Journal of Competitiveness

The scientific periodical Journal of Competitiveness published by the Faculty of Management and Economics of Tomas Bata University in Zlín offers results of basic and applied economic research of domestic and international authors in the English language. As it is evident from the title, the journal concentrates on the field of competitiveness of individual companies, clusters of companies, regions or national economies from different angles of view. Problems of competitiveness represent the subject which stretches across the individual branches of economic theory and practice. Therefore, we welcome articles focusing on microeconomics, management, marketing, personnel, financial management as well on problems of national economy and regions or other economic subjects connected with competitiveness.

Content

Editor's Letter

Dear readers,

We would like to present you the fourth issue of the volume of the *Journal of Competitiveness* in 2016. This issue offers contributions focused for example on topics of firm performance, measuring knowledge, relationship between business strategy and business model, regional competitiveness in Romania. Article aimed on the impact of the structural funds on competitiveness of small and medium-sized enterprises, hotel industry, absorptive potential of financial companies or labour market is interesting as well. You can find contributions from the Czech Republic, Poland, Hungary, Slovakia, Romania and Taiwan.

The aim of the first study is to present an overview of methods which can be applied when measuring the knowledge of organizations, groups or individuals and thus provide a practical list of methods which feature in literature mostly for practitioners and novices in this field.

The second article deals with the analysis of the use of EU Structural Funds as the main tool of cohesion policy. The results of analysis and research indicate signs of an inefficient use of financial support from the Structural Funds, which is often directed to solve diverse acute economic problems.

The Romanian study makes an empirical evaluation of the impact of occupation and unemployment in Romanian counties on the economic growth.

The next article is empirical in nature and attempts to assess the impact of ability to assimilate newly acquired technologies by financial companies operating in Poland of gaining market competitive advantages.

The authors of the following research seek to ascertain whether there is any measurable relationship between business strategy and business model.

The hotel industry research evaluates the most important tourism destinations of Hungary on the micro-regional level that justifies the importance and contribution of the hotels and accommodations to the competitiveness and success of tourism destinations with exact results. The aim of the next paper is to present the current generation of employees (the employees of Baby Boomers Generation, Generation X, Generation Y and Generation Z) in the labor market by secondary research and then to introduce the results of primary research that was implemented in selected corporations in the Czech Republic. The contribution presents a view of some of the results of quantitative and qualitative research conducted in selected corporations in the Czech Republic

The last published study tried to identify factors which drive international sustainable competitive advantage using Indonesian listed-multinational companies

We would like to thank members of the editorial staff, peer reviewers and members of the editorial board for preparing this issue, and we are looking forward to our further cooperation.

On behalf of the journal's editorial staff,
Assoc. Prof. David Tuček, Ph.D.
Editor-in-Chief

Measuring Knowledge

- *Matošková Jana*

Abstract

Knowledge is a key to creating a sustainable competitive advantage. Measuring knowledge of an organization as a unit allows for, in addition to other things, benchmarking it against other organizations as well as comparing the development within the organization in the course of time. Additionally, measuring the knowledge of individuals and groups helps identify key workers and can also be used when recruiting a new work force, while evaluating employees' work performances, or to check the course of the adaptation of a new employee. Even though the field of measuring knowledge belongs, in comparison with other topics, among the lesser-developed fields in the management of knowledge, a number of approaches that can be used to measure knowledge have been introduced. The aim of this study is to present an overview of methods which can be applied when measuring the knowledge of organizations, groups or individuals and thus provide a practical list of methods which feature in literature mostly for practitioners and novices in this field. The study is based on a content-analysis of literature.

1. INTRODUCTION

Numerous publications from various scientific fields are focused on studying knowledge. In principle, the authors of publications in the field of management agree that knowledge is a valuable asset for a company, for it has an impact on the performance of individuals and subsequently the performance of the whole organization. For example, Bock, Zmud, Kim, and Lee (2005) state that knowledge is the foundation of a firm's competitive advantage and the primary driver of a firm's value. Employees' knowledge influences the innovation process, quality and accuracy of work, it helps people solve problems and deal with unexpected situations.

Bose (2004) mentions that the least developed aspect of knowledge management is measurement. Partly it might be due to the fact that measuring knowledge is not easy, according to some authors, it is even impossible. Especially measuring knowledge based on experience that cannot be easily expressed by words, numbers or other symbols, belongs among the not-so-well elaborated fields in literature. On the other hand, measuring knowledge is very important. First, if we want to manage something, we have to be able to measure it. Furthermore, measuring the collective knowledge of organizations allows benchmarking it against other organizations as well as comparing development of the organization in the course of time. Benchmarking and the identification what works and what does not offer a space for learning and improvements. Moreover, Freeze and Kulkarni (2005) state that measurement of organizational knowledge assets is necessary to determine the effectiveness of knowledge management initiatives and Sveiby (2010) and Montequín, Fernández, Cabal, and Gutierrez (2006) point out that measuring can be important for external communication and reporting to stakeholders too. Additionally, meas-

uring the knowledge of individuals supports identifying key workers in an organization, their further development and stabilization in the organization. Finally, measuring knowledge can be also helpful for prediction of future performance of individuals, groups, or organizations.

The aim of this study is to review the approaches applied in measuring knowledge at organizational level, group level and individual level. The study is based on secondary sources and summarizes the findings of several scientific fields – though mainly psychology and management. The review is intended to provide a starting point for those interested in applying or developing knowledge measurement techniques, as well as for those more generally interested in exploring the scope of the methodology available. Furthermore, the findings might assist organizations in identifying the measures which are suitable for them, for improving the quality of metrics they use; and assist researchers in identifying future research needs related to knowledge measurement metrics as well as in deciding about the methods and techniques suitable for their research. There were done several similar reviews, e.g., Ragab and Arisha (2013), Sveiby (2010), Kankanhalli and Tan (2004), and Bose (2004), but this review combines their findings and offers a more comprehensive overview. Additionally, the group level knowledge measurement was not discussed in prior studies.

The article is organized as follows: First, a theoretical framing is introduced. Then, the used methodology is mentioned followed by findings about approaches to knowledge measurement at organizational level, at group one and at individual one. Finally, a discussion and conclusions are presented.

2. THEORETICAL FRAMING

This chapter deals with definitions of basic concepts which are necessary to understand the topic, namely knowledge, intellectual capital, knowledge management, knowledge sharing, measurement, and metrics.

2.1 Knowledge

Dvořák (2004) defines knowledge briefly as what we know. More specifically, McQueen (1999) describes knowledge as experiences, understanding and the comprehension of an environment or the context of a problem which governs our behavior in such a way to get a required response. Similarly, Davenport and Prusak (1998 as cited in Ipe, 2003) defined knowledge as a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. Many authors connect the definition of knowledge with information, e.g., knowledge is an understanding of information and their associated patterns (Bierly et al., 2000 as cited in Singh, 2008); knowledge is conceptualized as codified information including insight, interpretation, context, experience, wisdom, and so forth (Davenport and Volpel, 2001 as cited in Fong, Ooi, Tan, Lee, & Chong, 2011), or knowledge can be thought as information that is "contextual, relevant and actionable" (Bose, 2004). Krogh et al. (2000) highlight that knowledge is always linked to a specific context (e.g., a location). Likewise, Ipe (2003) says that knowledge is context specific and relational. In sum, knowledge is context-specific, because it is based on experiences and its formation and molding

is influenced by one's personality. Additionally, knowledge is related to one's understanding of an environment and regulates one's behavior.

Knowledge enhances a firm's value and the achievement of its objectives, mission and vision (Fong et al., 2011). From the perspective of an individual, job-related knowledge is an essential element determining the career success of an employee, together with her/his skills and ability (Fong et al., 2011).

Some knowledge can be documented in repositories (Rashid, Hassan, & Al-Oqaily, 2015). However, much more knowledge resides in the employees who create, recognize, archive, access, and apply knowledge in carrying out their tasks (Bock et al., 2005). Knowledge does not originate from a simple compilation of facts, but it represents a unique human process which cannot be reduced or replicated simply (Krogh et al., 2000). That is why knowledge relates to a human ability to align information one's experience or the experiences of others with the ability and experience to use information during decision making, performing activities and achieving results (Judicibus, 2002). As Nonaka and Takeuchi (1995 as cited in Ipe, 2003) mention: knowledge is about beliefs and commitment. Similarly, Grant (2007) says that at least a certain part of knowledge is based on an individual's judgement and experience. A consequence is that if knowledgeable employees leave the firm, e.g., following better opportunities offered by other firms, the employees will take, at least a part of, their knowledge with them (Fong et al., 2011).

In psychology, a distinction between declarative and procedural knowledge is made (see e.g. (Hartl & Hartlová, 2010; Sternberg, 2002). Declarative knowledge is knowing something that can be stated as a true statement. For example, facts such as date of birth, a name of a friend, what a rabbit looks like. It means "to know something". In knowledge management, declarative knowledge will indicate information or explicit knowledge (depending on the angle of one's point of view). Procedural knowledge is an ability or skill to do something (e.g., to tie a shoelace, drive a car), it means "to know how". In knowledge management, this type of knowledge is often labelled as tacit knowledge.

As it is evident from the above-stated definitions, knowledge is closely linked to one's personality, it is connected to behavior and perception and it is context specific. Such characteristics, which make thorough research difficult, present obstacles for experts studying knowledge, its formation, molding, sharing or its measurement.

2.2 Intellectual capital

In contrast to the subjective characteristic of knowledge, intellectual capital is a concept connected with an organization. According to Stewart and Ruckdeschel (1998), intellectual capital comprises of knowledge, information and experiences which can be used by an organization to generate wealth. Similarly, Edvinsson (1997 as cited in Montequín et al., 2006) defines intellectual capital as the possession of knowledge, applied experience, organizational technology, customer relationships and professional skill that provides a firm with a competitive edge in the market. This definition is broader, because it emphasizes also relationships. That is why it corresponds more with the fact that intellectual capital is often divided into human capital, structural capital and relational capital (Kwee Keong, 2008).

Human capital (or employee competence) is defined as the knowledge, competencies and mind-sets of individuals and teams (Hendriks & Sousa, 2013). According to Luthy (1998), human capital consists of the abilities, knowledge and skills of employees and is an important source of an organization's innovation (Bontis, 1999). Carson et al. (2004) state that this type of capital is not in the ownership of an organization and therefore it is lost when an employee leaves the company. To gain and use human capital a company has to enter into a contract with the owners of such capital and furthermore it should provide suitable conditions for its development, because outdated human capital loses its value. Structural capital (or organizational capital, internal structure) refers to knowledge embedded in organizational infrastructures such as routines, databases, rules, procedures, values and norms (Hendriks & Sousa, 2013). In contrast, structural capital is, according to Kannan and Aulbur (2004), represented by supportive infrastructure such as information systems or organizational processes which a company provides for its employees. Finally, relational capital (or customer capital, relationship capital, external structure) concerns knowledge embedded in customer relationships, market channels, intra-organizational relationships and technological networking embedded in the organizational external relationships (Roos 1997 as cited in Hendriks & Sousa, 2013). In other words, it refers to the combined value of an organization's external relationships with stakeholders, such as suppliers and customers, who are valuable sources of both revenue and market knowledge for the organization (Ragab & Arisha, 2013).

According to Castilla-Polo and Gallardo-Vázquez (2016) intellectual capital is the sum of intangible assets not recognized by traditional financial statements and this definition is accepted in this paper.

2.3 Knowledge management

Knowledge management is a formal, directed process of determining what information a company has that could benefit others and then devising ways to making it easily available to all concerned (Liss, 1999 as cited in Singh, 2008). In other words, according to O'Dell and Grayson (1998 as cited in Singh, 2008), the aim of knowledge management is to ensure that knowledge reaches the right people at the right time, and that these people should share and use information to improve upon the organization's functioning. In contrast, Davenport et al. (1998 as cited in Singh, 2008) points out at processes related to knowledge management and define knowledge management as a process of collection, distribution, and efficient use of the knowledge resource throughout an organization. Likewise, Donate and Guadamilllas (2011) state that knowledge management comprises a set of processes through which knowledge is acquired, developed, gathered, shared, applied and protected by the firm in order to improve organizational performance. Additionally, Bounfour (2003 as cited in Singh, 2008) defines knowledge management as a set of procedures, infrastructures, technical and managerial tools, designed toward creating, sharing and leveraging information and knowledge within and around organizations. In sum, knowledge management can be understood as a set of processes formally set and directed by an organization to increase the probability that employees' knowledge is really used to ensure and further improve competitiveness of the organization. A similar opinion has Shin (2004) who says that organizations suppose that knowledge management will help them to increase organizational effectiveness, efficiency and competitiveness. Further, Haas and Hansen (2007) mention three

indicators of the productivity of knowledge work that are critical in many knowledge-intensive organizations: time saved by leveraging the firm's knowledge resources, enhanced work quality as a result of utilizing knowledge, and the ability to signal competence to external constituencies as a result of leveraging knowledge.

2.4 Knowledge sharing

One of the processes which knowledge management aims at is knowledge sharing. As said by Tuan (2012), knowledge sharing is a process which happens when employees pass information, ideas and experiences to each other either within a department or a whole company. Similarly, Sandhu, Jain, and Ahmad (2011) define knowledge sharing as a transfer of valuable facts, beliefs, perspectives, concepts learned through study, observation or personal experience from knower to knowee and McAdam et al. (2012 as cited in Yuliansyah & Alvia, 2016) describe knowledge sharing is an activity through which knowledge in various forms can be transferred or exchanged between different actors in an organization. According to Wang and Noe (2010 as cited in Seba, Rowley, & Lambert, 2012), knowledge sharing refers to the provision of task information and know-how to help others and to collaborate with others to solve problems, develop ideas, or implement policies or procedures. Likewise, Ipe (2003) points out that knowledge sharing between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals. Examples of knowledge sharing include employee willingness to communicate actively with colleagues, i.e., donate knowledge, and actively consult with colleagues to learn from them, i.e., collect knowledge (H.-F. Lin, 2007). Haas and Hansen (2007) state that knowledge sharing has been conceptualized as involving two distinct ways of transferring knowledge across organization subunits, namely 1) personal advice usage (direct contact between individuals, when one person advises another about how to complete a specific task, in meetings, by phone, or via e-mail); 2) electronic document usage (document-to-people sharing when the receiver of the document does not have to contact or speak to the provider directly but can use the document as a stand-alone resource). In sum, knowledge sharing can be summarized as follows: (1) Knowledge sharing has two subjects: the sender of knowledge and the receiver of knowledge. The receiver might be unknown to the sender; (2) Knowledge sharing refers to the provision of work information and know-how to help other employees in their work; (3) The sender of knowledge tries to convert his/her "knowledge" into a form that can be useful for the receiver and increase the probability that the knowledge would be absorbed by the receiver.

Knowledge sharing has several benefits for organization. Knowledge sharing leads to improvement in innovation capability (Fong et al., 2011; Riege, 2005), better decision making by individuals and groups throughout the organization (Yuliansyah & Alvia, 2016), better and higher performance (Fong et al., 2011; Fugate, Stank, & Mentzer, 2009; Law & Ngai, 2008), better product and service offering to customers (Fong et al., 2011) that are brought faster to a target market (Riege, 2005), and increasing their ability to achieve individual and organizational goals (Seba et al., 2012). Thanks to knowledge sharing, people are able to quickly expand their knowledge, improve problem solving, increase work performance and improve work processes and create new business opportunities (Yen-Ku Kuo, Tsung-Hsien Kuo, & Li-An Ho, 2014; Yi, 2009). Knowledge sharing also contributes to reducing costs, for example the cost of training

new employees (Peet, 2012), and organizational learning (Riege, 2005; Seba et al., 2012). The concept "organizational learning" means a dynamic process of creation, acquisition and integration of knowledge aimed at developing the resources and capabilities that allow the organization to achieve a better performance (López, Peón, & Ordás, 2006).

2.5 Measuring and metrics

In the most general term, to measure means to label objects and phenomena by numerical symbols in accordance with certain rules (Pelikán, 1998). Hubbard (2007) defines measuring as "a set of observations that reduce uncertainty where the result is expressed as a quantity." Generally, there are 4 distinct levels of measuring based on their strength (Pelikán, 1998; Urbánek, Denglerová, & Širůček, 2011):

- *Nominal* (categorization) – is sorting data into mutually exclusive categories, for example male/female. Each item can be placed into a single category and all items can be categorized. The nominal level of measuring means simply numbering individual items or categories. Such numerical marks signify nothing but the names of given categories. So, instead of naming the genders by "male" or "female", the numerical marks of 0 or 1 are used.

- *Ordinal* – is not measuring absolute values of given variables but it means giving them a relative value in comparison with others. Apart from equality and inequality, a rank can also be examined (bigger than, smaller than). The size of the intervals between the neighboring numbers cannot be determined because these are not of the same width. Hubbard (2007, p. 23) states as an example a four-rating system for movies. A "4" on either of these scales is "more" than a "2" but not necessarily twice as much.

- *Interval* – aims to separate items (according to our existing knowledge) into categories on a scale with points which lay exactly same distance from each other. Numbers can be added and subtracted but not multiplied or divided. A typical example is measuring temperatures in °C.

- *Ratio* - assigned numeric values indicate the amount or level of characteristics which they in fact measure. There is a natural zero. For example, measuring length, weight, time. The values can not only be added but also multiplied and divided. For example, as states Hubbard (2007, p. 27), four kilometers is really twice as far as two km.

The argument of some authors who say that knowledge cannot be measured is questionable because, as Hubbard (2007, p. 27) notes, if we can observe it in some amount, then it must be measurable. Nevertheless, it should be understood that when measuring knowledge, the aim is not to use the ratio approach, even though some methods, mainly the ones for measuring at organization level, aspire to do so. In many cases, for example when identifying key workers or while recruiting new workers, the tools for ordinal measuring are sufficient. In connection with it, Sveiby (2010) points out that it is not possible to measure social phenomena with anything close to scientific accuracy. All measurement systems, including traditional accounting, have to rely on proxies, such as dollars, euros, and indicators that are far removed from the actual event or action that caused the phenomenon.

Finally, Kankanhalli and Tan (2004) explain the difference between a measure and a metric. A measure is a standard, unit, or result of measurement (IEEE 1983 as cited in Kankanhalli & Tan, 2004). A metric is a quantitative measure of the degree to which a system, entity, or process possesses a given attribute (IEEE 1990 as cited in Kankanhalli & Tan, 2004). A measure by itself does not provide much understanding unless it is compared with another value of the measure, i.e., it becomes a metric (Kankanhalli & Tan, 2004).

3. METHODOLOGY

The conceptual framework presented in this article has drawn on literature from fields such as management theory, strategic management, information and decision sciences, organizational communication, organizational behavior, psychology, and social psychology. These fields of study were identified through a search of scholarly literature available primarily through electronic databases, especially articles at Web of Science and Scopus were taken into account. The initial review of literature began with an examination of publications that discussed the concept of knowledge metrics and knowledge measurement. References in the found articles were further examined to find more relevant papers.

Once relevant publications were identified, the focus of the analysis shifted to isolating those ideas that specifically related to methods and techniques of knowledge measurement. The key findings that emerged from the literature were then synthesized to form the conceptual framework presented in this article. The conceptual framework presented in this article is an attempt to bring together all relevant ideas into one whole to provide a more comprehensive approach to understanding the phenomenon of knowledge measurement.

4. MEASURING KNOWLEDGE AT ORGANIZATION LEVEL

Based on the finding of Ragab and Arisha (2013), Sveiby (2010), Kankanhalli and Tan (2004), and Bose (2004), when measuring knowledge at organization level, it is possible to review the level (amount) of knowledge, which is at the disposal of an organization, or to focus on reviewing how effectively it is worked with knowledge, for example when evaluating the effectivity of sharing knowledge within the organization. It means the classification of methods of measuring knowledge at organizational level can be as follows:

- Knowledge level evaluation methods, which can be
  1. Financial methods, which quantify the total amount of intellectual capital on the basis of the accounting information, or
  2. Score-card methods based on the identification and a non-financial measuring of components of intellectual capital.
- Knowledge management evaluation methods, which measure the effects of knowledge management on organizational performance.

4.1 Knowledge level evaluation methods

According to Kannan and Aulbur (2004) a key reason for measuring intellectual capital is to recognize hidden assets and strategically develop them to achieve organizational goals. They listed the benefits of intellectual capital measurement, e.g., better identification and mapping of intangible assets; recognition of knowledge flow patterns within the organization, acceleration of learning patterns within the organization. It is possible to use financial or score-card methods to evaluate knowledge or intellectual capital which the organization has at the disposal.

Financial methods quantify the total amount of intellectual capital on the basis of the accounting information. Sveiby (2010) mentions that the financial methods are useful in merger and acquisition situations and for stock market valuations, as well as, for comparisons between companies within the same industry. However, as Ragab and Arisha (2013) points out, financial methods do not always clarify where problems exist and the value-adding contribution (or lack) of different intellectual capital components. Kannan and Aulbur (2004) add that intangibles such as staff competencies, customer relationships, business models, and computer and administrative systems receive no recognition in the traditional financial methods. Financial methods could be further divided into:

- *Market Capitalization methods* calculate the difference between a company's market capitalization and its stockholders' equity as the value of its intellectual capital (Sveiby, 2010). Examples of these methods are Market-to-book Value, Tobin's q, The Invisible Balance Sheet, Investor Assigned Market Value (IAMV), Calculated Intangible Value.

- *Return on Assets methods* (ROA). Sveiby (2010) explains that average pre-tax earnings of a company for a period of time are divided by the average tangible assets of the company. The result is a company ROA that is then compared with its industry average. The difference is multiplied by the company's average tangible assets to calculate an average annual earnings from the intangibles. Dividing the above-average earnings by the company's average cost of capital or an interest rate, one can derive an estimate of the value of its intellectual capital. Examples of these methods are: Knowledge Capital Earnings, Value Added Intellectual Coefficient, Economic Value Added (EVA).

- *Direct Intellectual Capital methods*. Sveiby (2010) describes that these methods estimate the money-value of intellectual capital by identifying its various components. Once these components are identified, they can be directly evaluated, either individually or as an aggregated coefficient. Examples of these methods are: Human Resources Costing and Accounting, Citation-Weighted Patents, Technology Broker, The Value Explorer, Inclusive Valuation Methodology (IVC), HR statement, Total Value Creation (TVC), FIMliAm, EVVICAE, The Dynamic monetary model, Intellectual Asset Valuation, Accounting for the Future (AFTF).

For example, EVA is defined as the difference between net sales and the sum of operating expenses, taxes and capital charges where capital charges are calculated as the weighted average cost of capital multiplied by the total capital invested (Bontis, 2001). Another example is Technology Broker which defines intellectual capital as the combined amalgam of these four components: market assets, human-centered assets, intellectual property assets and infrastructure assets (Bontis, 2001). The organization answer 20 questions (like "In my company we know the value of our brands.", "In my company there is a mechanism to capture employees' recommen-

dations to improve any aspect of the business.") that make up the intellectual capital indicator (Bontis, 2001). Bontis (2001) explains that each component of the model is then examined via a number of specific audit questionnaires that ask questions specific to those variables thought to contribute to that asset category. Once an organization completes its Technology Broker audit, three methods of calculating a dollar value for the intellectual capital identified by the audit are offered: 1) the cost approach, which is based on assessment of replacement cost of the asset; 2) the market approach, which uses market comparables to assess value; and 3) the income approach, which assess the income-producing capability of the asset.

Score-card methods are based on the identification and a non-financial measuring of components of intellectual capital. The various components of intellectual capital are identified and indicators and indices are generated and reported in scorecards or as graphs (Sveiby, 2010). In cases where metrics measure a qualitative attribute (such as motivation) scale-based surveys are used to convert qualitative values into quantitative figures (Ragab & Arisha, 2013). A composite index may or may not be produced (Sveiby, 2010). The advantages of the score-card methods are, according to Sveiby (2010), that they can create a more comprehensive picture of an organization's health than financial metrics and that they can be easily applied at any level of an organization. Since they do not need to measure in financial terms they could be useful for non-profit organizations, internal departments and public sector organizations and for environmental and social purposes (Sveiby, 2010). However, Ragab and Arisha (2013) highlight that these methods are critiqued for only providing a 'snapshot' evaluation of an organization's knowledge, and so only reflecting its static knowledge stocks without considering the dynamic element represented in its knowledge flows and that future measures should reflect the dynamics of knowledge creation and transfer within organizations.

Examples of these methods are: Business IQ, IC–Index, National Intellectual Capital Index, Holistic Accounts, IC Rating, Intangible Asset Monitor, Value Creation Index (VCI), Knowledge Audit Cycle, ICU report (an IC report for universities), Intellectual asset-based management (IAbM), Value Chain Scoreboard, MAGIC, Skandia Navigator, "Dynamic Valuation of Intellectual Capital" (IC-dVAL), Balanced Score Card, Danish guidelines, Meritum guidelines, MMRIC (Measure, Manage, and Report Intellectual Capital), Regional Intellectual Capital Index, SICAP (an IC model for public administrations), Public sector IC, Intellectus model, Intangible assets statement (an IC model for public sector). Interestingly, Montequín et al. (2006) suggest a model which is suitable for measuring intellectual capital within small and medium-sized enterprises.

One of the most often used method is Balanced Scorecard (BSC). BSC has multidimensional nature because of comprising quantitative, qualitative, financial and non-financial measures. BSC evaluates, according to Bose (2004), four key perspectives: financial ("How can we add value to our shareholders?", e.g. profitability and cash flow); customers ("What do our customers value from us? Are we meeting their needs and expectations?", e.g. customer satisfaction and market share); internal processes ("What do we need to do well in order to succeed? What are the critical processes that have the greatest impact on our customers and our financial objectives?", e.g. tender success rate and safety incidents); and learning and growth ("Orientation to future success, how can we continue to add value?", e.g. unit costs and new products launched). In each field, the goals are documented and key performance indicators are measured.

Similarly, Skandia's value scheme contains both financial and non-financial building blocks that combine to estimate the company's market value (Bontis, 2001). The Skandia intellectual capital report uses up to 91 new intellectual capital metrics plus 73 traditional metrics to measure the five areas of focus making up the Navigator model (Bontis, 2001). The areas of focus are as follows: financial, customer, process, renewal and development, and human (Bontis, 2001).

Another example is Intangible Asset Monitor proposed by Sveiby (1997 as cited in Bontis, 2001) which is based on three families of intangible assets: external structure (brands, customer and supplier relations); internal structure (the organization: management, legal structure, manual systems, attitudes, R&D, software); and individual competence (education, experience). In his conceptual model, Sveiby identifies three measurement indicators: growth and renewal (i.e. change), efficiency and stability for each of the three intangible assets. The choice of indicators depends on the company's strategy but should include only a few of the measurement indicators for each intangible asset.

Interestingly, some of the methods, such as Human Capital Readiness, Human Capital Index or Human Capital Monitor, concentrate only on human capital measurement. For example, Human Capital Readiness evaluates 5 sectors of human capital: strategic skills and competence, leadership, cultural and strategic awareness, commitments to the goals and incentives, strategic integration and learning (Skyrme 2003 according to Ragab & Arisha, 2013).

4.2 Knowledge management evaluation methods

Knowledge management evaluation methods measure the effects of knowledge management on organizational performance. However, these methods, as Ragab and Arisha (2013) mentioned, can suffer from being built on the questionable assumption that changes in organizational performance are solely due to knowledge management disregarding the other possible influences on firm performance. Similar to the previous case, these methods can be divided into the following categories:

- Financial methods which use quantitative financial metrics such as stock prices, profitability and return on investment to evaluate the benefit of knowledge management. For example, Chen and Chen (2005) suggest a metric approach to evaluate knowledge management performance with the use of the Black-Scholes model based on option pricing.

- Non-financial methods which evaluate the benefit of knowledge management to organizational performance based on the answers of respondents at interviews or via questionnaire surveys and relies to a large extent on respondents' perceptions of knowledge management. Examples could be 1) The Knowledge Management Scan by Hooff, Vijvers, and Ridder (2002), which aims to provide an organization with concrete recommendations concerning its strategy, tactics and operations with regard to knowledge management, or 2) The Knowledge Management Capability Assessment instrument by Freeze and Kulkarni (2005), which capture a firm's knowledge management ability and status in four Knowledge Capability Area (Lessons Learned, Knowledge Documents, Expertise, and Data), as well as 3) Organizational Learning Scale by López et al. (2006) with the following dimensions: external knowledge acquisition, internal knowledge acquisition, knowledge distribution, knowledge interpretation, and organizational memory, or 4) the questionnaire by Rashid

et al. (2015) who concentrate on tacit knowledge management and in their questionnaire they examined Tacit Knowledge Culture, Tacit Knowledge Conversion, and Tacit knowledge Measurement in two colleges in Universiti Tenaga Nasional in Malaysia. Interestingly, Chen and Chen (2005) combined a traditional BSC framework with knowledge management and made a balanced knowledge management scorecard.

Some analyses could be connected with the above mentioned methods. Examples of such analyses are mentioned by Kannan and Aulbur (2004), e.g. needs analysis which reviews and maps organizational information need, creation, use, flow, and storage, identifies gaps, duplication, costs, and value, and uncovers the barriers to effective knowledge flow; cultural analysis which might show cultural barriers that need to be addressed; commitment to intellectual capital development analysis.

Some of the performance methods presented in literature focus on evaluating and monitoring particular knowledge management system implementations, e. g., on system level measures for electronic knowledge repositories or measures for electronic communities of practice (Kankanhalli & Tan, 2004). Others aim at some knowledge functions like knowledge sharing.

Methods Focusing on Knowledge Sharing

Methods which are aimed at knowledge sharing, can be divided into:

- hard data measurement,
- opinion-based surveys which examine such constructs like willingness to share knowledge, knowledge-sharing behavior and factors which can influence it, or identify potential knowledge holder and a potential for mutual knowledge sharing,
- combination of hard and soft indicators.

Hard data measurement

When evaluating knowledge sharing within an organization it is possible to focus on measuring hard data such as amount, frequency or length of something. Indicators which can be used are the following: the number of hits on personal postings, the number of documents submitted or consulted, the number of contributions to meetings, the number of written reports, the rate of contribution to knowledge data bases, the number of new ideas, the number of improvement suggestions made, the number of presentations made, the number of communities within an organization, the rate of reusing knowledge, the frequency of sharing of various kinds of knowledge (e.g. work experience, information gained at training courses, information about business partners) or the frequency of utilizing various information technologies such as bulletin boards, e-mails, webpages, chat rooms (Ragab & Arisha, 2013; Smith & McKeen, 2003; Yi, 2009). This approach supports utilizing computer-based knowledge sharing, as individual's contributions to knowledge bases or online discussions are readily observable (Yi, 2009). For example, the Samsung Life Insurance company measures sharing knowledge, which is registered in a knowledge bank, by employing a point system, as explained by Hyoung and Moon (2002). An employee receives 10 points every time he signs into the database, 1 point for every search and 200 points for adding his own material into the knowledge database. The points gained can then be transformed into rewards, for example international training.

Opinion-based surveys

Opinion-based surveys are often based on the use of scenarios or questionnaires with statements evaluated by the informant on a Likert scale. For example, an interesting approach to evaluate the willingness to share knowledge was chosen by Chow, Deng and Ho (2000). In their research, they used, in addition to other things, two scenarios to which informants were to respond – they had to state how a typical employee of their organization would respond in a given situation and at the same time indicate on a scale 1 to 9 how likely it is that he/she would share his/her knowledge in such a situation. As well Seba et al. (2012) focused at attitudes towards knowledge sharing. They used a questionnaire-based survey. Respondents' attitudes and opinions were measured using five-point Likert scale questions (5 = "disagree strongly"; 1 = "agree strongly"). Their study measured eight constructs: intention to share knowledge, attitude towards knowledge sharing, leadership, organizational structure, reward, trust, time, and information technology. All constructs were measured using multiple items. Likewise, Lin and Lee (2004) measured perceptions toward knowledge-sharing behavior, but they focused on perceptions of senior managers and five constructs: knowledge-sharing behavior, intentions to encourage knowledge sharing, attitudes toward knowledge sharing, subjective norms about knowledge sharing (perceived social pressure to encourage knowledge sharing), and perceived behavioral control to knowledge sharing (perceived ease or difficulty of encouraging knowledge-sharing behavior). All constructs were measured using multiple items. All items were measured using a seven-point Likert scale (ranging from 1 = strongly disagree to 7 = strongly agree). Similarly, Quigley, Tesluk, Locke, and Bartol (2007) concentrated in their research, among others, on norms supporting knowledge sharing and they used a 10-item questionnaire. Items were evaluated on a seven-point Likert scale.

Yi (2009) created a tool for measuring the behavior of employees aimed to share work-related and professional knowledge. Her 4-dimensional model consists of 28 items/statements. Respondents evaluated the described behaviors on a five-point Likert scale. The dimensions of behaviors aimed to share knowledge were the following: written contributions (contribution of knowledge to organization's database), organization communications (sharing knowledge in formal interactions within or across teams or work units), personal interactions (sharing knowledge in informal interactions), and communities of practices (sharing knowledge within communities of practice). Similarly, Guo-bao (2013) measured knowledge-sharing with the use of 20-item questionnaire. However, in this study the items examine sharing of common knowledge (accessible knowledge, ordinary information, ordinary skills, knowledge that don't affect employees' direct interests) and key knowledge (significant skills, knowledge affecting employee's position in organization, core work experience, knowledge affecting employee's immediate interests and so on). Additionally, the questionnaire evaluates both knowledge donating and knowledge collecting. Knowledge donating and knowledge collecting were evaluated also in the study made by Sandhu et al. (2011) who examined in their study knowledge sharing in public sector. Their questionnaire contained items divided into the following parts: 11 items designed to ascertain general views towards a) importance of knowledge sharing and awareness of its benefits; b) existence of knowledge sharing initiatives; c) employees' willingness to share knowledge (knowledge donating); and d) colleagues' willingness to share knowledge (knowledge collecting); 15 items eliciting

views towards knowledge sharing barriers; 17 items eliciting views of respondents towards type of knowledge sharing initiatives that should be promoted. The data was collected on a five-point Likert scale where 1 represented "strongly disagree" and 5 represented "strongly agree".

Yang (2007) explores in his study how organizational culture with a focus on collaboration, and certain types of leadership roles affect knowledge sharing. He examined three constructs: knowledge sharing, leadership roles, organizational culture with a focus on collaboration. In the framework of this study knowledge sharing was measured by a 10-item scale. The items were evaluated on a seven-point Likert scale.

Combination of hard and soft indicators

Naturally, the hard approach to measuring knowledge sharing and the soft one can also be combined. For example, Usoro et al. (2007) measured knowledge sharing in on-line communities via a questionnaire. In their research, they examined three aspects linked to knowledge sharing: how often an employee takes part in a process of the knowledge sharing (quantity of sharing), usefulness of shared knowledge (quality) and the degree to which an individual feels that they engage in knowledge sharing.

5. MEASURING KNOWLEDGE AT GROUP LEVEL

A smaller part of studies deals with measuring knowledge at group (team, organizational unit) level. They try to evaluate or predict the influence of group knowledge on group performance. An example of techniques used for such an objective is proxy measures. Proxy measures are based on the fact that some knowledge cannot be articulated and a substitution is needed for its measuring. For instance, Berman et al. (2002) used data from the National Basketball Association (NBA) and claim that their measure is a reasonable proxy for the sort of tacit knowledge at team-level. Years of player team experience was weighted by the minutes played in the games that season by that player and an average was then calculated for each team year. In another study, Edmondson et al. (2003) used a performance measure of efficiency as the proxy measure for tacit knowledge in cardiac surgical teams in 15 hospitals.

Another example of techniques for group knowledge measurement is the Team tacit knowledge measure for software developers by Ryan and O'Connor (2009). Ryan and O'Connor (2009) used repertory grid to construct their inventory and this technique was used for example by Herbig, Büssing, and Ewert (2001) too. Repertory grids provide information about an individual's personal constructs (Muir, 2008 as cited in (Jafari, Akhavan, & Nourizadeh, 2013). This is ideal for examining how an individual thinks about an issue (Jankowicz, 1990 as cited in (Jafari et al., 2013). Ryan and O'Connor (2009) explain the basic idea of repertory grids as follows: There are three important constituents to the repertory grid: elements, constructs and links. The repertory grid provides a two-way classification of information in which relationships are uncovered between a person's observations of the world (called elements) and how they construct or classify those observations. These constructs are made up of similarity-difference dimensions or bipolar constructs, describing how some elements are similar and yet different from another. The third component of the grid links the elements and constructs, where each element is rated on each construct. Cooke (1994) adds that as the ratings along

each construct for each element are gained, a grid is constructed in which the constructs and elements are listed respectively as rows and columns of the grid. Overall relatedness can be derived from the grid by computing the summed difference (or correlation) between ratings for either the constructs or the elements (Cooke, 1994).

Repertory grid as such can be used for an identification of experts and measuring knowledge structure development in novice employees too. Similarly, multidimensional scaling can be used for such an aim (Bradley, Paul, & Seeman, 2006) as well as network scaling, e.g., Path-Finder technique (Bradley et al., 2006; Rose, Rose, & McKay, 2007). Multidimensional scaling procedures use pairwise proximity estimates of a set of concepts and generate d-dimensional spatial layouts of those concepts (Cooke, 1994). According to Cooke (1994) dimensions reflect features along which the concepts vary, and metric distance between points in the space corresponds linearly or monotonically to psychological proximity. Network scaling involves the generation of a graph representation based on the proximities (Cooke, 1994). The Path-Finder technique includes the conversion of a set of relatedness judgments into psychological distances, resulting in a fully connected, weighted network of concepts and relationships (Bradley et al., 2006). It provides a direct measure of a decision maker's knowledge structure that can be employed in deterministic and non-deterministic decision environments (Rose et al., 2007). An algorithm is applied to this network to generate a reduced network containing only the shortest paths (Bradley et al., 2006). Cooke (1994) explains that the Pathfinder procedure takes pairwise proximity estimates for a set of items and generates a graph structure in which the items are represented as nodes and relations between items are represented as links between nodes. Each link is associated with a weight that represents the strength of that particular relationship.

Another reason for group level measurement of knowledge is to map the likely diffusion of knowledge (Busch, Richards, & Dampney, 2001). A social network analysis (SNA) can be used for such an objective – see, e.g., Busch et al. (2001). Busch et al. (2001) claimed that those individuals found as being popular were possible holders or charismatic conveyors of the (organizational) knowledge. Examples of social network measures are presented by Kannan and Aulbur (2004), e.g., span of control (average number of lower links per manager), or density (the number of actual links in a network divided by the number of all possible links in the network).

There are also relatively simple methods, which can be used for measuring the potential for mutual knowledge sharing in the group, such as River Chart mentioned by Collison and Parcell (2005). It is based on a self-evaluation of managing the competencies on a five-point Likert scale. The results are then depicted as a "river" diagram. The edges of the river are defined by maximum and minimum point values stated by subjects for each competence. The width of the river provides clear information on the potential of knowledge sharing in each given field. Where the river is narrow the majority of subjects have roughly the same level of competence, therefore there is less opportunities for them to learn from one another. Areas where the river is the widest suggest a wide spread of competencies, which represent opportunities for sharing and improving existing competencies. Similarly, a spider diagram can be used for the same purposes.

6. MEASURING THE KNOWLEDGE ON AN INDIVIDUAL LEVEL

Measuring knowledge at individual level can be used, in addition to other things, when evaluating work performance and predicting future individual's performance, during the process of identifying training needs or checking the level of adaptation of a new employee, as well as when selecting new employees from job vacancy candidates, or, on the other hand, when deciding who is to be made redundant.

To assess individual's attitude towards knowledge sharing and his/her willingness to share knowledge, questionnaire with items evaluated on a Likert scale can be used. To check the process of adaptation, techniques like repertory grid or PathFinder could be used. When measuring amount of knowledge at individual level, the differences between the various types of knowledge became more apparent. While for measuring some knowledge (knowledge that can be made explicit – so called explicit knowledge) a classic knowledge test can be quite effectively used, as it is common for example at schools, but for measuring other knowledge such an approach would be rather ineffective because, apart from other reasons, numerous knowledge is acquired subconsciously, is based on experience, is used spontaneously and using such knowledge is often influenced by a given context (so called tacit knowledge). An individual therefore may not be aware of such knowledge, it can be difficult to express it by words, numbers or other symbols or it can be described only in general terms (while omitting the context which is conditional for using such knowledge). When measuring such knowledge, the aim is not so much to express it in some kind of numerical form but rather to determine who has more and who has less of such knowledge. However, some studies do not try to examine the amount of tacit knowledge, but the attitude of an individual towards knowledge sharing and his/her willingness to share knowledge.

For an evaluation of individual's amount of tacit knowledge (or the influence of tacit knowledge on performance), three basic approaches are described in literature: 1) monitoring the performance of individuals during simulated situations – usually model work situations (Kerr, 1995; Sternberg, 1995), undertaken, for example, in assessment centers; 2) situational judgement test (Choi, 2001; Colonia-Willner, 1999; Edwards & Schleicher, 2004; Fox, 1997; Richard Kenneth Wagner, 1985); 3) questionnaire evaluating behavior.

A situational judgement test (SJT) has been being used for several decades, but an increase in popularity of the test has been noted in recent years. McDaniel et al. (2007; 2001) perceive the increasing popularity of it as a result of an adequate criterion-related validity of the test for predicting work performance. SJTs are also reported to be a useful component of a selection battery to predict task performance (O'Connell, Hartman, McDaniel, Grubb, & Lawrence, 2007). However, some studies have appeared too which are skeptical about the usefulness of SJTs because of its coachability (e. g. Cullen, Sackett, and Lievens 2006). A SJT usually consists of several situations (scenarios), which can be closely linked to a given profession and the solution of which requires the application of certain knowledge. In some cases, a situational judgement test offers possible behavior strategies and respondents evaluate the probability of such reactions in the light of attempting to solve the situation. In other cases, the respondent is not presented with a list of possibilities regarding how to react and he/she has to describe the reaction himself/herself. The presented situations try to evoke respondent's knowledge stored in his/her subconscious mind and make him/her apply the knowledge in the given situation (Sternberg & Wagner,

1992). SJTs were used to measure tacit knowledge of students (Peeters & Lievens, 2005), military leaders (Horvath, Sternberg, Forsythe, Sweeney, & Bullis, 1996), or managers (Colonia-Willner, 1999; R.K. Wagner & Sternberg, 1991), or nurses (Fox, 1997).

A questionnaire based on evaluating behavior presents several statements related to behaviors of a given individual. These statements often depict how a person who has certain knowledge should behave. This questionnaire can be useful for self-evaluation. Respondents state how often they behave in a given manner – see e.g. a test used in research by Somech and Bogler (1999) or Leonard and Insch (2005), or they evaluate to which level a described activity is characteristic of them – see e.g., Williams and Sternberg (Torff & Sternberg, 1998).

Sometimes it is welcome to capture expert knowledge too. For such an aim, cognitive maps can be used (Noh, Lee, Kim, Lee, & Kim, 2000). Noh et el. (2000) explain that a cognitive map is composed of nodes, signed directed arcs, and causality value. Nodes represent causal concepts, and signed directed arcs causal relations between two concepts. Causality value means ` + ' and ` - '. Therefore, a cognitive map can represent experts' beliefs and cognition about illstructured social relationships (Huff, 1990 as cited in Noh et al., 2000). Some other techniques for capturing knowledge are mentioned by Milton (2007) and by Cooke (1994).

7. DISCUSSION AND CONCLUSIONS

Nowadays knowledge is viewed as a potential source of organizational competitive advantage (Cabrera, Collins, & Salgado, 2006). Achieving competitive advantage depends upon a firm's ability to exploit existing knowledge and to generate new knowledge (Laursen & Mahnke, 2001). When knowledge is properly used and leveraged, it could drive companies to become more innovative through the development of better products that are brought faster to a target market (Gourova, 2010 as cited in Lee & Wong, 2015; Riege, 2005).

The aim of this survey study was to highlight and summarize the methods used for measuring knowledge at organizational level, group level and individual level. The knowledge measurement is important, because it can highlight the value of organizational knowledge, point out the necessity of knowledge management, or give additional value to some activities related to human resource management (like selecting a new employee, training and development). Additionally, because what gets measured, gets managed and it is possible to learn from it, management attention should not be any more exclusively focused on financial results to the detriment of innovation, customer relationships, employee engagement and process development among others.

The study was based on content analyses of secondary sources, mainly in the fields of psychology and management. The fact that this study includes more than one scientific field and furthermore, it combines measuring knowledge at organizational, group and individual levels, which makes it potentially beneficial mainly for novices and practitioners in the field of measuring knowledge who need to orient themselves quickly in these matters. The reason is that one of the first steps to be taken after making a decision to measure something is to review if someone has already undertaken a similar study and what approach they have used. It is expected that this review will also be a useful starting point for future applications and research using knowledge measurement techniques. The basic methods used for measuring knowledge are depicted in Tab. 1.

Tab. 1 – Methods to Measure Knowledge. Source: Own elaboration.

ORGANIZATIONAL LEVEL		
A. Methods to evaluate knowledge level to report, benchmark, …		
├	**Financial methods** that quantify the total amount of intellectual capital	
│	├	Market Capitalization Methods (Market-to-book Value, Tobin's q, The Invisible Balance Sheet, …)
│	├	Return on Assets Methods (Knowledge Capital Earnings, Value Added Intellectual Coefficient, Economic Value Added, …)
│	└	Direct Intellectual Capital Methods (Human Resources Costing and Accounting, Citation-Weighted Patents, Technology Broker, …)
└	**Score-cards methods** based on a non-financial measuring of components of intellectual capital (IC-Index, IC Rating, Intangible Asset Monitor, Skandia Navigator, Balanced Score Card…)	
	└	Methods measuring Human Capital (Human Capital Readiness, Human Capital Index, Human Capital Monitor, …)
B. Methods to evaluate work with knowledge to examine value addition of knowledge management to the organization		
├	**Financial methods** that use financial metrics (Black-Scholes model, …)	
└	**Non-financial methods** based on respondents' perception (The Knowledge Management Scan, The Knowledge Management Capability Assessment, Organizational Learning Scale, …)	
	└	Methods to evaluate knowledge sharing
		├ Hard data (amount, frequency, length of something) measurement
		├ Opinion-based surveys about attitudes or behaviour related to knowledge sharing that use scenarios or items evaluated on a Likert scale
		└ Combination of methods

GROUP LEVEL	
├	Methods to evaluate the influence of knowledge on group performance (Proxy measures, Team tacit knowledge measure, …)
├	Methods to identify the potential for mutual knowledge sharing within a group (River Chart, Spider Diagram, …)
└	Methods to identify the holder of knowledge in a group (Social Network Analysis, ….)

INDIVIDUAL LEVEL	
├	Methods to evaluate the attitude and willingness to knowledge sharing (items evaluated on a Likert scale, …)
├	Methods to measure the amount of explicit knowledge (knowledge tests, …)

⊢	Methods to measure the amount of tacit knowledge (simulations, situational judgment tests, items connected with behaviour that manifests the knowledge owning evaluated on a Likert scale)
⊢	Methods to predict the future performance (simulations, situational judgment tests, items connected with behaviour that manifests the knowledge owning evaluated on a Likert scale)
⊢	Methods to evaluate knowledge structure development (repertory grid, multidimensional scaling, network scaling, …)
∟	Methods to capturing expert knowledge (observation, interviews, task analysis, process tracing techniques, conceptual techniques like cognitive maps, …)

It is obvious that each approach has its advantages and disadvantages, which is why researches have to think carefully about why they want to measure knowledge, what the result of measuring knowledge will be used for and how they want to work further with it. Moreover, Ragab and Arisha (2013) claim it is necessary that intellectual capital measurements ensure a higher degree of objectivity and transparency in identifying and reporting the value of knowledge assets. They also add that knowledge measurement frameworks must incorporate embedded adjustments to organizational environment and strategy.

According to Bose (2004), the challenge for organizations today is how to match and align performance measures with business strategy, structures and corporate culture, the type and number of measures to use, the balance between the merits and costs of introducing these measures, and how to deploy the measures so that the results are used and acted upon. Bose (2004) also mentions that the future usage of knowledge management is heavily dependent on both the quality of the metrics and whether output generated by these metric management would provide tangible value addition to the organizations. That is why knowledge metrics development and implementation will be one of the main thrusts of knowledge management. Additionally, it is necessary to convince management that the use of the developed metrics is important. Therefore, a key part of every corporate strategy should be developing a better understanding of the nature of intellectual capital and knowledge assets, and how to measure, manage and leverage them (Bose, 2004).

In sum, there is an arsenal of techniques from which to choose when faced with the task of knowledge measurement. The techniques differ in many ways and many of these differences trade-off. More empirical work that addresses questions such as the validity of the techniques is needed. Furthermore, it seems sensible to combine methods of knowledge measurement. For example, Kannan and Aulbur (2004) suggested a three-step model for intellectual capital measurement. The three steps include: identification and awareness, systems and output measures, and outcome measures of tangible financial returns. More research of this type would be welcomed. Also Kankanhalli and Tan (2004) mention that there appears to be a relative paucity of knowledge management evaluation studies at the group and team levels except for a few virtual team studies. Possibly more research on team, project, and business unit level knowledge evaluation may serve to bridge the gap between the micro level assessment studies (user and system level) and the macro level assessment studies (organization level). According to them, future research can also investigate suitable metrics for evaluating electronic communities of practice.

This contribution enhanced the theoretical knowledge of knowledge measuring and contributed to the classification of suitable methods and techniques used for knowledge measuring. Although limited by the fact that a complete review of literature cannot be claimed, this study throws light on the existing research on knowledge metrics.

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The Impact of The Structural Funds on Competitiveness of Small and Medium-Sized Enterprises

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Abstract

The article deals with the analysis of the use of EU Structural Funds as the main tool of cohesion policy. The cohesion policy aims to reduce economic and social disparities in regional development. A part of that policy is financing of small and medium-sized enterprises from the Structural Funds for the purposes of their impact on the economic development of underdeveloped regions and to increase the competitiveness of small and medium-sized enterprises. The main focus is on determining the effect of EU Structural Funds on competitiveness of SMEs in Slovakia in the programming period 2007-2013. Based on the empirical research, we have analysed the data and we found out how the management of small and medium-sized enterprises assesses the use of EU Structural Funds and their impact on the competitiveness of enterprises managed by them. The results of our analysis and research indicate signs of an inefficient use of financial support from the Structural Funds, which is often directed to solve diverse acute economic problems. However, these funds do not increase their competitiveness.

1. INTRODUCTION

Small and medium enterprises are an integral part of the structure of production in developed countries of the world. They significantly contribute to fulfilment of the most important indicators of the national economy development. The European Union and other developed countries put a lot of emphasis on supporting the development of SMEs. These enterprises significantly contribute to the gross domestic product and the added value, e.g. in employment, in the trade balance, etc. Especially from this perspective, supporting SMEs is one of priorities of the European Commission in the context of "economic growth, job creation and economic and social cohesion" (Európska komisia, 2006). EU efforts in support of SMEs in the programming period 2007-2013 were focused on the area of small and medium enterprises, innovation and competitiveness. Precisely these priorities could help to strengthen economic and social cohesion and to reduce disparities between the levels of development in different regions.

The European Regional Development Fund and its Operational Programme: Competitiveness and Economic Growth can be considered to be the most important financial instrument, respectively the Structural Funds to support SMEs, of which priority is to foster employment and competitiveness of SMEs on the national and international level. The largest volume of financial resources that have come to the regions and that have already helped to improve the competi-

tiveness of small and medium-sized enterprises and to ensure sustainable development has come through the European Regional Development Fund (ERDF). The support from the Regional Development Fund, inter alia, includes financing of business activities and innovations, e.g. business consulting, innovative technologies and management systems in SMEs, eco-innovation, and a better use of ICT.

Considerable financial resources have been directed to the improvement of regional and local business environment for SMEs (improving access to capital for SMEs in the process of formation and growth, improving the business infrastructure and services to support SMEs, enhancing regional and local capacities for research and development and innovation, extension of capacities for enterprise collaboration, innovation, etc.). Other important areas of funding from the Regional Development Fund were interregional and cross-border cooperation of SMEs and investment in human resources. (Európska komisia, 2006). The European Regional Development Fund has also helped to finance various investment projects in the public sector, such as the construction of railways, construction of drains, support of start-ups, development of sports and sports facilities, remediation of residential buildings, healthcare infrastructure, strengthening of cooperation between businesses in the border regions and the like.

Official documents of the EU institutions and national public authorities have dealt with evaluating the effectiveness of cohesion policy. Nevertheless, one would expect greater attention to assessing the results, particularly in terms of efficient use of funds during the next programming period. Even though more than two years have passed since the end of the programming period 2007-2013 and receiving the financial support from the designated funds, a complex expert analysis and evaluation of the effectiveness of the financial resources of their provider (responsible for the EU institutions) as well as recipients of funds from the European Regional Development Fund (governmental institutions of each country as well as small and medium enterprises) is still missing. Regarding the analysis of the effectiveness of cohesion policy, Slovak domestic studies and especially those at the level of SMEs were focused primarily on programme documents. However, almost none of them analyses large sets of data at micro level, which would reflect specific indicators of economic growth, economic efficiency and competitiveness of SMEs.

Therefore, many questions remain unanswered. What was the extent of reducing economic and social differences between regions under the influence of spending from the European Structural Funds? What was the impact of financial support for small and medium-sized enterprises in the regions to reduce regional disparities? What significance had drawing of funds from the Structural Funds for the competitiveness of SMEs?

We will not try to answer all these questions in this article. Based on evaluation of the management of small and medium-sized enterprises, we will try to answer the question whether the drawing of funds from the Structural Funds had an impact on involvement of SMEs in technology transfer, science, research and innovation, and whether or not the financial support from Structural Funds helped to increase the competitiveness. In the first part of the article, we will analyse processes of drawing and the use of funds from EU Structural Funds and individual cases of evaluating their efficiency according to the objectives set. In the second part of the article, we will present the methodological principles and practices for our investigations, methods

and techniques used to obtain the necessary data. In the third part of the article, we discuss our results in the context of other authors' findings.

2. THEORETICAL BACKGROUND

The EU policy regarding the support for small and medium enterprises in the stated programming period was focused mainly on their cooperation with research and technological institutions in order to strengthen their innovation and research skills and to increase their competitiveness. The objective of this EU support was to ensure that all businesses have equal conditions in the market and that companies could trade under fair conditions. Their aim was to make Europe an attractive place for investors, to support the economic growth of strategically important industries, and also to help manufacturing companies to be competitive on the European and world markets.

The European Commission indicates that "the promotion of small and medium is one of the priorities of the European Commission in the context of economic growth, job creation and economic and social cohesion" (Európska komisia, 2006). The importance of SMEs and their competitiveness for the EU was declared by introducing the initiative Small Business Act (SBA) adopted by the European Council in 2008. The initiative emphasized the need for support measures for small and medium-sized enterprises which will provide favourable conditions and benefits for this important segment of economy.

According to the EU Treaty no. 158, the main objective of regional policy was "promoting its overall harmonious development by strengthening economic and social cohesion, reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas." (Ministerstvo hospodárstva, 2015a). The Structural Funds also have been regarded as the most effective tool in support of EU Cohesion Policy and the priority tool to support the development of SMEs. Through the Structural Funds, the European Union sought to ensure economic and social equilibrium to address regional disparities and to increase the growth potential in the country or region to which funds were allocated. (Sierhej & Rosenberg, 2007).

The European Commission has prepared a vision for the new programming period, which was apparently based on the conclusions of the overall success of the implementation of projects in the previous programming period. The European Commission emphasized in this context that "Structural Funds, which are long-term supporters of SMEs, has now become an important tool in achieving the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth". (Európska komisia, 2013).

Despite the fact that there was a clear political vision of the importance of supporting small and medium enterprises through the Cohesion Policy and of other specific measures to individual countries, the question of its effectiveness as a whole arose during the financial and debt crisis. Considering the fact that the majority of Member States are highly in debt (in terms of debt ratio and high government expenditure to GDP), the EU should not support measures that are not socially and economically effective.

Although the process of convergence between EU countries and regions brings positive results, questions arise if it was really due to the cohesion policy. In principle, there are no doubts that political decisions, most importantly effective mechanisms and instruments for their implementation have a positive impact on the convergence process. For example, Ederveenet et al. (2002) came to the conclusion that we can observe partially the positive impact of subsidies from the European Structural Funds to the convergence process. A similar conclusion was expressed by Beutel (2002), Hagen and Can (2008), who investigated the impact of cohesion policy on economic growth. According to them, one can observe only a modest impact of cohesion policy on regional economic growth. Ecke and Turk (2006) emphasized positive aspects of the impact of cohesion policy on economic growth and regions convergence. They also came to the conclusion that the system of drawing funds from Structural Funds is not very effective, and therefore, they prioritize supporting human capital, innovation, research and development.

The impact of individual aspects of cohesion policy on regional integration processes in terms of application to the specifics of the Czech Republic is evaluated with milder critical statements in the works of Blazek and Vozáb (2006), Mirosnik et al. (2014) and other authors. In these works, authors present an ex-ante analysis of cohesion policy in Czech Republic and determine its strong and weak aspects. In addition, the authors conduct a process analysis of the First Action Programme in the context of the implementation of the Territorial Agenda of the EU with the impact on rural regions, allocation mechanisms of cohesion funds in accordance with the objectives, etc. The conclusions are pointing out to the unevenness in distribution of funds and the ambiguity of the impact of cohesion policy on reduction of regional disparities.

The assessments of the effectiveness of regional development support from the Structural Funds in Slovakia were usually based on the documents relating to EU programmes, statements and reports of government institutions and so on. (Ivaničková 2007; Rumanovská, 2011; Kiss et al, 2013; Ivanova & Koišová, 2014). When it comes to the methodology, the calculation of the efficiency of use of financial support from the Structural Funds was as a rule based on macroeconomic indicators, which were not quite appropriate for assessing the effectiveness. Because of the chosen methodology, the evaluation of the impact assessment of financial support for the development of small and medium-sized enterprises and the integration of the regions is more positive when compared with assessments of previously mentioned studies.

There is no dispute over the existence of the regional convergence in the EU. Nevertheless, it remains unclear to what extent the process of convergence is powered by supportive mechanisms of the European cohesion policy and to what extent it is driven by mechanisms of a modern market economy. Despite the fact that general comments regarding the cohesion policy are rather positive, one cannot ignore the critique aimed at its effectiveness.

According to Rodriguez-Pose and Fratesi (2004), there is no positive effect of the Structural Funds for convergence countries and regions in EU. Bachtler and McMaster (2008) took a rather critical stance towards the impact of EU cohesion policy on regional integration and the role of regional institutions in Central and Eastern Europe. Not only have they rigorously evaluated both technical variables and complex aspects of the EU Structural Funds, but they also have divided the processes of the EU Structural Funds management and drawing into individual stages, and thus pointed out differences when it comes to the regional involvement in Structural

Funds. In addition, they conducted cross-national analysis of practical experience with drawing the resources from EU Structural Funds. Their conclusions question the universally accepted assumption that the Structural Funds contribute to the development of regional structures and competences and lead to "stronger regions". On the contrary, they argued that there is no guarantee that the Structural Funds support the regional integration processes in Central and Eastern Europe in a short or medium period context.

Considering the differences and contradictions in the findings and assessment of the efficiency of European cohesion policy, there were doubts not only about this policy's formulation and its implementation guidelines, but also about the methodological procedures of calculation and assessment of its results. Wostner and Slander (2009) comment on that error. According to them, in spite of all conducted analyses and assessments and the positive proclamations about the impact of European cohesion policy on the development in integration of regions, EU leaders cannot be truly sure whether the enormous amounts of financial resources invested into European cohesion policy have been spent efficiently. The fact that research papers and reviews on the effectiveness of cohesion policy often arrive to different conclusions raises questions not necessarily only about the nature of the cohesion policy but also about the actual evaluation process. Moreover, they emphasized that the studies as a rule are based on macroeconomic analysis and the discrepancies in their findings are caused by the chosen methodology and by the fact that the direct macroeconomic approach is not adequate to the principle of cohesion policy. (Wostner & Slander, 2009).

Mirošník tried to answer the question why the absolute majority of the analysis and evaluation of the effectiveness of EU cohesion policy used macroeconomic approach. According to him, the reason is mainly sufficiency and availability of macroeconomic data. On the other hand, the bad quality and difficulties in obtaining micro-economic indicators are an important obstacle for an adequate assessment of the impact of Structural Fund support on the growth and performance of businesses and regions (Mirošník, et al. 2014).

One of the few studies that have used microeconomic approach to the analysis and evaluation of the effectiveness of EU cohesion policy was the work of Italian authors C. Bernini and G. Pelegrini (2011). It analysed the impact of EU funds on the performance of companies in the Italian regions in the period of 1996-2004 on the basis of business accounting data. It was found that subsidized companies compared to non-subsidized companies have increased the scope of its production and employment indicators. The unexpected finding was that labour productivity in the subsidized companies had decreased (Bernini & Pelegrini, 2011).

Bondonio (2012) examined the impact of EU funds on the performance of mainly small and medium enterprises in Italy and he made similar conclusions. According to his findings, in principle, there is no positive impact of subsidies on labour productivity and on employment in supported SMEs. Simultaneously, he discovered that small businesses are more cost effective than larger companies. He concluded that if he analysed only small businesses, so he could see a slightly positive effect of financial support on labour productivity in small businesses. Bondonio as well as his colleagues Bernini and Pelegrini was convinced in the overall assessment of the impact of EU financial support on productivity in small and medium-sized enterprises that use of financial support from EU funds did not help to increase the competitiveness of small and

medium-sized enterprises. In addition, in another study assessing the impact of cohesion policy on small and medium-sized enterprises in Central Europe, the conclusion was also negative. Its authors emphasize that if the Structural Funds were used optimally, it could have brought positive results (Potluka, et al., 2010).

Overall, there are only very few studies of the effectiveness of using financial support from the Structural Funds, which are methodologically similar to that of Bondonio (2012) or Bernini & Pelegrini (2011). In addition, we do not know any study that analysed and evaluated the effectiveness of financial support from the Structural Funds in accordance with the objectives of the Operational Programme Competitiveness and Economic Growth. That means a study which identified and evaluated the impact of Structural Funds on the competitiveness of SMEs on the basis of their involvement in science, research and innovation, and transfer of innovation and new technologies into production.

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

Formation of the priority actions of the Operational Programme Competitiveness and Economic Growth was based on identifiable disparities and the principle of territorial development defined in the National Strategic Reference Framework of the Slovak Republic. The regions did not use their potential in sufficient scale for field of research and innovation according to this document. This potential could be their significant source of competitive advantage. At the same time, the companies have shown very little interest in the introduction of innovations into the process of production. That is the reason, why the interventions implemented as a part of the initiative 'Innovations and technological transfers' mostly aimed to modernize production machinery and work processes, to creating new jobs, to invest into R&D companies, to introduce measures connected with the support of research and innovations in the small and medium sized companies, to support research centres, etc. (Ministerstvo hospodárstva, 2015).

The main objective of this study was to determine how the management of SMEs perceives and assesses the impact of the funding received from the EU Structural Funds under the Operational Programme Competitiveness and Economic Growth on development activities in science, research and transfer of innovations and new technologies in the production with the aim to improve competitiveness and economic growth of SMEs.

To achieve this goal, we have used empirical data from a survey carried out by the method of a structured interview, which was conducted in the years 2014-2015 and which focused on the quality of the business environment of SMEs. This survey studied the impact of financial support from the Structural Funds on economic development of SMEs as one of several factors of business environment.

In this study, we analyse and measure the impact of EU Structural Funds on competitiveness and growth of SMEs based on thinking and evaluation of particular managers of small and medium-sized enterprises. We consider this method of research to be one of several standard and appropriate methods in the system of micro-economic approach to this issue. The chosen method neither challenges not replaces analyses and assessments based on accounting data and macroeconomic indicators. We consider managers of enterprises to be experts who are research

units in our survey. Firstly, managers of enterprises are involved in activities connected with preparation of project proposals to receive financial support from the Structural Funds, the actual process of receiving financial resources from these funds and the final use of gained resources. Secondly, analyses, evaluations and decisions regarding these activities are the subject of their daily work. In addition, when we add human creativity, intuition, ability to estimate and affect event or context, this synergistic result of this evaluation may be more adequate and accurate than assessment based on accounting data.

Therefore, in our empirical survey, we did not perceive managers of enterprises as statistical sampling unit, but as an expert unit. As a result, the very essence of this empirical survey and assessment of its representativeness is different from the classical empirical survey of statistical units of the sample. In this case, the information value of the empirical data that we obtained is independent and is not assessed on the basis of the statistical amount of reconnaissance units.

The object of investigation was a suitably selected research sample of the research group of 285 SMEs. Our main group consisted of 168 of these enterprises that received financial support from the Structural Funds in the programming period 2007-2013 under the operational program Competitiveness and economic growth. The remaining 117 enterprises that did not receive financial support in the stated period were named the control group. We divided our research sample into small enterprises and middle-sized enterprises. We relied on official statistics that state that more than 80% of small businesses are composed of individual entrepreneur, and the rest employ 1-49 workers. In our research, the group of businesses that we considered small consists of individual entrepreneurs and companies who are managed by a single manager, regardless of overall the number of employees. As a result, our research sample included 36 small and 132 medium-sized enterprises (total of 168) which received financial support from the Structural Funds and from 56 small and 61 medium-sized enterprises (total of 117) which did not receive financial support.

For the purposes of our research, we used answers to the following closed question of the structured interview: "What were the significant economic results for your company affected mainly by financial support from the Structural Funds in the programming period 2007-2013. (Select 3 most important results by you)." For the enterprises that did not receive support from the Structural Funds, the question was: "What were significant economic results for your company in the period 2007-2013. (Select 3 most important results)."

We differentiated between responses of senior managers (directors) of small enterprises, directors of medium-sized enterprises and of managers - for example directors of individual departments or production sections. Since the group of small businesses consisted of individual entrepreneurs (who are also directors) or companies that do not have other directors, the number of responses was equal to the queried number of small businesses. The number of responses in the group of medium-sized enterprises was equal to the number of surveyed directors and the number of other managers - from 1 to 3 in each company, depending on its size. The number of ratings is equivalent to 3 times the number of received structured interviews (see Tab. 1) in particular economic results.

Tab. 1 – The numbers of surveyed enterprises, received interviews and evaluation of economic results. Source: author's own survey

Enterprise groups	Supported			Unsupported		
	Small	Medium		Small	Medium	
The number of enterprises	36	132		56	61	
Groups of respondents	Directors	Directors	Managers	Directors	Directors	Managers
The number of interviews	36	132	286	56	61	147
The number of evaluation	108	396	858	168	183	441

Statistically significant differences between the responses of defined groups of respondents in supported and unsupported enterprises were calculated by using the Pearson's correlation coefficient with significance level of 5%. Statistically significant differences in percentages indicators of respondents' answers were calculated by means of the χ^2- coefficient.

4. RESULTS AND DISCUSSION

The overall direction of the Operational Programme Competitiveness and Economic Growth was based on macroeconomic factors, which affected the character of supported activities. To measure the success and benefits of using EU funds, there have been identified criteria such as the number of supported projects, new enterprises, and private investment in innovative projects. The criteria for assessing the effectiveness and efficiency of use of financial resources from the Structural Funds in enterprises were created in line with the main objective - increasing competitiveness. These included mainly innovation and transfer of new technologies, investment in research and development, introduction of innovative processes, increase of revenues, job creation, investments in the development of SMEs and the creation of sustainable jobs and so on. (Európska komisia, 2013).

Some of these criteria may be an indication of enhancing business competitiveness but they are not a source or cause for this. For example, an increase in revenue or job creation may be an indication of increasing competitiveness only if its source is the growth of labour productivity, the introduction of new production techniques or new technologies, etc. Simultaneously, an increase in revenue or job creation may be the result of using more factors of production; nevertheless, by itself it does not necessarily lead to a labour productivity growth or an improved competitiveness.

The list of indicators of economic activity of enterprises, which we offered as potential responses, was based mainly on European Commission documents and the Operational Programme Competitiveness and Economic Growth. We assigned them to a group of activities that increase productivity, profit, and thus increase competitiveness of the company itself in the short and es-

pecially in the long term. Those mainly include: transfer of innovations and new technologies in production, labour productivity growth, introduction of innovative approaches to production, value added growth and investment in research and development. The growth of production, sales, profits, market share or job creation by themselves are not necessarily the reasons behind improved business competitiveness and its sustainability.

The Ministry of Economy assesses the success and effectiveness of using financial support from the Structural Funds in accordance with the criteria mentioned above. For example, its annual report states that the greatest number of new jobs (14200) was created thanks to the initiative Innovation and growth of competitiveness. 84 % (11860) of these were created in small and medium-sized enterprises. The added value increased by 105.8 % over the previous year. The sales decreased by 5 % in the subsidized companies over the previous year, but when compared with the initial value of 2007 the sales increased by 22 %. The enterprises introduced into production around 700 innovation of production processes thanks to use of funds. Innovative processes contribute significantly to their development. (Ministerstvo hospodárstva, 2015b).

We have found out in our survey that the enterprises that we classified as small had the greatest difficulties in obtaining support from the Structural Funds. Despite the fact that these companies are the most numerous in the structure of small and medium-sized enterprises, it was difficult to amass a sufficient number of small enterprises that received financial support from the Structural funds for our research sample.

According to evaluation of the directors of small enterprises, the financial support from the Structural Funds contributed to a growth of revenues, production volume and profit, and a moderate increase in labour productivity. (See Tab. 2). The majority of directors of small enterprises recognized these effects, but only 36 % of them had seen the growth of labour productivity, which is at the level of statistical significance.

Tab. 2 – The economic results of enterprises which benefited from financial support from the Structural Funds (evaluation managers, N and %). Source: author's own survey

Economic results	Directors of small enterprises		Directors of medium enterprises		Managers of medium enterprises	
	Number of replies	%	Number of replies	%	Number of replies	%
The growth of revenues	31	86.1	58	44.3	145	51.9
Transfer of innovations and new technologies to production	0	0.0	16	12.1	49	17.1
Labour productivity growth	13	36.1	38	28.8	67	23.4
The growth of the market share	4	11.1	8	6.1	59	21.2
Creation of new jobs	6	16.6	51	39.3	129	45.1

The growth of production volume	26	72.2	83	63.7	137	47.9
The introduction of innovative practices	5	14.0	57	43.2	93	32.5
Profit growth	19	52.7	46	35.4	83	29.0
Investments into research and development	1	2.7	33	25.0	62	21.7
Value added growth	3	8.3	6	4.5	34	12.0
Total: number / %	N=108	0.0 *	N=396	0.0 *	N=858	0.0 *

* The total sum of percentage points is greater than 100 because each respondent evaluated three positions in the questionnaire.

The calculation of the level of significance of the data according to χ² - coefficient indicates that the significance was at the level N=9 and more responses or 25 %, at α = 0.05. Economic results such as implementation of innovations and new production technologies, investing in research and development, introduction of innovative practices in production and creation of new jobs remained below the level of statistical significance. This means that financial support helped small enterprises to improve their economic indicators. However, these indicators are not likely to increase their competitiveness and especially not in the long term. In addition, in the enterprises that have experienced growth in labour productivity, they cannot expect an automatic increase in their competitiveness indicators.

The directors of medium-sized enterprises extended the spectrum of positive economic results in comparison with their colleagues from small businesses. Significant economic results were not just revenue growth, production growth, profit growth and labour productivity growth for them. The financial support from the Structural Funds contributed to the creation of new jobs, introducing innovative processes and investing in research and development. Economic results as transfer of innovation and new technologies, the growth of the market share and added value growth remained below the level of statistical significance. The statistical significance of the data according to χ² - coefficient for this group of respondents is at the level N=33 and more responses or 25 %, at α = 0.05.

The managers of medium-sized businesses were less optimistic than their directors. According to the managers, financial support from the Structural Funds did not affect transfer of innovations and new technologies in production, growth in labour productivity, growth in market share, growth of investment in research and development and added value growth. The production managers of medium-sized enterprises agree more with opinions of directors of small enterprises than with their superiors. Economic results that are associated with innovations and other sophisticated activities that contribute to sustainable economic development and competitiveness of enterprises remained below the level of statistical significance according to managers. The statistical significance of the data according to χ² - coefficient for this group of respondents is at the level N=71 and more responses or 24 %, at α = 0.05.

Evaluation of economic results of SMEs that did not have financial support from the Structural Funds as a whole is different in that they do not have such economic results, which contribute to increasing competitiveness and sustainable development. (Tab. 3).

Tab. 3 – The economic results of enterprises that did not receive support from the Structural Funds in the period 2007-2013 (evaluation of managers, N and %). Source: author's own survey

Economic results	Directors of small enterprises		Directors of medium enterprises		Managers of medium enterprises	
	Number of replies	%	Number of replies	%	Number of replies	%
The growth of revenues	39	69.6	37	60.6	74	50.3
Transfer of innovations and new technologies to production	1	1.8	4	6.5	11	7.5
Labour productivity growth	27	48.2	22	36.0	39	26.5
The growth of the market share	12	21.4	7	11.5	13	8.8
Creation of new jobs	5	9.0	27	44.2	89	60.5
The growth of production volume	47	84.0	39	64.0	83	56.5
The introduction of innovative practices	11	19.6	16	26.2	37	25.2
Profit growth	19	34.0	18	29.5	62	42.2
Investments into research and development	0	0.0	8	13.1	19	13.0
Value added growth	7	12.5	5	8.2	14	9.5
Total: number / %	N=168	0.0 *	N=183	0.0 *	N=441	0.0 *

* The total sum of percentage points is greater than 100 because each respondent evaluated three positions in the questionnaire.

While a certain part of the SMEs that received financial support experienced economic benefits stemming from innovations and other sophisticated activities, the enterprises without financial support experienced no such benefits. For example, small businesses according to evaluation of their directors in the period 2007-2013 increased their revenues (69 %), increased labour productivity (48 %), increased the volume of production (84 %) and profit (34 %). The impact on sustainability and competitiveness cannot be assessed without assessing causes of the growth of the mentioned economic variables. The level of statistical significance for that group of respondents was valid at $\alpha = 0.05$ at level N=14 or more responses, or 25 %.

Unlike the managers of small businesses, the directors and managers of medium-sized businesses perceived job creation and introduction into production of innovative practices as one of the relevant economic results. The statistical significance was at $\alpha = 0.05$ at the level N = 15 and more answers or 24.5 % for the directors of medium enterprises. The statistical significance was at the level N = 29 and more answers or 19.7 % for the managers. Economic results that remained below the level of statistical significance are: transfer of innovations and new tech-

nologies, growth in market share, investment in research, development and added value growth. However, it is evident that small enterprises were not successful in the effective use of financial resources from the Structural Funds in comparison with medium-sized enterprises. Medium-sized enterprises were only slightly more successful.

The overall assessment of the impact of financial support on the economic results of supported and unsupported SMEs does not suggest the indication of relevant differences according to our selected group of managers. Pearson's calculated correlation coefficients show a strong or moderate positive correlation with the tendency of high variability of variables (from $r = 0.71$ to $r = 0.91$). Minimum relevant differences are recognized in the economic results of enterprises in comparison with the evaluation between supported and unsupported enterprises. A strong positive correlation ($r = 0.93$) has a hierarchy of assessment of supported and unsupported business according to the directors of small businesses, the directors of medium enterprises ($r = 0.88$) and the managers ($r = 0.92$). All the values of the coefficients of correlation (r) are valid when $p < 0.05$.

We have observed that small enterprises, whether or not they received financial support, have the same economic results. The situation was very similar in the case of medium-sized enterprises. A common feature in these evaluations is that neither unsupported, which is understandable, nor supported enterprises (especially small enterprises) achieved the economic results, which increase their competitiveness, contribute to sustainable development, and which also fulfil the vision of the EU Structural Funds and the criteria for the operational Programme Competitiveness and economic growth.

The persisting differences in evaluations of the Structural Funds' effectiveness provide sceptics with arguments about the effectiveness of EU Structural Funds. The European Union has set itself the goal to become the most competitive and dynamic economy based on innovation and knowledge with a high level of integration of countries and regions. According to Bachtler and Gorzelak (2007), the differences between rich and poor regions grew. This situation persists for regions and countries of the EU. For example, it is known that Slovakia was one of the fastest growing EU economies in the last decade. Nevertheless, regional disparities increased and the economic growth mainly happened in the wealthier regions of the western part of the country (Slovak Business Agency, 2015). Slovakia does not converge with the developed EU countries, and EU countries do not converge with world leaders in transfer of innovation, new technologies and knowledge-based economy. The cause of this situation may be that half of the Member States of EU25 (today it is even more) have limited innovation capacities according to Tsipouri (2004).

According to our findings, small enterprises are the least successful in drawing financial support from the Structural Funds. There are various possible explanations of this state. One of them may be a preceding idea of L. J. Tsipouri about limited innovation capacity. We have already mentioned that individual entrepreneurs are the real subjects of an absolute majority of small enterprises. It would be naive to think that an individual entrepreneur, who provides service and repairs forklifts in stock in a nearby supermarket, will also be able to create sufficient capital that can be invested in long-term issues such as research and development, transfer of innovation and new technology, and so on. Moreover, many of these individual entrepreneurs are not

executives as such, and they only work as independent contractors or employees. This means that small enterprises do not have and cannot have the necessary capital, financial, technical, organizational and human resources for the achievement of economic results that will contribute to their sustainable development and improving competitiveness in principle. This applies also to several medium enterprises, which also do not have the above-mentioned capacities and resources (Bhaird, 2010).

Another reason for failure is according to Bachtler and Gorzelak (2007) that economic mechanisms are structurally underdeveloped in new member countries. These countries are unable to effectively absorb financial support offered by the Structural Funds in conformity with the objectives. If we examine this argument in detail, this issue includes social and legal systems, the concept of democracy and not only in the sphere of management of public affairs, but also in the system of economic relations and insidefactory democracy, value systems, traditions, moral of people, etc. Many authors openly speak and write not only about ineffectiveness of the use of funds, but also about clientelism, lobbying and overt corruption at the stage of applying for financial support from the Structural Funds as well as in the process of drawing (Aidt, 2009; Babitz & Havran, 2006).

If the system is not sufficiently developed for drawing of financial support, why was not support policy made in such a form which is suitable for the existing underdeveloped economic system? Does it mean that the EU cohesion policy was not fully adequate to the nature and status of SMEs? Perhaps the authors behind the funding policy lack the inclination towards reflection and criticism, and the recipients of financial support are interested primarily in receiving this support and not in the quality of distribution policy. It is not possible to answer the above mentioned questions, nor to answer a question about the unpreparedness of the economic systems of the new member states without further academic research and generalization of practical experience.

In the case of Ireland, their successful use of EU funds was caused by Europeanization and state adaptation to the values of the policy and practice of the EU, and by reorientation of domestic policies, practices and preferences to create a multi-level management (Börzel & Risse, 2008). There have been some concerns about sustainability of the impact of knowledge transfer from management and partnership of the Irish multi-level model in the context of a formal system of the Irish Government later. In general, if the required impact of EU cohesion policy should be sustainable in the long term, then it is necessary to pay attention to the effective measurement and explain the impact of EU policies on the country and its economy (Adshead, 2014).

One of the arguments attempting to explain the inefficiency of using the financial support from EU Structural Funds (regarding the competencies of both EU and member states alike) could be that the companies lack a straightforward strategy towards sustainable development, competitiveness and knowledge economy. The previous experience suggest two possible scenarios: either to implement the prospective measures in all the companies (as it happened in Ireland); or to focus only on the dynamically developing companies that would thus integrate into the developed global system, while leaving the rest of the economy in a permanent low-cost and low-competitiveness trap. The former is a win-win scenario for the European system of innovation, whereas the latter is second-best. (Tsipouri, 2004). The solution of this problem requires not only evaluation and generalization of previous experience but also further academic and scientific research.

5. CONCLUSION

The evaluations based on the analysis of macroeconomic data point out the inefficient use of financial support coming from the EU Structural Funds. Similarly, the results obtained through the analysis of microeconomic indicators and the accounting of the selected companies, which received financial support from Structural Funds, also confirm this inefficiency, both when it comes to the funds' overall goals and the conditions of their granting and redistribution.

In our research, we have assessed the efficiency of EU Structural Funds use based on the evaluations of the managers of small and middle-sized companies. The overall conclusions of our research do not differ from those mentioned above. According to the directors and operations managers of small and middle-sized companies, the economic results of companies that received support are comparable with those achieved by the companies without the financial support. In general, the funded companies did not achieve such economic results which would contribute to their competitiveness, sustainable development, and which would fulfil the criteria of EU Structural Funds and the Operational Programme: Competitiveness and Economic Growth.

The results of our research conclude that small companies were the least successful when it comes to obtaining the financial support from the Structural Funds. The intended goals of granting financial support from the Structural Funds, the criteria of its granting and the findings of the analyses conducted by other authors all suggest that small companies as such do not have organizational, capital and human resources needed for efficient use of allocated financial support.

The further research into the nature and the structure of new member states' economic systems could contribute to answering the question why especially small companies are unsuccessful in their use of the Structural Funds; however, this topic remains to be researched properly. Are the new member states' economic relations and mechanisms of inner democracy, their value systems, traditions, morale, etc. developed enough, so that these states would be able to use the financial support from EU Structural Funds efficiently and in accordance with the stated goals? If the answer is 'no', then it implies that EU cohesion policy as such does not correspond with the current state and the nature of small and middle-sized companies in the new member states. However, neither this question nor the question regarding the lack of preparedness of new member states can be answered without further academic research.

One of the possible explanations why small and middle-sized companies in the new member states are so inefficient in their use of EU Structural Funds could be the lack of a clear strategy that would lead to a transition towards sustainable development, competitiveness and knowledge economy. Despite the fact that the previous results of this process pointed our two possible strategies, neither EU nor the governments in the new member states managed to make a final decision on which one to support and follow. To explain further, the decision was whether to support the prospective measures in all companies or only in those developing dynamically. The former option is not a guarantee of a successful convergence of economic system of new member states towards the sustainable development and increase in competitiveness. In the case of the latter strategy, the rest of the economy that remains without support will continue lagging in a permanent low-cost and low-competitiveness trap.

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Competitiveness and Economic Growth in Romanian Regions

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Abstract

Considering the fact that Romanian economy competitiveness is not based on innovation and investment in human capital, this study makes an empirical evaluation of the impact of occupation and unemployment in Romanian counties on the economic growth. The approach based on panel vector-autoregressive (panel VAR) models indicated a negative impact of occupation and activity rate in 42 Romanian counties on the economic growth during 2006-2014. On the other hand, the real economic growth was achieved at high unemployment rates. These results are contrary to previous studies in literature and are due to a structural economic crisis and to lack of labour productivity and investment in human capital. Further policy measures should focus on structural unemployment decrease, more skilled labour force according to labour market needs, lifelong learning, higher performance and quality of education system, promotion of social inclusion, poverty control.

1. INTRODUCTION

In our knowledge-driven society, regions are the key units in the organization and in the governance of economic growth. In other words, the regions are the wealth creation. The modern approach suggests that regions are economic entities that should grow by using innovation and their knowledge as essential determinants of regional competitiveness (Audretsch et al., 2016). The economic theory considers human capital to be the key component that ensures competitiveness at regional level. In achieving a well-qualified human capital, the universities have an important role. For example, Guerrero et al. (2016) showed that for 102 universities from 12 EU countries, social measures like talent of human capital had a stronger impact on regional competitiveness than economic factors like GDP per capita.

Considering the labour market issues in Romania, the main aim of this paper is to assess the impact of regional labour market on the economic growth from the perspective of economy competitiveness. Romania is a country with competitiveness that is based on exports, but a higher quality of labour resources is required to improve the country position in the European Union. The National Strategy for Competitiveness proposed key actions regarding the development of independent activities, lifelong learning for employees, transnational mobility of labour force, equal chances for men and women on the labour market, reconciliation between professional and private life, etc. A higher productivity on the labour market is needed to ensure a sustainable economic growth.

The competitiveness has been analysed at local, urban and regional level. In the global economic context, the regions are engines of the entire economy. The competitiveness at national level is studied using the components of regional competitiveness. The activities are coordinated at regional level and the public policy is regionalized. As Melecký (2011) recommended, new measures of policy intervention are required in order to improve the regions' competitiveness.

There is not a unique perspective regarding the concept of competitiveness. The issues regarding the regional competitiveness were analysed in the context of social and economic cohesion (Chilian, 2011). This objective might be achieved by having the monetary union (Petrakos et al. 2011). The definition given by Martin (2003) for regional competitiveness reflects the capacity to provide goods and services to satisfy the market's needs by maintaining sustainable incomes of high levels. Gardiner et al (2004) proposed two approaches for studying the regional competitiveness: the competitiveness as an aggregate of companies' competitiveness, and the competitiveness based on macroeconomic performance. In our research, we will focus on the macroeconomic perspective with a framework that includes juridical and political aspects to encourage competition. The main determinants of competitiveness are related to fiscal, commercial, monetary and budget policies, but also policies regarding consumer protection, exchange rate or competition (Annoni and Kozovska, 2010). The limitation of this approach is given by the fact that some laws could not be applied at microeconomic level. The lack of any mechanism for macroeconomic adjustment does not allow any translation at regional level.

Each region has economic agents and structures that are very competitive and even non-competitive. However, some common features might be identified in each region that influences the competitiveness of all companies in that region. These features refer to social and physical infrastructure, labour force qualification and public organisms' efficiency. According to Gardiner et al (2004), the competition between the regions in a country and the regions from different countries might exclude a region from a sector where a comparative advantage could be realized. On the other hand, this competition might exclude a region from a sector where a comparative advantage could be maintained.

The regional competitiveness is necessary for efficient resources' use and the population welfare, but also for sustainable development in all the regions in a certain country. The competitiveness at regional level should be focused on sustainable development.

In Romania, the assessment of regional competitiveness is related to the possibility of accessing European funds to achieve sustainable development. The studies related to regional competitiveness in Romania are based on various methods: the per capita GDP decomposition (Vincze, 2003; Chilian & Iordan, 2012), the indices of competitiveness (Muntean et al, 2009; Annoni & Kozavska, 2010), an analytical and hierarchical process (Stănculescu, 2014), the aggregation of criteria from domains regarding the efforts of business environment, government and civil societies for achieving high competitiveness (Mereuta et al, 2007), the use of panel data models (Chilian et al, 2014). The decomposition method was also applied for checking the impact of tourism on the economic growth on a sample of 131 countries during 2000-2010 (Webster & Ivanon, 2014). The evidence showed that tourism still does not have a positive impact on the national economic growth. Recent recommendations for achieving a competitive economy are related to logistics clusters that exhibit many advantages of industrial clusters: higher productiv-

ity because of the shared resources and suppliers availability, better human networks with knowledge sharing, easier communication, higher trust between firms in the cluster, training programs (Sheffi, 2013). Pablo-Romero et al. (2016) analysed the relationship between competitiveness, economic growth and tourism.

In this study, the panel data approach was used to study the factors that ensure the economic growth at regional level in Romania during 2006-2014. This method has the advantage of making the translation of results from regional level to national level possible.

The study includes several sections. After introduction, a short literature review is made. The panel data models are proposed for 42 Romanian counties, including the capital- Bucharest. The last section brings conclusions.

2. REGIONAL COMPETITIVENESS ASSESSMENT

Two directions of analysis are presented in this section: common methods for assessing the regional competitiveness and empirical studies regarding the relationship between competitiveness and economic growth.

An assessment of regional competitiveness was made by OECD using indicators and statistics of the Regional Database. The factors ensuring increase in competitiveness were considered in economic policies.

The economic literature proposed the use of competitiveness indices for measuring the competitiveness. Most of the global competitiveness indices are used at national level. There are indices that are utilized at regional level: European Competitiveness Index, World Knowledge Competitiveness Index, the United Kingdom Competitiveness Index proposed by Robert Huggins Associates and the Atlas of Regional Competitiveness of Eurochambers. Berger (2010) found 46 studies based on aggregate indices for evaluating the regional competitiveness. The aggregation used equal or unequal weights, the number of individual indices being 246 indices. Annoni and Kozovska (2013) used 11 pillars to compose a regional competitiveness index for Europe: infrastructure, macroeconomic stability, education quality and lifelong learning, institutions, labour market efficiency, health, market dimension, technological progress, business modernization and innovation.

A method based of a set on indices was proposed by Sujová and Hlaváčková (2015) to measure the competitiveness in wood industry in the Czech Republic. However, it is difficult to use an aggregate indicator in assessing the regional competitiveness, because the individual indices are inter-correlated. On the other hand, the determinants of competitiveness could be identified and the results of it could be explained. Another competitiveness indicator was proposed by Danon and Agglomerations (2014) for European regions using three dimensions: primary dimension (physical infrastructure, institutions, health, macroeconomic stability, primary and secondary education), efficiency dimension (labour market, human capital demand, tertiary education), and innovation dimension (human capital supply, IT infrastructure and innovation).

The most utilized method for measuring regional competitiveness remains the decomposition of aggregated indices at macroeconomic level (Pichierri, 2013). This method indentifies deter-

minants of productivity, economic growth and regional development. Other approaches used by Nevima and Kiszova (2013) are: DEA method for regional efficiency and panel data method. In measuring competitiveness factors, multivariate methods like cluster analysis, factor analysis and principal component analysis are used (Melecky, 2013).

In this research, panel data models are built. This method has many advantages compared to the traditional approach based on linear regression. The panel data models allow a better evaluation of dynamic changes in characteristics and the identification of fixed or random effects in data. The main disadvantage of methods based on the data aggregation is solved by panel models.

In Romania, there are several competitiveness indices: Competitiveness Index for regions that was proposed by IRECSON, Regional Competitiveness Index proposed by the Group of Applied Economics and regional competitiveness indices based on integrator model of Mereuta (Mereuta et al, 2007). The competitiveness analysis offers to government and business environment a strong instrument for assessing the strong and the weak points of the economy.

The neoclassical and endogenous economic growth theories showed the strong connection between economic growth and competitiveness (Pelinescu et al, 2016). Most of the models for competitiveness are based on Solow-Swan model from neoclassical theory. However, this econometric model could be improved by considering other determinants of eco-efficient and sustainable development. The Solow-Swan model considers investment as a source of economic growth, and the investment in technology are recommended in this sense.

Innovation is considered as a main factor of competitiveness that generates economic growth. For American and Western Europe economies, the innovation has a positive impact on economic growth (Howells, 2005). However, we consider the investment in innovation rather risky: higher uncertainty rate and high initial costs. The loss of people implied in research determines the loss of money for their specialization (Paunov, 2012).

There are two methods for promoting an economic growth based on innovation: technological competitiveness based on new products for improving the company performances and place on markets and competitiveness through cost based on an innovation process and replacement of labour force with industrial technology (Bogliacino & Pianta, 2011).

Several European Strategies analyzed the connection between sustainable development and competitiveness for the European Union: the EU Strategy regarding sustainable development, Europe 2020 Strategy and Lisbon Strategy. The international markets open, world globalization and fast technological changes ensure the competitiveness growth and, consequently, a sustainable development. World Bank asked Romania through Economic Memorandum for competitiveness improvement and a fast economic growth to diminish the gap between Romania and developed countries from the EU. The economic growth acceleration improves the life standard and reduces the poverty rate.

There are few studies in literature that used the panel data models to measure the regional competitiveness in connection with economic growth. For example, Nevima (2011) studied the regional competitiveness and productivity in the context of economic growth theory for the EU-15 countries. The non-linear panel was based on 35 regions from the EU-15 countries at NUTS-2 level during 2000-2008. The average of GDP per capita in PPS was used as proxy for

global competitiveness and it was explained by gross capital formation, expenses on research and development and a net disposable income.

35 regions from Visegrad countries (V4) were considered by Nevima and Melecký (2011) to measure regional competitiveness using some panel data models for 2000-2010. Better productivity was observed in several regions (Bratislava, Prague, Nyugat-Dunantul & Kozep-Magyaroszag).

The studies regarding regional competitiveness and economic growth in Romania focused on output per capita and its determinants (Vincze, 2003; Chilian & Iordan, 2008). The results indicated a tendency of increasing the large gap between regions regarding the development level. Innovation as well as research and development are important factor for regional competitiveness that might generate economic growth (Goschin, 2013). Romania still faces a poor regional development because of weak physical infrastructure, a low contribution of economic agents for sustaining the scientific research, a low applicability of research results. Romania makes efforts to design a regional strategy regarding Research & Development. Suitable policies are necessary for regional innovation. The low efficiency of innovation policies in Romania is explained by the lack of any coordination between national and regional policies (Ranga, 2010).

In Romanian' counties the regional competitiveness was measured by using dynamic panel data in the period 2000-2012. The results indicated that the economic growth in the previous year and the average number of employees are factors that improve regional previous and ensure economic growth in the current period (Iordan et al, 2015). Simionescu (2015) used a principal component analysis and panel data models to show that research expenses and development and innovation did not influence the competitiveness in Romania.

In a recent study of Thissen et al. (2016), a geographically weighted regression was proposed to analyze the structural economic growth and the competitiveness of network positions in trade.

An empirical analysis will be made to assess the regional competitiveness in Romania in correlation with the economic growth. Therefore, the other section will include some methodological issues.

3. METHODS, DATA AND VARIABLES

As we stated, the main aim of this paper is to analyze the connection between economic growth and regional competitiveness in Romania using supply side factors. The analysis is based on a quantitative method: panel vector-autoregressive framework, including panel Granger causality test.

The panel data approach solves the problem of small sets of data while the panel VAR model allows the evaluation of effect of innovation in a variable to the other variables in the global system.

In the general approach, a panel vector-autoregressive model has the following form:

$$y_{n,t} = \mu_n + A_n(i) \cdot Y_{n,t-1} + \varepsilon_{n,t} \quad (1)$$

$y_{n,t} = (y_{1t}, y_{2t}, \ldots, y_{Nt})$ including data for all cross-sections, $n = 1,2,\ldots,N$

$y_{n,t}$ - vector including variables for each cross-section out of N elements

μ_n- cross-section specific intercept

A_n (L)- lag polynomial for model coefficients

$\varepsilon_{n,t'}$- errors of null average and cross-section specific variance σ_n^2

In case of no restrictions, N x k x N coefficients are considered in the matrix A_n.

The coefficients in A_n (L) change randomly across cross-sections under the hypothesis of mean group estimator. The standard coefficient $a_{h,i,j}^p$ in A_n (L) is written as:

$$a_{h,i,j}^p = a_{i,j}^p + \mu_{h,i,j}^p \quad (2)$$

when p is the lag order of the VAR model, $p = 1,2,\ldots,P$

n – cross-section index

$i,j = 1,2,\ldots,K.$

The reduced-form of the VAR model is:

$$y_{n,t} = \mu_n + A_n (L) \cdot y_{n,t} + \varepsilon_{n,t'} \quad (3)$$

In the traditional approach, according to Goodhart and Hofmann (2008), the conections between cross-sections are neglected. The approach of Canova and Ciccarelli (2006) uses the VAR reparametrization to include the cross-sections linkages. Different linear combinations of regressors are used to consider their changes.

If the lagged dependent variables coefficients differ across cross-sections, the standard fixed effect estimator lacks the consistency in dynamic panels. The errors serial correlation is computed using the restrictions on slope coefficients on case of auto-correlated regressors. The issue of serial correlation is not solved by the instrumental variable estimation. Therefore, Pesaran and Smith (1995) considered a panel VAR based on mean group estimator. The coefficients across cross-sections have a consistent estimate of mean effects.

The variables used in this study are: real GDP growth (2005=100), occupation rate, activity rate, unemployment rate and average number of employees. The variables are registered for all the 42 counties of Romania and in the period 2006-2014.

The occupation rate taken from the Balance of labour force represents the weight of civil employed population in the total labour resources:

occupation rate = (civil employed population / labour resources)·100

The activity rate is taken from the Statistical Research on Household Labour Force and it represents the weight of active population of 15 years old and more of the total population in the same age segmentation.

activity rate = (active population (≥15 years) / total population (≥15 years))·100

The unemployment rate is taken from the Statistical Research on Household Labour Force and it represents the weight of unemployed people in the active population.

unemployment rate = (unemployed population / active population)·100

The defined indicators refer to human resources. Romania faces problems regarding competitiveness on the labour force demand. Therefore, we considered this study to evaluate the impact of issues on labour market on the economic growth and consequently on the regional competitiveness. There are high discrepancies between Romanian counties regarding the economic development, but also regarding occupation, activity and unemployment. There are developed counties (Bucharest, Ilfov, Constanta, Cluj, & Bihor) with a lower unemployment rate and higher occupation. On the other hand, there are counties with a high unemployment (Alba, Vaslui, Suceava, Galati, & Teleorman), being characterized also by high poverty and social development. The economic crisis that started in 2009 in Romania accentuated these discrepancies.

4. REGIONAL COMPETITIVENESS AND ECONOMIC GROWTH IN ROMANIA

Considering that Romania's competitiveness is not based on innovation, in this study, we assessed the human resources contribution to a competitive economic growth. Using data series for 42 Romanian counties, including Bucharest, we analyzed the competitiveness from economic growth approach brought by the labour market during 2006-2014.

Romania has an economy based on efficiency factors, but this is not enough compared to other EU states. Besides Bulgaria, other CEE countries (Poland, Hungary, Croatia, Estonia, Latvia, Lithuania) have already made the transition to an economy based on innovation and sophistication.

The Research and Development sector in Romania faces a hidden crisis with negative effects on competitiveness and sustainable development. Therefore, several main directions of actions are required on the short and medium term: the consolidation of system governance, a faster results transfer, a better administration of public research and development sector, the stimulation of demand for private sector mainly by better investments environment based on innovation (Eurostat, 2013). The European Commission recommended: more efficient investments in Research and Development, priorities for getting private investments in this sector, a higher protection of authorship, and a higher commercialization of research results.

Romanian competitiveness is mainly due to the export of products from industry and agriculture. The economy is competitive regarding the labour force price. But there is much vulnerability regarding productivity, efficiency, international investment of Romanian companies and the accession of financing resources. These conclusions are based on the Romania rank in the Global Competitiveness Report 2015-2016, but an econometric evaluation is needed to support these findings and to propose some suitable policy recommendations to ensure a more competitive economy for Romania.

The novelty of this research is related to the econometric approach that allows the assessment of impact of the labour market on the economic growth in the Romanian counties. The panel VAR models have not been used before in literature for this kind of assessment.

In Table 1, the Levin-Lin-Chu (LLC) test is applied for detecting the presence of unit roots in the panel data series for all variables.

Tab. 1 – Levin-Lin-Chu test results

Variable	Test's statistics	p-value
Real GDP rate	-35.43	0.000
Occupation rate	-19.5067	0.000
Activity rate	-8.8889	0.000
Unemployment rate	-16.6329	0.000
Average number of exmployyes	-30.0188	0.000

All data series are stationary at 5% level of significance, according to LLC test. In this case a panel vector-autoregressive (panel VAR) model could be estimated. This model works is based on stationary data. The Granger causality is also tested on stationary data, the results being presented in Table 2.

Tab. 2 – Panel VAR-Granger causality Wald test

Null hypothesis	Chi-square statistic	Prob > chi-square
Real GDP rate does not Granger cause occupation rate	10.936	0.001
Occupation rate does not Granger cause real GDP rate	33.020	0.000
Real GDP rate does not Granger cause occupation rate	33.079	0.000
Occupation rate does not Granger cause Real GDP rate	37.017	0.000
Real GDP rate does not Granger cause unemployment rate	63.710	0.000
Unemployment rate does not Granger cause Real GDP rate	174.491	0.000
Real GDP rate does not Granger cause average number of employees	33.766	0.000
Average number of employees does not Granger cause Real GDP rate	0.544	0.461

The panel VAR Granger causality test indicates that there are bi-directional relationships between the following variables at 5% level of significance: real economic growth and occupation rate, real economic growth and activity rate, real economic growth and unemployment rate. The economic growth is not Granger cause for employment, but the reciprocal is not valid. Contrary to expectations, a larger number of employees does not generate increases in the real GDP rate. An explanation might be low productivity of Romanian employees and the lack of high technology to consolidate the economic growth. The result is contrary to the study of Iordan et al (2014) who explained the GDP growth using the number of employees in Romanian counties during 2000-2012. We suggest more investment in human resources to accelerate the labour productivity through economic growth. On the other hand, high gaps between the counties might explain this result. Many Romanian counties have problems in ensuring a high productivity and their results cannot be counterbalanced by Bucharest-Ilfov region that is known as an engine of economic development in Romania.

Four panel VAR models were built to study the relationship between the real economic growth and some determinants at county level. We only maintained the regressions, for which the coefficients are valid at 5% level of significance.

P1 model:

$$GDP\_rate_{it}=-0.3121 \cdot GDP\_rate_{it\text{-}1} -1.010384\cdot occupation\_rate_{it\text{-}1}$$

P2 model:

$$GDP\_rate_{it}=-0.493984 \cdot GDP\_rate_{it\text{-}1} -1.746461\cdot activity\_rate_{it\text{-}1}$$

$$activity\_rate\_{}_{it}= 0.1005697 \cdot GDP\_rate_{it\text{-}1} + 0.2962726\cdot activity\_rate_{it\text{-}1}$$

P3 model:

$$GDP\_rate_{it}=-0.4702623 \cdot GDP\_rate_{it\text{-}1} +1.079592\cdot unemployment\_rate_{it\text{-}1}$$

$$unemployment\_rate_{it}=-0.183832 \cdot GDP\_rate_{it\text{-}1} + 0.2888503 \cdot unemployment\_rate_{\ it\text{-}1}$$

P4 model:

$$GDP\_rate_{it} =-0.2910033 \cdot GDP\_rate_{it\text{-}1} -0.0001964\cdot employees_{it\text{-}1}$$

The real GDP rate is correlated with occupation rate, activity rate and unemployment rate, but the type of correlation is not in line with expectations. All panel models indicated that the real GDP rate tended to decrease in the actual period compared to the previous one.

The occupation rate and activity rate had a negative impact on the economic growth. An increase in the occupation rate at regional level by 1 percentage points determined, in average, a decrease in the real GDP rate by almost 1.01 percentage points. On the other hand, an increase in the activity rate at regional level by 1 percentage points determined, in average, a decrease in the real GDP rate by almost 1.75 percentage points. The result is contrary to Iordan et al (2015) who suggested that increases in occupation rate determine economic growth and a higher competitiveness over 2000-2012. There are high discrepancies between counties regarding occupation rate and the economic crisis increased them. Moreover, the decrease in human resources productivity might be a cause for these results. The innovation is not a factor of economic growth in Romania and the results from research and development studies are not applied in order to get a competitive economy (Simionescu, 2015). The unemployment rate was directly correlated with the economic growth. Even if the unemployment rate increases, the real GDP rate grows. An increase in unemployment rate by 1 percentage point ensures an increase in the real GDP rate by almost 1.08 percentage points. The existence of a developed underground market in Romania and the use of remittances by unemployed people do not encourage the employment. The result emphasizes that high unemployment was not the real cause of the decreases in GDP, but the productivity of the employed population. The activity rate and the unemployment have a tendency of increase, according to P2 and P3 models.

Tab. 3 – Eigenvalue stability conditions

Model	Eigenvalue		Modulus
	Real	Imaginary	
P1	-0.1364498	0.155695	0.2070253
P2	-0.0988329	-0.1397594	0.1711743
P3	0.090706	0.2332394	0.2502563
P4	2.538597	0	2.538597

All the eigenvalues lie inside the unit circle. All panel VAR models, besides P4, satisfy stability condition. Therefore, P4 model will be dropped. So, the average number of employees was not relevant in explaining the economic growth at regional level, contrary to the result of Iordan et al (2015) in the period 2000-2012.

In Romania in the past few years, the growth drivers were net export and domestic demand. The recent negative inflation and wage growth in household with the higher income stimulated the private consumption that was influenced by the economic recession. The investments increased slower after the recession. According to European Commission, minimum and the public wages grew and tax cuts were implemented, but this raises the risk of having a fiscal policy that is pro-cyclical. However, we consider that these increases in wages do not have a coverage in productivity which generates a lower regional competitiveness. The low productivity might be also correlated with the emigration process in Romania. The brain drain phenomenon and, in general, high number of emigrants for working purposes leave in the country with lower producitvity that coukd not ensure a sustainable economic development. Moreover, the economic growth in conditions of high unemployment might be also explained in the context of emigration process. There are many unemployed people that use the remittances of the Romanian emigrants. These remittances are mainly used for private consumption and in a very low percent for investment. But, the private consumption stimulates the economic growth of the Romanian economy.

If the results are analyzed from the perspective of regional competitiveness, we can conclude that Romania faces problems for getting a higher competitiveness by the economic growth at country level. In this context, some policy measures should be implemented to have economic development by using the human and physical resources: investment in human capital for getting higher education and specialization, higher wages to improve the labour productivity, investment in infrastructure and innovation. The private environment is not interested in investments in research activities and a group of researchers does not exist in Romania. There is a low proportion of small and medium firms that are engaged in innovative activities.

Fiscal stimuli will countribute to the economic growth, but policy measures related to the supply side of the Romanian economy are still necessary. Moreover, improvements in public administration and business environment are essential. A weak point regarding competitiveness in Romania is the fragile business environment. The economic and financial crisis had a negative impact on financing assembly by markets shrinking, even more severe conditions for taking credits, guarantees devaluation, worse financial positions for small and medium companies. An alternative for improving the business environment might be the instruments of capital market, but the rigid labour market, low research expenses, an unsuitable fiscal and legal framework are constraints for the development of financial instruments.

5. RESULTS' DISCUSSION

The results of the econometric models showed that in the analysed period, the GDP tendency of decrease was stronger than the tendency of increase. After Romania's entrance in the EU in 2007, the economic growth continued to follow a growing trend. The predictions for the next years were quite optimistic; however, since the end of 2008, the GDP started its decline. In my

opinion, the recent crisis was more like a structural crisis determined by domestic causes (the excessive consumption based on a short-run private domestic debt). This structural crisis with low GDP would inevitably come even if the world crisis would not exist. In the context of the recent economic crisis, all the sectors of the national economy had a negative influence on GDP, with the exception agriculture, forestry and hunting, fishing and fish breeding. The lack of a suitable governing plan correlated with the negative effects of the economic crisis in sectors such as construction, industry and services, and net tax on product had a considerable impact on GDP decrease. Since 2011, the private consumption and the government consumption have decreased, having a negative impact on the GDP. Even if the economy recovered and Romania has experienced a high economic growth in the last few years, the negative effects of structural crisis from the previous period were not compensated according to econometric estimations.

The negative impact of occupation rate and activity rate reflected by the estimation results confirmed the issues on Romanian labour market. Even before the economic crisis, Romania had a low employment rate correlated with a persistent long-run unemployment and large occupation in the underground economy. The economic crisis aggravated the issues of the labour market: higher unemployment rate, extension of underground economy, less remittances, higher fiscal burden. Moreover, the decrease in production capacities generated more labour market adjustments consisting in mass layoffs and a higher unemployment rate (7.8% in 2009). Another explanation for the negative impact of occupation and activity rate on the GDP is related to the persistent labour shortages in some sectors because of the skill obsolescence and labour migratory outflows. The higher unemployment with respect to the pre-crisis period influenced the fast growth of the shadow economy and the social inequalities deepened with negative effects on regional competitiveness. Moreover, migration which diminishes the labour productivity and makes the Romanian economy less competitive might be another effect of unemployment.

Other arguments could support the econometric estimations. The annual unemployment rate decreased, arriving to 6.8% in 2014 after the recession period. However, it seems that the skills erosion determined by a high unemployment in the crisis period had negative effects on the labour productivity, generating loss in the national competitiveness. In reality, the unemployment rate might be higher than the official value, because some companies preferred to reduce the activity because of the turnover decrease, but allowed their employees to maintain their contractual relationship. In this context, it is more than likely that this lack of labour resources negatively affected the economic growth more than expected.

Considering these correlations supported by empirical estimations, Romania should focus more on reduction of the number of unemployed people following the Europe 2020 strategy that promotes a sustainable economy based on higher competitiveness and labour productivity. Moreover, lifelong employees training and higher education should be taken into account in order to have competitive personnel on the labour market and to integrate unemployed people in the labour field. Moreover, Romania has an under-funded educational system. Therefore, it is profitable for a competitive economy to invest more in human resource education. These recommendations based on empirical results are in line with recent findings from literature that considered education as a key factor for achieving regional competitiveness (Audretsch et al., 2016; Guerrero et al., 2016).

6. CONCLUSION

In this study, our expectations regarding the regional competitiveness in Romania were confirmed. A low degree of innovation, low labour resources investments and low productivity in Romania did not sustain a competitive economic growth in Romanian counties. The panel VAR approach was used to evaluate the impact of occupation, activity and unemployment on the economic growth. Contrary to economic theory, the increases in occupation and activity rate negatively influenced the real GDP rate while a better economic growth was achieved with higher unemployment rates. A low productivity of human capital as well as the consequences of emigration process, including remittances, might explain these results. Moreover, there are big gaps between counties regarding the economic and social development.

Romania proposed a target of 70% for the occupation rate until 2020, but lower than the EU target. The actual value is lower than the average level in the European Union and some efforts for the indicator improvement are required. Some measures might be related to a better occupation perspective of productivity growth according to European Commission (2012). Other objectives for Romania refer to decrease in structural unemployment, a higher number of skilled people to respond to labour market needs, lifelong learning, higher performance and quality of education system, promotion of social inclusion, poverty control. All these policy measures should improve the issues on the labour market as to achieve economic growth that will make the Romanian economy more competitive.

Our results are in line with recent studies that considered the quality of labour force to be essential to achieve regional competitiveness. In this context, investment in education and training programs are required to have competitive personnel and to achieve the goals for a sustainable development in Romania. Even if the unemployment rate has decreased in the last few years in Romania compared to the recession period, the erosion of labour resources and the awareness of well-qualified personnel were not considered in the governmental strategies.

This study is limited by the use of only some indicators related to labour market. In the future, this empirical study could be extended by including other macroeconomic variables related to social development.

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The Ability to Assimilate Technology as a Source of Competitive Advantage of Financial Companies in Poland

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Abstract

This article is empirical in nature and attempts to assess the impact of ability to assimilate newly acquired technologies by financial companies operating in Poland gaining market competitive advantages. The outcome of the research conducted proved the existence of this relationship and found it be strong. This means that the development of these abilities within the absorptive potential of financial companies should trigger a significant increase in the market competitive advantages held by them. The strong impact was identified both in the total of the analyzed personnel and general-organizational components of the assimilation abilities. As regards elementary components of the analyzed potential, the obtained results are definitely more diverse.

1. INTRODUCTION

Nowadays, competitiveness of companies is largely dictated by their technological advancement and dynamically changing, and thus increasingly challenging environment, causes that individual assurance of advanced technologies is an extremely difficult task, even for large and powerful entities. This difficulty stems from the challenges posed by conditions that are present primarily in the competitive and technological environment. They enforce almost every company to resort to technological solutions originating from outside the organization. This raises the need for companies to transfer new technologies from external sources to their own, de facto, totally new environment for these technologies. Thus, they must be properly assimilated, which involves the broadly understood adaptation of an important technological solution to the needs and conditions of the recipient.

An important success factor in the process of technology transfer appears to be, therefore, the company's ability to assimilate it. However, the success is not reflected by the sheer fact of the acquisition, or even of the implementation of new technologies in the business, but by such an implementation that would ensure the generation of competitive effects, and the obtainment of the desired results due to its operation. Therefore, the ability to assimilate technology does not mean only getting to know and using it, but also transforming it appropriately, which requires applying diverse and demanding resources, deciding about the strength of capabilities being co-created. The company's staff that is responsible for technology transfer, in particular managers, must therefore be fully aware of the structure and the role of assimilation potential in building technological and market competitive advantages, which is the major issue discussed within this

article. However, the authors particularly attempt to answer the following question – 'To what extent does the development of ability to assimilate newly acquired technologies affect the size of market competitive advantages gained by companies operating in the Polish sector of commercial financial services?'

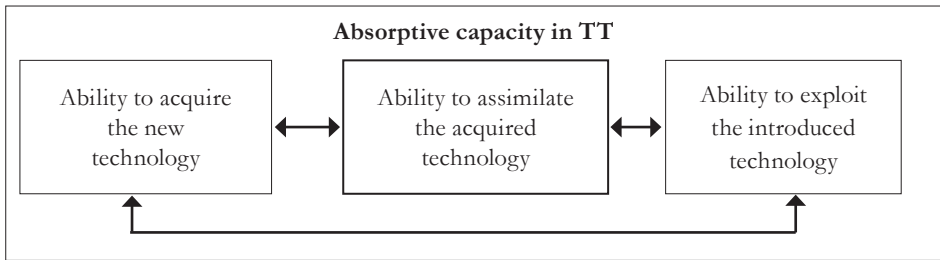## 2. THE ESSENCE AND IMPORTANCE OF PRO-TECHNOLOGICAL ASSIMILATION ABILITIES OF COMPANIES

The process of technology transfer is a sequence of cyclically repeated activities of a specific structure (Walter, 2003). Contrary to appearances, it is a frequent subject of controversy in the subject literature, since it is difficult to determine the beginning and end of this complex process going beyond the boundaries of the organization, as well as to indicate critically an enumerative list providing elementary tasks to be performed within the process. As a result, one can come across a number of proposals of structuring the technology transfer process – from general (Fernez-Walch & Romon, 2005) to very specific ones (Walter & Heinrichs, 2011). In this study, the authors relied on dominant literature perception of the technology transfer process. From the perspective of the recipient, it is composed of three basic, however, internally differentiated and structured stages, namely (Cohen & Levinthal, 1990; Zahra & George, 2002; Todorova & Durisin, 2007):

- acquiring new technology,
- assimilating the acquired technology,
- using the assimilated technology.

This process, therefore, cannot be reduced – as it might seem – to the purchase or acquisition of technology, or even to its implementation, but also includes its operation that is full absorption in order to achieve the desired effects. As already suggested, these steps are only the basis for further operationalization of the transfer process, due to which it can gain a more applicational character. It looks similar in case of the second stage that defines the focus area of the present article (Lubbe & Brent, 2009). Although it is highly integrated both with the preceding stage and with the subsequent one, the stage should anticipate within its structure clearly separated activities dedicated only to it. It happens frequently that the process of assimilation of technological knowledge is reduced only to its acquisition (Zahra, George 2002). However, the acquired technology requires also to be internalized and integrated, that is to be adapted to the new environment, which implies the need for its transformation that boils down to its development by combining selected elements of the newly acquired technology to the desired elements of the technology already possessed (Fichman & Kemerer, 1999, Szulanski, 1996). Therefore, assimilation is not only learning of the new technology, but also its adaptation and transformation leading even to its improvement, thus giving it or increasing its degree of innovation.

If a company is to be able to successfully carry out such a complex and difficult undertaking, it must possess a set of certain abilities that need to be specialized and undoubtedly of huge capacity, and these abilities decide about its absorption potential. The abilities to assimilate the newly acquired technologies from the environment are, apart from the company's ability to acquire

and exploit it, a segment of pro-technological absorption abilities of the company, as presented in Figure 1.

Absorptive capacity in TT

Ability to acquire the new technology	Ability to assimilate the acquired technology	Ability to exploit the introduced technology

Fig. 1 — Segments of absorption potential in the TT process. Source: elaborated by the authors.

These aggregated segments of abilities, co-creating the absorption potential, are clearly dependent on each other, both in the process of their forming and use (Zahra & George, 2002). Moreover, they are complex in nature, which means that they are built up of numerous elementary components, some of which are universal in nature, and some are specialized. The former can be applied at various stages of technology transfer, and decide about the effectiveness of different actions. These include, for instance, technical knowledge of workers, their entrepreneurial attitudes, as well as market-oriented organizational culture, or a pro-innovative incentive system. In turn, the latter are used to implement specific tasks within a functionally separated area requiring high expertise. Therefore, the abilities to assimilate newly acquired technologies should, due to their profiled use, anticipate (Glabiszewski, 2015):

- ability to learn gained technologies,
- ability to adapt gained technologies,
- ability to develop gained technologies.

The strength of the entire absorption potential and of the aggregated segments is derived from the individual elementary components which are the company's specific resources being the source of individual abilities (Trott, 2008). Therefore, they should be purchased or shaped in a planned manner, bearing in mind the fact that they may be both individual (personal) in nature (Stankiewicz & Moczulska, 2015), the carrier of which are individual employees (Fedotova, Loseva & Kontorovich, 2016), as well as general-organizational, which makes the organizational capital of the company (Barney, 1997). Among the specialized personnel resources which determine the ability to gain new technologies from outside and are not the universal components of the absorption potential, the following can be distinguished (Glabiszewski, 2016):

- the tendency of employees to learn,
- expertise and skills in the area of research and development,
- staff experience in the sphere of technology implementation and improvement,
- motivation for implementing innovative changes in the newly acquired technologies,
- managers' knowledge of change management.

In turn, within the specialized general-organizational resources which are typical of the sphere of the potential responsible for the acquisition of new technologies, the following should be anticipated (Glabiszewski, 2016):

- assimilation procedures and processes, adaptation and improvement of knowledge and technology,
- good intra-organizational employee relationships and mutual trust,
- technical equipment of individual workplaces,
- a separated organizational entity responsible for continuous implementation of R&D,
- specialized R&D equipment (for example, instruments, equipment, software),
- the level of the R&D budget,
- available on-premises infrastructure determining the applicability of technology.

When shaping individual components of pro-technological absorption potential, including the ability to acquire new technologies, it must be assumed that the level of their development determines ultimately the ability to obtain, using this technology, a competitive advantage and high performance in the process of competing. Therefore, they can play a very responsible role not only in the TT process, but ultimately also in the market and financial activities of the entire organization (Lane, Koka & Pathak, 2006).

3. METHODOLOGY AND HYPOTHESES

The empirical part of the article was written on the basis of the research done by the author in 2014-2015 with the use of an online survey. It was sent to the heads of 155 commercial companies of the finance sector registered in Poland, namely all banks, property and life insurance companies, investment funds (TFI) and universal fund management companies (PTE). Eventually, 108 entities took part in the study by filling in the online survey questionnaire. They constituted 70% of the studied population. As a result, measurement and analysis were performed for 37 TFIs, 26 banks, 19 property insurance companies, 17 life insurance companies and 9 PTEs.

The research conducted was the primary source of data needed to achieve the main empirical objective of the article, which is the assessment of impact of the abilities of financial companies operating in Poland to assimilate newly acquired technologies on gaining market competitive advantages by these companies. In order to achieve the aforementioned main objective, the authors set three other more detailed objectives, namely:

1. to evaluate the influence of the aggregated area of abilities to assimilate newly acquired technologies on gaining competitive advantage in market conditions in comparison to other areas of the absorption potential;
2. to evaluate the influence of specific segments of abilities to assimilate newly acquired technology on gaining competitive advantage in market conditions;
3. to evaluate the influence of individual components of abilities to assimilate newly acquired technologies on gaining competitive advantage in market conditions.

In order to carry out the specific objectives as well as the article's primary objective, the authors put forward for verification three following research hypotheses:

1. The level of development of financial companies' aggregated abilities to assimilate newly acquired technologies strongly influences acquiring market competitive advantages;

2. All of the three segments of financial companies' abilities to assimilate newly acquired technologies influence strongly gaining market competitive advantages;

3. Both the elementary resources that are individual and general-organizational, co-creating specialized abilities to assimilate newly acquired technologies influence significantly gaining market competitive advantages.

In order to verify the above hypotheses, the authors carried out statistical and descriptive analyses of the obtained findings, reaching the conclusions presented in the subsequent section.

4. THE IMPACT OF ABILITY TO ASSIMILATE TECHNOLOGIES ON GAINING COMPETITIVE ADVANTAGES

The company's ability to assimilate technologies acquired from outside together with the ability to acquire and exploit their potential form the absorptive potential applicable in the process of technology transfer. As a coherent system, it should provide the introduction of innovative technology to the company and such a use of this technology so that it could become a source of competitive advantages, enabling the company the implementation of market and financial goals underlying the decision on its implementation.

During the conducted research, up to 70%, i.e., 76 entities in question, declared that in the previous three years they had been able to achieve a clear technological advantage over their sector direct rivals due to the absorbed innovative technology. However, possessing a resource advantage, which is a technological advantage, makes economic sense only when based on that, it is possible to create a competitive advantage. This in turn is reflected in the possessed attribute advantages of the company's offer perceived by customers. In other words, the offer must have sufficiently high value relative to competitors, so that customers were encouraged to choose it. In order to verify whether this task has been successfully completed by financial companies in Poland, their managers were asked to specify a percentage scale of the level of achievement of the market advantages constructed with the assumption of technological resource advantages. The average grade level obtained at the level of 67.7% indicates that the surveyed companies managed to build market competitive advantages, though not as large as they had expected. However, taking into account the significant competitive power of their market rivals and the resulting high intensity of competition in the financial sector, the gained advantages should be regarded as significant, though – as it turns out – not always fully satisfactory.

Therefore, it raises a persistent question of the impact of financial companies' ability to assimilate the newly acquired technology of gaining market competitive advantages. To answer it, in the first step within the analyses made, we estimated Pearson's correlation coefficients for the diagnosed level of development of these abilities and of achievement of market competitive advantages. In both areas, the measurement was made using a percentage scale ranging from

0 to 100%. In the first one, 0 on the scale means that these abilities were actually not developed, and 100% means a maximum, i.e., they were fully developed. In the second case, 0 meant that the competitive advantage was not gained at all, and 100% – it was achieved at the target level, which is consistent with the strategic objectives of the company. The obtained coefficients are shown in Table 1.

Tab. 1 – Pearson's correlation coefficients for the level of development of individual absorption abilities and the level of achievement of the market competitive advantages

Variables	The level of gaining competitive advantage in the market
	r
The level of development of the ability to acquire new technologies	0.504†
The level of development of the ability to assimilate new technologies	0.624†
The level of development of the ability to use assimilated technologies	0.443†

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$; † $p \leq 0.001$
Source: own study based on survey results.

The presented Pearson's coefficients indicate the existence of a positive correlation occurring between the studied variables. This means that further development of absorption abilities should provide financial companies with a higher level of a market competitive advantage, which they intend to acquire as a result of TT, but the growth will not be necessarily substantial. However, the largest impact on the increase in the size of a competitive advantage is exerted by the level of development of the ability to assimilate a new technology, as only between these variables, a strong linear relationship was diagnosed ($r = 0.62$). In case of the level of development of ability to acquire new technologies, as well as relative to ability to use it, this dependence is rather moderate (Wasilewska, 2008). The estimated level of correlation allows, therefore, confirming hypothesis H1 which assumes that the degree of development of the aggregated abilities to assimilate newly acquired technologies held by financial companies strongly influences gaining market competitive advantages. It is also worth adding that more strongly than the ability to capture, as well as to exploit new technologies. This seems to be most reasonable when taking into account the structure of this area of absorption potential, as well as the functions assigned to the individual segments. At the stage of assimilation of the technology acquired from outside, it is assimilated not only through getting new know-how, but also through adapting it to the operational environment that is new for it. Moreover, changes made during the adjustment processes can be intended not only to adapt new technological solutions, but also to improve them, thus creating the ground for increases in its level of innovation, and, consequently, in the competitive advantage being achieved.

In the next step, with a view to deepening the knowledge of the examined dependence, Pearson's correlation coefficients were estimated for the diagnosed level of development of the three separate segments identified within financial companies of the ability to assimilate newly acquired

technologies and the level of achievement of the market competitive advantages. Their values are presented in Table 2.

Tab. 2 – Pearson's correlation coefficients for the level of development of the segments of ability to assimilate newly acquired technologies and the level of achievement of the market competitive advantages

Variables	The level of gaining competitive advantage in the market
	r
Ability to learn gained technologies	0.469†
Ability to adapt gained technologies	0.635†
Ability to develop gained technologies	0.604†

* p ≤ 0.1; ** p ≤ 0.05; *** p ≤ 0.01; † p ≤ 0.001
Source: own study based on survey results.

The obtained values of correlation coefficients confirm the existence of a linear relationship between the analyzed variables although its intensity levels vary. A strong influence was diagnosed in two of the three examined relationships, namely, with regard to ability to adapt the acquired technology and its extension. However, in case of ability to absorb, the correlation should be considered at most as moderate. Thus, there are reasons to falsify the hypothesis H2 which assumes that all of the three segments of financial companies' abilities to assimilate the newly acquired technologies influence strongly gaining market competitive advantages.

This hypothesis stemmed from an assumption made by the authors, according to which the strength of assimilation potential depends on the level of the development of all three segments co-creating it, since in practice, it is difficult to clearly distinguish them by setting clear boundaries between them. They constitute a tightly integrated composition, deciding about the efficiency of activities of the company undertaken within the process of assimilation of new technologies. It turns out, however, that in accordance with assumptions of the theory of innovation and competitiveness, the level of competitive advantage is influenced primarily by those company abilities which predispose it to undertaking innovative activities. In case of assimilation potential, these are, therefore, the abilities to improve technology, resulting either from the need to adapt it to conditions in a particular company, or from a desire to enrich it with new solutions that have not been used previously by competitors.

The awareness of strong dependence between the analyzed abilities and the effects obtained as a result of their use, should prompt managers to develop the ability to improve the acquired technology in the company. As turns out, this is the most justified investment from the perspective of the need to shape the company's high competitiveness. In practice, development of potential, however, requires the designation of precise directions of changes relating to its specific components. As a result, what becomes expedient is a detailed assessment of the impact of individual specialized components of the ability to assimilate newly acquired technologies on the size of the market competitive advantage obtained due to these technologies. Therefore, in a further part of the analysis, we determine the level of Pearson's correlation coefficients for the variables which are shown in Table 3.

Tab. 3 – Pearson's correlation coefficients for the level of development of particular components of ability to assimilate newly acquired technologies and the level of achievement of the market competitive advantages

No.	Variables	The level of gaining competitive advantage in the market
		r
Employees' individual assets		0.688†
1	Motivation for implementing innovative changes in the newly acquired technologies	0.688†
2	Expertise and skills in the area of research and development	0.645†
3	Managers' knowledge of change management	0.579†
4	Tendency of employees to learn	0.569†
5	Staff experience in the sphere of the technology implementation and improvement	0.568†
Assets related to general organization		0.667†
1	The size of R&D budget	0.595†
2	Assimilation procedures and processes. adaptation and improvement of knowledge and technology	0.562†
3	A separated organizational entity responsible for continuous implementation of R&D	0.546†
4	Technical equipment of individual workplaces	0.495†
5	Good intra-organizational employee relationships and mutual trust	0.430†
6	Specialized R&D equipment (e.g., instruments. equipment. software)	0.424†
7	Available on-premises infrastructure determining the applicability of technology	0.348†

* p ≤ 0,1; ** p ≤ 0,05; *** p ≤ 0,01; † p ≤ 0,001
Source: own study based on survey results.

The estimated values of Pearson's correlation coefficients for the averaged level of development of personal and general-organizational resources co-creating specialized abilities to assimilate newly acquired technologies indicate their significant impact on gaining market competitive advantages ($r > 0.6$), which confirms the correctness of the adopted hypothesis H3. However, it is not confirmed by all of Pearson's correlation coefficients determined for the elementary components of this specialized absorption potential. The strong impact was detected only in the case of two individual resources, i.e., motivation employees have to implement innovative changes in the newly acquired technologies and the expertise and skills possessed by employees within the research and development work being conducted. These are primarily those elements of the assimilation potential that must be improved, since – as it turns out – they influence most the level

of their offer's advantage perceived by customers, and thus make it possible for the company to achieve the biggest market effects.

A substantial impact on the level of market competitive advantages ($0.6 > r$, but > 0.55) is also exerted by the other three personnel resources of the specialized assimilation potential. This means that within the priority directions of development of the absorption ability, the following components should be included: managers' knowledge in the area of change management, tendency of employees to learn, and experience of workers gained during the implementation and improvement of previously acquired technologies.

A significant role in building market competitive advantages also play three out of the seven specialized general-organizational resources separated within the assimilation potential. The strongest influence among them exerts the size of budget allocated by the company to carry out work in the area of R&D ($r = 0.6$). Therefore, investment growth in pro-technological research and development activity brings tangible market benefits to financial companies, which justifies this kind of activity and costs borne by them.

Thus, we can conclude that the intellectual or infrastructure potential of the surveyed companies does not constitute significant limitations in this regard. It also seems reasonable to engage in improvement of assimilation processes and procedures, adaptation and extending the knowledge and technology in the company, and isolating within the organizational structure a unit responsible for the continued implementation of R&D, aimed also at improving technological solutions being implemented.

At most moderate is the relationship between the level of competitive advantages achieved by the surveyed companies and development of the following other three general-organizational components of the assimilation potential: technical equipment of individual workplaces, good intra-organizational relationships held between employees and their mutual trust, and specialist equipment in the area of R&D, including, for instance, instruments, devices, or specialized software. So the principle is confirmed that service companies, which undoubtedly include financial companies, do not require a very high level of technical equipment, even in the sphere of research and development aimed at improving the technology being implemented. However, some reflections are arisen by the fact that the development of relationships between employees and the ensuing mutual trust does not bring significant growth in the achieved competitive advantages. Justification for this state of affairs should be sought in the fact that good intra-organizational relationships support sharing and disseminating knowledge in the organization, including technological knowledge, which facilitates the absorption of new technologies. However, as already pointed out in this article, the ability to absorb new technologies does not affect significantly increases in its innovation and, consequently, in building a competitive advantage, which has been proved here.

A weak linear relationship between the analyzed variables was noted only in the on-premises infrastructure that was available in the surveyed companies, which determines the possibilities – especially spatial, but also technical ones – of applying new technologies as well as their improvements. It turns out that these aspects of financial companies are not the barriers to building market competitive advantages through innovative technologies obtained in a form of transfer.

5. CONCLUSION

Abilities to assimilate newly acquired technologies are very important, although are not always a fully conscious element of absorption potential, which is responsible for ensuring that a technology acquired by the company through transfer could be effectively exploited and generate the expected market effects. Eventually, these abilities should condition the implementation of the company's strategic objectives, in particular those for achievement of which the company has decided to absorb a new technology.

The results of the empirical studies presented in this article confirm the aforementioned assumption. As turns out, development of the ability to assimilate newly acquired technologies remains in strong connection with the size of the achieved market competitive advantages by financial companies operating in Poland. A strong impact on competitive advantages was diagnosed also with regard to specialized segments of these abilities which are the ability to adapt and expand the acquired technology, that means those that are responsible for the possible increases in technology innovation, and, consequently, in competitiveness of the company. A special role in this regard is played by two resources that are personal in nature, namely, motivation employees have to implement innovative changes in the newly acquired technologies, and their expertise and skills in the area of research and development. Primarily these components of assimilation potential should be improved, since they give the company the most desired market effects, constituting an advantage over its rivals in the sector.

The diagnosed impact of the assimilation potential on the level of the achieved competitive advantages by financial companies, which is very important from the point of view of achieving their market successes, justifies the need to undertake the research problem analyzed in this study and at the same time leads to its further exploration, in particular with a view to formulating valuable recommendations for economic practice.

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Relationship between Business Strategy and Business Model Studied in a Sample of Service Companies

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Abstract

A business model and a business strategy are the basic conditions of a company existence. A business model describes and explains how a company works and makes money. A business strategy describes and explains how, where and for what purpose and goal a business model will be used. The research seeks to ascertain whether there is any measurable relationship between a strategy and a model. An identification of this relationship will deepen knowledge of strategic management of the company and it is a reason for further research on the nature of relationship between a model and a strategy.

1. INTRODUCTION

A business model and a business strategy are two essential preconditions and fundamentals of a company existence. If this existence is successful, both conditions must comply with certain quality requirements and be in reasonable conformity. If they are not compliant, their individual quality does not get space for the implementation and potential of assumptions is not converted into reality. An ambitious strategy and a common model or an innovative model and a mundane strategy are opposites that can cause more harm than good. If a model and a strategy are consistent, they should be mutually supportive and reinforcing. The aim of the research is to ascertain whether any relationship between a model and a strategy exists at all and what intensity of this relationship is. This elementary detection can open up further research on the quality and intensity of the relationships between a model and a strategy and their consequences.

2. THEORETICAL BACKGROUND

A business model portrays and displays the picture of company resources, which are grouped and arranged in a process to produce a value (benefit) for the customer and earnings for the entrepreneur. The business model thus solves an elementary sense of company existence in general, which is satisfied, paying a customer and an effective entrepreneur with revenues exceeding costs, and therefore he/she earns a profit. Every company that makes money has a functioning business model. It does not matter whether it is explicitly recognized and cultivated, or its existence is perceived implicitly and a model is developed intuitively. A theme of the business model came to the fore mainly due to a rise in information technology and the Internet, which have transformed the company resources and processes considerably; they have elicited new

needs and brought new ways of satisfying them. New sources of earnings and profits emerged; they flow from business models that are different from those in the industrial era of business. Business models in the digital economy and in the services make money differently than in the traditional industrial economy.

A business strategy keeps a company in an industry at some position; its more demanding task is to strengthen and improve this position. The business strategy leads a company through business environment for more or less ambitious targets, which are extraordinary performance or survival at least. Moreover, it provides a guidance to confront or avoid competitors. The importance of the strategy is being increased in complex and dynamic business conditions that are unclear and unstable, but the company must exist in such environment and move forward. The strategy provides orientation in these circumstances; it identifies the starting position at present and target position in the future, and formulates usually several variations and possibilities of how to overcome the path between the present and the future. Every company that does something in reality has some business strategy. This strategy can be purposeful and planned, prepared before a company begins to act, and afterwards, the company is trying to behave according to it to achieve its goals. The opposite strategy is unplanned, spontaneous or opportunistic. Planned, but in the course of time, an adapted strategy can be identified on the basis of observing an apparent and visible acting, although such a notion of strategy is recorded ex post.

At the beginning of the study of relationship between a model and a strategy, it is necessary to assess a meaningfulness of the question "What is the first thing, what is the basis and what is the second thing or derived, what is the superstructure or what is general and what is specific?". The meaningfulness of such question stands out when an academic puts himself/herself in the position of an entrepreneur. A businessperson looks for an unmet need or creates a completely new need; he/she designs a method of how to satisfy it and tries to monetize satisfaction of a need. While the process of making money with a profit is not solved, possibly a repeated process, which is basically the same phenomenon as a business model, there is no sense to formulate a strategy. This is best seen in start-ups which solve functioning of their business models in the early stages of their existence and they begin to reflect on a strategy in the final stages of their development when they enter the market and meet the competition. A formulation of strategy considering a company that does not make money as a consequence of a dysfunctional model does not make sense. In the core of a business model, there is an answer to the question „How to make money?" The answer to the question „Where to place a model, how and when to use it?" is again in the focus of a business strategy. The model in this respect is the basis on which strategy grows. A model is a phenomenon that has fundamental, existential, and thus strategic importance for a company. When using a strategic point of view, thus what is the most important thing for the existence and prosperity of a company, so apart from a strategy also a business model belongs to strategic considerations and strategic management. Such reasoning, however, does not qualify strategy into superior or determining position towards the model or vice versa.

J. Magretta (2011, p. 69) writes: „A business model and a strategy are two different things. One explains who your customers are and how you plan to make money when by providing them with value, the other, how you will beat the competitors by being different." She adds on (2011, p. 79): „Business models describe, as a system, how the pieces of a business fit together. However,

they do not factor in one critical dimension of performance: competition. Sooner or later – and it is usually sooner - every enterprise runs into competitors. Dealing with that reality is strategy´s job." Francine Newth (2012, Abstract) formulates these ideas in a similar way: „The business model is about how a company works and strategy on how a company competes." She further explains (2012, p. 2): „The business model is an internal system that is composed of elements, links and dynamics, while the strategy is an external competitive approach using competences that have developed in the business model." From quoted opinions of Magretta and Newth, it is evident that the strategy and model are relatively independent entities but interrelated and complementary.

R. Massanel Cassadesus and J. E. Ricart write (May/June 2010): „The business model is a reflection of the implemented strategy. Strategy is a contingent plan how to use a business model." The business model is, based on their perception, a part of a wider-designed strategy, strategy determines the model as a system of activities, selects the appropriate model and establishes the rules for its use. Another link between a strategy and a model they see that (January/February 2011) „while every company has got a business model, not every company has got a strategy, thus a plan against any unforeseen events that may arise." May reasonably be assumed, that a company which has not got planned, formal strategy, acts too and this action indicates a certain logic, respectively some template that can be considered as a strategy, and thus a use of a model.

J. Muehlhausen (2013, p. 19) is of the opinion that „business model is part of business strategy" and he justifies this fact that the business model is what you do and the strategy and tactics are how you will do it. The argument about what is a part of what is inconclusive, but separation of model from strategy is obvious.

C. M. DaSilva and P. Trkman (December 2014) consider „business model as a reflection of business strategy and they give reason that the strategy shapes development of capabilities that may change the current business models in the future." Practice shows but that models usually emerges in non-strategic, unplanned way as a result of many trials and errors.

Quoted opinions of Massanel Cassadesus, Ricart, Muehlhausen, DaSilva and Trkman show that strategy and model are linked entities, that strategy determines model that there is a priority of strategy over model. Contrary to them, Lewis and Seddon to the question (2003): „What comes the first one: the strategy or business model?", reply that it seems to them that the business model comes first. They refer to the models in architecture and software engineering, which are known as the building blocks for successful conceptualization and formation of strategy. Their arguments are not based on field research, they figure out their conclusions on the base of analysis of the assertions in the literature. Many uncertainties in relationship between business strategy and business model come from the proximity of these two related but separated phenomena. N. Stieglitz and N. J. Foss (2015, p. 106) therefore merely state: „Sometimes business models are seen as subordinate and at sometimes as superordinate to business strategy."

A study of the literature shows that there are not unambiguous opinions considering the priority of the relationship between model and strategy. In favour of priority or foundation of model there can be stated this argument. The model addresses the basic and existential question of the company, which says: How to make money? This question is fateful and strategic as well, but the

answer to it does not explain the content of the strategy. The correct answer, however, is the reason and basis for strategy formulation. To formulate a strategy for a model that does not earn is obvious nonsense. Opposite views appear too, however, that the strategy creates some preconditions in the long term that may affect business model. Argumentation, however, does not go into depth and empirical evidences lack. Across the literature, more consistent opinions appear that a dependence is between strategy and model, although some empirical evidences lack again.

3. AIMS, METHODS AND RESEARCH SAMPLE

The goal of the research is to explore the relationship between a business strategy and a business model. To ascertain how tight is the connection between business strategy and business model. The tightness of relationship has got practical implications. Close relationship may reduce variability of model and variability of strategy, respectively a change of model will be reflected in a change of strategy and vice versa. Looser relationship gives more scope for adaptability/variability of model and strategy too without weakening of the functionality of their relationship. Secondary goal of the research is to identify internal dependences in business model and business strategy and speculate on the meaning of homogeneity of model and strategy. An attractive target for research would be to clarify priority in relation of model and strategy, which is impossible to know on basis of statistical analysis. However, it is a matter of logic of specific development of this relationship, which would be causally examined on base of case studies.

The original research sample included 231 enterprises, of this 80 enterprises (34.6 %) came from industry of services. Services and sub-industries of services belong among dynamically developing businesses and their economic importance is growing at the expense of traditional primary and secondary industries. Of the originally complementary business, services became an important part of national economy. They are an important source of employment and job creation, because „in most countries exceeded the share of services in GDP from 50 % to 60 %, while the highest share of services have particularly the most advanced countries. Despite this fact, however, services contribute only 20 % to the total international trade". (www.economy. gov.sk/s, August 2014)

For the narrowed research sample there were selected 30 service enterprises. This number has proved to be sufficient due to the achieved level of significance of examined parameters. There are also smaller samples, often with 20 elements, but they are divided into test and control group 10/10. Service enterprises came from sub-industries: human resources agencies (8), marketing agencies (7), consulting agencies (8), law firms (3), financial agencies (4). The selected companies are essential representatives of companies from the respective sub-industries that are placed in the survey sample. The selection criterion was the formal and content quality of information on the surveyed companies and attributes of business models and strategies that differentiated them from models of other companies. Companies in the narrowed research sample were examined besides in detail and evaluated personally by authors of the article without other intermediaries. Due to the methods used, verified relationships should be also valid in larger files too. In a narrow sample, some relationship could not be identified, and therefore they will be a theme of further examination.

The business model is described by means of Canvas visualization (Osterwalder - Pignieur, 2009, p. 15-44) which have got nine blocks. It is evaluated originality, complexity, diversity, excellence, innovation of a parameter in comparison of the common business practice in the service industry on the scale 1 (match), 2 (small difference), 3 (major difference), 4 (big difference), 5 (full difference). The blocks are characterized by 11 parameters, respectively variables (pn, n = 1 to 9):

1. Customer value proposition: p1

2. Customer segments: p2

3. Distribution channels: p3

4. Customer relationships: p4

5. Key resources: p5.1 - resources, p5.2 - competence

6. Key activities: p6.1 - primary activities, p6.2 - support Activities

7. Key partners: p7

8. Cost structure: p8

9. Revenue streams: p9

The business model is expressed, respectively quantified as the sum of 11 evaluated parameters, the resulting value is equal to p1 + p2 + p3 + p4 + ((p5.1+p5.2)/2) + ((p6.1+p6.2) /2) + p7 + p8 + p9. The blocks 5 and 6, which are assessed by two parameters, are aggregated each of them into a single parameter by means of the arithmetic mean. The minimum number of points is 9 and the maximum is 45. It can be said that the companies which have reached 9 points are entirely consistent with the industry average, 18 represent a small difference, 27 represent more difference, 36 are big difference and 45 are total difference.

The business strategy is described through parameters respectively seventeen variables. Each parameter is evaluated according to the same scale as the business model. The parameters/variables (pn, n = 1 - 7) are divided into seven groups:

1. External environment of enterprise: 1a, 1b

2. Anticipating the future development of the external business environment: 2

3. Quality of the internal environment of enterprise: 3

4. Content of strategy, strategy as a set of concrete factual parameters: 4a, 4e (parameters 4b, 4c, 4dz, 4ds, 4fpri, 4fpo are omitted because they are identical to the parameters of the business model)

5. Strategy as an instrument of competing
   - difference: 5a
   - market position: 5b

6. Strategy as a way of company acting: 6a, 6b, 6c, 6d, 6e, 6f

7. Strategy as a company attitude: 7a, 7b, 7c

The business strategy is expressed for the need of further investigation through the blocks that are composed of selected parameters:

* external environment. Resultant parameter has established as the sum of assessment of the dynamics and complexity of the business environment, intensity of competition and the degree of cognition of the future. Each component can take value from the low complexity (1) to very complex, intensive and heavily foreseeable environment (5). Parameter of the external environment thus can reach values from 3 to 15. The sum of the values of the external environment parameters equals 1a + 1b + 2a.

* internal environment. The object of evaluation was the quality of the internal environment perceived through competitive advantage and its sustainability. Parameter can take a value (1) which expresses conformity with the average companies to complete divergence (5) in comparison of an industry average. The parameter used in the calculation is 3a.

* environment together. Parameter was established as the sum of the assessment of external and internal environment and can take values from 4 to 20. The sum of the values of environmental parameters is 1a + 1b + 2a + 3a.

* competitive strategy. It is expressed by differences from competitors and market position. Divergence can acquire value (1), which is a congruence with industry average to the value (5) which is a complete difference. The parameter used in the calculation is 5a.

* Competitive position is a measure of successful acting of company on the market. Position can acquire value (1) on the edge up to the value (5) on the top. The parameter used in the calculation is 5b.

* Strategy as a way of company acting. Strategy perceived like this is recorded through six parameters which are dynamics and speed, originality, clear focus, foresight, sensibility and perception and ambition. Sum of parameters is 6a + 6b + 6c + 6d + 6e + 6f, can reach values of 6 for 30.

* strategy as a company attitude. This block records the starting position or readiness of the company to respond to competitive situations that arise in the market. It is expressed by parameters passivity/activity, defence/attack and caution/courage. Sum of parameters is 7a + 7b + 7c. The result may take the values 3 to 15, wherein is the sum of the three independent variables.

* strategy together. Block is the sum of the strategy as a way of action and strategy as a company attitude 6a + 6b + 6c + 6d + 6e + 6f + 7a + 7b + 7c. The result may ranges from 9 to 45. The higher the resulting value, the more the company differentiates its strategy from the competition.

The relationship between a strategy and a model will be illustrated by examining the following links:

a) The impact of the strategy as a way of action and attitude to the company position as an elementary substantiation of functionality of strategy.

b) The impact of external and internal business environment and strategy on a business model.

c) The impact of the strategy as a way of action and company attitude on a business model.

d) The impact of strategic parameters on a business model

For the purpose of statistical analysis of relationships and testing of assumptions validity, there

were used methods of analysis of variance (ANOVA) and of linear regression analysis. These methods are currently considered to be the standard of data analysis, because they enable to examine the causal links, to formulate assumptions about the validity of the results of the larger sample, and to provide a tool for refusing statistically insignificant results. There was constructed a regression analysis model, which was tested and gradually adjusted due to statistically insignificant variables. The results were considered to be statistically significant if a statistical significance level of 0.05 or less was achieved.

4. AN ANALYSIS OF RELATIONSHIP BETWEEN A BUSINESS STRATEGY AND A BUSINESS MODEL

Basic statistics data on the analysed sample are reported in Table 1. Business models of surveyed service companies are slightly over-average original, thus they are mutually very different and innovative. Companies are placed in a slightly above-average complex and dynamic environment and the quality of their internal environment roughly corresponds to the surroundings. Strategies of companies are different, however, the positions that are achieved by these strategies are even more different. Companies enhance an efficiency of their strategies by their attitudes and actions that are significantly above-average. The strategy is from this reason obviously a significant factor that can increase the functionality of the average model too.

Strategies (66.3% of the maximum 45 points) are more original than models (Average is 40.2% of the maximum 45 points). The originality of the strategy is the highest, if it is expressed by position of enterprises (74.4% of the maximum 5 points), less original is strategy expressed by attitudes and actions (66.3% of the maximum 45 points) and the least original is strategy expressed by difference (54.4% of the maximum 5 points).

Tab. 1 Basic statistics data on the examined sample

parameter	Mean	SD	min*	max*	min**	max**
business model	18,13	2,45	13,4	25,5	9	45
external environment	9,48	2,11	5	13	3	15
internal environment	2,67	0,81	2	5	1	5
environment together	12,15	2,28	8	15,5	4	20
difference	2,72	0,78	1	4	1	5
position	3,72	1,01	1	5	1	5
strategy as a mode of action	19,63	3,27	11	27	6	30
strategy as an attitude	10,18	1,74	6	14	3	15
strategy (action and attitude) together	29,82	3,89	18,5	38	9	45

min*, max* - values obtained by research
min**, max** - values given by span of point scale

An impact of strategy as a way of action and attitude on the position of a company. The purpose of the strategy is to achieve a positional advantage, it means a larger market share, more powerful, stronger, better position. If the strategy does not fulfil the purpose, so it does not fulfil its essential role, it loses a meaning and even threatens a company. In such case, a powerful business model vanishes into smoke. A prerequisite of a functioning model is a functioning strategy. The strategy is a set of assumptions and instructions on how a company will act, but a decisive point ultimately is how a company will really act. Distinguishing between perception of a strategy expressed by attitude and expressed by action is therefore important and essential.

It is evident from the regression analysis in Table 2 that a company market position is significantly influenced by strategy as a way of action. A company position is considerably affected by its strategic action which is the cause of 13 % of variability of a market position. A strategy as a company attitude has got no significant effect on the position of the company. The consequences of a real action are more important than consequences of preparation for this action. It can be argued that a different way of formulation of strategy, thus attitude versus action, differently determines a position of a company.

Tab. 2 An impact of environment and strategy on a company position

	Position	Position
Strategy as a way of company action	.11+ (.06)	.11* (.05)
Strategy as a company attitude	.01 (.11)	
R² modified	.07	.13

in brackets, there is a standard error
** level of significance ≤ 0.01, * level of significance ≤ 0.05, + level of significance ≤ 0.1

An impact of the environment (external and internal) and strategy (together) on a business model. The strategy is a way about how to use a business model and this use is carried out in some external and internal environment. Rate of the impact can explain autonomy or dependence of a business model on the area of its deployment and method of its use.

An impact of environment and strategy on a business model expressed by way of a regression is recorded in Table 3. The strategy together is the cause of 16 % of variability of a business model. Companies that have a more different strategy also have a more different business model. An influence of environment on a business model has not been demonstrated, it cannot be asserted therefore that more complex (more extraordinary) environment requires even more extraordinary business model. Business model is influenced by the choice of strategy, an environment together plays in this respect an unconfirmed impact.

Tab. 3 An impact of environment and strategy on a business model

	Business model	Business model
Environment together	.08 (.20)	
Strategy together	.24* (.12)	.25* (.11)
R² modified	.10	.16

in brackets, there is a standard error
** level of significance ≤ 0.01, * level of significance ≤ 0.05

An impact of strategy as a way of action and attitude on a business model. Given that the examination of the relationship between a strategy and a model is in the centre of the research, so impact of the strategy is distinguished between the strategy as an attitude and strategy as an action. It is assumed a different sensitivity to the expression of strategy.

The consequences of the impact of different strategy expression on a business model are examined by a regression analysis and recorded in Tab. 4. It is questionable whether a business model is more influenced by strategy as a way of attitude or by way of action. The result of the analysis is that business model is affected by the strategy as a way of action. A more different way of action (dynamics, originality, clear focus, foresight, sensitivity and ambition) is reflected in a more extraordinary business model. The action of company explains 22 % of variability of business model. The relationship between the strategy as a company attitude (activity, aggression, self-reflection) and the business model has not been confirmed.

Tab. 4 An impact of strategy as a way of action and company attitude on a business model

	Exceptionality of business model	Exceptionality of business model
Strategy as a way of action	.36** (.13)	.35** (.13)
Strategy as a company attitude	-.08 (.24)	
R² modified	.17	.22

in brackets, there is a standard error
** level of significance ≤ 0.01, * level of significance ≤ 0.05

An impact of strategic parameters on a business model. Widening the range of factors, respectively strategic parameters that may affect a business model will contribute to identification of other potential determinants. Their recognition and deliberate use can increase the exceptionality of a model, which is significant result of the research lastly.

Tab. 5 An impact of strategic factors on a business model

	Exceptionality of business model	Exceptionality of business model
External environment	.10 (.19)	
Internal environment	.70 (.53)	
Difference	1.11+ (.60)	1.15* (.49)
Market position	.24 (.48)	
Strategy as a way of acting	.23+ (.13)	.30* (.12)
Strategy as a company attitude	-.23 (.23)	
R² modified	.29	.30

in brackets, there is a standard error
** level of significance ≤ 0.01, * level of significance ≤ 0.05, + level of significance ≤ 0.1

The research has been dealing with the impact rate of individual strategic parameters on a business model. The results are shown in Table 5. A business model is affected by difference and strategy as a way of action. The difference and action of a company explain 30 % of variability of a business model. A strategy had the greatest influence as a way of action (beta = .40), and then difference (Beta = .37). A company that is dynamically acting and is considerably different has a more exceptional business model as well. Strategic parameters like environment, market position and strategy as a company position did not prove a significant impact on exceptionality of a business model. A relationship has not been identified between market position and exceptionality of a business model. Therefore, it has not been confirmed that companies with a better position have more extraordinary business models.

Summary/Main results of the analysis:

1. The strategy has got several traits/expressions (difference, attitude, action) and the result (position), however, their originality is not equal, but they lead as a whole to a result that is more original than its assumptions, and therefore it is not excluded that the accompanying factor increasing the efficiency of the strategy is a business model.

2. The position of a company is a consequence of the strategy as a real action; the strategy as an attitude does not have a relevant impact.

3. The strategy affects a business model, which can also be explained, that a part of a strategy formulation is a model formulation to some extent, or to be more precise, a model deter-

mines the strategy to some extent, while relevance of environment towards the model was not identified.

4. The strategy as an action shows the influence on a model; the strategy as an attitude does not have relevant links to a model.

5. The strategy as an action along with difference shows the influence on a model in the context of a larger set of strategic parameters too.

5. DISCUSSION

There are no known empirical results about the relationship between a business strategy and a business model that would have been reported in literature. It is assumed, however, a workable strategy just does not make sense on its own, but it can support, improve, or enhance the functionality of a business model, of which results are a major expression of company viability.

The strategy as an action explains 13 % of variance (excellence) of a market position, or a market position depends on the extent of 13 % on the real action of a company. The strategy as an attitude has not got a relevant influence. The strategy as an attitude has not got a relevant impact. It can be concluded that all resolutions after a confrontation with reality remain without a clear impact or are not fulfilled. The fundamental question is which other factors, apparently external and independent of the will of a company, affect the market position, or if there is an impact of a strong internal factor, which is a model. The mode of formulation/identification (attitude versus action) of a strategy thus matters, because it will be reflected by having a better position of a company.

The strategy itself explained 16 % of variability (excellence) of a business model. The environment does not have a relevant impact. What factors, besides a strategy, explain the variability of a model? The strategy is a strong subjective and internal factor, but apart from it, there are other influential, but unidentified factors, possibly a residual impact should be comprised by some objective, external factors, for example, environment, of which impact was not confirmed, or a model being independent on external influences and its variability (excellence) is autonomous.

The action of a company explains 22 % of variability of a business model. If the strategy is considered to be an action only and it is abstracted away from attitude, so the impact of a strategy on a business model increases when compared to the previous influence. The action without previous attitude has a greater impact on the model. The attitude probably does not play such a role which should have. Instead of having a positive impact, it has an eroding effect.

The action of a company and difference explain 30 % of variation (excellence) of a business model. The strategy as a mode of action (Beta = .40) had a greater impact on the model and the difference (Beta = .37) had a smaller impact on the model. The difference enhances the impact of action on variability of a business model and encourages its uniqueness.

It was assumed that if a company is active in more complex environment, the model will adjust to circumstances better, and if its strategy is exceptional, it will be reflected in a more extraordinary business model. As shown in Table 4, this assumption was confirmed partially only. While strategy has had a significant impact on the business model excellence, the influence of environ-

ment was not confirmed. It is shown in Table 5 that only the strategy as a mode of action has had an impact on the excellence of model. Thus, a specific determination of dynamics and speed, originality, clear focus, foresight, sensitivity and responsiveness and ambitiousness influence the business model excellence positively.

The strategy expressed by an action is a distinctive factor among the surveyed strategic parameters, which shows an identifiable impact on the business model, and is validated by several regression models. This influence and the relationship can be explained by what a model displays as a real running of a company in conceptual form and the strategy as an action expresses real deployment and use of this model. Just reality, concreteness and action of the two aspects of company existence, which are a model and a strategy, are probably the base connecting them. The factors indicating action only, e.g. attitudes or creating external conditions, hence factors of rather passive nature vanish in the context of action.

6. CONCLUSION

The relationship between a business strategy and a business model is described in literature as beliefs and opinions without in-depth explanation and empirical evidences. There is no clear opinion on which side of this relationship is dominant, primary or determining. The existence of relationship and dependency is recognized; however, some arguments are abstract-logical and based on personal perception. Examining the relationship between a strategy and a business model is important because the existence of this relationship has serious implications for company performance. Companies do not often realize that these two fundamental components of business are connected and they do not pay equal attention to them. Enterprise as a system has to have all the elements and relations which have to be functional and working. The unknown and dysfunctional elements and relations weaken the functionality of an enterprise/system. The executed research on the given sample confirmed the existence of a link between a strategy and a model. The strategy expressed by several relative ways has relevant or nontrivial impact on the model. This knowledge extends the scope of strategic reflections about the company; it introduces strategy into new contexts and also has got practical implications, since M. Newth (2012, p. 92) concludes the analysis of the relationship between a strategy and a model: "Strategies complete the business model which helps to decide which strategy variant is the best for the company. Competitive strategy and performance increase when business models and strategies are complementary mutually". Relationships between a strategy and a model remain unexplained on softer/lower distinctive level, which consists of business model blocks and particular parameters of a business strategy. However, that is a theme for further research.

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The Impact of the Hotel Industry on the Competitiveness of Tourism Destinations in Hungary

- *Albert Tóth Attila*

Abstract

This paper focuses on a complex question from the perspective of the hotel industry. It tries to draw attention to the importance of hotels, enhancing it on the basis of the tourism destination competitiveness models and introducing the role and place of the hotel industry in the most important models.

The hotel industry research evaluates the most important tourism destinations of Hungary on the micro-regional level that justifies the importance and contribution of the hotels and accommodations to competitiveness and success of tourism destinations with exact results. As a result of the research, the micro-regional destinations can be ranged within three groups in Hungary. In the first group of the most developed and most competitive tourism destinations, the hotel industry plays a very important role. In these regions, the hotel industry has a significant effect not only on competitiveness of tourism but also on general development of the regions. In the second group, which can be still called tourism destination, tourism and the hotel industry both play a significant role, but only the competitiveness of tourism can be considered good, the effects of the tourism on general development of the region can be proved only to a lesser extent. In the third group, the effects of tourism and the hotel industry can only be experienced to a lesser extent. The majority of these regions are not considered to be attractive tourism destinations for tourists any more.

1. INTRODUCTION

Hotels and the hotel industry belong to the most important super structural elements of a tourism destination, without these, no destination could be competitive. Tourism destinations would not have any upholding power without hotels and high quality hotels, tourists would travel through them or they would mean a place to visit for a one-day trip only, with significantly lower incomes and less possibility of work for the regular residents.

The different phases of development of a tourism receiver area show a very close connection to the capacity of hotels, accommodations, tourist traffic of the hotels and the most important tourist traffic and utilisation indexes.

From the increase in capacity (the number of hotels and rooms), the investors' willingness cuts a fine figure if the international investors also appear beside the small and medium-sized local enterprises. Foreign investors entering the market represent a significant advance in the life cycle of destinations too, because the chains of hotels are only interested in the development through

establishment of small or big hotels of high quality if they can plan in the long run and if they consider the destination to be a promising and competitive tourism receiver area.

2. THEORETICAL SOLUTIONS

Many people have already dealt with tourism, the hotel industry and tourism destinations in the international tourism special literature. The most important authors who have been dealing with accommodation and the hotel industry too are discussed below. These authors introduced the importance and significance of accommodation, the hotel industry within the system of tourism.

In the volume of essays and studies of Clarke (2010) relating to Hungary, thirty essays have dealt with the Hungarian coherence system of tourism competitiveness, some of them with the hotel relations separately too. Priszinger & Clarke (2010) analyse the risk factors of development of the Hungarian wellness hotels, Gyurácz-Németh (2010) assess the innovation possibilities of the hotel management. The authors mentioned above give an overall picture of characteristics of the hotel industry, the connection between the attracting forces and tourism destinations in the books, within the system. The essays try to reveal the relations focusing on particular subfields.

2.1 Competitiveness of Tourism Destinations

Each tourism destination, just like the products themselves, has a specific life cycle curve, which depends on geographical location, the size, the attraction forces, the tourism products, the load-bearing capacity and the development level of a territory very much.

The Tourism Areas Life Cycle Model of Butler (1980) follows the stages of development of evolution of a destination. It means that it is not a model of competitiveness but it can be an excellent starting-point of the evaluation of competitiveness of a destination, if we know and access it. The sequence of the most important stages, exploration, involvement, development, consolidation, stagnation, decline or rejuvenation and the assessment in which stage the destination can be found right now, is very important from the perspective of competitiveness too.

Different stages of the life cycle of tourism areas show a very close connection with the capacity of hotels, accommodations, tourist traffic and the most important index numbers of the accommodations.

The research is based on this mainly, with assessment of the hotel capacities, the available rooms, the growth of overnight stays and number of guests and the most important index numbers of the hotel industry.

A destination can only be competitive and successful when there are accommodations, hotels of suitable number and capacity of the area (critical range of elements of capacity), that can support increase in guest numbers, their accommodation and stay for a longer time, hereby higher spending, which means work places, investments, tax incomes in a particular destination.

The model developed by Ritchie & Crouch (2003) is the most comprehensively and circumstantially elaborated model for competitiveness of tourism destinations. The two authors have already dealt with the subject in the early 90s and they introduced the first model at the 43rd con-

gress of AIEST (Association Internationale d'Expert Scientifique du Tourism: International Association of Tourism Experts) in 1993, which they have continuously developed during the years. The fully developed version of the model appeared in 2003, which was published in a book. According to the model, the competitiveness of a tourism destination is basically determined by five main groups of subjects, which are still influenced by further external environmental factors too. The basic factors and resources mean the starting point that the further factors are built on. They have already been important from the point of view that one can decide whether the tourism destination is suitable for tourism development or not. The following factors belong here: state of the infrastructural resources, accessibility, human and financial resources, hospitality, tourism service providers, local political intention and support for the development of tourism. After the model, the central resources and attractive forces are built on the following factors: climate, flora and fauna, landscape, culture, history, events, programmes, entertainment facilities, religion, ethnic roots, etc., and the tourism superstructure, including the accommodations, hotels, hospitality, theme parks, etc.

From the view point of the competitiveness and success of a destination, the next level is about the destination management which plays a particular role. The main components belong to the scope of duties of tourism management; it means that they touch upon professional questions. They are as follows: marketing duties, organisations, service level, quality of the services, pieces of information, research.

The qualifying and strengthening factors belong to the following level, such as location, safety, and price level of the destination, interdependence, image, and capacities. All of them are influenced by the global macro and micro environments and the relative advantageous features of the destination and its competitive improvable resources.

The later and even more improved model of Ritchie & Crouch (2005) may describe the competitiveness of a destination most fully; it determines various territorial units to the examination possibility of a destination too. According to the two authors above, one can examine the competitiveness of a tourism destination at different levels: the level of macro regions, including several countries. According to UNWTO statistics, big tourism regions can be an example for this. However, within Europe, different countries can be grouped together from the point of view of tourism, for example the Mediterranean, the Scandinavian countries, the ski regions in the Alps. On a national level, that is advantageous from the perspective of the analysis because beside the national tourism statistics, the availability of other social, economic index-numbers can make the analysis easier too, as compared with other kinds of regional units where no wider ranging data is available.

An example of this would be data relating to a specific territory within a country, a large region or a comprehensive regional administrative unit. Other examples could be small and medium-sized regions within the country, for example in Europe these are planning-statistical regions (NUTS-2 level) or tourism regions or smaller regional units too. In Hungary these would be different counties and holiday regions (also called micro regions).

The models of Porter (1980, 1990) are the most well-known, because of their wide applicability. The earlier model of 1980 is dealing with a general strategy of competition. Two important ele-

ments of advantages of competitiveness are the scope of expenses and differentiation, distinctness. The Porter model of 1990 consists of five main components: first, competition still existing on the market, in case of a destination, the competition of the service providers of particular receiver areas, possible excessive hotel capacities, non-storability of the tourism products on the supply side, in this way, their damageability. The further four components are analysing demand and supply competition position of the destination, bargain position of the customers-suppliers, risks and danger situation caused by the newcomers and the replaceability of the destination. A tourism destination can be easily replaced by another destination with similar features by the tourists, but in the same way an investor can also choose another location for tourism investments of any kind in case of a hotel, theme park, restaurant and other projects.

It is also possible to describe and analyse the destination and the positions of the competitors in the hotel industry with the Porter model.

Poon (1993) accepts the model of Porter, but he is also criticizing it after which it can be used in production rather than in the service sector. Therefore, he worked out two model types too, one for the purposes of industrial production, while the other one for tourism destinations. In the destination model of Poon, the main emphasis is laid on the role of innovation and the quality in the destination model but he also considers important that tourism becomes a leading sector in the destination. Environmental elements, sustainability and strengthening of the service providing sector are important elements of successful destination strategy. Development and appearance of the tourism products that have not been present in the destination yet also constitute an important part of the strategy model.

The elaboration of the Price Competitiveness Model is linked with the name of Dwyer, Forsyth & Romao (2000). Prices are the main components of the model that are compared on purchasing power parity in case of different, international tourism destinations, primarily in case of countries. Those tourism expenditures get into the tourism consumer basket, with which one has to calculate in case of every single international travel, just like air-ticket, price of hotel room, transfer costs, boarding costs, price of admission tickets, etc. Constant change in the courses and prices as well as the collection of suitable data mean some difficulties as far as the exact and up-to-date usability of the model is concerned, however, it provides a good basis for comparison in a particular moment of examination. A further problem is the varying levels of hotels and other services in different countries, which can even occur in different regions and cities of the same country as well. The prices of services can also differ significantly in various countries; there are some which are very cheap in a particular country and in the other one very expensive and vice versa. In case of greater travel distances, higher travel costs can distort the index, therefore in order to cut the effects of distortions the competitiveness index is given in three components. The fist one is the index of travel costs, the second one is the index of services used in the destination, while the third one introduces the former two indexes together in total. The advantages and disadvantages of the model are really the same because they narrow down the tourism competitiveness of a destination to comparison of the prices and the courses but it shows the affordable destinations for the tourists in a very clear way with the assistance of comparisons. Many tourists carry out a model analysis of a very simplified and comparative character before their travel, but this version based on more serious calculations is also applied by travel agencies

and tourism organizations when they publish how much one euro or dollar tourism service is worth considering the price level of a particular country or how much it costs in comparison to the price level of their own country.

Dwyer worked out a new model with another co-author in 2004, which differs from the former price-competitiveness model (Dwyer & Kim (2004). The model uses the content elements of the Ritchie-Crouch model too, but it is different in two respects. Firstly, using the experience of the former price-competitiveness model, it includes the demand conditions that depend on the supply prices. The other one is connected to it, the dominant elements of social-economic welfare and quality of life which also influence the competitiveness.

The TTC Index (Travel and Tourism Competitiveness Index) was published by the World Economic Forum on the basis of the Travel & Tourism Competitiveness Report in 2007 for the first time. As part of the preparation, a number of organizations, i.e. UNWTO, WTTC and the IATA (International Air Transport Association) took part in the assessment of 124 countries. Its direct antecedent was the Competitiveness Monitor which was worked out by the WTTC to measure competitiveness with the assessment of 23 variables.

The TTCI global index shows the order of countries according to their tourism competitiveness. The former versions still consisted of 3 sub-indexes but the recent modified TTC Index (2015) have already been composed of 4 sub-indexes, which include 14 pillars and examined the components based on the main scope of subjects.
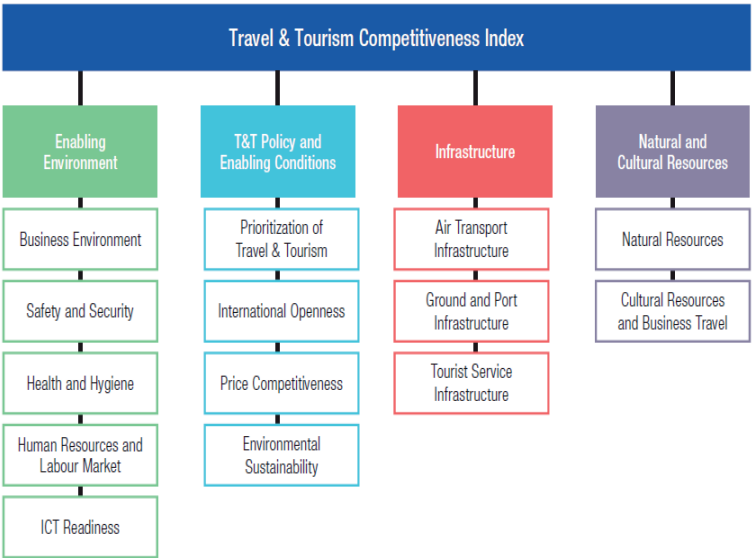

Fig. 1 - The structure of the latest (2015) Travel and Tourism Competitiveness Index
Source: WEF Travel and Tourism Competitiveness Index 2015

Blanke & Chiesa (2009) say that the TTC Index has several weak and criticisable points:

the sub-indexes are included in the global index with the same emphasis which has been the bone of contention right from the beginning. It is favourable for some countries but for others, it is not. For example, it is clear that it is less complicated to modify the environment of regulations, make it competitive without investments too rather than change the elements of the infrastructure or the resources available.

The TTC Index shows the tourism competitiveness of individual countries while the tourism destinations do not cover the whole territory of the countries. While regulations usually refer to the whole country, with the exception of some federal, provincial, self-governing, etc. regulations, all of other important tourism indexes are only valid for the tourism destinations.

According to Vanhove (2011), the TTC Index can be considered static, as if it was a snap shot of the tourism competitiveness of the country, while the competitiveness models and their key factors can be considered dynamic, thanks to the effects of planning, innovation, destination management, quality management, etc.

The newest TTC Index of 2015 has already been assessing 141 countries and the methods were changed too. Instead of the former 79 indexes, they examine 90 indexes. Two-thirds of these are the measurement of statistical data, one-third is „Executive opinion survey".

From the assessed countries, economically and from the point of view of tourism, developed countries are on the top of the list in global order: 1. Spain (Value 5.31), 2. France (5.24), 3. Germany (5.12), 4. USA (5.12), 5. United Kingdom (5.12). From the V4 countries the order runs as follows: 37. Czech Republic (Value 4.22), 41. Hungary (4.14), 47. Poland (4.08) 61. Slovak Republic (3.84).

From the common profile picture of Hungary and Europe and Caucasus, one can see that among the 141 countries, Hungary and Europe are strong at the themes of Health and Hygiene, Safety and Security, Tourist Service.
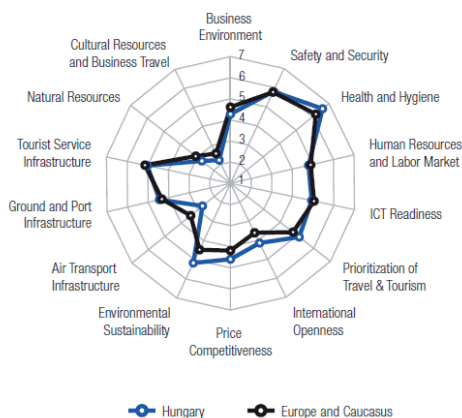

Fig.2 WEF TTCI Country Profile of Hungary The performance on the single indicators composing each pillar (1 to 7 scale, 1= worst score, 7 = best score) Source: WEF TTCI 2015 (p.174)

The hotels belong to pillar 12, within that to the „Tourist Service Infrastructure" and within this the index 12.01 measures the hotels, the order of number of hotel rooms in relation to 100 people. „*The availability of sufficient quality accommodation, resorts and entertainment facilities can represent a significant competitive advantage for a country. We measure the level of tourism service infrastructure through the number of "upper- level" hotel rooms complemented by the extent of access to services such as car rentals and ATMs.*" (WEF TTCI, 2015)

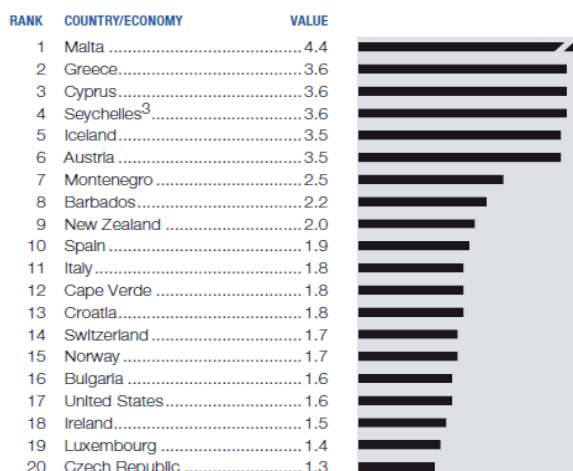| RANK	COUNTRY/ECONOMY	VALUE
1	Malta	4.4
2	Greece	3.6
3	Cyprus	3.6
4	Seychelles[3]	3.6
5	Iceland	3.5
6	Austria	3.5
7	Montenegro	2.5
8	Barbados	2.2
9	New Zealand	2.0
10	Spain	1.9
11	Italy	1.8
12	Cape Verde	1.8
13	Croatia	1.8
14	Switzerland	1.7
15	Norway	1.7
16	Bulgaria	1.6
17	United States	1.6
18	Ireland	1.5
19	Luxembourg	1.4
20	Czech Republic	1.3

Fig.3 WEF TTCI, 12. Pilar - Tourist Service Infrastructure 12.01 Hotel Rooms Source: WEF TTCI 2005 (p. 466)

Malta with a low number of inhabitants is leading order of the countries in this category as far as the relative hotel capacity is concerned, but one can see that numerous small or medium-sized European countries also take a prominent place in the rank order. Spain, Italy and the USA can be found in the prominent places of the list too, in spite of their high number of constant inhabitants. This also proves the tourism reception capacity of these countries. In the order of hotels, the Czech Republic from the V4 countries got into the TOP 20, from the other V4 countries Hungary takes the 45th (Value 0.7), the Slovak Republic (Value 0.7) the 46th and Poland (Value 0.3) the 75th place.

2.2 Key elements of the models in practice

The applicability of the competitiveness models differs from the regional delineations. Not each model is suitable for the assessment of small and big regional units and the approach methods of the examinations are significantly different from each other. However, one can also detect some overlap between several models and that the later models usually build on experience of the former ones too.

From the synthesis of the models, it is necessary to emphasize the most important common key elements (Vanhove, 2011), because every region can have specialities but not every model can be used for every region, so their use in practice can also be different.

Without any of the natural, man-made or cultural attractions, one could hardly imagine a successful tourism destination. The synergy effect of attractions can strengthen the attraction. This means that, if one can also find several attractions in a destination, the global attraction can be the multiple too (Puczkó & Rátz, 2000). The cultural elements are also included, so the hotel industry as well, which does not definitely mean any attraction on their own but they are absolutely necessary to the settlement of tourism. Some special or unique hotel types, which can provide special adventure or services, can already be attractions on their own, if the selection of a hotel means the main motivation. So, when choosing a hotel, the selection of the destination also happens, even though tourists choose the destination at first.

The incomes of the tourist traffic are generated by tourism, a general price level of the particular receiving area and in case of international tourism, and the rate of exchange of the sending and receiving country. An overestimated exchange rate of the receiving area makes the travel more expensive, an underestimated one can support, encourage it. Taxes also influence the prices, tourists can directly feel it through the value added tax, the sectoral taxes and the local taxes too.

At present, Hungary is a record holder within the European Union with 27% VAT, which is valid in the tourism-hospitality branch too, with the exception of its accommodation service where the advantageous tax rate of 18% is in force. The VAT tax rate of the accommodation tax rate is significantly higher than the average of 10% in the European Union, which makes the competitiveness of Hungarian accommodation service providers much worse on the international market.

After the standpoint of the HOTREC (2002), considering the fact that the VAT tax rates influence the competitiveness of the branch directly, the possible lowest VAT tax rate should be used for the hotel and catering services.

Innovation has two types of interpretation in the case of a destination. On the one hand, how quickly the results of the technical-technological innovations appear in the particular receiving area and how quickly the tourists can use and apply them. That can be a series of cultural programmes in the attraction sector but even a new theme park or the opening of a new hotel in the accommodation sector, which can also mean a new clientele for the destination. (Kovács, 2004).

The strategic planning is a must for each tourism destination, which means on the one hand, the regional development strategy in the medium and long run, on the other hand, the marketing strategy too.

The plans usually use internal and external situational analyses, competition analysis, and forecasts. They draw up the mission, determine the market segments, the target groups, the market position, the strategy and the plan of actions how to reach them. Beside a continuous control, if needed, they modify the plans and the targets to be reached (Kozma, 2006).

Positioning of a tourism destination is a more complicated and lengthier process than the usual segmentation of products, determination of the target markets and the market positioning. The most important elements of positioning of a destination are evolvement of the advantageous image, its maintenance, its distinctness from other destinations and its introduction to the potential

tourists. One best example for the branding of a tourism destination is St. Moritz in Switzerland, where the brand policy that had been used consistently over long years produced the expected results and it became well-known all over the world. (Ferner, 1994).

According to Piskóti (2012), the '*branding of the areas, regions is not a one-time, clear duty but the building of a – often complicated – brand system is needed. Building of a brand is especially important in the field of tourism.*' He found a coherent system of elements of the regional tourism brand system and described a possible version of the main steps of the brand's building. (Piskóti, 2012).

For the successful operation of a tourism destination, it is necessary that professional organizations, tourism clusters, local governments, educational institutions, chambers and the enterprises cooperate on a suitable level, even if, especially in the case of enterprises, it is about counter-incentives and they are competitors of each other too. The development of the TDM (Tourism Destination Management) system in Hungary based on international samples is essentially about this and '*its target is the establishment of the system of a sustainable and competitive system of tourism and its operation in the region receiving tourists.*' (Lengyel M., 2008).

Buhalis (2000) considers the marketing role of a destination very important, like Tsai, Song & Wong (2009), beside several factors, they emphasize the role of marketing and human capital, and both in case of the destinations and the competitiveness of the hotel industry, in case of the hotels, the educational level and the role of training are of high importance too. The principle to develop tourism to a leading branch in the destination (Poon, 1993), (Vanhove, 2011) is both a target and it is very important for a successful and competitive receiving area too. Quality management and quality approach will be essential for each tourism enterprise, the number of high quality services provide the perceptible quality for the tourists in a destination. In addition to company and other general quality management systems, the legal regulations and the observation of the ethical norms and their making observed by the authorities are also very important (Code of Conduct, Code of Practice), which can be achieved through regular controls. Most of the qualifying systems that are used in the field of tourism (Hotelstars Union, TÜV Rheinland, ISO, EHQ, Leed, Green Hotel, etc.) serve the same target directly or indirectly. We can also make a detailed analysis of the hotel industry if we have the suitable hotel data, on the basis of which one can count the kind of indexes (Fair share, Market share, Market Penetration Index, Average Rate Index, Revenue Generation Index) that can be used in practice too in order to assess tourism and the hotel industry, if we want to compare and assess two or more destinations on the basis of exact data, in the sphere of competitors. (Géher, 2000) Sustainability in the hotel industry is becoming increasingly important too. More than a hundred hotels won the title of Green Hotel in Hungary in the past twenty years, the majority of these hotels can be found in the regions that are developed from the point of view of tourism which can also contribute to the improvement of the competitiveness in the particular destinations. Besides environmental sustainability, economic sustainability is also important and the accommodation sector has to apply the current sustainability measures too for the sake of economic development (Jurigová, Tučková & Kuncová 2016).

The measurement of the GDP on regional level and the comparison of the most important indicators of tourism, including the hotel industry, are commonly used in Hungary too, on the basis of the indicators of the HCSO. The monitoring system for destinations that is recommended by

Jurigová & Lencsésová (2015) and the environmental, economic and social indicators that are also included can be applied to the tourism destinations in Hungary too. I also applied similar indicators that are measured and published by the Hungarian Central Statistical Office during my primary research. According to the results of the research of Vaškó & Abrhám (2015), most visitors search for the accommodations (88 percent) and the destinations (87%) on the internet. Currently internet platforms can already influence the marketability and the success of the tourism destinations, within this that of the hotels to a significant extent and they also affect the competitiveness. The investments of companies which apply innovative (Olaniyi & Reidolf 2015) and sustainable eco-system technologies in rural areas can also contribute to the development and competitiveness of the tourism destinations (Laužikas, Tindale, Bilota, & Bielousovaité 2015). There are examples for this in Hungary too. The success of some new rural eco-hotels can prove that innovation and sustainable solutions are more and more important in the hotel industry. Other organisations, for example the so-called clusters can also contribute to the sustainable development of a destination (Tvaronavičiené, Razminiené & Piccinetti 2015). The biggest and most important tourism cluster in Hungary is the Pannon Thermal Cluster that is gathering the thermal baths of the western part of the country. These baths are in close connection with the hotels because the biggest hotel capacities and the hotels of the highest quality can be found operating next to them.

3. OBJECTIVES AND METHODOLOGY

The main objective of the paper is to investigate the impact of the hotel industry on the competitiveness of Hungary's tourism regions. The paper is a part of research that aims to analyse regional and qualitative structure, competitiveness of Hungarian hotel industry and its contribution to the development of a particular destination. The literature review deals with assessment of the most important models relating to competitiveness of the destinations of the hotel industry and tourism. The target of the study of the destination competitiveness models was to reveal the role of the hotels in the models which mostly consider the role of the hotels, the accommodations as part of the infrastructure. The role of the hotels is highly significant because the main part of the incomes from tourism is realised by the enterprises in the tourism destinations.

The empiric research analyses Hungarian hotel industry on the level of micro regions, on the basis of economic and social indexes, tourism and hotel index-numbers. I examined and introduced the relationship between them with SPSS research and data analysis. The research span from 2007 until 2015 and it was performed with collection and analysis of the economic, social, regional and data on tourism and within this detailed hotel data that originate from the database of KSH.

The SPSS research touched upon more than thirty types of economic and social index-numbers (e.g. PIT per capita, number of enterprises per one thousand inhabitants, the proportion of job hunters within the total population, proportion of the pensioners, housing stock per one thousand people, the number of cars per one thousand inhabitants, the number of family doctors per one thousand people, the number of students per one thousand inhabitants, number of family doctors, etc.) and more than 15 types of indexes of tourism, hotel industry (e.g. number of guests,

overnight stays, accommodations, hotels, capacity, occupation indexes, average price, RevPar, incomes, etc.) for all micro regions and in every year. I collected and grouped the data from the database of HCSO (KSH) and then, I prepared them for the data input and the assessment.

The research encountered numerous objective difficulties, including the fact that a lot of legal rules have changed influencing the possibility of future comparison of the statistical data. The number of micro regions, later districts, has changed during the assessment period in Hungary, therefore, this also caused difficulties in following the changes in the input and data processing, and the changes do not, or only at an inessential extent, distort the results.

There were changes in the legal regulations regarding tourism and hotels. The Government Decree 239/2009 (X.20.) on conditions applicable to the provision of accommodation and to issuing licences for operating accommodations was published for example. The Hotelstars Union hotel qualifying system was introduced in Hungary and in numerous countries in Europe, which also influenced the hotel industry and the quality categories of hotels.

As the use of the Hotelstars Union system did not become compulsory and a great number of hotels did not qualify themselves either, a new hotel category appeared in the statistics of HCSO as in the year of 2012: the large number of the non-qualified hotels "without category". For example in the year 2012, the proportion of the non-qualified hotels was more than ten percent, which did not enable the exact follow-up of the hotel categories unfortunately any more.

As part of the research, I conducted 32 structured interviews with experts in this area, who were concerned in one form or another. Among the interviewees, there were hotel owners, hotel leaders, chief executives of tourism professional unions, mayors of cities who are significant from the point of view of tourism, experts dealing with regional developments, leaders of tourism management, educators, researchers who participate in university tourism education, or who cover some areas in tourism education.

4. RESULTS AND DISCUSSION

The research of tourism on a regional level has some traditions in Hungary (Aubert, 2007)

(Fehér & Kóródi 2008), which I have studied as a starting point, but I also extended my research into the detailed index-numbers in connection with the hotel industry, (Occupancy, Average Rate, RevPAR, Revenue, etc.) that have not been used previously because it was not about the research of the hotel industry.

Basically, those micro regions are significant, as far as the hotel supply is concerned, where one can find cities and settlements that are important from the view point of tourism and hotels, and commercial accommodations are also operating. According to the data from 2011, there was no single hotel operated in 38 from the 175 micro regions. This means just a quarter of the micro regions and also the territory of the country. There were just three counties in the country where at least one hotel was operating in each micro region, for example Zala, Csongrád and Tolna, however, in the micro regions on different places of the country, there was really operating only one hotel (HCSO, 2012).

During the analysis, I aimed to introduce numerical links between the two main groups of variables, the economic and social development levels of the destination and its importance, competitiveness in the hotel industry and tourism.

The level of economic development is in moderately strong connection with the relative indexes of tourism (indexes per 1000 permanent residents). The more developed micro regions have, a bigger capacity for tourism.

One also has to make a difference between the micro regions with significant tourism attraction and those with modest attraction but developed economy when analysing the micro regions. In general, one can state that leisure tourism is typical for those mentioned above and accordingly, the holiday, medical and wellness hotels are dominant from the types of settled hotels in these tourism destinations.

An economically advanced micro region including developed cities, which is an administrative centre too and where industry is developed and one can recognise the presence of logistic centres, a knowledge center, the level of development of the region itself generates tourism, economic activity is necessarily accompanied by the profession-tourism.

In general, different types of the city hotels are operating in these settlements, the business and conference hotels specialised for MICE are of enhanced importance.

One can recognise a group of the micro regions in which the hotel activity is very strong. I have grouped each micro region according to the hotel indexes on the basis of the 2011 data, using the following method: hierarchical cluster analysis with the Ward's method, taking the Euclidean distances for the basis.

In the research, I examined casual links between the data with economic and hotel types first of all, therefore, I examined the difference between the economic performances of the groups generated on the basis of relative hotel indexes with an analysis of variance (ANOVA). Instead of the Pearson's correlations, we applied the analysis of variance in order to confirm the results, making them more sophisticated. The three clusters received the following average points of the economic development factor:

Tab. 1 - Activity and Competitiveness of the Hotel Industry in Hungary by micro-regions
Source: results, own research

	N	Mean	Deviation	Std. Deviation	Minimum	Maximum
Most active	8	1,1900167	,82896993	,29308513	-,25722	2,12174
Active	15	,5474382	,79028870	,20405166	-1,11988	1,70255
Less active	152	-,1166560	,97162702	,07880936	-2,89395	2,04289
Total	175	,000000	1,0000000	,07559289	-2,89395	2,12174

As it can be seen from the above table of the group averages above, there is a significant difference between the levels of economic development of the micro regions that are active from the hotels' point of view. Its tendency confirms positive causal link we received during the correlation calculation. The η^2 (Eta-squared) index gives the strength of relation, which can be calcu-

lated on the basis of the analysis of variance (ANOVA). In this case, $\eta^2=10.18$. It means that our grouping on the basis of the hotel indexes explains the level of development of the micro regions in 10.18 per cent, which is relatively low, but it is a strong explanation power.

Tab. 2 - Activity and Competitiveness of the Hotel Industry in Hungary by micro-regions
Source: own research

	N	Names of the micro-regions in Hungary
Most Active	8	Hévíz, Csepreg (Bük), Balatonföldvári, Balatonfüredi, Hajdúszoboszlói, Sárvári, Siófoki, Zalakarosi micro-regions.
Active	15	Balatonalmádi, Bélapátfalvai, Budapest, Egri, Fonyódi, Gárdonyi, Gyulai, Keszthelyi, Mosonmagyaróvári, Siklósi, Sopron-Fertődi, Sümegi, Szentgotthárdi, Tokaji, Zalaszentgróti micro-regions.
Less active	152	Rest micro-regions of Hungary
Total	175	All micro-regions of Hungary

From the three groups, those micro regions can be found in the first one (Hévíz, Csepreg (Bük), micro regions of Balatonföldvár, Balatonfüred, Hajdúszoboszló, Sárvár, Siófok, Zalakaros) where, as compared with the population, the relative (per 1000 inhabitants) index-numbers are the highest and one can feel close connection with the level of economic-social development and tourism, within this the level of development of the hotel industry and its competitiveness as well.

Apart from the capital, the highest quality-level hotels can be found here, those that produce the best index-numbers (Occupancy, Average Rate, RevPAR, Room revenue, Total revenue). In 2013, for example in Sárvár, the 4* and 5* hotels reached the highest average rate in the country as far as their prices are concerned. (HCSO, 2014)

If we did not consider it on the micro region but on the settlement level, 7 settlements from this group are included in the TOP 10 list of Hungary in respect of overnights.

In the second group (micro-regions of Balatonalmádi, Bélapátfalva, Budapest, Eger, Fonyód, Gárdony, Gyula, Keszthely, Mosonmagyaróvár, Siklós, Sopron-Fertőd, Sümeg, Szentgotthárd, Tokaj, Zalaszentgrót), the settlements still have significant tourism and hotel industry, as a result of high number of population, the relative indexes per 1000 inhabitants show a less advantageous picture in comparison to the first group.

Budapest got into this group, which was still treated as a micro region when the analysis was prepared and because of its number of inhabitants (1.7 million inhabitants in 2011) it could not get into the first group. The most important tourism attraction can be found in the settlements belonging to the first two groups in the country, the important locations of the medical tourism, the best medical and amusement baths and the related spa wellness hotels.

Hotels of the top category and the highest income and best index-numbers can be found in the 5th district of Budapest, along the Danube or next to it, the majority of which belong to big chains of hotels (Four-Season, InterContinental, Marriott, Kempinski, Accor-Sofitel).

The third group (152 micro-region) became a big summary group, what they share is that on the basis of the relative development level indexes, from the point of view of tourism, they do not belong to the micro regions with favourable indexes any more.

These 152 micro regions can be divided into further 3 sub-groups, from which in the first group, encompassing circa 30 micro regions, tourism is still considered significant.

Large rural cities, types of medical and holiday resorts belong here, where the hotel capacity is lower, but there are still some tourism attractions, including baths, and from the professional tourism (MICE) primarily business tourism is present in these cities. On the basis of the calculated indexes, two large cities were also included, which have more than 100,000 permanent residents, all of them are important industrial, in particular, automotive centres. Thanks to the activity of the Audi factory in Győr, and Mercedes in Kecskemét, business tourism is significant, but because of a high number of inhabitants, relative indexes are not so favourable any more.

The hotel and accommodation capacity is in the third sub-group (about 80 micro regions), already very low, they are rather able to meet requirements of the domestic tourists, the number of foreign overnight stays is already very low.

The forty or so micro regions belong to the third sub-group, where there are not any hotels and tourism is not typical either.

In the horizontal drawn by each main component and the level of economic development of the micro region, the location of each region can be drafted. As Fig. 4 shows, the populous group of the micro regions belongs to the rank with a low tourism reception capacity. We can see on the scatter graphic that both the low and the high level of economic developments can belong to it, e.g. industrial centres or lagging regions. Besides, we can see another group too, the rank of regions with significant tourism reception capacity. It is apparent that a higher level of economic development accompanies a bigger tourism reception capacity. The previous correlation, the analysis of variance indicated these relations.
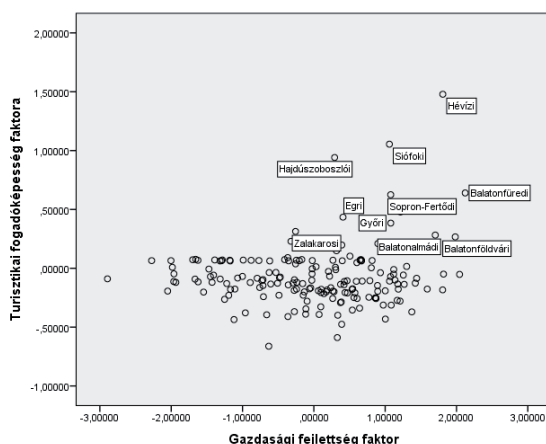

Fig. 4 – Scatter graph. Tourism Capacitability and the Economic Development (Vertical: Tourism C. / Horizontal: Economic D.) Source: own research

It is also worth analysing how the values of other main components relate to the level of economic development. It reveals that the correlation is stronger because the level of economic development and the tourism capacity utilization and rentability correlate relatively strongly (statistically medium strength) (r=0,44).

Thus, one can see that the tourism reception capacity itself is in less strong connection (but it can still be shown) with the level of economic development because the tourism attraction is dominant by the developments and capacity extensions, however, the level of economic development and the tourism economic efficiency indexes on the micro region level show a stronger correlation. It means that one can reach a significant REVPAR index in an economically advanced region, or an economical branch of tourism industry can establish the basis of the level of economic development on its own.

The hotel economic efficiency indexes (capacity utilization, room utilization, charge for accommodation per night, REVPAR index, room average price) are significantly different in those micro regions where outstanding, significant and low hotel activity is typical. To prove this, we performed an analysis of variance again, where the level of the growth of capacity was the dependent variable, while the previously formed three micro regional groups which were differently active from the point of view of tourism was the independent variable.

I compared the micro regions that were grouped after the economic-social development indexes and those grouped according to the hotel activity with each other. I used the method of cross-tabulation. Those regions which possess tourism with a strong hotel basis must belong to the advanced economic regions. If it succeeds to establish a tourism centre, its economic returns do not fall behind either.

It means that economic development on the micro region level is in connection with the relative economic development of the hotel industry. The higher level of economic development means the higher the level of capacities and income in the hotel industry are, and the higher level of hotel activity is accompanied by a better economic potential.

We had to complete the quantitative assessments by questions and answers to the structured interviews because the numbers did not reveal all correlations either; a qualitative assessment was needed too. The regional concentration of the hotel industry in Hungary was considered as a fact that has developed during decades and it cannot be changed very much for some time either.

There have been contradicting opinions about one important question which related to the focus of improvement of the hotel industry, whether it was the contribution to improvement of the underdeveloped regions or to further development of the already more advanced regions.

This was the question, to which we received the most different answers and there were extremely polarized opinions too.

'*Improvement can contribute to development of tourism in undeveloped regions better. Creation of new jobs, through suppliers can contribute to development of economy too.*'

It was also submitted that tourism and the hotel industry really contribute to further development of the developed areas; however, they do not equalize but rather increase the differences between the developed and the less developed regions.

One mayor of the first ten Hungarian cities leading overnight stays in Hungary said that they supported new hotel investments, as far as they provided the basic infrastructure for the "green-field" projects and the administration deadlines, where the local government was competent, would be handled flexibly and, if it was necessary, they could extend them several times too. Currently, it is not typical any more that local governments try to attract investors to their grounds with very much reduced prices; everybody wants to sell the grounds at the highest possible price.

Two opinions were typical in connection with competitiveness of the Hungarian hotel industry.

Firstly, there is no problem with the quality and the personnel, the hotels have been even better and more competitive since the renewals, the continuous service extension investments and the introduction of the Hotelstars Union system. More than sixty per cent of hotels had become controlled and qualified hotels in Hungary by the year 2015. One can rarely find 1- and 2-star hotels in Budapest and in the country, in the last ten years, the investors mainly built 4- star hotels (HCSO).

The subjective assessments on the hotel review sites also show that the hotels are even better qualified; one can experience extreme complaints for the services only very rarely.

Internationally, we heard rather negative and pessimistic opinions. Many of respondents emphasized that among the capitals that are included in the European hotel comparisons, Budapest is listed almost last in respect of the hotel industry indexes. Vienna and Prague, which are the main competitors from the point of view of tourism, overtake Budapest in every respect. It is necessary to point out that the problem is not with the quality of hotels, since Budapest is welcoming the guests with a range of high quality hotels as a whole. In connection with Prague, one has to mark that just over twenty years ago, at the time of the political transformation, the Hungarian capital had already surpassed the Czechoslovak capital in respect of the tourism possibilities and the exact indexes. The reasons have already been analysed by many people and they revealed that the roots point far beyond the frames of the hotel industry but even those of tourism as well. A foreign researcher's study about the tourism of Eastern Europe joins this idea, Hall, R.D. (1993), which included the 1980s and 1990s and some years after the political transformation, at that time he still considered Hungary to be the leading tourism destination of the region, which was proved objectively by the statistics of that time too. From the results of the research, the empiric hotel research (SPSS) could objectively show the most important tourism destinations on the basis of quantitative data and also that development and competitiveness of particular destinations are in close connection with development of the hotel industry in the region. The preceding research of other authors (Aubert, 2007), (Fehér & Kóródi 2008) also arrived at the same result as far as the destinations are concerned. However, they did not study the issue from the point of view of the hotel industry though they also emphasized the importance of accommodations. However, the results of the structured interviews give reason for debates on many issues, as the experts also drafted different opinions in respect of development and competitiveness of the tourism destinations in Hungary.

5. CONCLUSION

Tourism and within this the hotel industry is very concentrated in Hungary. It is focussed on a relatively few priority tourism destinations, where they had a developed and competitive hotel industry in turn. In addition, using the morals of competitiveness models of the tourism destinations, we can find a possible solution to numerous questions in detail, by assessment of a specific destination or by comparison of several destinations, what and how one would have to develop for the sake of a successful destination.

Primary research indicated that tourism is the most important branch in the micro regions that are ranked in the first group. Moreover, it is number one regarding employment providers for the local population and enterprises too.

These are, in general, the most important locations of the medical tourism (Hévíz, Hajdúszoboszló, Bük, and Zalakaros), where the number of permanent residents is relatively low and accordingly, the number of overnight stays, the intensity of tourism is high and other branches of economy are less significant. In case of majority of the settlements at Lake Balaton, tourism is the most important branch too, but the main season depending on the weather is very short for majority of inhabitants to actually earn their living from tourism alone in the whole year and in the long run.

The level of development and competitiveness of tourism in tourism destinations in Hungary is in close connection with the level of development of the hotel industry, because the main part of the hotel industry is settled next to the tourism attractions, whilst there are no hotels in the micro regions at all where there is a lack of significant attractions, which makes out a quarter of the territory of the country.

The structured interviews confirmed the results of the quantitative analysis and they also revealed professional correlations that can be hardly described and assessed with figures.

Concerning quality, the Hungarian hotel industry is generally competitive, although by international comparison, its performance indicators are fairly less favourable versus highly developed global destinations, for example famous capitals and holiday resorts.

The limit of the investigation was that it mainly studied development and competitiveness of the hotel industry in the tourism destinations; however, it did not study other features of the regions. The results of the research are valid in Hungary because the most successful and competitive tourism destinations are the ones where one can find a developed and active hotel industry and guests can stay in good-quality hotels for long stays. The study was not dealing with the competitive situation among hotels, categories of hotels and hotel types or with their relationships because it was not the target. However, a further research can certainly study these factors too. The research did not concentrate on the study of guest satisfaction levels in hotels and their impact on competitiveness either. This would be dealt with in a future study using primary research with questionnaires.

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The Employees of Baby Boomers Generation, Generation X, Generation Y and Generation Z in Selected Czech Corporations as Conceivers of Development and Competitiveness in their Corporation

- *Bejtkovský Jiří*

Abstract

The corporations using the varied workforce can supply a greater variety of solutions to problems in service, sourcing, and allocation of their resources. The current labor market mentions four generations that are living and working today: the Baby boomers generation, the Generation X, the Generation Y and the Generation Z. The differences between generations can affect the way corporations recruit and develop teams, deal with change, motivate, stimulate and manage employees, and boost productivity, competitiveness and service effectiveness. A corporation's success and competitiveness depend on its ability to embrace diversity and realize the competitive advantages and benefits. The aim of this paper is to present the current generation of employees (the employees of Baby Boomers Generation, Generation X, Generation Y and Generation Z) in the labor market by secondary research and then to introduce the results of primary research that was implemented in selected corporations in the Czech Republic. The contribution presents a view of some of the results of quantitative and qualitative research conducted in selected corporations in the Czech Republic. These researches were conducted in 2015 on a sample of 3,364 respondents, and the results were analyzed. Two research hypotheses and one research question have been formulated. The verification or rejection of null research hypothesis was done through the statistical method of the Pearson's Chi-square test. It was found that perception of the choice of superior from a particular generation does depend on the age of employees in selected corporations. It was also determined that there are statistically significant dependences between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations.

1. INTRODUCTION

In recent years, a range of Human resources management concepts have been used, such as Human resources management ethics (e.g., Winstanley, Woodall & Heery, 1996; Greenwood, 2002), Human resources diversity management (e.g., Shen, Chanda, D'Netto & Monga, 2009), high involvement Human resources management (e.g., Guthrie, 2001), flexible employment (e.g., Guest, 2004), family-friendly Human resources management (e.g., Bagraim & Sader, 2007) and

work–life balance concept (e.g., Bardoel, De Cieri & Mayson, 2008). From their different perspectives, these concepts address employees' wishes, needs and interests. (Shen & Zhu, 2011)

Different generations represented in the workforce today provide additional challenges and complexity for managers everywhere. Twenty years ago, workers in their 60s would be considering retirement. However, with better health, longer life spans, and the need to offset financial losses from the economic crash of 2008, many workers are staying. Meanwhile, younger generations are pouring in. While managers and human resource leaders have spent decades focusing on gender or racial diversity, today's challenge comes from different needs, expectations and age span present and developing in the modern workplace. If not properly managed, it will influence productivity, create conflict and result in unnecessary employee turnover. (Smith, 2013)

While having diversity of ages in the workplace can be beneficial, corporations and employees alike have observed differences in the way in which these four generations function in the workplace. (Hansen & Leuty, 2012)

According to the Center for Generational Kinetics (© 2016) and Knight (2014), for the first time in a history, five generations will soon be working side by side. Here is an overview of the five generations by birth years:

- iGen, aka the Generation Z: born 1996 and after.
- Millennials, aka the Generation Y: born 1977 to 1995.
- The Generation X: born 1965 to 1976.
- The Baby Boomers generation: born 1946 to 1964.
- Traditionalists: born 1945 and before.

The following questions are addressed in this research article:

- What chronological schemes are used to distinguish among various generations (e.g., the Baby boomers generation, the Generation X, the Generation Y, and the Generation Z) in today's workplace?
- What is known about a cross-generation collaboration in today's workplace?

This paper is structured as follows: first, a theoretical background is introduced, and then, the methodology used is mentioned followed by findings about generations at work in selected corporations in the Czech Republic. Finally, a discussion and conclusions are presented.

2. LITERATURE AND THEORETICAL BACKGROUND

Regarding this, Peterson (2015) says that the words diversity and inclusion have been around for a long time. Most organizations that desire a happy and productive workforce, financial viability and competitiveness, and organizational sustainability have realized the importance of diversity among the employees, and that an inclusive culture is the best way to leverage the advantages that diversity can bring.

For the first time in modern history, the workforce consists of four/five separate generations working side by side – and the differences among them are one of the greatest challenges man-

agers face today. Nevertheless, the differences that set them apart can also bring them together. (Wasserman, 2007)

According to Oh & Reeves (2011), the generational differences are widely discussed in the popular press, business-oriented books, conferences, workshops and so on. The terminology used to label the generations is not standardized because various people writing about generational differences have come up with a variety of different names to label the various generations. There is also significant disagreement among various authors about which span of years should be encompassed within one generation.

The table (Tab. 1) shows a comparison of five different labels given to various generations as well as the different chronological schemes used to assign people born in certain year to a generation as defined by the sources listed in column one.

However, it is important to acknowledge that there is a great deal of variance among the distinguishing characteristics within any generation stated, and thus it is unjustified to assume that if a person was born in 1985, he/she would have most of the characteristics of the Generation Y, or that someone born in 1960, and thus the Baby boomers generation, would be not as technologically sophisticated as a person born into the Generation X or the Generation Y. (Oh & Reeves, 2011)

Tab. 1 – The generational labels and dates reported in different sources. Source: Oh & Reeves (2011)

Howe & Strauss (2005)	Silent Generation	Boom Generation	13th Generation	Millennial Generation	Generation Z
	1925 – 1943	1943 – 1960	1961 – 1981	1982 – 2000	2004 – 2025
Lancaster & Stillman (2010)	Traditionalists	Baby Boomers	Generation Xers	Millennial Generation / Echo Boomer / Generation Y / Baby Busters / Generation Next	
	1900 – 1945	1946 – 1964	1965 – 1980	1981 – 1999	
Martin & Tulgan (2002)	Silent Generation	Baby Boomers	Generation X	Millennials	
	1925 – 1942	1946 – 1960	1965 – 1977	1978 – 2000	
Oblinger & Oblinger (2005)	Matures	Baby Boomers	Gen-Xers	Gen-Y / NetGen / Millennials	Post-Millennials
	< 1946	1947 – 1964	1965 – 1980	1981 – 1995	1995 – Present

Tapscott (2009)		Baby Boom Generation	Generation X	Digital Generation	
		1946 – 1964	1965 – 1975	1976 – 2000	
Zemke, Raines, & Filipczak (2000)	Veterans	Baby Boomers	Gen-Xers	Nexters	
	1922 – 1943	1943 – 1960	1960 – 1980	1980 – 1999	

Birth years are only one factor to consider in distinguishing among generations, and a relatively minor one at that. Instead, most experts argue that generations are shaped much more by history than by chronological dates.

However, corporations that address generational diversity and educate their employees can turn the dynamic to their advantage. In the same way that gender and racial diversity improved the modern workforce, so can generational diversity. The rules for solving a generation gap (Smith, 2013): be flexible with communication methods, understand the employees, educate the masses and encourage positive relationships.

According to Hammill (2005), the first thing to consider is the individual and his or her underlying values, or personal, lifestyle characteristics and workplace characteristics, which seem to correspond with each generation, as shown in the following table (Tab. 2).

Tab. 2 – Personal, lifestyle and workplace characteristics by generation. Source: Cook (2015); Hammill (2005); Wasserman (2007)

Views Toward	Veterans (1922 – 1945)	Baby Boomers (1946 – 1964)	Generation X (1965 – 1980)	Generation Y (1981 – 2000)
Core values	Respect of authority, discipline	Optimism, involvement	Skepticism, fun, informality	Realism, confidence, extreme fun, social
Family	Traditional	Disintegrating	Latch-key kids	Merged families
Education	A dream	A birthright	A way to get there	An incredible expense
Dealing with money	Put it away, pay cash	Buy now, pay later	Cautious, conservative, save	Earn to spend
Work ethic and values	Hard work, respect authority, sacrifice, duty before fun, adhere to rules	Workaholics, work efficiently, personal fulfillment, desire quality	Eliminate the task, self-reliance, want structure and direction, skeptical	What's next, multitasking, tenacity, entrepreneurial, tolerant, goal oriented
Work is …	An obligation	An exciting adventure	A difficult challenge, a contract	A means to an end, fulfillment

Interactive style	Individual	Team player	Entrepreneur	Participative
Communi-cation	Formal	In person	Direct, immediate	E-mail, Voice mail
Feed-back and rewards	No news is good news, satisfaction in a job well done	Don't appreciate it, money, title recognition	Sorry to interrupt, but how am I do-ing?, freedom is the best reward	Whenever I want it, at the push of button, meaning-ful work
Ideal lead-ers	Authoritarian commanders	Commanding thinkers	Coordinating doers	Empowering col-laborators
Work and family	Never the twain shall meet	No balance, work to live	Balance	Balance
Special Interests	Want to feel needed, they are patient and loyal and expect loyalty in return	Look for future security rewards	Are most likely to excel at multi-taking	Is amazingly optimistic. "We can do this". Sometimes this is detrimental to achieving success in the workplace.

The characteristics listed in the table are only a few of those that have been studied and reported by various authors. Not every person in a generation will share all of a various characteristics shown in this or the next table with others in the same generation. However, these examples are indicative of general patterns in the relationships between and among family members, friends and people in the workplace. Individuals born at one end of the date range or the other may see overlapping characteristics with the preceding or succeeding generation. (Hammill, 2005)

Generation Z – the members (the employees) of Generation Z (also known as Digital Natives, Silent, and New Silent) were born approximately between the years 2000 to the present. Unlike other generations, the members of Generation Z are not good listeners and they lack interpersonal skills. Communication with others generally consists of use of the World Wide Web. Due to the interest in new technology, the members of Generation Z can generally be found at locations that offer the advantage of being hooked up to the Web. The Generation Z member's interpersonal skills are different from the other generations as they are set apart and are the newest generation. Interpersonal skills are awkward for this generation. They lack interpersonal skills that are needed to communicate and relate to individuals. Generation Z is also known as the "silent" generation due to technology ruling the world thus giving them the name of the "silent, the iGeneration, generation quiet, and the next generation". They take the Internet for granted and consider web sites such as Orkut, Google, and Facebook as their community. Within this community of cyber space, a person can have many acquaintances without personally meeting anyone. By being considered the quiet generation, the members of this generation do not have personal meetings with their friends that may lead to relationships. (Cook, 2015; Gouws & Tarp, 2016; Harber, 2011; Singh, 2014)

2.1 The Czech Republic and perception of different generations

According to Schwartz, Hole & Zhong (2010), the generational differences in any society are shaped by political, socioeconomic and cultural events. The table (Tab. 3) illustrates a global generation overview.

Tab. 3 – Global generation overview. Source: Ballantyne & Packer (2013); Schwartz, Hole & Zhong (2010)

			1950	1960	1970	1980	1990	2000
China			Post-50s generation (1950-1959)		Post-60s generation (1960-1969)	Post-70s generation (1970-1979)	Post-80s generation (1980-1989)	Post-90s generation (1990-1999)
India			Traditional generation(1948-1968)			Non-Traditional generation (1969-1980)	Gen Y(1981-onward)	
South Korea			"475" generation (1950-1959)		"386" generation (1960-1969)	Gen X and Gen Y(1970-onward)		
Japan	1st Baby Boomer (1946-1950)	Danso generation (1951-1960)	Shinjinrui generation (1961-1970)	2nd Baby Boomer (1971-1975)	Post Bubble (1976-1987)	Shinjinrui Junior (1986-1995)	Yutori (1987-2002)	
Russia		Baby Boomers (1943-1964)			Gen X(1965-1983)		Gen Y (Gen "Pu")(1983-2000)	
Bulgaria		Post War generation (1945-1965)			Communist generation (1965-1980)		Democracy generation (1980-onward)	
Czech Republic		Baby Boomers (1946-1964)			Generation X - "Husak's Children generation" (1965-1982)		Generation Y (1983-2000)	
South Africa		Baby Boomers (1943-1970)				Gen X (1970-1989)		Gen Y (1990-2000+)

Brazil	Baby Boomers (1946-1964)	Gen X (1965-1980)	Gen Y (1981-2001)
USA	Baby Boomers (1946-1964)	Gen X (1965-1980)	Gen Y (1981-2001)

Regarding this, Schwartz, Hole & Zhong (2010) remark that the similar trends emerged in Central and Eastern Europe after the collapse of communism and the Soviet empire; but even here, generational nuances are as numerous as the histories that shaped these various countries. For example, the Boomers in the Czech Republic and Bulgaria are, like Russia's, the product of post war communism and embrace more collectivist working styles. However, the impact of the Prague Spring of 1968 and the Velvet Revolution of 1989 directly shaped the attitudes of the Czech Republic's Gen X (also known as "Husak's Children"). This generation is profoundly focused on compensation and career development opportunities. Meanwhile, Gen Y in the Czech Republic and their Bulgarian contemporaries, the Democracy Generation, are more inclined to seek work-life balance than their immediate predecessors. For Bulgaria's Democracy Generation, openness to opportunities created by globalization is a clear trait, and opportunities to work abroad are regarded as a standard part of career experience.

2.2 Cross-Generation Collaboration

Creating opportunities for multiple and varying small team collaborations is a key for a cross-generation collaboration. The 4C below provide an easy guide to successful collaborations (Wasserman, 2007): communication, connection, conflict engagement and career development.

3. OBJECTIVES AND METHODOLOGY

The article presents a view of some of the results of quantitative and qualitative research conducted in selected corporations in the Czech Republic. The researches were carried out last year, in the year 2015. The main objective was to fulfill the following tasks:

- The realization of secondary research. This research was identified through a search of scholarly literature available especially through electronic databases. For example, the articles at Web of Science database were taken into consideration.

- The implementation of primary research. The quantitative research was performed through an anonymous questionnaire survey. The questionnaires were distributed in paper form, in five versions. The questionnaire results served for the testing of the research hypotheses/assumptions. The choice of this research tool allowed for inclusion of a wide sample of respondents. The first version of a questionnaire survey was for HR professionals, managers, specialists or leaders of the selected Czech corporations. The second, third, fourth, fifth version of a questionnaire survey was for employees of selected Czech corporations (the employees of the Baby boomers generation, the Generation X, the Generation Y and the Generation Z). The questionnaires contained twenty questions in total: closed format questions (closed-ended bipolar questions, closed-ended dichotomous questions, closed-ended importance questions, closed-ended Likert questions, closed-ended leading questions,

closed-ended rating scale questions) and open format questions. The qualitative research was performed through the semi-structured interviews. The results of interviews served for answering a research question. The employees of selected Czech corporations that are active and responsible for the area of human resources (HR professionals, managers, specialists or leaders) and employees of selected Czech corporations were confronted with the research hypotheses and with a research question.

In regards to processing introduced article, commonly available scientific methods were used, e.g. analysis, synthesis, comparing and others. The basic research dataset was drawn from the list of 100 most admired companies in the Czech Republic compiled by Czech Top 100, which was then merged with the list of the largest Czech companies by sales volume and the database of Business for Society, the sponsor of the TOP Responsible Company award. The selection set (the sample survey) included 182 companies which had elected to participate in the research. The corporations' structure is presented in the table below (Tab. 4). The research group of the questionnaire survey (an anonymous questionnaire) included in total 182 employees of selected Czech corporations working in and responsible for the area of human resource management and 3,182 employees. If the conditions allowed, twenty employees (five employees of each age generation) were addressed from every corporation. The employees were chosen by proportional subset selection, with the same percentage share of employees chosen to represent each generation, which is a type of probability-based random selection. The respondents' age structure is presented in a table (Tab. 5).

Tab. 4 – The corporations' structure. Source: Authors, own source

Corporation category	Staff headcount	Turnover or Balance sheet total	The absolute frequency	The relative frequency
Large	≥ 250	≥ € 50 million or ≥ € 43 million	62	34.06 %
Medium-sized	< 250	≤ € 50 million or ≤ € 43 million	88	48.35 %
Small	< 50	≤ € 10 million or ≤ € 10 million	24	13.19 %
Micro	< 10	≤ € 2 million or ≤ € 2 million	8	4.40 %
Total	X	X	182.00	100.00 %

The table (Tab. 4) presents the corporations' structure. Within the performed quantitative research (the questionnaire survey), 182 selected Czech corporations were addressed. According to a list of industries, the structure of selected Czech corporations was following: buildings sector, educational services, engineering, finance and insurance sector, food sector, healthcare sector, chemical sector, ICT sector, telecommunications, tourism sector, trade, transportation, and other area.

Tab. 5 – The respondents' age structure. Source: Authors, own source

| The generation | The years | Sex | | The absolute frequency | The relative frequency |
		Female	Male		
The Boomers	1946 – 1960	426	482	908	28.54 %
Generation X	1961 – 1980	441	461	902	28.35 %
Generation Y	1981 – 1994	410	481	891	28.00 %
Generation Z	1995 – 2001	183	298	481	15.11 %
Total	X	1,460	1,722	3,182	100.00 %

The respondents' age structure, in the presented researches in this paper was determined by comparing several authors, such as Horváthová, Bláha & Čopíková (2016); Fry (2015); Gardiner, Grace & King (2015); Chum (2013); McNeese-Smith & Crook (2003); Stuenkel, de la Cuesta & Cohen (2005); West (2014); Zemke, Raines & Filipczak (2000).

Based on the theoretical framework outlined in previous chapters and the hypothetical model illustrated, the following two research hypotheses (H1, H2) and one research question (RQ1) have been formulated:

H1: There are statistically significant dependences between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic.

H2: There are statistically significant dependences between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.

RQ1: What should individuals (employees) of different generations learn in order to cooperate well and effectively?

The research involved instruments such as the tools of descriptive statistics (averages and percentages). The hypotheses were tested (verified) individually for each criterion using the statistical method of the Pearson's Chi-square test of independence on the research hypotheses. The evaluation was carried out with the help of the SPSS Statistics program. The SPSS Statistics program was an important tool for the data analysis due to its possibilities in data processing using pivot tables, the methods of comparison and deduction in the data analysis.

The categorical data were obtained during the analysis of the questionnaire survey (the quantitative research). The pivot tables were subsequently used as an easy way to display relations between these data. Subject to the character of the data, suitable tests of independence were carried out. (Hendl, 2006)

Regarding this, Řezanková (2011, 1997) says that for the purpose of the pivot table of the $r \times c$ type (r is the number of rows, c is the number of columns), the following test statistic was used most often:

$$\chi^2 = \sum_i \sum_j \frac{(n_{ij} - e_{ij})^2}{e_{ij}}, \quad (1)$$

Alternatively:

$$G^2 = \sum_i \sum_j n_{ij} \, ln \frac{n_{ij}}{e_{ij}}, \quad (2)$$

e_{ij} is the expected and nij is the observed frequency. Either the test statistic χ^2 of Pearson's Chi-square was used to test independence or G2 for the likelihood-ratio test. These two statistics are asymptotically $\chi^2_{(r-1) \times (c-1)}$ distributed. The null hypothesis of the test assumes independence. In order to apply the Pearson's Chi-square test, a maximum of 20 % of the expected frequencies must be less than five. (Agresti, 2013; Řezanková, 2011, 1997)

According to Anděl (2011), where the Pearson's Chi-square test could not be applied, Fisher's exact test was used or the simulated p-value of the χ^2 statistic was calculated. The p-value for each hypothesis was calculated by means of the SPSS Statistics program. Statistically significant dependences and differences between the selected factors were compared (verified) through Pearson statistics at significance level of 5 %. If the calculated p-value was less than 5 %, the null hypothesis was rejected, and the alternative hypothesis was adopted.

The research group of semi-structured interviews included 48 employees of selected Czech corporations working in and responsible for the area of human resources management. The managers were chosen using a combination of several types of intentional selection; in particular, judgment-based selection supplemented with chain and quota selection. By means of the semi-structured interviews, more general categories were defined that covered statements of the addressed employees and consequently it was identified what claims were repeated in their responses. At the end, summary and interpretation of the identified facts was performed. The structure of the employees of selected Czech corporations that are active and responsible for the area of human resources (HR professionals, managers, specialists or leaders) is presented in the table below (Tab. 6).

Tab. 6 – The structure of HR professionals, managers, specialists or leaders. Source: Authors, own source

Corporation category	The absolute frequency	The relative frequency
Large	10	20.84 %
Medium-sized	22	45.83 %
Small	12	25.00 %
Micro	4	8.33 %
Total	48.00	100.00 %

The table (Tab. 6) presents the structure of HR professionals, managers, specialists or leaders. The qualitative research included 48 employees of selected Czech corporations that are active and responsible for the area of human resources.

4. RESEARCH RESULTS AND DISCUSSION

In order to fulfil the aim of this article, two research hypotheses (H1, H2) and one research question (RQ1) were set in relation to the diversity in the workplaces – to the generations in the cross-generational workplaces. The results of the statistical processing of the data collated from the research are presented in this section. To clarify this, the tables are used.

The research hypothesis 1: There are statistically significant dependences between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic.

The question from the questionnaire that examined this dependence was: If you had the opportunity to choose your superior according to biological age, would it be a person from the generation of Baby boomers, Generation X, Generation Y or Generation Z?

A comparative analysis was performed for the value of preferences of individual answers of employees from different groups of generations in selected corporations in the Czech Republic. The Pearson's Chi-square test was used to test the null hypothesis.

H0: There is no correlation between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic.

HA: There is correlation between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic.

In other words, there is no statistically significant difference between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic.

The table (Tab. 7) shows data that characterize the research hypothesis.

Tab. 7 – The verification of the research hypothesis by means of the Pearson's Chi-square test. Source: Authors, own processing at SPSS Statistics program (2016)

H1: There are statistically significant dependences between the choice of superior from a particular generation and the age of employees in selected corporations in the Czech Republic			
The statistical method	Chi-square	df	p-value
Pearson's Chi-square test	2253.793	9	0.000***

The results of verification of the research hypothesis show that the p-value of Pearson's Chi-square test of independence is 0.000. The null hypothesis (H0) of independence was therefore rejected at a level of independence of 5 %. The H1 hypothesis – the perception of the choice of superior from a particular generation does depend on the age of employees in selected corporations in the Czech Republic – was therefore confirmed.

According to the addressed employees in selected corporations in the Czech Republic, "a right (immediate) superior" – he or she:

- Is an excellent mentor/coach, is interested in employees' success and well-being, helps employees with career development, is an encourager, is empathetic, shares authority, takes responsibility, is a good communicator, has sense of humor and is courageous, has a clear vision and strategy for the team, has key skills, so can help advise the team.

According to research findings of Ernst & Young (© 2013), management is evolving quickly. In the past years, both during and coming out of the recession, there has been a significant shift in the Generation Y and Generation X moving into management roles: total of 87 % of Gen Y managers surveyed moved into a management role during this period vs. 38 % of Gen X and 19 % of boomers managers. To compare this, the generational mix of those who moved into management the prior five years, from 2003 to 2008, was 12 % Gen Y, 30 % Gen X and 23 % Baby boomers.

For example, 8 most important qualities of a workplace leader – according to the Gen Y (Hays, © 2013): able to motivate others (47 %), supportive (47 %), fair (44 %), knowledgeable/expert (42 %), a person of integrity (30 %), decisive (22 %), confident (22 %), and direct (7 %). The Generation Y´s ideal boss is: a coach/mentor (51 %), a leader (40 %), an advisor (34 %), a confidant/discuss private and work matters (30 %), a friend (16 %), and a director/allocator of work (10 %).

The research hypothesis 2: There are statistically significant dependences between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.

The question from the questionnaire that examined this dependence was: If you had a chance to choose your colleagues according to biological age, would they be people from the generation of Baby boomers, Generation X, Generation Y or Generation Z?

A comparative analysis was performed for the value of preferences of individual answers of employees from different groups of generations in selected corporations in the Czech Republic. The Pearson's Chi-square test was used to test the null hypothesis.

H0: There is no correlation between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.

HA: There is correlation between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.

In other words, there is no statistically significant difference between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.

The table (Tab. 8) contains data that characterize the research hypothesis (H2).

Tab. 8 – The verification of the research hypothesis (H2) by means of the Pearson's Chi-square test. Source: Authors, own processing at SPSS Statistics program (2016)

H2: There are statistically significant dependences between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic.			
The statistical method	Chi-square	df	p-value
Pearson's Chi-square test	240.362	3	0.000***

When considering a dependence of the preference for heterogeneous or homogeneous cooperation according to the age of employees in selected corporations in the Czech Republic, the p-value of Pearson's Chi-square test of independence is lower than the defined level of significance. The results of a verification of the research hypothesis show that the null hypothesis (H0) of independence was therefore rejected at a level of independence of 5 %. The H2 hypothesis was therefore not rejected. The H2 hypothesis – the perception of the preference for heterogeneous or homogeneous cooperation does depend on the age of employees in selected corporations in the Czech Republic – was therefore confirmed.

In the research of 28 teams, heterogeneous teams solved complex tasks better than homogeneous teams. The cross-generational teams exhibited a higher level of creativity and a broader thought process. The analysis of the data from studies showed that team performance is positively influenced by high diversity for teams with high complexity tasks. As outlined above, this may be explained by a greater creativity or a wider range of thinking processes. The study also demonstrated that a high degree of team role diversity is detrimental for team performance in teams with less complex, more process driven tasks. From previous pieces of research, it is suspected that the increased conflict potential and the reduced team cohesion are the main causes for a reduced team output. The statistical analysis demonstrated that the trends of relationships of performance and team composition are different with a sufficient statistical significance, and the hypotheses, that diversity is beneficial in teams with high complex tasks and detrimental in teams with less complex tasks, were supported by the data. (Higgs, Plewnia & Ploch, 2005)

For example, from Gen Y perspective, most millennials are happy working alongside other generations. Total of 76 % of those questioned said they enjoy working with older senior management and only 4 % disagreed. Total of 74 % said they were as comfortable working with other generations as with their own. (PricewaterhouseCoopers, © 2011)

According to Hermanmiller.com (© 2016), when HR professionals (HR managers, specialists or leaders) take members of different generations, blend them together, and ask them to work side by side, the HR professionals have both an opportunity and a challenge: the opportunity to engage a mix of people who bring their unique experience and skills to a corporation and the challenge of dealing with the generational differences that distinguish them.

It is important to define expectations and hold all generations accountable. The clarity of mission is essential for building and retaining great talent. Take some time to consider how you can learn from each other and play well in the multi-generational sandbox. (Dowd-Higgins, 2013)

Regarding this, Jelínková & Jiřincová (2015) remark that Diversity management and diverse generations in the workplace are considered the factors which carry the potential to influence the quality of employees in corporations.

The research question 1: What should individuals (employees) of different generations learn in order to cooperate well and effectively?

Majority of the addressed HR professionals (HR managers, specialists or leaders) said that abilities and skills for effective, quality and as good as possible teamwork, cooperation are as follows:

- Interpersonal skills – assertiveness, empathy, emotional intelligence, honesty, patience, recognition, respect, reliability, tolerance.
- Communication and presentation skills.
- Teamwork.
- Willingness to share own acquired experience.
- Problem solving.
- Work ethic.

According to research findings of Ernst & Young (© 2013), the employees of the Baby boomers generation scored high in being a productive part of corporations (69 %), hardworking (73 %, the highest), a team player (56 %), and nurturing and essential for others' development (55 %). While members of the Baby boomers generation were strong performers in most areas, they were not viewed as the best generation in areas such as being adaptable (10 %) and collaborative (20 %). The Boomers managers received the lowest scores of all three generations in being best at diversity (12 %), flexibility (21 %) and inclusive leadership (16 %) skills. The employees of the Generation X were cited as best among the generations in seven out of 11 attributes, including being a revenue generator (58 %) as well as possessing traits of adaptability (49 %), problem-solving (57 %) and collaboration (53 %). In evaluating the Gen X managers, seven out of 10 respondents said they are best equipped to manage teams effectively overall (70 %), compared to boomers (25 %) and Gen Y (5 %). The employees of the Generation Y scored high marks for being enthusiastic (68 % agree), but had lower scores for being perceived as a team player (45 %), hardworking (39 %) and a productive part of my corporation (58 %). The Gen Y managers (69 %) just surpassed the Gen X (68 %) managers in displaying diversity managerial skills, or the ability to build culturally competent teams and not to discriminate because of race, gender, sexual orientation, age, physical abilities, etc.

According to survey of Hermanmiller.com (© 2016), the Baby boomers generation will be working longer; they believe they can do anything they set their sights on, and they are used to working hard and long hours to accomplish it. Sixty-eight percent of them feel that younger people lack the strong work ethic that they have cultivated. Thirty-two percent of the Generation X feel the same way.

Regarding this, Chan (2015) says in her study that as any HR professional can attest, people come into the workplace with different expectations, attitudes, behaviour and motivations, shaped

mainly through formative life experiences; some of those experiences are generationally shared, many are highly individual, and all influence the workplace.

Agustin (2013) publishes in his empirical study that many of the younger generation (the Generation Z and the Generation Y) move fast in order to make an impact on the corporation, most of the middle generation (the Generation X) struggle with the corporation's mission, and the older generation (The Baby boomers generation, the Traditionalist) do not like changes. As for managers and HR professionals, the key to building a successful multi-generational workplace is to understand the differences between each generation.

Around the world, corporations are experiencing a dramatic change in the makeup of their employees and their corporate culture. The Gen Y and the Gen Z are entering the workforce in huge numbers and will make up 50 % of the global workforce by 2020. Their career aspirations, attitudes to work and flexibility, and aptitude for adopting new technologies may just define the workplace of the future. (PricewaterhouseCoopers, © 2016)

According to Bencsik, Horváth-Csikós & Juhász (2016) and their researches, the employees under 30 perform better mainly in the field of IT and in activities which require creativity or innovation. At the same time, the respondents valued that other generations did not like monotony, individual activities, marketing and they also performed poorer than their older colleagues in the field of administration. It is natural to ask the question whether the age-consistency caused any problems at work within a corporation. Total of 34.4 % of the respondents answered yes, 14.8 % could not answer. However, almost half of the sample answered that it did not cause any conflicts. Based on the Chi-square test, it was examined whether there was significant correspondence in the answers based on the age. The results of the test did not show such correspondence (Pearson's Chi-square: 6.494, df: 8, sign. 0.592 $p > 0.05$).

5. CONCLUSIONS

This article was focused on the employees of Baby boomers generation, Generation X, Generation Y and Generation Z in selected Czech corporations as conceivers of development and competitiveness in their corporation. The aim of this paper was to present the current generation of employees (the employees of Baby Boomers Generation, Generation X, Generation Y and Generation Z) in the labor market by secondary research and then to introduce the results of primary research that was implemented in selected corporations in the Czech Republic.

The 21st century has ushered in a new, generation-bending era in the workplace. The Baby boomers generation is in project teams with the employees from the Generation Y and Generation Z and reporting to Generation X while the traditionalists, though fewer in numbers, retain positions of power and influence. (Hermanmiller.com, © 2016)

Many converging trends have created today's up-to-five-generation workforce. These trends include (The Center for Generational Kinetics, © 2016):

- People living longer having more active lives, so they are able to work longer.
- The traditionalists and the Baby boomers generation not being in a financial position to retire.

- The traditionalists and the Baby boomers generation want to work until an older age.

- The Baby boomers generation financially supporting their "adult" children (the generation Y and generation Z) into their late 20s and even 30s.

- Generations potentially becoming shorter in duration as the rate of change increases in areas such as communication, tech use, etc.

- This all leads to more generations in a single workforce.

This article was based on primary and secondary research. The secondary research was identified through studying the scholarly literature available especially through electronic databases. For example, the articles at Web of Science database were taken into consideration. These electronic databases helped to get new dimension and proven a research topic. The quantitative research (primary research) was performed through an anonymous questionnaire survey with various questions. The precision of the estimates was limited due to a small sample size. This is a research limitation. An important finding is that the perception of the choice of superior from a particular generation does depend on the age of employees in selected corporations in the Czech Republic. It was also determined that there are statistically significant dependences between the preference for heterogeneous or homogeneous cooperation and the age of employees in selected corporations in the Czech Republic. The researches also demonstrated abilities and skills for effective, good-quality teamwork, cooperation: interpersonal skills, communication and presentation skills, teamwork, willingness to give own acquired experience, problem solving and work ethic.

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What Drives International Competitiveness?
An Empirical Test in Emerging Indonesian Market

▪ *Prasetyo Heru Aries*

Abstract

This study tried to identify factors which drive international sustainable competitive advantage using Indonesian listed-multinational companies. The study began with identifying the terminology for emerging market using a single index model. We then deployed the three measurements for competitive advantage which are return on sales, return on asset and return on equity. Our results showed that all three measurements have the power to explain each competitive factor for Indonesian multinational firm, but statistically, ROA showed as the best proxies. Moreover, eight out of ten hypotheses tested were strongly supported by the data. The study strongly emphasized the importance of knowledge management, local leadership and a factor of location as vital drivers for global competitive advantage. Lastly, the study also stressed the importance of globalizing subsidiaries in order to gain sustainable competitive advantage for the host country.

1. INTRODUCTION

Having competitive advantage to compete globally is a must. Recent studies showed how companies tried to develop sustainable competitive advantage (Mihaela, 2016; Soliman, 2013; Srivastava et al., 2013; Cho & Pucik, 2005; Offstein et al., 2005; Hafeez et al., 2003; Hennart & Larino, 1998; Gomez-Mejia & Palich, 1997). Some believe that a financial factor has contributed more to competitive advantage while others found the non-financial factors such as adaptability, cultural mixture, organizational structure, network, knowledge management and innovation important. That is why every organization needs to consider strategic management as an integrated policy which includes tangible and intangible assets.

Sustainable competitiveness started its origin with Barney (1991) and the most influential article. By examining the real phenomenon due to firm's limited resource, Barney had raised the importance of having something that is non-replicable by others - later known as competitive advantage. Some researchers have extended the concept gradually. Competitiveness that once was abstract now has become a famous object for the quantitative analysis. Return on Asset, Return on Equity and Return on Sales started to be acknowledged as the ideal measurements for competitive advantage (Becker-Blease et al., 2005; Merikas et al., 2006; Agiomirgiannakis et al., 2006; Bobillio et al., 2006; Laisasikorn & Rompho, 2014).

However, though it has been analyzed widely, there is still no common conclusion among the competitive measurement and the indicators used (Powell, 2001; Lin & Huang, 2011). Another progress of the study on related topic is that it encompasses several disciplines, including psy-

chology, economy and international business management. Today, researchers pay more attention to multinational companies, since its profitability have strong contribution to home country economics performance (Feldstein et al., 1995; Baldwin & Winters, 2004; Jones, 2010; Rugraff & Hansen, 2011). Therefore, governments try to promote globalization among domestic companies, including those who operate on emerging markets.

Unfortunately, research on multinational competitive factors for emerging market is still inclusive. Therefore, this paper has been designed to propose and examine an adequate framework of multinational company's competitiveness factors in order to be the best benchmark for practical terms and theoretical development. Using a sample from Indonesian listed company, the study tried to find a clearer evidence of possible factors that drive competitive advantage, especially those who operate on high systematic risk.

The structure of the paper is as follows: section two provides discussion on literature review used to develop the hypotheses. Section three explains the research methodology used to perform the empirical test. Section four describes the findings and discussion, while section five concludes the findings.

2. LITERATURE REVIEW

This section will briefly discuss several theories related to competitive advantage to develop a framework and a hypothesis.

2.1 Competitive Advantage

The term of competitive advantage has now become widely used. The term was first used by Ansoff (1965) as unique opportunities within a company's field of operation which proxies by the product-market scope and the growth vector. In its early phase, Porter (1985) suggested a clearer insight on competitiveness. By introducing five forces, Porter highlighted the importance of something that outperforms its competitors so that the company might have better power to control the market. Many companies to achieve better performance then commonly used this definition.

Moreover, Porter also proposed new terms of generic-strategy as the vital outcome for competitive advantage, which consist of cost leadership and differentiation. Though the concept seems logically accepted, some research tried to extend the concept to learning-organization (Teece, 1986; Farukh & Waheed, 2015) and also organizational-capital (Tomer, 1987; Treleaven, 2004).

The second development phase was indicated by intra-field studies on competitive advantage. A psychological perspective had seen competitiveness as philosophy of setting the right position within competition in which victories are better achieved (Polyhart & Hale, 2014; Schulte et al., 2009). Meanwhile, information system field of studies had related firm's competitiveness to knowledge management system. Gold et al. (2001) had succeeded in building fundamental perspective that sustainable competitive advantage is a measurable thing. By relating a knowledge management system, the study can explain how company might achieve better competitiveness on sequential basis. This meant the starting point of the era of quantifying competitive advantage and defined it as firm-performance.

From international business perspective, competitive advantage is complementary to comparative advantage (Gupta, 2009; Lattimer, 2003), even within the context of Porter's concept. Superior un-imitable skills might come from the comparative point of view. For example, having loyal high-quality skilled personnel can contribute a lot to firm abnormal return (Tamkin, 2005; Wood, 1999). Another example would be having an organizational structure that fits in with knowledge technology infrastructure. Combining tangible and intangible assets effectively may create sustainable competitive advantage (Prasetyo et al., 2016).

Dealing with a competitiveness factor for a multinational company would be more complex compared to a domestic business entity. Factors such as business culture, technological constraints, regulation and other stakeholder's interest might play an important role. Differences between home and the host countries are also counts as major obstacles. Therefore, some companies retrieve themselves by closing its foreign subsidiaries and replace with joint venture or even by utilizing local agent (Bloomberg, 2015).

2.2 Indicators and antecedents

2.2.1 Indicators of competitive advantage

Relating sustainable competitive advantage to firm performance is possible since both of them are addressing the same concern (Krause et al., 2014). Using accounting variable on performance, we might depict Return on Sales, Return on Asset, Return on Equity and Return on Investment, in which every ratio shared different perspective and sometimes different signs. Return on Sales showed how much the company earned from its current sales. Higher efficiency represented by higher ROS (Ross et al., 2016) shows the capability of management to operate in such effective way to deal with limited resources and come up with a better outcome. In some literature, return on sales also known as gross profit margin ratio can be calculated as income before interest and taxes divided by sales.

The second and popular measurement for profitability would be Return on Asset. As developed by DuPont in 1919, return on asset explained how well the company utilized its overall asset in order to achieve a better income. Instead of its popularity, ROA shared limitations especially from a shareholder's perspective. Return on asset only use income after tax divided by a total asset. Meanwhile, there is a portion of shareholder's capital inside the number. Therefore, Madura (2015) explained that taking merger and acquisition concern into asset acquiring techniques, another shareholder's portion of capital must be acknowledged as possible alternative for profitability.

Dealing with those weaknesses, we then retrieve the third formulas, namely Return on Equity. ROE can be calculated as income after tax divided by book value of a shareholder's equity. The ratio determined how much income can be generated from the capital invested. A higher return on equity shows higher capability from company's management to manage the invested fund.

2.2.2 Antecedents of competitive advantage for multinational firm

Former researches had identified several antecedents of sustainable competitive advantage for multinational-operated companies (Wingwon & Piriyakul, 2010; Hitt et al., 2006; Carpenter & Sanders, 2004; Delgado-Gomez et al., 2004; Denis et al., 2002). The first factor relates to com-

pany's creditworthiness in foreign countries. As consequences of operating on a foreign country, mostly, government policy required every company to use local funds as a source of financing. Though an increase level of debt might affects firm's risk, but the interest rate is a tax deductible and lower than cost of equity. At this point, subsidiaries may use debt to finance the investment activity in host country. This is best represented at firm's leverage ratio.

The second factor relates to haw fast a company can fulfill the capital needs. Once a company can achieve its optimum leverage over the long-run, then the true challenge could be found on how efficient their working capital. In term of accounting measure, this factor can be calculated by ratio of fixed assets to total asset. The ratio showed an inefficient use of working capital that tends to maintain cash on targeted minimum level. This capability is needed, since subsidiaries are required to response to any local-changing business and economic environment.

Efficient working capital represents high liquidity. It will determine company's ability to meet its short-term obligation using cash or asset that can be converted into cash immediately. Having an advanced mechanism to provide cash from daily sales, account receivable or sales of unproductive asset can increase company's competitive advantage.

The fourth antecedent is the size of company. Denis et al., (2002) argue that since the company can identify a maximum cash level within each period, then excess cash should be allocated not to current asset only but also to fixed assets which might create the opportunity for future expansion. Recently, there is financial indicator to measure a size which derived from asset, sales, or even number of employee. A bigger size compared to the other local player representing the strength of the company to increase their market share. It is also addressing the competitive power within industry. Therefore, investors used the indicator to estimate the company's bargaining power in industrial rivalry.

Furthermore, a bigger asset (or size) might relate to higher complexities. The company must be able to manage the level of productivity for each asset and this would require strong knowledge (whether in terms of formal or tacit-knowledge). The fifth antecedent related to Gold et al., (2001). As a vital mechanism to manage the innovation process – especially in dealing with higher complexities, knowledge management was believed to form the competitive advantage. A productive knowledge management system might produce product innovation that might fit with market expectation. This is the firmly basic for scholars who related KM system to research and development expense.

Another potential antecedent is the management competence index. As the KM system began to operate effectively, there should be significant improvement in personnel capabilities. Merikas et al. (2006) used the index to represents the role of intangible asset in company's competitive advantage. The idea was drawn from how a firm produced innovation (Chen & Huang, 2007). Therefore, higher index determined high potential for sustainable competitive advantage. Moreover, human factor also affected cultural adaptation in subsidiaries. Similarity between a host and home country shared less complexity compared to totally different values. Over the long run, this might impact the ability of multinational company to gain competitive advantage. Therefore, we also posed the factor of location as one of potential factor for multinational competitive advantage.

3. RESEARCH METHOD

This section describes data collection, variable identification and a proposed research model used in the study.

3.1 Data collection

The study used all Indonesian listed companies as population. Up to early 2016, the total number of public companies was 525, while 3 of them listed its preferred stock. We then analyzed each company's annual report to identify its worldwide operation and number of parent's agent and subsidiaries in different countries. The term multinational company for this study was referring to Rugraff and Hansen (2011) which stated that the organization must operate in at least two countries. After considering each criteria and information availability, we have samples of 217 companies. We then implemented the third filtering process by measuring company risk level using a single index model, since the study focused only in high emerging market.

For risk level categorization, we used Prasetyo (2011) to indicate companies who have systematic risk above 0.6 which define as those who operate on high emerging market. The latest criteria resulted on 147 companies. Moreover, the study comprised a longitudinal study from 2004 to 2014. Each sample was then observed during 2004-2014 and resulted on 1617 observations. The distribution of the sample can be seen in Figure 1.
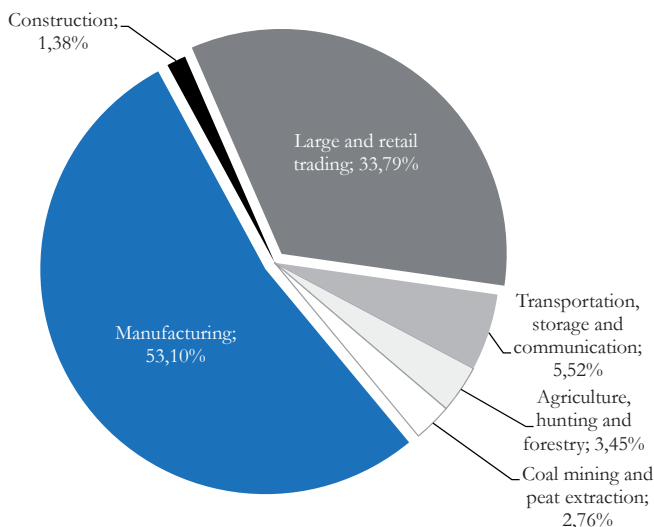
Fig. 1 - Sampling distribution. Source: Own research

3.2 Variables

The study used three independent variables as proxies of competitive advantage; return on sales, return on asset and return on equity, and treated them separately. This is to identify the ideal

measurement for multinational company competitive advantage. Those which have better explanation power (R^2) can be acknowledged as the ideal proxies of multinational company's competitive advantage.

Moreover, drawing back from the theoretical framework discussed in section two, we use nine independent variables which considered both tangible and intangible factors. For a tangible factor, the first independent variable is leverage (*Lev*) which denotes as lag leveraged, measured by (*Lev(-1)*). The second variable is working capital ratio (*WCR*). The third variable is company's size, measured by natural logarithm of total asset (*Lnsize*). The fourth variable is capital efficiency, proxies by fixed asset to total asset ratio (*FATA*), while the fifth variable is investment ratio (*Netinv*).

For the intangible factors, we use knowledge management as proxies by R&D expenses to sales ratio (*KM*) and natural logarithm of management competitive index (*LnCI*), measured by net profit divided by number of expert for specific education level. We also control two dummy variables for Leadership pattern and firm's regional operation. Leadership pattern (*Lead*) omitted as 1 if the subsidiaries hired local professional in their organizational structure, and 0 if they are not. Meanwhile, firm's regional operation (*Floc*) was omitted as 1 if the company main operation was based in Asia's country and 0 if they operated in non-Asia's country.

We then choose the panel regression model to examine three independent variables on the same set of explanatory variables, while for each competitive advantage factor, the technique of panel least squares regression was applied to estimate the multiple regression coefficient (*b*). The proposed equation models are as follows:

$$Y = f(x)$$

Y (performance) = f (leverage, working capital, size, efficiency, investment, knowledge management, competitive index, leadership, location)

Considering all variables identified from the previous section, the function can be written as

$$Y_t = a_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + e_t$$

Putting all variable into equation, then we will have:

Y_t *(competitive advantage)* $= a_0 + b_1 X_1$*(Lev (-1))* $+ b_2 X_2$*(WCR)* $+ b_3 X_3$*(Lnsize)* $+ b_4 X_4$ *(FATA)* $+ b_5 X_5$*(Netinv)* $+ b_6 X_6$*(KM)* $+ b_7 X_7$*(LnCI)* $+ b_8 X_8$ *(Lead)* $+ b_9 X_9$*(Loc)* $+ e_t$

Since we have three indicators for competitive advantage, then each model can be written as follows:

Y_t *(ROS)* $= a_0 + b_1 X_1$*(Lev (-1))* $+ b_2 X_2$*(WCR)* $+ b_3 X_3$*(Lnsize)* $+ b_4 X_4$ *(FATA)* $+ b_5 X_5$*(Netinv)* $+ b_6 X_6$*(KM)* $+ b_7 X_7$*(LnCI)* $+ b_8 X_8$ *(Lead)* $+ b_9 X_9$*(Loc)* $+ e_t$

Y_t *(ROA)* $= a_0 + b_1 X_1$*(Lev (-1))* $+ b_2 X_2$*(WCR)* $+ b_3 X_3$*(Lnsize)* $+ b_4 X_4$ *(FATA)* $+ b_5 X_5$*(Netinv)* $+ b_6 X_6$*(KM)* $+ b_7 X_7$*(LnCI)* $+ b_8 X_8$ *(Lead)* $+ b_9 X_9$*(Loc)* $+ e_t$

Y_t *(ROE)* $= a_0 + b_1 X_1$*(Lev (-1))* $+ b_2 X_2$*(WCR)* $+ b_3 X_3$*(Lnsize)* $+ b_4 X_4$ *(FATA)* $+ b_5 X_5$*(Netinv)* $+ b_6 X_6$*(KM)* $+ b_7 X_7$*(LnCI)* $+ b_8 X_8$ *(Lead)* $+ b_9 X_9$*(Loc)* $+ e_t$

We hypothesize that each independent variables contributed to a multinational company's competitive advantage. The proposed hypotheses are as follows:

H1: Leverage (X_1) is contributes positively to multinational company's competitive advantage

H2: Working capital (X_2) is contributes positively to multinational company's competitive advantage

H3: Size (X_3) is contributes positively to multinational company's competitive advantage

H4: Efficiency (X_4) is contributes positively to multinational company's competitive advantage

H5: Investment (X_5) is contributes positively to multinational company's competitive advantage

H6: Knowledge management (X_6) is contributes positively to multinational company's competitive advantage

H7: Management competitive index (X_7) is contributes positively to multinational company's competitive advantage

H8: Leadership (X_8) is contributes positively to multinational company's competitive advantage

H9: Location (X_9) is contributes positively to multinational company's competitive advantage

Meanwhile, a hypothesis 10 deals with the joint influence of the nine variables on multinational company's competitive advantage.

4. FINDINGS AND DISCUSSION

4.1 Findings

The statistic descriptive for all three models can be seen in Table 1. The total number of observation is 1,617 using 147 companies. Meanwhile, the greatest standard deviation from the sample was identified on lag leverage and working capital as proxies by working capital ratio. One possible cause is that several companies had negative working capital, indicates that the amounts of current liability is bigger than current assets.

Tab. 1 - Descriptive statistic. Source: Own research

	N	Minimum	Maximum	Mean	Std. deviation
ROS	1617	-13.31	41.40	.23	4.38
ROA	1617	-1.02	.75	.08	.11
ROE	1617	-35.53	133.41	.26	12.41
LEV	1617	-74.12	339.11	.07	94.92
CR	1617	.00	278.71	4.456	72.29

LNSIZE	1617	23.65	31.70	27.09	1.52
FATA	1617	.00	10.11	.58	.48
Netinv	1617	-15.94	5.65	.08	.62
KM	1617	.00	.06	.02	.01
LnCI	1617	-1.55	1.67	.30	.41
Lead	1617	.00	1.00	.90	.30
Loc	1617	.00	1.00	.76	.43
Valid N (listwise)	1617				

The regression result for the three models can be seen in Table 2. Referring to the table, all three models has the power to explain competitive advantage factors for a multinational company on emerging country (model 1 R^2 = 16.50%, p<0.05; model 2 R^2 = 23.94%, p<0.05; model 3 R^2 = 2.15%, p<0.05). This may imply that we support hypothesis 10 which declared that all independent variables within a model can best explain competitive advantage, even though a model 3 has a very small explanatory power. But since the p-value was statistically significant, then we might support hypothesis 10.

The comparison among models shows that the most explainable model is the one that used a Return on Asset as proxies of competitive advantage (model 2). Thus, we might say that for Indonesian multinational companies the best proxies for competitive advantage is a Return on Asset. We will describe the findings further in the discussion part.

Another finding from Table 2 is that our second model also shared the most significant independent variable. From nine-tested independent variables, this model can found seven variables which represent a high statistical-evidence thus, leaving the other two.

Tab. 2 - Regression results. Source: Own research

Variable	Model 1	Model 2	Model 3
Dependent	Return on Sales	Return on Asset	Return on Equity
(Constant)	1.040	0.349	-5.321
	(1.833)	(0.045)	(5.784)
Leverage	0.001	0.012	0.017*
	(0.001)	(0.008)	(0.003)
Working capital	0.001	0.001	0.001
	(0.001)	(0.002)	(0.004)
Size	0.022	0.003*	0.219
	(0.066)	(0.002)	(0.204)
Capital efficiency	0.251	0.039*	0.152
	(0.213)	(0.005)	(0.654)

Investment	2.768*	0.018*	0.075
	(0.163)	(0.004)	(0.501)
Knowledge management	2.406	8.731*	6.693
	(1.962)	(0.474)	(6.210)
Management competitive index	1.084*	0.024*	1.098
	(0.245)	(0.006)	(0.751)
Leadership	0.021	0.017*	0.238
	(0.339)	(0.008)	(0.042)
Location	0.302	0.011**	0.541
	(0.244)	(0.006)	(0.750)
N	1617	1617	1617
R^2	0.165	0.239	0.021

As the results clearly showed, the study supported hypothesis 1 (only for the third model), hypothesis 3 (only for the second model), hypothesis 4 (only for the second model), hypothesis 5 (for the first and second model), hypothesis 6 (only for the second model), hypothesis 7 (for the first and second model), hypothesis 8 (only for the second model) and hypothesis 9 (also only for the second model). The study failed to support hypothesis 2 for all models. This implies that working capital might not be the best driver for sustainable multinational competitive advantage. In fact, excluding the working capital variable from the model only increased the (R^2) 1.7%, while still maintaining the significances of the model ($p < 0.05$).

4.2 Discussion

Our results shared several important contributions to the field of knowledge at the scope of multinational companies. A first contribution related to the ideal proxies for sustainable competitive advantage. Though several studies succeeded in proposing another alternative as proxies of long term performance (Damodaran, 2009; Tangen, 2004), our result give strong emphasis to Hegel et al., (2013); Schiefer et al., (2013); Dehning & Stratopoulos (2003); and Davis et al., (2002). For most subsidiaries which operated in a foreign country, performance measurement relied on asset utilization. This is true due to the obligations to use local debt financing as required by the host government. However there is a logical systematic reasoning in which investors tend to analyze financial performance on parent-subsidiary basis. Therefore, return on equity will likely more appropriate to the parent's perspective, while asset utilization might represent subsidiary's potential future growth.

Our research also succeeded in finding new evidence of working capital as drivers for multinational competitive advantage. One challenge for operating outside home country is how to compete with all local players. This might reflect a mid-term dynamic force (Mark, 2000) in which company must be able to adapt faster, both to the government regulation and also market demand. This condition requires strong debt financing which mostly comes from the local banking (Madura, 2015).

Incorporating use of a short-term local debt, especially for asset acquiring investment purposes must be understood as a basic component for competitive advantage. This has been proven by hypotheses 3 to 5. The positive signs of size, capital efficiency and investment showed that management of multinational companies must create a unique-decentralized mechanism which allows each division to make some tactical decision. The reason is that decentralization might spare opportunity to achieve better efficiency in terms of local economy performance (Nita & Dura, 2011).

The second unique contribution of the study is due to the role of knowledge management for multinational companies. As proposed by Gold et al., (2002), knowledge management is an integrated system that provides ability to formulate inimitable idea for future innovation. Retrieving that the process of producing innovation lay on research and development activity, it is then plausible to adhering company's investment in R&D and its relations with sales.

However, within the concepts of decentralization, most parents give authority to subsidiaries to have its own R&D investment budget. This might trigger subsidiary's knowledge management system to provide more influence on local society (Guimon, 2008; Mudambi & Mudambi, 2005). Today, one of the primary reasons for host government to have more foreign direct investments is due to the needs to update local's knowledge. Over the long run, the process might share direct impact on the nation's competitiveness (Porter, 2001).

A multinational company found to have a great role from nations point of view, since it implies systematic knowledge transfer mechanism from a home country to a host country. One fine example could be retrieved from a corporate environmentalism movement. Prasetyo et al. (2016) found out that the motives for engaging in eco-friendly business come from the economic collaboration with a high level of environmental-awareness country. Mostly, the parent company will force the subsidiaries to be able to become the first mover for green business. Through a proper human resource strategy, professional exchange from a host to a home country might induce the paradigm effectively, thus soon creating a similar business spirit among the two.

From human capital perspective, a higher capability especially for subsidiaries' management team might be the underlying factor for sustainable competitive advantage. This is the third contribution from our study. This finding supports Barney and Wright (1997). Having considered that most governments are seeking ways to reduce an unemployment rate by inviting more foreign direct investment, therefore human development must be a pivotal issue. Our finding has included two aspects of humans: the role of knowledge management and management competitive index.

Referring to Merikas et al., (2006) who measured the index using profit divided by number of professional due to their educational background, the study suggested the importance of developing an internal training division to be corporate university for both parent and subsidiaries. Though it shared no formal degree, some Indonesian companies have already proved that changing the function of human resource to the vital moderator of knowledge management system might act as a better mechanistic way to combine all tacit and formal knowledge, thus increasing the index as crucial measurement of competitive advantage.

Nonetheless, over the long run, the mechanism might create host country's future leaders effectively. This is the target of every nation (Clark, 2009; Bartlett & Goshal, 2003; Winder, 2002). Our study confirmed the thoughts. A positive and significance evidence has been found among our sample. This implied the importance of providing a systemic mechanism which can nurture the local leadership.

Another unique contribution from the study is regarding the company's location aspects. It is proven that firms locating in Asia tend to contribute more to higher competitive advantage for a multinational firm. The most possible reason is a similarity of culture that makes adaptability process seem easier than to those of non-Asia's countries. Our findings supported Zvirgzde et al., (2013); Meyer and Nguyen, (2005); Resmini, (2002). A short implication for the practical term is that multinational companies must consider the role of culture in direct investment decisions.

An intimate culture among the countries within region might affect three pivotal factors: market perspective, investor and also local management. Our sample consists of subsidiaries with shared autonomy from the parents. Some functional decisions, such as marketing and human resource, have become a dominant issue for the subsidiary. Though the probability to fail in cultural mix is somewhat higher than the parent, but close-culture relationship might be the catalyst which minimize those potential conflicts. The finding supported Rozkwitalza (2009), McFarlin and Sweeny (2006) and Hofstede (1994).

From investors' point of view, having considered that investment and loan mechanism require the spirit of trust and honesty, similarity of culture signals another benefit. Some of our samples acknowledged the local bank relationship as their basis for future sustainability. This is true since each government had implemented investment policy which indicates the needs of using domestic capital. In the case when Indonesian interest rate is higher than the one of a host country, most likely the subsidiary can contribute more to their parent. Conversely, for the host country with a higher interest rate, an exchange rate stability would prefer as risk-mitigation so that in the final stage, financial consolidation tend to recover the losses and provide positive contribution.

Another impact of a cultural factor can be retrieved from customer's point of view. Our field analysis showed that Malaysian product tends to be more acceptable by the Indonesian, compare to Australian or New Zealand product. By acknowledging that the two nations come from the same Malay's descendant, the cultural sense succeeded in creating local embedders. The spirit of goodwill acts as a magnet for future loyalty.

Although it was proven empirically but investing outside Asia, it is still possible, especially in the free trade area. Our sample also indicated some companies which succeeded in dealing with European countries. Without prior investigation on related variable, further studies need to be developed by including another proxy for a cultural factor.

5. CONCLUSION

The study succeeded in finding the evidence for multinational competitive advantage from emerging market. Using Indonesia listed companies, the study began with giving a clear insight to the terminology of emerging market. Having deployed a single index model as representing beta, our sample showed a strong positive contribution of working capital, size, capital efficiency, investment, knowledge management, local leadership and location to sustainable competitive advantage. Having tested the three measurements of competitiveness – ROS, ROA, ROE – we strongly suggest to use ROA as best proxies of competitive advantage, especially for multinational companies.

This study has limitations due to the definition of multinational company. A further research must be done to make a better definition of multinational by taking into consideration the multi stage mechanism to be a global company starting from export activity, marketing agent and fully managed subsidiaries. This can be accomplished by having more samples for each level to have a better explanation.

In practical terms, our finding suggests the importance of local people development and knowledge management system for a multinational company. The research shows that success in local people development process by enhancing the role of knowledge management would act as the pivotal point for international sustainable competitive advantage. Therefore, more attention should be paid to have a clear framework for future research in the same topics.

Another important issue would be addressing the role of culture as a mediator variable for both local people development and knowledge management. Though the two terms shared the same needs, our finding indicates that for a subsidiary which operates in a developed country or first tier economy in the region, similarity of values tend to be the key success factor for international sustainable competitive advantage.

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