

# Manažment v teórii a praxi

on-line odborný časopis  
o nových trendoch  
v manažmente

<http://mtp.euke.sk/>

PHF EU  
ISSN 1336-7137

ročník 13, 2017  
číslo 2

# **Manažment v teórii a praxi**

## **on-line odborný časopis o nových trendoch v manažmente**

**ISSN 1336-7137**

### **Odborné zameranie**

Zámerom časopisu je vytvoriť priestor pre autorov z vedecko-výskumných a vzdelávacích inštitúcií, ako aj pre autorov z podnikovej praxe, ktorí sa chcú podeliť so svojimi výsledkami výskumov, skúsenosťami, postrehmi. Časopis publikuje odborné recenzované príspevky, analýzy, komentáre a diskusie z oblasti podnikového manažmentu, manažmentu organizácií verejnej správy, strategického riadenia podniku, personálneho manažmentu, manažmentu výrobného procesu, manažmentu zmien, manažmentu kvality, organizačnej kultúry, manažmentu znalostí, vzdelávania, informačného manažmentu, informačných systémov a technológií v riadení a pod.

### **REDAKCIA**

#### **Redakčná rada**

Dr. h. c. prof. RNDr. Michal TKÁČ, CSc.

prof. Ing. Ladislav BLAŽEK, CSc.  
prof. Ing. Štefan ČARNICKÝ, PhD.  
prof. Ing. Petr DOUCEK, CSc.  
doc. RNDr. Zuzana HAJDUOVÁ, PhD.  
doc. JUDr. Ing. Aneta BOBENIČ HINTOŠOVÁ, PhD.  
doc. PhDr. Růžena LUKÁŠOVÁ, CSc.  
doc. Ing. Peter MESÁROŠ, PhD.  
doc. Ing. Martin MIZLA, CSc.  
doc. Ing. Petr SUCHÁNEK, PhD.  
Luc VIERENDEELS, MScBA

#### **Editor čísla 2/2017**

Ing. Cecília Olexová, PhD.

#### **Vydavateľ a adresa redakcie**

Ekonomická univerzita v Bratislave  
Podnikovohospodárska fakulta so sídlom v Košiciach, Katedra manažmentu  
Tajovského 13, 041 30 Košice, Slovenská republika  
tel.: +421 55 722 31 11 fax: +421 55 623 06 20  
<http://www.euke.sk> <http://mtp.euke.sk>

#### **Dostupnosť**

URL: <http://mtp.euke.sk>

#### **Grafický návrh a redakčné spracovanie on-line**

Ekonomická univerzita v Bratislave  
Podnikovohospodárska fakulta so sídlom v Košiciach, Katedra manažmentu

#### **Jazyk vydania a periodičita**

Redakcia prijíma na publikovanie príspevky v slovenskom, českom a anglickom jazyku.  
Všetky príspevky sú recenzované.  
Časopis vychádza štvrtročne.  
Ďalšie vydanie: september 2017.

Časopis neprešiel jazykovou úpravou.  
Za obsahovú a jazykovú stránku redakcia nenesie zodpovednosť.

**OBSAH / CONTENTS 2/2017**

<b>COOPERATION BETWEEN ENTERPRISES AND THE SCIENTIFIC ENVIRONMENT IN RESEARCH AND IMPLEMENTATION OF INNOVATIONS</b> <i>Janusz NESTERAK - Zofia GRÓDEK-SZOSTAK</i>	<b>4</b>
<b>MANAGERIAL AND DIGITAL COMPETENCIES IN SLOVAK CONSTRUCTION INDUSTRY</b> <i>Tomáš MANDIČÁK</i>	<b>11</b>
<b>MARKETING – TRENDS, PLANNING AND STRATEGY</b> <i>Bohuslava MIHALČOVÁ – Michal PRUŽINSKÝ – Lenka ŠTOFOVÁ</i>	<b>18</b>
<b>THE IMPACT OF QUALITY MANAGEMENT ON ECONOMIC PERFORMANCE OF ENTERPRISES</b> <i>Lenka ŠTOFOVÁ</i>	<b>25</b>
<b>APPROACHES AND DETERMINANTS OF BUSINESS PERFORMANCE EVALUATION</b> <i>František HURNÝ – Roman LACKO</i>	<b>32</b>
<b>URBAN FOOD SECURITY IN TERMS OF PREŠOV REGION, SLOVAKIA</b> <i>Erika DUDÁŠ PAJERSKÁ</i>	<b>38</b>
RECENZIA PUBLIKÁCIE / BOOK REVIEW „EFFECTIVENESS OF TECHNICAL ANALYSIS IN EFFICIENT MARKET HYPOTHESIS“ <i>Zuzana HAJDUOVÁ</i>	<b>48</b>

## **COOPERATION BETWEEN ENTERPRISES AND THE SCIENTIFIC ENVIRONMENT IN RESEARCH AND IMPLEMENTATION OF INNOVATIONS**

### **SPOLUPRÁCA MEDZI PODNIKMI A VEDECKOU SFÉROU V OBLASTI VÝSKUMU A IMPLEMENTÁCIE INOVÁCIÍ**

***Janusz NESTERAK - Zofia GRÓDEK-SZOSTAK***

#### **ABSTRACT**

Innovation is a vital link in improving productivity and economic growth, especially nowadays, in times of intense technological changes. The level of implementation of innovation depends on many external factors, e.g. the degree of relationship between science and business, or the financing opportunities. The respective internal factors relate primarily to the preparation and commitment of the supplier and recipient of the implemented technology.

**Key words:** cooperation, innovation, enterprise, SME

#### **ABSTRAKT**

Inovácie sú nevyhnutným faktorom zvyšovania produktivity a hospodárskeho rastu, najmä v súčasnosti, v období intenzívnych technologických zmien. Úroveň implementácie inovácií závisí od mnohých vonkajších faktorov, napr. od stupňa vzťahu medzi vedeckým a podnikateľským prostredím alebo od možností financovania. Relevantné interné faktory sa týkajú hlavne prípravy a záväzku dodávateľa a príjemcu implementovanej technológie.

**Kľúčové slová:** spolupráca, inovácie, podnik, MSP

**JEL CLASSIFICATION:** O14, O11

#### **INTRODUCTION**

The main impetus to the growth of productivity and efficiency in developed economies are innovations, based on a solid foundation of knowledge, education and R&D activities. Commercialization of knowledge from universities to business itself, and its efficiency, is therefore the result of the capacity and activity of scientific institutions and their research teams, as well as of openness to the development and competitiveness of enterprises. Also crucial is a properly constructed system of institutional and legal surrounding, which influences the shape of the innovation transfer.

The article elaborates on the possibility of cooperation between enterprises and research units, which belong to the sphere of business environment institutions. Analysed was the experience of the Enterprise Europe Network (EEN) in 2008-2014, relating to supporting the collaboration between companies and research units. Particular attention was paid to cooperation undertaken under the 7th Framework Programme. The article is part of a series of publications discussing the cooperation between business and the business environment, using the instruments of the system support of innovation. The inspiration for the text was the authors' own experience of cooperation with the EEN centres, as well as long-term

activities for the development of the innovative sector of micro, small and medium-sized enterprises.

## **1 THE IMPORTANCE OF ENVIRONMENTAL RESEARCH IN THE INNOVATIVE PROCESS**

Nowadays, organizations functioning in the knowledge-based economy are forced to work out mechanisms, which ensure growth of their capital. This requires a reorientation in thinking, which allows eliminating errors in the existing management system, and understanding the importance of innovation, flexibility and optimization of relationships with customers and suppliers (Łukasiński, 2009). Enterprises build their innovative capacity for innovation with the use of external support and cooperation with the economic environment. Among the needs they report are building the innovation capacity and creating innovative solutions outside. The effectiveness and usefulness of the cooperation partners of enterprises in the field of innovation can be measured by the scale and intensity of services provided in the field of technology and knowledge, training, or promotion, with a particular emphasis on innovation services (Gródek-Szostak, 2016). The growing importance of business environment institutions is related to two key trends in the development of the world economy: globalization and regionalization. Both of these processes may lead to the acquisition of competence in socioeconomic development in international, regional and local institutions. Moreover, the process of globalization can lead, on the one hand, to the marginalisation of certain areas, and on the other hand, to the increasing importance of territory and location as the source of competitive advantage. We are therefore faced with two seemingly contradictory phenomena, i.e. a territory's regional and local importance increases along with globalization (Pietrzyk, 2002).

Research units play an important role in generating innovation. In the knowledge economy model, universities have the knowledge and resources, the transfer of which should lead to faster economic growth (Mowery, Sampat, 2006). The potential of research units includes, e.g. international networks, which allow diffusing the technology, as well as well-equipped laboratories and intellectual potential of the scientific personnel. The traditional role of scientific institutions in the process of innovation includes mainly the creation of ideas, as their commercialization is the role of business. Research centres specialize in the early stages of the innovation development process, the innovations being basic or experimental research, with no particular focus on its application. The last stages of research and development work involve constructing a prototype and adapting it to the needs of the market and commercialization, and are carried out in enterprises.

## **2 RESEARCH COOPERATION BETWEEN ENTERPRISES AND RESEARCH CENTRES**

The ground for cooperation between scientific institutions and enterprises is an intermediate step in the formation of the product, and the cooperation is the transfer of knowledge from science to business. Transfer of knowledge from universities to businesses can be made using multiple channels (Gródek-Szostak, 2011). Depending on the stage of development of the company, the industry, technological advancement, and the competence of the executives, an entrepreneur looking for opportunities to develop their company can make a number of different choices. Some of the more common include the purchase of new equipment or know-how to strengthen the potential of the company, or open the way to winning over new markets. According to the classification proposed in the report describing

the status of cooperation between universities and the business sector in Europe (Davey et al, 2011), there are eight types of co-operation leading to the transfer of knowledge:

1. joint research and development (R&D),
2. commercialization of R&D conducted at universities,
3. employing students in companies,
4. employing scientists in companies,
5. participation of entrepreneurs in the development of university curriculum,
6. lifelong learning,
7. entrepreneurial training of students and researchers,
8. inclusion of business people in university authorities.

The formula, in which cooperation is conducted, and its scope, is also important. The most common methods of cooperation include (Korniejenko, 2010):

- commissioning of R&D works (commissioned research);
- cooperation in joint research initiatives;
- direct investment, cooperation and mergers of companies, joint-ventures, in particular creating spin-offs and spin-outs;
- a technology market including trading patents, licenses, know-how;
- the teaching process (students transfer the acquired knowledge to professional life);
- replacement/exchange of employees, including professional training and practice of researchers in enterprises;
- development of network systems and structures, e.g. clusters, which include research and development units, as well as enterprises.

Most of the above possibilities of cooperation may be supported by external funds, in terms of commissioned research funding, as well as cooperation within the clusters, or staff exchanges between scientific institutions and companies. Considering the real chances of cooperation between science and business, it should be noted that the process of cooperation, which takes into account the needs of the market, science, innovation and R&D, is dynamic and ever-developing. All elements interact and intertwine, so the model of cooperation must take them into account.

The cooperation includes joint R&D works and commercialization of the results generates the fastest results and leads to a smooth transfer of knowledge from universities to companies. As indicated by the analysis of literature (Arza, 2010), each of the cooperating parties is characterized by different prerequisites for undertaking it. For the representatives of the academia, the important issue is the ability to conduct interesting research and publish its results in reputable scientific journals. Entrepreneurs, in turn, are driven by economic reasons (Figure 1).

Empirical research (Robin Schuber, 2013) indicates that the cooperation of enterprises with scientific institutions is important for raising the level of innovation in business.

However, different motives for cooperation, as well as different expected results are often a stumbling block to cooperation. The main barriers (Siegel et al., 2003) include:

- different work culture and organization, e.g. a different horizon of research or production processes;
- potential conflict concerning the rights to the created intellectual property;
- high bureaucratic costs of cooperation, e.g. the lack of effectiveness of university technology transfer centres.

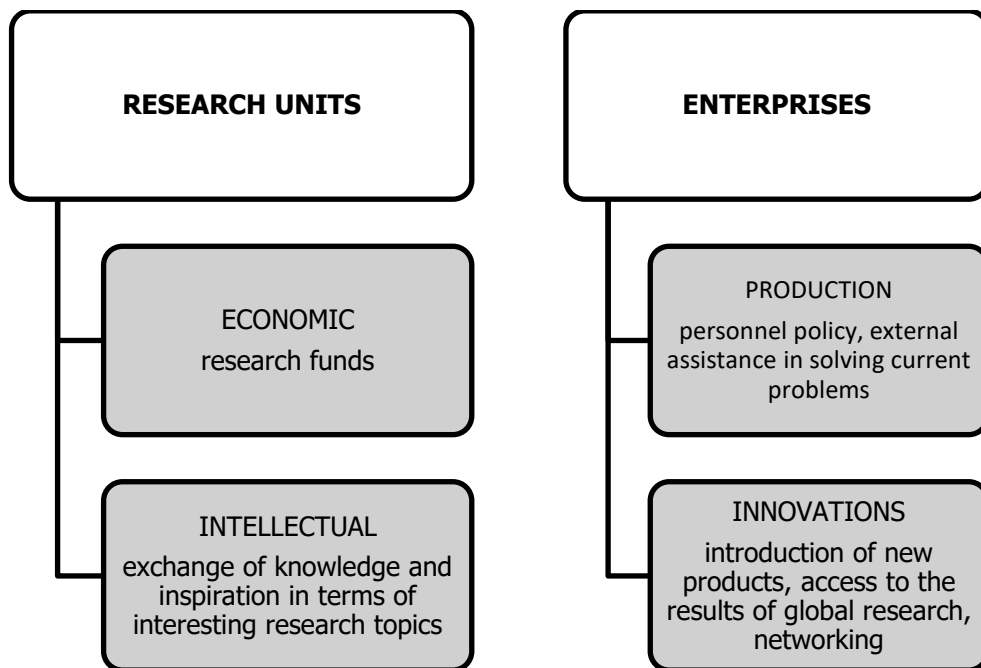


Figure 1: Motivation to take up cooperation with enterprises for scientific institutions.  
 Source: Own study based on Arza (2010).

Please note the scale of advantages achieved through cooperation with the scientific community, as perceived by entrepreneurs (Figure 2).

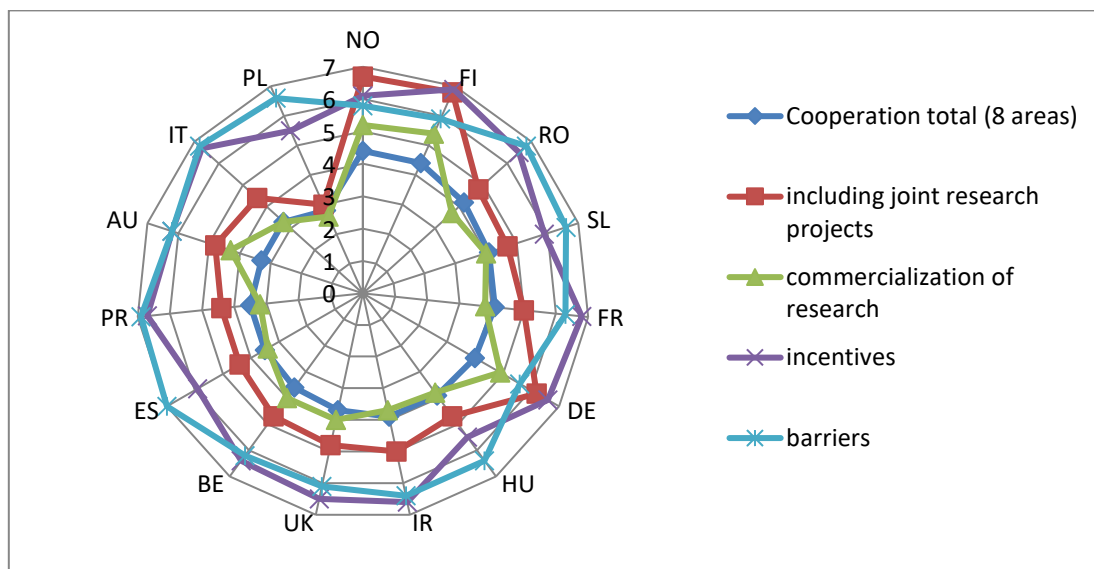


Figure 2: The scale of cooperation with business, as perceived by university staff in the EU  
 Source: Own study based on Dawey (2011).

Research (Dawey, 2011, 2013) indicates that the highest level of barriers in cooperation with scientific institutions was pointed by entrepreneurs from Spain (7/10), Portugal (6.9/10) and Romania (6.8/10). The system of cooperation incentives in these countries was assessed at: 5.9 (Spain), 6.7 (Portugal) and 6.5 (Romania). The countries with the highest level of incentives (according to entrepreneurs) were: Finland 6.9 and France 6.8.

### 3 EXPERIENCE OF RESEARCH COOPERATION WITHIN THE ENTERPRISE EUROPE NETWORK

The Enterprise Europe Network (EEN) has been created as part of the implementation of the Competitiveness and Innovation Framework Programme (CIP) 2007-2013. In the 2014-2020 financial perspective, EEN it is funded under the Framework Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises COSME 2014-2020. EEN provides entrepreneurs with, among others, free use of the instruments of support in making and implementation of research cooperation on an international scale. The experience of enterprises in establishing research cooperation through the EEN network in 2007-2017 focused on the search for partners, and the implementation of joint projects within the 7th Framework Programme (FP7).

The idea of FP7 was to strengthen the support for the transnational cooperation in the field of research, technological development and demonstration activities, especially between enterprises and public research institutions. It was dedicated to specific projects for small and medium-sized enterprises in the field of research and technological development and the mobility of researchers within enterprises and academia. Thus, the program focused more on the needs of industry in terms of technological innovation, and initiated new activities in the form of joint technological initiatives in key areas of industry. It promoted the dissemination and use of the results of research programs within projects and specific thematic fields, as well as coordination of national research programs and policies.

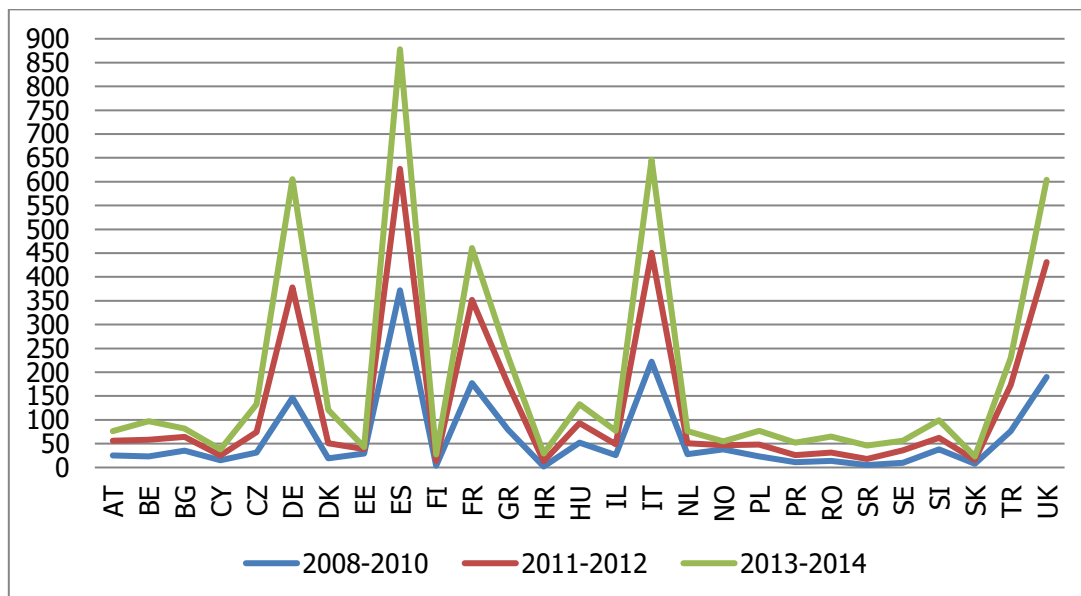


Figure 3: Research cooperation of enterprises within the Enterprise Europe Network in the years 2008-2014.

Source: Own study based on the EEN Activity Report 2008-2014



The analysis of the experience of enterprises undertaking research collaboration (Figure 3), which included a search for partners in the international research community through the EEN network in 2008-2014, indicates an increase in interest in this type of cooperation. The leaders in scientific and research cooperation in the researched periods were entrepreneurs from Germany, Spain and the UK. Verification of the EEN consultants' experience also points to the growing awareness among entrepreneurs concerning the possibility of building an innovative advantage based on exploiting the potential of scientific research.

## CONCLUSION

Business innovation is based largely on the cooperation of companies and other entities. Cooperation in the field of innovation allows businesses access to knowledge and technology. It also demonstrates a great potential for synergy, since the partners learn from each other. Support services for European business and innovation play, and will play an important role; they will ensure SMEs' access to information on the functioning and opportunities of the internal market, provide feedback from SMEs in terms of policy development and impact assessments, as well as support SME's international cooperation. The support services will also disseminate information and raise awareness on policies, legislation and support schemes related to innovation, promote the use of results of research programs, and provide brokerage services for technology and knowledge transfer as well as partnership building between the innovation actors.

## ACKNOWLEDGEMENTS

*The publication has been financed by the funds allocated to the Department of Economics and Organization of Enterprises at the University of Economics in Cracow in the framework of grants to maintain research potential.*

## REFERENCES

- ARZA V. 2010. Channels, benefits and risks of public-private interactions for knowledge transfer, *Science and Public Policy*, 37, p. 473-84.
- DAVEY, T. - BAAKEN, T. - GALÁN-MUROS, V. - MEERMAN, A. 2011. Study on the cooperation between Higher Education Institutions and Public and Private Organisations in Europe. European Commission, Brussels.
- DAVEY, T. - GALÁN-MUROS, V. - MEERMAN, A. - KUSIO, T. 2013. The State of University-Business Cooperation in Poland, European Commission, Science to Business Marketing Research Centre - apprimo - UIIN.
- EEN Activity Report 2008-2014
- GRÓDEK-SZOSTAK, Z. 2011. Transfer technologii - pojęcia, formy, modele. [in:] Zarządzanie jednostką transferu technologii, red. Michał Cupiał. - Krakow: Polskie Towarzystwo Inżynierii Rolniczej, p. 21-35.
- GRÓDEK-SZOSTAK, Z. 2016. Ocena skuteczności usług proinnowacyjnych świadczonych przez ośrodki innowacji w województwie małopolskim. *Przegląd Organizacji*, nr 11 (922), p. 10-15.

- KOŁODZIEJ-HAJDO M. - NESTERAK J. (2011), Wpływ funduszy unijnych na rozwój sektora MSP [w:] Wybrane modele prowadzenia biznesu, Redakcja naukowa A. Jabłoński, Wyższa Szkoła Biznesu w Dąbrowie Górniczej, Dąbrowa Górnicza, s. 205-224.
- KORNIEJENKO, K. 2010. Możliwości dofinansowania transferu technologii i wiedzy naukowo-technicznej z jednostek naukowo badawczych do sektora MSP w Polsce, Problemy Gospodarki światowej, Kuczmarska M., Pietryka I. (ed.), PTE Torun, Torun, p. 150-151.
- ŁUKASIŃSKI, W. 2009. Człowiek źródłem kreatywności – wpływ pracowników wiedzy na proces kształtowania rozwoju organizacji, [in:] Kreatywność i przedsiębiorczość w projałosciowym myśleniu i działaniu, Vol. I, (ed.) E. Skrzypek, Zakład Ekonomiki Jakości i Zarządzania Wiedzą, Faculty of Economics Maria Curie-Skłodowska University, Lublin, p. 136.
- MOWERY, D.C. – SAMPAT, B.N. 2006. Universities in national innovation systems [in:] Fagerberg J., Mowery D.C. (ed.), The Oxford Handbook of Innovation, Oxford University Press.
- PIETRZYK, I. 2002. Polityka regionalna Unii Europejskiej i regiony w państwach członkowskich, PWN, Warsaw, p. 16-27.
- ROBIN, S. – SCHUBERT, T. 2013. Cooperation with public research institutions and success in innovation: Evidence from France and Germany. Research Policy 42(1), p. 149 –166.
- SIEGEL, D.S. – WALDMAN, D.A. – ATWATER, L.E. – LINK, A.N. 2003. Commercial knowledge transfers from universities to firms: improving the effectiveness of university - industry collaboration, The Journal of High Technology Management Research 14(1), p. 111-133.

#### **ABOUT THE AUTHORS**

**Prof UEK Janusz NESTERAK, PhD, Associate Professor**

Department of Economics and Organization of Enterprises  
Cracow University of Economics  
Rakowicka 27, 31-510 Cracow, Poland  
e-mail: janusz.nesterak@uek.krakow.pl, nesterak@uek.krakow.pl

**Dr Zofia GRODEK-SZOSTAK, PhD**

Department of Economics and Organization of Enterprises  
Cracow University of Economics  
Rakowicka 27, 31-510 Cracow, Poland  
e-mail: grodekz@uek.krakow.pl

## MANAGERIAL AND DIGITAL COMPETENCIES IN SLOVAK CONSTRUCTION INDUSTRY

## MANAŽÉRSKE A DIGITÁLNE KOMPETENCIE V STAVEBNÍCTVE NA SLOVENSKU

*Tomáš MANDIČÁK*

### ABSTRACT

Actually, knowledge and skills are very important in digital economy. To increase competitiveness, it is necessary to increase managerial and digital competencies of managers in every field. Progressive technology represent one of the way to increase managerial and digital competencies. This paper discusses issue of managerial and digital competencies in Slovak construction industry. Main aim of the paper is to confirm or refute the claim, that progressive technology as information systems increase to managerial and digital competencies of managers in Slovak construction industry.

**Key words:** managerial and digital competencies, construction industry

### ABSTRAKT

V období digitálnej ekonomiky sú znalosti a zručnosti veľmi dôležité. Pre zvýšenie konkurencieschopnosti podnikov je nevyhnutné zvýšiť aj manažérske a digitálne kompetencie manažérov vo všetkých oblastiach. Progresívne technológie predstavujú jeden zo spôsobov, ako zvýšiť manažérske a digitálne kompetencie. Tento príspevok sa zaoberá problematikou manažérskych a digitálnych kompetencií v slovenskom stavebníctve. Hlavným cieľom príspevku je potvrdiť alebo vyvrátiť tvrdenie, že progresívne technológie ako informačné systémy zvyšujú manažérske a digitálne kompetencie manažérov v slovenskom stavebníctve.

**Kľúčové slová:** manažérske a digitálne kompetencie, stavebníctvo

**JEL CLASSIFICATION:** L74

### INTRODUCTION

Managers and their managerial or digital competencies could affect to the competitiveness of each company in various fields (Štrba, et al., 2016). Although the achieving managerial and digital competencies is often the only answer to the acute problem and it's not supported by long-term strategy. The main problem is that companies do not have enough managers who know to learn of their own work and effectively engage the intellectual and emotional capital represented by their co-workers (Kršák and Kyšela, 2016). According to the European Commission, the competitiveness and innovative capacity of European industry is increasingly dependent on the strategic and effective use of new information and communication technologies as well as knowledge, skills, competencies of the European workforce and citizens (European Commission, 2016). Information systems can be as a one way to increase managerial and digital competencies. Construction industry records a lot innovations for last period (Kozlovská, et al., 2016). Especially in field of new materials and

methods in construction. According to another researches, innovation in construction industry were recorded on field new information and communication technology, for example increasing information systems in construction company and so on (Čarnický, et al., 2016). The quality of information is the basic for decision making at the strategic or operational level. Their processing within the required decisions must be made quickly, often in real time and usually requires some automated support. This task is carried out by important support tool for decision and an integral part of the daily work of managers, analysts and executives across the enterprise. Information systems can be one of way to increase managerial and digital competencies.

## 1 CONSTRUCTION PROJECT MANAGEMENT THROUGH INFORMATION SYSTEMS

Managerial and digital competences have been examined in several countries worldwide. According to the European Commission's research, the largest requirements are for working with information and knowledge (Ferrari, 2012). Generally, a lot of researches point to the need for effective work with the data, especially necessary for right decision making on the basis of relevant data and information. Extensive research was conducted in the United Kingdom in last year. Research was realized by Department for Business innovation and Skills of United Kingdom. This research answered on questions as: What is the current demand for digital skills across the economy and what are the different types of digital skills requirements? According this research, the use of digital channels also improves the way public services are delivered at the national and local levels (Department for Business Innovation and Skills, 2016). 90 % of companies said lack digital skills of their managers (Capgemini Consulting, 2013). In spite of this fact, only 46 % of companies are investing in developing digital skills. From this research is known that, existing efforts to develop skills are out of sync only 4 % of enterprises align their training efforts with their digital strategy. Almost 77 % of small and medium-sized enterprises in United Kingdom not having a basic digital skills (Department for Business Innovation and Skills, 2016). Based on this research, 35% percent of construction enterprises began to provide training for the acquisition of digital competence in new technology. To a large extent, the number of training coincides with a number of large construction companies. This number is still low. For comparison, 60% of establishments in education sector began to provide training for the acquisition of digital competence in new technology. The current state of business and digital competences in Slovakia has been mapped in the survey conducted by Mesárošová and Mesároš (Mesárošová and Mesároš, 2012). The research with titled "Identification of key competencies of university students for the needs of knowledge society development in Slovakia" shows current state of digital skills of students in Slovakia. But, this research was not realized in construction sector, only in education.

Construction field is characterized by fragmentation which exists both within individual phases as well as across project phases (Howard, et al., 1989). Participants from various organizations who are involved in a project phase or in different project phases are facing ineffectiveness and inefficiency in their coordination, collaboration and communication (Černý, et al., 2013). Powerful information systems has become a prerequisite to manage the projects more efficiently and effectively, and aid the project managers in their decision-making (Lee and Yu, 2012). The job does easily, quickly and accurately can constitute a competitive advantage. This may also be in the use of technologies for cost planning and budgeting of construction production. Progress of information systems are undeniable in every field. Currently, the concept of IT (Information Technologies) covering both hardware and software which contains various essential software, application software and development resources

(Mesároš, 2013). There are all information resources used in the creation and use of IS performance. Information and communication technologies are the methods, procedures and methods of collection, storage and processing, evaluation, selection, distribution and current receipt of the necessary information in the required format and quality (Stoffova and Stoffa, 1999). The question is how these information systems can impact to the increase of managerial and digital competencies of managers. What are differences between different sizes of construction enterprises?

According to Grovo, it describes eight core digital skills that can be applied to information technologies in the construction industry. Information technology allows users to work effectively with documents, for example with project documentation, financial statement and so on. Information system is an appropriate tool for project collaboration and project management, generally. Simultaneously, it is a tool for protectionists, investors, but also for contractors and subcontractors too. Communication is very important in managing anything. This is one of the basic skills of each manager. Information technology also helps communications. Information system is appropriate to clarify the specific things in the project documentation for the participants of the construction project. Information systems is a flexible platform.

Based on defined core eight digital skills that can increase the use of information system, it can be defined the main benefits of information system. These benefits include: coordination and collaboration (that is one of managerial skills of managers), it can detection of conflicts. Another benefits of information system linked with achieving managerial and digital skills are following (Calevert, 2015):

- High level of customization and flexibility,
- Cost optimization and schedule optimization,
- Life cycle management,
- Better drafting (cost reduction, quality assumption),
- Conflict detection and Risk management and so on.

## 2 METHODOLOGY AND RESEARCH SAMPLE

The main aim of research was set like to confirm or refute the claim, that progressive technology as information systems increase to managerial and digital competencies of managers in Slovak construction industry. Extended aims were set with linked on some factors affected on increasing of managerial and digital competencies of managers. There are construction size and participant of construction project. The Internet is one of the tools (methods) of data collection for purpose of research.

The questionnaire was sent by e-mail, as electronic surveys allow the transmission of more information, they support a better interaction between the researchers and the respondents, and they contribute to a better quality of information and faster response.

The survey was conducted on the total survey sample, 125 respondents. 57 questionnaires were received, out of which 55 were considered valid, thus a 44 % final response rate. Respondents included companies from all regions of Slovakia. The companies were divided into small, medium and large enterprises under the Act 231/1999 Law Code on state aid. Classification of the enterprises is treated to the breakdown according to European Commission Recommendation 2003/361/EC. Information about the respondents is presented in Table 1.

Table 1: Research sample

<b>Company size</b>	<b>Number</b>	<b>in %</b>
Large companies	7	12,73 %
Medium-sized companies	12	21,82 %
Small companies	17	30,91 %
Microcompanies	19	34,55 %
<b>Participants of construction project</b>	<b>Number</b>	<b>in %</b>
Contractor	28	50,91 %
Sub-constructor	14	23,64 %
Projectant/architect	9	18,18 %
Investor/developer	4	7,27 %

Source: own processing

For data processing was used rate on Likert scale from 1 to 5 (where 1 – minimum level of managerial or digital competencies and 5 – maximum level of managerial or digital). The evaluation methodology was also used in this research. It is a method that allows to quantify the use or impact on selected basis of factors. This method was used in evaluating degree of influence information systems to increasing digital and managerial competencies of managers in Slovak construction industry. The result was quantified exploitation rate, or influence rate. Statistical significance was tested by Kruskal - Wallis test at the significance level  $\alpha = 0.05$ . Kruskal - Wallis test (Kruskal - Wallis ANOVA) is a direct generalization of the Wilcoxon two-sample test case for more independent sample.

### 3 RESULTS

Generally, world trend in the use of information systems is growing. Abroad, large construction enterprises use this tool more widely than Slovak enterprises. The situation in Slovakia is different in something. It was noticed increased trend in the use of information systems technology in Slovakia construction industry. But the exploitation rate of information systems is still low (figure 1). The exploitation of Information system in Slovakia construction industry is the highest in large construction enterprises. Micro construction companies using information systems in the smallest degree. It reached exploitation level only 1,24. Large construction companies use this tool more widely. Exploitation rate achieve value of 3,57 in this group. The situation is similar in the assessment in terms of participants in the construction project. The greatest exploitation level achieved the group of investors and developers. It's value reached 2,99. Contractors achieved exploitation level 2,67. Planners and architects did not value more than 2.

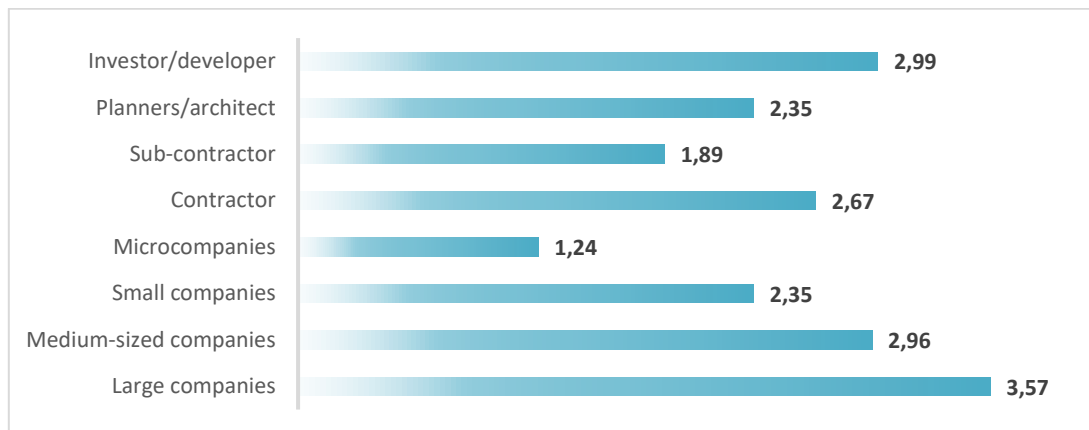


Figure 1: Exploitation of information systems in Slovak construction industry  
 Source: own processing

Next figure shown level of managerial and digital competencies in construction enterprises divided by use and not use of information systems. According results from research it can be said, that information systems has impact on developing of managerial and digital competencies. Level of managerial competencies of managers in Slovak construction, that use information systems achieved value 3,98. Contemporary, managerial competencies of managers in Slovak construction industry not using information systems achieved value only 2,38. Similar situation is for level of digital competencies. Digital competencies of managers in enterprises, that use information system achieved value 4,16. Contemporary, digital competencies of managers in Slovak construction industry not using information systems achieved value only 2,19. Similar situation is for level of digital competencies. All of this results had to verification by Kruskal-Wallis test. All results are in table 2.

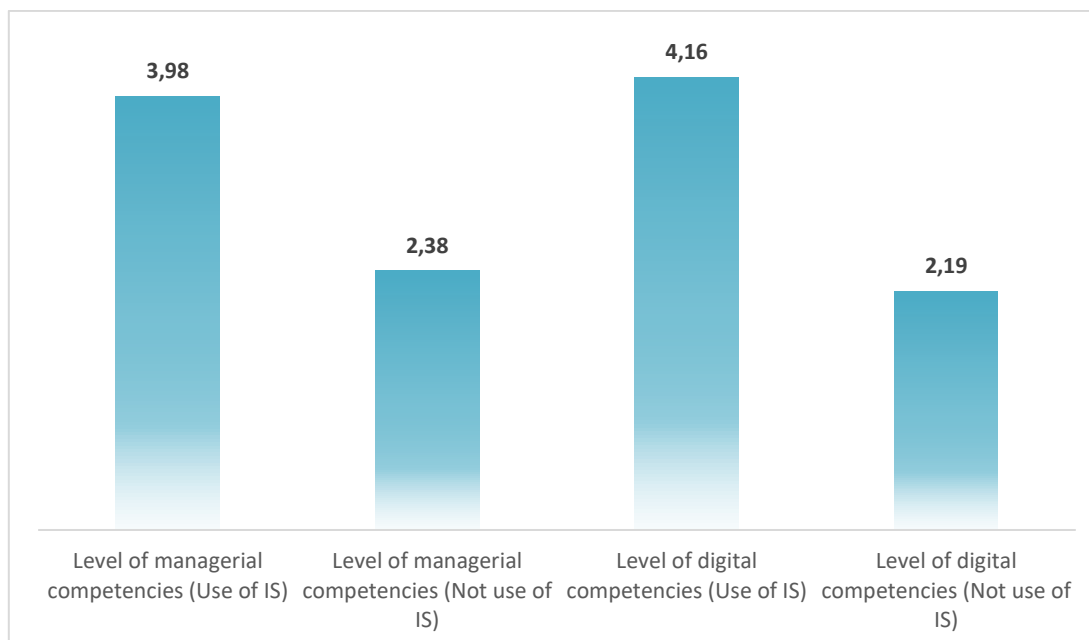


Figure 2: Managerial and digital competencies of managers in Slovak construction industry  
 Source: own processing



Table 2: Kruskal-Wallis test

	Kruskal-Wallis ANOVA based on ranking, Variable – <b>Use or not use information system <math>p=0,0643</math></b>		
	Code	Number of valid responses	Level
Level of managerial competencies (Use IS)	1	31	3,98
Level of managerial competencies (Not use IS)	2	24	3,78
Level of digital competencies (Use IS)	3	31	2,93
Level of digital competencies (Not use IS)	4	24	2,57

Source: own processing

Based on Kruskal-Wallis test it can be confirmed the statement that information systems increase to managerial and digital competencies of managers in Slovak construction industry.

## CONCLUSION

Managerial and digital competencies of managers in construction industry represent competitive advantage of every enterprise. Increasing of managerial and digital competencies is difficult process. New progressive technology as information systems offer a new approach to information and to be improved. The research pointed to the possibility of increasing of managerial and digital competencies through information systems. The research confirmed statement that information systems increase to managerial and digital competencies of managers in Slovak construction industry.

## ACKNOWLEDGEMENTS

*The paper presents a partial research results of project VEGA 1/0828/17 "Research and application of knowledge-based systems for modeling cost and economic parameters in Building Information Modeling".*

## LITERATURE

- BASL, J. 2008. *Podnikové informační systémy (podnik v informační společnosti)* 2. vyd. Praha: Grada Publishing, a.s. 2008. 283.s. ISBN 978-80-225-2676-0
- CALEVERT, U. 2015. 10 points and the benefits of. Available online: <http://blog.synchroITd.com/10-points-and-the-benefits-of-is>
- ČARNICKÝ, Š. - MESÁROŠ, P. - HABIŇÁKOVÁ, M. - MANDIČÁK, T. 2016. Success factors of implementing and using business intelligence: An industry study 1. Ed. - Wambeck : EuroScientia - 2016. - 155 p.. - ISBN 978-90-822990-3-8.
- EUROPEAN COMMISSION. 2016. e-Leadership - Digital skills for SMEs, Brussel, 2016
- FERRARI, A. 2012. JRC Technical Reports (Digital competence in practice: an analysis of frameworks. Luxembourg: Publications Office of the European Union, 2012, ISBN 978-92-79-25093-4



- HOWARD, C. et al. 1989. Computer integration: reducing fragmentation in AEC industry. In: *Journal of computing in p.* p. 18-32. 1989
- KOZLOVSKÁ, M. – MAČKOVÁ, D. – SPIŠÁKOVÁ, M. 2016. Modern methods of construction - an innovative approach to construction. In: *ESaT*. 2016, pp. 1-4. - ISBN 978-80-553-2564-4
- KRŠÁK, B. – KYŠEĽA, K. 2016. The use of social media and internet data-minig for the tourist industry. In: *Journal of Tourism & Hospitality*. Vol. 5, no. 1 (2016), p. 1-3. - ISSN 2167-0269
- LEE. S. – YU. J.H. 2012. Success model of project management information system in construction. In: *Automation in construction*. 2012. vol. 25. p. 82-93
- MESÁROŠ. Peter. 2013. *Manažment znalostí v praxi slovenských stavebných podnikov*. Košice: VÚSI, spol. s r.o. 2013. 182.s. ISBN 978-80-89383-28-3
- MESÁROŠOVÁ, M. – MESÁROŠ, P. 2012. Learning to Learn Competency and Its Relationship to Cognitive Competencies of University Students. In: *Procedia - social and behavioral sciences*. Vol. 46, no. 1 (2012), p. 4273-4278. - ISSN 1877-0428
- NITITHAMYONG. P. – SKIBNIEWSKI. M. 2004. Web a-based construction project management systems: how to make them successful. In: *Automation in construction*. 2004. vol. 13. p. 491-506
- STOFFOVÁ. V. – STOFFA. J. 1999. Základné termíny z informačných, multimediálnych a didaktických technológií. In: *Zborník MEDACTA '99: Zväzok 1*. Nitra: Slovdidac. s. 64-69. ISBN 80-9677746-2-X
- ŠTRBA, Ľ. - KRŠÁK, B. – SIDOR, C. AND BLIŠŤAN, P. 2016. Destination business information systems for smart destinations: the case study of Kosice county. In: *International Journal of Business and Management Studies*, vol. 5, 2016, p 177-180, ISSN 2158-1479

## ABOUT THE AUTHOR

### **Ing. Tomáš Mandičák, PhD.**

Ústav technológie a manažmentu v stavebníctve  
Stavebná fakulta  
Technická univerzita v Košiciach  
Vysokoškolská 4, 042 00 Košice  
e-mail: tomas.mandicak@tuke.sk

## MARKETING – TRENDS, PLANNING AND STRATEGY

## MARKETING – TRENDY, PLÁNOVANIE A STRATÉGIA

***Bohuslava MIHALČOVÁ – Michal PRUŽINSKÝ - Lenka ŠTOFOVÁ***

### ABSTRACT

Marketing is an important element of business management because it focuses on the market and every customer. Effective marketing is one that benefits not only a business but also a customer. It helps find the right product at the right time, at the right place and at an acceptable price. The paper focuses on the basic concepts of marketing and its trends. At the same time, it briefly characterizes the marketing plan and the principles of the marketing strategy.

**Key words:** marketing, marketing planning, marketing strategy

### ABSTRAKT

Marketing je dôležitým prvkom riadenia podniku, pretože sa orientuje na trh a každého zákazníka. Účinný marketing je taký, ktorý prináša prospech nielen firme, ale aj zákazníkovi. Pomáha mu nájsť potrebný produkt v správnom čase, na správnom mieste a v akceptovateľnej cene. Príspevok sa orientuje na základné pojmy marketingu a jeho trendy. Zároveň stručne charakterizuje marketingový plán a princípy marketingovej stratégie.

**Kľúčové slová:** marketing, marketingové plánovanie, marketingová stratégia

**JEL CLASSIFICATION:** E60, M31, O31, O35

### THE BASES OF MARKETING AND ITS TRENDS

To discuss marketing planning, we first have to clarify what marketing is and the trends due to marketing. Marketing is lifestyle creation and a communication towards customers. Dynamic changes since 90-thies, increasing competition and the demands of the customers have lead companies to recognition that only short time transactions wouldn't be enough. It is necessary to focus on the existing customers who are, or will be loyal in the future. (Morwitz, V. G. Johnson, E. & Schmittlein, D. 1993; Sherman, S. J. (1980). Therefore, in the 90-ties in opposite to transformation marketing there appeared relation marketing whose effort is to build strong economic and social relationship with important customers on the basis of the high quality of individual solutions demands witch bring extraordinary value to the customers for the reasonable price.

The substantial difference between transaction and relation marketing can be discussed in two levels: Firstly shifting from competition and conflicts towards mutual networking. In transaction marketing a supplier evolves pressure on the customer to buy his products even the customer doesn't need them. On the contrary, relation marketing focuses on the creation of value which the customer is looking for. Secondly shifting from the independence of subjects toward their dependence. Transaction marketing is pressure on anonymous customers using many competitive products. Relation marketing makes efforts to

integrate isolated economic entities into the mutually dependent loyal customer relationship; the reason for shifting from transaction to relation marketing was an essential change in the way of customer consumption. (Harroch, R. & Lipkin, D. A. 2014.) Customers do not consume only separate products or services but are looking for the processes which can bring them required values. (Pierre B., Pitt, L. F. Ewing, M. T. & Bakkeland G. (2003). An example: When customer buys a car, he/she can be satisfied with the product, but absolutely dissatisfied with the attitude of the dealer. Because the customers don't value only the function parameters of the car (consumption, average speed, safety and so on), but even the way, how it is sold, payment conditions, service etc.

The beginning of the new millennium became the beginning of a new era in the global market, too. It can be characterized by several major trends, among which there are the following (Csikósová, Mihalčová and Antošová, 2015):

Globalization is the trend toward increasing interdependencies among world markets and the diffusion of new ideal, technologies, products, services and lifestyles.

New economy, as a result of information technology development, digital communication penetrated all field of an entrepreneurship, linking up separate markets and firms into a single global community and last but not least transition of the community from industrial economy towards acceptance of new economy as a result of changes in customer behaviour.

Regionalization and localization, lead to the emergence of very strong economic alliances but to smaller regions as well. Manufacturing with high demand on labour force is gradually shifted eastward; where the substantially lower price of labour ensures lower costs of production. At the same time, traditional centres are homes to residences of multi-national companies with the majority of senior managerial posts, research and development, centres of production services in the form of financial (banks, insurance companies, invest mentors) and further services (consulting, law, advertising etc.), and manufacturing demanding high quality workforce, concentrated in EU countries, Japan and North America.

Reengineering, meant as a fundamentally revisiting and radical transformation of the entrepreneurial processes (involving changes in the company as a whole or its parts), or initiating and bringing about changes not only in the company but also in its immediate surroundings.

Mass customization, consisting in new approach to customer, when the individual is becoming the market. Due respect is paid here to higher customer requirements in terms of quality, reliability and speed. The customer is no longer remains in anonymity, the product is "tailored" to his or her size" and purchase is often realized ahead of manufacturing.

Development of information technologies, present mostly in the form of telecommunication and word-wide computer network, with substantial influence in the business with commodities and capital, management of companies and Exchange of information, consulting and finance related services.

Growing importance of national cultures, expressing respect to the existing cultural heterogeneity of the global (European) economic area, demonstrated by new approaches to management, marketing and communication (inter-cultural management, marketing and communication).

The new trends of the scientific and technological development affect marketing, and market strategy of a manufacturing organization is substantially affected by levels of innovation of its products, too.

These changes are key one how to make tailored well size marketing.

The seven key components of marketing are: necessity, wish, demand, product, exchange, transaction and market. The basic component of marketing is necessity. Necessity is the state of having a need. Necessities are divided into:

- Physical necessities (food, clothing, warmth and safety),
- Social necessities (*social life*),
- Individual necessities (educational needs, self-realization).

Wish it is a particular form of expressing someone's needs. Everything you need based on your budget. If you have a budget, it is your demand. Product is everything offered on the market.

Important attributes of products are FED factors:

- F – function
- E – efficiency
- D – design.

Based on the FED factor products can be classified into three groups:

- a) products where design has no practical meaning
- b) products with necessary balance between the three variables
- c) products where the design is very important.

Every product has own specification:

- Core of a product – defines its purpose.
- Product itself– quality, brand, style, packaging etc. characterize technical parameters.
- Extended product – installation, additional services, guarantee, i.e. the way how to sell and use the product.

Return to the key components of marketing. Exchange is an obtaining of the desired object for the refund. Transaction is the evaluated unit of marketing. It is the exchange of values between two parties:

- Cash transaction
- Barter transaction.

Market is a grouping of existing and potential purchasers of products (self-supply, decentralized exchange, centralized exchange, etc.).

### **ESSENCE OF MARKETING PLANNING**

One of the most important outcomes of the marketing process is a **marketing plan**. It is created on the basis of marketing planning. (Horáková, H., Švarcová, M. & Volf, L. 2017). Marketing planning answers the question how to apply marketing resources to achieve objectives. Marketing plan plays an important role in the planning system. Without the proper estimate of what products and services are required by customers, there is no sense to plan their production or offer services.

Contents of marketing planning are:

- Data analysis and synthesis of companies' environment;
- Marketing objectives;
- Marketing strategy;
- Marketing programs;
- Communication;
- Control process.

### **Data analysis and synthesis of companies' environment**

#### **Macroeconomic environment**

##### A. Demographic Environment

Demographic environment is the most important. When you want to do business, you have to know the trends in this environment. WHY? Because demographics is about natality, mortality, gender, differences between cities and villages, etc.

##### B. Economic environment

1st component of economic environment is EXCHANGE RATE. Lots of companies are involved in international business and it is very important to monitor the trends of exchange rate development (ER). Exchange rate affects both export and import of company products. When ER in our country decreases, it is an opportunity for our company to sell much more products, because they are cheaper on the international market.

2nd component is ECONOMIC GROWTH (EG). When EG is positive, it results in growth of purchasing power, higher wages or salaries, higher consumption and higher standard of living.

3rd component of economic environment is INTEREST RATE. When interest rates increase, it is more difficult for companies to get loans because they are more expensive. When interest rates decrease, then there are more opportunities for obtaining loans (loans are cheaper).

4th component of economic environment is INFLATION. It causes devaluation of money. High level of inflation is a negative factor of doing business. Inflation destabilizes market prices.

#### C. Legislative and political environment

Legislative and political environment includes laws, directives, and government agencies as well as lobby groups. The analysis of the environment is aimed to create and support a stable environment through its representatives, all that with due respect to human rights and basic freedom and democracy.

#### D. Technical and technological environment

The rate of the development in technology directly affects the rate of economic growth. Every change in the technology does not only influence the external environment of the company, but also the company's ability to innovate and push further its activities at a higher level of technology.

#### E. Social and cultural environment

Social and cultural environment represents a set of patterns of behaviour in the society and cultures.

#### F. Ecological environment

It is concerned with the laws of ecology and movements, respecting them while doing business.

### **Branch-related environment**

When analysing a branch, our attention is focused on investigating the influences of these groups. Changes in their behaviour can be of crucial impact on the company. The groups are: competition, customers, suppliers and other critical factors (e.g. substitutes).

Besides macro- and microeconomic analysis it is important to analyse customers, products and their sale in relation to the competitiveness of the company. Marketing goals and strategy are formulated after the analysis, which is the base for production plan, or services.

### **MARKETING STRATEGY**

An effective marketing strategy helps companies to define their overall direction and goals for marketing. The strategy should articulate how goals for marketing deliver products or services in ways that will satisfy their customers. Each marketing strategy is based on four basic principles.

1. Specialization
2. Differentiation
3. Segmentation
4. Concentration.

#### Specialization

Means to focus on something special for the client such as a product, a service, a client technology or a field of marketing.

### Differentiation

Answers the question: „Where are you or could you be „the best?“ It creates:

- Your competitive advantage;
- Your area of excellence;
- Your „Unique selling proposition“;

### Segmentation

Division of the market into a number of segments of customers who appreciate the differentiation and are willing to pay more for the specialization. Segmentation answers the question:

- Who are those customers who most appreciate your area of superiority?
- What are their demographics?
- What are their psychographics?
- How would you describe your perfect customer?

A good manager will not tell you „ describe your product or service you offer“, but he will say: „ tell me who your customer is“. When creating a suitable marketing strategy it is necessary to focus on customers´ problems and persuade them that you can solve these problems.

### Concentration

Focuses on the segmentation and decision making where to invest time, money and sources. One of the tools how to create marketing strategy properly is Ansoff matrix. The Ansoff Matrix was developed by Igor Ansoff and first published 1957. It has given generations of marketers and business leaders a quick and simple way to think about the risks of growth. (Mind Tools Editorial Team. 2017).

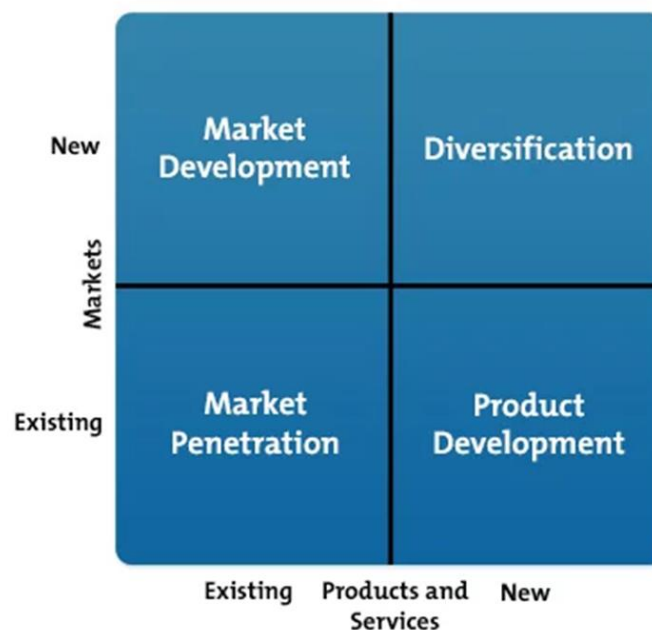


Figure 1: Ansoff matrix

Source: [https://www.mindtools.com/pages/article/newTMC\\_90.htm](https://www.mindtools.com/pages/article/newTMC_90.htm)

Market penetration, in the bottom left quadrant, is the safest of the four options. Here, you are expanding sales of existing products in your existing market: you know the products work. Product development, in the bottom right quadrant, is more risky, because you're introducing a new product into your existing market. With market development, in the top left quadrant, you're putting an existing product into a new market. You can do this by finding a new use for the product, or by adding new features or benefits to it. Diversification, in the top right quadrant, is the most risky of the four options, because you're introducing a new, unproven product into a new market that you may not fully understand.

#### *How to use this tool?*

Step 1: Analyse Your Options (by SWOT, PEST Analyses, Market Segmentation, Market Development Analysis, etc.).

Step 2: Manage Risks (by Risk Analysis).

Step 3: Choose the Best Option (by Decision Matrix Analysis).

After the decision making process about your strategy, you have to communicate it. Marketing communication is a fundamental and complex part of a company's marketing efforts. It can be described as all the messages and media you deploy to communicate with the market.

Marketing communication includes advertising, branding, PR activities, online presence, sales presentations, direct marketing, packaging, printed materials, trade show appearances etc.

The last part of marketing planning is the control phase of the marketing plan. In the control phase of your marketing plan, you must designate the standards you will use to measure your marketing effectiveness. Part of the control process involves making sure marketing efforts are producing results at an acceptable pace (Johnston, K.). When building controls into your plan, create monthly or quarterly checklists of elements your control manager should look for. These checklists may include improved customer responses on surveys, increased distribution of your product or service and improved brand recognition as measured by surveys. These monthly checklists show you whether you're on the right path early in the marketing process. It's important to track whether the improvements you see relate to the standards you set. Make sure that the standards you establish in your marketing plan are used to measure the results. This will tell you how good your company is at planning your marketing (<http://smallbusiness.chron.com/control-phase-marketing-plan-67483.html>).

## **LITERATURE**

- CSIKÓSOVÁ, A. - MIHALČOVÁ, B. - ANTOŠOVÁ, M. 2015. *International Business*. Ostrava : VŠB Ostrava – Technical University of Ostrava, 2015, 71. s.
- HARROCH, R. - LIPKIN, D. A. 2014. 20 Key Due Diligence Activities [Cit. 2017.09.12]. In A Merger And Acquisition Transaction. *In Entrepreneurs, DEC 19, 2014 @ 01:09 PM 284,399*. Retrieved from: <https://www.forbes.com/sites/allbusiness/2014/12/19/20-key-due-diligence-activities-in-a-merger-and-acquisition-transaction/#60b6eeca4bfc>
- HORÁKOVÁ, H. - ŠVARCOVÁ, M. - VOLF, L. 2017. Marketing planning process – reflection on the complex of activities that affect all aspects of business life. Cit. 2017.09.11]. *In Marketing Science & Inspirations, Topics: CONTRIBUTIONS, MSI 34. 29th June 2017*. Retrieved from: <http://www.mins.sk/marketing-planning-process-reflection-complex-activities-affect-aspects-business-life/>
- JOHNSTON, K. 2017. The Control Phase of the Marketing Plan. [Cit. 2017.09.10] Hearst Newspapers © Copyright 2017 Hearst Newspapers, LLC. Retrieved from: <http://smallbusiness.chron.com/control-phase-marketing-plan-67483.html>



- Mind Tools Editorial Team. 2017. The Ansoff Matrix. Understanding the Risks of Different Options. (Also known as the Product/Market Expansion Grid). [Cit. 2017.09.12] *In Mind Tools. Essential Skills for an Excellent Career*. Retrieved from: [https://www.mindtools.com/pages/article/newTMC\\_90.htm](https://www.mindtools.com/pages/article/newTMC_90.htm)
- MORWITZ, V. G. - JOHNSON, E. - SCHMITTLEIN, D. 1993. Does measuring intent change behaviour?, *Journal of Consumer Research*, Vol. 20, No. 1 (Jun., 1993), pp. 46-61.
- PIERRE B. - PITT, L. F. - EWING, M. T. - BAKKELAND G. 2003. 'Norms and power in marketing relationships: Alternative theories and empirical evidence'. *In Journal of Business Research*, 56, pp. 699-709.
- SHERMAN, S. J. 1980. On the self-erasing nature of errors of prediction. *In Journal of Personality and Social Psychology*, 39(2), 211-221.

### ABOUT THE AUTHORS

**prof. Ing. Bohuslava Mihalčová, PhD., PhD.**

Ekonomická univerzita v Bratislave  
Podnikovohospodárska fakulta so sídlom v Košiciach  
Katedra manažmentu  
041 30 Košice  
Tajovského 13  
e-mail: bohuslava.mihalcova@euke.sk

**prof. Ing. Michal Pružinský, CSc.**

Ekonomická univerzita v Bratislave  
Podnikovohospodárska fakulta so sídlom v Košiciach  
Katedra obchodného podnikania  
041 30 Košice  
Tajovského 13  
e-mail: michal.pruzinsky@euke.sk

**Ing. Lenka Štofová, PhD.**

Ekonomická univerzita v Bratislave  
Podnikovohospodárska fakulta so sídlom v Košiciach  
Katedra manažmentu  
041 30 Košice  
Tajovského 13  
e-mail: lenka.stofova@euke.sk



## THE IMPACT OF QUALITY MANAGEMENT ON ECONOMIC PERFORMANCE OF ENTERPRISES

### VPLYV MANAŽÉRSTVA KVALITY NA EKONOMICKÚ VÝKONNOSŤ PODNIKU

*Lenka ŠTOFOVÁ*

#### ABSTRACT

Despite all studies carried out in order to analyze the impact of quality management systems implementation and certification over companies' financial performance, conclusions reached so far have been of a contradictory nature. Some authors conclude that there is a positive relationship between quality management system and companies' financial improvement, while others do not find evidence to support such a relationship. The quality should be incorporated in the corporate strategy. These companies should successfully manage the quality of their products, services, business processes and other aspects of the quality. It requires monitoring and analyzing quality cost. Attention should be paid to the quality because of its direct impact on the customer loyalty. The quality control can be based on 8 quality management principles whose implementation greatly contributes to increasing of the efficiency of a company operations and financial prosperity. Also the most prominent problem of the quality control is the fluctuation of employee and insufficient record keeping of the quality cost.

**Keywords:** quality management, performance, cost of the quality, enterprises

#### ABSTRAKT

Cez všetky uskutočnené štúdie boli vyvodené závery s cieľom analyzovať dôsledky zavádzania systémov manažérstva kvality prostredníctvom finančných výsledkov podnikov výrazne v rozpornosti. Niektorí autori dospeli k záveru, že existuje pozitívny vzťah medzi systémom manažérstva kvality a finančným zlepšením podnikov, zatiaľ čo iní autori neidentifikovali dôkazy podporujúce takýto vzťah. To si vyžaduje sledovanie a analýzu nákladov na kvalitu. Pozornosť by sa mala venovať kvalite kvôli svojmu priamemu vplyvu na lojalitu zákazníkov. Kontrola kvality môže byť založená na 8 princípoch manažérstva kvality, ktorých implementácia významne prispieva k zvýšeniu efektivity fungovania a finančnej prosperity podniku. Najvýznamnejším problémom kontroly kvality tiež predstavuje fluktuácia zamestnancov a nedostatočné vedenie záznamov o nákladoch na kvalitu.

**Kľúčové slová:** manažérstvo kvality, výkonnosť, náklady na kvalitu, podniky

**JEL CLASSIFICATION:** L250

#### INTRODUCTION

At present, the objective of enterprises is not just the value of economic gain but also efforts to focus on prosperity over the long term, while it is important not to focus solely on the area of economic indicators, but also to focus on the complex of non-financial indicators.

One of the important non-financial indicators is the precision of product and service quality, customer satisfaction and loyalty. The consolidation of the enterprise's market position is an important process of improvement and improvement throughout the organization. This reduces costs in manufacturing processes, streamlines these processes, and improves the quality of products and services, activities, and processes across the enterprise (Holler, 2009).

The quality management system explicitly contributes to the improvement of the company. However, implementation of this system does not represent a guaranteed success for the enterprise, the need for an active involvement of business management, all employees and the whole enterprise. Quality and its management are the primary drivers of the economic prosperity of all business entities. The commitment of financial analysis to value creation for the customer is now a matter of course. Employee visions and strategies, and predictions of future developments, use financial indicators that are complemented by qualitative indicators. Implementation and compliance with quality management principles and systems contribute to ISO standards, self-assessment models, quality management tools, and methods to achieve them. Tools and methods provide a constructive view of the business situation, help to identify not only problems but also potential opportunities and suggest solutions. They contribute to eliminating losses, uncovering possible risks, reducing the time consuming of all processes, speeding up product placement and thus achieving a competitive advantage, and last but not least, increasing customer satisfaction. The key benefits of tools and methods in quality management systems are to achieve customer satisfaction, all stakeholders, and benefits for the enterprise, both on the financial and on the benefits side (ISO, 2015).

#### **4 COHERENCE OF BUSINESS QUALITY AND PERFORMANCE**

Applying a quality management system means developing, constructing, producing and securing a quality product that is as economical and useful as possible, and which has satisfied the user. Quality is in reciprocity not only for products and services, but also for activities and processes. Quality is a key factor in a business-friendly business. The company places emphasis on quality primarily because quality is "worthwhile". Quality is identified with the satisfaction of customers, and if customers are satisfied, the product is considered quality and vice versa. High customer focus and increasing dependence on products and services shift quality issues increasingly to the forefront of business interests. The high quality of products and processes ensures high technical reliability and leads to minimization of risks and thus low quality products. Modern management includes finance, quality, environmental protection, health and safety. At present, management has a key role to play in the enterprise's prosperity and survival. The area of management is subject to developments characterized by permanent and critical changes. This is particularly true of advanced economies, but, of course, through the effects of globalization, this dynamics of the development of modern management translates into other parts of the world. The main trend in the development of modern systems is the increasing attention paid to the human factor or the soft element in the process (Kyriazis – Anastassis, 2007).

The bulk of companies producing products or services combine their economic results with the quality of products and services, processes and resources. It monitors the quality correlation to economic performance when applying a range of economic indicators. In business practice, it is explicitly necessary to sell the products and get them paid in due time. In particular, economic indicators and, in particular, quality indicators are quantified in practice to monitor quality. The economic indicators take into account the profit, the costs that are spent, the increase in labour productivity, the time of inventory turnover and a number of other economic indicators. The company can not explicitly quantify what the quality has

brought to the cost side or the benefits side. The quality indicators are followed by the number of non-matching products, the number of complaints and the satisfaction of customers. Providing first-class quality is an elemental starting point for acquiring and maintaining a loyal customer. The goal of business strategy is to achieve favourable economic results (Chari, 2009).

### **1.1 Identification of the quality aspects of the company's economic performance**

Identifying the economic aspects of quality is a crucial factor that creates a link between the financial management system and the quality management system. Focusing on just one of these areas does not lead to the long-term prosperity of an enterprise, as cost containment can lead to a restriction of product quality. It is also important to prevent financial losses by improving quality. However, quality does not produce immediate results. Enterprise management should quantify the costs of quality improvement and, within financial planning, determine whether these costs are adequate (Holler, 2009).

The qualitative development of the company's outputs contributes to improving the financial situation rather in the long run. The term quality is defined in the ISO 9000 standard as the degree of fulfilment of requirements by a set of inherent characteristics. It is necessary to analyse and identify the real contribution to quality for the economy of the enterprise. The company fulfils the postulates and the customer's material and economic expectations, that is, the product requirements at an acceptable cost not only for procurement but also for operation. Quality must lead to favourable economic results and this fact needs to be verified (Friedli – Mundt – Thomas, 2014).

Costs of low quality, which have been explicitly quantified, go through accounting records, while the enterprise's top management is the basis for evaluation. It is a loss of faulty products, complaints, damages to the environment, health and safety. Accounting records also do not capture any losses that occur in the enterprise. Costs of low quality that did not pass through the accounting records must be searched, recorded and quantified in the operative records. Businesses often do not see the amount of these costs, but they need to be explicitly defined, eliminated and possibly minimized. These are the costs of downtime, loss of overcapacity, wastage, mismanagement, worker training, inflexibility in business processes, bad decisions, changes in production processes or documentation, redundant administration, staff turnover, excessive inventory, large volumes of timeless work (Linß, 2011).

It follows that an enterprise is a system composed of several sub-subsystems and, in terms of quality, it is necessary to pay attention to all these parts. It is important to make the products, sell them and have a positive economic performance. And the quality of the product is the relevant factor of saleability. In addition to the quality of the product, the customer also considers the costs they have to spend on the product, but also on its operation and maintenance. In practice, businesses focus on revenue and costs. Unfortunately, a number of businesses are dedicated to quality and environmental issues only when the cost of their spending is recorded. Many businesses are still not verifying how quality contributes to cost containment or increased performance.

### **1.2 Costs related to quality**

For measurement and monitoring of costs related to quality, some of the basic models listed in Table 1, where the basic differences of these models are also compiled.

Table 1: Financial Measurement Models in Quality Management Systems

Cost group	PAFModel	COPQ Model	Model of process costs	Life cycle cost model
Cost of Internal Errors	×	×	×	×
Cost of External Errors	×	×	×	×
Rating costs	×		×	×
Prevention costs	×		×	×
Unused opportunities and investments		×	×	
Cost of environmental damage		×		
Operating costs				×

Source: own processing

The costs of internal mistakes are costs incurred within the enterprise due to errors in meeting quality and legislation requirements. These are production errors or supply errors. The cost of external mistakes is that incurred as a result of non-compliance with customer requirements and legislation after delivery to the customer. These are costs in reciprocity to customer dissatisfaction and unused opportunities. Rating costs are costs associated with the conformity assessment and compliance processes on the manufacturer's side. These are the costs of assessing the conformity of internal and external processes, the purchase and maintenance of measuring equipment, and the review of evaluation records. Prevention costs are spending to prevent and reduce risk in case of disagreement. This is the cost of correlation to the development of customer relationships, the quality of supply, the process of improvement, prevention and quality in production. Unused opportunities are unjustified business expenses due to poor management decisions. Their quantification and identification is very difficult. These are the costs of coherence for unfinished projects, unnecessary inventories, waste, unused capacities, downtime, unused areas of halls and warehouse. Costs of environmental damage arise in coherence with non-compliance with environmental requirements. These are expenses related to waste disposal or environmental damages. Operating costs are total expenditure on the operation, maintenance and disposal of equipment. A requirement for cost reduction in connection with quality is to meet all requirements.

## 2 METHODS TO ACHIEVE ECONOMIC BENEFITS OF QUALITY

It is important to predict the aspects that affect their fulfilment in order to fulfil established missions and business visions. The mission of business owners' missions is to make money, and it is necessary to postulate aspects that affect the ability of a business to earn money. The solution can be to implement these aspects - maintaining high profitability, gaining and retaining satisfied customers, employing competent employees, finding cheap resources and capable suppliers and sticking to the right side of the law. The good quality of a product or service is said to be in terms of good and lasting saleability, customer satisfaction and good usability. So business depends on quality (Linß, 2011).

In order to verify the introduction of financial measurement in quality management systems, the following aspects are addressed (Czechtrade, 2016):

- high quality reciprocity costs which are high and cannot therefore be ignored,
- costs are expressed in money terms and are a prerequisite for responding to disagreements and unsuitable products,
- costs are well understood in value terms also for employees of the enterprise.

If the worker is aware of the damage caused by his misconduct, he also contributes to improving the quality of work in the company.

In consistency with 8 Quality Management Principles, there are a number of processes that need to be implemented to meet the implementation requirements of the tools and methods (Table 2).

Table 2: Quality management principles - processes, tools and methods

Principle	Processes	Tools and methods
<b>Customer orientation</b>	<ul style="list-style-type: none"> <li>- Market research, analysis and assessment,</li> <li>- examining customer requirements,</li> <li>- developing and managing customer relationships,</li> <li>- measurement of customer satisfaction and loyalty.</li> </ul>	SWOT, BSC, CRM, FMEA, QFD, DOE, APQP, PPAP
<b>Managing and managing people</b>	<ul style="list-style-type: none"> <li>- Strategic planning - Declaration of missions, visions, Business objectives in line with customer requirements,</li> <li>- allocation of responsibilities and powers,</li> <li>- internal and external communication, risk analysis.</li> </ul>	SWOT, BSC, Matrix diagrams, Trends diagrams, FMEA, FTA
<b>Engaging people</b>	<ul style="list-style-type: none"> <li>- human resource planning, evaluation,</li> <li>- detecting weaknesses in performance,</li> <li>- continuous training of employees, job descriptions, motivation, teamwork.</li> </ul>	SWOT, BSC, benchmarking, Satisfaction Index
<b>Process approach</b>	<ul style="list-style-type: none"> <li>- definition of processes, activities and links,</li> <li>- setting target values for indicators,</li> <li>- process planning, allocation of resources,</li> <li>- Monitoring and evaluation of performance indicators and process improvement.</li> </ul>	BSC, FMEA, APQP, PPAP, Lean production, Network diagrams, DOE, SPC
<b>System approach to management</b>	<ul style="list-style-type: none"> <li>- a detailed description of individual processes, a declaration of interconnection in the manuals,</li> <li>- setting objectives, analysing and managing risks,</li> <li>- performance evaluation of the system.</li> </ul>	BSC, FMEA, Development and network diagrams,, SPC, Self-assessment
<b>Continuous improvement</b>	<ul style="list-style-type: none"> <li>- to understand it as the primary goal,</li> <li>- identification of opportunities for improvement, Use of appropriate methodology,</li> <li>- providing resources for improvement,</li> <li>- collecting and analysing information, designing solutions,</li> <li>- tracking and evaluating results.</li> </ul>	Benchmarking, SPC, brainstorming, BSC, FMEA, self-assessment, Satisfaction Index, FTA, Value analysis
<b>Access to decision-making based on facts</b>	<ul style="list-style-type: none"> <li>- Collection of accurate and reliable data</li> <li>- processes over time, appropriate data analysis based on results measurement processes, use of appropriate statistical tools and data evaluation,</li> <li>- resource planning and material requirements.</li> </ul>	SWOT, BSC, DOE, FMEA, SPC, Value analysis
<b>Mutually beneficial supply relationships</b>	<ul style="list-style-type: none"> <li>- selection of strategically important suppliers,</li> <li>- regular evaluation of suppliers,</li> <li>- communication and motivation for improvement, Collect data for correct decision.</li> </ul>	SWOT, benchmarking, CRM, PPAP, QFD, FMEA, Statistical methods

Source: own processing

These tools and methods help management to detect problems or possible opportunities by identifying a solution path and thus contribute to eliminating losses. It is important for an enterprise to analyse and evaluate methods that combine quality management with economic benefits for the enterprise (Friedli – Mundt – Thomas, 2014).

On the basis of a survey of acquired knowledge, we can assert that management models for measuring performance related to quality and improvement effects are the result of the need of businesses to reconcile, link or merge separate established systems, processes and aspects of the business. Quality Management emphasizes the importance of understanding and meeting customer requirements, the need to monitor processes in terms of value creation, achievement of results in terms of performance and efficiency of processes and their continuous improvement based on objective measurement results towards increasing the economic performance of the company.

## CONCLUSION

The success of the business depends on the degree of utilization of the competitive advantage of each enterprise. Especially nowadays, when there is a constant change in the business environment, it is extremely difficult for an enterprise to maintain this competitive advantage on a long-term basis. World markets have been sharper globally over the past decade, with transnational corporations taking a decisive role. As a result, their entrepreneurial behaviour is gradually determined by the established business performance standards of all enterprises. Thus, under the new conditions, only those entities that respond to changed business conditions measure and continually assess the level of entrepreneurial performance and strive for continuous improvement. For this reason, companies are forced to take into account and in many cases implement a wide range of innovative management philosophies, approaches, tools and techniques to help increase business performance and strengthen competitive advantage. One way to achieve significant results is to use individual quality management methods with the use of financial and non-financial indicators as part of their corporate complexity.

## LITERATURE

- CZECHTRADE. 2016. Měření podnikové výkonnosti a oceňování podniku. Businessinfo. Oficiální portál pro podnikání a export [online]. Praha: CzechTrade, 1997–2015 [cit. 8.2.2016]. Dostupný z: <http://www.businessinfo.cz/cs/clanky/mereni-podnikvykonnost-ocenovani-podnik-2826.html#>.
- FRIEDLI, T. – MUNDT, A. – THOMAS, S. 2014. *Strategic Management of Manufacturing Networks*. Berlin, Heidelberg: Springer; 2014. ISBN 978-3-642-34185-4.
- HOLLER, A. 2009. New metrics for value based management. Wiesbaden: Springer, 2009. 217 s. ISBN 978-38-349-8400-5.
- CHARI, L. 2009. Measuring value enhancement through economic value added: evidence from literature. In: The IUP Journal of Applied Finance. ISSN 0972-5105, 2009, vol. 15, no. 9, p. 47-62.
- INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. ISO. 2015. [online]. Geneva: International Organization for Standardization, 2015, [cit. 5.9.2015] Dostupné z: <http://www.iso.org/iso/home.html>.
- KYRIAZIS, D. – ANASTASSIS, C. 2007. The validity of the economic value added approach: an empirical application, In: European Financial Management. ISSN 2007, vol. 13, no.1, p. 71–100.
- LINß, G. 2011. Qualitätsmanagement für Ingenieure. Leipzig: Fachbuchverlag, 2011. 869 s. ISBN 3-446-21763-0.

**ABOUT THE AUTHOR**

**Ing. Lenka Štofová, PhD.**

Department of Management  
Faculty of Business Economics with seat in Košice  
University of Economics in Bratislava  
Tajovského 13  
041 30 Košice  
e-mail: lenka.stofova@euke.sk



## APPROACHES AND DETERMINANTS OF BUSINESS PERFORMANCE EVALUATION

## PRÍSTUPY A DETERMINANTY MERANIA VÝKONNOSTI PODNIKOV

*František HURNÝ – Roman LACKO*

### ABSTRACT

As the business environment has been developing rapidly in recent years, it is also important to take into account the latest research on measuring and evaluating business performance. The authors have recently distinguished the three main elements of corporate performance, overall efficiency, operational performance, and financial performance. The core business performance features include an incentive mechanism, a managerial improvement tool, and a business objectives creation function. When describing business performance determinants, it is necessary to identify the indicators and procedures in these four areas: dependent variables, independent variables, control variables, and statistical apparatus. According to the literature, it is possible to rank among the most frequently used dependent variables ROA, ROE and Tobin Q. The contribution also mentions the most frequently used groups of dependent control variables.

**Key words:** business performance, evaluation, determinants, operational performance, financial performance

### ABSTRAKT

Keďže podnikateľské prostredie sa v poslednom období rýchlo rozvíja, je nutné prihliadať aj na posledné výskumy týkajúce sa merania a hodnotenia podnikateľskej výkonnosti. Autori rozlišujú v poslednom období tri hlavné elementy podnikovej výkonnosti a to, celkovú efektívnosť, prevádzkovú výkonnosť a finančnú výkonnosť. Medzi hlavné funkcie podnikovej výkonnosti zaradujeme motivačný mechanizmus, manažérsky nástroj zlepšovania a funkciu pri tvorbe cieľov podniku. Pri popisovaní determinantov podnikov výkonnosti je potrebné si určiť ukazovatele a postupy v týchto štyroch oblastiach: závislá premenná, nezávislé premenné, kontrolné premenné a štatistický aparát. Podľa prieskumu literatúry možno zaradiť k najčastejšie používaným závislým premenným ROA, ROE a Tobinove Q. V príspevku sú taktiež spomenuté najčastejšie používané skupiny závislých kontrolných premenných.

**Kľúčové slová:** podniková výkonnosť, hodnotenie, determinanty, prevádzková výkonnosť, finančná výkonnosť

**JEL CLASSIFICATION:** M21, M42, L25

### INTRODUCTION

In today's rapidly changing business environment, the importance of obtaining up-to-date, accurate, objective, and complex information is growing to allow the company to make the right strategic decisions. A non-negligible part of this information can be obtained from



the results of the corporate performance evaluation. The performance measurement results based on the selected variables help to constantly monitor, continuously evaluate the current situation and subsequently take decisions that affect the overall business activity. Only by effective management and evaluation of performance, a company can ensure successful development and fulfillment of defined goals. The aim of this paper is to characterize performance evaluation approaches based on selected criteria.

## 5 EVALUATION OF PERFORMANCE

Evaluation of corporate performance can be carried out through a large number of diverse indicators. Generally speaking, the indicator with the highest reporting power for selected company may not be the right indicator for the other company. In order to evaluate their performance, companies can select from indicators that can be grouped into several sub-groups based on their nature. In the literature, we can find indicators for evaluation of corporate performance divided to:

- Financial (profit, costs, revenues...) and Non-financial (tones, percentages, pieces...),
- Quantitative (sales, number of customers...) and Qualitative (customer satisfaction...),
- Traditional (indicators of profitability, liquidity) and Modern (Economic Value Added - EVA, Cash Return on Gross Assets - CROGA...).

From the above mentioned, it is clear that almost every single indicator can be grouped into one of the three divisions. However, this division is not the only option to divide performance indicators into homogeneous subgroups. Evaluation of performance is often connected with the financial side of the business activity. This approach has been applied in the early stages of the performance evaluation, but in the last decades the non-financial elements affecting the performance of the company are also coming to the fore. Therefore, we can divide the performance evaluation into three categories: financial performance, operational performance and overall effectiveness (Hult et al. (2008), Venkatraman and Ramanujam (1986)).

Evaluation of overall effectiveness is considered to be the broadest approach to corporate performance evaluation. Its essence is to analyze the strategy's long-term fulfillment throughout the company. The disadvantage of this approach is the difficulty of measuring (it requires extensive knowledge of the company and the environment in which it operates) and the presence of subjectivity that is associated with indicators such as reputation, perceived performance or performance compared to competitors. For this reason, overall effectiveness is included in the area of qualitative research (Pudil et al., 2014, Hult 2008).

In the last few decades, performance evaluation based on non-financial, operational indicators is becoming increasingly important. Although the achievement of financial performance is one of the basic aspects of business activity, not all factors that affect the company can be captured through financial indicators. Operational performance is based on the non-financial side of performance. It examines the quality of processes and products or productivity. The results thus serve mainly for company management in relation to their decisions towards the improvement of business processes (Pudil et al., 2014).

Neely (2007) identifies five objectives in area of operational performance together with the associated partial objectives:

- Quality (performance, reliability, perceived quality...),
- Dependability (schedule adherence, delivery performance, price performance...),
- Speed (delivery speed, delivery frequency, new product development speed...),

- Flexibility (material quality, new product, deliverability...),
- Cost (manufacturing cost, value added, selling price...).

The key role of managers is to realize that focusing on one goal from the above five objectives will automatically cause changes to other objectives. For example, increasing of quality can be reflected in increased costs. That is why we can call the management of objectives in the operational area as "seeking compromises".

The predominant approach to performance evaluation in area of quantitative research is evaluation based on financial performance indicators. Their advantage, in comparison with the previous two approaches, is the easier accessibility of data (from publicly available databases or financial statements of companies) and the absence of subjectivity (given that it is a "hard" data). Potential disadvantages may arise due to inconsistencies in the implementation of accounting operations within individual companies (Pudil et al., 2014). Venkatraman and Ramanujam (1986) refer to this approach as the narrowest concept of corporate performance evaluation that focuses on financial indicators that should reflect the degree of meeting the company's economic objectives. This approach therefore presupposes dominance and orientation to the economic objectives of the company.

Otley (In Neely, 2007) identifies three main functions of financial performance indicators:

- Use of financial performance indicators as a financial management tool. Emphasis is placed on the functional specialization of finance and financial management. This concerns the effective provision and use of financial resources to support broader company objectives and manage the efficient and cost-effective operation of the finance function.
- The role of financial performance as the main company objective. Financial performance indicators such as profit, ROI, EVA are used to measure the achievement of an important (and perhaps most important) company objective.
- The role of financial indicators as a mechanism for motivation and control over the company. In this case, financial information provides a "window" to a company through which specific operations are managed by adjusting inputs and outputs from the financial point of view.

An indispensable aspect of performance evaluation is the data source which is necessary for obtaining the results. Venkatraman and Ramanujam (1986) distinguish two data sources: primary (data collected directly in the company) and secondary (data available from public sources). By combining these resources together with financial and operational performance, they have identified the advantages and limitations that arise from their combination. The main advantage of secondary financial data is their applicability when comparing companies within the industry. On the other hand, the differences in accounting in individual companies can distort this comparison to a large extent. Primary financial data are characterized by less demanding interpretation, but at the same time there is a risk of their unavailability due to their confidentiality. Regarding secondary operational data, they provide performance data when financial data is unavailable or inappropriate. As in the previous case, there is also a problem with their availability accompanied by inappropriate use of them across industries due to their specificity and their unclear relationship to financial performance. Finally, it is less likely that primary operational data will be affected due to confidentiality or sensitivity, but at the same time there is a threat of their distortion.

What are the most commonly used indicators of performance evaluation within the above categories? Venkatraman and Ramanujam (1986) identify the following most used

indicators in area of financial performance: sales growth and profitability (ROI, ROS, ROE). In the non-financial area (operational performance) identifies indicators such as market share, new product introduction, product quality or marketing effectiveness.

Suchánek et al. (2013) has used the division of performance into the three areas above mentioned in selecting appropriate indicators in their corporate performance research in Czech Republic. In the journals review, they focused on identifying the most used indicators according to these criteria. The results were as follows: in the area of financial performance - indicator based on revenues, ROA and other types of profitability, in the area of operational performance - market share and productivity, and finally in area of overall effectiveness - subjectively perceived overall performance and performance compared to competitors. Based on this review, in their analysis focused on quality, customer satisfaction and corporate performance, ROA, ROE, turnover of assets (as standard performance indicators) have been selected together with liquidity. This indicator was added to the analysis because it complements the evaluation of other indicators, because liquidity assesses the solvency of the company.

Based on a study of ninety-six articles dealing with the performance evaluation of companies engaged in international trade, Hult et al. (2008), as well as the previous authors, examined the same criteria. The individual categories (overall effectiveness, operational performance, financial performance) were used at three levels – company, strategic business unit and inter-organizational unit. This created nine possible combinations in which performance indicators could be identified. The most used was the evaluation of financial performance at the company level (44.8%). The evaluation of financial performance was the most commonly used type from the three categories mentioned above. In terms of specific measurement indicators, the most used financial indicators include sales based indicators (sales volume, foreign sales /total sales, sales growth, increase of foreign sales), ROA, ROI, and profitability. In area of operating performance, it is market share and productivity. Reputation, performance relative to competitors and perceived overall performance were the most used indicators of overall effectiveness.

## **2 DETERMINANTS OF PERFORMANCE**

In the previous chapter, we have characterized three performance categories – overall effectiveness, operational and financial performance. In our previous research, based on the review of the current literature of corporate performance, we have added specific indicators which are mostly used to evaluate performance, to this theoretical view. We have focused mainly on determinants that affect performance itself. The results of how the selected determinants affect performance differ. The main reason is that each model has its specifications, scope and input variables, which may vary depending on the authors. As a result, there are a large number of performance studies in the literature that bring varied results. Thus, the evaluation of performance has nature of a "natural experiment". The authors examine the impact of their chosen determinant on performance (and other factors keep constant).

In our literature review we focused on identification of:

- dependent variable (performance indicator),
- independent variable (determinant of performance),
- control variable,
- statistical method.

The results of our literature review are as follows: the most commonly used performance indicators (dependent variable) are ROA and Tobin´s Q (ratio total market value

to total asset value), indicator ROE was also used. The choice of the independent variables on which the relationship to performance is examined is linked to the research area. In our research we met with determinants from different areas – corporate governance (Andreou et al., 2014), corporate social responsibility (Saeidi et al., 2014) or ownership concentration (Lourenco and Branco, 2013). We also identified the most commonly used control variables: Size (mainly logarithm of assets), Leverage (most often as ratio total debt to total assets) and Age. All three of the above mentioned control variables were used in the papers of Nguyen et al. (2015), Andreou et al. (2014); Li et al. (2015), Ahmad and Jusoh (2014) or Mashayekhi and Bazaz (2008). In most papers, descriptive statistics, correlation, and regression were used. While descriptive statistics and correlation are mainly used to obtain basic characteristics of data, regression analysis serves directly for the measurement and subsequent evaluation of the performance of the surveyed companies.

## CONCLUSION

A literature review has shown that in recent years, business performance measurement has also begun to focus on non-financial indicators. In the world of change, the financial analysis no longer has the ability to explain the overall business performance, although it is still the most used in the Central European countries. Other indicators, sometimes more difficult to measure, are also important, they are concerned with so-called operational performance. These indicators include, for example, flexibility, speed, quality, and so on. Every approach to measuring business performance has its advantages and disadvantages. When choosing the right methodology for measuring business performance, must be considered both the internal and external environment of the enterprise. It includes the business sector, its organizational structure, legislation, macroeconomic indicators and macroeconomic development. To explain business performance is critical, all facts that have an influence on the choice of these determinants must also be carefully considered, it is not possible to clearly define one generic robust model for each enterprise in the selected industry.

## ACKNOWLEDGEMENTS

*Contribution is supported by the project of young teachers, scientists and PhD. students I-17-103-00: Alternative approaches in evaluation of business performance.*

## LITERATURE

- AHMAD, A. Ch. - JUSOH, M. A. 2014. Institutional ownership and market-based performance indicators: Utilizing generalized least square estimation technique. In *Procedia-Social and Behavioral Sciences*. 2014, 164: 477-485, ISSN: 1877-0428.
- ANDREOU, P. C. - LOUCA, C. - PANAYIDES, P. M. 2014. Corporate governance, financial management decisions and firm performance: Evidence from the maritime industry. In *Transportation Research Part E: Logistics and Transportation Review*. 2014, 63: 59-78, ISSN: 1366-5545.
- HULT, G. T. M. et al. 2008. An assessment of the measurement of performance in international business research. In *Journal of International Business Studies*. 2008, 39.6: 1064-1080, ISSN: 1478-6990.

- LI, K. et al. 2015. Board independence, ownership concentration and corporate performance— Chinese evidence. In *International Review of Financial Analysis*. 2015, 41: 162-175, ISSN: 1057-5219.
- LOURENÇO, I. C. - BRANCO, M. C. 2013. Determinants of corporate sustainability performance in emerging markets: the Brazilian case. In *Journal of Cleaner Production*. 2013, 57: 134-141, ISSN: 0959-6526.
- MASHAYEKHI, B. - BAZAZ, M. S. 2008. Corporate governance and firm performance in Iran. In *Journal of Contemporary Accounting & Economics*. 2008, 4.2: 156-172, ISSN: 1815-5669.
- NEELY, A. *Business Performance Measurement: Unifying Theory and Integrating Practise*. [online]. 2007. [cit. 2017-7-20]. Dostupné z <[https://books.google.sk/books?hl=sk&lr=&id=EnFsx6svfL8C&oi=fnd&pg=PR5&dq=measurement+of+performance+research&ots=4vnoTzRX93&sig=a7qOtu1gwuzahfEalZuxLlzelzs&redir\\_esc=y#v=onepage&q=measurement%20of%20performance%20research&f=false](https://books.google.sk/books?hl=sk&lr=&id=EnFsx6svfL8C&oi=fnd&pg=PR5&dq=measurement+of+performance+research&ots=4vnoTzRX93&sig=a7qOtu1gwuzahfEalZuxLlzelzs&redir_esc=y#v=onepage&q=measurement%20of%20performance%20research&f=false)>.
- NGUYEN, T. - LOCKE, S. - REDDY, K. 2015. Ownership concentration and corporate performance from a dynamic perspective: Does national governance quality matter?. In *International Review of Financial Analysis*. 2015, 41: 148-161, ISSN 1057-5219.
- PUDIL, P. et al. 2014. *Identifying Corporate Performance Factors Based on Feature Selection in Statistical Pattern Recognition*. 1. vyd. Brno: Tribun EU. 2014. 170 s. ISBN978-80-210-7557-3.
- SAEIDI, S. P. et al. 2015. How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. In *Journal of Business Research*. 2015, 68.2: 341-350, ISSN: 0148-2963.
- SUCHÁNEK, P. et al. 2013. *Vliv kvality na výkonnost a konkurencioschopnost podniku*. 1. vyd. Brno: Masarykova univerzita, 2013. 147 s., ISBN 978-80-210-6627-4.
- VENKATRAMAN, N. - RAMANUJAM, V. 1986. Measurement of business performance in strategy research: A comparison of approaches. In *Academy of management review*. 1986, 11.4: 801-814, ISSN: 0363-7425.

## ABOUT THE AUTHORS

### Ing. František Hurný

Department of Management  
Faculty of Business Economics with seat in Košice  
University of Economics in Bratislava  
Tajovského 13, 041 30 Košice  
e-mail: frantisek.hurny@student.euke.sk

### Ing. Roman Lacko, PhD.

Department of Economics  
Faculty of Business Economics with seat in Košice  
University of Economics in Bratislava  
Tajovského 13, 041 30 Košice  
e-mail: roman.lacko@euke.sk

## URBAN FOOD SECURITY IN TERMS OF PREŠOV REGION, SLOVAKIA

## BEZPEČNOSŤ POTRAVIN V PODMIENKACH PREŠOVSKÉHO KRAJA

*Erika DUDÁŠ PAJERSKÁ*

### ABSTRACT

Paper is analyzing one of the extreme areas – food deserts as threats for urban food security. Purpose of the paper is to define localization of mentioned areas in terms of region of Slovak Republic by GIS maps considering characteristics of the regions as natural barriers, transport network, the nature and structure of consumer income and expenditures. The object of the examination is retail offering assortment of food in a selected region of Slovakia. Paper is using methods of analyzing, comparative analysis based on descriptive analysis and as interpretative tools were used geographic information systems (GIS). Results point on trend of substitution of traditional food retail units by large-sized formats as for example hypermarkets. Paper results in pointing on different areas with characteristics as food deserts as a key terms of urban food security.

**Key words:** availability of food, food desert, food security, food retail

### ABSTRAKT

Príspevok analyzuje jednu z extrémnych oblastí - potravinové púšte ako formu hrozby pre potravinovú bezpečnosť. Cieľom príspevku je definovať lokalizáciu uvedených oblastí z hľadiska vybraného regiónu Slovenskej republiky prostredníctvom výstupov z GIS, berúc do úvahy charakteristiky regiónov ako prírodné bariéry, dopravnú sieť, charakter a štruktúru príjmov a výdavkov spotrebiteľov. Predmetom skúmania je maloobchod s potravinami vo vybranom regióne. Príspevok využíva metódy analýzy, komparatívnej analýzy založenej na deskriptívnej analýze a pre interpretáciu výsledkov bol použitý GIS. Výsledky poukazujú na trend výmeny tradičných maloobchodných jednotiek za predajne veľkých formátov ako sú napríklad hypermarkety. Výsledkom práce je poukázanie na rôzne oblasti, ktoré majú charakteristiky potravinových púští ako kľúčové determinanty potravinovej bezpečnosti.

**Kľúčové slová:** dostupnosť potravín, potravinová púšť, potravinová bezpečnosť, maloobchod s potravinami

**JEL CLASSIFICATION:** L66, O18, Q18,

### INTRODUCTION

Availability of food represents key factor for developing of economies. On the one hand, there are areas with extensive access to food where people spend more money to buy food and often they waste them. On the other hand, economies have regions with inadequate possibility of saturation of basic and essential needs of human - called food deserts. For sustainable development it is necessary to examine extremes from both areas. It does not



exist uniform approach to determine food deserts or food oases due to many views on their definition. But it is necessary to say that issue of food security represents very sensitive and important area. Thanks to mentioned reasons, every approach in research of food deserts / oases is original and it could contribute to the overall effort to find optimal solution for (urban) food security.

## 1 OBJECTS

The object of the examination is retail offering assortment of food in a selected region of Slovakia. Work is based on the classification of retail formats according to the methodology of the Statistical Office of the Slovak Republic. Table 1 shows all types of stores that this institution includes under the grocery stores. In order to achieve the highest veracity of the research results and the transparency of the model, there is a narrowing of the selection of the retail food store formats (Table 1 – name of formats written in Bold font). There are selected general types, analysis of which offers results applicable to food retail at universal level. The described definition of the investigated object was also subordinated and limited to the availability of relevant data.

Table 1: Modification of classification of retail formats

<b>General formats</b>	<b>Specialized formats</b>
<b>Shopping malls</b>	Stores with meat, sausages
<b>Shopping centers</b>	Stores with fish, poultry
<b>Hypermarkets</b>	Stores with bread
<b>Mixed stores</b>	Stores with sweets, delicacies
<b>Supermarkets</b>	Stores with beverages
<b>Foodstuffs (wide assortment)</b>	Stores with fruits and vegetables
Food stalls	Stores with milk and milk products
Food machines	Stores with rational nutrition food
	<b>Other specialized food retail formats</b>

Source: Own procession according to methodology of the Statistical Office of the Slovak Republic available on <http://px-web.statistics.sk/PXWebSlovak/>

Spatial definitions for which statistics are exploring are the boundaries of the Slovak Republic. A specific application is on the level of selected region with partial areas (Figure 1). In the perception of Eurostat methodology is the administrative area of the state on the basis of the Nomenclature of Territorial Units for Statistics (NUTS - Nomenclature des Unités Territoriales Statistiques), specifically NUTS levels 3 and below.



Figure 1: Selected region of Slovakia  
Source: [www.po-kraj.sk](http://www.po-kraj.sk)

In the compactness of the territory, it was also characterized the more pronounced barriers that disrupt this integrity. These included, for example, natural conditions in the region, some of which may be considered barriers to the development of food retailing. For example, it could be mountains or rivers as barriers to the transport network. It's also pointing on various socio-economic barriers that greatly limit the potential for further utilization and development of food retailing in the given area. In the border regions, paper do not forget to count with barriers with a political-geographic character, where the most striking example is the state border with another state.

## 2 METHODS

Approach in paper is based on key accessibility rate quantified by partial rates, considering characteristics of the regions as natural barriers, transport network, the nature and structure of consumer income and expenditures. As the methods of analyzing the results of the initial models were used perceptual and comparative analysis based on descriptive analysis.

As interpretative tools were used geographic information systems (GIS). For cartographic methods were applied techniques and cartodiagrams cartogram method and also figural characters (Lauko and Križan and Tolmáči, 2008; Križan, 2009). For interpretation, paper used help of graphs, tables and images to define individual correlations. Paper defines extreme area in urban food security using results of own contributions which have shaped these areas for a specific region (Dudáš Pajerská, 2016; Dudáš Pajerská and Till, 2016), and contributions of domestic and foreign authors (McEntee and Agyeman, 2010; Apparicio et al., 2007; Goldman and Ramaswami and Krider, 2002). The contribution shall be also based on the knowledge of classical gravity model of W. Reilly (1931) which is linked to model of Huff (1963) and also taking into account the recommendations of authors who were interested in the similar issues in the past (for example authors Anselin, Handy, Niemeier or Talent).



### 3 FOOD DESERTS IN TERMS OF URBAN SECURITY

Results point on trend of substitution of traditional food retail units by large-sized formats as for example hypermarkets. This means that worsening situation in urban food security results also from mentioned modernization fact. Nowadays, retail managers localize their units according to possibilities for improving of their market share. And increasingly neglect their traditional role of ensuring quality food for inhabitants. Paper results in pointing on different areas with characteristics as food deserts / oases, with a strong gradient in the shopping centers of the area. From the noted reason that food retailing also depends on location. Bonanno defines the region's motivating agents to locate food retail across two areas (Bonanno and Chenarides and Goetz, 2012):

*1. demand – driven factors*

These include market size, population and income growth, poverty rates, income support programs and consumer preferences in terms of heterogeneity;

*2. supply – side factors*

It understands investment costs (fixed), distribution costs and other factors such as local tax systems or laws, crime levels, public transport, and even the image of retail itself.

The contribution focuses on the use of demand-driven factors as they best and adequately define the nature of food deserts. From the point of view of available data, indicators of market size, consumer incomes and the structure of their expenditure (in our case, specific consumption expenditure) are used. Subsequently, when considering retail units, the market share should be taken into account (Cimler, 1992), in addition to local potential customers. In economic theory, the cumulative gradient is understood as the realization of part of the expenditures of the retail population at a place other than the place of residence, and it is manifested as a sum of the positive and negative transfers of expenses - the balance of the purchase gradient (Mitriková, 2008).

We recognize the external trade gradient which means territorial transfers of the population's expenditures in retail trade between individual housing units and the internal purchase gradient which means transfers in retail spending to one settlement unit (Cimler, 1992).

#### 3.1 Prešov region

The focus of the food retail analysis continues with the orientation to the second higher territorial unit (18,3 % of whole territory of Slovakia, share of inhabitants on level of 15,1% of all inhabitants of Slovakia) which is located in the east of Slovakia and it's the Prešov Region. This is precisely the region with weaker levels of economic indicators and high risk potential. However, in comparison with the other regions of the Slovak Republic, the Prešov region belongs to those administratively designated territories which offer one of the highest quantities of food consumers.

The total length of the road network is 3 161,207 km<sup>2</sup> which represents 3,906 km per thousand inhabitants of Prešov region. Of the total length, the motorways and the highways are 8,264 km. This fact depicting inadequate equipment with a good road network. The relief of the region is extremely rugged. In addition to the extensive of top formations - the High Tatras, there are several large and small-scale natural protected areas. These barriers must be taken into account in the development of food retailing strategies and so is also envisaged in food availability analysis in this region.

### 3.1.1 Characteristics of consumer in selected region

In order to determine the properties of the consumer in the Prešov region, the indicators of net incomes and net expenditures are used. The character of the development of the Prešov region is reflected in a more detailed structure of consumer spending. According to our last research, consumers, mainly because of their low income, buy what they absolutely need - namely food, housing and related expenses and transport. It is important to note that, for this reason, the strong potential of the market within the Prešov region is visible for the development and modernization of the food retailing.

### 3.1.2 Food retail in Prešov region

The findings made on the basis of an analysis of the characteristics of the region and its inhabitants as potential customers of food retailing are indispensable for conclusions about the retail of food products.

Research till nowadays is offering two different conclusions. On the one hand, the data confirm the dominant position of the traditional food retail formats, compared to Slovakia, reaching a high level - up to 19%. In other words, almost every fifth classic format of the grocery store is located in the Prešov region. This means that food retail stores do not go beyond a perceived level of modernization. On the other hand, the food market still shows signs of an upcoming wave of modernization. It is seen in the high proportion of modern formats of sales such as department stores, shopping centers and hypermarkets. Their share (18%) is beginning to approach the representation of traditional food sales formats in the Prešov region. We can see a fairly comparable representation of both traditional and modern food store formats. Summarizing the findings and conclusions regarding the state of the food retail within the territory of the Prešov region in the national definition as higher territorial units and in the international classifications as NUTS 3 paper can state the following assertions:

#### 1. *Road network for short-term shopping*

The structure of transport equipment in the Prešov region is currently ready to serve for transport for purchases to other parts, especially for a shorter distance. This is because the predominant paths of II and III. classes of road that do not provide a rapid shift, as is the case for motorways or expressways. Here it is important to note that the area of completion or construction of roads for a more dynamic and safe transport is a long-term problem of (eastern) Slovakia. For this reason, this is also reflected in the Dynamics of the onset and expression of the modernization of food retail.

#### 2. *Optimal structure of net consumer monetary spending*

The nature of net cash spending for consumers is in favor of purchasing mainly food and supplementary products. An external determinant for this state is the level of income and other characteristics of the population of higher territorial units. These have an impact on the structure of expenditure, and are currently in favor of the development of food retailing

#### 3. *Stable position of traditional formats*

The Prešov region represents territory with a stable status of traditional formats in the retail food market. Their strength is also helped by a strong position compared to the whole territory of the Slovak Republic.

#### 4. *Poor modernization rate*

Confirmed weakness of modernization is reflected in different directions in defined regions. The Prešov region as the territory with the most defense-related intra-regional differences shows a different direction of modernization within its market. There is a stable position for classic retail food. On the other hand, however, the same proportion is represented by modern formats, especially the type of department stores, supermarkets or gradually growing shopping centers. This reflects the unevenly developing trend of modernization within the territory of the Prešov region.

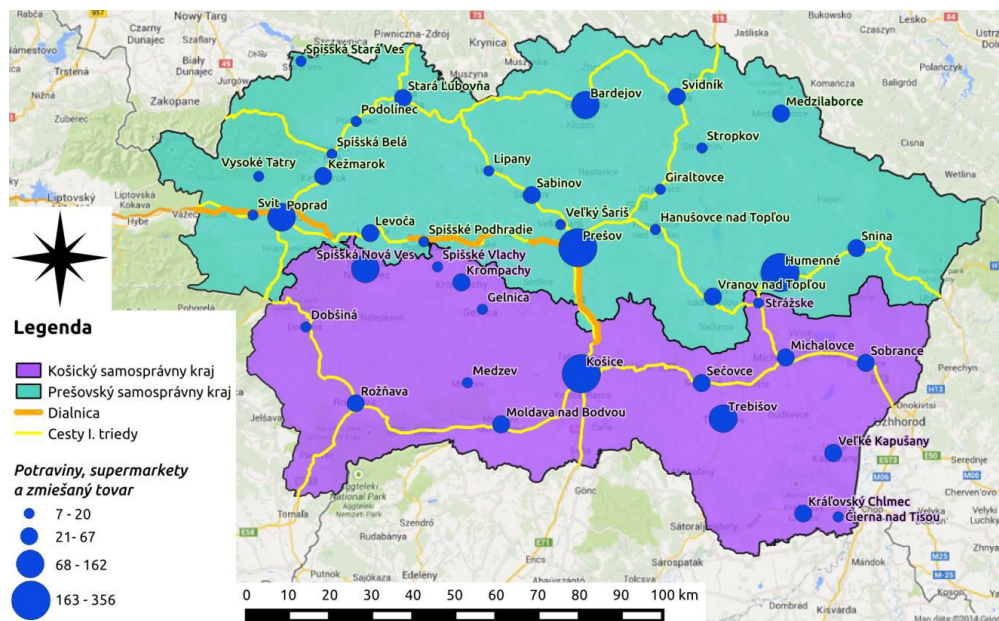


Figure 2: Results from GIS presenting food retail in Prešov region joint with other region  
 Source: own procession

Figure 2 illustrates situation of food retail in Prešov region. As it can be seen, there are few shopping gradients which belong to bigger cities. Paper also used second region which is located next to the analyzed region due to reason that it's better to recognize the relations between these two retail markets.

Circles represent food retail stores. The larger the circle is, the more retail units are located in this area. Yellow and orange links mean road of I. classes and highways. Naturally, the most of retail units of Prešov region are located in city of Prešov and other bigger cities. Also, almost all of the stores are established in connection with built road of I. classes and highways.

### 3.1.3 Urban food security

The contribution uses food deserts as an indicator of urban food security. If a territory is characterized by the characteristics of the food desert, it is clear that its urban food security is not on high level and action to optimize the availability of food is needed. Paper used the application of 4 availability rates – binary availability, metric availability, topological availability and opportunity-based measure for the step of complex food desertification in analyzed regions. Their limits were identified according to our latest research (Dudáš Pajerská, 2016; Dudáš Pajerská and Till, 2016).

The binary, also called trivial availability represents the quantitative expression of the distance between the starting point and the target point. This availability is identified as the basis for further specified rates. Because of the scope and structure of the available data, this measure expresses the carriage distance. Various alternatives can be used to measure the distance. As many experts prefer the travel (transport) time - they consider it is more informative compared to the distance measurement (in km), paper has chosen this option. For these accessibility rates, paper has set criteria that limit identification of food deserts – 30 minutes.

Second rate – metric availability is a quantitative expression that collectively interprets the sums of times the consumer has to conquer to reach each point in the network. Paper

defines it in the total set of retail stores as the sum of the minimum sequences from the point of consumption to all the other nodes of the set. This availability is negative, i.e., the lower is the value, the given target point (hypermarket, supermarket ...) is better accessible. For the needs of the analysis of food deserts, paper identified the limit as availability over 1500 minutes.

Topological availability is characterized as a quantitative expression of the sum of directions from the point of consumption (village) to all destination points (retail grocery stores). This availability is positive, t. j. the higher is the value, the better is the availability. Its limit in defining food deserts has been set at availability under 5 connecting routes (highway, roads of I. and II. classes). The connecting routes included those that directly connected the city with another center.

The last defined access rate – opportunity – based measure quantifies the amount of retail stores with food available at a certain distance from a given municipality.

As districts of Prešov region – which were at each point of analysis designated as food deserts paper characterizes Humenné, Kežmarok, Medzilaborce and Snina. It is important to note, therefore, that urban food security is not on a high level for these areas of the surveyed region. These territories should be precisely created by retail managers, as well as by local government interventions, to create sustainable and especially efficient urban food systems.

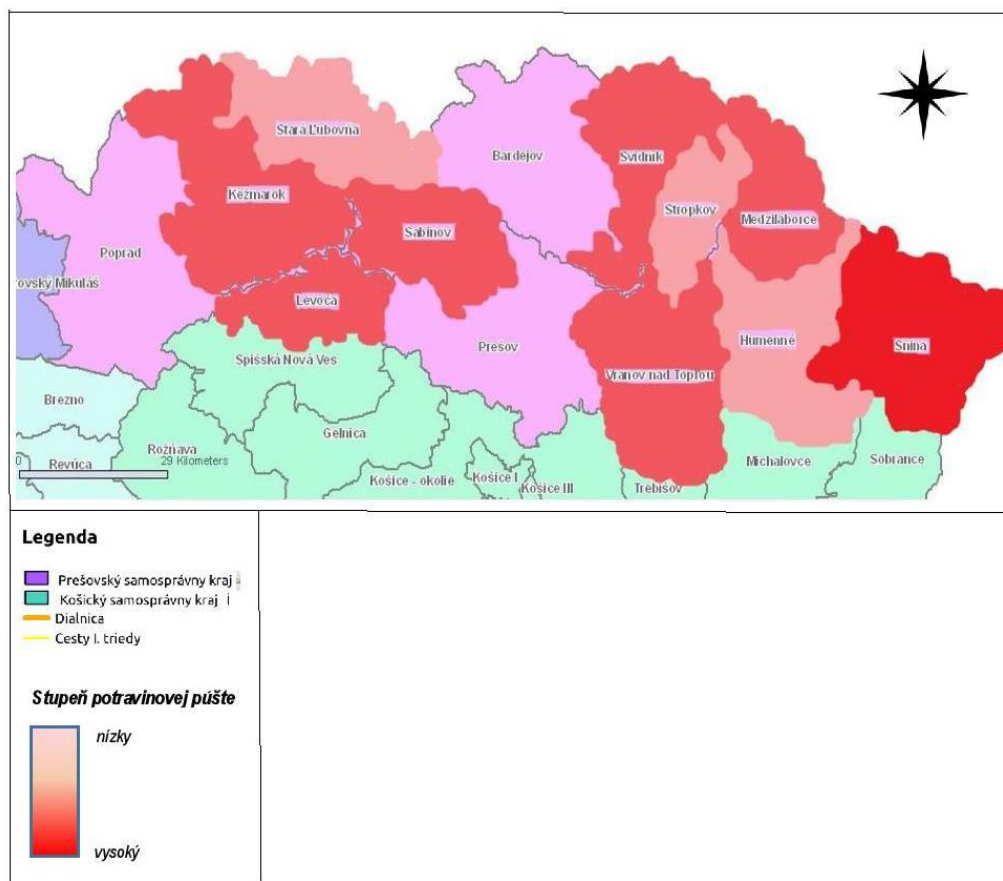


Figure 3: Urban food security using indicator of food deserts in terms of Prešov region  
Source: own procession

Even less developed regions need high availability of food for their residents, and it is essential for them to use their evolution and development to attract retail managers to localize their food retail stores. Or to look for other options for securing urban food security.

#### **4 SUGGESTIONS FOR URBAN FOOD SECURITY**

From the point of view of the problem solved, it is worth pointing out that the radical change of the Slovak (or Czechoslovak) society through the influence of globalization has been taken into account with regard to the purchasing opportunities before 1989 and after that year (Kunc et al., 2012). These changes have become sufficiently plausible to start scientific discussion about this new social phenomenon. Appropriate consideration may be given to spatial relationships in relation to the deployment of human activities that adapt to new social conditions. It should be noted that time and space manifestations of changes in consumer behavior in post-socialist countries (including Slovakia) have been more intense and stronger in recent years than in countries with a traditional market economy in Western Europe and the USA. The described changes in buying behavior were also justified by transformation on the part of retailers. Their primary role - to provide food for their customers, has turned into a role with a different foundation. The need for market share has grown in the hands of retailers, which, of course, should be reflected in an increase in sales or the expansion of their food. The retailer gradually turned his attention to converting his stores to a more purposeful, entertaining or relaxing center that is associated with shopping. It was less focused on the real demand for food and its distribution in space.

An analysis of the current food retailing environment will outline its direction for the future. We see the flexibility and the power of the consumer that will only be enhanced in the future. Heterogeneity in taste or individualization, a technically oriented lifestyle will be factors that will significantly affect the direction of retail in general. Not everything, however, is based on the power of the consumer. It will also be subject to the impact of the environment, in particular through developments and changes in demographics or revenue cuts. Such a forecast directs food retailers to accept challenges in the form of aging populations or the necessary personalization of their product offerings. In this way, the potential dimensions of innovation in the form of multi-channel integration, product design (private brands) are outlined, of course, all for online support. The above-mentioned challenges to food retailing may be reflected in stronger outsourcing and offshoring and stronger linkages through vertical integration of suppliers. By highlighting the most important areas to be adapted by the future retail provider, more importantly, areas linked to changes in population demographics (slowdown in population growth), technology (operational efficiency) and innovation (especially new forms of organization) (Körmendy and Konštiak, 2005).

In connection with the focus of the paper, the food security is a necessary factor determining the health and quality of life. In other words, it is about ensuring the availability of quality and safe food. The performance of the Slovak Republic in this sphere is mainly coordinated through the Common Agricultural Policy of the European Union. In particular, this is a strategy for reforms in the area of agricultural productivity growth. It is in this discipline to see possibilities for improving the availability of food in Slovakia. In particular, it refers to the quality initiative of our regions and activities to promote sales from the yard. The project „Quality from our regions“ indirectly determines the area of food deserts in Slovakia. The way of communication, which focuses on the preference of Slovak products, is a way of solving the situation.

As an addition to providing urban food security, paper mentions the activity that covers the monitoring of food quality and safety within the territory of the Slovak Republic. It is an



„Official Control Portal“ operated by the State Veterinary and Food Administration of the Slovak Republic. Its organs carry out official controls of foodstuffs on their production, trade, handling and marketing. The State Veterinary and Food Administration of the Slovak Republic collects in its information system which it manages information on operators, findings of official food control, completed administrative procedures based on the results of official food control. Thus, the consumer can use it to monitor the individual businesses selling food products. Through this application, you can verify whether the level of food is of the required quality and whether all the rules are also observed when storing, handling or selling products at a selected store.

## CONCLUSION

The trend of replacing traditional grocery stores with larger formats such as hypermarkets - referred to the modernization of grocery retail and it has led to the formation of food deserts. The need to cover the entire population through food supply is currently an important point of interest. We live in conditions of ever-increasing pressure in the form of food crises or the necessity of achieving the highest quality of life. For this reason, the issue of urban food security in terms of food deserts is profiled as one of the potential threats to the development of the communities and thus it is imposing more and more attention.

In the future there is a plan to extend the application of the contribution for the whole area of Slovakia. This will mean practical implication for retail manager for their decisions making about localization of retail units. After defining food security in each territory of Slovakia is beneficial to report the status of the relationship of this area to the level of public health (health care expenditure as a proportion of total household expenditure, consumption of drugs, the number of occupied beds in hospitals, others.) By doing this, research could come with generalized view of the status of availability of healthy and quality food in Slovakia with a direct reference to the level of health of the affected area.

In the follow-up future, there is a tendency to create “food access research monitor” for whole territory of Slovakia as the practical implication of approach of paper.

## REFERENCES

- APPARICIO, P. - CLOUTIER, M - SEARMUR, R. 2007. The case of Montréal's missing food deserts: Evaluation of accessibility to food supermarkets. In *International Journal of Health Geographics*. ISSN 1476-072X, 2007, n. 6/4, pp. 16-23.
- BONANO, A. – CHENARIDES, L. – GOETZ, S. 2012. Food deserts as equilibrium outcomes: an empirical analysis. In *Food environment: The Effects of Context on Food Choice*. Zborník príspevkov z medzinárodnej konferencie konanej v dňoch 30. – 31. Máj 2012, Univerzita Tufts v Bostone.
- CIMLER, P. 1992. *Územní a provozní strategie retailu*. Praha : Vysoká škola ekonomická, 1992. 89 p. ISBN 80-7079-950-1.
- DUDÁŠ PAJERSKÁ, E. 2016. Food deserts as a consequence of modernization of food retail. In *Acta oeconomica Cassoviensia : scientific journal*. Košice : PHF EU Košice, 2016. ISSN 1337-6020, 2016, n. 9/1, pp. 68-70.
- DUDÁŠ PAJERSKÁ, E. – TILL, J. 2016. Effects of modernization of retail management. In *Manažment v teórii a praxi*. Košice: Katedra manažmentu PHF EU, 2016. ISSN 1336-7137, 2016, n. 12/4, pp. 36-46.

- GOLDMAN, A. – RAMASWAMI, S. – KRIDER, R. 2002. Barriers to the advancement of modern food retail formats: theory and measurement. In *Journal of Retailing*, 2002. ISSN 022-4359, n. 78, pp. 281 – 295
- KÖRMENDY, V. – KONŠTIAK, P. 2005. *Analýzy a stratégie marketingového manažmentu*. Bratislava: IRIS, 2005. ISBN 80-89018-83
- KRIŽAN, F. 2009. Globalizácia maloobchodu: definícia základných procesov a ich analýza slovenskej geografii maloobchodu. In *Geografický časopis*. ISSN 1335-1257, n. 61/1, pp. 49–68.
- KUNC, J. a kol. 2012. Nákupní spád, nákupní chování a nákupní centra: na příklade brněnské aglomerace (příspěvek ke studiu denních urbánních systémů). In *Sociologický časopis*. ISSN 2336-128X, n. 48/5, pp. 879–910.
- LAUKO, V. – KRIŽAN, F. – TOLMÁČI, L. 2008. Potravinársky maloobchod na Slovensku: rurálne prostredie, čas a miesto nákupu. In *Acta Facultatis Rerum Naturalium Universitatis Comenianae, Geographica*. ISSN 0373-8205, n. 51, pp. 41–55.
- MCENTEE, J. – AGYEMAN, J. 2010. Towards the development of a GIS method for identifying rural food deserts: Geographic access in Vermont, USA. In *Applied Geography*. ISSN 0143-6228, 2010, n. 30/1, pp. 165– 176.
- MITRÍKOVÁ, J. 2008. *Geografické aspekty transformácie maloobchodu a nákupného správania sa na Slovensku (prípadové štúdie z miest Prešov a Košice)*. Prešov : Prešovská univerzita v Prešove, 213 p., ISBN 978-80-8068-922-3.
- PREŠOVSKÝ SAMOSPRÁVNY KRAJ. Official website [online] [cit. 2017-06-28]. Available on internet: <<https://www.po-kraj.sk/sk/>>
- STATISTICAL OFFICE OF THE SLOVAK REPUBLIC. Official website [online] [cit. 2017-06-10]. Available on internet: <<http://px-web.statistics.sk/PXWebSlovak/>>

## ABOUT THE AUTHOR

### **Ing. Erika Dudáš Pajerská, PhD.**

Department of Business Entrepreneurship  
Faculty of Business Economics with seat in Košice  
University of Economics in Bratislava  
Tajovského 13, 040 01 Košice  
e-mail: erika.dudas@pajerska.sk

## RECENZIA / BOOK REVIEW

**TKÁČ, M: *Effectiveness of technical analysis in efficient market hypothesis*. Wambeek : EuroScientia, 2017. ISBN 978-90-822990-7-6**

The actual economic crisis introduces serious doubts into several basic paradigms of efficient market hypothesis. The world-class economists, financial experts, and traders tried to find explanations to these contradiction and provide tools, techniques, mechanisms or strategies to manage and overcome the implication of the crisis respectively prevent their further occurrence. Therefore, significant amount of research is also focused on efforts to provide answers to various discrepancies that challenge validity of efficient market hypothesis.

I consider monograph in question as non-trivial contribution to ongoing worldwide scientific discussion. It refers to current situation in research of the financial markets and provides some interesting results. I see it as more practically oriented assessment of development of financial markets having in mind pre-crisis period, period when crisis begins as well as recent period.

The amount of author's research results presented in this publication, which are based on newest contribution from well-known authors, reject any doubts regarding validity of this monograph and currentness of its content.

The monograph is divided into four chapters. The first chapter covers efficient market hypothesis. It provides review of current scientific research, explains the several form of efficiency, describes behaviour of investors, introduces Random walk models and martingales and characterizes forms of testing of this concept. The second chapter is oriented on study of EMH assumption on real foreign exchange market data. The third chapter is devoted to Technical analysis. It also characterizes basic assumptions behind Technical analysis and describe various tools and techniques, which are used in TA in order to make it profitable. The end of chapter introduce critical aspects of TA, which are based on findings from scientific literature and are complemented with appropriate author's commentary. The last chapter consists of specific study oriented on profitability of trading strategies, based on technical trading rules.

The monograph is written in comprehensive manner and has appropriate stylistic level. The findings of scientific studies are both, in case EHM and TA, complemented with results of authors own research presented in chapter two and four. The chosen composition and structure of monograph offer the reader impression of compactness and homogeneity.

The tendency of author to cover so complex topic within rather a small space probably caused, that author doesn't paid much attention to testing the persistency of profitability of TA trading strategies. On the other hand, provided battery of tests and use of Sharpe index as performance measure represent standard procedures for such studies. Therefore mentioned remark doesn't lower high quality level of monograph.

The monograph "Effectiveness of technical analysis in efficient market hypothesis" can be well exploited for research and educational purposes in financial market theory.

**doc. RNDr. Zuzana Hajduová, PhD.**

Faculty of Business Economics with seat in Košice  
University of Economics in Bratislava  
Tajovského 13, 041 30 Košice