The authors offer a great variety of definitions of entrepreneurship ecosystem and its structure, tools to visualize it and indicators to measure it. Probably the most widely used is the definition of entrepreneurship ecosystem (6 domains with 50 elements) by D. J. Isenberg. It is an environment in which growth oriented entrepreneurial businesses can thrive and consists of a set of individual elements - such as leadership, culture, capital markets, and open-minded customers - that combine in complex ways. Isenberg also set out nine

principles for building a successful entrepreneurship ecosystem (Isenberg, 2010). The World Economic Forum uses further definition with 8 domains of the entrepreneurial ecosystem, emphasising the role of domains Education and Universities (WEF, 2013). A widely spread tool for building up start-up city ecosystems is the Startup Ecosystem Canvas licensed under a Creative Commons Attribution-NonCommercial 4.0 International License. Since November 2012 the Startup Compass Inc. (formerly Startup Genome) has been publishing in its internet site the Global Ranking of Startup Ecosystems based on the compound index considering performance and development status of four key domains of these ecosystems. In the latest report S. Blank concludes in the preface: „*The democratization of entrepreneurship from Silicon Valley and from startup ecosystems all over the world is creating new strategies and structures for that disruption and innovation. It is the strategy lessons from startups that will light the way for the massive restructuring of all corporate structures by the middle of this century*“ (Global Startup, 2015, p. 4). Start-ups can be set up, developed and flourish in the environment with conducive culture for them, concentration of many different types of customers and engaged mentors, i.e. local start-up ecosystem. In this ecosystem high education institutions striving for a more entrepreneurial model of operation play mostly an unsubstitutable role of catalysts or even hubs.

1 Massachusetts Institute of Technology - leading entrepreneurial university

In the latest World University Rankings MIT ranks the fifth after the California Institute of Technology, University of Oxford, Stanford University and University of Cambridge (*Times Higher Education*, 2016). According to the estimates of the report (Roberts, Murray, Kim, 2015) as of 2014 MIT alumni have launched 30,200 active companies, employing roughly 4.6 million people, and generating roughly \$1.9 trillion in annual revenues. That revenue total falls between the world's ninth-largest GDP, Russia (\$2.097 trillion), and the 10th-largest, India (\$1.877 trillion), according to 2013 data on those and other countries from the International Monetary Fund. Among other things, the results indicate recent growth in entrepreneurship among MIT's graduates. In the 2000s, alumni launched around 12,000 new companies; halfway through the current decade, the number of new firms started has already reached 9,100.

The alumni surveys of MIT indicate the following development trends: (1) 31 % of respondents have filed patents and 34 % consider themselves inventors, (2) 25 % of the respondents have

engaged in new company formation, (3) the share of respondents who founded a venture within five years of graduation rose from 4 % (graduates in the 1960s) to 8 % (graduates in the 1990s), (4) the number of companies founded per 100 active alumni increased from 6 (graduates in the 1970s) to 12 (graduates in the 1990s), (5) 22 % of respondents have worked as employees of early-stage ventures and 38 % of these early employees later went on to start their own company, (6) MIT alumni have been more and more engaged in funding innovation projects: 16 % of respondents have invested in new companies (that they did not found), 17 % have participated in crowdfunding to support the invention of a new product or service in the 2000s, (7) 17 % of respondents serve as board members of for-profit companies; and 11 % serve on a firm's scientific advisory board.

The MIT graduates also founded and developed important corporations such as Arthur D. Little Inc., Hewlett Packard, Genentech, Gillette, Raytheon, Teradyne and others. MIT entrepreneurs also favour the East and West coasts: more than 30 % of all the surveyed companies are located in Massachusetts, with 8 % in Cambridge, and 20 % in California. Around 23 % operate in other countries.

2 Entrepreneurship ecosystem of Massachusetts Institute of Technology

The results stated above reflect the MIT culture of excellent research and pedagogy based on the close collaboration with industry and wholehearted support of entrepreneurship among MIT students and teachers within the unique MIT entrepreneurship ecosystem. This ecosystem consists of four domains: development centres, entrepreneurship education and institutions, student-run organizations and clubs, and events and conferences. Specific components of these domains are evaluated below. This is a fruit of the long-term MIT strategy of an excellent research university with a strong entrepreneurial focus where MIT successfully adopted an optimal combination of the top-down measures (policies, mission, budget, incentives and curricula) and bottom-up initiatives instigated among students.

2.1 MIT development centres

The MIT is a private research university in Cambridge (Massachusetts) with 5 schools and 1 college, including the renowned **MIT Sloan School of Management** founded in 1914. Since 1990 the MIT Entrepreneurship Center has been operating there as one of the first in the world

focusing on high technologies with the aim to introduce entrepreneurship education at the MIT. Its „dual education“ of students as potential entrepreneurs was fostered by knowledge transfer from academic professors and coaching and mentoring by extraordinary professors of business practice – successful entrepreneurs and venture capitalists. MIT’s entrepreneurship education rests upon three principles: (1) „Mens et Manus“ (Mind and hand), (2) work in teams, not individually, and (3) cross-disciplinary collaboration. This teaching method was further improved and extended in MIT and currently it is applied in entrepreneurship education nearly in all leading business schools across the world.

Martin Trust Center for MIT Entrepreneurship (MCTE) provides the expertise, support, and connections to MIT students wishing to become effective entrepreneurs, and serves to all MIT students, across all schools, and across all disciplines. The MIT Sloan MBA Programme „Entrepreneurship & Innovation Track“ is taught there. The Center sponsors the MIT \$100K Entrepreneurship Competition and courses E-Lab and G-Lab. The renowned MIT Sloan MBA Programme - Entrepreneurship & Innovation Track is also taught there. It is the core of the MIT ecosystem of innovative entrepreneurship and collaborates closely with the MIT Venture Mentoring Service.

MIT Venture Mentoring Service (VMS) provides to the early stage start-ups at the MIT campus team mentoring of voluntary mentors with business experience, where 3 to 4 mentors concurrently provide professional advice and coaching to a group of entrepreneurs. VMS mentors are selected for their experience in areas relevant to the needs of new entrepreneurs and for their enthusiasm for the programme.

Among the other MIT development centres are important:

MIT Deshpande Center for Technological Innovation;

MIT Media Lab oriented to teaching of interdisciplinary entrepreneurship in the media, sciences and engineering;

Legatum Center for Developmental Entrepreneurship offering a scholarship and grant programme for MIT students intending to start up their businesses in a developing country;

Lemelson MIT Program fostering innovations by awarding the MIT Lemelson Prize of \$500,000 to inventors each year;

MIT Technology Licencing Office managing the patenting, licensing, trademarking and copyrighting of intellectual property developed at MIT and serving as an educational resource on intellectual property and licensing matters for the MIT community (portfolio of over 1,000 US patents, produces 60 to 80 licence contracts each year).

2.2 MIT entrepreneurship education and institutions

The Entrepreneurship Lab is a project-based action learning course, in which teams of science, engineering, and management students from MIT and Harvard are matched to start-ups to work on problems of strategic importance to the venture with top management of high-tech start-ups. The students gain hands-on experience about starting and running new companies. These start-ups are typically tech-intensive, intellectual property-based, massively scalable, have less than 40 employees, and at least one round of outside funding.

The Global Entrepreneurship Lab is also a project-based action learning course, in which MBA students deal with issues of growing new firms in foreign countries. Student teams work for three weeks in a young company of choice outside of the U.S. on a problem designated by its management, helping to define and implement solutions. G-Lab has been expanded with the creation of the country-targeted venture courses of ChinaLab, IndiaLab, and recently also IsraelLab. Since 2000, MIT Sloan G-Lab teams have provided high-impact insight and analysis, on an extremely cost-effective basis, to over 375 start-ups and fast-growing companies in more than 500 projects in more than 50 emerging and frontier markets.

Among the other institutions fostering education are:

The Global Founders Skills Accelerator initiated by the MTCE offers a three-month summer education to move student teams from interesting ideas and/or proofs of concept to enterprises ready for launch;

The MIT International Science and Technology Initiatives programme matching about 750 students each year with tailored internship, research, and teaching opportunities abroad. It propagates MIT's commitment to sharing its approach to entrepreneurship and innovation education globally.

2.3 Student-run organizations and clubs

MIT \$100K Entrepreneurship Competition (MIT \$100K) is an annual educational programme instigating the MIT students and researchers to develop their talents, ideas

and energy in the future successful company. It has taken place since 1992 and provides through its financial prizes (currently \$100,000), start-up founding services, mentor and investor networks an important assistance to MIT student teams and their spin-offs. The MTCE facilitates student integration across clubs and Schools offering also informal coaching and mentoring by its staff and others. In 2015 more than 1,000 students in more than 300 teams participated in MIT \$100K. In 1998, the student leadership of the MIT \$100K decided to form the **MIT Global Startup Workshop** to help students around the world stimulate entrepreneurship at their own campuses, The workshop takes place in a different country each year and attracts hundreds of students and faculty, with government representatives from as many as 50 countries or more also attending.

Among the other MIT development centres are worth mentioning: **MIT Sloan Entrepreneurship and Innovation Club** organizing networking events within MIT Sloan and connects with the Greater Boston community, other local MBA programs, and established Boston organizations;

Venture Capital Private Equity Club organizing and running two major nationwide conferences, the MIT Venture Capital Conference and the MIT Private Equity Symposium; **MIT-TechLink** is the largest club on campus which organizes excursions to many companies each year and fosters cross-disciplinary collaboration among the MIT's graduate communities; **The MIT Innovation Club** centers its activities on helping its members to generate new ideas and commercialize cutting-edge technologies;

MIT Enterprise Forum focuses on technopreneurship and its clusters in the world through its educational programmes via its 28 subsidiaries in three continents;

The on-line student-run publication „**MIT Entrepreneurship Review**“ examines the intersection of science, technology, and entrepreneurship. It brings cutting edge knowledge, innovative ideas and practical experience to entrepreneurs.

2.4 Events and conferences

The MTCE provides numerous networking opportunities, such as "**The MIT Sloan BioInnovations Conference**," since MIT is located in the centre of an intensive biotechnology cluster. The spring "E-Lab Bash" features **the Adolf F. Monosson (MIT'48) Prize for Entrepreneurship Mentoring** to be awarded to a person or group outstanding in nurturing and assisting young entrepreneurs. **MIT Global Startup Workshop** has been held since 1998

to provide consulting to numerous queries from abroad on organization of the MIT \$100K Entrepreneurship Competition. Since 2007 it has been organizing workshops on building ecosystems of innovative entrepreneurship all over the world.

3 Disciplined Entrepreneurship framework

The Disciplined Entrepreneurship is taught to the MIT students interested to start up a new venture. It is a roadmap with several iterative loops to guide founders of innovation-driven start-ups in this process and increase the chances of survival and success of their venture by securing the best possible product-market fit at initial launch. It consists of 24 steps explained further below.

Group 1 “Who is your customer?” covers the following 5 steps:

Step 1 – **Market segmentation** to identify 6 to 10 the most promising markets; Step 2 – **Selection of beachhead market** - deeper market segmentation in order to arrive at a well-defined and homogenous first market new venture will be selling in; Step 3 – **Building an end user profile** to elaborate a detailed description of the end user using specific demographic features for calculation of the total addressable size of the selected beachhead market in the Step 4; Step 4 – **Calculation of total addressable size (TAM)** for the beachhead market uses the end user profile from the Step 3 and calculates the TAM as an annual revenue for company if it achieves 100% market share, which helps conclude on the need of further market segmentation; Step 5 – **Detailed description of Persona** is a further elaboration of end user profile by all co-founders, the Persona is an example of a primary customer for the beachhead market with his/her purchasing priorities.

Group 2 “What you can do for your customer?” covers the following 6 steps:

Step 6 – **Full life cycle use case** involving a detailed description how the Persona finds out about his/her unmet need, then finds a product, evaluates it, acquires it, uses it, gets value from it, pays for it, receives support for the product, and buys more and/or tells others about it; Step 7 – **Creation of a high-level product specification** leads to a high-level visual representation of a product with description of various product features, their translation into functions and benefits for customer, possibly in the form of a product marketing brochure. It is a critical joint exercise of the founding team to resolve any disagreements and issues among them which may be shared with potential customers as validation of the business ideas; Step 8 – **Quantification of value proposition** should result in concrete understanding of benefits product will bring to

the Persona expressed in a metrics in line with his/her top priorities, a visual, one-page diagram is the best output for the validation; The Step 9 – **Identification of the next 10 customers** is the end of Group 1, these further high-potential customers meet the end user profile (of the Step 5) besides the Persona to validate their similarity with it and their willingness to buy product thus increasing the confidence of co-founders that the steps carried out up till this moment have been correct, that this business opportunity is scalable and credible with customers; Step 10 – **Define the core of your solution** deals with what differentiates the product from those of the competitors and what is worth of continuous protection and further enhancement. This is an essential step to maximize the value of new venture. Once co-founders agree on the core which should not change without a great deal of consideration. Depending on the industry it may involve considerations on a specific form of intellectual property rights; Step 11 – **Definition of the competitive position** in the form of a chart showing fulfilment of the Persona's top two priorities by the product of new venture compared to that of competitors and to the customer's status quo. It links priorities of the core (Step 10) and Persona communicating the qualitative value proposition to target customer. The chart should be reviewed with the target customers for feedback and refined until fulfilment of both top priorities of the Persona is not achieved or abandoned if the improvement is not achievable.

Group 3 “How does your customer acquire your product?” covers the following 6 steps: Step 12 – **Determination of customer's decision-making unit (DMU)** analyses decision-making powers and influences in the purchasing process of Persona and next 10 customers in more detail, especially who has to be convinced that the product is worth buying; Step 13 – **Mapping the acquisition process of a paying customer** deepens the understanding of how the DMU makes decisions, how long do purchasing steps take and hidden obstacles in the purchasing process; Step 14 – **Calculation of the total addressable market size (TAM)** for follow-on markets is a quick validation if there are other similar markets for product sales and calculation of their size. The existence of the follow-on markets increases the long-term potential for business which is of relevance for investors and founder team.

Group 4 “How do you make money off your product?” covers the following 5 steps: Step 15 – **Design of business model** distinguishing a venture from its competitors, it can be source of advantage over them, hence it is a crucial decision worth the time and efforts of co-founders since it will determine the venture profitability measured by variables: Lifetime Value

of an Acquired Customer (LTV) and Cost of Customer Acquisition (COCA); Step 16 – **Setting pricing framework** uses of the quantified value proposition (Step 8) and business model (Step 14) to set out an appropriate pricing framework which may be seen as a compromise between achieving maximum revenue and attracting maximum customers and is necessary for calculation of the LTV and COCA in the following steps; Step 17 – **Calculation of the lifetime value of an acquired customer** - the LTV helps measure the long-term viability of a new venture, it is the net present value of average profits of a venture over a five-year period expressed in USD per customer. The present values of all annual profits will be added up to arrive at the LTV which can be then compared to the cost of customer acquisition (COCA). The ratio of these variables for a potential successful start-up should be 3 to 1 or greater; Step 18 – **Mapping out the sales process to acquire a customer** *is the final step of the Group 3*, it deals with calculation of cost of sales process (sales channels) to gain a new customer which may change over time, the ultimate goal of this step is to establish an inexpensive long-term strategy of customer acquisition; Step 19 – **Calculation the cost of customer acquisition (COCA)** varies over time and therefore it should be calculated for five subsequent periods to be comparable with the LTV. The COCA calculation first tabulates the aggregate sales and marketing expenses over a period of time and divides it by the number of new customers acquired during that period. The LTV and COCA analyses enable to identify financial problems of a new venture early in the process of its creation and later keep an optimal LTV to COCA ratio for it (at least 1 to 3).

Group 5 “How do you design and build your product?” covers the following 4 steps: Step 20 – **Identification of key assumptions for correct operation of new venture** is based on the results of primary market research achieved in the preceding steps of this framework, e.g. top priorities of Persona, customer value proposition, estimated gross margins, identification of the next 10 customers and their importance. These assumptions need to be broken down into specific hypotheses that can be empirically tested in the next step. Step 21 – **Testing of key assumptions consists in design and execution** involves empirical tests to validate the assumptions formulated in the previous step and thus decrease the risk of start-up. The tests should be cheap and quick to execute (e.g. surveys, requests to vendors for quotations). Step 22 – **Definition of minimum viable business product (MVBP)** - a combination of the most important key assumptions into one integrated product that can be sold thus enabling to test if

customers will pay for the product. It should meet the following three conditions: 1) customer gets value out of the use of product, 2) customer pays for the product, and 3) the product is sufficient to start customer feedback loop enabling iterative product improvements. It is a broader and more accurate concept than the Minimum Viable Product (MVP). Step 23 – **Verification of interest of customer for minimum viable business product** involves taking the MVBP including to target customer to make sure if they will actually use and pay for the product.

Group 6 “How do you scale your business?” covers the Step 24 – **Development of a product plan**. The MVBP included only a minimum feature set of the product. The product plan will be result of consideration which of the product features not included in the MVBP should be re-included in the product meeting the Persona’s needs.

4 Conclusions

The MIT alumni–founded companies represented in the survey (Roberts, Murray, Kim, 2015) showed superior survival rate compared to new U.S. companies as a whole. While roughly 50 % of U.S. newly formed companies survive for 5 years or more and 35 % last for 10 years, approximately 80 % of new companies founded by MIT alumni survive for 5 years or more and 70 % last for 10 years. Overall, the survey results suggest that about two-thirds of all MIT alumni-established companies - from those that started as far back as 1945 to those recently founded – operate up till now.

The Disciplined Entrepreneurship framework expands frameworks Lean Startup and Customer Development with the quantitative methods used in the Steps 4, 8, 14, 17 and 19, where the realistic calculations of LTV (step 17) and COCA (step 19) are of utmost importance for profitability of prospective venture. Its focus on the best possible product-market fit increases the survival chances of start-ups in software, hardware, processes and business models. We intend to include this framework in the course of Innovation-Driven Entrepreneurship to be taught at the STU in the academic year 2016/2017.

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