



2018

16TH INTERNATIONAL CONFERENCE ON
MANAGEMENT, ENTERPRISE AND BENCHMARKING

27-28 APRIL 2018, ÓBUDA UNIVERSITY, BUDAPEST, HUNGARY

In cooperation with
ERENET Network

erenet

Honorary Chair
Mihály RÉGER

Honorary Committee
András MEDVE
Kornélia LAZÁNYI
Ágnes SZEGHEGYI
András KESZTHELYI
Anna FRANCSOVICS
György KADOCSA
Antal SZABÓ
Florin DUMA

General Chair
Péter SZIKORA

Steering Committee
Ágnes CSISZÁRIK-KOCSIR
Mónika FODOR
Jolán VELENCEI
Viktor NAGY
István TAKÁCS
Katalin TAKÁCS-GYÖRGY
Pál MICHELBERGER

Organizing Committee
János VARGA
Anikó KELEMEN-ERDŐS
Anita KOLNHOFER-DERECSEI
Réka SAÁRY
Bianka PARRAGH
Regina Zsuzsánna REICHER
János Tibor KARLOVITZ
Judit KÁRPÁTI-DARÓCZI
Ferenc KATONA

Secretary General
Kata Hanna TÓTH-BÁLÓ
balo.kata@kgk.uni-obuda.hu

Proceedings



Organized and sponsored by
Keleti Faculty of Business
and Management
Óbuda University, Hungary

kgk.uni-obuda.hu/MEB



**16TH INTERNATIONAL CONFERENCE ON
MANAGEMENT, ENTERPRISE AND
BENCHMARKING**

27-28 APRIL 2018, ÓBUDA UNIVERSITY, BUDAPEST, HUNGARY

MEB '18 Proceedings

ISBN 978-963-449-097-5

Editor: Péter Szikora

Technical editor: Pál Fehér-Polgár

Óbuda University

Keleti Faculty of Business and Management

Budapest, MMXVIII

Table of Contents

Knowledge, a strategic asset for business organizations.....	6
<i>Kreshnik Bello, Edlira Margilaj</i>	
Market Research in Starting Up Agricultural Business: Case Study of Kosovo Dairy Industry	17
<i>Isak Berbatovci</i>	
Business environment, competitiveness and innovation among SMEs in Albania	34
<i>Anila Boshnjaku, Ledia Thoma, Juna Dafa</i>	
The level of application of Marketing research, during the opening phase of small and medium businesses (SME) in Kosovo.....	47
<i>Skender Buja, Isak Berbatovci</i>	
Hungarian consumers' attitude to accommodation sharing service	64
<i>Gabriella Buda, Barbara Pethes, Manolis Karajánnisz, József Lehota</i>	
The process of discovering and prosecuting trafficking with minors	79
<i>Ivan Delovski</i>	
Measurement possibilities of motivations and attitudes influencing the formation of unethical business behavior – the effect of self-esteem on the black economy	92
<i>Piroska Dobos, Katalin Takács-György</i>	
Health food consumption	107
<i>Gábor Gyarmati, János Tibor Karlovitz</i>	
The questions of Hungarian Short Food Supply Chains	120
<i>Gábor Gyarmati, Tímea Kozma</i>	
How to support investment activity in Serbian SMEs	130
<i>Mirosljub Hadžić, Petar Pavlović</i>	
The Value of Data for the German Water- and Wastewater industry	142
<i>Lukas Hormann, Sarah Stuhl</i>	
Bank competition and financial stability: the case of vietnamese commercial banks	152
<i>Phan Tran Minh Hung, Phan Nguyen Bao Quynh, Vo Hoang Diem Trinh</i>	

The use of smartphones in surveillance	170
<i>Esmeralda Kaděna</i>	
Industry: Safety in Human-Robot Collaboration	180
<i>Sinan Koçak</i>	
Business mediation - consensus instead of compromise	189
<i>Csilla Kohlhoffer-Mizser</i>	
Robotic Process Automation – Current State, Expectations and Challenges	201
<i>Tomasz Kulisiewicz, Andrzej Sobczak</i>	
Precise efficiency of autonomous navigation ergatic transport complexes	214
<i>Tobias Lazar, Alena Novák-Sedláčková, Pavol Kurdel, Martin Čatloš</i>	
The Role of Operating and Financial Leverage in Exports and Technological Development	221
<i>János Löblin</i>	
Are we really prepared for full autonomy?	233
<i>Nikolett Madarász, Péter Szikora</i>	
Governance Gaps in Global Supply Chains: Case study of Supply Chain in Vietnam	241
<i>Phuong Thao Mai</i>	
Environmental Activities of Enterprises and Zero Waste Logistic Systems	258
<i>Agata Mesjasz-Lech</i>	
Cross-cultural study over the CSR dimensions	268
<i>Ivan Mihajlović, Anđelka Stojanović, Isidora Milošević, Sanela Arsić, Ivan Jovanović, Nenad Milijić</i>	
The model of prioritization of strategies for regional developement of ecotourism in Eastern Serbia	279
<i>Isidora Milošević, Danijela Voza, Ivica Nikolić, Predrag Đorđević, Milica Arsić</i>	
Factors affecting the adoption of management accounting practices: a literature review for a vietnamese textile enterprises – based research	293
<i>Nguyen Thi Kim Ngoc, István Takács</i>	
Innovation activity of Hungarian SMEs: an empirical examination	306
<i>András Rideg</i>	

A Critical infrastructure from a sustainable public transportation perspective: Jordan as A Case Study.....	316
<i>Malak M. Shatnawi</i>	
Literature review: the impact of corporate social responsibilty on firm performance	333
<i>Le Ha Nhu Thao, Jolán Velencei</i>	
Testing The Weak Form of Efficient Market Hypothesis on Stock Market: Comparison of Turkey and Hungary	343
<i>Emre Esat Topaloğlu, İlhan Ege</i>	
The impact of ownership structure on bank risk taking – theoretical outlook	353
<i>Vo Hoang Diem Trinh, Katalin Takács-György</i>	
Tourism as a chance for development of serbian border regions.....	367
<i>Danijela Voza, Aleksandra Fedajev, Marija Panić, Isidora Milošević, Sanela Arsić, Đorđe Nikolić</i>	
Motivation, Incentives and the Complexity of the Complexity of Human Behaviour.....	378
<i>Ferenc Zsigri</i>	

Knowledge, a strategic asset for business organizations

Prof. Assoc. Dr. Kreshnik Bello

European University of Tirana, Tirana, Albania,
kreshnik.bello@uet.edu.al

Dr. Edlira Margilaj

European University of Tirana, Tirana, Albania,
emargilaj@yahoo.com

Abstract: Countries today compete in global markets not simply with their raw natural assets or with the low-cost labor. Quick steps of technological progress have dramatically changed market conditions and competition strategies. Knowledge Management (KM) today is seen as one of the most important issues in economic development, referring to the world of industry, service and information research. Under this general framework, it is important for us to understand the level of recognition and usage of Knowledge Management in business organizations in Albania. So, the purpose of this research is to investigate the level of recognition and implementation of Knowledge Management in business organizations in Albania, as well as to find out if a relationship between critical success factors of KM and performance is present in such organizations. The research was based on two research questions expressed as: Question 1. What is the level of recognition and implementation of KM in business organizations in Albania?; and Question 2. Is there present any relationship between critical success factors of KM and performance in business organizations in Albania? The research is based on primary and secondary data collection. Some conclusions are also specified at the end of this paper.

Keywords: Knowledge, Knowledge Management, Critical Success Factors, Business Organizations in Albania

1 Introduction

In recent decades, organizations have moved from industrialization, toward Knowledge as a strategic asset of the present and the future. “Today knowledge is considered as the most important asset of the organization”, (Carneiro, 2000).

“The most important thing is to create new knowledge, but it’s important as well to use silent and old knowledge in order to be effective. To create new knowledge, at the right time, in the right way, at the right place is important”, (Strommer, R.1999).

When talking about knowledge, several disagreements are encountered about the meaning and content of data concept, information and knowledge. *The data* is a distinctive group of objective facts regarding the events; *information* is a message, usually in the form of a document, an audio communication, or a visual communication, and *knowledge* is a fluid mix of experience, values, contextual information and expert knowledge, which provides a framework for evaluating and incorporating new experiences and information (Davenport and Prusak, 1998). Referring to Drucker (1997), knowledge is “*information that changes something*” or “*information into action*”.

Nonaka (1994) reveals that knowledge may be hidden and hidden Knowledge lives in the human brain, difficult to be moved out or intermediated, or “*knowing more than you can say*”, Michael Polanyi (1966). The inner, the subjective or intuition, are examples of hidden knowledge, reflected in confidence, actions, commitments, values and ideas. Otherwise, displayed knowledge comes formalized, recorded on video, in documents, graphics, books, etc. Studies show that 80% of the organization's knowledge is hidden knowledge and only 20% is displayed knowledge. “*Hidden knowledge is nowadays the only competitive advantage of every organization*”, Peter Drucker (2000).

Companies today, use their knowledge as a major source of competitive advantage. They use their specific product or market knowledge to differentiate themselves from their competitors. We also know that (industrial) knowledge may be divided into two kinds: tacit (hidden) and codified (displayed).

Tacit knowledge resides within an individual, often as a skill, an ability, or know-how. It can be demonstrated or taught to others. Examples of tacit knowledge and abilities are artistic skills such as pottery, sculpture, and painting. Although in modern times these skills have become codified, in earlier days such knowledge was passed from teacher to student, and from master to apprentice. *Codified knowledge* is knowledge that has been committed to some form of communication medium. It might be a handwritten document, a computer program, a blueprint, or a cartoon.

When companies are small it is easy for everyone to know what information is relevant to a situation and how to gain access to the knowledge possessed by individuals within the firm. As companies grow and become more complex, and the size of the human capital pool increases, such information is less widely shared and becomes more compartmentalized. With increasing size it becomes even more important for firms to motivate their human capital resources to codify their knowledge and knowhow, in order to more widely share it and inculcate it into the firm.

Literature knows no universal definition to define Knowledge Management. Different definitions, but which basically have the same approach, will be used to define KM. Alavi & Leidner (1999) define KM as: *“a systematic and specifically organized for absorption, organization and communication of hidden and displayed knowledge of employees, so that other employees may use them more effectively and productively in their work.”*. O’Dell (1998) defines KM as *“a concise strategy to get the right knowledge, from the right people, at the right time and as an aid for other people, in the way of sharing and setting information into operation, in order to improve the performance of the organization”*.

Under this framework of discussion, it should be noted that, information and knowledge are closely linked, but it is important to distinguish Knowledge Management (KM), from the concept of Information Management (IM) in the organization. While KM assumes IM (Klaus & Gasble, 2000), and KM success depends on the effectiveness of IM (Bukowitz and Williams, 2000), they are different in terms of input, data processing, and the scope.

2 importance of knowledge management practice

Knowledge Management (KM) refers to a range of practices used by organisations to identify, create, represent, and distribute knowledge for reuse, awareness and learning across the organisation. Knowledge Management programs are typically tied to organizational objectives and are intended to lead to the achievement of specific outcomes such as shared intelligence, improved performance, competitive advantage, or higher levels of innovation.

Knowledge transfer (one aspect of Knowledge Management) has always existed in one form or another, for example through on-the-job peer discussions, formal apprenticeship, corporate libraries, professional training, and mentoring programs.

Knowledge Management programs attempt to manage the process of creation or identification, accumulation, and application of knowledge across an organisation. While Knowledge Management programs are closely related to Organizational Learning initiatives, Knowledge Management may be distinguished from Organizational Learning, by its greater focus on the management of specific knowledge assets and development and cultivation of the channels through which knowledge flows.

The emergence of knowledge management has generated new organisational roles and responsibilities, an early example of which was the Chief Knowledge Officer. In recent years, Personal knowledge management (PKM) practice has arisen, according to which individuals apply KM practice to themselves, to their role in the organisation, and to their career development.

While it has been applied to all industrial sectors, and increasingly to Governmental sector, Knowledge Management is a continually evolving discipline, with a wide range of contributions and a wide range of views on what represents good practice in Knowledge.

A key distinction made by the majority of knowledge management practitioners is Nonaka's reformulation of Polanyi's distinction between tacit and explicit knowledge. The former is often subconscious, internalized, and the individual may or may not be aware of what he or she knows and how he or she accomplishes particular results.

At the opposite end of the spectrum is conscious or explicit knowledge - knowledge that the individual holds explicitly and consciously in mental focus, and may communicate to others. In the popular form of the distinction, tacit knowledge is what is in our heads, and explicit knowledge is what we have codified.

3 methodology of the study

The purpose of this research is to investigate the level of recognition and implementation of Knowledge Management in business organizations in Albania, as well as to find out if a relationship between critical success factors of KM and performance is present in such organizations.

The objectives of the research are:

- To indicate the level of recognition of Knowledge Management
- To indicate the level of implementation of Knowledge Management
- To indicate any presence of relationship between critical success factors of KM and performance

The research was based on two research questions expressed as:

Question 1. What is the level of recognition and implementation of KM in business organizations in Albania?

Question 2. Is there present any relationship between critical success faktors of KM and performance in business organizations in Albania?

The methodology used for the research has its own dimensions like: *specification of the research subjects, tools used for the research, sampling, implementation plan, ethical issues and presentation of the research findings.* The research is based on primary and secondary data collection.

3.1 Specification of The Research Subjects

After defining the research questions, we started out the work about selection of the subjects that could be of interest to the purpose of this research. After distinguishing a number of companies of interest, we started to collect the required information from the managers and other employees of these companies. The data for the study were collected from business organizations with activity in several areas like: service, construction, manufacturing and trade. The respondents were senior managers (sales, marketing and executive directors). This category was considered to be the best to target because it was composed of the supervisors of operations in the companies, that is, individuals having the tendency to be closely associated with knowledge management practice and its proper decision making.

3.2 Tools Used for The Research

In order to collect the necessary information, analyze the data, and draw conclusions, several interviews based on a list of some basic questions were conducted, as well as questionnaires were developed and delivered. The interviews were intended to collect important data on different aspects of KM. The analyses of the collected information would give us the necessary level of understanding about the issue in discussion. Since KM constitutes a new field in the business organization practice in Albania, conducting face to face interviews was of a high importance to us, that is, the discussion with the respondents would clarify what was meant by Knowledge Management, and KM critical success factors.

3.3 Sampling

Our original sampling consisted of interviews with managers, and other employees, in 52 companies, in the Tirana region of Albania. 124 questionnaires were delivered, and the questionnaires' return rate was 65.4%, or 81 collected questionnaires. However, the collected data could be considered as being representative.

3.4 implementation plan

The way we were organized helped us in reducing the time required to perform the interviews and in reducing the costs. Collected data were processed in order to prepare the findings and draw conclusions. Interviews were used to collect an important part of the necessary information from the research subjects. As to the questionnaires, there were not present any difficulties in distributing and collecting them.

3.5 ethical issues

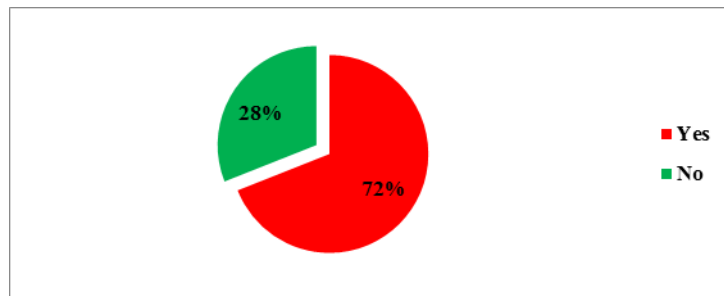
The information collected from the respondents was very important for analyzing and interpreting the findings. The names of the respondents (companys', mangers', employees') due to ethical obligations were not disclosed in this paper.

4 Results presentation of the research findings

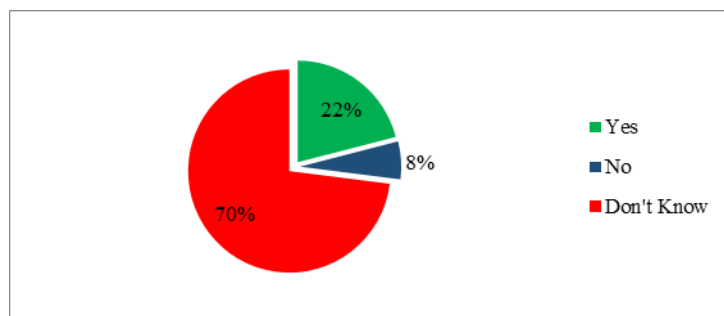
In this section research findings are presented.

4.1 Level of knowledge recognition

In relation to the level of recognition of the Knowledge as an important source and a strategic business asset, and of the Knowledge Management as a management practice, the results of the analysis are as following:

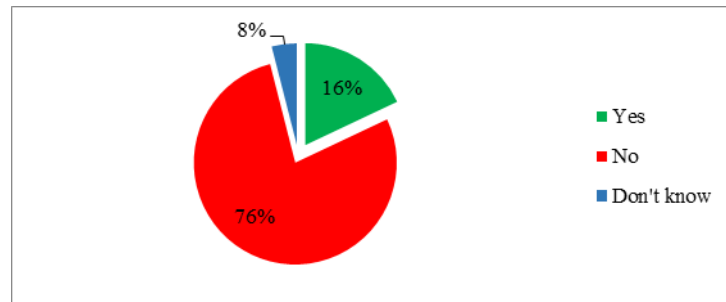


Graph 1:
Do you know where knowledge stems from in your business?

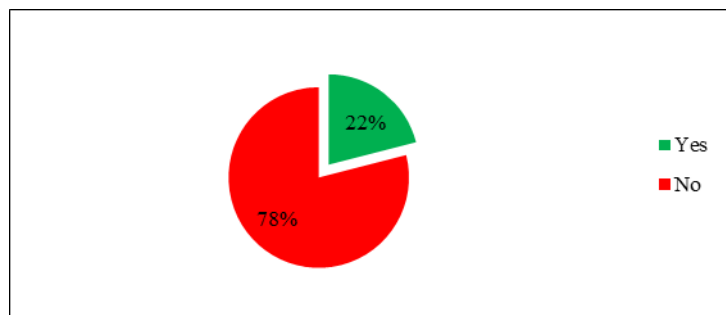


Graph 2 :
Do you think that knowledge is an important asset of your business?

The results indicate that 72% of these companies were able to identify the necessity for knowledge and the way how to provide it. However, on the other hand, they failed to identify Knowledge as an important asset for their business organizations (70%).



Graph 3:
Is your company familiar with the concept of Knowledge Management?



Graph 4:
Do you know how to profit from Knowledge Management in your business?

The data clearly show that 76% of companies were not familiar with Knowledge Management concept. One of the basic reasons is that they did not understand and recognize the benefits that may come to their businesses from the usage of KM (78%).

As to the level of knowledge recognition we can say that, the success of businesses in the 21st century depends on: the quality of knowledge that companies apply in their key activities, which put forward new demands to companies; the investment that they constantly make on the development of knowledge; the competitors, customers, employees and labor force; and the global imperatives (Macintosh, 1998). *This holds true for Albanian Business Organizations as well.*

People in organizations under study did not see a clear business reason why they should transfer and preserve their knowledge. Consequently, someone who has

knowledge did not know that someone else could use it profitably, and someone who may benefit from knowledge did not know that someone else within the organization possessed such a knowledge.

4.2 Level of knowledge implementation

To see the implementation level of KM in the organizations under study, 10 initiatives of KM were selected.

Questions related to the specific nomination of the initiatives they had already implemented in their companies, out of list of 10-selected-initiatives, (they could select more than one answer), were asked.

Table 1 below describes the results. Out of 24 companies that had implemented KM practices, none of the respondents said that their company had implemented the all 10 initiatives.

On top of initiative-implementation list in the organizations under study were: *“apprehension of basic knowledge”* (98%); *“use of information technology in sharing and transferring of knowledge”* (92.4%); and *“use of intranet to publish and access information”* (72%).

Initiatives such as: *“development of strategies for KM”* 42.2%, *“appointment of leaders and groups of KM”* 32.4%, *“reward for employees with a positive attitude to knowledge share”* 30.6%; were not among the best features of these companies.

Another activity with a very low rate was: *“measurement of intellectual capital value”* 22%; however this was something expected, as long as a systematic measurement system of KM in these organizations, was not present.

Table 1: Types of implemented KM initiatives

Initiatives	Frequency	Percentage
Apprehension /electronic storage of basic knowledge	24	98
Use of IT in sharing and trasfering knowledge	22	92.4
Use of intranet for the publication and access of information	18	72
Building and maintaining expertize and skills of employees	16	62.6
Identification of the best internal and external practices	16	60
Establishment of a supportive environment for knowledge sharing	12	50
Strategy development for knowledge management	10	42.2
Appointment of leaders and knowledge management groups	8	32.4
Remuneration of employees who contribute to knowledge sharing	8	30.6
Measuring intellectual capital values	6	22

As to the level of knowledge implementation we can say that, on one hand, different initiatives of KM practices were used in the companies under study, and

on the other hand, their strategy, structure and culture were not formalized to support Knowledge Management. The rate of KM implementation was low.

4.3 Relationship between critical success factors of km and performance

In order to find out if a relationship between critical success factors of KM (*Leadership, Organizational Culture, Human Resources Management, Organization Strategy, Organizational Structure, Evaluation Systems, Information Technology*) (independent variables) and performance in business organizations (*Organizational Performance*) (dependent variable) is present, Multiple Regression Analysis is conducted, using SPSS Statistics. *(It is beyond the scope of this paper to specify the sub-variables of the dependent variable "Organizational Performance")*. Through the "Enter" method, a Multiple Regression Analysis comprising seven independent variables was performed.

Regression Equation (1): "Organizational Performance" = constant + b_1 (Leadership) + b_2 (Organizational Culture) + b_3 (Human Resources Management) + b_4 (Organization Strategy) + b_5 (Organizational Structure) + b_6 (Evaluation Systems) + b_7 (Information Technology)

For the Regression Equation presented above Inferential Diagnosis is performed. The results of a series of tests like: Multicollinearity Test, Fisher T-Test, Student's T-Test, indicated that the dependent variable "*Organizational Performance*" is strongly effected by three independent variables, "*Leadership*", "*Organizational Culture*" and "*Information Technology*". The effect of the other variables was not statistically significant.

So, we can write the Regression Equation (2): "*Organizational Performance*" = constant + b_1 (Leadership) + b_2 (Organizational Culture) + b_3 (Information Technology)

For the Regression Equation (2) presented above, again Inferential Diagnosis is performed. After conducting the necessary tests like: Fisher T-Test, Student's T-Test, R Squared (the coefficient of multiple determination) for the three statistically significant variables, we were able to interpret the findings resulting from the Regression Equation (2).

Table2 Regression analysis for the statistically significant independent variables

Model	coefficient β	R ² (R-squared)	R ² corrected	Value (t)	p
(constant)	2.428	0.526	0.597	15.526	0.000
Leadership	0.247			3.363	0.003
Organizational Culture	0.238			3.064	0.005
Information Technology	0.218			2.792	0.007

Regression equation is now re-written: *Regression Equation (2): "Organizational Performance"* = 2.428 + 0.247(Leadership) + 0.238(Organizational Culture) + 0.218(Information Technology)

The results:

- The results of the ANOVA test indicate that the three independent variables sufficiently explain the variation in the dependent variable "*Organizational Performance*".
- The Statistical Analysis of the *t-test* indicates that the three independent variables are sufficiently significant to explain the changes in the dependent variable "*Organizational Performance*".
- The "b" coefficients of the regression equation are positive, indicating a *positive correlation* between each of the three independent variables and the dependent variable "*Organizational Performance*", that is, the higher the level of implementation of the three independent variables, the higher the *Organizational Performance*.

So, based on the results specified above, we can indicate the presence of a relationship between critical success factors of KM and performance in the business organizations in Albania.

Conclusions

Despite the broad literature about KM, there is a low level of attention on Knowledge as a key asset, and a low level of implementation of KM practice, in business organizations in Albania.

Despite the fact that several KM initiatives are actually implemented, such as: *apprehension of basic knowledge, use of information technology in sharing and transferring knowledge, use of intranet to publish and access information; strategy, structure and culture of the organizations under study*, are not formalized to support Knowledge Management.

There is a relationship between critical success factors and performance of the organization, in Albanian businesses. The higher the level of implementation of some *critical success factors of KM*, the higher the *Organizational Performance*.

Being an integral part of the global market economy, Albanian business organizations need to recognize and enforce this contemporaneous practice of management (KM), and integrate it to their business strategies, with the aim of increasing competitive advantages and performance.

References

- [1] Alavi M., Leidner D. E.: Review: knowledge management and knowledge management systems: conceptual foundations and research issues, *MIS Quarterly*, Vol. 25 No. 1, 2001, pp. 107-36.
- [2] Barnes S., Milton N.: *Designing a Successful KM Strategy: A Guide for the Knowledge Management Professional* Information Today Inc., 2014.
- [3] Black S. A., Porter L. J.: Identification of the critical factors of TQM, *Decision Sciences*, Vol. 27 No. 1, 1996, pp. 1-21.
- [4] Brelade S., Harman C.: Using human resources to put knowledge to work, *Knowledge Management Review*, Vol. 3 No. 1, 2000, pp. 26-9.
- [5] Dalkir K.: *Knowledge Management in theory and Practice*, Oxford, Elsevier Butterworth-Heinemann, 2005.
- [6] Dalkir K.: *Knowledge Management in Theory and Practice*, Third edition, MIT Press, 2017.
- [7] Davenport T. H., De Long D. W., Beers M. C.: Successful knowledge management projects, *Sloan Management Review*, Vol. 39 No. 2, 1998, pp. 43-57.
- [8] Davenport T. H., Volpel S. C.: The rise of knowledge towards attention management, *Journal of Knowledge Management*, Vol. 5 No. 3, 2001, pp. 212-21.
- [9] Davenport T., Prusak L.: *Working Knowledge*, Boston, Harvard Business School Press, 1998.
- [10] Gurteen D.: Knowledge, creativity and innovation, *Journal of Knowledge Management*, Vol. 2 No. 1, 1998, pp. 5-13.
- [11] Hunter N. B.: *The Power of KM: Harnessing the Extraordinary Value of Knowledge Management*, 1 edition, Spirit Rising Productions, 2016.
- [12] Leonard-Barton D., Swap C. W.: Barton, G., *Critical Knowledge Transfer: Tools for Managing Your Company's Deep Smarts*, Harvard Business Review Press, 2014.
- [13] Milton N., Lambe P.: *The Knowledge Manager's Handbook: A Step-by-Step Guide to Embedding Effective Knowledge Management in your Organization*, Kogan Page, 2016.
- [14] O'Dell C., Hubert C.: *The New Edge in Knowledge: How Knowledge Management Is Changing the Way We Do Business*, 1 edition, Wiley, 2011.

Market Research in Starting Up Agricultural Business: Case Study of Kosovo Dairy Industry

PhD. cd. Isak Berbatovci

European University of Tirana

Isakberbatovci@hotmail.com

Abstract: The main purpose of starting up each business is to establish a long-term profitable business. One of the key factors that maintain the sustainability of business success is to have an updated depth and specific market research about the certain industry. The market research aims to collect important information about the market trend and demand, market size, its potential competitors as well as its major buyers. Thus, it is fundamental to analyse the market to identify and understand the current and future opportunities and difficulties within the business field. In general, market research joins together with other factors such as budget, location, professional acquaintances determines the potential level of sales and business success. Most of the dairy businesses in Kosovo are small-sized and have a limited budget and this reflects the level of market research, how research has been done and by who has been done on the opening stage of the businesses. The study will assist in evaluating the degree of market research from the value chain actors in the dairy industry and the effect of market research in the development of the industry. The data used in this study were obtained through interviews with the main actors of the value chain in the dairy industry, in seven regions throughout Kosovo. Research findings have shown that market research is not in satisfactory level and not given sufficient importance especially by small companies in the lower part of the value chain in the milk industry of Kosovo. Therefore, more consideration should be given to market research by all value chain actors, in order to have a successful and sustainable business.

Keywords: Market research, value chain, the dairy industry, opening a business

1 Introduction

Kosovo dairy industry has a special transition history. During the early 90s, dairy businesses have been almost socially owned with the exception of family farms which produced and processed products have used for personal needs and their surplus have sold in the green market. During the initial stages of conflict, the industry has faced a lack of proper strategy development, dissolve of cooperatives and reductions of functional participants and linkages in dairy value chain in the country.

The initial stages of development businesses in this industry were visible in the first decade of this century, during this time a large number of new businesses opened which were based on family traditions, with its own budgets and not having any market research.

When the new business was created, it was seen as a promise of a new source of income. Though the record of doing business has changed, this changes reasserted and of so-called “World Global Market” build on bases of international standard like the European market.

After joining the global market, the signing of several agreements such as the Central European Free Trade Agreement (CEFTA) and Stabilization and Association Agreement (SAA) was shown economic recovery. However, because of relatively short experience of businesses in the dairy industry, accompanied by low favourable loans, poor qualitative approach towards business and fierce competition from imported products in the blooming stage of these businesses, many enterprises are having difficulties in selling their products. In addition, as stated by the previous studies, because of lack of market research, many enterprises face liquidity and termination issues on their businesses. According to KSA (Kosovo Statistic Agency) data on new and terminated enterprises to quarters 2006-2016, the number of businesses terminated in 2015 was 2025, with an increase of 82% to the year 2014.

In order to understand the contemporary role of market research in business, this study will attempt to assess its role in what has been called ‘Market research’ at opening stages of businesses. Market research is essential to the market process, strengthen the action to take and to help to clarify what should be focused on (Forsyth, & Patrick. 2009). Market research is a broad term and it is clearly associated with the number of activities such as gathering information that improves marketing effectiveness, support the business for long-term running and reduce business risk and the barriers. In general, the main actors of the dairy industry in the value chain, especially to milk producers (71.4%), family tradition plays a major role on making the decision on opening a new business or running existing family business. Whereas, other actors of the supply chain where companies are bigger in size (60%) decision on the opening of new business is based on the result of market research which obtained mainly by the owners of company or manager that are not specialised in this field. Therefore, to increase the business success in the dairy industry, it is necessary that all the data are used to make a decision on opening a business have to be reliable and obtained by professional market research companies.

The research findings, besides being an attempt to understand the actual state of implementation of market research in dairy industry, will be inputs that can be utilized for practical purposes by the founders of the businesses, to help to create a

sustainable business and reduce the business risk. Through this analyses, the paper will argue that lack of market research before and in process of opening of new businesses has a big impact on closing down many businesses in Kosovo.

2 Market research and its effect on business development

Creating and opening a new business is exciting process however it is fundamental to set your company in the right direction based on the valuable information obtained through market research is an essential step.

“It is said the information is Power” (Silbiger, 2005, p.364). As Silbiger highlighted that the reliable and effective research is to know that from who and how to gather the information. The more effective research work has been done, the more profitable and successful business you gain. Also, was said that” Companies need healthy information, in order to produce superior value and satisfaction for customers, the company requires information for competitors, resellers and other market forces” (Kotler & Armstrong, 2013, p.137). Market research and its importance were defined and discussed by many authors one the field. Market Research can be defined as: “The systematic problem analyses, model-building and fact-finding for the purpose of the improved decision-making and control in marketing goods and services” (Forsyth, 2009, p.54).

Market research helps the owners and managers to understand the whole and the best market, the suitable market strategy as well as to identify the opportunities and threats in the field. Thus, it is important that in order to avoid the failures any business organisations should focus on the market research. To evaluate market “Additional, local, regional and national research may be needed to accumulate all necessary information.” (Maitland, 1998).

Market research identifies and investigates the potential customers and marketing opportunities, the right products and services, the market segment as well as the changes in the market that will affect in the future. Market research is composed of two types of special research, primary and secondary that are essential to meet company objectives. The secondary survey consists of data that are produced previously by others this research helps to create a database, which can be used to perform the analysis of the situation. It helps to identify the company's competitors, to carry out a strategy for comparison and also define the segments the company should aim in view of factors such as demographics, population (Matthews, & Ross, 2010).

Primary research serves to provide information through monitoring of sales levels and measuring the effectiveness of existing business practices such as quality of service and communication tools used by the company. Market research consists range of different types of research that can be developed to help in various ways. Ways of conducting market research may be different: receiving data in conversations with people who have knowledge in the district where you live, interviewing potential consumers to the analysis of data larger market. To get business in right direction according to Taylor (2017), valuable market research data can be collected in for ways: Your own research for market research, conducting online survey or focus group section, buying expert market research data from the firms that specialise in market research in your field and, hiring a research company to interview selected companies in select location.

As Kosovo is a small and developing country, most of the businesses are local and family oriented. The owners and managers usually based on the own knowledge and skills to set and run the business, whereas, market research strategy development of the business in Kosovo finds very little room. Significant major problems in the dairy industry are direct marketing of dairy products to the green market and imported cheap dairy products.

Baumann, & Jetishi (2015), in their studies of Direct Marketing of Dairy Products in Kosovo's Green Markets stated that farmers without prior licensed dairy processing sell about 30 million kg of milk per year to green markets (farmers' markets) or near them on the street. Thus, uncontrolled, directly marketed products create unfair competition with products sold on regular local markets. In addition, according to Kosovo Dairy Processors Association (KDPA) and Kosovo Association of Milk Producers (KAMP), the biggest challenges are the subsidised cheap imports of dairy products as a result of insufficient state support for strengthening and developing the sector. The dairy-food is highly risky business to deal with, for this reason before an entrepreneur launches a new venture, it is essential that a business owner must gather market information. The owner then can be more confident in the decisions he makes based on solid data rather than guesswork, he can state with confidence that the marketplace truly needs what products business plans to offer (Hill, Brian. (n.d.)). Also, Zuzaku (2015) in his study of the significance of market research to businesses stated that market research encourages business development and employment opportunities, 56% of respondents in his study stated that if the demand for market research increases, they will increase the number of workers.

In recent years, as result of market demand and its competitiveness, the most Kosovo companies are becoming aware of that the success of the business can only be achieved through specific market research in providing research regarding the customers, competitors and the market potential for their products or services. The number of companies which their main activity has been the market and opinion research according to data of Kosovo Business Registry Agency (KBRA) is 132, but according to the data obtained from studies shows that 68% of those registered companies that the main activity is market research, have never carried

out any market research. (Zuzaku, & Buja, 2014). According to data obtained by these study, the structure of market research companies in Kosovo are as follows: individual business 32%, Limited Liability Company 52%, whereas froing Companies who are doing market research in Kosovo is 13% (Zuzaku, & Buja, 2014). Development of the businesses through the companies for market research).

3 Objectives and limitations

3.1 Objectives

The main objective of this study is to analyse and to identify the implementation of the market research before opening the new business among participants in Kosovo dairy industry.

Other objectives are to analyse the key role of market research in the growth of these enterprises in the dairy industry in Kosovo and to find out the issues that may require more attention on the future stages of opening business in order to reduce the risks involved in making the business decisions.

3.2 Limitations

Study limitations are related to two aspects: sample of businesses have chosen for this research is concentrated on the medium and large companies that can provide more reliable information. Also, during the interviews some of the respondents were not familiar with the market research, thus some of the interview questions about market research considered premature for some businesses in the dairy industry.

4 Hypothesis and research questions

4.1. Research question

The research questions of this study are:

1. What is the level of implementation of market research in the stage of opening business?
2. In what, are owners based when making a decision to open the new business in the dairy industry?

3. How important is the market research among participants in the dairy industry?
4. What information gathered during market research?
5. How reliable were research results when the business owners have taken into account in open the business?
6. What is the level of market research development in Kosovo?

4.2 Hypothesis

The hypothesis of the paper are:

H1. Opening new or running the businesses in the dairy industry in Kosovo are based on more family tradition than on information obtained from market research.

H2. Due to lack of budget, the market research was done by the owners of the companies and the credibility of the results is low.

5 Methodology used

This research combines secondary research based on a series of theoretical studies in market research in the dairy industry with primary research which was conducted through in-depth interviews with enterprise managers and owners of four actors of the supply chain in the dairy industry in seven regions of Kosovo. During the interviews, the researcher have gathered information about the steps in starting up business and the implementation of market research on the stages of starting up business in this sector.

The survey was conducted in 61 business participants on dairy industry (Farmers, milk collectors, processors and retailers). The sample of interviewed respondents in dairy industry consists of farmers 14, collection points 14, milk processors 16 and traders 17. As regards to the position on the company of the interviewed respondents are: Landlord 34.4%, Manager 63.9%, and staff 1.6%. Selection of businesses and respondent for interview was based on providing reliable information about opinions and judgments of market research in the opening stages of their business but also after the opening of business, the level of research, research model, using the results of research in the opening of the business and business benefits from the use of research results.

6 The current business situation in milk industry

According to the population census in 2011 Kosovo has 1,739,825 inhabitants, and most of the population about 62% live in rural areas while 38% live in urban areas (Kosovo Statistic Agency, 2014). When it comes to labour force according to the data of agricultural census 2014, workforce in agriculture in 2014 was 362 700, from them business owner and family members constitute 79.83%, which only 1.08 % are regularly employed on agricultural households and agricultural legal entities, non-family members which mostly are seasonal workers are 18.76% (KSA, 2014).

The dairy industry is an important sector in Kosovo and it plays a great role in the economic and financial situation of the country as well as one of the most profitable sector in agriculture. The main actors in the dairy industry in Kosovo are: Farmers, Collection point, Processors and Retailers. Livestock (Farming) represents the most intensive branch of agricultural production and very important for producers and consumers.

According to a KSA the number of active enterprises in Kosovo in 2008 was 41 124, while in 2014 was 31924, expressed as a percentage the number of active companies has decreased 22.4 %, the number of overall agricultural holdings was 130 775 of these only 339 are legal entities while others are agricultural individual businesses whereas agricultural economy that deals with livestock were 91 227. (70% of total Agricultural Economies), which comprise a total of 281 747 livestock size units (LSU) (KSA- agricultural census 2014).

From Table 1 can be seen that about 22% of agricultural holdings have 1 to 1.5 LSU which has the biggest percentage in agricultural holdings.

Based on the data by milk production association the number of milk collection points operate in Kosovo is 53, including the most of the regions of Kosovo. From them registered as a business in Ministry of industry and trade until now are 30 milk collection points or 58% of the total number of collection points are functional.

Whereas in 2015, according to the Food and Veterinary Agency (FVA) were 41 milk processing plants. Ten of them are the industrial processors with capacity over 1 million / litter in a year while others are commercial processors with the capacity of less than 1 mil / l in a year.

Based on the production volume per day Table 2 shows that processing factories with high production are 4 in total but most processors belong to the category of the lower production volume.

Table 1. Agricultural holdings by livestock size units (LSU), in Kosovo 2014			
	Number of agricultural holdings	Livestock size unit (LSU)	% of agricultural holdings (LSU)
LSU- >0 to 0,5	14367	3371	15.75
LSU-0,5 to less than 1	5684	4137	6.23
LSU-1 to less than 1,5	20331	24751	22.29
LSU- 1,5 to less than 2	11581	19821	12.69
LSU-2 to less than 3	15347	37158	16.82
LSU-3 to less than 5	12139	45774	13.31
LSU-5 to less than 10	7487	51056	8.21
LSU-10 to less than 15	2005	24160	2.20
LSU- 15 to less than 20	929	15881	1.02
LSU-20 to less than 30	725	17250	0.79
LSU-30 to less than 50	415	15341	0.45
LSU- 50 and more	217	23046	0.24
Total in Kosovo	91227	281747	100
Source: Kosovo Statistic Agency (Agricultural holdings by livestock size units (LSU), regions and municipalities 2014)			

Table 2 Categorization of milk factories by activity (Volume Production)		
Volume production	No. of processors	Percentage
High	4	9.75
Medium	11	26.8
Low	26	63.4
Food and Veterinary Agency (FVA)-2015 (elaborated by author IB)		

In terms of new businesses, Kosovo statistic agency data presented in table below shows that the total number of new businesses registered since 2014 is increased only 2.68%, while looking by sections, great growth in the registration of new businesses is observed in agriculture 27.53%, production 16.08% while number of new businesses in trade sector has been unchanged.

Table 3 The number of new and re-registered enterprises by quarters and sections of economic activities 2012-2016				
Year	2012	2013	2014	2015
Total	9 576	9 420	9 404	9 833
Agriculture, forestry and fishing	741	753	674	945
Production	902	872	978	1 047
Wholesale and retail trade, repair of motor vehicles, motorcycles	2 918	2 734	2 814	2 903
Source: Kosovo Statistic Agency, The number of new and re-registered enterprises by quarters and sections of economic activities 2012-2016				

Whereas the number of companies that are closed down per year is presented in the table below.

Table 4				
New and terminated enterprises according to quarters 2006-2016				
Year	2012	2013	2014	2015
New enterprises	9 576	9 420	9 404	9 833
Terminated enterprises	1081	1508	1671	2205
Source: Kosovo Statistic Agency, New and terminated enterprises according to quarters 2006-2016				

According to data in the statistical structure of businesses obtained by ASK, the number of active business from 2008 - 2014 decreased by 22.4%. The data presented above shows that the total number of all registered new businesses not changed much since 2012 to 2015 (2.68%), while the termination of businesses in general in Kosovo had increased to 49%.

The above figures and the lack of study of market research, especially in the agriculture sector, motivated me to do the study on the implementation of market research by supply chain actors in Kosovo dairy industry on opening stage as a factor in sustainability and the success of the business

7 Research Results

In the research result are presented a series of data relating to the implementation of market research by the actors in the value chain in the dairy industry and identified the importance of market research in the establishment, expansion, durability and success in the business.

Using the technique of interview through open and a semi-open questionnaire has increased the opportunity of analysis in market research in businesses, particularly in the small and medium agricultural businesses which people have lower education level.

Table 5 Sectors of dairy industry	
Actors in Dairy Industry	Number companies interviewed
Farmers	14
Collection point	14
Milk processors	16
Retailers	17
Source: author	

Research results obtained from selected actors in the supply chain of the dairy industry as seen in Table 5, by addressing the market research quality as multidimensional are considered some factors such as: level of implementation, the used methodology, budgets and timing of implementation, and implementation in practice of the research results, that are related to measuring the perception of the founders (Manager) for market research whether meets their predictability.

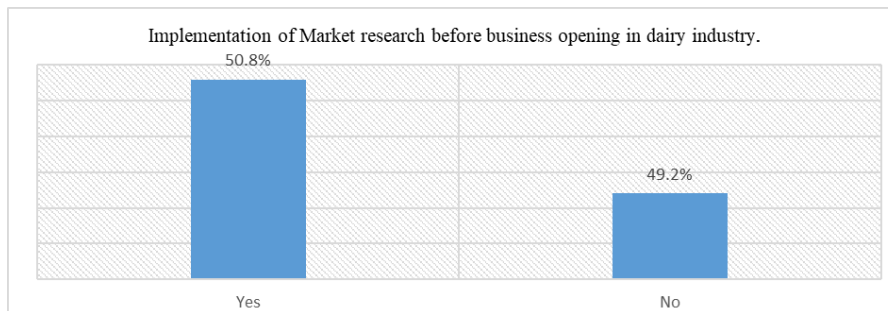


Figure 1. Author

Figure 1 shows the level of research to all actors in the supply chain in the dairy industry, as figure shows that implementation of market research before opening the business in this industry was 50.8%, while 49.2% have not done any market research in the initial stages. As shown in Figure 2, during the research found that there are big differences in market research among the business and actors of the supply chain. This difference is stated as the result of changes in the size of the company, professionalism, budget and perception of market research in business success. From Figure 2 can be seen that the highest level of market research in the initial stages of opening business it is done by milk collectors and processors whereas to milk producers market research is very low 21.4%.

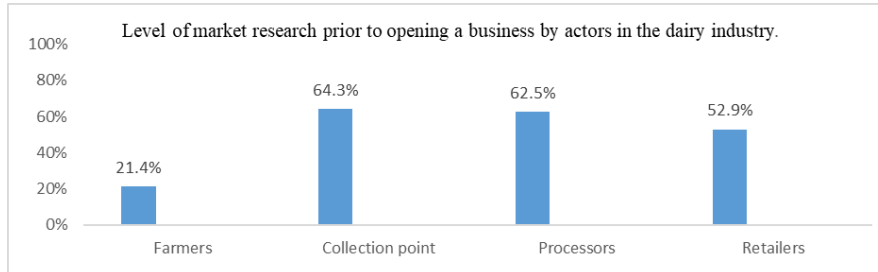


Figure 2. Author

Since the decision in opening the dairy business depends on many factors such as appropriate level of knowledge gained by experience and education, the available budget, the data collection and business traditions, aim of the research was to get responses to the question of which are based on the opening of businesses, results are shown below in figure 3, referring to data obtained from this research to four different actors in the industry is noted that family tradition in business is the main factor in opening the business in general, but it is mostly expressed to the milk producers about 71.4%.

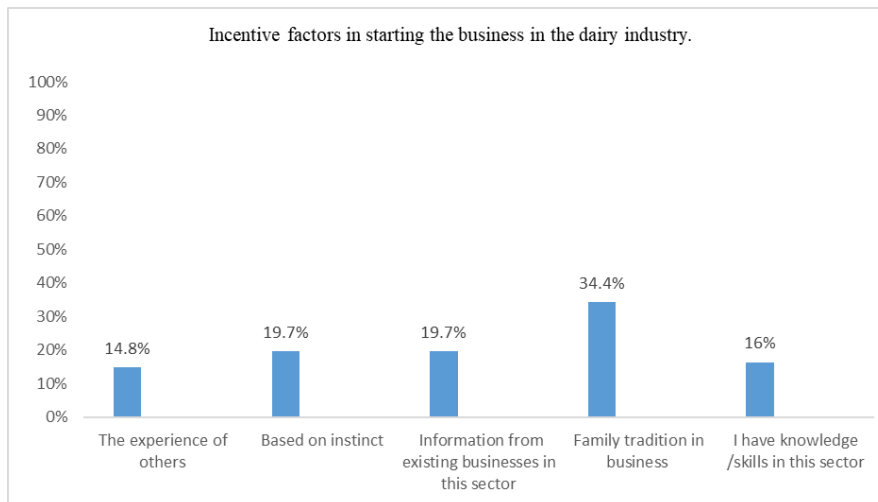


Figure 3. Author

The credibility of the research results are important factors in making the decision to open businesses in the early stages as well as for the sustainability and success of the business in the future, and therefore the selection of technologies, methods and adequate persons for conducting research is essential. Regarding who has conducted market research among the companies interviewed, the data from our research presented in figure 4 shows that around 61.3% of the respondents state

that they have conducted their own research while 29% have engaged a research company and 6.5% have engaged one person.

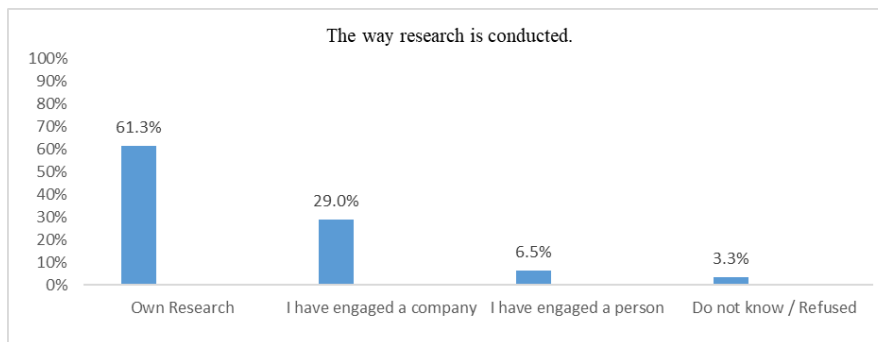


Figure 4. Author

Considering the importance of research and the implementation of these results in practice, about 87.1% of respondents who have researched the market have been declared to have taken into account the research results and decided to open a business based on results, while 12.9% did not take into account the results of the research

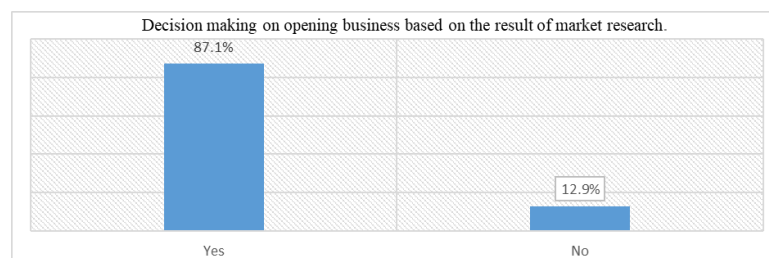


Figure 5. Author

The opinion on the impact of the results of research into the success of the business, the evaluation of market research in general by business and the performance of their businesses are presented in Figure 6, Figure 7 and Figure 8.

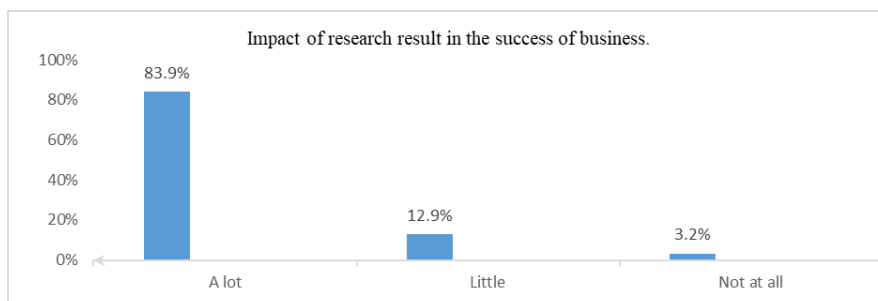


Figure 6. Author

The results presented in Figure 6 show that about 83.9% of respondents think market research has had a lot of impact on business success, 12.9% little, while 3.2% think it has not affected at all. The low level of market research in the initial opening phases is also consistent with the assessment of the importance of market research presented in figure 7, shows (47.5%). Thought very important while 47.5% little whereas 3.3% thought that was not at all important.

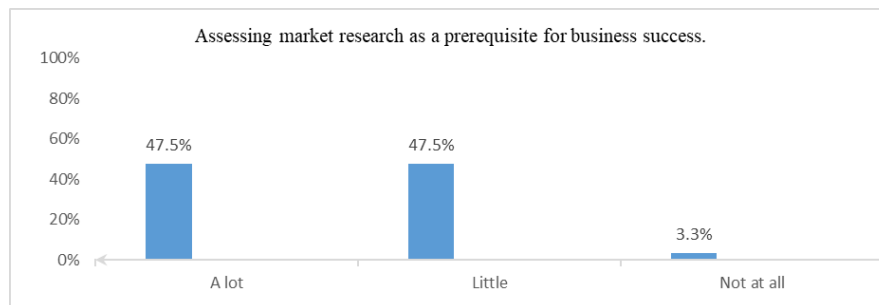


Figure 7. Author

In terms of the level of satisfaction on business performance, Figure 8 shows that about 67.2% are satisfied with their business performance while 32.8% are not satisfied with the business performance. However, although the degree of dissatisfaction is high in the question whether any market research has been conducted after the opening of business, in order to affect the performance of the business, about 63.3% stated that they have not done any market research, while only 36.6% had conducted research. Implementation of research after the business launches was similar to the research market prior to the opening of the business, where the realization of the research was performed at about 90.9% by business themselves. The main information gathered during market research by business was information about the number of competitors, the prices and the demands of consumers. The number of researches made prior to the opening of the business was 1 while after the opening of the business the average was 3.

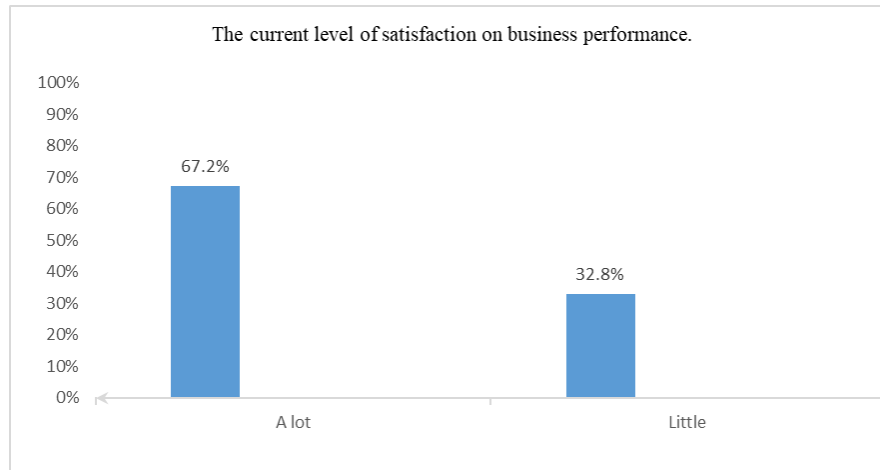


Figure 8. Author

Conclusion

The purpose of this research is to explore the nature and the level of market research by the businesses of the supply chain in the dairy industry in Kosovo. The study has brought knowledge of market research at the start-up stage. Also, it has identified a range of factors that affecting the market research process at initial business opening up, such as budget shortages, the low education level, not enough data as well as difficulties in to access for the certain information.

- a) In terms of the decision of opening the dairy businesses in Kosovo according to the research finding is based more on family tradition (71.4%, to producers) and very little attention is paid on the market research, especially in the lower part of the value chain. This data fully verifies the first hypothesis of this study which states that opening a new business in the dairy industry is based more on family tradition than on information obtained from the market research.
- b) Also it can be seen that the small-sized companies are lack of budget, have low education level in market research. As a result, the level of market research among actors in the supply chain of the dairy industry is not satisfactory.
- c) Taking into account the importance of this study, in the findings of the research, dominate aspects related to business weaknesses and potential threats to the liquidation of businesses. However, it should be noted that the findings of the research also brought positive examples of business research into the dairy market, for example, use of results research in

decision making in starting a business. Research findings show that over 80% of businesses that were doing market research have taken the decision to open a business based on the market research results.

e) In addition, more than 80% of the businesses have stated that the research results had a huge and positive impact on successful business development. The results derived from the study reject the second hypothesis that is related to the use of research results since only 13% did not use the research results in taking the survey to open the business.

Recommendation

a) Since the most of the market research is conducted by the owners of the companies and less through the experts and professional firms for market research, it is recommended that the companies carry out the research through professional market research companies.

b) We also recommend that companies do more market research, as the results obtained by market research is important in the successful development and sustainability of the company.

c) Moreover, results from research indicate that companies have started a business based on the results of the research have been successful in the later stages of development, so we recommend that other companies follow this example.

d) Government Institutions should provide necessary and easy access to the data about sales and demand of the products, markets and competitors for the enterprises and give support on starting the business.

e) Therefore, in order to help this sector and to prevent or reduce the number of businesses termination, it is very important that to continue the strong support with subsidies and other forms of support, to enable companies after opening the business to continue with marketing and market research, to increase the economy of scale. The impact of these supports is tangible and measurable, and as a result, will reduce the risk of termination and increase the competitiveness and sustainability of the dairy business.

References

- [1] Baumann & Jetishi. (2015). Direct marketing of dairy products in Kosovo's green markets - a high risk to human health. Retrieved May 20, 2017 <http://solidar-suisse-kos.org/tjera/fo/u/Green%20market%20study%202015%20shqip.pdf>

- [2] Brian, H. (n.d.). The Significance of Market Research to Small Business Owners. Small Business - Chron.com. Retrieved May 23, 2018 from <http://smallbusiness.chron.com/significance-market-research-small-business-owners-41749.html>
- [3] Food and Veterinary Agency office (FVA) (2015). Fushe Kosovë, Pristina, Kosovo (visited Jun, 2015)
- [4] Forsyth, P. (2009). Marketing: A guide to the fundamentals. London: Profile Books Ltd
- [5] Kosovo Agency for Statistics (2014). Number of active enterprises by economic sections 2005-2014. Retrieved Sep 17, 2017 from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__15%20Structural%20business%20statistics/asn01.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/
- [6] Kosovo Agency for Statistics (2014). Agricultural labour force by regions and municipalities 2014. Pristina, Kosovo: Kosovo Agency for Statistics Retrieved Sep 17, 2017, from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__12%20Agriculture%20census%202014__4%20Agricultural%20labour%20force/Tabela%204_1.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/
- [7] Kosovo Agency for Statistics (2014). Agricultural holdings by livestock size units (LSU), regions and municipalities 2014. Retrieved Oct 25, 2017, from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__12%20Agriculture%20census%202014__3%20Livestock/Tabela%203_2.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/
- [8] Kosovo Agency for Statistics (2014). The number of new and re-registered enterprises by quarters and sections of economic activities 2012-2016. Pristina, Kosovo: Kosovo Agency for Statistics. . Retrieved Oct 29, 2017, from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__11%20Statistical%20business%20register__Statistical%20repertoire/enterprises01.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/
- [9] Kosovo Agency for Statistics (2014). New and terminated enterprises according to quarters 2006-2016. Pristina, Kosovo: Kosovo Agency for Statistics: Retrieved Oct 25, 2017, from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__11%20Statistical%20business%20register__Statistical%20repertoire/enterprises02.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/
- [10] Kosovo Agency for Statistics (2014). Number of active enterprises by economic sections 2005-2014. Pristina: Kosovo Agency for Statistics. Retrieved Oct 28, 2017, from http://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__15%20Structural%20business%20statistics/asn01.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/

ss%20statistics/asn01.px/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/

- [11] KDPA & KAMP (2012). Development strategy of Kosovo's dairy industry 2011-2020, Pristina, Kosovo, 2012
- [12] Kotler, P., & Armstrong, G. (2013). Marketing Principles (edition 13th) (G. Beqiri, Translator.) Tirana: UET Press.
- [13] MAFRD, (2015). Green Kosovo Report 2014. Pristina
- [14] Maitland, I. (1998). The Small Business marketing Handbook. London, Cassels
- [15] Mathews, B., & Ross. L. (2010). Research Methods: A Practical Guide to Social and Human Sciences. Trane: Centre for Democratic Education (CDE).
- [16] Paurav, Sh. (2008). Marketing Research. Book Boon. Retrieved from <http://www.e-booksdiretory.com/details.php?ebook=3691>;
- [17] Robbins, S.P., & DeCenzo, D. (2012). MANAGEMENT BASICS: Basic Concepts and Applications. Tirana: UET Press
- [18] Scott, M. S., & Gerald, S. A. (2010). An Introduction to Marketing Research. Retrieved March 12, 2017 from <http://cloudfront.qualtrics.com/q1/wp-content/uploads/2012/02/IntrotoMarketResearch.pdf>
- [19] Silbiger, S. (2005). The 10-Day MBA: A Step-by-Step Guide to Mastering the skills Taught in Top Business Schools, Piatkus Books Ltd, Great Britain
- [20] Taylor, I. (2017). Market Research Before Starting a Business. Retrieved April 03, 2017 from www.questionpro.com/blog/market-research-before-starting-a-business
- [21] Zuzaku. A., & Buja. S. (2016). Development of the businesses through the companies for market research. Academic Journal of Business, Law and social Services, IIPCCL Publishing, Tirana, Albania.
- [22] Zuzaku, A. (2015). The significance of market research to businesses, ADVANCES IN BUSINESS MANAGEMENT. Towards Systemic Approach, At Perugia - January 21-23, 2015, Volume: 3 rd Business systems Laboratory International Symposium. Retrieved May 20, 2018 from https://www.researchgate.net/publication/279537078_The_significance_of_market_research_to_businesses

Business environment, competitiveness and innovation among SMEs in Albania

Prof. Assoc. Anila Boshnjaku

Pedagogue, Agricultural University of Tirana, Faculty of Economy and Agribusiness, Tirana – Albania,
aboshnjaku@ubt.edu.al

Prof. Assoc. Ledia Thoma

Pedagogue - Chief of Marketing Education & Research Unit, Agricultural University of Tirana, Faculty of Economy and Agribusiness, Tirana – Albania,
ledia.thoma@ubt.edu.al

Msc. Juna Dafa

Pedagogue, University of Tirana, Faculty of Economy, Tirana – Albania,
junadafa@gmail.com

Abstract: Micro and small and medium enterprises make an important contribution to the economic development of Albania. Due to globalization and EU integration process, business environment in our country is becoming more and more complex and SMEs have to undertake proper actions in order to compete at national and international markets. Under these circumstances, more attention should be paid to innovation as the main tool to remain competitive in a globalized world. This paper aims to provide a descriptive analysis of SMEs sector in Albania focusing on their contribution to the national economy as well as at the status of Albania and its SMEs with regard to competitiveness and innovation. The data used were mostly retrieved from Doing Business, Global Competitiveness Indexes (GCI) & Global Innovation Indexes (GII) and Albanian Institute of Statistics (INSTAT). Over the last years significant progress is made toward the establishment of the proper business environment for SMEs. Government policies and initiatives seem to have produced concrete results with regard to some specific indicators of Doing Business such as paying taxes, while in terms of innovation more efforts need to be put either by the government or by the same SMEs in the country in order to improve innovative capabilities. Despite some initiatives towards the establishment of proper infrastructure to enterprise innovation, this latter remains weak and Albanian SMEs still lack funds for innovation, and skilled workers.

Keywords: SMEs, competitiveness, innovation, business environment.

1 Role of SMEs in economic development

1.1 Definitions of SMEs

There are several definitions on SMEs from International Institutions based on the economic size of countries. Thus, SMEs phrase have economical meaning rather than legal meaning. Number of employees and turnover seems to be main factors determining SMEs. Different countries define SMEs differently. Small and medium-sized enterprises (SMEs) are as well defined in the European Union (EU) recommendation 2003/361. The main factors determining whether a company is an SME are: i) number of employees and ii) turnover or balance sheet total. According to the European Union the category of micro, small and medium-sized enterprises is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro'. Small and medium enterprises are thus defined as firms with 10 to 250 employees and, more than 10 million euro turnover or annual balance sheet total

Albania is an EU candidate country from 2014. In its way to EU integration Albania revised the Law on SMEs, in order to bring the SME definition closer to EU standards. According to this law (article 4): "Micro, small and medium enterprises (SMEs) includes those entities which employ fewer than 250 people and have an annual turnover that does not exceed 250 million Albanian Lek (ALL) (approx. 2,000,000 Euro). Small enterprises are those entities which employ less than 50 persons and have an annual turnover that does not exceed 50 million ALL (approx. 50,000 Euro). Micro enterprises are entities which employ less than 10 persons and have an annual turnover that does not exceed 10 million ALL (approx. 75,000 Euro). At the end as all these definitions exist, the important thing is that every definition is related to the size of each economy, and micro, small or medium is a relative concept in different countries. (Table 1).

Table 1. SMEs definition in EU and Albania,
from authors

Company category	EU		Albania	
	Employees	Turnover	Employees	Turnover *
Medium sized	< 250	≤ € 50 m	< 250	≤ 250 ALL m
Small	< 50	≤ € 10 m	< 50	≤ 50 ALL m
Micro	< 10	≤ € 2 m	< 10	≤ 10 ALL m

*1 Euro approximately 134 ALL

1.2 SMEs vs. large scale enterprise

There have been many debates about the role of the size of enterprises in the efficiency and effectiveness of the production. SMEs, observing the market closely, understanding the requirements of customers better and having intimate relations with its employee, have more elasticity than the large ones in terms of manufacturing, marketing and service. This means that SMEs overpass troubles lightly with less damage [1]. A comparative analysis between small firms and large firm is presented in Table 2. As it is shown by the table, there is significant difference related to marketing, management and communication and so on. Among advantages we can emphasize: i) opportunity to fast reaction to changes, because of single structure, ii) SMEs are the manufacturer of intermediate goods and inputs of large industrial enterprises iii) SMEs reflect small savings and family savings directly to the investments. In this regard the small firms are too important, have a significant impact on creating the future business generation. However, SMEs have also some disadvantages. These are lack of general administration, especially the lack of total participation of low level workers to the decisions taken by the owners or partners, lack of capital and financial planning, not taking enough support from the banks and other financial corporations, lack of product development, lack of coordination between production and sale, not showing the activities of modern marketing, risk of bankruptcy and losing its independency, etc.

Table 2.
Comparisons between small and large firms, from ISB, 2006 (2)

	Small Firms	Large Firms
Marketing	• Ability to react quickly to keep abreast of fast-changing market requirements	• Comprehensive distribution and servicing facilities. • High degree of market power with existing products.
Management	• Lack of bureaucracy. • Dynamic, entrepreneurial managers react quickly to take advantage of new opportunities and are more willing to accept risk.	• Professional managers able to control complex organizations and to establish corporate strategies.
Internal Communication	• Efficient and informal internal communication network. • Affords a fast response to internal problem-solving. • Provides ability to recognize rapidly to adapt to change in the external environment.	• Internal communications often cumbersome: this can lead to slow reaction to external threats and opportunities.

Qualified technical manpower	• Frequent lack of suitably qualified technical specialists. • Often unable to support a formal R&D effort on an appreciable scale.	• Ability to attract highly-skilled technical specialists. • Can support the establishment of a large R&D laboratory.
Finance	• Great difficulty in attracting capital, especially risk capital • Innovation can represent a disproportionately large financial risk.	• Ability to borrow on capital market. • Ability to spread risk over a portfolio of projects. • Better able to fund diversification into new technologies and new markets.
Economies of scale and system approach	• In some areas scale economies of form substantial entry barriers to small firms. • Inability to offer integrated product lines or systems.	• Ability to gain scale economies in R&D, production and marketing. • Ability to offer a range of complementary products.
Growth	• Can experience difficulty in acquiring external capital necessary for rapid growth.	• Ability to finance expansion of production base. • Ability to fund growth via diversification and acquisition.
Patents	• Can experience problems in coping with the patent system. • Cannot afford time and costs involved in patent litigation.	• Ability to employ patent specialists. • Can afford to litigate to defend patents against infringement.
Government regulations	• Often cannot cope with complex regulations. • Unit costs of compliance for small firms often high.	• Ability to fund legal services to cope with complex regulatory requirements. • Can spread regulatory costs. • Able to fund R&D necessary for compliance.

1.3 The importance of SME in Albanian economy

During the years of transition, SMEs have played a significant role in the economy. SMEs contribute around 75% to the GDP of the country, while its contribution to exports is around 50% [3]. SMEs constitute the vast majority of businesses in Albania. SMEs generate over two thirds of value added and 81.6 % of employment, compared to the EU value added average of 56.8 % and employment average of two thirds. Micro-firms are the backbone of the Albanian economy, providing 40 % of employment, but they are providing only 20% of value added. As for small and medium sized enterprises, contributions to employment and value added are at comparable levels with EU average (Table 3).

Table 3
SMEs related to added value, employment and number (Albania vs. EU), from SBA Fact Sheet
Albania, 2017 (4)

Class size	Number of enterprises			Number of persons employed			Value added		
	Albania		EU	Albania		EU	Albania		EU
	No.	%	%	No.	%	%	Million Euro	%	%
Micro	87,854	94.5	93.0	162,261	40.8	29.8	95,250	21.9	20.9
Small	4,105	4.4	5.8	79,713	20.0	20.0	105,294	24.2	17.8
Medium	833	0.9	0.9	82,650	20.7	16.7	89,397	20.5	18.2
SMEs	97,792	99.9	99.8	324,984	81.6	66.6	289,940	66.6	56.8
Total	92,920	100	100	398,507	100	100	435,419	100	100

The number of SMEs has increased continuously during last years. In 2016, the number of SME registered was about 30 % higher compared to 2012, while employment increased by nearly 20 % during the same period. However, despite this increase, value added rise by only 3 %, and overall value added as a share of the economy still remains below its 2012 level [3]. The most significant improvements took place in 2015, with SME employment increasing by 18.7 % and value added by 6.5 %. This was mainly due to a significant increase in the number of SMEs. The major part (90%) of the enterprises are those with 1-4 employed and then 5% and 4% are enterprises with 5-9 and 10-49 employed respectively. Those enterprises that have over 50 employed consists only the 1% of the total [5].

The Albanian economy is dominated by services, but agriculture still retains an important role. Enterprises with main activity “Trade” and “Accommodation and food service activities” dominate with 46% of total active enterprises (Figure 1). The manufacturing sector is relatively small (7% of the total) and mainly produces low value added and labor-intensive products such as textiles and footwear. Construction's share of the economy greatly diminished over recent years as private credit and investment weakened. Another growth driver in the manufacturing sector was exports, which reached an all-time high in 2014. From 30% in 2012, in 2015, 37 % of total exports consisted of textiles and footwear, followed by exports of minerals, fuel and electricity [4].

SMEs realize 66.3 % of value added. Trade sector occupies the highest percentage of value added realized by small and medium enterprises with 22.2 %, followed by other services with 11.5 %, construction with 10.1 % and manufacturing industry with 10.0 %. Electricity, water & waste management and mining & quarrying sector have the lowest percentage of value added respectively by 2.2 % and 2.5 % [3].

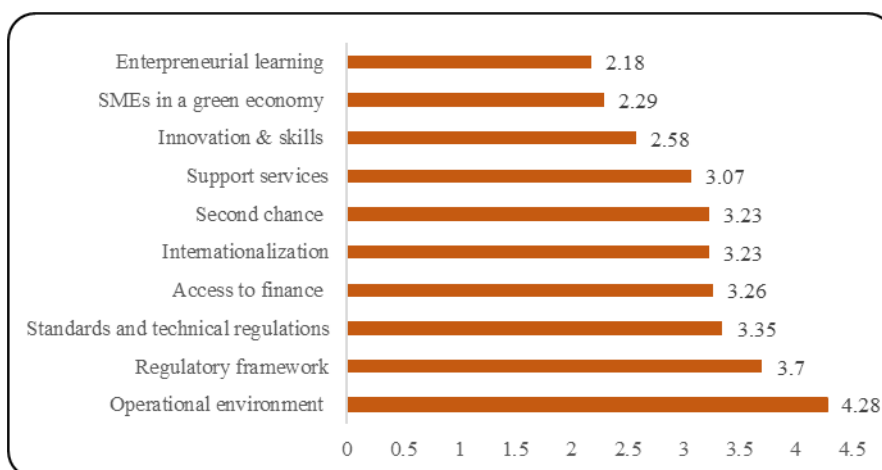
Small and medium sized enterprises play an important role in terms of employment. Accommodation and food services sector has the highest percentage of employment in micro enterprises by 78.9 %. Construction sector has the highest percentage of employment in small sized enterprises with 39.0 %. Manufacturing sector has the highest percentage of employment in medium sized enterprises by 36.4 % [5].

1.4 Business environment and public private dialogue

The Albanian government has always paid attention to SMEs development a catalyst for rapid increases in domestic production and employment. Strong and dynamic development of private sector is considered a priority of the government since the beginning of economic reforms. The creation of a suitable business environment and the support of the sustainable development of SMEs, are basic conditions for the economic development and the increase of social welfare as an employment source, innovation and productivity. For this reason Business and Investment promotion strategy for 2014-2020 is approved by Albanian Government. This is the main document for the identification and implementation of the national policies for the promotion of business investments for the period 2014-2020. The Business and Investment Strategy is part of the National Development and Integration Strategy. The Strategy is in line with the principles of the Stabilization and Association Agreement linked also with principles of the Small Business Act/ SBA. The primary objective of this strategy is to transform Albania to a country that has developed and improved the business climate, an open competitive market, development of industrial SMEs and an attractive investment destination and an inclusive and sustainable growth [6].

Albania continued to implement the 2014-2020 business and investment development strategy in order to facilitate the business environment. According to the 2016 Small Business Act policy findings, since 2012 Albania has made progress on several parameters, such as standardization, technical regulation and simplifying business procedures. Procedures for market entry were further streamlined and business registrations soared. Efforts were made to facilitate doing business and improve government communication with enterprises, but they have yet to produce tangible results on the ground [7]. The National Business Centre became operational in April 2016, providing a single business registration and licensing window and offering online registration services. Secondary legislation on strategic investment and economic development zones was adopted identifying priority sectors of investment, projects of strategic potential and strategic investment evaluation procedures.

According to the SME Policy Index, SMEs development in Albania is rated 3.12 out of a maximum of 5 points. This is a slight improvement from 2012 when Albania fared only slightly less than the regional average at 3.17 points. The report was based on ten dimensions derived from the ten principles of the EU Small Business Act. Detailed information about dimensions for policy on SMEs is provided by Graph 1 below.



Graph 1

Assessment of SME policy in Albania adapted from EBRD, ETF, SEECEL, EU, OECD 2016 (8)

Despite the progress made, a number of key components of a SME-friendly business environment are missing, such as fostering the entrepreneurship in the school curriculum, setting up regulatory impact assessment procedures, developing alternative sources of finance besides traditional bank lending, and setting up fast-track and specific bankruptcy procedures for SMEs, especially with regard to the issue of non-performing loans [4].

Albanian Government has undertaken significant steps to further increase the dialogue with the business community for economic and development policies. Important structures are in place to formalize this dialogue such as:

- **National Economic Council (NEC).** NEC is set up by law in 2014 to guarantee institutional cooperation and public-private partnership, ensuring **dialogue and consultation** between the government and the private sector. The National Economic Council is a forum of consultation between the business community and the government (with comments, observations and suggestions coming from the business community to the government). The Council has also an advisory function to the Government with recommendations for economic policy decisions and practices.
- With the support of the European Bank for Reconstruction and Development, the Albanian Government has established the **Investment Council**. Investment Council is a platform set up by the Albanian authorities to intensify the dialogue between the government and the private sector, improve the business climate and promote good governance.
- In 2017, in the new structure of Government is established a new position, **Minister of State for Entrepreneurship Protection**. The mission of the Minister is to assist and protect the entrepreneurs as well as to promote inter-institutional cooperation aiming at improvement of the public services to private business.

2 Competitiveness and innovation among SMEs in Albania

2.1 Albania's Competitiveness

The performance of SMEs is strongly influenced by the business conditions and factors which define the competitiveness of an economy. Nowadays several instruments are established to measure either business conditions or competitiveness of a given country. Going through these indicators, analyses and comparisons can be performed in order to get a clear picture of the situation. Actually, different studies have considered data of Doing Business and Global Competitiveness Index (GCI) provided respectively by World Bank and World Economic Forum in order to analyze and compare business environment and competitiveness in Albania. GCI measures national competitiveness defined as a set of institutions, policies and factors that determine the level of productivity. According to the latest report of GCI, Albania has made progress on the overall ranking. For 2017 – 2018, our country is listed 75th among 137 nations and it is considered as an efficiency driven economy. Being at this stage of development, Albania has to develop more efficient production processes and increase product quality. Hence, further improvements and further developments need to take place with regard to specific pillars of competitiveness such as education, goods and labor market efficiency, financial markets as well as technological readiness (Figure 1).

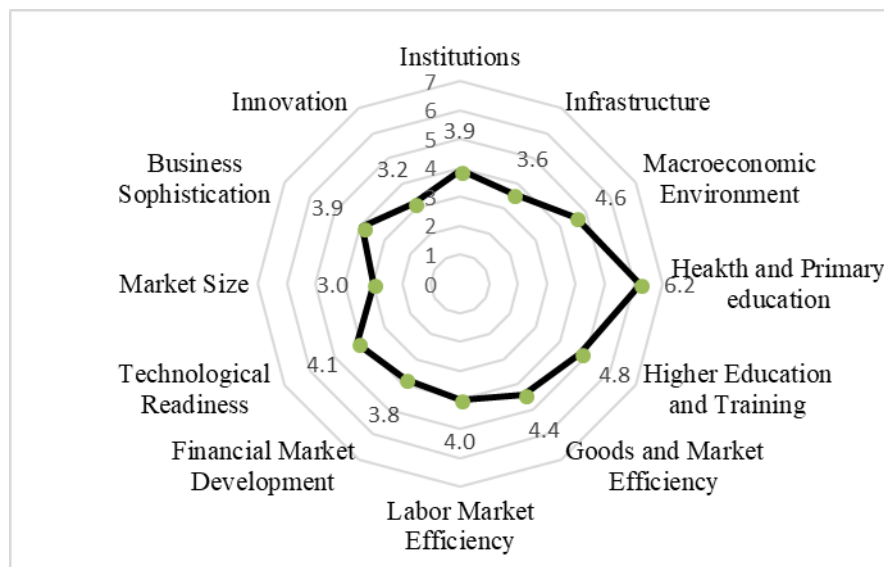


Figure 1

Competitiveness Indexes 2017 – 2018 from The Global Competitiveness report 2017 – 2018 (9)

The World Bank 2017 Doing Business Report placed Albania at the 58th position up 32 places from the 2016 assessment [10]. The score improvement was mostly due to reforms undertaken in dealing with construction permits, paying taxes and getting electricity. Regarding the construction permits, the 2017 Doing Business placed Albania at the 106th position up 83 places from the 189th position of 2016 Doing Business [11]. For the indicator of paying taxes and getting electricity, the 2017 Doing Business Report puts Albania respectively up 12 and eight places. Reforms undertaken with regard to these indicators consisted in:

- ✓ Reintroducing the issuance of building permits and streamlining the process of receiving the final inspection and compliance certificate.
- ✓ Speeding up the process for obtaining a new electricity connection.
- ✓ Introducing an online system for filing and paying taxes.

One of the indicators in which Albania has made steps back forward is trading across borders. Data of 2018 shows that trading across borders has become more difficult due to the introduction of mandatory scanning inspections for exports and imports which increased the time and cost for border compliance. Currently, Doing Business report provides the following data with regard to this indicator [12] (Table 4).

Table 4
Trading across borders indexes for Albania from Doing Business 2018 (12)

	Exports		Imports	
	<i>Documentary Compliance</i>	<i>Border Compliance</i>	<i>Documentary Compliance</i>	<i>Border Compliance</i>
Time (hrs.)	6	9	8	10
Costs (USD)	10	55	10	77

2.2 Innovation in Albania - An analysis at macro and micro level

Innovation is one of the contributors to the sustainable national economic growth. In 2017, Albania was ranked 93 out of 127 countries in the Global Innovation Index (GII). Actually, there is no significant change on the ranking of Albania compared to 2016 in none of the indicators listed in the table below. Innovation Input Indexes (III) involve 5 pillars (institutions, human capital and research, infrastructure, market and business sophistication) of the national economy which enables innovative activities while Innovation Output Indexes (IOI) involve 2 pillars (knowledge & technology outputs and creative outputs) and represent the results of innovative activities. The figures for 2017 indicate a better ranking of

Albania in innovation input sub – indexes (rank 70) rather than in innovation output sub – indexes (rank 115). As it is shown in GII report, ease of starting a business, resolving the insolvency and protecting the minority investors are among the strength for enabling innovative activities. Data from the same report also show that innovative activities results are reflected at the level of ICT services export and the number of ISO certificates issued [13] [14].

Table 5
Albania's ranking at Global Innovation from Global Innovation Index 2016 & 2017(13) (14)

	Score 0 - 100		Rank	
	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>
Global Innovation Index	28.4	28.9	92	93
Innovation Output sub-index	16.2	15.7	115	115
Innovation Input sub-index	40.5	42.0	71	70
Innovation Efficiency Ratio	0.4	0.4	121	122

GII also consider Intellectual Property to contribute in the knowledge creation, impact and diffusion. Laws and institutions managing Intellectual Property Rights are among the most important instruments to encourage innovation. Actually, IP legislation in Albania is fully in compliance with the TRIPs Agreement and also with the EU Directives on IP matters. The most recent development in this field is the adoption of the new law on Copyright and Related Rights on March 2016 as well as of the national strategy on intellectual and industrial property. Albania has also ratified the most important treaties and conventions with regard to IPRs under WIPO and WTO organization. The main institutions engaged in IPRs matters are the Albanian Copyright Office (ACO) and the General Directorate of Patents and Trademarks (GDPT). The following table provides some valuable information with regard to the number of granted and registered patents and trademarks & industrial designs in Albania by the end of 2016.

Table 6
Intellectual Property grants and registration status by 2016 adapted from
http://www.wipo.int/directory/en/details.jsp?country_code=AL (15)

	Patents grants		Trademark registrations			Industrial Design registrations		
	<i>Residents</i>	<i>Abroad</i>	<i>Resident</i>	<i>Non-resident</i>	<i>Abroad</i>	<i>Resident</i>	<i>Non-residents</i>	<i>Abroad</i>
Number	5	1	526	2891	357	3	238	38

Innovation is crucial to SMEs since it can lead to increased market share and revenues, greater production efficiency and productivity growth [16]. Innovation can also serve as an instrument / tool SMEs can use in order to gain competitive advantage. It helps companies to offer a wider range of

differentiated products improving their financial performance [17]. Many times SMEs are seen as a source of innovation at the aggregate level because they are flexible, dynamic and sensitive to changes in demand in comparison to larger companies.

Despite improvements in the business environment for SMEs in Albania, innovation of this category of businesses still remains a challenge ahead. Albania's capacity for technological absorption and research, development and innovation (RDI) is low. Key obstacles include low expenditure on research and development (about 0.4 % of GDP); weak links between the scientific and private sectors; as well as fragmentation of the national research and innovation system. As a result of this weak innovation policy infrastructure, almost all sectors of the economy mainly provide low-technology, labor-intensive and low-cost products and services [7]. Increased funding and a more focused RDI strategy, would support the country's capacity to attract investment in RDI. Actually, innovation fund managed by AIDA, provided in 2016, in total 2,223,350 ALL (approx.. 17,000 Euro) only to five companies, while some funding was provided to SMEs by several national funds, the Italian Cooperation SME credit line program and the European Fund for Southeast Europe (EFSE). Since the beginning of its implementation, EFSE has provided loans to 525 clients disbursing about 35,000,000 euro. In 2016, around 5,000,000 euro was disbursed to 125 contracts. As part of Europe and since granted the "candidate" status, Albania is also involved in several EU programs targeting research & development and innovation in SMEs such as COSME and Horizon 2020. Currently, efforts to involve Albanian enterprises at COSME program are still at the preparatory phase and are focused more at raising awareness of business community while the participation of private sector at Horizon 2020 remains very low.

Albania still has considerable gaps to close between education outcomes and labor market. According to Global Competitiveness Report (GCI) a large share of enterprises report lack of appropriately skilled workers. Businesses in agriculture and agro-processing, textile and foot wear, tourism, construction, transport and communication, energy, information communication technology lack specialists and technicians. The relations between the vocational education and training system and industry are weak and most curricula offer little scope for practicing the skills learnt. Vocational education is perceived as a second best path to tertiary education, rather than a route to labor market entry. On the other hand, few companies provide formal training for their employees [9].

SMEs not only constitute an important segment of the Albanian economy, but they also have the ability to be a dynamic force in the country's economic development. SMEs specifically contribute as an integral part of economic structure as they are suppliers of the major enterprises and contribute to foreign competition of these firms. Hence, it is crucial that SMEs in Albania remain competitive. In order to comply with this, they continually monitor changes in the market and in the activities of the competitors. They also try to be innovative. Types of innovation used by SMEs in Albania are those related to marketing, product and organizational innovation. Hence, SMEs improve their products before competitors, introduce changes in the products' design & packaging and in distribution or sales practices (online sales, franchising, direct sales or distribution licenses). They also try to create alliances, partnerships or outsourcing with other firms and public institutions. Most of Albania SMEs spend 1 – 5% of the total capital for innovation. Among barriers Albanian SMEs face to adopt innovation are high innovation costs and instability in the markets [18]. Even though studies performed show that Albanian SMEs are innovative considering all the above mentioned activities, such a finding should always be taken with a "grain of salt". In most of the cases what SMEs representatives consider

as innovation include simple changes performed in production lines or machineries and management practice [19].

Conclusions

Today, economic development is at the heart of many economic scholars' debates, and the role of small and medium enterprises in this context, is a very important one, based on the contribution it makes to the economy of a country.

SMEs play an important role in Albania – fuelling the economic growth, providing flexibility, engaging in bridge-building between Albania and the European Union, and promoting employment. The reforms of the government has aimed promoting a friendly business climate, and to provide assistance and incentives for SMEs. Strategies for the business development are based on European Union directives, and are some of the priority obligations that Albania has to fulfill towards European integration. Significant progress has been made in improving the strategic framework for SMEs development and promoting the dialogue between Government and business community.

During the last decade, efforts of the government and policy makers in Albania were focused on the establishment of the proper and sustainable business environment to encourage private initiatives and promote Albanian enterprises to be competitive and further expand their activity domestically and internationally. These efforts are reflected to the improvement of Albania's position in the overall ranking of Doing Business and Global Competitiveness Indexes. However, as an efficiency driven economy, Albania still has to put more efforts on some specific directions such as education, business crediting and trading across borders. On the other hand, much more need to be done in order to improve R&D and innovative capabilities of private companies operating in our country since their efforts with these regards still remain "infantile". Establishment and promotion of proper infrastructure and increased budget and funding possibilities for innovation would definitively support Albanian enterprises to be competitive in a global environment.

References

- [1] Schumacher E.F (1973), *Small is Beautiful - Economics as If People Mattered*. London.
- [2] THE INSTITUTE FOR CONTEMPORARY STUDIES XHEPA, S. (2006), *Competitiveness and the SME Development, 2006*, [available from at http://www.western-balkans.info/upload/docs/1___Albania_SMEnew.pdf]. [22 January 2018]
- [3] INSTAT (2017a). *Statistics on Small and Medium Enterprises, 2015*. Tirana.
- [4] EU, 2017, *SBA Factsheet, Albania* available from https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/albania_sba_fs_2017.pdf. [22 January 2018]
- [5] INSTAT (2017b). *Business Register 2016*. Tirana
- [6] Ministry of Economic Development, Trade and Entrepreneurship: "BUSINESS AND INVESTMENT DEVELOPMENT STRATEGY FOR THE PERIOD 2014- 2020.
- [7] EUROPEAN COMMISSION, 2016, *Albania 2016 Report*, available from <https://ec.europa.eu/neighbourhood->

- enlargement/sites/near/files/pdf/key_documents/2016/20161109_report_albania.pdf. [26 January 2018]
- [8] EBRD, ETF, SEECEL, EU, OECD, 2016, SME Policy Index: Western Balkan and Turkey, available from <https://europa.ba/wp-content/uploads/2016/06/SME-Policy-Index-Western-Balkans-and-Turkey-2016.pdf>. [23 January 2018]
- [9] WORLD ECONOMIC FORUM, 2017, The Global Competitiveness Report 2017 – 2018, available from <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>. [31 January 2018]
- [10] WORLD BANK GROUP, Doing Business 2017, available from <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf>. [30 January 2018]
- [11] WORLD BANK GROUP, Doing Business 2016, available from <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB16-Full-Report.pdf>. [30 January 2018]
- [12] WORLD BANK GROUP, Doing Business 2018, available from <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB2018-Full-Report.pdf>. [05 February 2018]
- [13] WIPO, The Global Innovation Index 2016, available from http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2016.pdf. [24 January 2018]
- [14] WIPO, The Global Innovation Index 2017, available from http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2017.pdf. [24 January 2018]
- [15] http://www.wipo.int/directory/en/details.jsp?country_code=AL
- [16] Shefer D. and Frenkel A., 2005, R&D, firm size and innovation: an empirical analysis, *TECHNOVATION*, Elsevier, Vol. 25, pp.25–32.
- [17] Zahra. S. A., Ireland D.R. and Hitt, M.A., 2000, International expansion by new venture firms: international diversity, mode of market entry, technology learning, and performance, *ACADEMY OF MANAGEMENT JOURNAL*, United States, Vol. 43, No. 5, pp.925–950.
- [18] Deshati E., 2015, Business Strategies of SMEs, Innovation Types and Factors Influencing their Innovation: Albania Case, *EUROPEAN SCIENTIFIC JOURNAL*, Vol.11, No.34, December 2015, pp.268-286.
- [19] Rembeci G., 2017, Building an information system to enhance innovative SMEs in Albania, *EUROPEAN JOURNAL OF ECONOMICS AND BUSINESS STUDIES*, Elsevier, Vol. 7, No.1, Jan - Apr 2017, pp. 213-221.

The level of application of Marketing research, during the opening phase of small and medium businesses (SME) in Kosovo

Phd cd. Skender Buja

Universiteti AAB-Prishtina-Kosovo,
s_buja@hotmail.com

Phd cd. Isak Berbatovci

Univerzity-UET-Tirana,
isakberbatovci@hotmail.com

Abstract : In order to open a new business, in addition to the financial aspect, which is a very important condition, we must also answer some of the preliminary questions, based on the answer we come to, we will know how to act at this stage. To get these responses a Marketing Quest research to be carried out by the person who wants to open the business. Success or failure of a business is conditioned by many factors. To identify, one of the important factors, such as Marketing Research, has been realized this research, rather than applying these research by owners or managers of small and medium businesses. To provide answers to the topic of this scientific paper, a survey was conducted, through direct interviews with small and medium-sized businesses, which are the population of this research. As a sample, 130 small and medium sized businesses were distributed, distributed in nine main cities throughout Kosovo. Sample determination criterion has been a randomized stratified sample, determining to include manufacturing, service, trade, food, textile businesses. The owners or managers of these businesses were mainly interviewed. The questionnaires are both, open and closed, as well as combined. Over 90% of the questions have been answered. The final results from this study show a rise in the awareness of SME that they have to rely on research results before opening a business. From the data of this research, conclusions or merit conclusions have been made regarding the application of marketing research by entrepreneurs at the opening phase of their businesses.

Keywords: Marketing research, businesses, owners, scientific papers, questionnaires

Acronyms

KAS – Kosovo Agency of Statistics
SME – Small and Medium Enterprises
SE - Small Enterprises
ME - Medium Enterprises

1 Introduction

A few basic criteria are needed to open a new business, which help clarify the idea of whether the conditions for being the right business, the right place, the right time and the expected results are met.

For marketing and research, we have statements from many scientists of this science, here we will quote some of them:

"Marketing is the management of profitable relationships with the client" (P.Kotler, 2013)

Also in the book "Marketing Principles" by P. Kotler and G. Armstrong states:

So marketing should be understood not in the old sense of making a sale with "advertising and sell", but in the new sense of fulfillment of customer needs.

If the marketing specialist recognizes the customer's needs, he creates products that provide superior value to the customer. (P.Kotler, 2013)

Marketing research as defined by (Burns & Bush;2010): is the process of designing, gathering, analyzing, and reporting information that may be used to solve a specific marketing problem

Also in this book is the author's conclusion that: "Marketing is a process through which businesses create value for customers and build and build strong relationships with them in order to attract value from them in exchange." (P.Kotler, 2013)

To develop business activities in the direction of positive progress and development, as well as success, the entrepreneur must be supplemented with knowledge that is implemented in the business activities of a business. This knowledge is added when the entrepreneur has the data through which he can to be ready to make the right decisions regarding his business. These knowledge are added to the research that we need to do in the market in which the business of that entrepreneur is operating. There is also the following statement:

"Research is Creating new knowledge "(Neil Armstrong)

The need for managers in the companies under study to consider the process of self-education and development in order to obtain sufficient knowledge of the most important fundamentals concerning marketing research, related to methods and ways used in the collection of informations by marketing research, quantitative methods used in the analysis process, the statistical models, etc., because this would clarify the importance of these concepts and their role in the processes of supporting the right and accurate marketing decision; (Mourad Charif1;2018)

Marketing is the activity, set of institutions and processes for creating, communicating, distributing and exchanging bids that value to customers, clients, partners and society in general.

Marketing is the activity, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large. (American Marketing Association-AMA, July 2013)

First, it would be necessary to specify what the term "Enterprise" means. Based on the definition of the European Commission, which states that: An enterprise is considered to be any entity engaged in an economic activity, regardless of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft activities or other activities, and partnerships or associations that regularly engage in an economic activity. (The Commission of the European Communities, Official Journal L 124, 2003 P. 0036 - 0041)

Also, according to the European Commission definition:

"The category of micro, small and medium enterprises (SMEs) consists of enterprises employing less than 250 persons and having an annual turnover not exceeding EUR 50 million and / or an annual balance sheet total not exceeding EUR 43 million "

"A small enterprise is defined as an enterprise employing fewer than 50 persons and the annual turnover and / or the annual balance sheet total does not exceed 10 million euros"

"A micro enterprise is defined as an enterprise employing fewer than 10 people and the annual turnover and / or annual balance sheet total does not exceed 2 million euros."

To be the secure and data-based business opening process, each entrepreneur must carry out the above-mentioned research so that the confidence in the business start-up score is grounded. The dominant factor that enables us to answer if we have met these criteria is information. The right information about opening a business is collected through research (Marketing) and Market Research. In the business opening phase these necessary information are numerous or, more precisely, dealing with the consumer, the market, the business concerned, the market demand, the market space, the consumer market culture, the economic development of the country, and many other factors.

This scientific paper has the basis for extracting data from small and medium-sized businesses in Kosovo, rather than conducting research at the stage of opening their businesses. This research was conducted through a direct interview, with mixed questionnaires, part of the sample was defined by small and medium businesses in the nine main centers of Kosovo. The sample was randomly layered, the opportunity being part of it was equal for everyone.

Market research is an essential part of any business that wants to offer products or services that are well targeted and well-targeted. Good business decisions are based on good market research. By thoroughly exploring the market where you want to participate, you can minimize the risk to your business, identify new opportunities, helping you communicate better with your customers.

Business research is defined as a systematic and objective process of producing information to help decision-making in business. This information should be: scientific, not intuitive or randomly collected, objective, not personal (N. Rexha, Zikmund, 2009.)

"Research is a systematic, controlled, empirical and critical investigation of hypothetical claims about the alleged relationship between natural phenomena" (Kerlinger, 1970: 8, B.Mathews L. Ross,2010)

To run a successful business, you need to learn about your customers, your competitors and your industry. Market research is the process of data analysis to help you understand which products and services are in demand and how to be competitive. Market research can also provide valuable information to help you. (Enternet,grow.seedling)

- a. Reduce business risks
- b. Discover the current and future problems in your industry
- c. Identify sales opportunities

The authors of the book "Marketing Principles" also say that:

"Marketing information in itself has little value. Value is on customer-acquired ideas, and how these ideas are used to make better marketing decisions." (P.Kotler, 2013)

Another important issue is that often for first-time businesses they discover that market research will not do your job to make a business decision for you. Market research gives you information on the problem you are dealing with, but will not be able to tell you what to do next. (Grow.Seedling.io on May 2, 2016.)

As is apparent from the aforementioned statement, the purpose of the research is to gather data, on the basis of which merit decisions should be taken as to how to deal with the problem you have been investigating, and in the case of the topic of this paper , you have to decide whether this business should be opened when, where and properly open, which product or service is likely to bring about the right success in those markets.

There are also ideas and thoughts that market research should not be done because it negatively affects the entrepreneur's readiness to face the problems that he will have during the research. One of these thoughts is as follows:

Henry Ford once said, "If I asked clients what they wanted, they would have told me, 'A faster horse!' 'People do not know what they want until they tell it to you. That's why I never rely on market y

Below will be presented some essential information regarding the topic of this scientific paper, which have been taken from the Kosovo Agency of Statistics. ASK. These data can serve us to have the accurate picture of the situation of small and medium businesses in Kosovo, and it also provides us with facts, based on this scientific paper, why this is the case, this closing trend than small and medium businesses.

Table A

Number of enterprises from 2012 to 2015 Year, according to KAS.

Year	Year-2012	Year -2013	Year -2014	Year -2015
Number of enterprises	41757	29057	31921	33465

(ASK, annual 2017, table 14.2, p 151)

Table A, shows that the number of enterprises registered in 2012 has gone down in 2013, followed by a slight increase during 2014 and 2015. This tendency of decline is an indicator that businesses in Kosovo have difficulties, which may be of different nature. For this reason it can be said that studies have to be made, in which the indicators of influencing factors in this decline in the number of businesses can be extracted.

Table B

Number of enterprises registered and disposed of by 2007-2016

Year	New enterprises	Closed companies
007	6.124	1.205
2008	7.557	943
2009	7.505	1.136
2010	7.729	1.363
2011	7.879	924
2012	9.592	1.081
2013	9.421	1.434
2014	9.405	1.669
2015	9.811	2.170
2016	10.424	2.350

(ASK, annual 2017, table 15.2 ,p159)

Based on table B, we can also conclude that, despite the increasing trend in the number of registered enterprises, during these years, the number of enterprises that are extinguished or ceased their activity tends to increase. This increase in outdated enterprises tells us that despite the various problems that come to them, there are flaws that can start from the opening phase. And at this stage of the opening, they are not informed what challenges they expect, which can be extracted through research or marketing research.

Table C
Number of SMEs during 2016

Classification	Number of employees	Number of Enterprises	%
Mikro Enterprises	1 -9 employees	10.316	99,0
Small Enterprises	10 - 49	100	1,0
Mid-sized companies	50 - 249	6	0,1
Great Companies	250 over	2	0,0
Total:		10.424	100,0

(ASK, annual 2017, table 15.3 ,p 160)

Above, table C, shows data suggesting that Kosovo's economy is dominated by Micro Enterprises and Small Enterprises, while the number of medium and large enterprises is small, which they want to say that the focus of exploring potential problems should be the ones that are in large numbers.

In the second quarter of 2017 (Q2 2017) a total of 2237 enterprises were registered. Decline for 21.5% of registered enterprises is observed compared with the previous quarter (Q1 2017). Also, a decrease of 20.1% of registered enterprises is observed if compared to the same quarter last year (TM2 2016). The number of enterprises expired in TM2 2017 is 445 enterprises. (KAS, Statistical Repertoire of Economic Enterprises in Kosovo (TM2 2017)

2 Purpose and objectives of study

This paper is realized for several purposes, the most important being to present the real situation of small and medium businesses in Kosovo, and to identify their shortcomings, especially in the business opening phase. It is also intended to help the country's economy through small and medium-sized businesses through the

results of this paper, identifying their advantages and disadvantages, with the haste, the opening phase of businesses.

The objective of this study is to identify how businesses are doing research at the stage of their opening, what are the factors that have influenced the application or failure to apply Marketing Research. It will also be studied the impact of these marketing research that they have on the success of business openness. As a search, there will be an objective with which methods, or what ways, the marketing search is carried out by the business, as well as the costs that have required those searches.

A primary goal is also to determine the level that owners or business managers have in relation to the knowledge that Marketing research is essential at the stage of opening a business. From this, it would be possible to determine to what extent these factors are influencing the success or failure of the enterprises, or SME in Kosovo..

From this scientific paper, we want to get acquainted with the owners or managers of these businesses, that searches, whatever they are, and especially marketing and market research should be more applied by them. Finding the same or similar research data in the world, making comparisons with our reality in Kosovo.

3 Research question, hypothesis and methodology of the paper

In order to carry out the research of this scientific paper, basic research questions are defined, based on which conclusions can be drawn, which provide information about the problem that is explored in this case.

The main research question of this research is:

"What is the level of marketing research that is applied by SME, at the opening stage in Kosovo?"

Some of these questions, which we have answered during the research are:

1. Have you conducted market research before you open your business?
2. How much do you value that market research is a prerequisite for business success?
3. What is the level of implementation of Marketing researches during the successful determination of the type of business, in the opening phase of small and medium businesses.
4. Have you decided to open a business according to the results obtained from this research

Hypotheses:

1. Basic hypothesis: A high number of SME in Kosovo has conducted a marketing research at the stage of opening of the businesses.
2. Alternative hypotheses: A considerable number of SME in Kosovo did not conduct a marketing research at the stage of opening of the businesses.
3. Under the hypothesis: The importance of marketing research is considered by SME owners and managers in Kosovo.

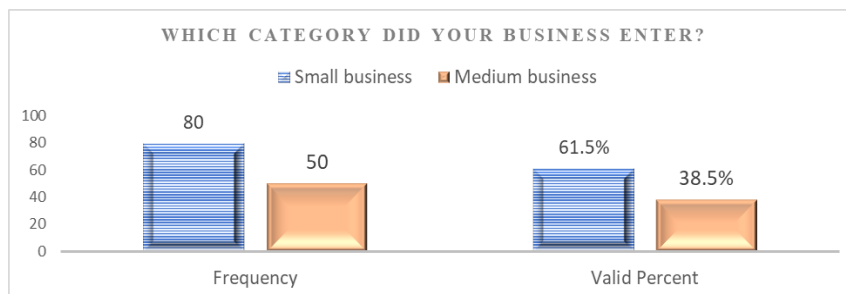
4 Presentation, analysis, interpretation of data

In this scientific paper, data analysis will take place for some types of data. In carrying out this study, a combined, qualitative and quantitative search will be conducted, with the inductive method

The research method is that of the interview, through questionnaires combined, with open and closed questions. The population of this study is SME in Kosovo, while the sample is focused on nine main cities in Kosovo, and the sampling criterion was a randomized stratified sample, defining to include manufacturing, service, trade, food, textile businesses. The owners or managers of these businesses were mainly interviewed.

The research model to be used in this study will be the Model of Evaluation. This model is based on "finding something that has an impact on a situation". This will be the basic model, which means that the use of any model that suits this type of study is also excluded.

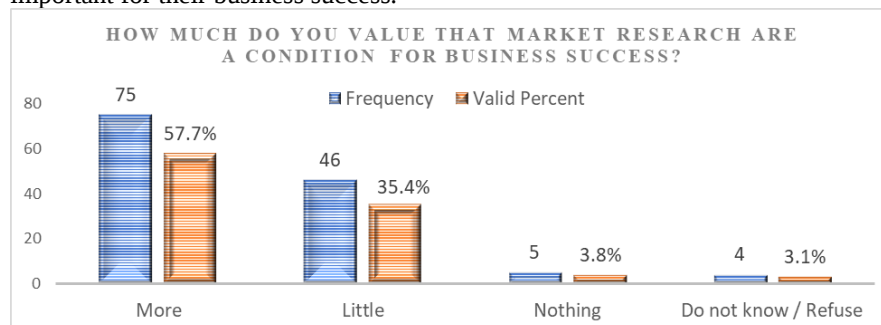
To show the data on the application of the search by Owners or Managers of SME, we will first present the results of the research which show us the composition of these businesses, how many are the SE and how many ME.



Figures - 1. (Authors)

From the above graph it can be seen that the largest number of businesses that participated in this research is from small businesses, their percentage share is 61.5%, while small businesses is 38.5%. This is in harmony with the data of KAS, where the number of SME is presented.

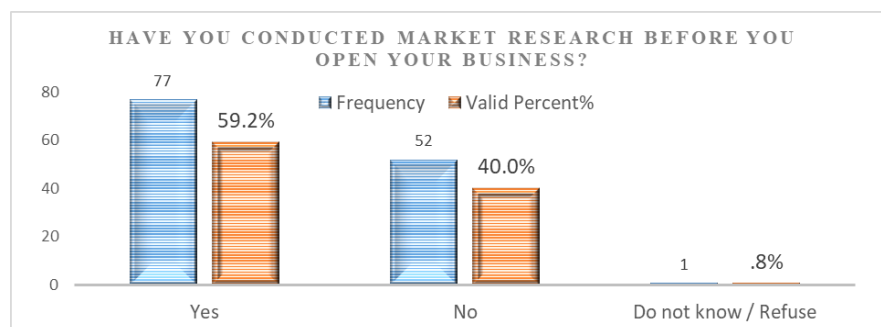
From this research, one of the basic variables is considered to be the data that shows the respondents' assessment of how much they value the market research important for their business success.



Figures - 2. (Authors)

The result presented in figures -2 shows that the percentage of businesses that value the "very" research for business success is 57.7%. It is above the average, if we add 35.4% of respondents who value a "little" important, then we can say that the assessment can be near to the high level.

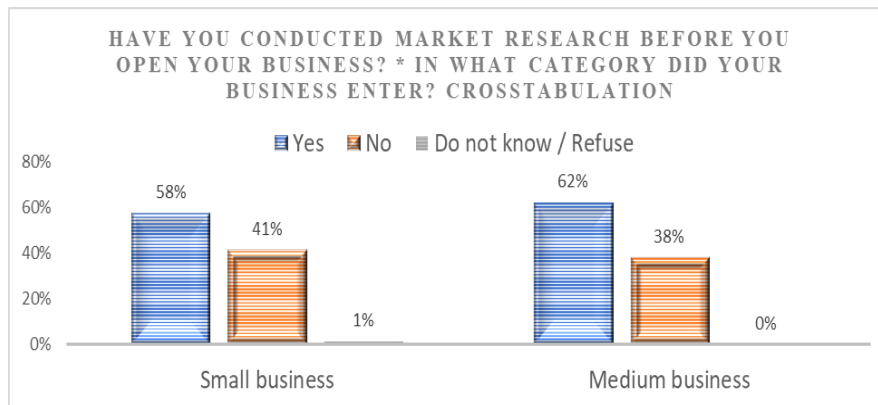
The level of realization of the research by the SME is the key element or variable to draw conclusions that prove or strike the basic hypothesis.



Figures - 3. (Authors)

From figures -3, taking all business bases into account, we can see that out of 130 businesses interviewed, only 77 of them have conducted surveys , it can be concluded that 59.2% of businesses in Kosovo conduct research before opening the business. This percentage is slightly above the arithmetic mean of the total number of businesses, or approximately the same as the percentage of businesses

that have the assessment that: research is very important for opening a business, according to data in figures -2, which is 57.7 %. What can be said to be logical. So it can be said that this level is not the height which would ensure the involvement of most businesses in bringing decisions based on research into the opening up of a business in Kosovo.



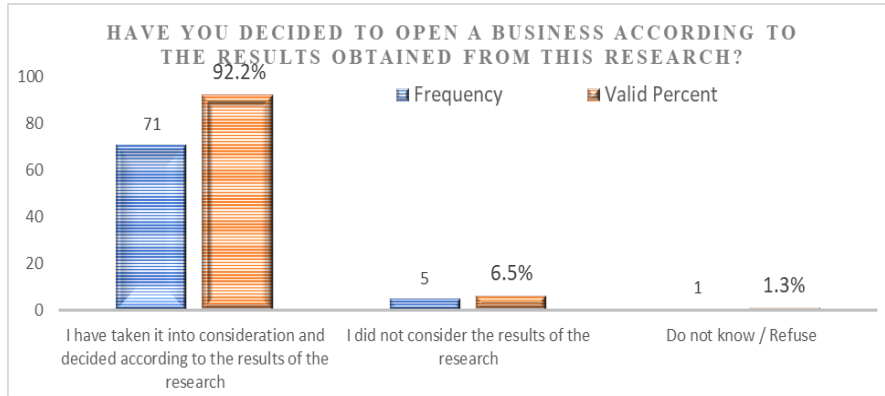
Figures - 4 .(Authors)

In figures 4, we have the data according to the type of business SME, where it can be seen that medium-sized businesses ME have the highest percentage of researches, which is 62%. Each time we compare the percentages of SE and ME. While small businesses SE, they have a slightly lower percentage of 58%, which have conducted research before opening the business.

Out of 130 Businesses interviewed, answers to the question below (Figures 5) have given 77 of them, or in percentage 59.2%

Table-5.(Authors)

Have you decided to open a business according to the results obtained from this research?		
	Frequency	Valid Percent
I have taken it into consideration and decided according to the results of the research	71	92.2
I did not consider the results of the research	5	6.5
Do not know / Refuse	1	1.3
Total answering	77	59.2
Missing	53	40.8
Total	130	

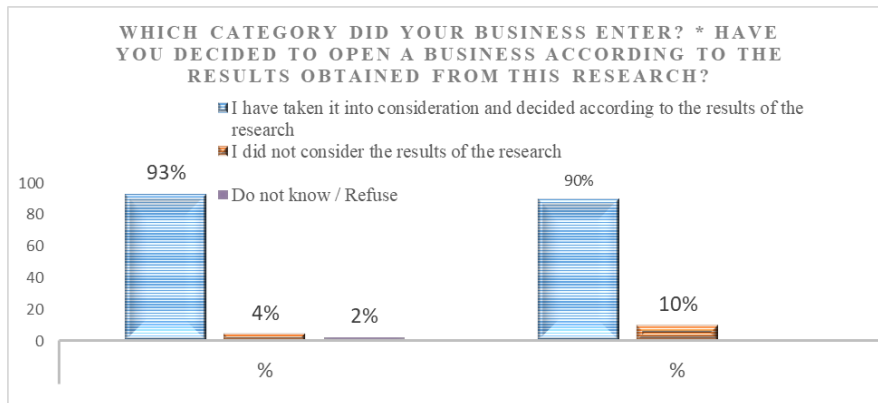


Figures - 5 .(Authors)

In figures 5, where all types of SME businesses are involved, we see that the opening decisions, in the majority, are based on the research conducted by those businesses and that this is an argument that those researches have served , for what they have been accomplished.

To be a successful business, of course, it should do research at the opening stage, it is also necessary to apply these research results by making decisions based on these researches. These are the results of the research in this Fig. 6.

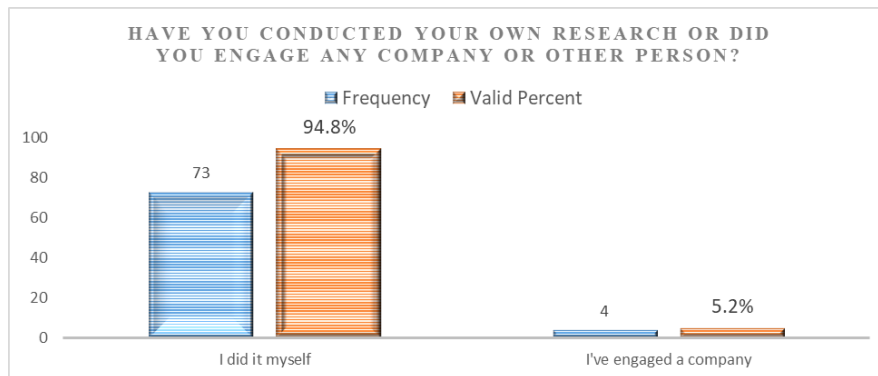
Out of 130 Businesses interviewed, answers to the question below (Fig 6) have given 77 of them, or in percentage 59.2%



Figures - 6 .(Authors)

From figures 6, where the SME is presented, we see that the absolute majority of the two types of businesses, which are declared with over 90%, say that they have taken into account the results of the research conducted. There is no difference in the division between these two types of businesses.

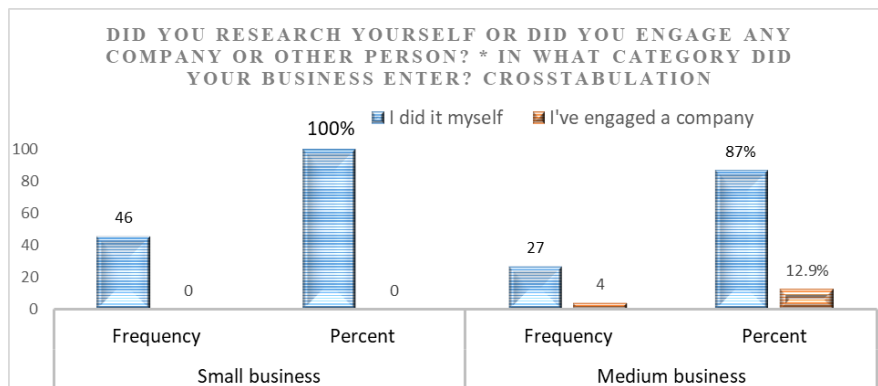
The quality and reliability of the research that the SME has made at the opening stage depends on who and how the research has been conducted.



Figures - 7. (Authors)

In figures -7, including all types of business, we can conclude that a high percentage of businesses do the research themselves because the costs of conducting a survey are high. We will also corroborate this with the results obtained through the question: how much were the costs of conducting the research.

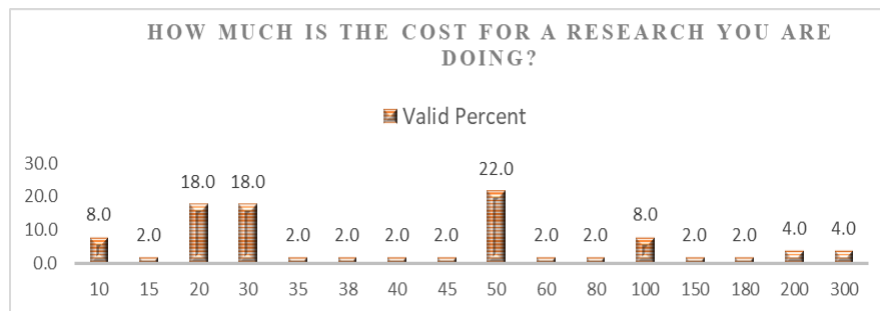
In order to identify the difference between the SE and the ME regarding the manner of conducting the research from these businesses, below we see the tendency of their realization.



Figures - 8. (Authors)

From figures -8, it can be seen that in small businesses SE, all these businesses have conducted research themselves at the business opening stage. And this is also seen here that the financial capabilities of the SE are smaller, for which the research has done its own. ME businesses, in percentage of 12.9%, have been engaged by some research companies.

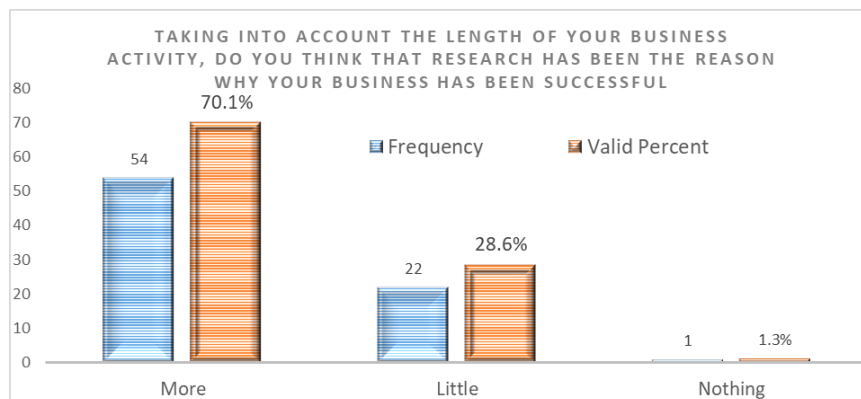
Also, to carry out a research by the SME, funds should be allocated to cover the costs of carrying out that research.



Figures - 9 .(Authors)

In figures -9, where businesses are generally involved, the ascertainment in graph-7 is illustrated. This indicates that average expenditure to conduct a research itself ranges between 20 and 100 euros.

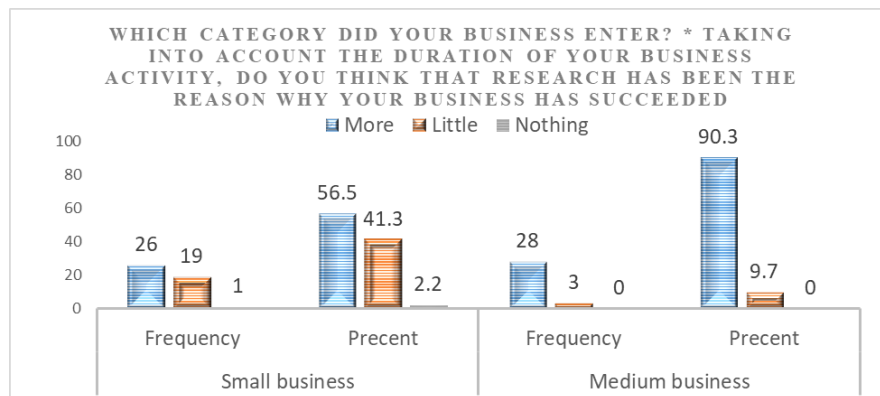
The impact of the realization of the research at the opening stage by SME in the duration of its business activities is also evident in fig. shown below.



Figures - 10 .(Authors)

From figures 10, including all types of businesses, it can be concluded that a high percentage of businesses 70.1%, which have conducted research at their opening stage, are "very much" convinced that this has affected the success of their business.

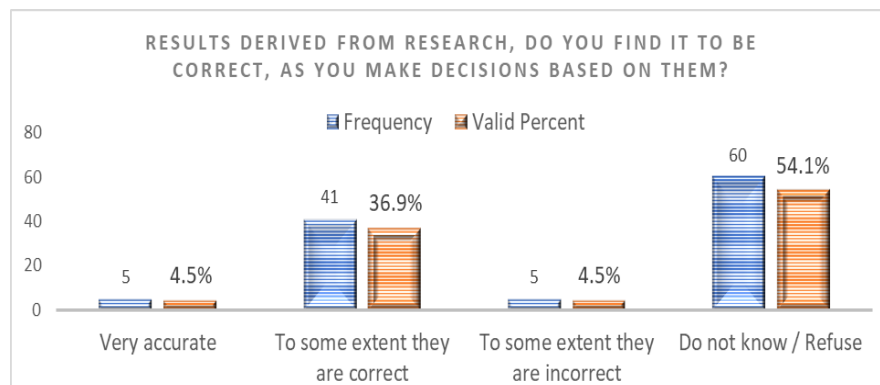
The impact of the variables on how much research has been carried out, comparing it between business SB or ME, we see a substantial difference in ME.



Figures - 11 .(Authors)

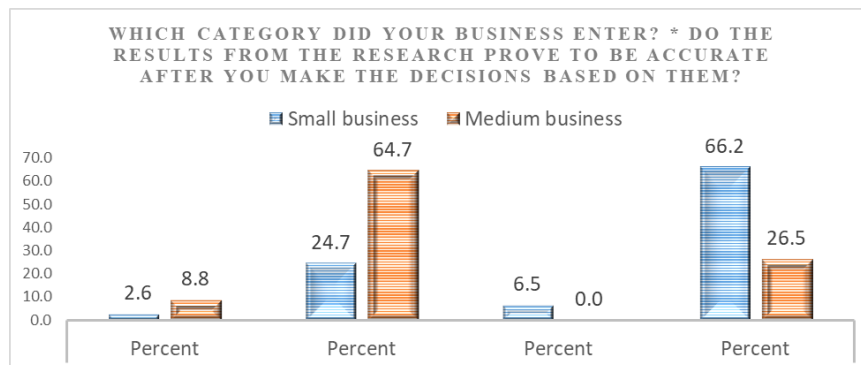
From figures -11, by dividing into SE and ME, we can conclude that: Both business categories have quite significant difference in percentages. From this point it is seen that ME, over 90% of them estimate that: The research carried out during their opening phase has influenced "a lot" in the success of their business. While SE with 56.5% of them.

While SE have 41.3% higher than ME with a percentage of 9.7%, estimating that: The research results have a "little" impact on business success. This percentage of SE declaration is indirectly consistent with their percentage of 56.4% declaration that it affects "much", which is much smaller than ME.



Figures - 12 .(Authors)

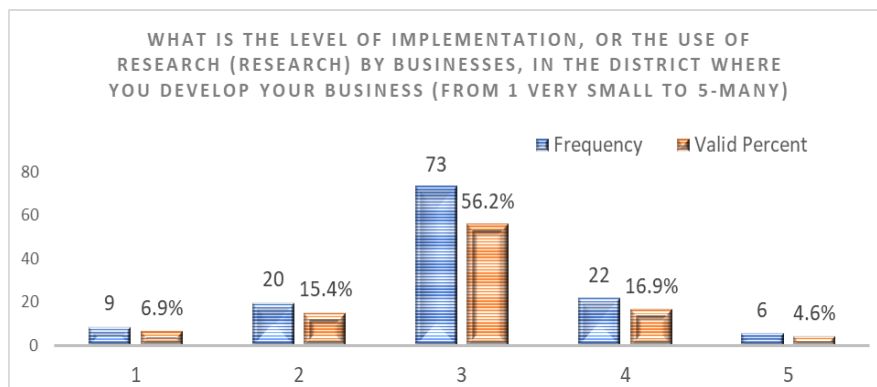
In figures -12, including businesses in general, we have a result that puts us in the dilemma that businesses do not know for sure that the survey results are accurate or not, 54.1% of them have this rating. While 36.9% of them estimate that the results are "somewhat accurate".



Figures - 13 .(Authors)

From the figures -13, where SE and ME are presented separately, it can be concluded that the ME has estimated with a very high percentage 64.7%, the accuracy of the data extracted as " To some extent they are correct ". While the SE estimation is uncertain, it is stated that "do not know / reject" how accurate these results are in 66.2% of them

To understand the tendency of implementing market research by SME, we will see below what is the level of their implementation. This trend is one of the indicators that helps us to predict the future of research.



Figures s - 14 .(Authors)

From the figures -14, the declaration of all types of business is highest in the average rating of "3" (from 1 small to 5 very high), with 56.2% of them saying that the level of research is about the average , from businesses in the district where they develop their own business.

Conclusions

The conclusions drawn from this research, based on the statistics presented in the following graphs are:

- a) In conclusion, it follows that the level of businesses that conducted the research at the stage of its opening up is just over half of the businesses, creating space for the desired and once again reflecting their level of success. This refutes the basic hypothesis, which states: "BVM in Kosovo has conducted Marketing research, a high number of them, at the stage of opening these businesses", while confirming the alternative hypothesis.
- b) Another valid conclusion is that, businesses that conducted research, over 92% of them, the decision to open a business have taken on the basis of the research results.
- c) Over 70% of Businesses have estimated that conducting research at the opening stage has helped a lot in the success of their business. This is one of the reasons why the SME in Kosovo is conducting these researches.
- d) The fact that about 95% of the businesses that have conducted the research, have done it themselves, without engaging someone, shows that these businesses have low financial resources, so the research has carried out themselves, at minimal costs.
- e) Also, based on the results of the research, it can be concluded that about half of businesses carry out researches during the development of business activities of the SME. Since in the question of the level of implementation of the research from of (1 very small, up to 5 more), for the scaling 3 are stated over 56%.

Recommendations

- a) As a recommendation issued by this scientific research, it can be said that under the hypothesis is being proved, which states that: "The importance of marketing research is considered by the SME owners and managers in Kosovo." Also, this research suggests that the level of research at the stage of opening SME in Kosovo is still of no high level. Based on the complaint we recommend:
- b) That institutions, especially educational ones, educate new generations of research cultures at all levels of education. As a result of this culture or research education, we will have more successful businesses and more developed economies.
- c) For owners and managers of SME, be dedicated to applying research at all stages of business development, but especially at the business start-up stage, as this phase determines the direction that can bring success or not success, we are appalled by the fact that decisions are made based on market research or not.

References

- [1] Kerlinger, 1970:8, B.Mathews L. Ross, research methods 2010,A1,p 8, Published by the Center for Democratic Education (CDE)Tirana, Albania
- [2] P.Kotler, Marketing Principles, chapter , I , 2 , & Gery Armstrong, botimi i 13, UET-Press, Tirana, Albania
- [3] American Marketing Association-AMA, Approved July 2013

- [4] P.Kotler, Marketing Principles, chapter, I , 6,& Gery Armstrong, edition 13, UET-Press, Tiranë, Albania
- [5] P.Kotler, Marketing Principles, chapter , I , 7,& Gery Armstrong, edition 13, UET-Press, Tiranë, Albania
- [6] P.Kotler ,Marketing Principles, chapter IV, 106 ,& Gery Armstrong, edition 13, UET-Press, Tirana, Albania
- [7] KAS, yearbook 2017, tabelë 15.3 ,p 160
- [8] M.Charif1 University of Mohamed Boudiaf, M'sila, Algeria; S. Ferhat University of Ferhat Abbas Setif-1, Algeria; paper scientific: "The Study of the Application Extent of Marketing Research Concepts and Principles in the Algerian Economic Companies"; Conclusions
- [9] Alvin C. Burns Louisiana State University Ronald F. Bush University of West Florida-Basic Marketing Research: Using Microsoft Excel Data Analysis, 3rd edition
- [10]ASAU ACADEMY:
(<http://fakultetiekonomik.weebly.com/uploads/2/0/1/3/2013588/skripta-metodologjehulumtimeve.pdf>)
- [11]THE COMMISSION OF THE EUROPEAN COMMUNITIES:
<http://eur-lex.europa.eu/eli/reco/2003/361/oj-15.7.2017>
- [12]<http://ask.rks-gov.net/-ASK,vjetari 2017, tabela 15.3 ,f 160-8.6.2017>
- [13]http://www.regionalbusiness.ca/images/pdfs/market_research_guide.pdf-20.2.2018
- [14]<http://ask.rks-gov.net/media/3454/repertori-statikor-tm2-2017.pdf-10.6.2017>
- [15]<http://grow.seedling.io/can-market-research-help-small-businesses/-19.7.2018>
- [16]<https://www.sba.gov/starting-business/how-start-business/understand-your-market-15.9.2017>
- [17]<https://www.ama.org/AboutAMA/Pages/Definition-of-Marketing.aspx-11.9.2017>
- [18]<https://medium.com/@Seedling/can-market-research-help-small-businesses-d5d052ce6d66> ; (S.Jobs nga Walter Isaacson, Thorndike Press, 2011, (botim i madh i shtypur) Page 806-7)-3.6.2017
- [19]<https://www.ama.org/AboutAMA/Pages/Definition-of-Marketing.aspx -American Marketing Association-AMA, Approved July 2013-11.9.2017>
- [20]<http://www.davidpublisher.comPublicuploadsContribute5ae03a9bbae8a.pdf-Maj-2018>

Hungarian consumers' attitude to accommodation sharing service

Gabriella Buda

PhD student, Szent István University,
gabriella_buda@yahoo.com

Barbara Pethes

PhD student, Corvinus University of Budapest
barbara.pethes@gmail.com

Manolisz Karajánnisz

Sociologist, CEO of Ariosz Ltd.
manolisz@ariosz.hu

Dr. József Lehotá DSc.

Professor, Szent István University
lehotajozsef@gtk.szie.hu

Abstract: Business models based on sharing concept are becoming more successful, newer and newer models are still appearing. One of the best known examples is Airbnb, which is based on accommodation sharing activities. Airbnb connects private persons with each other through an Internet platform, where individuals offer their own homes or flats for short term rentals to other individuals (typically tourists). In the first part of our study, we present different approaches of sharing economy, and the basic operating mechanisms of tourism. In the second part of the study, on the basis of a Hungarian nationwide representative sample, we present the rate of people, who are familiar with such a services and how open are they to use these services along different demographic indicators. Our results show that the demographic characteristics examined (gender, economic status, marital status, educational level, financial situation, place of residence) influence the openness of people towards accommodation-sharing activities, and the results always show a significant relationship. We have found that men, active workers, non-family, younger generations, metropolitan and wealthy people are more open to using accommodation-sharing activities.

Key words: sharing economy, Airbnb, tourism, socio-demographic factors

1 Introduction

As a result of digital revolution, new business models are emerging nowadays, which use not only the benefits of digital technology, but adapt to new customers' need. As a result, a number of share-based businesses were formed, one of the best-known example is Airbnb which deals with accommodation sharing. Airbnb was founded by three 24-year-old young people (Brian Chesky, Joe Gebbia és Nathan Blecharczyk) in San Francisco, CA, USA, 2008. According to their original idea foreign accommodation seekers and locals with free rooms (or even with free beds) would meet on Airbnb market. The idea was inspired by the founders of their own lives: they rented out a mattress in their home to renters. In a few years, Airbnb has grown to industry.

Airbnb's market value in 2016 exceeded \$ 30 billion. For comparison, the second largest accommodation company (Hilton) has a market value of \$ 23.3 billion. Beyond its value, the presence in the countries and the number of rooms shows most clearly that this type of market becomes truly multiplayer market due to the participation of many individuals. While Airbnb is present in 191 countries and has 2 million registered rooms, the united Marriott and Starwood hotel chain has 1.1 million rooms worldwide in 110 countries.¹

2 Research background

Sharing economy, collaborative consumption, on-demand economy: more and more frequently used terms that are sometimes used as synonyms, sometimes as additions to or as an umbrella phrase. Due to constant change and development, there is currently no uniformly accepted term and definition for the phenomenon. One approach (PWC study, 2015) is that people share their unused capacities, typically through an Internet platform, striving for sustainability. The novelty is in the number of significant and continuously growing transactions compared to previous centuries, supported by the benefits of the digital revolution. The phenomenon was first defined by R. Botsman and R. Rogers in their best-seller book as 'collaborative consumption', which is an umbrella term that incorporates sharing-based community services or sharing economy as a key element. Afterwards many other names have also appeared – highlighting its various features in sharing activities. Gansky (2011) introduced the mesh companies, focusing mainly on sharing the capabilities of companies, while Backhi and

¹ <https://skift.com/2016/09/23/airbnbs-latest-investment-values-it-as-much-as-hilton-and-hyatt-combined/>, letöltve: 2018.03.13.

Ekhard (2012) described access-based consumption, where instead of buying and ownership, consumers prefer access to goods and are willing to pay for temporary access. Further phrases could be used eg. on-demand economy (Frenket et al. 2015), connected consumption (Schor-Fitzmaurice (2015), collaborative economy (EB, 2016). Several studies examined those consumers' motivation and attitudes who have already used sharing services Next to the price level these people like new experience, on-line approaching, personal and private contacts (Buda-Lehota, 2016).

In our study we investigated the people's openness toward accommodation-sharing activities. Since the accommodation itself is a key part of tourism, it is important to know the basic mechanisms and the connections of tourism. At present, "tourism" is defined by the World Tourism Organization and the Inter-Parliamentary Union (WTO, 1989), is considered to be the most well-known definition: "tourism includes all the free movement of people and their places of work, and the services created to meet their needs".

Tourism can be considered as economic, psychological, social and cultural phenomenon at the same time (Przeclawski, 1993). Tourism, as an activity, is obviously influenced by the interaction and dynamism of demand and supply. Demand is determined by the tourist itself with his own motivation, discretionary income and leisure time, while supply from tourist point of view is determined by attractiveness, accommodation, meals, transport, other infrastructure, entertainment, culture, hospitality, safety, hygiene, prices, etc. (Polish 1992, Tasnádi 1998, Rátz 1999).

The demand and supply system of tourism is primarily based on marketing for the tourist, the activity of the intermediary sector and the travel itself (Rátz, 1999). Accommodation is one of the determining branches of tourism, and significant transformations have taken place in recent years due to sharing economy. Hungarian Central Statistics Office (CSO-KSH) differentiates two accommodation categories: commercial and non-commercial accommodation. The best known accommodation sharing company is Airbnb. From regulation's point of view we can identify several advantages and disadvantages. Advantages: increasing revenue for those people who rent out their flat, increasing number of tourists, sharing resources. Disadvantages: risk both for renter and for those who rent out their flats, increased noise and waste in certain districts, increased rental fee, possible tax evasion. There are some features which have advantages and disadvantages at the same time: increasing completion for tourists, increasing level of flat price. Due to these reasons several towns limited Airbnb's services both in US and EU, eg. registration needed for renting, 90-180-day-limit per year for renting, Airbnb collect the tax and pay to the town ((Drabancz és El-Meouch (2017).

Typical commercial accommodation types: hotel (three, four and five star), pension, community accommodation (includes: tourist hostel, youth hostel), holiday house, camping. Non-commercial category includes Airbnb's type accommodations. CSO database shows that in case of non-commercial accommodation between 2010 and 2016 the number of available rooms hardly changed but the number of guests and guest nights increased dramatically (the number of guest nights increased from 3.2 million to 6.4 million between 2010 and 2016). However, it is known that some of the Airbnb owners are not officially admitting their apartment, furthermore number of guests and guest nights is not or only partially reported to CSO. Therefore CSO data should be handled carefully. According to a study published by Jancsik and his associates in 2018, which presented the results of a three-year Airbnb research - collected and analyzed Airbnb's sites by scraping method, - in Budapest Airbnb's rooms were close to the number of hotel accommodation in 2017 which had forty-five thousand beds.

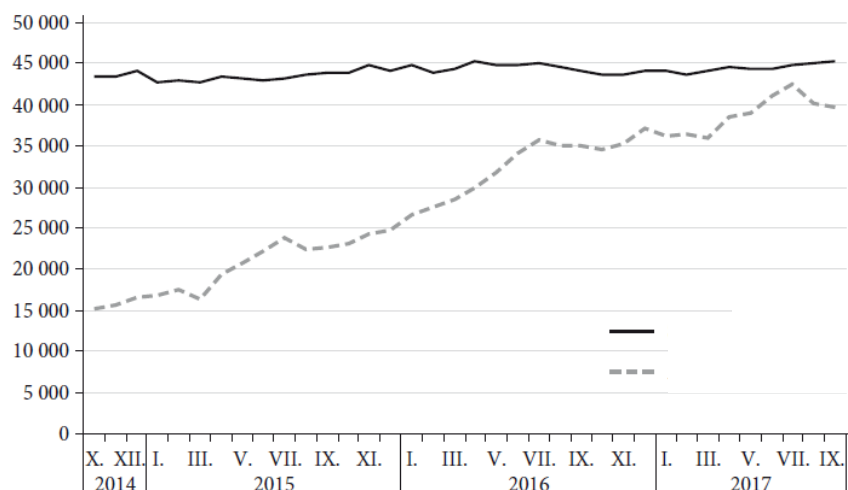


Figure 1
Number of accommodation in Budapest, source: Jancsik et al. (2018)

The type of accommodation that tourist chooses depends on a lot of things, including the demographic characteristics and consumer attitudes of tourists, such studies and research are in progress. Cohen (1972, 1974) distinguishes the following types of tourists: wandering, explorer, individual mass tourism, organized mass tourism. A 'wanderer' tourist is looking for something new, avoiding the tourism sector, mingling with local culture, having personal contact with local people; the 'explorer' organizes the journey individually, wants to off the beaten path; 'individual mass tourism' partially participates in institutionalized tourism, but he is flexible; while 'organized mass tourism' participates in a

‘package-tour’, he does not exit his "environmental bubble", has little connection with local culture and local people. What types of tourists are open to accommodation sharing service? To be able to respond this, we have to identify their socio-demographic characteristics first of all. Our research is focusing on this question.

3 Objectives, material and method

The survey was conducted on a national representative sample of 3,504 individuals, minimum age of the respondents was 14. Personal interviews were done by interviewers. The questionnaire consisted of several parts in connection with sharing economy services, this study focuses on how many Hungarian people have already heard about accommodation-sharing services (as Airbnb), and from socio-demographics’ point of view which segments are more open to use this type of service.

3,284 respondents’ answers were evaluable. Demographic factors were asked about the gender, economic status, marital status, age (generation), education level of the respondents, place of residence and financial status. 47.1% of respondents were male and 52.9% were women. According to the economic status of respondents, 56.2% were active workers, 27.9% were retired, 8.5% were students and 7.4% have other inactive and unemployed economic status. 17.1% of respondents live in capital city (Budapest), 21% of the respondents live in the county seat or county town, 33.1% live in another town, and 28.8% of the respondents live in the municipality. The respondents’ financial situation were identify based on their assets and income. Based on a weighted score respondents were classified into four different categories (lower, lower middle, upper middle and upper). According to the classification, respondents were examined along the following proportions: lower (19.6), lower middle (20.7%), upper middle (39.4%) and upper (20.2%). We also looked at the marital status of respondents. Here we have distinguished two categories, family and non-family status. Namely the respondents with child(ren) under 18 years get family status. Based on this, 35.2% of respondents are family category, while 64.8% of respondents fall into the non-family category. We also investigated the age of respondents: 3% of the respondents belonged to the Z generation, 37% to the Y generation, 31% to the X generation, and 28 % to the Baby Boomers generation. In terms of respondents’ educational qualifications: 21.5% of them have maximum primary school education, 26.9% have vocational qualifications (secondary school without graduation), 31.7% have graduation and 19.9% have university or college diploma.

Respondents were asked, whether they heard about the service and whether they would use the service (we specified the service on the following way: “instead of a

hotel room, you can take private homes or get a room directly from the owner (e.g. Airbnb)”. The possible answers were: 'certainly not', 'probably not', 'probably yes', 'yes', 'has already been used '.

We have set up the following hypothesis (which demographic characteristics influence the openness toward accommodation sharing service (e.g. Airbnb)):

- H1: gender does not influence openness
- H2: economic status influences openness
- H3: marital status does not influence openness
- H4: age influences openness
- H5: education level influences openness
- H6: place of residence influences openness
- H7: financial status influences openness

Taking these elements into account, we have looked at cross-tabs as to how demographic features influence the awareness and openness of the respondents toward accommodation-sharing service. Statistical analysis was performed applying the SPSS software.

4 Results

37.3% of respondents already heard about the service. Respondents were asked whether they would use this type of accommodation service: 'instead of a hotel room, you can take private homes or get a room directly from the owner (e.g. Airbnb)’.

62.7% of respondents would certainly not use it, 17.2% of them probably would not use the service. 14% would probably use the service, while 4.7% of respondents would definitely use it. 1.4% of respondents have already used the service (Chart No. 1)

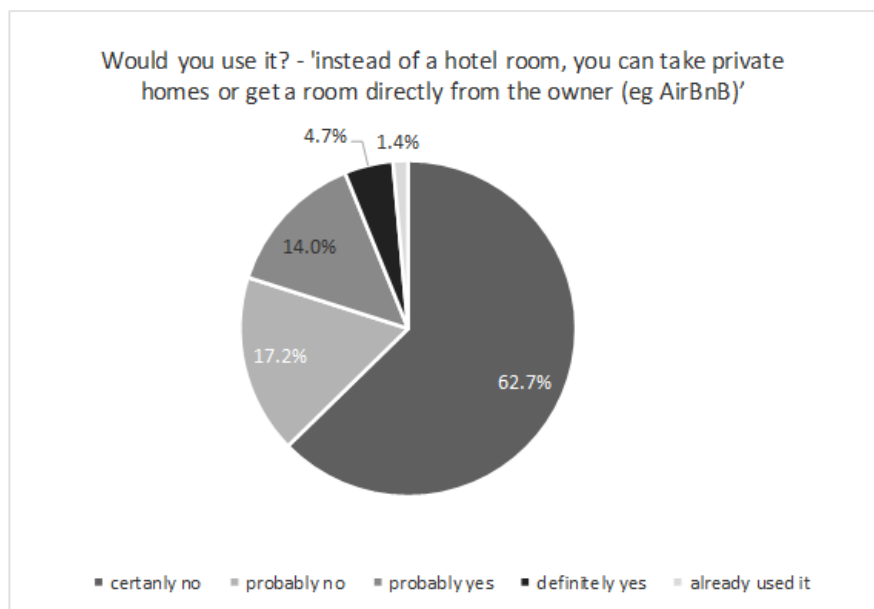


Chart 1
Openness to rent private homes for short-term (own results)

Those who have not heard of the service at all, 79.4% of them totally denied the service, meaning they would definitely not use this type of accommodation service. Those who have already heard of it, 35.6% of them would certainly not use it, 20.7% of them probably would not use it, while 43.7% would probably or definitely use it or have already used it. Additionally, there is a significant correlation between Internet usage and Airbnb's awareness, the more frequently someone uses on the Internet, the greater the chances of having heard about the accommodation sharing service ($p = 0,000$, $\text{CHI} = 374,251$, $\text{df} = 4$, Cramer's $V = 0,327$).

In the next stage we examined which demographic characteristics affect the openness toward accommodation-sharing services. We tested the following characteristics: gender, economic status, place of residence, financial status, marital status, age, and education level.

H1: gender does not influence openness

Hypothesis 1 could not be accepted. Gender of the respondents influenced the openness, although the strength of the relationship was very weak ($p=0,001$, $\text{CHI}=19,990$, $\text{df}=4$, Cramer's $V=0,078$). Chart 2 shows that men are, on the one hand, more open to use accommodation sharing service, and on the other hand,

more men have already used this service. 4,7% of the respondents answered ‘certainly yes’, men were overrepresented with 4,9%, while women were underrepresented with 4,5%.

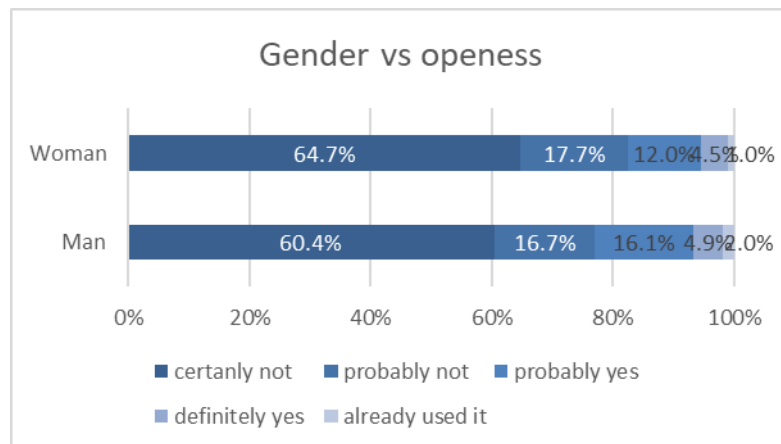


Chart 2
Influence of gender on openness (own results)

H2: economic status (active workers, retired, students, inactive) influences openness

Hypothesis 2 was accepted, economic status does influence openness. There is a significant relationship between openness and economic status ($p=0,000$, $\text{CHI}=248,054$, $\text{df}=12$, Cramer's $V=0,159$). Chart 3 shows that active workers and students are the most open to use the service, while retirees and inactive people are less likely. The same is true also for those persons who have already used the service.

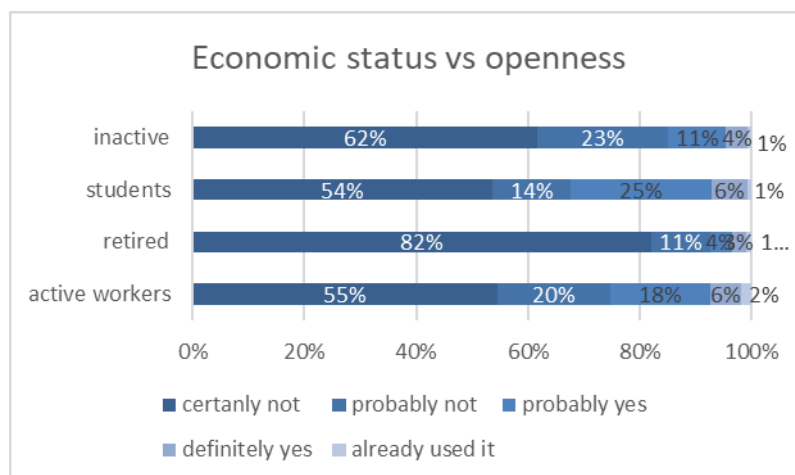


Chart 3
Influence of economic status on openness (own results)

H3: marital status does not influence openness

Hypothesis 3 could not be accepted, marital status also influence openness. Family and non-family respondents were distinguished. We considered respondents as family respondents who live in a household with a minor child. The relationship is significant but weak ($p = 0.006$, $\text{CHI} = 14.307$, $\text{df} = 4$, Cramer's $V = 0.066$). Chart 4 shows that families are more open to accommodation sharing service, but are below represented among those users who have already used it.

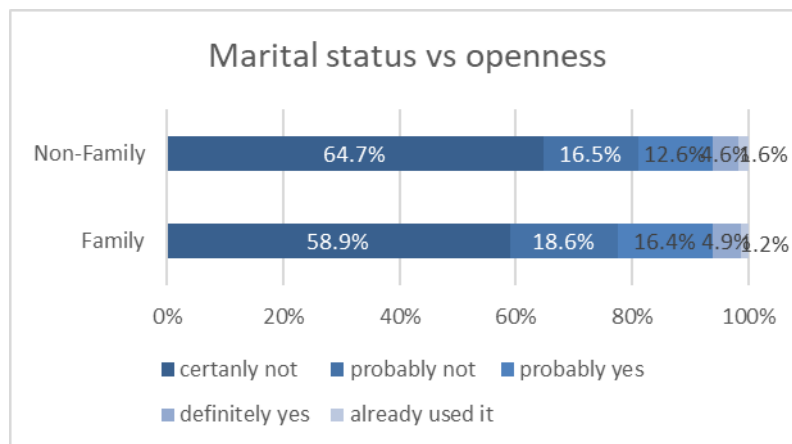


Chart 4
Influence of marital status on openness (own results)

H4: age (generation) influences openness

Based on respondents' age we used four categories (Baby boom, X, Y, Z generation). We identified significant correlation between generation and Airbnb variables, based on it hypothesis 4 was verified. The generation influences the openness of accommodation sharing services, the relationship is significant ($p = 0.000$, $\text{CHI} = 263.833$, $\text{df} = 12$, Cramer's $V = 0.164$). Chart 5 shows that younger generations are more open to sharing service, the members of the Babyboom generation are far more refusing to use the service. Among the X and Y generations those people who have already used the service are overrepresented

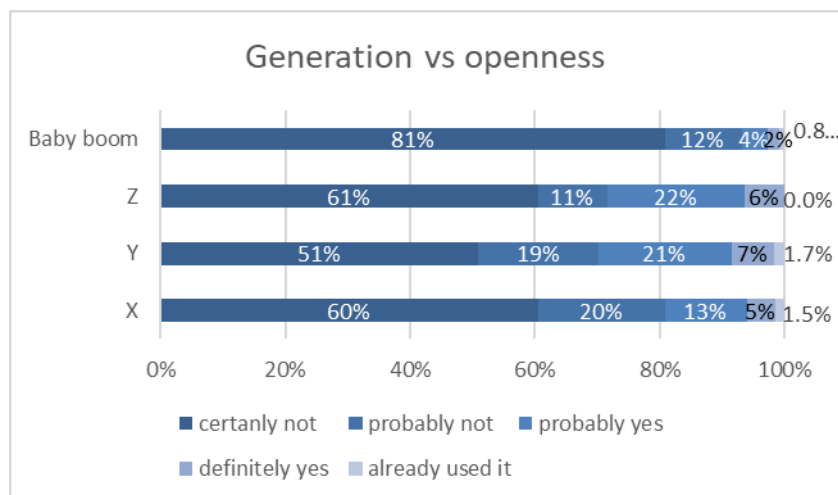


Chart 5
Influence of generation on openness (own results)

H5: education level influences openness

The hypothesis 5 was accepted, there is significant correlation between openness and education level ($p = 0,000$, $\text{CHI} = 163,378$, $\text{df} = 12$, $\text{Cramer's } V = 0,129$). The higher the education level of the respondent was, the more open they were to use the service, and the results is similar in case of those who have already used the service. The results are presented in Chart 6, which shows that 25% of graduates would probably or definitely use the service, while only 11% of those who have primary school's education level.

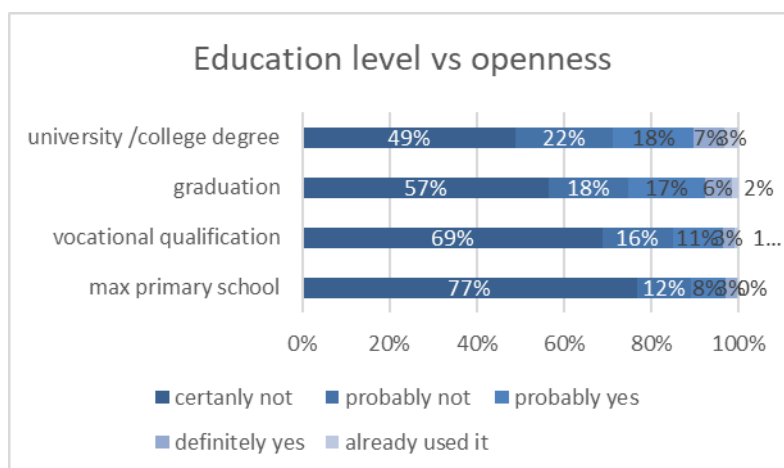


Chart 6

Influence of education level on openness (own results)

H6: place of residence influences openness

The residency of the respondents influences openness, the relationship is significant ($P = 0,000$, $\text{CHI} = 50,987$, $\text{df} = 12$, Cramer's $V = 0,072$). The inhabitants of Budapest and the county seats and county towns are more open towards community accommodation sharing, fewer in the city and village. The results are shown in Chart 7. Residents of Budapest are overrepresented among those who have already used the service.

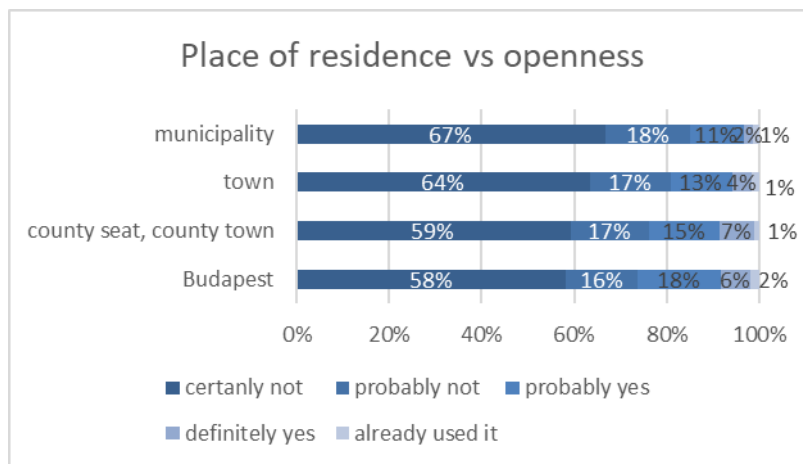


Chart 7

Influence of place of residence on openness (own results)

H7: financial status influences openness

The H7 hypothesis was accepted, the financial situation influenced the openness of community accommodation sharing service, the relationship was significant ($p = 0,000$, $\text{CHI} = 193,294$, $\text{df} = 12$, Cramer's $V = 0,140$). The financial situation was determined by the combination of existence of various assets and income position. Chart 8 shows that wealthier respondents are more open to using the service. In addition, it can be seen that respondents in the lower and lower middle income categories have significantly overrepresented among those who definitely rejected the possibility to use accommodation sharing service.

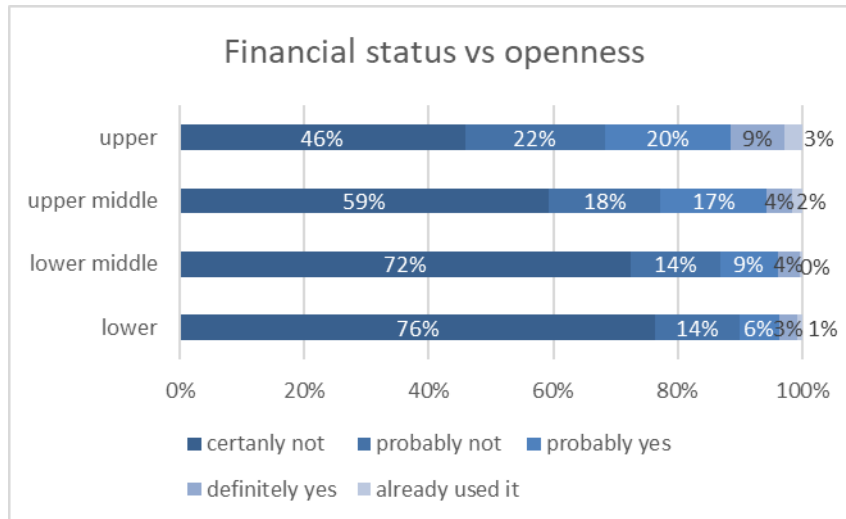


Chart 8
Influence of financial situation on openness (own results)

In addition to examining the pre-defined hypotheses, we combined place of residence and financial status into consideration. We examined the joint effect of factors with two-way ANOVA (variance analysis), and we found that the interaction of the two variables is also significant. Therefore we can describe the joint groups. In this variance analysis, average values were measured among the groups, ranging from one to four. We have found that the most open respondents live in Budapest and belong to upper wealth categories (average 2.3) and the least open respondents live in towns and belong to lower income category (lower than 1.3). Since the relationships are significant, we can conclude that in case of demographic factors it is worth looking at the place of residence and the financial situation as well, so we can get more reliable information about the potential target groups. The results are shown in Chart 9. On Chart 9 the minimum was 1 and means that respondent is not open, and the maximum was 4, which meant that the respondent is open to the service. Based on this, the greater mean means relatively greater openness to the service.

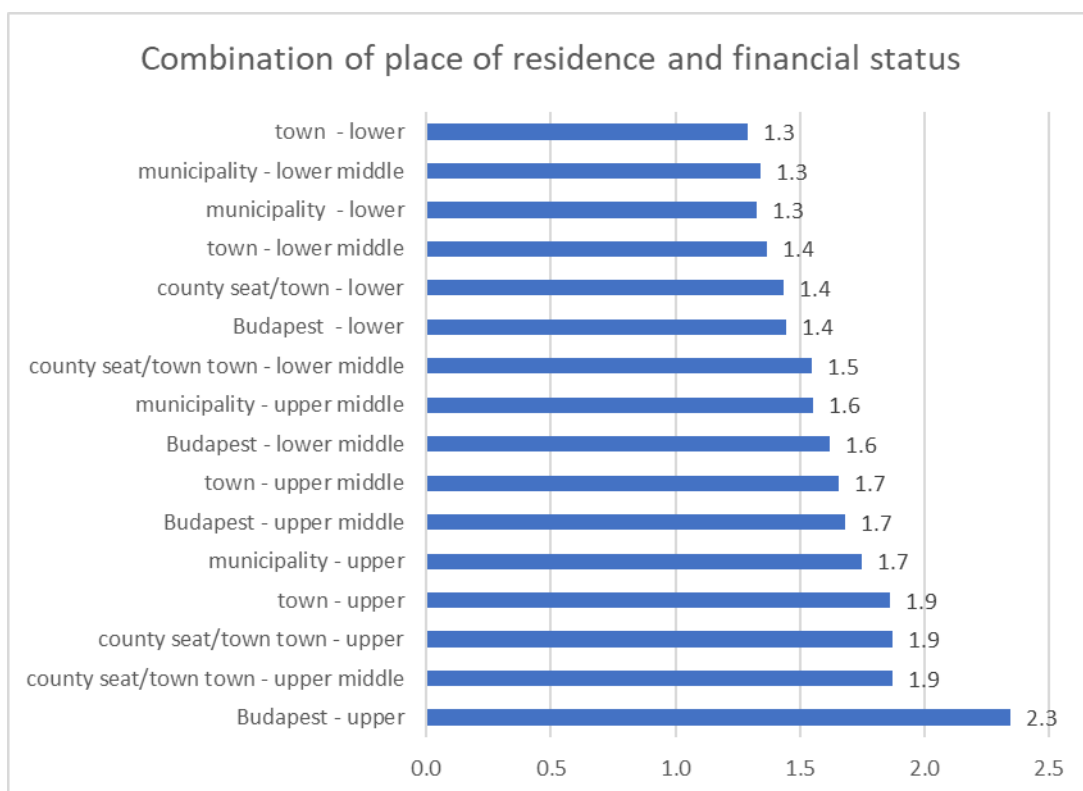


Chart 9
Combination of place of residence and financial status (own results)

Conclusion

On the basis of the representative sample, 37.3% of Hungarian inhabitants have heard about accommodation sharing service and 1.4% of them have already tried it. In 2017, 18.7% of the respondents answered that he or she would probably or definitely use the service if he or she would need it. From the socio-demographic point of view we can state that all the examined demographic characteristics have an effect on openness, there is a significant connection between demographic characteristics and openness to accommodation sharing. We have found that men, active workers, non-family, younger generations, metropolitan and wealthy people are more open to using accommodation-sharing activities. Based on the presented results of the survey we can say that openness is relatively low among Hungarian residents, but since the service is unknown or new to many, it is expected that this rate will rise in the following years. The accommodation sharing service belongs to the sharing economy as one of the best-known example. In the coming years, further growth and new types of sharing services are expected due to several reasons. On the one hand, digital devices will be available to more and more

people (and more and more people will use Internet), and the consumption of welfare society will be less and less sustainable and society will begin to adopt and use business models which support sustainable development.

Acknowledgement

Authors are grateful to Hungarian Telekom for supporting the survey. No financial or property interest in companies mentioned in the article.

References:

- [1] Bardhi F. & Eckhard G.M (2012): Access-based consumption – The case of car sharing, *Journal of Consumer research*, Vol. 39., December 2012, DOI: 10.1086/666376.
- [2] Botsman, R. & Rogers, R. (2011). What's mine is yours – The rise of collaborative consumption
- [3] Buda, G – Lehota, J (2016): The Spreading Of Sharing Economy And Its Impact On Customers' Behavior, *ACTA CAROLUS ROBERTUS*, 44 – 59., ISSN 2498-9312, http://uzletitudomanyok.uni-eszterhazy.hu/public/uploads/acta-carolus-robertus-6-2-jav2_588b56c5d51e7.pdf, downloaded: 2017-03-07
- [4] Drabancz Áron, El-Meouch Nedim Márton (2017): Az Airbnb versenyjogi megközelítése Magyarországon, http://www.gvh.hu/data/cms1037679/Drabancz_Aron__El_Meouch_Nedim_Marton.pdf, downloaded: 2018.05.25.
- [5] EB [2016]: A közösségi gazdaságra vonatkozó európai menetrend. A Bizottság közleménye az Európai Parlamentnek, a Tanácsnak, az Európai Gazdasági és Szociális Bizottságnak és a Régiók Bizottságának. COM (2016) 356 final, SWD (2016) 184 final. Eur-Lex, Brüsszel.
- [6] Frenken, K., Meelen, T. Arets, M. & van de Glind, P. (2015). Smarter Regulation for the Sharing Economy. An article lead-produced by Koen Frenken, Chair of Innovation Studies at the Copernicus Institute of Sustainable Development at Utrecht University, <https://www.theguardian.com/science/political-science/2015/may/20/smarter-regulation-for-the-sharing-economy>, downloaded: 2018.04.15.
- [7] Gansky L (2011). Mesh vállalkozások – miért a megosztásra épülő üzletek a jövő? , HVG könyvek Kiadó, 2011
- [8] Jancsik A., Michalkó G., Csernyik M. (2018): *Megosztás megosztottság nélkül* – az Airbnb és a budapesti szálláshelypiac átalakulása., *Közgazdasági Szemle*

- [9] Lengyel M. (1992): A turizmus általános elmélete, VIVA Reklámügynökség, Budapest
- [10] Przeclawski, K. /1993/: Tourism as the Subject of Interdisciplinary Research; In: D.G. Pearce - R.W. Butler eds.: Tourism Research. Critiques and Challenges; Routledge, London, UK, pp.9-9
- [11] PWC tanulmány, Osztogatnak vagy fosztogatnak – A sharing economy térnyerése,
http://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/sharing_economy.pdf,
download: 2016-07-08
- [12] Rátz T. (1999): A turizmus társadalmi-kulturális hatásai, PhD disszertáció,
http://phd.lib.uni-corvinus.hu/206/1/ratz_tamara.pdf, downloaded: 2018.03.25.
- [13] Schor J. B. – Fitzmaurice C. J. (2015): collaborating and connecting: the emergence of the sharing economy, in: Handbook of research on sustainable consumption, 410-425. p., <https://doi.org/10.4337/9781783471270.00039>
- [14] Tasnádi J. (1998): A turizmus rendszere, Kereskedelmi és Gazdasági Főiskola, Szolnok
- [15] WTO (1989): The Hague Declaration on Tourism; WTO, Madrid, Spain

The process of discovering and prosecuting trafficking with minors

Ivan Delovski

Bank street 7, 1054 Budapest, Hungary

Abstract: Nowadays, in this modern society there are a lot of negative social appearances, including a lot of varieties of criminal which are becoming not just a national problem, but also a global and an international problem. Migration, both legal and illegal, affects all the countries in the world. The illegal includes smuggling and human trafficking. Human trafficking is an unlawful activity which disrupts the international regulations and the national legislation and threatens the vital values of a community. However, every form of trafficking with children does not have the same level of danger and risks, or danger to the security of the state and its residents. This global problem has become so serious that about 700.000-4.000.000 women and children per year, are sold, and due to this that countries are implementing new laws and regulations related to human trafficking. But, often the people in the countries that have implemented such laws, are not sufficiently familiar with human trafficking, so they consider that human trafficking affects only the sexual exploitation prostitution described as, “the oldest profession” through the centuries. Never the less, this phenomenon covers a wider area, i.e. from being sexually exploited, the victims can also being labor exploited, abused by hiring at dangerous activities, criminal activities or armed conflicts etc. The child trafficking is not a new issue, it has always existed. What is new is that the organized crime takes an enormous swing with its sophisticated methods of action. The rate of child trafficking is lower than the one with adult’s, but that does not mean it should be ignored. On the contrary, it should be taken a bigger swing of the preventive level in order to eliminate the conditions and the cause of that criminal behavior and the level of repression, with which the very repression itself of a single crime of trafficking in minors can stimulate distraction of a potential offender of a new crime.

Keywords: human trafficking, child trafficking, child-victims of human trafficking, types of child trafficking, conventions, identification.

1 Introduction

The Republic of Macedonia until recently was a transit country for trafficking in human beings, but today, besides being the starting point, it is also identified as the ultimate point a destination that is a sign of destructive metastasis that is constantly spreading. There are many factors of their appearance depending on the

type of crime. When we talk about the general trafficking in human beings, we are talking about a number of factors that have contributed to its occurrence whether it is the poverty factor, the economic situation in one family, unemployment, warfare, political instability, and so on. But when we are talking about trafficking in minors, which today takes a big swing at the international plan, in addition to the above factors, parental negligence also has a major share neglect, domestic violence, low level of education of parents and children. Children from poor families are the most vulnerable category that can easily be manipulated in order to introduce into the dark waters of human trafficking. Because of poverty and insufficient economic inflows, parents cannot afford the luxury, and sometimes even the most basic needs of their children. Because they cannot ripe to judge and understand the seriousness of the situation, they become the easy target of human traffickers pledging their luxury life, mobile phones, laptops, and others works like a bait. But of course it will not receive it for free, later it pays with your body and labor as the object of abuse. When the victim becomes aware of this seduction and deception, it is already very late. They are susceptible to harassment and threats after the lives of their loved ones, and the purpose of this is embossing fear so as not to Here we are talking about adolescents, but when we talk about children of a young age, here are the main triggers of this work are the parents themselves who sell their children for a return to luxury and a better life. Parents go to the extreme that they sell their children for marriage, adoption, trafficking in human organs and so on. So we can let's say that the consent of minors for exploitation of any kind is irrelevant, even in the event that no means of coercion, coercion, fraud, kidnapping or actions taken while the child is in a vulnerable state or is under the control of another person.

2 Planning operations and their implementation

2.1 Units involved in trafficking investigation

First of all, we should mention what the units are and what teams are needed to efficiently plan the operations and implement them. First of all, it is necessary to have an appropriate Monitoring Team. The task of this team is to collect information about the premises and persons in them and determine the right time to start the action. While the Special Units of the Anti-Trafficking Task Force are providing the location and object itself, both from its interior and from its exterior. It is also necessary to search the premises and vehicles, confiscate the objects of the crime, check the guests, the suspects, the victims and conduct conversations with them. This is done by the Criminal Police. All traces and objects that originate from the crime must be photo and video documented after they have been previously marked and then raised as evidence. It is the task of the

Criminalistics Technique Unit. In addition, they have the responsibility to check ID cards, vehicle documents, etc. The next unit to be involved is a team of police dogs who secure the site from the outside and search inside.² It is of particular importance to provide a team of women inspectors who will perform physical checks in juveniles when dealing with a vulnerable category of victims (children or women). It is also necessary to have a Medical team if there are some unforeseen events and incidents, and they are also important for providing support to the victims. Inter-institutional cooperation and coordination with other police departments are very important. Interchange of information is required.

2.2 Preparation of an Action Plan for the operation to be implemented

The Action Plan is prepared in writing and it involves the preparation and planning of the overall action for the relevant case. It is used for the needs of the team that will operate according to that Action Plan. The plan should be handed over to the team leaders. It should be clear and precise, which will be of great benefit as a guide for further action, and through it can measure the progress itself in the realization of the set tasks and goals.

The content of the Action Plan is as follows:

History of the case being investigated

Determining the expected goals

Description of the premises

A Composition of the teams, their leaders, tasks for the team and for the leaders listed on the list

A table on how to communicate with team members

A Detailed chronology of the actions on the field

What will be the transport of vehicles from the police station to the targeted one location, and indicate where the position of the vehicles will be

It should also be noted who and how will ensure the perimeter of the operation

Who and how will ensure the interior of the premises

Identify the persons who will carry out the identification of the persons in the room and the persons who will carry out the search of premises and searches of the vehicles.

² Fabien Barthez, Peter Euguer, "Investigation of cases of trafficking in human beings", Crimea Police Program, Project: Trafficking in human beings, Skopje, December, 2004, p.15

The manner of treatment of detainees should also be determined

How will the witnesses be identified

How should the victims be handled, but IOM and the relevant NGO should be informed beforehand.

When transporting to the police station, the victims of the suspects and witnesses should be separated.

How should the evidence be handled (identifying and checking mobile phones, computers, e-mail addresses, videos or photographs, etc.)

The plan should include a list and documents that are subject to seizure, such as money, possession documents and bank account balance, reports, timetables, letters, mail, money transfer receipts, employment contracts, accounts, ID cards, registers, etc.

Destination of all arrested persons (victims, suspects, witnesses)

A list of the composition of the response teams for further follow-up operations, for example if there are additional searches, conversations, researchers)

Finally, the total number of engaged people from each department and the equipment to be used is stated.

2.3 Implementation of the action plan

The above points in the Action Plan are applied by the field operations units. The units should also be given recommendations on how to act on the ground. The observation team shall be placed at the location before the operation commences. The units are transported by truck, but they are not a convoy because they will be easily visible, and of course the units should not be perceived and the whole action "to fail in the water". Appropriate weapons and ammunition should also be used. MOI inspectors should wear police jackets or have police labels on their sleeves, while victims, witnesses and suspects should be detained in different premises and be banned from any conversations and phone calls. All guests, employees, witnesses, victims, suspects, neighbors in the facility should be checked and identified, and if needed, an interpreter is used. Certain measures are applied for catching the perpetrator or for certain traces and objects arising from the crime. These measures are the search of homes and people, as well as the seizure of objects. During the search, hidden objects, traces or objects, means used for the commission of illegal acts, forged documents are required. A search of apartments and other premises is carried out, in the case of the perpetrator, his relatives or third parties, the search of means of transport from outside and from inside which are connected with a criminal act. Also, passengers and baggage are searched separately. Also, based on the Action Plan, open spaces can be searched, such as yards, etc., as well as a search of persons in case there are indications that traces

and objects of the crime are found in the perpetrator or another person.³ Prior to the search of the site, a request should be submitted to an investigative judge (today's judge in a pre-trial procedure) and to issue a search warrant. During the search, all rooms or floors should be searched and performed in the presence of the suspect. The overall action should be photo and video documented. The houses of suspects and victims and the verification of vehicles, as well as the phones they use, should not be ignored. It refers to a report on the phone number and subscriber, messages, recorded messages, list of numbers that are required, answered calls, and missed calls. Also checks are done on the computers and the computer system, the money is taken away and they are handed over with a report about them, the documentation referring to bank accounts, cash flow, letters, trips, salaries, telephone bills, flash drives, memory cards, photos, any kind of material related to sexual activity (condoms, gel, etc.). The Team of Criminal Technique have to photograph the suspects, witnesses and victims of the event, the premises (inside and outside), the evidence and the confiscated documents and objects, fingerprinting. Consequently, documentation should be prepared with information that is entered in the database.

2.4 Raid of house or suspect person

This measure as an investigative action consists of a forced search of one person who from a legal point of view is regulated, and this is done when it is considered that with the very act of the search will catch the perpetrator of the actor find traces or objects that are important for the criminal procedure.⁴ If a search warrant is required to perform a search or when there are conditions for searching without a warrant, search for movable objects of the person caught in the premises is performed.⁵ In order to state the need for a search in the Action Plan, it is necessary to see if there is a probability that the search itself will achieve the desired goal, and above mentioned that it is finding the perpetrator, traces or objects of the crime. The search is performed based on the previously obtained written order of the court and against it is not allowed an appeal. The search of a person is a measure that consists in the forced search of one person, who in itself covers review. The search is legally regulated which consists of a search of clothing, footwear or personal luggage of a certain person, and of course the likelihood is perceived for finding traces and objects of the crime. The search is performed in indoors and, if necessary, completely unblocked. It should be kept the rule that a woman's search may be searched can only be performed by a female person, and also witnesses can be only female faces. During the search, whether it

³ Prof. Ph.D. Metodija Angelovski, "Criminalistic Method", p.77

⁴ Law on Criminal Procedure ", Art.198, Art. 1

⁵ Nikola Matovski, Gordana Lazetic-Bujaroska, Gordan Kalajdziev, "Criminal Procedure Law", Skopje, 2009, p.274

is on home or person, two adults should attend as witnesses. Also, the search of a person is carried out by two officials, one of whom observes keeping and the behavior of the person in order to prevent a possible assault or escape, the another person searches the person.⁶

3 Identifying minors as victims

The identification of victims is very important and aims at helping to determine whether the child and in general all the victims are or are not potential victims of this crime. Identification is very important because children abused may have to need urgent interventions due to physical, sexual and psychological health problems. Identification is a process through which a range of indicators are obtained information (through interviewing, material evidence, etc.), on which basis it is carried out assessment whether a person is a victim of trafficking. The indicators should be obtained through the indicators information related to the recruitment, transport, the means used for the person being abused and exploited, working conditions, living conditions, violence, fraud, addiction, etc.

In cases when it comes to underage victims of trafficking in human beings, in accordance with the Palermo Protocol, the presence of funds are not necessary to identify a case of trafficking in minors. Therefore, if the method of identification is known, the victim can easily be recognized and take appropriate measures to help them get rid of it exploitative situation in which they are located and not be a further subject of survival and injustice. Further care should be taken not to come to their further exposure to risks.⁷

When identifying juveniles it is necessary to keep in mind that:

Human trafficking is a process of events that begin by recruiting or coercion and end with an attempt to exploit or exploit the person.

Minors may be subject to domestic or domestic trafficking or international or cross-border trafficking.

Various standards for adults and juveniles apply.

There is a difference between trafficking and smuggling that we explained at the outset.

⁶ Nikola Matovski, Gordana Lazetic-Bujaroska, Gordan Kalajdziev, "Criminal Procedure Law", Skopje, 2009, p.276- 277

⁷ IOM Anti-Trafficking Training Modules - Identification and Interviewing Techniques Victims of Trafficking in Human Beings ", p.17

Attention should be paid to the presumption of age. This means that when the juvenile's age is not known for sure, and there is a reason on the basis of which the victim is considered a minor, the presumption is that the victim is a child. As long as the determination of his age continues, the victim will be considered a child.

Juveniles can be identified by different individuals. Persons belonging to the law enforcement agencies, immigration agencies, police, social services agencies, NGOs, international organizations, citizens, so they can be identified by other victims of trafficking. Also, the possibility of identification through SOS telephone lines should not be omitted.

3.1 Types of identification

There are two types of identification: **proactive** and **reactive** identification. In proactive identification, specialized individuals or organizations with special training offer assistance to victims of trafficking, and measures are also being taken from their side to find potential victims of this crime. About the same realize and achieve the desired goal, you need to have detailed information about the field of trafficking in human beings. It is very important to get in touch with the potential victim, and the necessary information would be provided referring to their rights and delivering contacts to the organizations that offer it its assistance in such cases. For the efficient operation of the border police, necessary is to develop plans for proactive identification of trafficking in human beings, whereby if this evil is recognized in time, it can come to contact with people who themselves are not aware that they have been exploited or are potential victims of trafficking.

That is why this method is very important for early detection of such cases and in a timely manner identifying potential victims as well as prosecuting perpetrators yet at the very beginning.⁸

Indicators for the identification of victims of trafficking in human beings can be subdivided into:

Direct indicators, which refer to the three elements of the definition of trafficking in human beings, but with the exception of children as victims where they do not have to exist indicators pointing to the presence of funds.

Indirect indicators, do not point to the existence of the three elements of a definition of trafficking in persons, contain certain, incomplete and combined information that is insufficient to identify victims of trafficking people. These

⁸ Tijana Fomina, International Center "La Strada" - Moldova and Maria Vogazi, Center for the Protection of Human Rights - Greece, Ariadne Network, "Regional Guidelines for the Identification of Victims of Trafficking in Human Beings" - Rulebook (Manual) for Southeast and Eastern Europe, 2012, p.26-27

indirect indicators identify potential victims, where they should have equal treatment with victims of trafficking.

3.2 Identification phases

First phase: Indications referring to trafficking in minors and taking further measures. This phase, as an initial phase starts at the arrival of the BCP the potential victim and their carriers or potential traffickers. Firstly, at this stage, external circumstances are considered, and then questions of potential victims/perpetrators are raised.⁹ Earlier we mentioned the division of indicators of direct and indirect. Direct indicators are divided into general and specific.

Below we will list the general indicators that need to be evaluated the initial phase:

Gender - Determine the gender of the potential victim. This is especially important when determining whether it is a sexual exploitation of young girls and boys which brings a lot of profits.

Age - When talking about trafficking in minors, it is necessary to be careful evaluate the age of the minor despite being visually harder to do make. Usually trafficking in human beings for sexual and labor exploitation is aimed at younger people, and therefore traffickers and their aides recruit younger people who are capable of heavy physical work in the context of sexual exploitation, according to traffickers, younger persons are more profitable than the elderly. The same and for the sale of organs, the younger donor is more profitable than the adult.¹⁰

Citizenship - Here we should emphasize that poor countries are giving bigger clues on trafficking in minors and in general with people of all kinds age. Therefore, a potential victim should come from a well-considered perspective such places, to confirm or reject the risk or potential risk.

Travel Documentation - The victims' documents are most often confiscated by criminals and it is part of the trader's control mechanisms. The victim does not own the documents in themselves, but they keep the carrier and the trafficker to hand them over to border control. However, there are also cases where forgery or stealing passports for the same purpose. It is necessary to check the seals of the document itself and from other international border crossings and their dates, as well as to see if they are visiting the Republic of Macedonia for the first time.

⁹ International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.18

¹⁰ "Modules for IOM Training Against Trafficking in Human Beings - Identification Techniques", p.21

Vehicle and traffic documentation - Usually the vehicles that transport the victims are with proper documentation and correct, but there are also cases where the vehicles were stolen, and the documentation falsified. Therefore, attention should be paid to the documentation. At the same time, certain characteristic features of the vehicle can be perceived, where it can be determined that it is acquired by theft. For example, if windows are changed, or non-original side windows are installed, damaged front door locks, no original keys, or the use of multiple keys instead of one, lack of lock on the boot, lack or built-in non-genuine fuel tank cap, etc., indicates that it has been stolen.¹¹

The number of persons in the vehicle - Most often the carrier / potential trader transports 1-2 people and this knowledge should always be overlooked.

When talking about children as victims of human trafficking, the general indicators for identification is the following:¹²

The minor has no contact with his parents or guardians

The juvenile does not own personal documents or possesses counterfeits

The minor travels alone, without the accompaniment of the parent or guardian

Adults with whom the child lives with them dispose of his documents and consent from parents

The juvenile lied about his age or does not know how old he is

The juvenile does not go to school, does not know how to write or read

The minor is neglected, neglected and inadequately dressed

No healthcare

They try to escape from officials in any way

They look frightened, tired, shy, exhausted, confused and showing signs both physical and psychological abuse

They have bruises on various parts of the body

They have no friends

They do not have time to play

They have no freedom to move

¹¹ International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.19-20

¹² "Indicators for identification of victims of trafficking in human beings", Ministry of Labor and Social Affairs politics, Skopje, 2014, p.4

They have major behavioral changes that are not appropriate for their age

Shipping to the country of destination was paid by other persons, which should be further provided repay them through work

They do not have cash or have very high sums

There is an awareness that a person is bought or sold.

3.3 Second phase

Initially, a brief interview with the person who is a member/potential member of a criminal network of human trafficking (trafficker / potential trafficker).

In this second phase, it is necessary to establish a pre-scheduled conversation with the trafficker / potential trafficker and the occupants of the vehicle. Firstly, it is necessary to find out what the purpose of their journey is. Also besides the knowledge for the purpose, one should perceive the relationship between the carrier / potential trader and passengers logically, that is, to see if they are in a cousin, friendly, love affair, business people and the like. In the meantime, the travel document of the carrier / potential trader should be reviewed and the emphasis on whether there is more frequent travel to a country, and if there is such a trip, it should be asked the purpose and motives of these frequent trips. If they are transiting, they need to get knowledge of the contacts they have in the country which go, that is, phone numbers, addresses, activities that they perform, how much it is known the country where they go, etc. All passengers in the vehicle, including the carrier/potential trafficker, should be asked about the value of the money they own. The same because potential victims do not own or own a small monetary value. External visible physical injuries to a person and body are also significant indications that they are victims / potential victims of trafficking. If they have them, they need to get knowledge, that is to ask where, when and how they got it injuries. While interviewing, attention should be paid to observe their own reactions, that is, the body language and their behavior. Usually set questions to correspond to the carrier/potential trader, and this causes the signs of nervousness of the victim / potential victim who is a passenger in the vehicle.

In such cases, you should seek out and talk to your companion. In addition, there are other signs which should be observed when interviewing a carrier / potential trafficker which are: friction and sweating of the palms, trembling of the voice, drying of the mouth and often sneezing, severe knocking of the neck artery, unusually strong squeezing or knocking with your fingertips on the steering wheel, changing stations, tapes, or compact discs on the radio in the vehicle, changing the

theme of the conversation, turning the view on the side which avoids the eyesight.¹³

If there are more of these above indications, the passport control must notify the shift manager, and the further activity should be separating the carrier/potential trafficker from passengers/potential victims, and the vehicle should be rearranged to the side and subjected to a search in the presence of the carrier/potential trader, and further and adequately secured. All items and documents indicating the existence of trafficking in human beings are confiscated and a Confirmation of temporarily confiscated objects is issued. While the fellow passengers are called in the official room for the continuation of the interview.

3.4 Third phase

An interview with a member of the person/potential member of a criminal network for trafficking in human beings and an interview with the victim/potential victim of trafficking in human beings.

At this phase, every person should be in a separate room when taking an interview for later to make a comparison of the answers to the questions, yes there are contradictions or illogical statements. When interviewing, it should be kept one rule, and that is that an interview with a potential victim should be done by hand an official of the same sex, and an interpreter if necessary. We told you about the initial short interview with the trafficker/potential trader people, however, if there are grounds for suspicion, after the inspection and search of the vehicle, luggage, etc., is continued with the further interview. Ask questions from the type of personal information, name, surname, nickname, date and place of birth, address, telephone, profession, the purpose of travel, etc. It must also provide documentation and to explain what kind of relationship it is with travelers. When it comes to a situation where a juvenile must be interviewed, like potential or already a victim of human trafficking, attention should be paid to the way of accessing and asking questions, ie to be adapted to his age. Not all children reveal what happened to them in the same way. Some they talk about what happened, but some inadvertently reveal through their own behavior. They may also not tell the whole story immediately, sometimes even can to hide a long time about what happened to him. One should not neglect the fact that the juvenile ever denies that there was abuse or what he said withdraws even in situations where the statement he has previously given is substantiated by evidence.

Will it be willing to disclose abuse depends on age, culture and circumstances.¹⁴ Generally, it is generally accepted that older minors should be an interview in a

¹³ International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.21

separate room without the presence of another member, and at interviewing minor juveniles should be attended by an adult member in the which the child has the confidence to support him in these difficult moments. The person for whom there are grounds for suspicion that he is a perpetrator of the offense must not be present interviewing. The room in which the interview will be conducted must be quiet, yes no there is nothing that would distract him (radio, television) or be interrupted by the conversation of people entering and leaving the room. The child can also choose in which room to conduct the interview, and it should be convenient, and have toilet and water, as well as paper and accessories for writing and drawing (some children know to express themselves through writing and drawing). For the juvenile to feel is surely possible to have her favorite toy. In preparing the interview with minors, the official should lead to some general directions. These general directions are as follows: Once you get the suspicion that there is abuse should be the interview as soon as possible. At interviewing a child should have a sense of security and protection and support.

Also, persons interviewed by juveniles must be specialized in that area, in the field of conversation with minors. The interview should not last very long, in order not too tire the juvenile. But of course, before it is implemented interview, you need to make a plan for that interview process. Here in mind, you need to the status of the juvenile's family, the juridical characteristics of the juvenile. The most important thing is to leave the child first to express himself and explain in his own words the event or the situation in which it was found, and then only to ask questions. Of course, you should also keep an eye on the questions, how they will be set up. At the same time, the juvenile should be prepared to give a statement in court and provide his support during the criminal procedure and trial.¹⁵

Conclusion

Trafficking in minors is a term used to define the situation where children are forced or deceived by the situation to be exploited. Based on the overall research systematized in this paper, we will summarize the key issues related to contemporary trends in preventing trafficking in minors, pointing to practical, practical recommendations for improving the preventive methods currently used by competent institutions, such as and implementing new measures that would prove successful in the coming period. The goal of this ore is, above all, to see the level of development of the individual awareness among the citizens of the Republic of Macedonia with regard to the risk of juvenile victimization. At the same time, to see the level of engagement of educational institutions, NGOs, mass media and state institutions in raising the awareness of society. At the national

¹⁴ Barbara Michels, "Let's talk", Developing effective communication with child victims of abuse and trafficking in human beings - Practical Guide to Social Workers, Police Officers and other professionals, September 2004, p. 20-21.

¹⁵ "From Human Trafficking to Security" - Training for the employees of the Ministry of Interior, Training Materials 9B

level, the cooperation with international organizations is increasing and bringing positive results. During the investigations, the Republic of Macedonia regularly cooperates with Interpol, Europol and Secki-Center. It is also one of the purposes of this paper to identify the key risk factors for trafficking in minors, determining whether effective and effective preventive measures are taken by the competent institutions to undertake, and to determine the degree of national and international institutional cooperation.

References

- [1] Fabien Barthez, Peter Euguer, "Investigation of cases of trafficking in human beings", Crimea Police Program,
- [2] Project: Trafficking in human beings, Skopje, December, 2004, p.15
- [3] Prof. Ph.D. Metodija Angelovski, "Criminalistic Method", p.77
- [4] Law on Criminal Procedure ", Art.198, Art. 1
- [5] Nikola Matovski, Gordana Lazetic-Bujaroska, Gordan Kalajdziev, "Criminal Procedure Law", Skopje, 2009, p.274
- [6] Nikola Matovski, Gordana Lazetic-Bujaroska, Gordan Kalajdziev, "Criminal Procedure Law", Skopje, 2009, p.276- 277
- [7] IOM Anti-Trafficking Training Modules - Identification and Interviewing Techniques Victims of Trafficking in Human Beings ", p.17
- [8] Tijana Fomina, International Center "La Strada" - Moldova and Maria Vogazi, Center for the Protection of Human Rights - Greece, Ariadne Network, "Regional Guidelines for the Identification of Victims of Trafficking in Human Beings" - Rulebook (Manual) for Southeast and Eastern Europe, 2012, p.26-27
- [9] International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.18
- [10] "Modules for IOM Training Against Trafficking in Human Beings - Identification Techniques", p.21
- [11] International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.19-20
- [12] "Indicators for identification of victims of trafficking in human beings", Ministry of Labor and Social Affairs politics, Skopje, 2014, p.4
- [13] International Organization for Migration - IOM, "Practicum for Combating Trafficking in Human Beings" illegal migration ", p.21
- [14] Barbara Michels, "Let's talk", Developing effective communication with child victims of abuse and trafficking in human beings - Practical Guide to Social Workers, Police Officers and other professionals, September 2004, p. 20-21.
- [15] "From Human Trafficking to Security" - Training for the employees of the Ministry of Interior, Training Materials 9B

Measurement possibilities of motivations and attitudes influencing the formation of unethical business behavior – the effect of self-esteem on the black economy

Piroska Dobos

Óbuda University, Doctoral School on Safety and Security Sciences, Budapest, Hungary

d.piri@globalprofit.hu

Prof. Dr. Katalin Takács-György

Óbuda University, Faculty of Business and Management, Budapest, Hungary

takacsnegyorgy.katalin@kgk.uni-obuda.hu

Abstract: In recent years, more research has found that values, societal norms and attitudes differ from country to country and that these differences have a measurable impact on economic behavior. The unethical business behavior and the causes of the hidden economy are examined extensively through multiple research methods. Generally, the shadow economy can be measured in two ways: micro-level surveys, questionnaires, interviews, or indirect approaches such as demand for currency and hidden variables, using macroeconomic indicators. Several studies deal with the relationship between money and self-esteem, stating that low self-esteem and the development of criminal behavior are typical among limited economic prospects. The purpose of the research is to compile a questionnaire that examines unethical business behavior, including the reasons for the development of a black economy from a business psychologist's view, based on the Rosenberg self-esteem used in international research to measure self-esteem. The results of the trial queries are presented in this study.

Keywords: self-esteem, pilot-survey, Rosenberg Self-Esteem Scale, shadow economy

1 Introduction

Taxation has been a concept since the birth of the states. Different and very varied forms of tax evasion have evolved through different historical periods. In a rapidly

changing economic environment, tax-related abuses are difficult to type, because human ingenuity knows no limits. "The hidden economy is one of the phenomena that can be noticed in all market economies, but its amount varies from one country to another, and this difference is an important information about the state of the economy, the behavior of economic operators, the acceptance of government and government measures" [1]. In order to reduce or eliminate abuses, it is important for organizations and public bodies assigned to taxation to be more prepared and efficient. In order to increase preparedness, this research and the feedback of the experiences gained may also be important.

The NAV Criminal Investigation Directorate and the investigative organs under its control - in compliance with governmental expectations - focus resources on the prevention of and damage caused by financial crime offenders and organized crime groups in order to protect the Hungarian budget. Table 1 shows the number of main criminal offenses in the years 2014-15-16. The values affected by known crimes in 2014 were 148.8 billion forints and 136.6 billion forints in 2015, of which the value of the crimes of fiscal fraud would be nearly 139 billion forints in 2015 and nearly 131 billion forints in 2014. In 2016 these two figures amounted to 109.5 billion forints and 98.1 billion forints respectively. The perpetration of crimes falling within the scope of fiscal fraud amounts to 93.4% to 95.9% to 89.6% of the aggregate perpetration, which can be considered to be considerably high.

	2014	2015	2016
Budget fraud	4044	3094	2628
Bankruptcy Crime	818	688	626
Infringement of the order of accounting system	544	536	436
Use of private document falsification / fake private document	1219	639	418
Infringement of Industrial Property Rights	449	573	330
Trafficking of stolen goods	538	407	290
Public document forgery	1181	480	255
Abuse of social security, social or other welfare benefits	95	114	152

Table 1

The formation of numbers of main crimes became known in 2014-15-16. (Source: NAV Yearbook 2014-15-16. own edition)

In the life of the National Tax and Customs Office (NAV), a turning point was the year 2016. In 2016, the process started to make NAV a non-tax office, but a provider of services acting in a way that supports taxpayers' affairs. The aim of the transformation is to create a tax office that cooperates with customers to effectively meet the social and government expectations, by transforming the culture of administration and by creating the availability of services, taxpayers are encouraged to pay fair tax payments. For this reason, supportive procedure that helps to correct defaults and mistakes instead of immediate punishment. The

rating of taxpayers has provided the opportunity to get profitable taxpayers, within the limits provided by the laws. The main goal is to operate a credible, client-centric National Taxation and Customs Administration, which is accepted by the society and at the same time improves voluntary observance and tax moral [2] [3] [4]. The choice of topic - the factors influencing the tax toll and the examination of these - therefore, because of the reform of the tax authority, is both very timely and necessary.

2 History, special literature review

2.1 Factors affecting the willingness to pay tax

In the literature, there are several economic models that seek to correlate between human behavior patterns, attitudes, tax evasion and its risk. Among the theoretical models of taxpayers' behavior, Allingham-Sandmo's model [5] is a pioneer, which develops Becker's model further [6]. Among the theories of gaming theory, it is worth mentioning Corchòn's model [7], which illustrates the coexistence norms of economic operators, the game of a robbery of a citizen trying to escape from the taxing state and obligations. In addition, Ehrlich's model [8] demonstrates the possibility of choosing between legal and non-legal activities. According to these classic models, the individual decision determining the tax attitudes of rational, profit maximizing individuals is a function of the taxpayer's income level, tax rates, probability of getting caught/ the extent of penalty.

Under the classic model of tax evasion, individuals' decision on tax behavior is assessed rationally by the expected effects of the above variables. According to classical models, control probability has a positive effect on taxpayers' compliance, and the degree of punishment has a considerable deterrent effect. The positive impact of control probabilities is supported by empirical studies, while the degree of punishment is less clear. There are also significant contradictions on the impact of income and tax rates. These contradictions are seen in Table 2. Motivational motivations behind economic and investment decisions are not always rational, classical economics models identify important factors, but they cannot explain the behavior of taxpayers, so it is expedient to extend investigations in sociology and behavioral fields as well. A number of studies point out the shortcomings of classic models, which are also shown in Table 2.

	Positive effect	Negative effect	Contradictions
Income level of the taxpayer		Schneider – Torgler [9]	Semjén [10], Kirchler et al. [11], Semjén – Szántó – Tóth [12]
Tax rates	Belyó [13], Belyó [14]	Semjén [10]	Sisak [15], Schneider [16], Cummings et al. [17], Schneider – Torgler [9]
Probability of controlling/getting caught	Semjén [10], Belyó [13], Semjén – Szántó – Tóth [12], Cummings et al. [17]		
The extent of the penalty	Belyó [13], Cummings et al. [17]	Semjén – Szántó – Tóth [12]	Frey – Feld [18], Semjén [10], Kirchler et al. [19], Semjén – Szántó – Tóth [12], Alm et al. [20]
The shortcomings of classic models	Hámori [21], Semjén [10], Kirchgässner [22], Alm – Torgler [23]		

Table 2
Deductible conclusions from classical models (Source: own edition)

"Economic psychology is a science of psychological phenomena that do not simply accompany economic processes, but they also take part as a disadvantageous or corrective effect factor. Economic psychology deals with the activities of people themselves, as they fit into one economic system, and economic psychology does not create its own positions, which are the result of economic processes. Spiritual phenomena have to be considered as economic leverage" [24].

Despite the fact that tax policy is the most obvious means of enforcing and regulating tax payments, the policy of deterrence, i.e. the prospect of higher penalties and fines, or compulsory or counterproductive effects, can be offset by taxpayers because of the loss of trust in state institutions. There are numerous international researches that go beyond the tools of classical economics models, and examine the factors affecting taxpayers' willingness to pay tax on economic psychological, behavioral and sociological aspects. Among other things, the impact of cultural norms on tax willingness to pay - especially religious behavior. Apart from cultural factors, the positive impact of national pride on tax havens is also evident. There are several studies on whether demographic factors have a significant impact on the willingness to pay tax. Age, gender of respondents, marital status are also related to general tax attitudes, i.e. the taxation mentality and the tax moral depend on the demographic characteristics of the respondents. In demographic studies, results were obtained that women and married people were characterized by higher taxation moral, and the widow's willingness to pay tax was also higher. The main findings of the studies in this topic are shown in Table 3.

Main thoughts	Author(s)
The values, norms of the societies and attitudes differ from country to country - they have a measurable effects on the economic behavior	Alm – Torgler [23]
The demographic factors have an effect on tax moral	Schneider – Torgler [9], Kirchler [25], Kirchler [26], Kirchgässner [22]
The taxpayer's age has an impact on the tax moral	Kirchler [27], Kirchler [25], Kirchler [26], Schmolders [28], Strümpel [29], Kirchgässner [22]
The taxpayer's gender has an impact on the tax moral	Kirchler [26], Kirchgässner [22], Schneider – Torgler [9]
The taxpayer's marital status has an impact on the tax moral	Kirchgässner [22], Schneider – Torgler [9]
The cultural environment has a significant impact on the tax willingness to pay	Schneider – Torgler [9], Kirchgässner [22], Cummings et al. [17]
Religious values	Kirchler [26], Kirchgässner [22]
The national pride has an impact on the tax moral	Schneider – Torgler [9]

Table 3

The impact of demographic factors, the cultural environment, national pride and religious values on the willingness to pay taxes (Source: own edition)

In addition to cultural and demographic factors, several studies are also exploring the impact of the relationship between state, state institutions, control bodies and taxpayers on tax havens. Studies show that confidence in the government, the stability of the tax system and the treatment of taxpayers as partners and respecters - by the control authorities - also have a positive impact on the tax willingness to pay. In addition, the direct political participation of citizens, their involvement in political decisions and democracy have a significant positive impact on the tax havens. Studies on the above findings are shown in Table 4.

Main thoughts	Author(s)
A higher level of confidence in the state and public institutions has a positive effect on the tax moral	Alm et al. [30], Frey - Torgler [31], Cummings et al. [17]
Dealing with taxpayers with more respect and less control	Strümpel [29], Frey - Feld [18], Kirchler et al. [11]
Direct political participation of taxpayers has a positive impact on the willingness to pay taxes	Frey - Torgler [31]
The impact of regulations, the complexity and transparency of the tax system have a positive impact on the willingness to pay taxes	Schneider et al. [32], Schneider et al. [33]

Table 4

The impact of the relationship between state, state institutions and taxpayers on the willingness to pay taxes (Source: own edition)

Measurement of the shadow economy is possible through micro-level surveys, questionnaires, interviews or indirect methods such as demand for currency and hidden variables, using macroeconomic indicators. The direct estimation of the hidden economy is mostly based on the composition of the Multiple Indicators Multiple Causes (MIMIC) and the currency demand method. In addition, there are a large number of World Values Survey (WVS) and European Values Survey (EVS) data sets that enable the conduct of empirical studies within the subject. Among the listed methods, the method of questionnaire surveying was chosen to measure the factors and attitudes that motivate the entry into the black economy, with the aim of supporting the relationships revealed on the basis of the previously published international literature. Testing the questionnaire and the probing queries were made by competent executives of taxation decisions of small and medium-sized enterprises of various sizes and activities in Hungary. The survey covers the following factors:

- the impact of demographic factors (gender, age, marital status, qualifications, number of children) on the tax havens
- the impact of national pride on tax willingness to pay
- the friendly and respectful treatment of taxpayers, their impact on tax willingness to treat them as partners
- direct political participation of citizens, involvement in political decisions, the impact of democracy on the tax havens

In addition to the factors studied so far, we want to extend the survey with the effect of self-esteem on tax havens, using the Rosenberg Self-Esteem Scale used in international research to measure self-esteem. Several studies deal with the

relationship between money and self-esteem and the relationship between low self-esteem and criminal behavior. The aim of the research is therefore to compile a questionnaire that examines non ethical business behavior, focusing on the causes of the development of the black economy from the point of view of economics and psychology. The results of the trial queries are presented in this study.

2.2 The effect of self-esteem on the willingness to pay taxes

2.2.1 The relationship between money and self-esteem

The concept of self and its component of evaluation, self-assessment, one of the most sought after phenomena of personality and social psychology, whose health-psychological aspects are also significant. It is generally assumed that people are strongly motivated to maintain and protect their high self-esteem [34]. Self-evaluation is a relatively stable, feature-like feature that can be related, for example, to age or gender, but is also associated with many health indicators. In further longitudinal studies, the self-assessment of Rosenberg Self-Esteem low by the scale predicted some aspects of adult health and behavior in adolescents, such as worse financial outcomes, weaker physical and mental health, and greater risk of crime [35].

Numerous studies also study the relationship between money and self-esteem, two factors that people generally desire. The relationship between money and self-esteem can be: increase, substitution and competition. The augmentation effect shows that excellent payment opportunities increase the level of self-esteem. The substitution effect means that money and self-esteem can partially compensate for each other. The symbolic meaning of money, the individual differences and the extent of the need for money affect how money and self-esteem can substitute each other. Competition effect emphasizes people's choice between money and self-esteem. Money and self-esteem compete against each other when decision makers have to choose between them. These theories can help bridge the gap between psychology and economics and provide an integrative perspective for understanding human decision-making [36].

Since we find studies to explore the relationship between money and self-esteem, the study of low self-esteem and greater risk of crime, we want to look at the direct relationship between self-esteem and tax evasion, tax avoidance and tax evasion.

2.2.2 Rosenberg Self-Esteem Scale, RSES

The questionnaire was developed by Rosenberg [37] [38] to measure "global" self-esteem. Nowadays, this is the most commonly used appraisal questionnaire. It

contains ten (5 positive and 5 negative) statements about the value of self and self-acceptance. With a four-stage Likert-scale (1 - strongly disagree, 2 - disagree, 3 - agree, 4 - strongly agree) can indicate the filler how much you agree with each statement. The reliability and validity of the scale is demonstrated in a number of test samples (e.g. adolescents, elderly people, and psychiatric patient groups) and research results obtained in different cultures. There are several translation versions in Hungary. Later language is simpler than previous versions, but it can be stated that the scale was always reliable and valid regardless of translation differences. The factor structure of the measuring instrument has also been studied in a number of domestic and international studies, and the results mostly support the validity of the one-dimensional factor structure, but also indicate that positively and negatively-defined items are separated. The two-dimensional structure derives from the methodic distortion that the positive and negative content formulas result in systematic variance, which is more due to the distorting effect of the response style rather than the construct [39]. In our questionnaire, which is currently being tested in Hungarian, we use the translation version of Sallay et al. [40].

3 The compilation of survey based on the test results of the international special literature

The questionnaire was compiled on the basis of the results of the aforementioned international literature, complemented by self-determined questions and Rosenberg's Self-Esteem Scale. The purpose of the present study was to summarize the literature needed for the compilation of the questionnaire and to test the questionnaire and to summarize the results obtained there.

In the first part of the questionnaire, issues related to the weight and components of the hidden economy are given by previous studies of Semjén and Tóth [41] and Balogh et al. [42]. The questions asked how respondents felt the frequency of unpaid sales, employment of undeclared employees, purchase of fictitious cost accounts or accounting for personal consumption as a cost to business partners, competitors and the Hungarian economy, and how to judge these phenomena.

In the second part, we relate the relationship of the taxpayer with the government, legal institutions and control bodies and their impact on the tax willingness to pay. The questions were compiled from Semjén and Toth [41], complemented by self-edited questions. This section also focuses on the effect of national pride on the tax havens.

The third part contains the questions of Rosenberg's Self-Esteem Scale, in a questionnaire prepared in the Hungarian language in the translation used by Sallay et al. [40].

In the fourth part, demographic data are included, such as gender, age, and marital status, number of children living in common households, residence, highest education, average monthly net income per capita, nationality and status of the respondent (function).

Questions in the questionnaire are closed questions, we offer pre-defined responses, and the participants should choose the appropriate ones. Test queries on paper basis - under supervision - were done individually and individually. After testing the questionnaire and making the necessary changes, we plan to use an online questionnaire to reach the larger sample.

4 Results

The questionnaires were executed with the help of 7 people - Hungarian leaders of small and medium enterprises, tax managers, and competent leaders. Demographics included 2 men and 5 women among the respondents. Considering their ages 3 were between 36 and 45 years old, 2 between 46 and 55, 1 between 26 and 35 years old and one of them was above 56 years of age. Among the respondents, 6 were married and 1 single, considering the children living in a common household 3 do not have children, while 2 people have 4 children, 1 have 3 children and 1 have 1 child. 5 of them live in the capital, while other 2 live in cities. From the point of view of education, 5 persons have higher education and 2 have secondary education. Their net earnings per person are between 200-300 thousand HUF, for one person between 100-200 thousand forints and another one's salary was over 300 thousand forints. From the point of view of their responsibilities in the company, 4 are owners and managers at once, one of them is competent chief executive and two are private entrepreneurs.

Concerning the weight and components of the hidden economy, worried responses were given on the basis of probation queries. In the case of unpaid sales, 4 respondents considered the possibility of being "frequent", according to 2 people, "part of the normal economic processes" and only one person, "not at all", among the business partners. The same question was only the answer to the "common" and "normal economic processes" of the Hungarian economy as a whole. The phenomenon was attributed to only two people as "tax evasion", with the other responses mixed with "some acceptable", "scam" and "exploit loopholes". Undeclared employees were rated by 3 people as tax evasion, others were "somewhat acceptable", but for a major case, they were "part of normal economic processes". A similarly worrying answer was given to the question of who would be affected by tax evasion. 1 person according to the state, 4 people according to society, but according to two people, no one.

Among the tools to increase the willingness to pay tax, the tax increases, the rigor, the correct information were usually considered "not at all suitable" or "inappropriate" by respondents. In the improvement of the tax culture, some respondents used the "slightly fit" indicator. Simplifying the tax system and reducing taxation, however, almost all respondents rated "fit" or "considerably fit".

Apart from a few exceptions, the complexity of the tax laws and the difficulty of compiling the forms of taxation are "true to full" answers. With regard to the fact that NAV is timely and well informed about taxation-related business, and has treated them with friendly and respectful opinions. There were more "partially true" and "true" responses. Here, I would refer to the supportive reform of the NAV in 2016, which has the effect of appearing as soon as this short time has passed. However, in relation to the fact that the direct involvement of the citizens in the political decision-making process in the country and the democracy of all respondents, the answer is "not quite right".

During the filling we asked the respondents to indicate the complexity, difficulty of understanding and the deficiencies of the questions. As one of the shortcomings of the questionnaire, it was mentioned that the business sector is not among the issues, as they believe that the scale of the black economy and the tax evasion are also a factor depending on the scope of activity. There are some sectors that are more widespread than others. Questions on demographic factors are therefore considered expedient to supplement this issue.

In the part I, i.e. the weight and components of the hidden economy, the four responses were fewer than the respondents, somewhere between the rare and the most common responses. However, it is not advisable to introduce another category because it is an easy option for averaging. With regard to the acceptance of various tax evasion variants, it was common to have liked to "be fairly acceptable" and "exploit loopholes" at the same time. The term "to some extent acceptable" would be useful to modify the term "to some extent acceptable". It seemed that such a form would be preferable to respond to the opinion of the respondents. In the question of "who harms the tax evasion", it was difficult to decide between the ethically acceptable response and the giving of their own feelings, so this question definitely needs to be clarified. It is necessary to emphasize that in this issue as well the own opinion is significant.

In questions of the measurement of the hidden economy, we have confirmed that we have managed to formulate the sensitive issues that are not specific to the respondent, their business environments, but they reflect their own feelings and their own entrepreneurial activity. This opinion may be very important when evaluating subsequent questionnaires. The entrepreneur environment as a client, competitor, and state client was not entirely clear to respondents, this need to be clarified. Employing an undeclared employee also needs fine-tuning because respondents have indicated that this category is not sufficient to reveal the area. It

is also necessary to supplement the employees reported but not fully employed, as this is a widespread phenomenon. In their own opinion on the size of the hidden economy, the participants wanted to have more answers. This raises the solution to ask these questions as a combination of closed and open questions, to provide individualized response options so that the topic can be explored as deeply as possible. The requirement to pay less tax than required is also a need for clarification because its interpretation significantly slowed the completion of the questionnaire.

Section III. there are considerably different questions from the previous one, the respondents have stopped for a moment, as this is a series of questions to measure self-esteem. Nevertheless, we have found that in the order of some parts of the questionnaire, in the case of the ex-post joint evaluation, the order of the order should not be changed. On the basis of the feedback, it is necessary to indicate in this section that the response to the questions must be answered because of the need for a significant degree of concentration resulting from the Rosenberg self-esteem scale. The 5 positive and 5 negative statements change each other and easily confuse the respondent.

Finally, we would like to share some interesting comments that were made while filling in the questionnaire because, in our opinion, they reflect a great deal of reflection on taxation and taxation. Respondents would be very eager to pay a tax rate of 10 to 15% higher than the amount actually charged, even if this would reduce their risk but only against the amount actually paid because it is considered realistic. That is, the amount of the contributions payable on the current minimum wage with a three times as much payload. According to their words, everyone knows the moral side of the subject, but small businesses are forced to choose a certain degree of tax evasion for their livelihoods and family livelihoods. In addition, it is generally recognized as a fact that if a person is starting to enter Hungary today, tax evasion is encoded to a lesser extent, but it also depends on which sector he or she is active in. In relation to the tax culture, it was said that everyone knows what is right, but the Hungarian tax system overrides this. Based on all of this, we believe that the topic is very important and timely.

Conclusions

Test questionnaire testing can be considered successful, as it can be determined unambiguously based on the answers given to questions asked in order to measure the extent of the hidden economy that the phenomenon exists and is significantly present in the Hungarian economy, so it is definitely necessary to deal with it. The topic is very sensitive, but based on the feedback; it seems that the issues surrounding the hidden economy remained within the framework of not alarming the respondents. Filling in a personal meeting gave us an opportunity to gain a deeper and more detailed understanding of the participants' views on the subject, and also raised the question of incorporating further areas. Based on the completed questionnaires, we see that in addition to the online questionnaires, it will be

worthwhile to look at the topic in the form of personal interviews as well, because personal opinions also allow for a deeper exploration of the causes of the phenomenon. As we may have seen, tax compliance is influenced by a number of factors, in most countries the deterrence typical of individual economies, the level of certain fines and the review rates as well. Despite the rigor, punishment and compulsion, the phenomenon cannot be completely eradicated and even studies show that over a certain limit an opposite effect can be achieved on taxpayers' side. This type of tax policy seems to be only profitable in a short-term and temporarily. International special literature studies show that cultural environments and religious values have an impact on the willingness to pay taxes. In addition, we can find studies that are aimed at exploring the relationship between money and self-esteem, also, which are aimed at examining the relationship between low self-esteem and the greater risk of committing crimes. Extending the subject to assessing the relationship between self-esteem and tax evasion will hopefully help the understanding of the phenomenon even more widely, and it can even be taught in the school age to create a more acceptable tax culture. This, of course, requires a long-term investment and a well-developed financial education and training, but a lasting result can be only achieved this way. It is also clear from the above mentioned facts that long-term and sustained reduction of tax burden, the rigor and punishment alone will not reduce the size of the hidden economy, in the long term only the improvement of the autonomy and motivation of the actors can bring lasting results.

References

- [1] Szántó Zoltán, Tóth István János: A rejtett gazdaság és az ellene való fellépés tényezői, Közgazdasági Szemle, 2001, 3. pp. 203–218
- [2] NAV Évkönyv 2016: Tények, információk a Nemzeti Adó- és Vámhivatal szervezetéről és annak 2016. évi tevékenységéről, Budapest, 2017
- [3] NAV Évkönyv 2015: Tények, információk a Nemzeti Adó- és Vámhivatal szervezetéről és annak 2015. évi tevékenységéről, Budapest, 2016
- [4] NAV Évkönyv 2014: Tények, információk a Nemzeti Adó- és Vámhivatal szervezetéről és annak 2014. évi tevékenységéről, Budapest, 2015
- [5] Allingham, M. G. and Sandmo, A.: Income tax evasion: A theoretical analysis, Journal of Public Economics, 1972, pp. 323-338
- [6] Becker, G. S.: Crime and Punishment: An Economic Approach, University of Chicago and National Bureau of Economic Research, 1968
- [7] Corchòn, L. C.: Tax evasion and the underground economy, European Journal of Political Economy, 1992
- [8] Ehrlich, I.: Participation in Illegitimate Activities, Journal of Political Economy, 1973

- [9] Schneider, F. and Torgler, B.: What shapes attitudes toward paying taxes? Evidence from multicultural european countries, Working Paper, Department of Economics, Johannes Kepler University of Linz, 2006
- [10] Semjén András: Az adózói magatartás különféle magyarázatai, Közgazdasági Szemle, LXIV. évf., 2017, pp. 140–184
- [11] Kirchler, E., Muehlbacher, S., Kastlunger, B. and Wahl, I.: Why pay taxes? A review of tax compliance decisions, Szerk: Alm, J.–Martinez-Vazquez, J.–Torgler, B., Developing alternative frameworks for explaining tax compliance. Routledge, London, UK, 2010, pp. 15–31
- [12] Semjén András, Szántó Zoltán és Tóth István János: Adócsalás és adóigazgatás. MTA KTK, Budapest, 2001
- [13] Belyó Pál: A vállalkozások és a rejtett gazdaság. Statisztikai Szemle 1. 2004
- [14] Belyó Pál: A rejtett gazdaság nagysága és jellemzői. Statisztikai Szemle 2., 2008, pp. 113-137
- [15] Sisak Balázs: Az árnyékos oldalon – A földalatti gazdaság mérete, kialakulásának indokai és hatásai. Acta Oeconomica Kaposváriensis, 1-2, 2007, pp. 154-164
- [16] Schneider, F.: The Shadow Economies of Western Europe, Journal of the Institute of Economic Affairs, 17(3), 1997, pp. 42–48.
- [17] Cummings, R. G., Martinez-Vazquez, J., McKee, M. and Torgler, B.: Effects of Culture on Tax Compliance: A Cross Check of Experimental and Survey Evidence, CREMA, Working Paper, 2004
- [18] Frey, B. S. and Feld, L. P.: Deterrence and Morale in Taxation: An Empirical Analysis, CESifo Working paper No. 760, 2002
- [19] Kirchler, E., Muehlbacher, S., Gangl, K., Hofmann, E., Kogler, C., Pollai, M. and Alm, J.: Combining Psychology and Economics in the Analysis of Compliance: From Enforcement to Cooperation, Working Paper, 1212. Tulane Economics Working Paper Series, Tulane University, 2012
- [20] Alm, J., Sanchez, I., and de Juan, A.: Economic and noneconomic factors in tax compliance, Kyklos, Vol. 48. No. 1. 1995, pp. 3–18
- [21] Hámosi Balázs: Érzelemgazdaságtan, Kossuth Kiadó, Budapest, 1998
- [22] Kirchgässner G.: Tax Morale, Tax Evasion, and the Shadow Economy Department of Economics University of St. Gallen, 2010
- [23] Alm, J. and Torgler, B.: Culture differences and tax morale in the United States and in Europe, Journal of Economics Psychology, 2, 2005, pp. 224-246. o.

- [24] Garai László: Identitásgazdaságtan, Gazdaságpszichológia másképpen, Tas Kiadó, Budapest, 2003
- [25] Kirchler, E.: The Burden of New Taxes: Acceptance of Taxes as a Function of Affectedness and Egoistic versus Altruistic Orientation, *Journal of Socio-Economics*, 4, 1997, pp. 421-437
- [26] Kirchler, E.: Reactance to taxation: Employers' attitudes toward taxes, *Journal of Socio-Economics*, 2, 1999, pp. 131-138
- [27] Kirchler, E.: Reactance to taxation: employers' attitudes towards taxes, Paper presented at the 12th IAREP Annual Colloquium, Paris, France, 1996
- [28] Schmolders, G.: Das Irrationale in der öffentlichen Finanzwissenschaft, Hamburg, Rowolt, 1960
- [29] Strümpel, B.: The Contribution of Survey Research to Public Finance, In Alan T. Peacock (ed.), *Quantitative Analysis in Public Finance*, New York, 1969, pp. 14-32
- [30] Alm, J., Martinez-Vazquez, J. and Torgler, B.: Russian attitudes toward paying taxes – Before, during, and after transition, *International Journal of Social Economics*, 12, 2005, pp. 832-857
- [31] Frey, B. S. and Torgler, B.: Tax Morale and Conditional Cooperation, *Journal of Comparative Economics*, 1, 2006, pp. 136-159
- [32] Schneider, F.: The Increase of the Size of the Shadow Economy of 18 OECD countries: Some Preliminary Explanations, 2000
- [33] Schneider, F. and Buehn, A.: Shadow Economies in highly developed OECD countries: What are the driving forces? 2012, pp. 1-31
- [34] V. Komlósi Annamária: Napjaink önértékelés-kutatásainak áttekintése. Önértékelés és/vagy önfogadás? Személyiséglélektantól az egészségpszichológiáig, Trefort Kiadó, 2007, Budapest, pp. 20–46
- [35] Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R. and Caspi, A.: Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood, *Developmental Psychology*, 42, 2006, pp. 381—390
- [36] Liqing Zhang: An Exchange Theory of Money and Self-Esteem in Decision Making, *Review of General Psychology*, Peking University, 2009, Vol. 13, No. 1, pp. 66–76
- [37] Rosenberg, M.: *Society and Adolescent Self-image*. Princeton University Press, 1965
- [38] Rosenberg, M.: *Society and the Adolescent Self-image*, Rev. ed. Wesleyan University Press, Middeltown, CT., 1989

- [39] V. Komlósi Annamária, Rózsa Sándor, S. Nagy Zita, Köteles Ferenc, Sági Andrea és Jónás Edina: A vonásönbecsülés/-önértékelés kérdőíves mérésének lehetőségei, *Alkalmazott Pszichológia* 2017, 17(2), pp. 73–108
- [40] Sallay Viola, Martos Tamás, Földvári Mónika, Szabó Tünde és Ittész András: A Rosenberg Önértékelés Skála (RSES-H): alternatív fordítás, strukturális invariancia és validitás. *Mentálhigiéné és Pszichoszomatika*, 15(3), 2014, pp. 259–275
- [41] Semjén András és Tóth István János: Elemzések a rejtett gazdaság magyarországi szerepéről, 4. tanulmány, *Rejtett gazdaság és adózási magatartás*, MTA Közgazdaságtudományi Kutatóközpont, Budapest, 2004
- [42] Balogh László, Gál Veronika és Kovács Kitti: A magyar lakosság adófizetési hajlandósága, *Regional and Business Studies*, Vol 6 No 1, 2014, Kaposvár University, Faculty of Economic Science, Kaposvár, pp. 65-74

Health food consumption

Gyarmati, Gábor Ph.D.

University of Óbuda

gyarmati.gabor@kgk.uni-obuda.hu

Karlovitz, János Tibor Ph.D.

University of Óbuda,

karlovitz.jt@kgk.uni-obuda.hu

Abstract: The relationship between health and food consumption is already proven by more and more research. What you eat you will be the old saying says. The purpose of our research is to examine how university students are thinking about it in the present and how they are developing. We analyze this question in different point of view. For example according to genders, age groups, occupations. We would like to know the consumption habits of the students and their motivation in the consumption of health food and how can the producers and traders of health food can affect of their habits and consumption. Analyzing the results of our questionnaire survey by statistical methods, We can conclude that this issue among young people is not of paramount importance, no matter. This may, in the long run, have consequences of some parameters.

Keywords: organic food, consumption,survey, attitude.

1 Introduction

According to Council Regulation (EC) No 834/2007, " Organic production is an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes. The organic production method thus plays a dual societal role, where it on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development."(Council Regulation 834/2007 / EC)

It is the main rule that chemicals and fertilizers are not used in farming, but also include many animal welfare measures. In the common language, the meaning and use of organic and bio words are often confused, which means that if there is a concept of meaning of the term, using is not strictly bound to one or the other word. Over the last 20 years the spread of organic farming has been remarkable. Several authors and surveys (Müller et al., 2017; Willer et al., 2017; Willer et al., 2018) reported that in addition to significant traffic growth and production growth, this alternative farming has played a significant role in agri-food production and related food trade. Despite this great expectation, this did not happen. This fulfillment took place in only few countries. On the production side, countries with large free pastures (Argentina, China, Australia) showed great growth, but in many places there was a big change in sales, especially in more developed countries with a stronger customer base.

In the United States in 2014, organic fruits and vegetables accounted for about 12% of all food products sold. That was \$ 39 billion in consumer sales. Most of the production has shifted to organic products produced in large-scale farming. At the same time, an organic market has traditionally labor intensive products that are still produced by smaller family farms. (Fitzmaurice & Gareau, 2016).

In the northern neighboring country of Hungary, in Slovakia, 355 organic farmers were registered in 2013. The organic farming itself has existed since 1991 (Palšová et al., 2013). The market is still underdeveloped and therefore counts on state involvement, which is, on the one hand, an adequate regulatory system and, on the other hand, it is active in advising and assisting in the deployment of sales systems.

The crisis in 2008 also affected food consumption, including the consumption of organic agricultural products. (Csiszárík-Kocsir et al. (2014), Csiszárík-Kocsir et al. (B), 2014). However, as cyclicity is observed in world economic performance, food consumption in the world has started growing after 2013.

In Melinda Majláth's (2017) book, it shows that in the context of organic products businesses have significant CSR activities. Eco-friendly products and services are so important that some of these, including food products, use a separate logo from 1992 (eco-flower - European Ecolabel). "The label helps consumers identify organic food." (Majláth, 2017: 86)

2 Material and method

In this article, besides a review of the literatures, the questionnaire survey conducted in 2017 will be evaluated at the University of Óbuda. The original questionnaire was used by Mária Hofer in 2005 and 2006, she first interviewed students of higher education, and expanded the circle of respondents and called people randomly on the street. Our questionnaire is a quasi-repetition of this research, as the questions have not been copied one by one, but by omitting some, some of them rewording, but so that the two researches can be compared. The questionnaire was questioned on a paper basis, then we summarized the results in Excel. In addition to demographic data, the questionnaire questioned the household size and its income, but how much households spend on food. For other questions, using Likert scales (1-5 and 1-7), we have obtained results along a range of issues such as the advantages of organic products and their disadvantages. Do you eat organic food and, if yes why, if not, what is the reason for not? In addition, We asked about the frequency, the forint amount, the place of the choice, the location selection. The contents of the consumer basket and its motivation. An important issue was the extent of the premium for the organic product and the acceptability of organic products. The last question examined the possibilities of greater dissemination. The results were analyzed using basic mathematical methodology (% , means, etc.). For deeper analyses we use the IBM spss softver (version 25) for the analysis of data and to explore the correlation of variables. The methods we used were cross table analyses, means, one-way ANOVA, chi square test and correlate calculation. From those we could draw conclusions. Compared to Hofer's research, we looked at a narrower issue. In 2009, Hofer investigated the relationship between the state of health and eating habits of the population and the creation of conditions for nature conservation and sustainable development. Knowing this, our research questions were the following.

At the beginning of our questionnaire I applied biographical questions (gender, age, schooling, occupation). These were the main variables.

Q1. Do the students have thorough and reliable information on organic products?

Q2. Are there differences the answers of genders and what is the difference?

Q3. How does the age define the answers to questions?

Q4. What is the role of occupation in organic product consumption?

3 Results

Over the last decade, more and more researchers have been involved in organic farming. Below are some of these researches, without the need for completeness. The significance of the subject is not even better than the fact that organic food production and consumption are gaining ground in traditional food-economical journals, and more and more conferences and other scientific activities are in the spirit of this.

Rock et al. have elaborated a large amount of scientific papers on the subject: 18296 articles, of which 4,018 studies were concerned with organic food and health. Their starting point was to look for evidence of the effect of organic food consumption on health (Rock et al., 2017). Based on the resources and research available to them, the health impact of organic food needs to be further explored.

Other authors are trying to prove that organic food consumption has a good effect on human health (eg Barański et al., 2017).

A German researcher couple are researching in the field of families with children sought to find out why the consumption of organic foods diminishes when the kids become adolescents. Analyzing the causes, it was concluded that the commitment to consuming organic food in adolescents should be strengthened, just as they do not choose confectionery and over-salt products (Riefer & Hamm, 2011).

Su-Huey Quah and Andrew K.G. Tan (2009) investigated Malaysian organic food consumption patterns by ethnic groups. Recently, there have also been significant changes in Romania: Petrescu et al. (2016) measured new trends in organic food consumption in their research. Germany's consumer habits were analyzed by Johanna Lena Hasselbach and Jutta Roosen (2015), using a sample of 720 German consumers. Vietoris et al. (2016) analyzed Romanian consumer habits on a sample of 350 respondents. Kádeková et al. (2017) investigated their organic food consumption in Slovakia in their recent research based on 227 respondents' responses.

Xie found that consumers know very little about organic food meaning, especially about regulation and brand awareness. (Xie, 2013) Several authors (Ellen, 2011, Haghjou, 2013) have studied whether consumers are willing to pay more for organic food, but this is up to 30-40%. Consumer attitudes can be affected by the place of purchase, education, age, consumer beliefs, the quality of organic food and these factors. (Lockie et al., 2004) While health consciousness has a positive influence on the consumption of organic food, social consciousness has a negative effect on it. There is no link between environmental consciousness and

consumption, according to a research. (Hansen et al., 2018). According to Mondelaers et al. (2009), health research is more important in decision than sustainability. (Mondelaers et al., 2009) Hansen et al. (2018) represents the same opinion. Choosing organic foods has had a positive effect on food behavior by having a low impact on change in openness. The involvement of organic products has a positive relationship with both organic food and consumption's behavior, and women are more likely to build positive organic food identities than men. The social environment of consumers and the types of food all influenced the willingness to buy organic food. (Hansen et al., 2018).

In our analysis, we also called for statistical methods for more complex phenomena, besides elementary statistical analyzes. Research primarily seeks to find out what is different from the literature findings, and whether answers to questions differ according to gender, age and occupation. The partition of the qualification was not examined because the majority of the students have not yet finished the university, so we would not have found valuable findings. Furthermore, we investigated whether there is a relationship between household income and expenditure on food and expenditure on organic products.

Here, two analytical sequences could be followed, either by looking at the analytical aspects of each question, or by selecting an analytical viewpoint, along with going through the questions. We follow the last one. First of all, we look at whether the answers given to each gender are different in the case of any question and what can be the background to this.

With respect to gender averages on basic demographic issues such as age, gross income, number of people living in households, etc., there appears to be a difference in gender responses in some cases, but the ANOVA test shows that there is no significant difference. Although approaching the 5% level for some factors, it has not yet reached. For example, age, number of children or education.

There are also questions in the answers to the questions, where there is an obvious difference in gender responses.

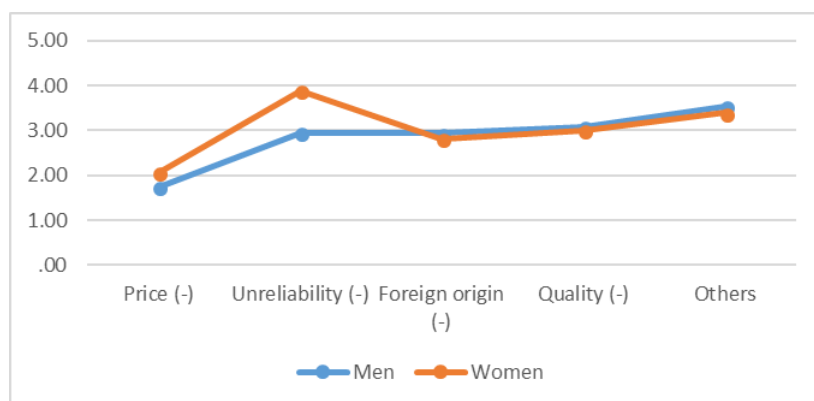


Figure 1
The disadvantages of organic products by gender

In the case of the disadvantages of organic products, the unreliability of the product is less important to women than men. The difference appears to be large but does not reach the 5% threshold on the basis of the ANOVA test, so we can not claim that this pattern shows a real difference between the genders. In the case of other answers, it is clear that the two non-respondents have the same opinion. Processing as the benefit of a product is the question where the result of the test shows a value of 7.5% for men, that is an advantage of a product rather than according to women. However, since this value does not go below 5%, we can not make such a statement. The next issue, where there is a discrepancy between the average gender-based question of place of purchase. Here, not only the average figure, but the ANOVA test also shows a difference between men and women. Women are much more likely to buy in an organic shop than men. Virtually they are the target audience of the organic shops.

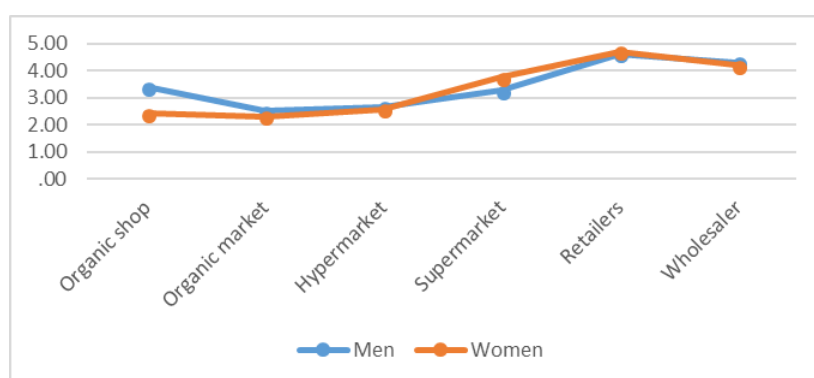


Figure 2
The preferences of place of the shopping by gender

Looking at the most typical purchasing locations, we can see from the averages that „I'm here to buy in general and here I buy organic products as well” more typical for male buyers than ladies. Behind this there is laziness, spontaneity, and loving of comfort. This is confirmed by a deeper study with a significance level of 1.3%.

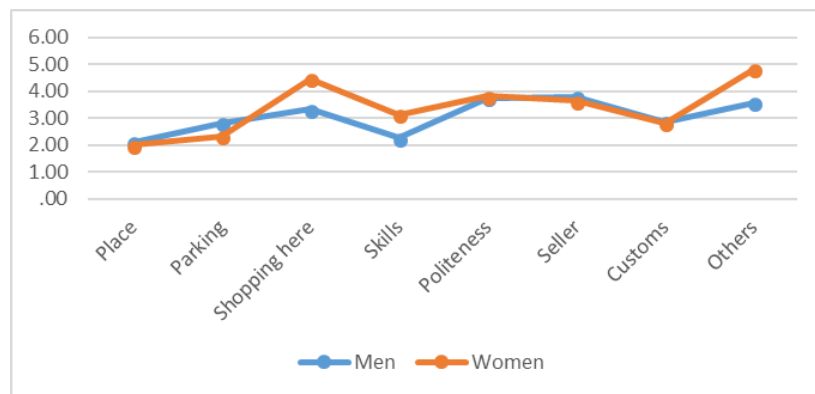


Figure 3

The preferences of reasons of the shopping by gender

In examining the causes of consumption, we find that ladies are more likely to mention health reasons than men. This is demonstrated by the ANOVA test. So ladies are more aware of the positive health effects of the organic product range, and are more concerned with their health than their male counterparts. This is also reflected in the age expectancy.

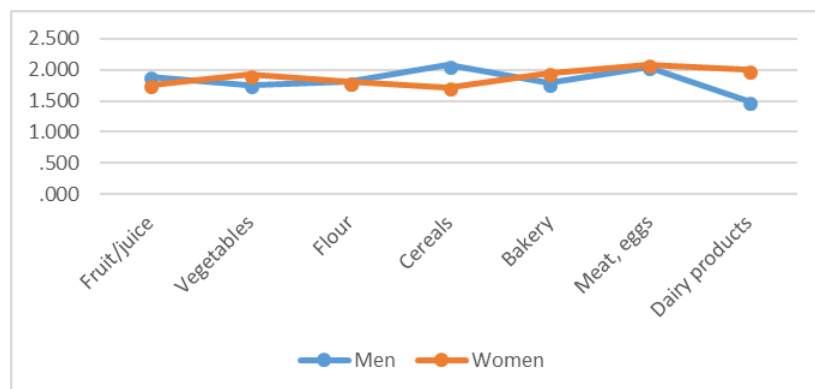


Figure 4

The plus price of products by gender

In terms of food consumption, how important to produce their own production and lifestyle, men consistently gave stronger responses than women, so there is a difference between them. Men are less concerned with their own production and

their lifestyles, that is, they show that they take less account of health reasons and are less inclined to self-reliance and self-care.

With advertising opportunities that promote the product line, ladies consider ads for specialized stores, leaflets and free newspapers more important than men, so they can be better achieved in this way while men are less likely to do so. This is also confirmed by the significance level.

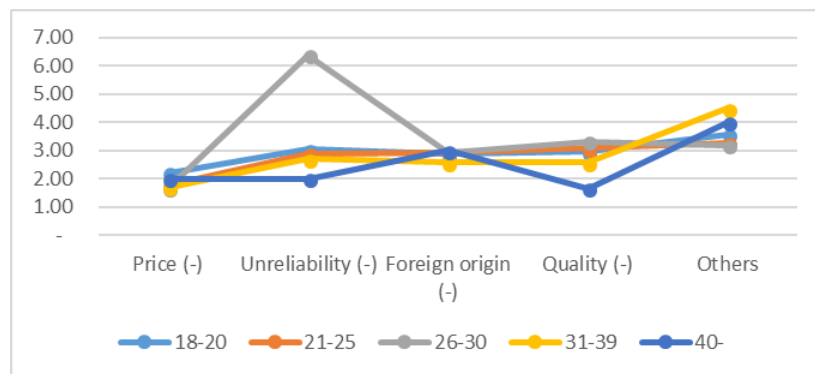


Figure 5

The disadvantages of organic products by age groups

If we look at the responses from age groups, we can see that the 26-30. year-olds consider organic products less unreliable, as over 40, ie there is a difference in age group responses. Such differences can be seen in responding to the advantages of organic products and in examining the causes of consumption. In the last case, there are significant differences between age groups in all questions, but not always consistently among the same groups. While there are benefits and this difference, the age group over the age of 40 is consistently prioritizing all of the benefits. It looks to be more informed than other age groups.

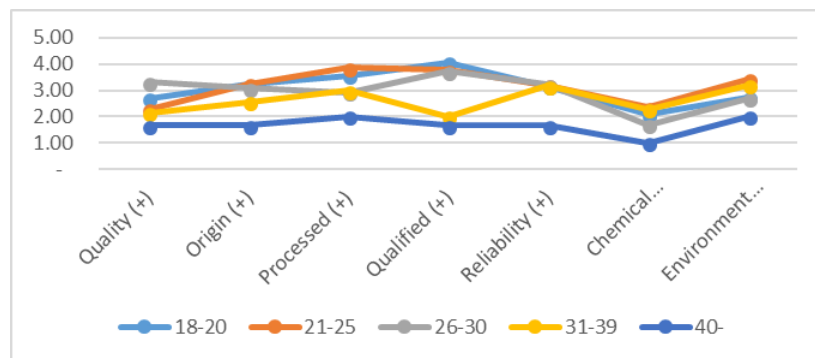


Figure 6

The advantages of organic products by age groups

For other issues where there is a significant difference between the ages and the age groups, we can ask about the causes of consumption. The lack of use of artificial fertilizer for the age group of 26 to 30 years was of paramount importance, but it had little significance over the age of 30. But with age advancing, health should be put to the fore, but it did not show up here. In the same way, for the ages of 26 to 30, the taste of the organic product is more important than the age of 30 years. Also, to be able to consume a product of its own, it is not important for older people, but for younger ones it is important. It is especially important for the age group of under 21 here.

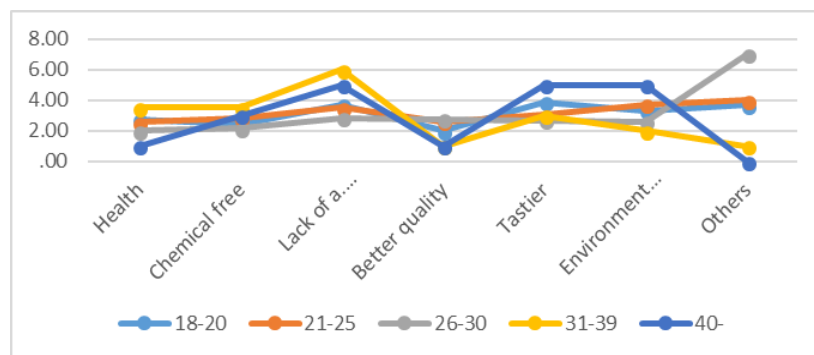


Figure 7

The reasons of consumption of organic food by age groups

The product range is also important for the consumption of organic products because it facilitates access. For 30s ages they are very important, while not for over 40's.

In the age-related composition, several factors have a strong relationship with them. For example, it is not surprising that there is a close relationship between education and age, but there is also a close relationship between occupation and age, number of children and spending on food. The older one, the less he spends on food according to this statement.

The relationship between occupation and food, the size of the income, the number of children and the household population are closely linked to the data of this questionnaire. According to the responses, entrepreneurs and public servants are of the utmost importance for non-chemical products for organic products, while for pupils and the employees of the private sector, this is less important. That is, the first groups pay particular attention to this. In the case of purchased products, it was typical for employees to buy organic honey.

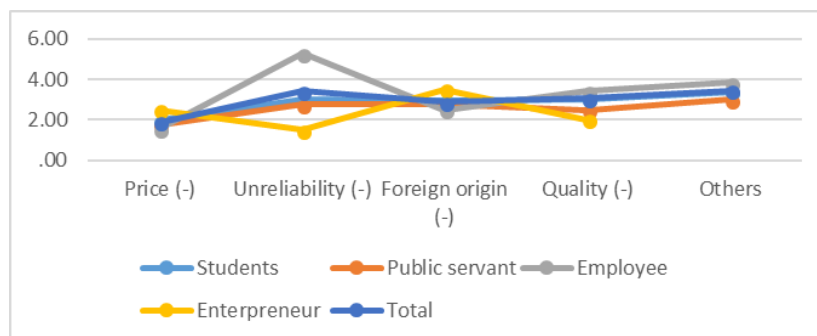


Figure 8

The disadvantages of organic products by occupation

In the question of how much the role of the individual factors in the consumption is, for example, entrepreneurs say the price is less important, while public servants say advertising does not have importance at all.

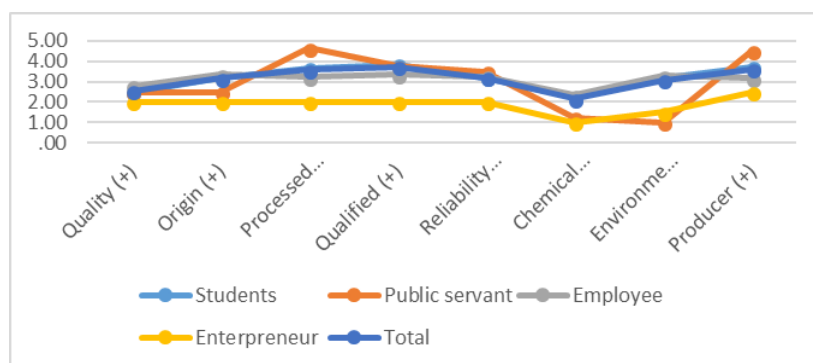


Figure 9

The advantages of organic products by occupation

In the main foodstuffs, the occupation had no distinctive role. That is, regardless of their occupation they buy from these products. Rather than the special products, such as nutritional supplement, oil seeds, there was a greater difference between the groups.

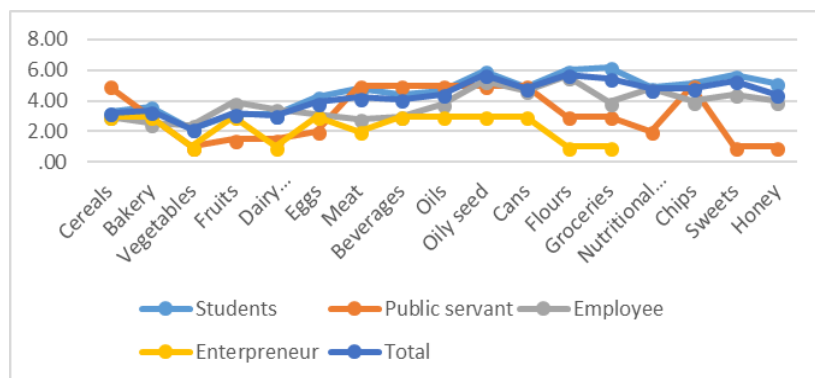


Figure 10
The consumption of organic food by occupation

Conclusions

The interviewees are aware of the two main benefits of organic products and organic production. The positive effect on chemical and environmental impacts. The role of healthcare in the consumption of domestic organic products is high but the consumer prices of the product offer are one of the biggest obstacles to the widespread use of these products. The role of mistrust is significant. The consumers surveyed are skeptical of the fact that the product is truly organic or reliable. The coverage of the sales channel within the country was not covered, but the distribution of organic products and large-scale bakeries offering organic products could in any case indicate that supply chain supply in this area is considerably worse than in Budapest.

Examining gender responses, it can be stated that ladies pay more attention to their health than man customers do. They are willing to go to an organic shop and there ads can affect to them. At the time of the editing and the occupational examination, several statements were found, but a deeper examination would be needed to establish the underlying causes.

References:

- [1.] Barański, M., Rempelos, L., Iversen, P. O., & Leifert, C.: Effects of organic food consumption on human health; the jury is still out! Food & Nutrition Research, Vol 61., Issue 1, 2017, 1287333. DOI: 10.1080/16546628.2017.1287333
- [2.] Csiszárík-Kocsir, Á. – Medve, A.: Has the crisis affected the food consumption? – results based on a two-round questionnaire survey, MEB 2014 – 12th International Conference on Management, Enterprise and Benchmarking, Budapest, 2014.05.30. – 31., Óbudai Egyetem, 373.- 381. pp

- [3.] Csiszárík-Kocsir, Á. – Fodor, M. – Medve, A.: The effect of the economic crisis onto the consumption based on a two-round questionnaire research, *International Journal of Social Sciences and Humanity Studies*, The Social Sciences Research Society, 2014. Vol.5., No. 1., 33-42. pp.
- [4.] Ellen J. Van Loo, Vincenzina Caputo et al.: Consumers' willingness to pay for organic chicken breast_Evidence from choice experiment. *Food quality and preference*, 2011(22) pp. 603-613.
- [5.] Fitzmaurice, Connor J., & Gareau, Brian: *Organic Futures: Struggling for Sustainability on the Small Farm*. [Yale Agrarian Studies Series]. Yale University Press, 2016.
- [6.] Haghjou, Maryam and Hayati, Babollah et al.: Factors effecting consumers' potential willingness to pay for organic products in Iran: Case study of Tabriz. *Journal of Agriculture Science and Technology*, 2013 (15) pp. 191-202.
- [7.] Hasselbach, J. L., & Roosen, J.: Motivations behind Preferences for Local or Organic Food. *Journal of International Consumer Marketing*, Vol. 27, Issue 4, pp. 295-306, 2015. DOI: 10.1080/08961530.2015.1022921
- [8.] Hansen, Torben, Sorensen, Maria Ingerslev et al.: How the interplay between consumer motivations and values influences organic food identity and behaviour *Food Policy* 74 2018 pp. 39-52.
- [9.] Hofer Mária: *Bioélelmiszerek fogyasztásának tendenciája Magyarországon*, doktori értekezés, Győr, 2009. downloaded on 10th of November 2017. <http://rgdi.sze.hu/files/Ertekezesek,%20tezisek/Hofer%20Mara%20-%20Doktori%20ertekezes.pdf>
- [10.] Kádeková, Z., Récky, R., Nagyová, L., Košičiarová, I., Holienčinová, M.: Consumers' Purchasing Preferences towards Organic Food in Slovakia. *Potravinárstvo Slovak Journal of Food Sciences*, Vol. 11, Issue 1, pp. 731-738, 2017. DOI: 10.5219/846
- [11.] Lockie, Stuart, Lyons, Kriste, Lawrence, Geoffrey et al.: Choosing organics a path analysis of factor underlying the selection of organic food among Australian consumers. *Appetite*, 2004 (43) pp 135-146.
- [12.] Majláth Melinda: *Vállalatok társadalmi felelősségvállalása: Társadalom-központú marketing*. Óbudai Egyetem Keleti Károly Gazdasági Kar, Budapest, 2017.
- [13.] Mondelaers, Koen et al. : Personal determinants of organic food consumption: a review *British food journal* Vol. 111 No. 10. 2009 pp. 1140-1167.

- [14.] Müller, Adrian and Schader, Christian et al.: Strategies for feeding the world more sustainably with organic agriculture *Nature Communications* 8, Article number: 1290 (2017)
- [15.] Palšová, L., Schwarczová, L., Schwarcz, P., & Bandlerová, A.: The Support of Implementation of Organic Farming in the Slovak Republic in the Context of Sustainable Development. *Procedia – Social and Behavioral Sciences*, Vol. 110, 24 January 2014, pp. 520-529. DOI: 10.1016/j.sbspro.2013.12.896
- [16.] Petrescu, D. C., Petrescu, R. M., Burny, P., & Azadi, H.: A new wave in Romania: organic food. Consumers' motivations, perceptions, and habits. *Agroecology and Sustainable Food Systems*, Vol. 41, Issue 1, pp. 46-75, 2016. DOI: 10.1080/21683565.2016.1243602
- [17.] Quah, Su-Huey, & Tan, Andrew K. G.: Consumer Purchase Decisions of Organic Food Products: An Ethnic Analysis. *Journal of International Consumer Marketing*, Vol. 22, Issue 1, pp. 47-58, 2009. DOI: 10.1080/08961530902844949
- [18.] Rieffer, A., & Hamm, U.: Organic food consumption in families with juvenile children. *British Food Journal*, Vol. 113 Issue: 6, pp.797-808, 2011. DOI: 10.1108/000707011111140124
- [19.] Rock, B., Suriyan, J., Vijay, B., Thalha, N., Elango, S., et al.: Organic Food and Health: A Systematic Review. *Journal of Community Medicine & Health Education*, Vol. 7, Issue 3, [7 p.], 2017, 1000532. DOI: 10.4172/2161-0711.1000532
- [20.] Vietoris, V., Kozelová, D., Mellen, M., Chreneková, M., Potclan, J. E., Fikselová, M., Kopkáš, P., & Horská, E.: Analysis of Consumer Preferences at Organic Food Purchase in Romania. *Polish Journal of Food and Nutrition Sciences*, Vol. 66, Issue 2, pp. 139-146, 2016.
- [21.] Willer, Helga and Arbenz, Marcus: Another record year for organic agriculture worldwide - 50.9 million hectares of organic agricultural land – organic market grows to more than 80 billion US Dollars - Media release February 09, 2017 downloaded on 23 January, 2018.
<http://www.fibl.org/en/media/media-archive/media-archive17/media-release15/article/bio-waechst-weltweit-weiter-509-millionen-hektar-bioflaeche-biomarkt-ueber-80-milliarden-us-dollar.html>
- [22.] Willer, Helga and Lernoud, Julia ed. :The World of organic agriculture Statistics and emerging trends 2017. IFOAM, FiBL downloaded on 10th of October 2017.
<https://shop.fibl.org/CHen/mwdownloads/download/link/id/785/?ref=1>
- [23.] Xie, Yao Mo and Cao, Yin: Analysis on consumers' cognition and purchasing behaviour toward organic food *Journal of Jiangnan University* 2013, 12(1) pp 124-129.

The questions of Hungarian Short Food Supply Chains

Gyarmati, Gábor Ph.D.

University of Óbuda,
gyarmati.gabor@kgk.uni-obuda.hu,

Kozma, Tímea Ph.D.

Szent István University,
kozma.timea@gtk.szie.hu

Abstract: There is a growing interest in the topic of short food supply chains (SFSC) in the EU and Hungary. There is larger act in the EU's 2014-2020 programmes for the development of SFSC. There were some measures included shortening the distance between the producer and the consumer and the need for market-building to bring local products to local stores. The SFSC would be the tool of developing of peripheral areas. But it could help the village town relation. Current producer capacity, consumer demand and legal and regulatory conditions, short supply chains make fewer consumers available than potential consumers, may pose a food safety risk and are difficult to ensure the profitability of the legitimate food producer. It is necessary to develop this way to solve these problems.

Keywords: Short food supply chain, trust, local market, local food.

1 Introduction

We are living the years of change. It seemed as if the time was different, is going faster than in the 20th century. There are significant changes in many areas of life. The role and number of little ones varies, both in trade and in production. Food producing and trading chains dominate the markets. In recent years, decades of infections and food scams have overestimated the production methods and procedures in which the system provides or at least minimizes the risk that the product may be in the unobtrusive phase of the consumer or because of the confidence of the producer and the trader, if there is such a phase, replace it with a high degree of reliability. There is a consumer layer that can not afford to choose

between quality and need, but another part of consumers want reliable and high quality products to be consumed. To do this, you must build trust based relationships with local producers or have a production system with a reliable system that is controlled. However, the anomalies that have emerged in the food supply over the last decades indicate that the latter is not as reliable as it seemed. In this competition, smaller players want the chains in vain, they can not produce enough quantity and quality that would allow them to do so, while their liquidity is not such that would allow financing of delayed payments.

For them, the solution to the supply chain can be shortened and direct access to consumers. The achievement of this goal is important for the smallest players (Kiss and Takácsné György, 2017).

2 Material and method

As for a new and priority topic, the number of domestic sources of literature is not very significant. On the other hand, we find international studies and results because the EU prioritizes short food supply chains in rural development. First of all we applied secondary research, we tried to present the works of significant Hungarian and foreign studies. The aim is to present the characteristics of the SFSC and to give an idea of what features are present in our country today. The question is how we stand in this respect compared to the European countries that are leaders.

3 Results

A short food supply chain is defined as production, processing, transport and consumption are very close to each other in territorial terms, according to legal definition, a circle of 40 km radius. Or even when between the producer and the consumer there are none actors or few ones. (Kneafsey et al., 2013)

Forms of presentation may include:

- normal open market (market operated by farmers or local dealers, including biopiac, where appropriate);
- events, exhibitions, fairs;
- Producer sales area or producer market;

- direct sales by retailers;
- a basket or handbag service where the customer receives a finished product offering;
- community gardens where the consumer itself is the producer;
- Community agriculture where producers and consumers share the risk of production in some way and in proportion;
- public catering, source of supply is the local producer;
- guest table and other catering services. (Biró et al., 2015)

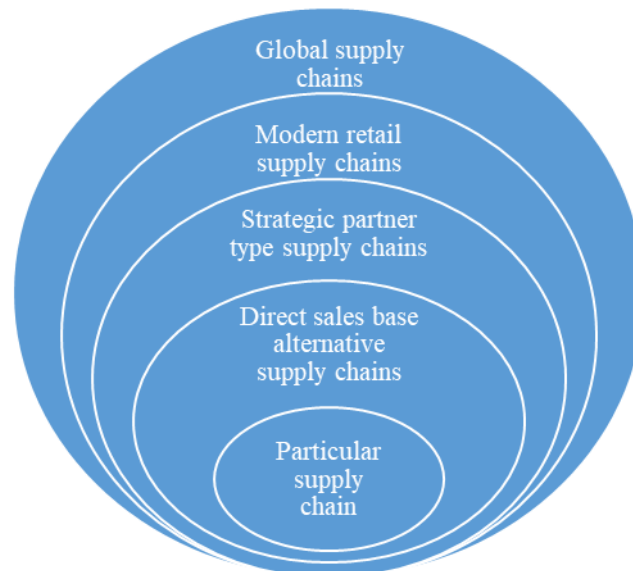


Figure 1

The place of the SFSC in food supply levels Source: Jensen, 2010.

In doing so, either the producer goes to the consumer, or the commodity or the consumer goes to the producer or for the goods. In the basket or baggage service, the consumer pays a regular amount of money for which they regularly receive a basket of goods whose content varies depending on the season. So it's not permanent. It is similar to the concept of Community agriculture, which means that consumers choose to enter into a contract with a selected producer and then pay a fixed amount for which they receive weekly fresh goods. The risks are shared with this system as the burdens of potential unexpected damage are borne by consumers. The economy also offers community programs, eg. working visit, harvesting.

	Typical	Type of the producer	Type of the product	Type of the sales
	↓			
	↓	Local producer	Local product	Local sales
The participation of direct sale activity	↓	Agricultural small producer	Local small farmer's product	Food supply supported by local community
	↓	Agricultural SMEs	SMEs' product	
	↓	Food industrial SMEs	Handle product and traditional product	Diresct sales
	↓	Agricultural and food industrial Large companies	Industrial product	Short food supply chain
	Non typical			

Table 1.

Alternativ food supply chain systems Source Juhász et al. 2012.

What are the characteristics of SFSC?

- Shortness means that there is either a small geographical distance between the producer and the consumer or a small number of intermediaries;
- Acquaintance. It is very often a close relationship between the producer and the consumer, although this contradicts an investigation in which it was apparent that in the alternative markets the buyer and the seller knew only superficially. Apparently from sight. (Gao et al., 2012);
- Venue can be producer paci, biopiac, own yard direct home delivery, etc., which ensures the little sales person;
- Typically, very small producers take part in this, with small quantities and small farm sizes;
- For these growers, this can be one of the ways to survive;
- The origin of food has become important for consumers, and this is why confidence builds on the relationship or good quality gives the motivation to return;
- One aspect of sustainability appears. This can be environmental, social or other, which sometimes changes, mixes; (Benedek et al., 2014)

The latter point relates to Mardsen (1998) finding that a short food supply chain can be one of the keys to rural development. (Mardsen, 1998) By maintaining a producer on the one hand, it is economically viable, giving a livelihood to the producer and his family, and helping environmental responsibility, as local producers are expected to think in production in the longer term, so they act responsibly to their environment and want to protect it keep it in good condition in

the long run. It also raises social strength as it helps to maintain rural social funds by strengthening the relationship between producer and consumer. Furthermore, with a significant reduction in transport distances, the load on the environment is also significantly reduced and thus the environment is not burdened.

Mardsen et al. Distinguishes 3 main types of SFSC:

Face-to face: In this case, the producer and his goods are directly sold to the consumer. Physically, the relationship between the two players is created in one place, and the delivery of the goods appears.

Spatial promoxity: In this case, the product is produced in a particular place or region, which is why the product or market is often called a place.

Spacially extended: In this case, the goods are bound to the region, but the consumer no longer. Occasionally appear in the region or the goods will go out of the region and reach the buyer. (Mardsen et al., 2000)

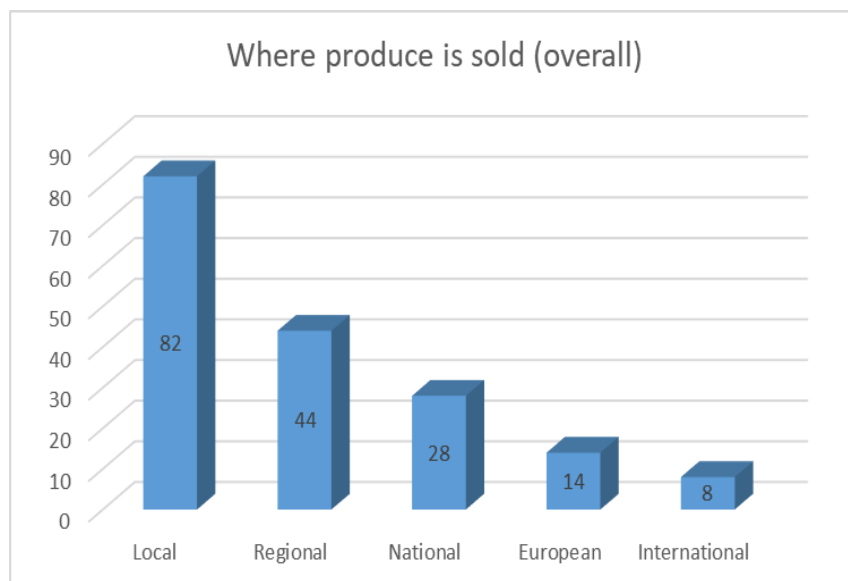


Figure 2

Scheme coverage (number of schemes) Source: Kneafsy, 2013.

The Rural Development Policy 2014-2020 use the SFSC with priority. The new PAC is to „promote the organization of the food supply chain and the management of the risks of the agricultural sector, with particular attention towards: a better integration of the primary producers in the food supply chain in accordance with quality assurance schemes, the promotion of the products in the local markets, the short supply chain, the producers’ associations and the inter-professional

organizations.” According to EU the short food supply chain is „formed by a limited number of economic operators who focus on the promotion of the cooperation, the regional development and the tight social and territorial relationships between producers and consumers.” And „the support to short supply chains ceases to be a simple means supporting a marginal and non competitive kind of agriculture and becomes an important tool for achieving general goals concerning the rural development and the maintenance of the vitality of the rural areas.” (Brunori , Bartolini, 2013)

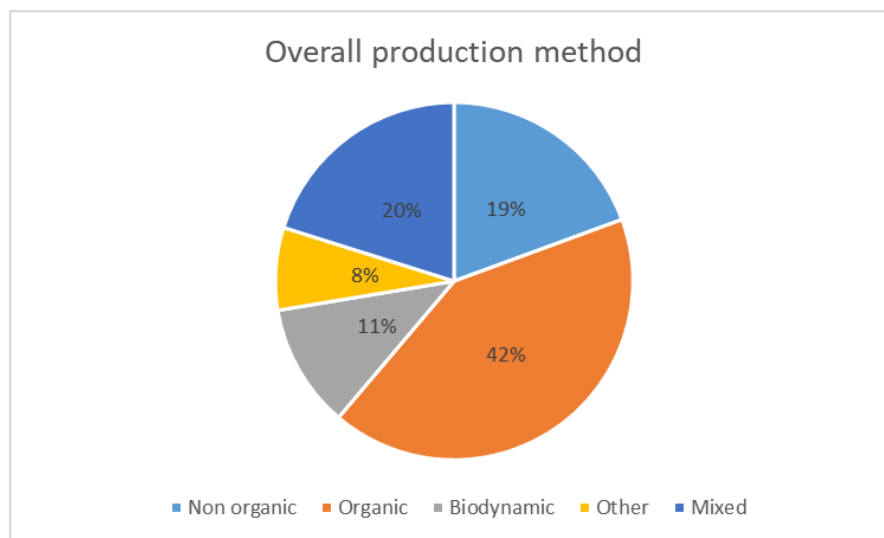


Figure 3

Number of scheme by production method Source: Kneafsy, 2013.

As the extension of the supply chain has caused a decrease of its share of value added to the benefit of the farmers and has excluded many small producers from the markets and caused a negative impact on rural areas (unemployment, depopulation and frustration). Looking at the side of consumers, information asymmetry can arise as the information is at one party, the other party does not fit. Its result may be the deterioration of quality, the consequence of which is that production processes are increasingly standardized. (Fazio, 2016)

Lee and Yun (2014) study in their study that one of the main determinants of consumption of organic products in organic agriculture is the utilitarian and hedonic behavior of consumers in one of the short supply chains. Their model is based on Nutritional content, natural content, ecological welfare, sensory appeal and price. They are examined by the consumer, and if they are well-formed, these parameters decide on the purchase.

We see that the aggregation of producers is low because they are distrustful, lack sufficient information or want to maintain their independence. (Baranyai and Szabó G., 2017.) They would, however, be in need of it, as they would only be able to compete with large food supply chains. By omitting this, they may be in a very difficult position in the longer term, as lower capitalization and tiny planting structures make it difficult to lose weight and endanger its own operation. What would it take to make that change? Building and building trust is not an easy task. We could also say it's difficult. In addition to the engagement of the contractor himself, it is necessary to trust the fairness of the market, the fairness of competitors and economic governance, and the market will respond properly to its business. If you strive to join forces with your competitors, you need strong confidence that the agreements will be successful and will be respected. But what does it take for a competitor to act fairly? Responsibility and belief that fairness and honesty will be rewarded while giving incorrect, fraudulent conduct or bad feeling to someone you do not want to experience or believe that action has some kind of feedback and you do not want to experience incorrect behavior with yourself in the future. Providing sufficient information also requires trust and openness. You have to go to the other, address and open it with the hope that this behavior will be rewarded. Without this, it is difficult to carry out the flow of information freely. Obviously, one word says information is power and therefore people are afraid to share it because they are afraid of losing control, power or market positions. But in order to move smaller producers and shorten the supply chain change required in the mentality.

According to Benedek et al., Market vendors are typically middle-aged while farmers are older and less skilled. The size of the farm is relatively small and even the smallest farm-size producers choose local markets in general. Tradition and tradition are of the utmost importance to those who go there. (Benedek et al., 2014)

SFSC pursues a profit maximization instead of maximizing profits, but it also requires that both the market and the products are in place, ie training, consultancy and development are needed. (Biró, 2015)

In supply chains, trust, risk taking and information technology play an important role. There is a great deal of cooperation between the actors in the chain. (Kozma et al., 2017) So if they are able to align and coordinate their activities, they can gain competitive advantage, but if that does not succeed, their competitive disadvantage over more effective organizations remains.

Among the advantages of the SFSC, we should mention the possibility of cooperation and the sharing of resources. Increasing the product base, which

means serving larger volumes of end-users. It is possible to share maintenance costs, strengthen interest representation, reduce competition, mutually support, strengthen social trust and enhance health awareness. (Kozma et al., 2017)

SFSC has a positive impact on the environment and the local economy. (Migliore et al., 2014) There is less transport cost and load, and the traffic generated by local producers can keep, maintain them both economically and socially.

SFSC can build a new kind of trust between the producer and the consumer. And since consumption of this kind is growing in the EU, this form is becoming increasingly important. (Giampietri et al., 2018)

In our country, agriculture is approx. Contributes to GDP by 5%, and There are 626 thousand farms. Compared to the area, an average area of 29 hectares per unit is an average of 209,000 FTEs. The estate structure was very fragmented. Individual farmers are working almost half of the areas with an average area of 9.05 hectares. Co-operatives use 7% of the cultivated land, here the average estate size is 360 hectares. Companies use 40% of the area, with an average area of 303 hectares. Because of this, small farms can only survive with some support. There is a change in which SFSC is in the foreground. This depends mostly on which social layer we are investigating. Urban, educated layers prefer the special forms of REL. For example, package or a community garden. (Kneafsy et al., 2013)

As I mentioned today, SFSC is a very important area, both at national and EU level. The new agrarian and rural development strategy prioritises areas of the agri-economy, rural development, the environment or the food economy. And its aim is to maintain food safety and good quality along with sustainable cultivation.

In 2012, there was a survey about food consumption patterns in Hungary. (Median, 2012). 1200 persons was interviewed in 2012 July. Hungarians often buy food either in local small food shop or in super- or hypermarkets. 50% of population prefer hypermarkets and markets while 37% prefer discount shops. Only 13% buys food from farmers directly on a regular basis. People over 60 rarely go to supermarkets or discount shops. Only 9 % who buy food from supermarkets younger than 40. 30% belongs to the highest household income category. (Median, 2012)

Conclusions

There are many signs that SFSC can play a key role in boosting local economies and rural development in Hungary as well. It is not a coincidence that the EU is giving priority to this issue and increasing attention, support for the area. For the consumer, in return for reliability, he pays a higher price for these products, or at least assumes he is getting higher quality for the same amount of money. A social

relationship emerges in many cases between the consumer and the producer, which deepens this trust and can even lead to the perception of consumer perceptions, which is to say that he is willing to tolerate and overwhelm the inferior quality, to explain to himself. Does the producer have a number of benefits for the producer. Being able to survive, able to team up with others, builds a new level of confidence with both the consumer and the competitors, as well as with the various actors in the chain. Helps risk sharing. Not only does the producer wear it. Preservation and conservation of the environment is a priority, as local production and a shorter supply chain help it. It can also promote social responsibility, as it does not generate profits for an unknown owner, but is traded by a well-known producer.

To exploit these benefits, it is necessary to support both EU and resource distributors, both professionally and financially, but provide a more stable local food supply.

References:

- [1.] Benedek, Zs. et al.: Termelői heterogenitás a rövid ellátási láncokban: A paicokon értékesítő gazdák jellemző különbségei, Gazdálkodás 58. évfolyam 4. sz. 2014. p. 307-319.
- [2.] Benedek, Zs.: A rövid ellátási láncok hatásai, Műhelytanulmányok MTA KRTK KTI, 2014/8
- [3.] Biró, Sz. - Rácz, K.: Agár- és vidékfejlesztési együttműködések Magyarországon, Agrágazdasági Kutató Intézet, 2015 p 89-106.
- [4.] Brunori G.-Bartolini, F.: La filiera corta: La opportunita offerte dalla nuova PAC. Agriregioneuropea anno 9 n 35. 2013
- [5.] De Fazio, M.: Agriculture and sustainability of the welfare: The role of the short supply chain. Agriculture and Agricultural Science Procedia 8 p. 461-466, 2016.
- [6.] Gao, Z et al.: A new look at Farmer's markets: -----consumer knowledge and loyalty. Hortscience, 2012. 47(8). p. 1102-1107.
- [7.] Giampietri, E. et al.: A Theory of Planned behaviour perspective for investigating the role of trust in consumer purchasing decision related to short food supply chain, Food Quality preference 64 (2018) p 160-166.
- [8.] Jensen, J.: Local and regional Food systems for Rural futures. RUPRI, Rural futures Lab Foundation Paper No. 1. 27 p.
- [9.] Juhász, A. edit: A közvetlen értékesítés szerepe és lehetőségei a hazai élelmiszerek piacrajutásában, Agrágazdasági Kutató Intézet, 2012

- [10.] Kiss, K- Takácsné Gyögy, K.: Lehet-e termelői összefogás a REL-ek mentén? – egyfelmérés eredményei pp. 271-290 in Szabó G, G-Baranyai, Zs. edit: A szövetkezés-együttműködés akadályai, feltételei és fejlesztési lehetőségei a magyar élelmiszer-gazdaságban. Agroinform Kiadó, Budapest, 2017. p. 359.
- [11.] Kneafsy, M. et al.: Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics JRC Scientific and policy reports. 2013. ISBN 978-92-79-29288-0, ISSN 1831-9424, doi 10.2791/88734 download 04.01.2018.
http://agrilife.jrc.ec.europa.eu/documents/SFSCChainFinaleditedreport_001.pdf
- [12.] Kozma, T et al. : Gazdaságélénkítés a rövid ellátási láncok tükrében, XXIII. Ifjúsági Tudományos Fórum, Keszthely, 2017.
- [13.] Lee, H-J - Yun, Z-S: Consumers' perceptions of organic food attributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food, Food Quality preference 39 (2015) p 259-267
- [14.] Mardsen, T.K.: Food supply chain approaches: Exploring their role in Rural development. Sociologia Ruralis, Vol 40, Number 4, October 2000. p 424-438.
- [15.] Mardsen, T.K.: New rural territories:regulating the differentiated rural spaces. Journal of rural studies 1998. 14 p.107-117
- [16.] Median: Attitudes towards the social effects of food purchasing . Reports for ESSRG. Manuscript in Hungarian in Balázs, B.: Local Food System Development in Hungary. Int. Jnl. of Soc. of Agr. & Food, Vol. 19, No. 3, 2012. pp. 403–421 download 04.13. 2018.
<http://www.ijf.org/archive/19/3/balazs.pdf>
- [17.] Migliore, G et al.: Opening black box of food quality in the short supply chain: Effects of conventions of quality on consumer choice, Food Quality preference 39 (2015) p 141-146.
- [18.] Szabó G, G-Baranyai, Zs. edit: A szövetkezés-együttműködés akadályai, feltételei és fejlesztési lehetőségei a magyar élelmiszer-gazdaságban. Agroinform Kiadó, Budapest, 2017. p. 359.
- [19.] Szabó, D. et al.: A rövid ellátási láncok helyzete és lehetőségei Magyarországon, 2012.

How to support investment activity in Serbian SMEs

Prof. Dr. Miroljub Hadžić,

Professor, Singidunum University, Belgrade, Serbia, Faculty of Business,
mhadzic@singidunum.ac.rs

Petar Pavlović

Head of Unit for Assurance of Strategic Documents and RIA, Public Policy
Secretariat, Government of The Republic of Serbia, petarpavlebgd@gmail.com

Abstract: Serbian economy during the last three years is in a good shape, with increasing GDP, the increase in industrial production, as well as in trade, construction, traffic, tourism. The Government introduced painful measures in order to consolidate public spending, which produce results stronger and quicker than expected. Also, some important steps forward in market reforms were made, by which Serbia improved its position on the different lists measuring the level of business conditions. Entrepreneurs reacted positively on those encouraging changes by increasing number of newly established companies and shops.

Especially important for further development is the increase in competitiveness and productivity. To do so it is necessary to push investments activity up, as it is on the low level, until now. According to entrepreneurs the access to finance is still problematic. The banks are almost the sole supplier of financial sources, which hesitate to cooperate with SME. Other financial institutions which could be helpful are simply missing.

The aims of the paper are to illuminate the problem of low investments activity of SME and to address the crucial steps to improve situation.

Keywords: SMEE, market reform, recovery, support

1 Introduction

After six years of stagnation Serbian GDP increased three sequencing years. Although, the increase is modest, it is a very positive signal for entrepreneurs and potential entrepreneurs, as it is based on the increase in personal and investments demand, with stable demand from abroad. Facing with the problem of high budget

deficit and the high level of public deficit in GDP, the Government introduced difficult measures for public consumption consolidation, among others the cut in pensions, and wages of those employed within public sector. The results produced were faster and better than expected previously, so the share of public debt within GDP started to decrease as well as the Budget deficit. This was an important reason for macro-economic stabilization, considering that the last several years the inflation rate is for the first time comparable to European standards. After a period of worsening business conditions, the market reforms got momentum. So, Serbia improved its position on different global lists for measurement whether business conditions are favorable or not. The rating agencies also accessed its credit rating as improved with better expectations.

All those factors influenced that entrepreneurs and potential entrepreneurs fill more comfortable than before. First of all, the number of newly established companies and shops is increasing stable, and more important this number is higher than the number of closed companies and shops. The employment in SME sector is increasing, although needs time to reach the level before the crisis. The economic results of SME sector is improving, which opens the room for survival of those and their development in the future.

When we come to the question of Serbian SME efficiency and their competitiveness on the global market, then one cannot be satisfied. Although improving, the productivity is still low and lower than comparing to other countries in transition and the EU average. SME are mainly oriented toward domestic market and to the service sector, although the second one is not marketable. Additionally, SME products are on the low technological level, generally speaking. If one wants to improve situation then the main task is to invest more, as the level of investments is still below the pre - crisis one. The financial system is of bank - centric character, which means that banks are almost sole supplier of financials. Moreover, they are very skeptic regarding crediting SME, especially new ones and micro companies. More sophisticated institutions which could help, like mutual funds, business angels, micro finance players, are almost missed. As a consequence there is a sharp discrepancy between demand and supply side of financial sources available for SME, their establishment and development.

2 Entrepreneurs feel that business environment is better

During the first phase of transition which Serbia started in 2000 the growth rate was impressive (5,4% increase in GDP on average p.y.), but after the global crisis start the rate of growth was zero in the period 2009-2014. So, the increase in GDP during the last three years, although modest is a very positive signal of a stable recovery [1].

	2013	2014	2015	2016	2017
GDP	2,6	-1,8	0,8	2,8	2,0
Industry	5,5	-6,5	8,3	4,7	3,9
Trade	-5,1	2,4	1,6	7,6	4,0
Traffic	4,0	22,1	5,9	11,1	5,9
Export	25,8	1,5	7,9	11,6	13,0
Import	5,1	0,1	5,8	4,2	14,2
Inflation	7,8	2,9	1,9	1,2	3,0

Table 1 Serbia - Key Macroeconomic Indicators (Increase %)

Source: [1]

The main contribution to the growth is related to increase in industrial production started from the last quart of 2014, out of which manufacturing industry, rubber production, pharmaceutical production, equipment and metal industry are the main. As can be seen from the table 1 all important sectors are in a good shape with respectable increase as well, like trade, traffic, tourism, construction. The recovery is based on increase in personal demand, as wages mainly in private sector increased, in investments demand, mainly due to high inflow of Foreign Direct Investments, while export demand remained stable.

During the crisis foreign trade balance fortunately has improved as foreign trade deficit is shrinking after its pick reached in 2008 (8 billion €). Competitiveness of the economy was improved, and export volume was increasing and stable in spite of external shocks. At the same time import was increasing but slower, so the covering of import value by export value is improving, and in 2017 was 79%. Balance of payment position was also improved due to stable and high value of remittances of our citizens living abroad (in 2017 was 2,6 billion € only) and high and increasing volume of Foreign Direct Investments, FDI (in 2017 1,7 billion €). As a result, domestic currency, dinar was stable for last several years, with high

volume of foreign currency reserves within the banking system (10 billion €) [2]. Although the stand – by arrangement with IMF worthy 1,2 billion€ was signed, it was not necessary to use those sources at all. Foreign debt was during 2017 paid back for 1 billion €, so the share of it in GDP decreased to 73 %from the pick reached in 2013 (82%of GDP) [2].

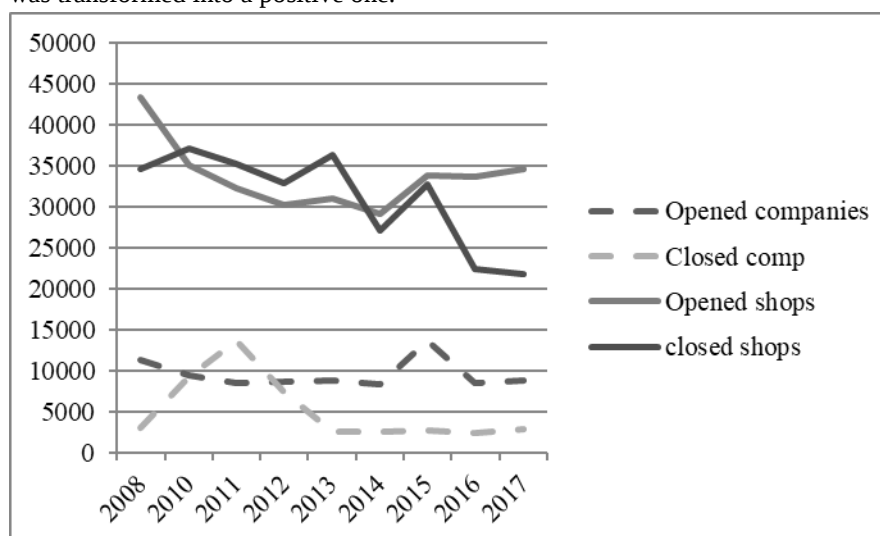
The Government introduced very painful measures for public spending consolidation, among others the cut in pensions and wages of those employed within public sector, both by 10%. Those measures resulted in dismantling the budget deficit (from 6,6% of GDP to 1,3% in 2017) and public debt as well (from 73% of GDP to 65% in 2017). The results were stronger and achieved quicker than expected [2].

The best prove of public consumption consolidation is low inflation rate for last several years, for the first time comparable to the euro- zone level. After years the monetary policy and its role in macroeconomic stabilization was supported by fiscal policy, so the Central bank could relax especially its interest rate policy and finally, put it to its historical minimum of 3,5% p.y. (the referent interest rate of CB was decreased for 7,75 p.p. from 2013). Moreover, CB could put down the corridor of the projected inflation rate from $3\pm 2\%$ to $2\pm 1,5\%$ [3].

After halting market reforms in the period after the global economic crisis start, the market reforms got momentum during the last several years. Some important issues were tackled, like fostering construction permit, cadastre registry and business registry as well. Due to those improvements Serbia was better placed by international authorities in measurement of business environment. Serbia was placed as the 43rd among 190 countries ranked by World Bank on its Doing List [4] Similar, Serbia improved its position for 12 places to 78th out of 138 countries on the Global Index of Competitiveness. According to the assessment Serbian economy improved 7 out of 11 indices (technological readiness and infrastructure were not improved), mainly in macro-economic environment (better position for 31 places)[5]. Serbia also improved its credit rating given by credit rating agencies like Fitch Ratingfrom BB- to B+ , Moody's from B1 to Ba3, while Standard and Poor's did not changed its credit rating, but stated that expectations are positive[2].

Better look at the trends in SMEE sector development one can get from so - called business demography, as it covers data on new established companies ad shops, on the one side, and closed companies and shops, on the other side. As can be seen from the figure 1 it is clear that entrepreneurs have recognized better business environment during the recent years, as the trend of the increasing number of

closed companies and shops while decreasing number of those newly established was transformed into trend of the increasing number of new companies and shops while decreasing number of those closed one. More important is the fact that a negative demography (more closed than new opened) from the period 2011-2013 was transformed into a positive one.



Graph 1 Serbia – Business Demography
Source: Business Registry of RS

3 Low Competitiveness as a Consequence of Low Investments

Although the results in international trade are improving during the period of the crisis, as argued before, one can not be satisfied, because the Serbian export consists of the products with low technological level, mainly agricultural products, metal products, raw materials and semi-products. Above all, SMEs which share in total export is 40%, are mainly oriented toward domestic market and service sector. It is important to note that services are not marketable. Those are a consequence of low investments rates, which are still lower in comparisons to their pre-crisis level. So, the competitiveness and productivity of Serbian companies are behind competitors within the Region and in comparison to EU countries, as well.

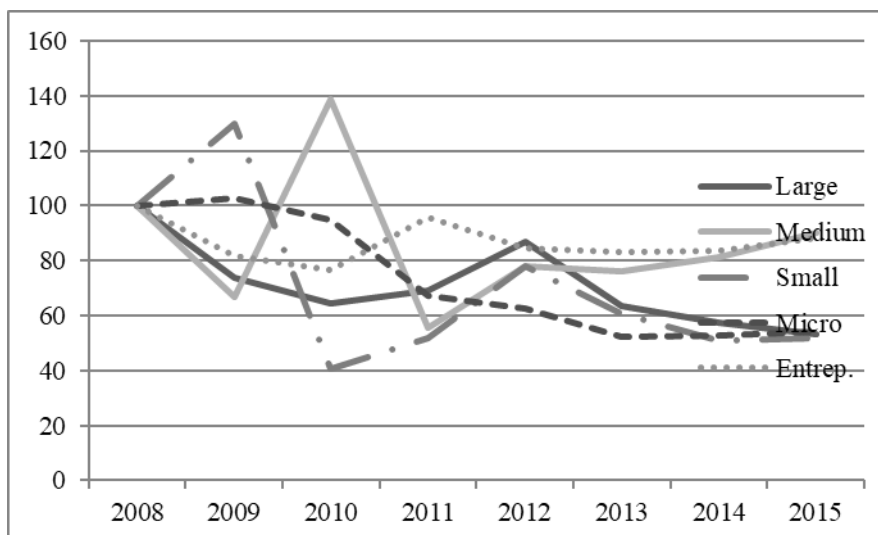
Serbian SME produced 56% of total GVA (Gross Value Added) in 2016 (9,9 billion €), out of which 22% micro companies, 16 % small and 20% medium

companies. If we compare figures in 2012 and 2016 than one can conclude that the growth was the most intensive for micro and small companies 1,5 p.p. (percentage points). If we look at sectoral structure of GVA than one can see that the best result was achieved by real estate trade, energy sector and production and distribution of water [6].

GVA per employee was increasing slowly, as it was higher 2,4% only in 2016 in comparison to 2012 and reached 13.856€ in non - financial sector, out of which 11.856€ in SME. It means that productivity of SME is 14% lower than the average, or 33% in comparison to most advanced large enterprises.

The problem is that there is no room for investments, considering that GVA is low, although modestly increasing during the last several years of economic recovery. Low level of GVA also points low level of international competitiveness. GVA in non – financial sector was 13.856 € per employee in 2016. It was 8% higher than the year earlier, but at the same time was only 2,5% higher than in 2012. The highest productivity was related to large companies (28% higher than average), while SME were 14% below the average. Among SME medium scale companies were better than SME average (22%) and small companies (14%).

The efficiency of SME is improving, but slower than large companies. SME in 2016 generated 65% of total turnover and 51% of total profit of non – financial sector. The main players, contributors were medium companies, as their share in total turnover was 31% and 36% of total profit.



Graph 2 Serbia – Investments, 2008 =100

Source: [6]

The main finding related to investments activity of all Serbian economy including SME is that investments are still on the low level, and more important, lower than in the pre – crisis period, as can be seen from Graph 2. Total investments were 47% lower in 2015 than in comparison to 2008 (2,5 billion € in comparison to 3,6 billion €, respectively), among which micro and small companies were mainly affected (46% and 48% less, respectively), sole entrepreneurs (-12%) and the least affected were medium companies (-9%) [6].

The low level of investments activity for all companies, especially for SME, can be derived from Table 2. Investments were 7.652 € per company for all SME in 2015 only, while at the same time more than 4 million € per large company. The better insight can be obtained from the derived ratios, like the ratio of value of investments to turnover, which means that SME on average invested in development in 2015 less than 5% of turnover realized, or 27% of GVA, only.

	Entr.	Micro	Small	Medium	SME	Large
Investments/company	2.776	3.157	4.976	509.214	7.652	4.083.404
Investments/employee	2.735	1.677	2.487	4.975	3.099	4.818
Investments/turnover(%)	7,5	2,3	3,2	6,3	4,8	7,6
Investments/GVA(%)	29,9	17,9	19,5	36,3	27,4	30,3

Table 2 Serbia – Investments Derived Ratios (2015)

Note: Investments in 000 €

Source: [6]

The promising fact is that investments is increasing during last several years, due to better business environment, especially in SMEE sector. Total investments in SME sector reached 2,5 billion € in 2015, which is 7% higher than the year earlier in the real terms. It is worth noting that investments in large companies were stagnant (0,2% increase in real terms). The main contributor to this growth was related to medium scale companies with growth of 11%, while investments in micro and small companies increased by 2% and sole entrepreneurs by 6%[6].

The cost competitiveness is also improving during the last several years. In 2016 GVA increased by 13% in the non – financial sector and in SME sector by 10% in real terms, the costs of work force by 4% and 3% in SME sector, while productivity increased 4% and in SME sector 3%. The industrial competitiveness had the main influence to total productivity of the non – financial sector. Within manufacturing industry the dominant position still have those sectors with low technological level and low productivity. Those companies with high and medium technological level in 2016 had the share of 9% of total manufacturing industry, 15% of total number of employees and created 20% of total GVA of the

manufacturing industry [6]. Those figures point that the proces of restructuring of the industry and industrial companies is on the way.

Total international trade in 2016 reached 30 billion €, out of which export was 13 billion € and import 17 billion €. The main contrubutor to international trade was manufacturing industry with the share of 74% in export value and 50% in total import value. According to the size of companies the main players within international trade were large companies with contributon of 70% in total export and 64% in total import. It is worth noting that SME position is also improving, as during the last three years export value of SME sector increased by 7% while import increased 6% on average p.y. In the post – crisis period (2009-2016) export of SME sector increased by 53%, while import value staid almost the same (-1%).

The comparative analysis of development level of Serbian SME sector with SME in countries within the Region and EU, pointed out that Serbian SME still leg behind both groupes of countries [6]. Considering number of employees Serbian SME had 2,5 workers per company (2016), while EU average was 4 employees, Slovenia and Hungary 3,3 employees, Romania 6 and Bulgariua 4,6 workers. At the same time according to productiity (GVA per employee) Serbian SMEs realized 11,8 thousands € (2016), while in Bulgaria reached 9,2, Romania 12,1, Hungary 16,2, Croatia 16,1 and Sloveina 28,8 thousands € per employee.

4 The Problem of Acces to Finance for SMEs

The analysis was performed in ordert to assess the discrepancy between total demand and supply for financing SMEs creation and their development in Serbia, including its structure by different financial sources It was based on telephone survey of almost 100 thousands of SMEE, literature review and stakeholders interviews, namely banks, international financial institutions, government officials. The main finding is that there is a sharp discrepancy between demand and supply of different financial sources, due to market weaknesses, lack of institutions, scepticism toward SMEE generaly speaking, especially toward micro companies and start –ups [7].

The Serbian financial sector is of bank- centric character like in other less developed coutries and countries in transition, which means that banks are still the main players and main suppliers of services. In total assets of financial sector total banks' assets in 2016 had the share of 92%, while 6% was related to insurance companies, 2% to leasing companies and 1% to (private) pension funds[8]. As Serbia started the process of transition to a market economy, as the last among cuntries of Central and East Europe,the banking system is still underdeveloped,

measuring by the share of total assets within GDP (banking sector 78% of GDP and whole financial sector 85% of GDP in 2016).

The structural problem of financial institutions in Serbia is related to changes of the legal environment of banking sector in 2006, Law on Banks by which institutions such as saving - credit cooperatives, saving – credit organizations and saving organizations were abolished [9]. In order to control easy the whole financial sector National Bank of Serbia proposed banks as the sole players. It is very important to note that National Bank of Serbia is responsible for control banks, insurance companies, leasing companies, pension and other funds. Practically NBS is the supervisor (control body) for the whole financial system, which is a unique solution worldwide and obviously too powerful and danger at the same time. It means that small financial institutions, which are appropriate suppliers of financials for SME sector, have no legal basis for existence any more. By the Law on Banks those companies had to increase their capital basis to 10 million € and became a bank or to join some other banks.

The institutional infrastructure for financial support of SMEE development in Serbia consists of: The Development Funds of RS (280 million € of loans in five years), The Agency for Export Insurance and Financing (AOFI serviced SMEs with 106 million of loans plus 115 million by factoring)[7], Development Agency of RS, Ministry of Economy, National Agency for Employment and Innovation Agency. All those institutions are governmental type and can be criticized from the point of view of sources available, too small volume considering problems which the Budget is facing with, and more important, too administrative procedures, which is often inappropriate for entrepreneurs and also important, massive misusing, due to high level of corruption present.

The support for SMEE is also possible throw network of international financial Institutions like, European Investment Bank (the fifth credit line amounted 500 million €), European Investment Fund, European Bank for Reconstruction and Development (during the whole transition period from 2000 on, it invested almost 4,4 billion € in more than 200 programs)[7], German Development Bank (KfW), Italian credit line, European program called COSME, HORIZON 2020 and related programs. Available sources for SMEE support through those institutions can be assessed as too low and problematic, considering that they usually use the banking system as a vehicle for intermediation. So, the scenario is as follows: domestic banks get long - term credit lines from those institutions, for SME support especially, but not use them for SME, but rather for general purpose instead. This can be a partial explanation that there are no available data about structure of crediting SME through banking system. Although NBS statistics is very informative with plenty of specific information, data related to crediting by structure consists of two sorts of clients, companies and citizens, only.

Banks are not opened toward SMEs generally speaking, especially toward micro companies and start – ups. Firstly, banks are too big for small clients like sole

entrepreneurs or micro companies. Secondly, there are often missing data, or not so good financial results of those companies, good enough from the point of view of credit risk assessment. Thirdly, there are no differentiated specific, for SME appropriate, products. Fourthly, entrepreneurs are not qualified to prepare business plans and other necessary additional information. Fifthly, start – ups are not welcomed, as they have no business history. Sixthly, the analysis found that there are no guarantees for SMEs, rather personal guarantees only [7].

During the transition of the financial system better results were achieved in consolidation and development of the national banking system and in the opening for the rest of the world, (meaning for the entrance of foreign players), but so little results were achieved in establishing and development of financial market. The privatization process was slow, public companies are not restructured and privatized, so there are neither serious players on the market, nor well developed different sorts of financial instruments, securities. There was no single initial public offer. After the crisis start foreign players disappeared from the market, Belgrade Stock Exchange, prices felt down and volume of the trade is still several times lower in comparison to the pre – crisis period [11]. During the last several years governmental bonds are the main financial instruments in which banks and foreign financial institutions invested mainly.

There is a lack of specific, especially sophisticated products and institutions within financial market in Serbia. It was already argued that institutions, like saving organizations, and saving cooperatives are missing, as more appropriate to SME financial support. NBS is not ready to propose the law on micro financial institutions. So, there is no legal basis for their development, but in spite of that four micro financial institutions are operating: The Micro-Development Fund, Agroinvest, Integra and Microfunds-S [10]. Equity market is not developed, as there are a few players present, although equity market in Serbia is assessed to 35-40 million worthy[7]. There are no business angels at all.

As the analysis concluded SMEs are completely dependent on the banking system, so they are very vulnerable to environment and its possible external shocks when happened. Additionally, there is a huge hidden demand for financial sources in the market by SME sector [7]. Finally, there is a sharp discrepancy (a gap) between supply of different financial sources and assessed demand for those products by SMEs, as can be seen from the table 3.

	Demand Potential	Supply Estimated	Financing Gap
Short – term	429-474	196-217	233-257
Medium and Long term	1.293-1.904	589-651	705-779
Total	1.722-1.904	785-668	938-1.036

Table 3 – Serbia – Potential Financing GAP for SMEE

Source: [7]

Conclusion

The general economic situation in Serbia is on the stable track during the last three years. Although modest the growth is an important positive signal for entrepreneurs and potential entrepreneurs, as it is based on the increase in personal and investment demand and stable foreign demand. The market reforms got momentum in some important fields. Due to those positive signals the number of newly established companies and shops is increasing, while the number of those closed is decreasing, with a positive difference.

Considering the competitiveness and efficiency of SMEs, although improving, it is still on the low level, and lower comparing to other countries in transition and the EU average, as well. One can see positive changes in foreign trade, as export is increasing faster than import. However, exporting products are mainly raw materials, semi – product with low value added. Asking for the reasons for the still unsatisfied situation one can blame low level of investments, which is still lower in comparison to pre – crisis period, low investments volume per company, per employee and measuring by the share in GVA and turnover, as well.

To increase investments in SME sector is difficult task, as it is necessary to close huge discrepancy between demand side and existed supply of financials. The financial sources available through governmental institutions and foreign suppliers are important, but those sources can be seen as a residual in volume and as the magnet for other market sources. The point is to open room for institutional and legal changes in which more by number and more sophisticated and appropriate institutions for SME financing will start their activities, like micro finance institutions, saving organizations and saving credit cooperatives. It is also necessary to support development of the financial market, by volume and especially by broadening the list of financial instruments available. Additionally, the support of government and foreign institutions for establishment and development of advanced institutions, like business angels, guarantee schemes, venture capital suppliers, would be also important.

References

- [1] Statistical Office of RS , Economic trends in 2017, An Assessment, 2017
- [2] Ministry of Finance of RS, Current Macro Economic Trends, December 2017
- [3] National bank of Serbia, The Report on Inflation , February 2018
- [4] World Bank, Doing Business List, 2017
- [5] World Economic Forum, The Global Competitiveness Report 2017-2018, 2017
- [6] Report on SME Development, Ministry of Economy, The Government of Serbia, 2017

- [7] Ex ante study to assess the potential future of Financial Institutions to deploy IPA resources in support SMEs in Serbia, EIB, EU, Ministry of Economy, The Government of Serbia
- [8] Yearly Report on Stability of the Financial System, National Bank of Serbia, 2017
- [9] Law on Banks, Official Gazette of RS, No 107/05, 91/10 and 14/15.
- [10] Guene C., The Analysis and Assessment of Needs for Micro Crediting in Serbia, ILO, 2008
- [11] Filipović M., Hadžić M., The Banking Sector in Serbia: Impact of Late Transition and the Global Crisis,– „Overcoming the Crisis, Economic and Financial Developments in Asia and Europe“, Bojnec Š., Brada J.C., Masaaki K. eds., University of Primorska Press, Koper, 2012,

The Value of Data for the German Water- and Wastewater industry

Lukas Hormann

Hochschule-Ruhr-Werst, Duisburgerstraße 100, 45475 Mülheim an der Ruhr,
lukas.hormann@hs-ruhrwest.de

Sarah Stuhl

Hochschule-Ruhr-Werst, Duisburgerstraße 100, 45475 Mülheim an der Ruhr,
sarah.stuhl@hs-ruhrwest.de

Abstract: This article deals with the value of data for the German water- and wastewater industry. It addresses questions and findings of the digitization to the special field of the economy of utilities and here for water- and wastewater. Firstly describing general aspects of how digital data is compiled and structured, the article shows the growing significance of digital data by analyzing the value chain of water- and wastewater companies and showing, where relevant sources of data are. After that, the assessment of the findings shows, data is becoming more and more important, although the German water- and wastewater companies are organized as a natural monopoly. As the use of (technical) digital data has a long tradition in the German water- and wastewater sector, the article gives suggestions on where new fields of usage of digital data can occur. The expansion of using digital data to meet challenges like cost-pressure, optimizing maintenance patterns and building new sources of value for the company are key findings. As the water and wastewater companies are at a starting point in digitizing the article comes to the conclusion that further research is necessary to foster the advanced use of digital data and give guidelines as well as information.

Keywords: Waste-water, Water, Digitization, Data, Value of Data, Water industry, Google, Facebook, Web-economy, Predictive Maintenance, world-wide-web, Web 3.0.

1 Introduction

The digitization is on everyone's lips and does not halt in renewing whole parts of web-based economies but also traditional industry sectors. How to conquer the upcoming challenges of digitizing in the German water- and wastewater industry is a very well discussed topic these days. For the reader sitting on the sidelines of

the topic, this might be a surprise, as utilities are not expected to be the trailblazer of digitizing their businesses. However, the sheer amount of conferences, meetings, and conventions on the subject of digitization shows the ambition German Water- and Wastewater companies have internally as well as externally [1], [4], [5]. The outcome of any kind of activity in terms of digitization produces (digital-) data. However, digitizing the German water industry and following that, raising and storing digital data should not be at the end in itself. Therefore, the value of (digital-) data is a crucial topic that needs further discussion as the intelligent usage could, on one hand, lead to an increase of income (e.g. through new business models), on the other lead to the decrease of cost (e.g. through tapping further efficiency potential). It is clear, that web-based companies like Google or Facebook are using the data they raise, as it is part of their business model. The question this text will answer is how using digital data by sectors (e.g. the water industry) that were not web based in the first place, can be beneficial. Speaking in economic terms, the virtue of raising, storing and using of digital data is perceptible, when data has a value for the company. The question that arises; how can the value of data be measured and which kind of data is suitable to nurture the work of a water- or wastewater companies and what are the economic benefits of it?

For that reason, the following article will discuss the value of (digital-) data. It will give a brief overlook which type of data is common and how they evolved over the development of the “modern” world-wide-web.

2 The development of internet economy – from the first Browser to Web 3.0

The internet as we know it today was and is an ongoing development over the last 49 years. As the first network for computer dates back in 1969 developed for the US-Forces, it emerged in 1982 as the terms TCP/IP were introduced. Universities and other public utilities used the Internet (interconnected net) to share knowledge in the first place. The introduction of the WWW (World Wide Web) in 1992 and the invention of the web-browser (1993) were important steps in lifting the rudimental network to a new level. The commercial side of the internet was born [11]. From 1993 to 1997, the numbers of websites increased from about 130 to 1 million and the internet became a “new economy” itself. By introducing the new segment of the German stock market “NEMAX” in Germany in 1997 the elation about new business models and so-called “modern companies” found its realization. In the years from 2000 to 2002, the hype peaked in the DotCom bubble, which led to the closing of the NEMAX and a phase of consolidation. In 2005 a general recovery established the Web 2.0. The internet developed a new face with changed user- usability and perception.

Companies like Google, Facebook, etc. incorporated the user and created a web, which supported participation and an individual usage. Web Sites were no longer just a source of information, entertainment etc. but rather an interconnection between the user and the data behind the site. It was now possible to create own content (i.e. a post or comment) in blogs, wikis, podcasts, and communities and get an individual response. The possibility to individualize the content of web pages created the term “Web 2.0”.

In German, this phase of the internet is also known as the web of participation. Although the “Web 2.0” describes the internet to the current date, the next development (Web 3.0) will eradicate the weaknesses. Those are most notably the sheer amount of unsorted information (data) and its restricted possibility to search it and get an exact result. The more data or information is stored on the web, the less accurate an individual search for information can be. The solution for that is semantic search. It seeks to improve the search accuracy by understanding the searchers intent and the contextual meaning to generate more relevant results [3]. Nowadays some major web search engines like Google or Bing incorporate some elements of semantic search. However, the development is still ongoing [10]. To what extent semantic search will modify the value of data seems to be a wild guess. It can be expected, that the demand for personal data will increase (as the semantic search uses personal data in particular) and therefore its value. Nevertheless, before it is possible to assess the value of data for the German Water- and Wastewater industry, the term data should be analyzed and categorized.

3 The diversity of data

Digitization and interconnection are the basics for web-based economies. Digitization dematerializes and virtualizes processes in value chains, and thereby influences the velocity, productivity, flexibility and dispersion of economic activities. The interconnection represents the premise for an efficient working-method at a high level of work sharing and guarantees a facilitated access to information (data). The internet (the addition of digitization and interconnection) is, therefore, a global marketplace for information, which are the assets of web-based economies [10]. The digitization of the physical goods water- and wastewater is not possible. Delivering water and deriving wastewater are processes whereas a digitization is partly possible. The monitoring of a channel system with multiple sensors could be an example for that. If the importance of data in the new era of digitization is that high, a general description of what data is and how categorizing it can help becomes evident.

As information and data are frequently used as equally understood terms, research about the definition of information and data comes to different interpretations. A

general definition we first want to introduce is a rather technical; Witt (2010) says, “Data are statements composed of interpreted signs resp. signals without any context” [2]. He states that data become information when they “are interpreted in a contextual way and lead to an increase of knowledge (esp. if it happens as a process).

With this wide definition of the term “data”, we would like to address the categorization. How can we differentiate various datasets?

The following Figure 1 categorizes different types of data.

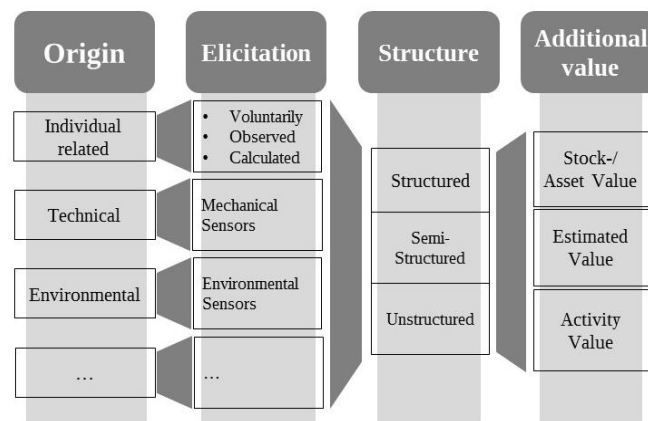


Figure 1
Categorizing data [Own Illustration]

In giving, a more general orientation in which forms data can be structured, the interpretation of the image follows. Every kind of data has an origin. It comes from either a person, a technical or an environmental input (imagining other sources is possible as well). Where data is ascertained there has to be a source for it. The categorization by source makes it easier to anticipate for what data can be used and how the quality is.

The next category elicitation is how the data is compiled. Especially for individual related data, three types of elicitation are common [12]. Data collected on a voluntary level happens e.g. when a social media profile such as Facebook is set up. The collection is directly and mostly with a benefit for the person revealing the data (participating on the social-media-platform). Two rather indirect forms of collecting data are the possibilities of observation and calculation. Observing the browser-activity via cookies or the activities on the website generate data about interests and activities of the user [9]. The use of a fitness tracker or an application that produces positioning data etc. could be an example as well. The third option how personal data is compiled is a calculation out of several different datasets.

This could be a combination of voluntarily or observed data as well as third-party data like information given by other users etc. An example could be the combination of the age and gender out of a social-media-profile and the viewed products on an e-commerce platform. This leads to a new, more exact dataset.

For the structure of data sets the three technical categories structured, semi-structured and no structures are common. Fasel and Meier are defining them as follows:

- Unstructured data: no structure at all or no general format
 - Video
 - Audio
- semi-structured: information in a defined order but not suitable for the (end-)user
 - E-Mail
- Structured data: defined length, defined format (numbers or words in a certain length a so-called “string”)
 - E.g. the date in DD/MM/YYYY [6].

About 20% of the worldwide digital data is structured and stored in relational databases (esp. SQL-Databases). However, semi- and unstructured data are stored in NoSQL-Databases, which break with the tradition of relational databases although relational systems are still the most common. Relational databases lack performance when data is used intensively. Examples of that kind of applications are websites with heavy data loads as well as streaming-media-applications [6]. The increasing number of media applications on the web can deduce expectations of a rising number of NoSQL-Databases in the next years.

The last part of the categorization aims to show different ways evaluating data. Answering the question how the (economic) value of data is measured is not easy and has a great span of interpretations. The context in which data is compiled, measured and used, affects the value and makes the evaluation a complex task. Figure 1 shows the chosen categories strategic asset, estimated value and activity value. Data as a strategic asset means the monetarization of e.g. customer information. This is a well-practiced action especially in the area of advertisement and direct marketing. Generating new information by combining existing data can also lead to a gain in value. The estimated value is a clear speculation of the upcoming value certain datasets can gain in the future. The last category “Activity Value” means the benefit data can generate when it is used more than once. The costs for compiling, storing and managing data are high whereas the marginal cost of using is nearly zero. Therefore the multiple uses of data or even the ambition to do so (e.g. geo-data for a navigation application) can make it more valuable [11].

3 Datasets of the water- and wastewater industry

To draw the line back to the water and wastewater-industry we first have to address which type of data the industry is gathering before thinking about evaluation. To put things in a broader perspective, it is useful to understand the value chain and its particular parts. Analyzing each step allows a more in-depth view where data is or could be gathered and in a further step, what value can be anticipated. Figure 2 shows an overview of the value chain and its parts and gives examples for sources of data.

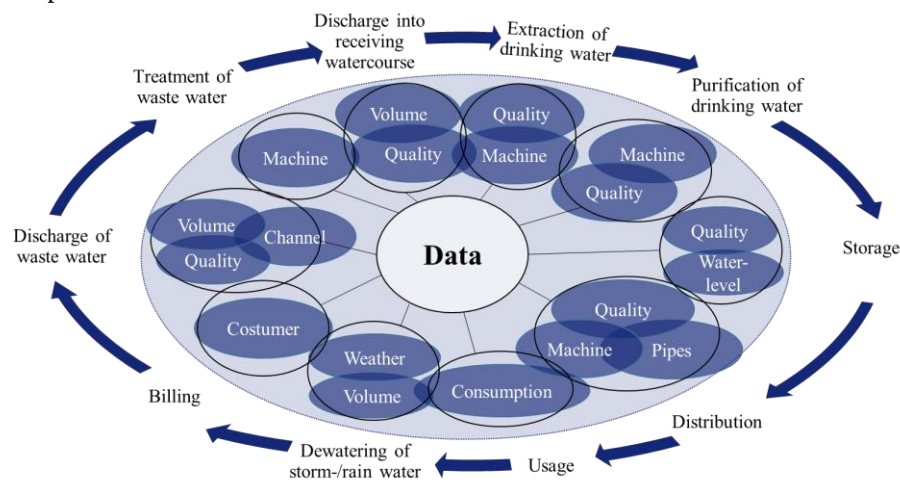


Figure 2

Value Chain of the water- and wastewater industry [Own Illustration]

- Extraction of drinking water:

As seen above, the value chain can be started at the step of extraction resp. production. Freshwater can have many different sources (groundwater, surface water, etc.) therefore the monitoring of the quality and machinery is important. The quality of the extracted water determines which effort has to be taken to purify the water for further use in the processing. The data collected can be used to predict maintenance issues and achieve an overall improvement of maintenance patterns.

- Purification of drinking water:

The processing of the freshwater takes place in a water plant and uses various techniques to remove unwanted substances. Important parts are the sterilization and disinfection. Therefore, the observation of the produced water quality as well as the used machinery produces various types of (technical) data.

- Storage:

Following the processing, the next step is (when needed) the storage of water. Mainly for maintaining a certain level of pressure in the water distribution system, it is also needed when an unexpectedly big amount of water is demanded. The reservoirs and its sensors can produce quality-data as well as water level-data, which again are rather technical aspects.

- Distribution:

The distribution of the freshwater follows the next step. The observation of the pipe-system, the quality and the pumps for the distribution can be seen as further sources of data. Especially the monitoring of the distribution system could produce (if applied area covering) big amounts of datasets. The case that a distribution system is fully equipped with sensors is relatively rare but seems to be a topic in the future. Analyzing the data of the pipe-system could be used to optimize the management of maintenance in the first and lead to an automated maintenance-system in the second place.

- Usage

After delivering the freshwater to the customers, they use it in many different ways. One interest could be about the different consumption patterns, especially for industrial customers. Again the equipment with sensors of every customer is rarely or even unknown to this date.

- Dewatering of storm- or rainwater:

As dewatering refers to the drainage water from sealed surfaces, data of the volume of stormwater and therefore weather data could be interesting to predict loads of rainwater.

- Billing:

Especially in the billing process, the use of customer data is obvious. It is clear that information like bank details, etc. are kept in a database to facilitate the organization. Keeping in mind, that depending on how many customers are connected, the event of billing becomes more complex. The connection of customer data with e.g. consumption patterns can lead to new insights.

- Discharge of wastewater

Measuring the volume and quality of discharged wastewater is uncommon and therefore not a well-used source of data. Some utilities use area covering sensors in their sewage system to establish a real-time-controlled channel system. In cases of heavy loads, the intelligent control can reallocate volumes of wastewater to take the load of intensively used parts of the channel system. Therefore such a system could provide a great amount of data as well.

- Treatment of wastewater / Discharge into receiving watercourse

After discharging and collecting the wastewater, it has to be treated in a purification plant before another discharge into a receiving watercourse is possible. Similar to the treatment of fresh water, the treatment of sewage is a complex, stepwise process. The used machinery can produce different kinds of technical data which helps to monitor and control the processes of the treatment. As the last step, the discharge into a receiving watercourse takes place. The measurement of the quality of the effluent and its volume are datasets that may be produced.

To put things in perspective, the majority of produced or potentially produced data is technical and appears in the competence of the companies. It is collected by sensors measuring quality, operation condition and volume. The elicitation of customer data is relatively rare at this juncture. Nevertheless, the introduction of smart-water-meter might change that in the near future [9].

4 The value of data

As shown datasets can occur in every step of the water cycle, the question that arises is how they have a value or even add a value for the companies. Therefore the next chapter deals with how the described sorts of data can be beneficial.

When thinking about the digitization some of the first things that come to mind are new ways of businesses like Facebook, Google, Amazon, Uber, etc. All these business models base upon the interaction of people with digital data and the sharing of information either between users among themselves or with the provider of a service that happens digitally in the first place. By reserving a ride with Uber or placing an order on Amazon, the user does that via a digital channel and when the service is bad, the user has the possibility to find alternatives. The water- and wastewater industry, however, have few incentives to digitalize its business. On the one hand, this is justified by the fact that water itself cannot be dematerialized (as mentioned above) on the other the fact that the water industry is a natural monopoly, and so customers do not have a choice to swap the service provider, may foster the lack of innovation.

Despite this finding, the industry has a long tradition of using data for its benefit. The focus is on the utilization of technical data for gaining efficiency and therefore reducing costs in the service of maintaining to purify and distribute water or collect and treat wastewater.

The presented data inputs “quality”, “machine” and “volume” consequently are the one with the longest tradition and at the time given the most promising to gain value in using technology coming from digitization. Terms like Big-Data,

predictive maintenance, artificial intelligence, etc. come to mind when thinking about that. With that background, the assumption that the value of “technical” data will remain high and increase further becomes clearer. This fits the categorization data as a stock- or asset value. The combination of data (even if not possible today) can create new knowledge that helps to improve current tasks and resolve old issues. Especially the topic of cost pressure developed over the last years and seems to be an overall concern of water- and wastewater utilities [7].

Cost pressure could be caused by several reasons externally as internally. For instance, a company might see itself in the obligation to increase the pension provisions because of the constant low level of interest rates. The expected profit might be used for that which leads to fewer earnings for the municipality and therefore for the call to decrease costs. Another consideration could be the fact that most companies deal with decreasing demands for drinking water hence decreasing amounts of wastewater which leads to profit cuts. The digitization can help to optimize the efficiency and effectiveness of processes. The mentioned optimization of process costs might be a solution for that. In addition, the development of new business models has to be taken into account as well. On one hand, the analysis of or even the possibility to purchase new customer-data can help to anticipate new necessities on the other might there be the possibility to monetarize current datasets when a demand from other industries occurs (e.g. web-based economies).

For web-based economies, personal data is the fuel for their business models [8]. The way the water- and wastewater industry can address this topic lies more in the dark than the described technical aspect. Although individual data is kept and dealt with (e.g. in the billing process) further applications are missing. An area covering rollout of smart water meter could lead to individual consumption analysis which then again could lead to new models in businesses. To put oneself in the perspective of the customer and reveal its necessities is the task the companies have to face. Undoubtedly the intelligent use of the data the companies already have and the ones that they will compile in the future have the opportunity to be a real added value not only for the industry itself but for the customers and the society.

Conclusion

Ever since the development of the modern internet and web-economies, digital data plays a significant role in every kind of business or private use. The determination of its value whereas is a topic which comes to surface since data can be analyzed in a more efficient and significant way. While the digitization produced various new forms of businesses and creation of value, the water- and wastewater industry, however, is at a starting point of exploring “advanced” solutions of digitization. This is not only because of the reason how the industry is organized but also how data can and is ascertained. The number of sources along the value-chain shows, that there are possible ways to gain further information about the own business and the customers. The efficient and intelligent use of the

raised data is the assignment the water and wastewater industry has to work out. By achieving a new way of dealing with digital data the possibilities of enhancing the added value for the own business, the customers and the society as a whole.

References

- [1] Annual Conference on Water Economics, BDEW, Berlin, Germany, 24th and 25th of September 2018, https://www.bdew.de/media/documents/20180608_WWJT-Programm-2018.pdf, last downloaded on 22nd of June 2018.
- [2] Bernhard C. Witt: Datenschutz kompakt und verständlich. Eine praxisorientierte Einführung, Wiesbaden, Germany, 2010, pp. 4-6.
- [3] Bettina Fazzinga, Thomas Lukasiewicz: Semantic search on the Web, In: Semantic Web-Interoperability, Usability, Applicability, vol. 1, Amsterdam, The Netherlands, 2010, pp. 1-7.
- [4] Conference on Industry 4.0, VKU, Berlin, Germany, 15th of February 2018, <https://www.vku.de/verband/veranstaltungen/industrie-40-konferenz-2018/>, last downloaded on 22nd of June 2018.
- [5] Conference on Water Economics – Digitization, IWW, Mülheim at the Ruhr, Germany, 1st of March 2018, <https://muelheimer-tagung.de/>, last downloaded on 22nd of June 2018.
- [6] Daniel Fasel, Andreas Meier: Big Data. Grundlagen, Systeme und Nutzungspotenziale, Wiesbaden, Germany, 2016, pp. 3-35.
- [7] Erik Gawel, The Regulation Framework of the German Water Sector from an Economic Point of View – Taking Stock and Perspectives, In: gwf-Wasser | Abwasser, vol. 5, Essen, Germany, 2016, pp. 538-556.
- [8] Laurence Morvan, Data: The fuel of the Digital Economy and SME Growth, Paris, France, 2016, pp. 1-4.
- [9] Mark Oelmann, et al.: Smart Water, In: energie | wasser-praxis, vol. 4, Bonn, Germany, 2018, pp. 38-43.
- [10] Rodica Tirtea, Claude Castelluccia: Bittersweet cookies. Some security and privacy considerations, Heraklion, Greece, 2011. pp. 3-13.
- [11] Stefan Gutberlet, Alexander T. Nicolai, Heinke Röbbken: Determinanten der Markteintrittserfolge von imitativen Startups. Eine empirische Untersuchung über die Geschwindigkeit bei der Unternehmensentstehung und ihr Einfluss auf den Unternehmenserfolg, Wiesbaden, Germany, 2011, pp. 58-61.
- [12] Wolrd Economic Forum: Personal Data: The Emergence of a New Asset Class, Cologny/Geneva, Switzerland, 2010, pp. 6-7.

Bank competition and financial stability: the case of vietnamese commercial banks

Phan Tran Minh Hung

Phd student, University of Nice Sophia Antipolis,
phantranminhhung@gmail.com

Phan Nguyen Bao Quynh

quynhpnb2655@gmail.com

Vo Hoang Diem Trinh

The University of Danang, The University of Economics, 71 Ngu Hanh Son, Da Nang, Viet Nam,
trinhdiem79@gmail.com

Abstract - The main purpose of this research is to investigate the influence of bank competition on financial stability in Vietnamese commercial banks over the period 2006 – 2016. The Lerner indicator is employed to measure competition while banks' probability of failure (Z-score), non-performing loan (hereafter, NPL) ratio and capital adequacy ratio (CAR) are proxies for financial stability. The estimation results from System Generalized Method of Moments (SGMM) and robustness checks (ordinary least squares (OLS), Fixed-effect (FE) and Random effect (RE) regression) indicate that bank competition is positively related to Z-score and CAR, supported by the “competition - stability” initial view. Conversely, Lerner index impacts positively the probability of loan non-payment which documents that expanding lending products enhances the capability of riskier loan portfolio, supported by the “competition – risk” prevalent view. Otherwise, we further find strong evidence that the relationship between bank competition and financial stability is non-linear with U-shape.

Keyword: competition, banking risk, bank stability, commercial bank.

1 Introduction

A separate but growing body of literature has highlighted that one of the most important roles of competition is to enhance operational quality for the ultimate purpose of value maximization (e.g Porter M.E, 1985). However, we should not conclude that a competitive strategy does not result in negative signs despite competition considered as one of pre-conditions for efficiency, technological innovation. In addition, the recent financial crisis and the following sharp economic recession have sparked substantial interest in the link between bank competition and financial stability. Nevertheless, no high consensus is documented because “competitive – instability” view reveals that financial stability become worse driven by the severity of competition (see Keeley, 1990; Boyd et al, 2005; Soedarmono et al, 2011 for a review) while a potential contribution of competition is the increase of financial stability (see Allen and Gale, 2004; Koetter and Poghosyan, 2009 for a review). In other words, the mixed theoretical predictions and the at least partly ambiguous existing empirical findings motivate researchers to revisit the question of whether bank competition affect positively or negatively bank stability in each banking sector.

The sustainable development of Vietnamese banking system in line with international standards is driven by the progress of international integration. In this period, banks have continually increased chartered capital to compete more fiercely with the aim of taking market share. This lead to competitiveness to be improved dramatically. However, Vietnamese commercial banks also confront certain obstacles. One of them is competitiveness among Vietnamese commercial and foreign banks. Overall, the competitiveness of Vietnamese banks is limited compared to foreign banks because of the limitation of technology, capital and human resources, although our banks have received supports from government. More specially, Vietnamese commercial bank’s competitiveness has been influenced significantly by the recent financial crisis and economic recession that one of the most prominent feature is that NPLs increase dramatically while the risk management system is not sufficient to control loss-given-default for the small banks. In contrast, the large banks have taken advantage of extra income out of expected interest but from deferred interest and penalty fee. In other words, they offer the trade-off between risk-taking and income.

To the best of our knowledge, we are the first to examine comprehensively the effect of bank competition on financial stability in the context of Vietnamese banking system. Therefore, the contribution of our study is twofold. The largest novelty of our study is again to provide empirical support for the significant role

played by competition in determining financial stability. The second novel contribution lies in the use of the Vietnamese database of commercial banks. The choice of Vietnam to transit theories into empirical results would contribute to increasing literature on the relationship between bank competition and financial stability. The differences of legal, institutional and macroeconomic conditions may account for discrepancies among countries. Moreover, the existing empirical evidence on the relationship in developing markets are not rich compared to developed countries. Therefore, this research will add to have a better view about the relationship in a developing country as Vietnam.

2 Literature review and hypothesis development

The empirical findings on financial stability driven by the severity of competition in countries around the world indicate mixed results.

On the one hand, the predominant view of "competition - risk" suggests that diversification is one of the main sources of instability. The interests in the relationship between competition and stability in banking sector were triggered by Keeley (1990) who initiated an academic hypothesis named "franchise value", the framework provides findings that product diversification to compete contributes to erode brand value, consequently leading to collapse. Explained that banks tend to trade-off exceed risks in order to earn more profits. As the quality of the loan portfolio is most likely to deteriorate due to debt holders' requirements of more marginal benefit and thereby the increase of bankruptcy. Hellmann et al. (2000) reach the same conclusion that removing the ceiling of interest rate leads to increase competition on price, encouraging moral hazard. In addition, recent studies have illustrated that enhancing competitiveness causes the reduction of borrowers' loan-related information and their motivation to manage loans, resulting in a worse effect on financial stability (Allen and Gale, 2004). Banks with high competition lead to destabilize the banking system and disadvantage to financial stability (Boyd et al., 2004). Besides, Berger et al. (2009) also demonstrates that more bank competition erodes market power, decreases profit margin, and results in reduce franchise value that encourages bank risk-taking. Also, Ariss (2010) examines how different degrees of market power affect bank efficiency and stability, concludes that an increase in the degree of bank concentration leads to greater bank stability and profit efficiency. Vives (2010) assesses competitive theories and empirical findings related to bank competition; he denotes that competition plays role of deciding the severity of bank instability. Zhao et al. (2010) assess the extension to which deregulation measure aimed at promoting competition lead to increased risk-taking. Their outcomes suggest that competition encourages increased risk-taking. Similarly, the empirical findings in

Turkey by Kasman and Kasman (2015) aims to support for competition-fragility view; the authors find that bank with higher competition level will face to higher credit risk, hence, it is essential when bank restrict competitive pressure. Jimenez et al. (2013) provided evidence that competition causes risky portfolio leading increases bad debts in Spanish banks. Further, banks with high market power in lending sector are under pressure of increasing bankruptcy because borrowing with high interest introduce deadweight costs and hence difficulties for customers to repay, leading to exacerbate adverse selection and moral hazard. Hence, the greater severity of competition encourages banks to accept more diversified risks, making banking system more vulnerable with shocks (Anginer et al, 2014). Kabir and Worthington (2017) tell a similar story on the negative effect of bank competition on financial stability that excessive competition in the banking industry lowers the franchise value of banks and induces them to have a riskier loan portfolio, and is thus associated with greater instability. Moreover, in their framework, they also find the magnitude of the market power effect on stability is greater for conventional banks than Islamic banks in 16 developing economies.

We hypothesize that competition impacts negatively on financial stability of commercial banks (H1).

On the other hand, the "competition - stability" perspective favors the existence of a positive relationship between competition and financial stability. Enhancing competitiveness is encouraged to minimize the probability of increasing bankruptcy because the lack of competitive operations can exacerbate the instability of banks (Stiglitz and Weiss, 1981). Mishkin (1999) paid attention to the notion of "too big to fail", exhibits that large banks exist moral hazard established by managers who usually accept risky deals under the patronage of central bank. Moreover, banks with less competition lead to provide non-standard credit loan easily, increasing probability of default (Caminal and Matutes, 2002) or higher interest rate leads to the poorer loan portfolio's risk due to adverse selection and moral hazard (Stiglitz and Weiss, 1981). Boyd and De Nicolo (2005) reach the same conclusion that banks with high market power prefer lower competition in the loan market which encourages them to set high interest rate for borrowers which in turn increases their risk-taking tendency and default risk. They further argue that the bank will face high moral hazard and adverse selection problem and lose solvency as the losses are ultimately transferred from the borrowers to the banks. Moreover, Beck et al. (2006); Schaek et al. (2009) reveal that banks hold higher capital buffers when operating in a more competitive environment and competitive banking markets are less likely to experience systemic crises or competition is inversely related to most risk indicators, suggesting that competition does not erode bank stability (Liu et al., 2012). Soedarmono et al. (2012) examine the relation on competition, crisis and bank risk find that concentration in banking sector causes higher capital ratio, income fluctuation and the probability of failure. Anginer et al. (2014) conclude that bank competition promotes risk diversification which helps banks avoid to sudden

shocks. Fu et al. (2014) show that greater concentration experiences financial fragility and that lower pricing power also induces bankruptcy. Furthermore, large banks in concentrated market experience subsidies from policy makers through “too-big-to-fail” schemes which alter their risk-taking motives and include them to take extra risk, thus intensifying their fragility (Acharya et al, 2012). Additionally, the relationship between bank concentration and NPL ratio indicates that more market power associated with more insolvent loan portfolios (Berger et al, 2009).

We hypothesize that competition effects positively on financial stability of commercial banks (H2).

The mixed theoretical predictions and the at least partly ambiguous empirical evidence motivate us to revisit the question of whether bank competition affect positively or negatively bank stability in the case of Vietnamese commercial banks. However, the aftermath of the recent financial crisis and the following sharp economic recession have the extremely great negative influences to banking sectors. Soedarmono et al. (2013) point exactly out that under the circumstances of financial crisis of the period of 2007 - 2009, higher market power in the banking industry might contribute to minimize moral hazard which directly affected Asian banks. In addition, Liu et al. (2012) exhibit that the ongoing consolidation and banking restructuring process in these countries does not necessarily lead to lower competition. Reductions in restrictions on banking activities, particularly on foreign bank operations, appear to lead to higher levels of competition. Increased competition is also shown to reduce bank risk-taking. Therefore, competition policy, which has been launched in South East Asia, can be viewed as a policy action aimed at strengthening the stability of the banking systems. In the context of Vietnam, during concession, because of the existence of no interesting difference in Vietnamese banking industry in comparison with South East Asia and Asean banking sector, hence, Vietnam is not an exception. In other words, H2 will be more pronounced to the case of Vietnam.

Moreover, Martinez-Miera and Repullo (2010) document a non-linear relationship between bank competition and financial stability. This is because the ultimate purpose of enhancing competitiveness is to diverge bad effects with the immediate step of products quality improvement. Therefore, in the first period, improving competitiveness delivers banks to a better situation. However, a negative aspect of this issue is that banks tend to focus on operational diversification but they neglect of intrinsic resources leading easily to unexpected risks. Narrowly interpreted, they find the empirical support for the U-shaped relationship between competition and bank risk. The probability of default goes up following an increase in bank competition but it has a downward trend after reaching a threshold. The idea was supported by Berger et al (2009), Kasman and Kasman (2015).

We hypothesize that the nexus of competition and financial stability is nonlinear (H3).

3 Methodology

Since our empirical analysis involves estimating dynamic nature of financial stability. Therefore, the traditional econometric techniques, such as: OLS, FE or RE are not appropriate to estimate because these method are insufficient to address the potential endogeneity between the lagged dependent variables and error term, and hence resulting bias and misleading inferences related to the relationship. The benchmark estimator of OLS considers all banks as an entity. However, characteristics are different among banks, for example, brand name, corporate governance (time-invariant features). In order words, the bias of OLS results from the assumption of a homogeneous entity. In the meanwhile, the advanced FE and RE take into account the bank-specific factors. Nevertheless, these could not possibly address Omitted-variable bias and reverse causality and correlation between error term and lagged dependent variable.

To address this important methodological issue, instrumental variable techniques are used. Arellano and Bond (1991) initiated the standard GMM estimator, also known as first-differenced GMM, where all variables are transformed by differencing and introduced instrument variables from the lagged levels of the regressors. However, the lagged levels of the regressors could be a poor instrument with the appearance of a serial correlation in the errors. In this case, the first differenced GMM might result in imprecise or even biased estimators. To overcome these shortcomings, Arellano and Bover (1995) and Blundell and Bond (1998) developed the SGMM which comprises two simultaneous equations, whereby, one equation is in lagged difference of the dependent variable as instruments for equation in levels, and other is in lagged levels of dependent variables as instruments for equation in first difference. Blundell and Bond (1998) demonstrate that the SGMM has smaller variances and is more efficient, thereby improving the precision in the estimator. The conditions for the S-GMM estimation include: (1) the visibility of over-identifying restrictions in order to ensure the suitability of instruments and no correlation between instruments and error term; (2) no second-order autocorrelation in first-order differences. Therefore, Hansen and Arellano-Bond tests are employed with the aim of checking the suitability of two conditions above. Besides, the two-step GMM method is better than the one-step GMM because of using covariance-matrix in case of existing serially correlated errors in the second-order or heteroscedasticity. For these reasons, the two-step SGMM is the most appropriate method to regress this relationship. Before estimating two-step SGMM, the presence of autocorrelation, heteroscedasticity, and endogeneity of the data set is tested with Wooldridge test, Breusch-Pagan/Cook-Weisberg test, and the Wu-Hausman test, respectively. After the estimation of two-step SGMM, some tests were also performed, such as AR(1) and AR(2) to check presence of autocorrelation at first and second difference respectively, first stage F-test using 2SLS estimator to test relevance, and Hansen's J-test to test the validity of instruments of endogenous

variables, such as competition measures. Wald test is also used to ensure the fit for all our regression models.

3.1 Empirical model

This study investigates whether financial stability is driven by bank competition in Vietnamese commercial banks. We further take into account the influence of competition on financial stability in the non-linearity, following Martinez-Meira and Repullo (2010), Kasman and Kasman (2015). The general regression model to assess the impact of bank competition on financial stability in Vietnamese commercial banks is as follows:

$$\text{STABILITY}_{i,t} = \beta_0 + \beta_1 \text{STABILITY}_{i,t-1} + \beta_2 \text{COM}_{i,t} + \beta_3 \text{CON}_{i,t} + u_{i,t} \quad (1)$$

Where $\text{STABILITY}_{i,t-1}$ is the one period-lagged financial stability factors, COM and CON denote vectors of competition and control variables, respectively.

The study also adds one period-lagged value of financial stability factors as an independent variable in the model for the purpose of indicating that the rate at which bank risk converges toward a long-run level (Kasman and Kasman, 2015). Moreover, to investigate whether financial stability is driven by bank competition, the squared competition indices are added to the equation as follows:

$$\text{STABILITY}_{i,t} = \beta_0 + \beta_1 \text{STABILITY}_{i,t-1} + \beta_2 \text{COM}_{i,t} + \beta_3 \text{COM}_{i,t}^2 + \beta_4 \text{CON}_{i,t} + u_i \quad (2)$$

3.2 Variable construction

Stability variables

This research uses the standard score named Z-score as the primary measure of financial stability, following the works of Berger et al. (2009), Soedarmono et al. (2013) and Schaeck and Cihák (2014). The theoretical underpinning of the Z-score is based on the work of Roy (1952), which measures a bank's distance from insolvency, where insolvency is a condition in which loss exceeds equity, such as $(-\pi > E)$, where π stands for profit and E stands for equity. The probability of insolvency can be represented as probability $(E/A < -ROA)$, where E/A is the equity asset ratio and ROA is the return on assets. The inverse of the probability of insolvency is $(ROA + E/A)/\delta(ROA)$, where $\delta(ROA)$ is the standard deviation of ROA. Thus, the Z-score is defined as the inverse of the probability of insolvency and indicates an individual bank's soundness. The Z-score is calculated in the

following manner: $\text{Z-score} = \frac{ROA + E/TA}{\delta ROA}$

In order to control skewed problem, we suggest the natural logarithm of Z-score to normalize its value following the work of Soedarmono et al. (2013). Besides, credit risk is as a ratio of loans in groups 3, 4 and 5 to total bank loans or NPL

ratio which also represents for financial stability. If NPL is high and cannot be controlled it will lead to failures. Hence, NPL is an important factor that should be strictly followed because NPLs are mainly employed to describe credit quality. In the meanwhile, credit risk is one of the major risks. Hence, credit risk is a concern of interest in terms of bank stability (Kasman and Kasman, 2015). If the more the bad debt ratio to total outstanding loans is, the riskier the lending portfolios (Berger et al, 2009). Furthermore, the higher in NPL ratio, the more probable in bank insolvency (Kabir and Worthington, 2017).

Finally, capital ratio is also an alternative measure of financial distress. The measure is used in many researches involving competition-financial stability such as Berger et al. (2009); Soedarmono et al. (2013); Kasman and Kasman (2015). In this study, we propose capital adequacy ratio (CAR) as financial stability measurement. This measure assesses the banks' adaptability when they face to sudden shocks (Gersl and Hermanek, 2008). Based on Basel committee, CAR is

measured following recipe below:
$$CAR = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}} \times 100\%$$

Competition variables

The Lerner index initiated by Lerner (1934) is employed to measure bank competitive extent because the unstructured approach is able to evaluate market power of banks with the concentration on the difference of price and marginal costs (Tusha and Hashorva, 2015). Specifically, the Lerner index defined as the difference between output price and marginal cost exhibits that whether banks evaluate their products higher than marginal cost (Berger et al, 2009); if Lerner = 0, the market is perfectly competitive and vice versa if Lerner = 1, the market is completely monopoly. The Lerner index is calculated as follows:

$$\text{Lerner}_{i,t} = \frac{P_{i,t} - MC_{i,t}}{P_{i,t}}$$

Where $P_{i,t}$ is the output price of bank i at time t which is the ratio of total revenue to total assets and $MC_{i,t}$ is the marginal cost of bank i at the end of period t .

Since the marginal cost of banks cannot be directly observed, the MC is calculated based on total cost. The bank's total cost (TC) is calculated by the logarithm of cost with one output factor (total assets (Q_i, t)) and three inputs (W_j) including: labor cost (W_1 - the ratio of employee cost to total asset); material cost (W_2 - the ratio of non-interest expense to fixed asset); capital cost (W_3 - the ratio of interest cost to total bank deposits) (Berger et al, 2009). Specifically, the specification of total cost is as follows:

$$\ln TC = \beta_0 + \beta_1 \ln Q_{i,t} + \beta_2 \frac{1}{2} \ln Q_{i,t}^2 + \sum_{k=1}^3 (\gamma_{kt} \ln W_{kit}) + \sum_{k=1}^3 (\phi_k \ln Q_{it} \ln W_{kit}) + \sum_{j=1}^3 \sum_{k=1}^3 (\ln W_{kit} \ln W_{j,i,t})$$

Following this, the marginal cost equation is computed by taking the first derivative of the total cost function, by:

$$MC = \frac{TC_{it}}{Q_{it}} [\beta_1 + \beta_2 \ln Q_{it} + \sum_{j=1}^3 (\phi_j \ln W_{kit})]$$

Where (β) and (ϕ) coefficients are determined from the regression outcomes of the total cost specification constructed. In order to conserve space, the estimation of Lerner index is unreported. However, we will provide when are required.

Control variables

Control variables include bank-specific features and macroeconomic factors to control the net impact of competition on financial stability. Bank-specific variables include: SIZE-the natural logarithm of total assets; TA_GRO-the growth rate of total assets value of the current year compared to the previous year and L_TA-the ratio of total loans to total assets. Macroeconomic characteristics contain: LN(GDP)-the natural logarithm of gross domestic product and INF-inflation rate.

3.3 Data

Database is obtained from several sources. A set of secondary data on commercial banks are provided by Stoxplus¹⁶ while country-level data on macro-economics are retrieved from World Bank. Our initial sample on commercial banks includes all 34 commercial banks in Vietnam with 297 observations during the period of 2006 – 2016. We only retain banks with no missing data. Besides, those without special features, such as merge, acquisition is also included. Moreover, our study focuses mainly on Vietnamese commercial banks and hence we exclude cooperative banks, development banks and foreign banks. For a bank to be included in our analysis using panel data models, we also require the banks to have data for all variables for at least consecutive 5 years. These screening procedures result in a final unbalanced sample of 27 banks, with 210 bank-year observations. Furthermore, all continuous variables are winsorized at the 5th and 95th percentiles to alleviate the impact of outliers.

¹⁶ A company specializes in collecting and analyzing data on banks in Vietnam

4 Results and discussions

4.1 Descriptive statistics and correlations

Table 1 presents the summary statistics for the entire sample. On average, a bank in the entire sample has CAR, NPLs and Lnscore ratio of 0.137, 0.023 and 2.977 respectively being in the range of capital adequacy ratio, bad debt ratio and standard score. Narrowly interpreted, capital adequacy ratio shows that Vietnamese commercial banks have paid attention on obeying the minimum ratio (9%) which is regulated by State Bank of Vietnam (SBV). Moreover, NPLs demonstrated that banks still remain their bad debt at the threshold of international standard (3%) proposed by Basel committee. Finally, banks' Zscore has varied their observation which brings advantage in our research. With respect to competition variables, the means of LERNER index is 35.9%, indicating that the competitive extent is extremely serious. An average bank in the sample has total asset logarithm of 18.019 million VND, an total asset growth speed of 38.7%, a loans to total asset ratio of 51.2%. In terms of macroeconomic characteristics, the means of natural logarithm of GDP and inflation rate are 9.437 million VND and 8.5%, respectively.

Table 1: Descriptive statistics results

STT	Variable	Mean	Std. Error	Min	Max
1	CAR	0.137	0.056	0.052	0.459
2	NPL	0.023	0.015	0.001	0.096
3	LnZscore	2.977	0.605	1.337	4.566
4	LERNER	0.359	0.135	-0.078	0.637
5	SIZE	18.019	1.344	13.135	20.730
6	TA_GRO	0.387	0.704	-0.392	8.355
7	L_TA	0.512	0.137	0.041	0.808
8	LN(GDP)	9.437	0.186	9.026	9.654
9	INF	0.085	0.060	0.009	0.231

Source: Author's calculation

Table 2 illustrates the correlation matrix of both dependent and independent variables. An important hypothesis is no multicollinearity among the explanatory variables. All of the correlation coefficients in table 2 are less than 0.8. Following Klein's rule of thumb, it can be concluded that the independent variables in the equation are not multi-collinear. Additionally, we also test multi-collinearity via Variance Inflation Factor (VIF). However, these indices fluctuate from 1.06 to 2.46 (less than 5), proved that it is unlikely to have multicollinearity (to conserve space, these VIF indexes are unreported).

Table 2: Correlation matrix

	CAR	NPL	LnZscore	LERNER	SIZE	TA_GRO	L_TA	LN(GDP)	INF
CAR	1								
NPL	0.02	1							
LnZscore	0.42	-0.01	1						
LERNER	-0.24	-0.08	0.04	1					
SIZE	-0.55	0.02	-0.41	0.47	1				
TA_GRO	0.34	-0.21	0.15	-0.03	-0.32	1			
L_TA	-0.13	-0.07	0.01	0.23	0.17	-0.18	1		
LN(GDP)	-0.13	0.18	0.13	0.17	0.46	-0.42	0.04	1	
INF	0.06	0.04	-0.49	-0.38	-0.21	0.04	-0.16	-0.45	1

Source: Author's calculation

4.2 Results and discussion

In Table 3, we present two-step SGMM regression results from each empirical specification. The reliability tests denote that the models are satisfactory in terms of serial correlation with the P-value of AR (1) less than 0.05 and the P-value of AR (2) not statistically significant; it means that serial correlation is present at first order, but absent in the second order and hence no the second order autocorrelation. Moreover, the significant value of Wald test implies that all models are correctly specified. In addition, the significant value of Hansen test ensures the validity of over-identifying restrictions indicating that instrument variables used for handling endogeneity problems are valid. Narrowly interpreted, Hansen test's results record a high P-value which is over 0.1, hence it is impossible to disprove the hypothesis that the instruments are appropriate. This demonstrates that the instruments solve the endogeneity concerns. Therefore, the beta coefficients of the regression model can be used to analyze.

Table 3: SGMM regression results

Dep. Variable	CAR		NPL		LnZscore	
Model	(1)	(2)	(3)	(4)	(5)	(6)
L.CAR	0.4036***	0.7499***	-	-		-
L.NPL	-	-	0.8554***	0.4734***		-
L.LnZscore	-	-	-	-	-0.0749***	0.1060***
LERNER	0.1757***	0.9371***	0.0600***	0.3969***	4.7684***	15.208***
LERNER_2		-0.8904***		-0.5263***		- 19.522***
SIZE	-0.0999***	-0.0736***	-0.0195***	-0.0219***	-0.5921***	-0.4437***
TA_GRO	0.0545***	-0.0895***	-0.0008	0.0008	-1.2824***	-0.918***
L_TA	-0.1127***	0.1026***	0.0169*	0.0132	-0.3249**	1.992***
LN(GDP)	0.3332***	0.2407***	0.0837***	0.1376***	-2.3241***	-1.687***
INF	0.0993***	0.3773***	0.144***	0.0994***	-7.6051***	-7.720***
_cons	-1.2510***	-1.1604***	-0.4766***	-0.9740***	35.4792***	24.070***

Dep. Variable	CAR		NPL		LnZscore	
Model	(1)	(2)	(3)	(4)	(5)	(6)
No. instrument	19	19	23	23	31	27
Pro>chi2	0.000	0.000	0.000	0.000	0.000	0.000
Hansen test	0.735	0.713	0.310	0.328	0.625	0.207
AR1	0.015	0.070	0.018	0.024	0.089	0.011
AR2	0.432	0.757	0.952	0.674	0.868	0.197

Note: ***, **, * denote significance at 1%, 5%, 10%

source: author's calculation

Table 3 reports that the coefficients on the Lerner index are positive and highly significant at the 1% level. The results indicate that the competition is positively related to financial stability proxing by CAR and LnZscore, suggest that *ceteris paribus*, an increase in the severity of competition causes Vietnamese commercial banks more financially stable; the drawn conclusion is to support the "competition - stability" perspective and, is consistent with both our prediction (H2) and earlier findings in the literature (Berger et al, 2009; Moch, 2013; Fiordelisi and Mare, 2014). Nevertheless, in the case of proxy of NPL, the coefficients on NPL is positive. The drawn inference that *ceteris paribus*, banks compete more intensely, they suffer from higher credit risk, implying that when banks diversify their products to compete, the bad debt ratio is larger leading banks to become more unstable. In other words, the higher in outstanding loans, the more serious in bad debt ratio. The reason for this trend is that banks tend to lower evaluation standards or restrictions on credit activities. Moreover, banks with an efficient risk management system take advantage of loans in order to maximize their profits, leading to take more risk. The conclusion is consensus with the perspective of "competition - risk" and in line with both what we anticipate (H1) and Kasman and Kasman (2015). Although competition inversely affects credit sector, the inverse impact is not enough large to result in bank instability. A potential interpretation is that the speed of increasing the tie one and tie two capital more rapid than that of credit risk lead credit risk to be ambiguous, even loss-given-default is covered completely by addition capital and banks are more stable over time. An alternative interpretation is that the income from credit activities does not mainly account for the total income therefore, a negative sign from credit sector could not possibly dominate the whole bank stability.

Vietnamese commercial banks have competed mainly based on traditional interest rate-related activities such as loans, deposits. Basically, lending operations account for a large proportion of total assets. Therefore, increased competitive degree is commonly attributed to strengthening loans. Under competitive pressure, banks tend to loose the loan conditions. For this reason, riskier loans is followed by expanding lending activities in the Vietnamese context because our banking system cannot control the effects of overheated loans development and the consequences of the 2008 financial crisis. In sum, this results imply that banks

with more competition leads to more stable in case of considering in overall bank risk, but it makes banks increase their bad debts because of investing in riskier loan portfolio.

Otherwise, aforementioned empirical evidence on the positive effect imply that more competition in Vietnamese commercial banks leads to riskier loan portfolio, but overall, Vietnamese banking sector are more stable over time. It is clear that the speed of increasing the tie one and tie two capital more rapid than that of credit risk. Under State bank of Vietnam, all banks have been required to increase chartered capital with a large mount. To date, the chartered capital of Vietnamese bank is relative to South East Asia and Asia. Furthermore, the application of the Basel II standard is compulsory, hence the Car is always is higher than standard. In other words, the level of stability always is not threatened. According to the trade off theory between taking risk and return, Vietnamese banking system takes advantage of the income from high-risk loans to maximize profit which is an addition sources of capital to banks with effective risk management system.

To arrive at a more complete picture, we continue to find consistent evidence of nonlinear correlation (the U-shape curve) between competition and financial stability proposed in Berger et al (2009), Martinez-Miera and Repullo (2010), Kasman and Kasman (2015). The results in model 3 exhibit that the negative coefficient on the squared Lerner index is statistically significant at the 1% level. The new finding proves that the presence of the U-Shaped curve between competition and borrowers' affordability is practical, is in line with what we anticipate above (H3). In order to explain the non-linear relationship above in the context of Vietnam, we document that 2012 is the bottom of the U-shaped graph. The period 2010 - 2012 not only witnessed the most competitive period but also denoted that bad debt rose significantly. The reason could be explained is the banks aggressively competed not based on internal forces in the worse macroeconomic conditions, leading to more NPLs, so banks suffer more instability. Furthermore, the barriers in mobilization for foreign banks removed and they started to participate in the more equal competition environment with the domestic banks. On the other hand, Vietnamese commercial banks' inefficiency also led to an increase of competition and financial instability. In the period 2006-2010, many banks established generate the more competitive environment among banks along with the proliferation of Vietnamese economy. However, the existence of too many small-scaled banks because their starting points from rural commercial banks converted into urban commercial banks which had a rapid growth of assets and loan portfolios. As a result, the bad debt increased in the next phase and destabilized banking system. In addition, the application of the maximum lending rate makes competitiveness among banks more stressful. The reason is that Vietnamese commercial banks have developed by focusing on two main traditional products namely deposit and loans activities. Hence, banks mainly compete together in interest factor. Realizing the repercussions of extremely quick development in lending sector, a series of policies was

established to be contributive to address banks' stability. In the meanwhile, competitive extent was remaining even fiercer, generating the banks are more stable in the period of time from 2013-2016. (In order to conserve space the effects of control variables are not reported).

Robustness test

We also examine the robustness of our results to alternative methods, the results from a battery of robustness tests after reliability test (Breusch-Pagan, Hausman test) have the interesting differences, for example, the low R-square and the insignificant relation between competition and financial stability. Therefore, proved that these regressions could not possibly be efficient to address endogeneity concerns while a potential endogeneity from the lagged dependent variables is not mentioned. This is consistent with our earlier discussion on econometric methods.

Table 4: Robustness test results

Dep. Variable	CAR		NPL		LnZscore	
	OLS robust	FEM robust	OLS robust	REM robust	OLS robust	FEM robust
LERNER	-0.1168	-0.2596	0.0172	0.0175	0.6956	1.0494
LERNER_2	0.1913	0.3761	-0.0334	-0.0365	-0.1793	-1.5724
SIZE	-0.0325***	-0.0614***	-0.0008	-0.0008	-0.2936***	-0.2128**
TA_GRO	0.0203***	0.0214***	-0.0039**	-0.0041*	0.0460	0.0444
L_TA	0.0357	0.0387	-0.0091	-0.0106	0.0766	0.0264
LN(GDP)	0.0794***	0.1710***	0.0158	0.0152	0.6789**	0.5540
INF	0.1129	0.1577	0.0214	0.0183	-4.8920***	-5.5181***
_cons	-0.0349	-0.3476	-0.1083	-0.1010	1.9932	1.8730
R-square	0.3851	0.3658	0.0847	0.0843	0.5428	0.5179
Prob > F	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000
No. obs	151	151	210	210	210	210

Note: ***, **, * denote significance at 1%, 5%, 10%

source: author's calculation

Conclusions and implications

Competition plays a vital role in banking operations, especially Vietnamese commercial banks have faced to difficulty of internal and external environment. In this study, we conduct to have a look into financial stability driven by bank competition in order to examine literature related to “competition - risk” and “competition - stability”. The Lerner index is used for assessing bank competition while financial stability is considered by banking soundness indices. In case of studying in overall bank risk, banks with higher competition brings to capital adequacy ratio (CAR) and firm's probability to failure (Z-score) seem to be more substantial. Otherwise, bank competition is considered as the cause of increasing

bad debt, hence, this demonstrates that expanding comprehensive or lending operations to compete is one of the main sources of increasing credit risk. In other words, enhancing competitiveness in whole or lending operations will boost credit risk. In the meanwhile, this research also point out the correlation between bank competition and financial stability is non-linear with U-Shaped curve, implying that the positive and negative impact only happen the right or left of the bottom, respectively.

Based on the empirical results, some implications are proposed to enhance financial stability when Vietnamese commercial banks tend to be more competitive as follows:

First, although the expansion of products is considered as one of the main reasons of increasing loan-related risks, this does not mean that banks have to stop competitive strategy. In sharp contrast, banks need to be encouraged to compete to other both domestic and foreign banks more fiercely because competition is an indispensable trend to obtain the ultimate goal of value maximization. This requires each bank to have appropriate strategy, including: reductions in restrictions on credit activities, promoting quality and applying cutting-edge technologies in risk management. In addition, Vietnamese commercial banks need controls in lending operation-related risks in order to partially alleviate NPLs, take measures to detect and address the threaten of lending activities.

Second, the aftermath of the financial crisis of 2008 in Vietnamese banking system is that NPL increased dramatically, exhibiting that debt loans is influenced by macroeconomic conditions. Therefore, in order to ensure the safe range of bad debts, macroeconomic factors such as inflation, unemployment, and economic growth must be maintained stably. To obtain this, the state bank of Vietnam plays a role in advising the most appropriate policies for the government. More specifically, the monetary policies must be suitable for the context of Vietnam in each period to control inflation but ensure high economic growth for the ultimate purposes of increased competition and decreased NPLs.

Third, the determination of the U-curve bottom is an extremely essential intermediate step because this is a background to draw the possible implications for competition in each period. Specifically, the competitive strategy should be enhanced in short term in order to improve credit risk by diversifying non-interest products. However, this trend will not be encouraged if credit risk reaches the bottom because of the serious repercussion of competition. Therefore, bank with higher competition in the long-term period should pay attention on managing credit risk.

References

- [1] Acharya V., Gromb D., Yorulmazer T. (2012), Imperfect competition in the interbank market for liquidity as a rationale for central banking, *American Economic Journal: Macroeconomic*, Volume 4, Issue 3, Pages 184–217.
- [2] Allen F., Gale D. (2004), Competition and financial stability, *Journal of Money, Credit and Banking*, Volume 36, Issue 3, Pages 433-480.
- [3] Anginer D., Demircuc-Kunt A., Zhu M. (2014), How does competition affect bank systemic risk?, *Journal of Financial Intermediation*, Volume 23, Issue 1, Pages 1-26.
- [4] Arellano M., Bond S. (1991), Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations, *The Review of Economic Studies*, Volume 58, Issue 2, Pages 277-297.
- [5] Arellano M., Bover O. (1995), Another look at the instrumental variable estimation of error-components models, *Journal of Econometric*, Volume 87, Issue 1, Pages 115-143.
- [6] Ariss R T. (2010), On the implication of market power in banking: Evidence from developing countries, *Journal of Banking and Finance*, Volume 34, Issue 4, Pages 765-775.
- [7] Beck T., Demirgüç-Kunt A. and Levine, R. (2006), Bank concentration, competition, and crises: First results, *Journal of Banking and Finance*, Volume 30, Issue 5, Pages 1581-1603.
- [8] Berger A N., Klapper L F., Turk-Ariss R. (2009), Bank competition and financial stability, *Journal of Financial Service Research*, Volume 35, Issue 2, Pages 99-118.
- [9] Blundell R., Bond S. (1998), Initial conditions and moment restriction in dynamic panel data models, *Journal of Econometrics*, Volume 87, Issue 1, Pages 115-143.
- [10] Boyd J H., De Nicolo G. (2005), The theory of bank risk taking and competition revisited, *Journal of Finance*, Volume 60, Issue 3, Pages 1329-1343.
- [11] Boyd J H., De Nicolo G. and Smith B. (2004), Cries in Competitive versus Monopolistic Banking Systems, *Journal of Money, Credit and Banking*, Volume 36, Issue 3, Pages 487-506.
- [12] Caminal R., Matutes C. (2002), Market power and bank failures, *International Journal of Industrial Organization* 20, 1341-1361.
- [13] Fiordelisi F., Mare D. S. (2014), Competition and financial stability in European cooperative banks, *Journal of International Money and Finance*, Volume 45, Pages 1–16.
- [14] Hellmann T., Murdock K. and Stiglitz J. (2000), Liberalization, moral

- hazard in banking, and prudential regulation: are capital requirements enough, *American Economic Review*, Volume 90, Issue 1, Pages 147-165.
- [15] Jimenez G., Lopez J A., Saurina J. (2013), How does competition affect bank risk-taking?, *Journal of Financial Stability*, Volume 9, Issue 2, Pages 185-195.
 - [16] Kabir M N., Worthington A C. (2017), The ‘competition-stability/fragility’ nexus: A comparative analysis of Islamic and conventional banks, *International Review of Financial Analysis*, Volume 50, Pages 111-128.
 - [17] Kasman S., Kasman A. (2015), Bank competition, concentration and financial stability in the Turkish banking industry, *Economic Systems*, Volume 39, Issue 3, Pages 502-517.
 - [18] Keeley M. (1990), Deposit Insurance, Risk and Market Power in Banking, *American Economic Review*, Volume 80, Issue 5, Pages 1183-1200.
 - [19] Koetter M., Poghosyan T. (2009), The identification of technology regimes in banking: Implication for the market power-fragility nexus, *Journal of Banking and Finance*, Volume 33, Issue 8, Pages 1413-1422.
 - [20] Lerner A P. (1934), The concept of monopoly and the measurement of monopoly power, *The Review of Economic Studies*, Volume 1, Issue 3, Pages 157-175.
 - [21] Liu H, Molyneux P., Nguyen L H. (2012), Competition and risk in South East Asian commercial banking, *Applied Economics*, Volume 44, Issue 28, Pages 3627-3644.
 - [22] Mishkin F S. (1999), Global Financial Instability: Framework, Events, Issues, *Journal of Economic Perspectives*, Volume 13, Issue 4, Pages 3-20.
 - [23] Moch N. (2013), Competition in fragmented markets: New evidence from German banking industry in the light of the subprime crisis, *Journal of Banking and Finance*, Volume 37, Issue 8, Pages 2908-2919.
 - [24] Martinez-Miera D., Repullo R., (2010), Does competition reduce the risk of bank failure? *Review of Financial Studies*, Volume 23, Issue 10, Pages 3638-3664.
 - [25] Porter, M. E, *The Competitive Advantage: Creating and Sustaining Superior Performance*, NY: Free Press, 1985. (Republished with a new introduction, 1998.)
 - [26] Roy A D. (1952), ‘Safety first and the holding of assets’, *Econometrica: Journal of the Econometric Society*, 431-449.
 - [27] Schaeck K., Cihák, M. (2014), Competition, efficiency, and stability in banking, *Financial Management*, 43 (1), 215-241.
 - [28] Schaeck K., Cihák, M. and Wolfe S. (2014), Are competitive banking Systems more stable?, *Journal of Money, Credit and Banking*, Volume 41,

Pages 711-734.

- [29] Soedarmono W., Machrouh F., Tazari A. (2011), Bank competition, crisis and risk taking: Evidence from emerging markets in Asia, *Journal of International Financial Markets, Institution and Money*, Volume 23, Pages 196-221.
- [30] Stiglitz J E., Weiss A. (1981), Credit Rationing in Markets with Imperfect Information, *The American Economic Review*, Volume 71, Issue 3, Pages 393-410.
- [31] Tusha A., Hashorva A. (2015), Lerner Index and Boone indicator to Albanian banking sector, *International Journal of Scientific and Engineering Research*, Volume 6, Issue 10, Pages 467-471.
- [32] Vives, X. (2010), Competition and Stability in Banking, IESE Working paper 852.
- [33] Zhao T., Casu B. and Ferrari A. (2010), The impact of regulatory reforms on cost structure, ownership and competition in Indian banking, *Journal of Banking and Finance*, Volume 34, Issue 1, Pages 246-254.

The use of smartphones in surveillance

Esmeralda Kadëna

Doctoral School on Safety and Security Sciences, Óbuda University, Budapest,
Hungary

kadena.esmeralda@phd.uni-obuda.hu

Abstract: Over the years, the surveillance methods have become more and more sophisticated. Countries always keep a close eye on their citizens' activities and rivals to ensure safety and security. Now we are living in the era of internet where everything is connected and smart gadgets are used to gather information. Smartphone has become a popular spying tool and we are faced with a growing concern, mass surveillance. This work aims to explain how smartphones can be compromised and how the use of them as spying tool is causing threats to human rights.

Keywords: Smartphones; Surveillance; Threats; Human rights.

1 Introduction

Spying, the secret gathering of intelligence has been practiced for thousands of years. Many have called it as the second profession oldest in the world. Spies have proved themselves to be highly inventive when wedging their secret war while the human element of spying has remain essentially the same. Today the cutting edge of espionage relies on every technological breakthrough of the 20th century from satellites to lasers to DNA testing. Methods of spying have become sophisticated and invasive and they can pose threats to the right of privacy.

One of the earliest references of espionage comes from “The art of war”, a book on military strategy written more than two thousand years before by Sun Tzu, a Chinese philosopher [1]. According to Tzu, a hundred ounces of silver spend for information may save ten thousand spend on war. The tricks of the trade evolved into a codified body of knowledge known to its practitioners as tradecraft. It evolves any aspect of the activity as a spy to obtain information that can include secret privacy codes, surveillance, etc., and all of these have been collected and refined over the years by every nation.

As far back as Roman Empire, military leaders grappled with the question of how best to transmit messages over vast distances. If the information was confidential, emissaries were forced to either memorise it or to communicate in a form of letter code writing [2]. One of the biggest inventions appeared at the end of World War I, Enigma machine invented by the German engineer Arthur Scherbius to protect confidential communication and designed to automatically generate new and highly complex code up to three times per day [3]. Military and government services of several countries, especially Germany, adopted and used it before and during World War II. In order to break Enigma, Alan Turing specified and developed an electromechanical machine called the “Colossus” which was believed to be the first mechanical computer [4].

Over the years, the surveillance methods became more and more sophisticated. Now we are living in the era of internet where everything is connected. Countries and specific agencies now are using smart gadgets to gather information. Among them is the most popular, smartphone.

2 Smartphone as a spying tool

Smartphone has become an attractive spying tool for many reasons. At first smartphones are gaining a lot of popularity. Everyday life of people is connected with them and attackers are taking advantage. We are used to take smartphones everywhere and due to their features they have the capability to capture everything we say, see and to track every movement of us. What is more, they are increasingly becoming a hub to access and control also other devices paired with sensors and that collect data such as Internet of Things (IoT) devices. This combination make them a perfect tool to gather information.

Another reason is due to their technological features such as sensors. Microphones now have the capability to capture every word even the voice in conversation is too low. Usually they are equipped with two cameras, high definition. All smartphones are using radio frequencies like cellular, Wi-Fi, Bluetooth and GPS in order to provide information about location that can be used to track the users’ location and to record all their movements. Furthermore smartphones software and hardware ecosystem is very complex with many layers. Each of the elements and layers of the system can be “victim” of attack vectors and malicious actors. Actually each layer is protected but is very difficult to manage the threat when the higher layers are at risk.

One of the biggest challenges are people, as the weakest link in the security chain. When attackers are looking to gain access to a device they will take advantage

from users' behaviour. People may not be aware enough about the risks that the use of smartphone brings. For instance they may download a wrong application (like apps not from official stores, clicking on the wrong link, opening the wrong email, etc.) and because of these wrong practices, might happen that the attackers can have control on their microphones, cameras and radio frequencies information as well.

To achieve an effective cybersecurity an essential factor is the management of information systems risks [5]. Lack of the tools available to detect, analyse and protect from these vulnerabilities is also a significant concern. There are practices related to applications policies, data encryption and searching for system anomalies. But sometimes this is not enough and the exact solutions yet do not exist [6].

2.1 Smartphones' risks

Smartphones' risks lean on threats, vulnerabilities and impacts of the attacks and can be classified as follows [6]:

- *Threats*: It is about who is attacking, people that execute possibly attacks. They are generally classified in five categories. The first are criminals who intent to obtain money through theft or fraud. In the second group are included spies, their intention is to steal confidential, private and secret information from governments as well as from private sector. Then in the third group are warriors on nation and state level. There are focused on improving qualifications on this field to attempt attacks in support of the strategic objectives of the state. Next are "hacktivists", their motivation to perform attacks is not monetary but political and social reasons. The last but not from the importance, are terrorists. They perform cyberattacks as a non-state form or warfare sponsored by the state.
- *Vulnerabilities*: This term is related to the weaknesses that hackers are attacking as a fight between them and defenders. Information and communication technology systems are very complex and on they have to face with attackers continuously search for weakest points of the systems. On the other side defenders fight for protecting against these critical points but very often have to deal with challenges. As the most problematic can be considered: unintended or with purpose acts by people known as insiders that are authorized to access the system; vulnerabilities of supply chain that can allow inclusion of malwares and the last ones are zero-day vulnerabilities or previously unknown. Even the countermeasures for vulnerabilities are known, sometimes is difficult or impossible to be implemented because of the lack of funds and actions.

- *User-based risks* [7]: Not technical attacks and directed to users. They are made through “social engineering” and aim to reach into private information [8]. The first challenge to protect the right to data protection today is related with the “volunteered” data, particularly through the rise in wearable devices and social media networks [9] .

2.2 Areas that can be comprised

- *Applications (Apps)*: such as mobile browsers, messaging apps, platforms and official stores can be all compromised. As a result intruders can gain illegitimate access to mobile devices and legitimate apps may deceive in their collection of data [10]. For instance spywares are used to collect information and data regarding a target subject by specifying their usage is for advertising and promotional purposes (adware) or to offer better service to users (cookies), while they collect information about a person/organization and send to someone else without their permission) [6].
- *Operating systems (OS)*: there are different kind of vulnerabilities within operating systems that can control a smartphone. For instance, in 2015 CIA aimed to steal Apple’s secrets [11] and two attack campaigns against Android were discovered in 2016; one dedicated on rooting Androids OS ad gaining access to Google Gmail, Docs, Drive, accounts and the second one that aimed to steal information and to send messages [12].
- *Firmware/carrier*: it is possible that firmware/carrier can be hacked invisible to protections at the OS or application layer. Fake mobile phone towers (IMSI catchers) can inject malicious code or stand between the communication of the target and the real service provider’s tower (man-in-the-middle: MITM attack) [13], [14]. The use of them from police has caused international headlines. In Norway they were not only used improperly but also used to spy the government itself [15]. The problem was that while they were searching for one number during the same time were collecting a hundred numbers. In New York, IMSI catchers have been used more than a thousand time by police since 2008 [16].
- *Hardware/Chips*: Code inside the hardware, i.e. clipper chip [17] developed by the United States National Security Agency (NSA) for the National Institute of Science and Technology (NIST) or printed circuit boards can be modified during manufacturing. By replacing the legitimate ones, can provide attackers control of compromised parts [18].

3 Mass surveillance

The major part of our daily life is stored on smartphones and due to the changes in technology, agents and hackers have been using the devices we pay for. Over the last years, it has not been so necessary for them to follow and spy us physically. Intelligence agencies dedicate people, money and time to the target and we can think it is possible that they can gain access on everyone smartphone, laptop, iPad or any smart gadget [19]. Thanks to the available technology and hacking methods, they may have control over the contact list, messages, phone conversations, where the phone is physically located. People tend to not really care about the privacy because most of these are happening invisibly. Everything and everyone can be spied through phone calls, such as conversation, from where and when they are talking. As a result, now investigators can know much better, when someone left his/her house, where and when he/she went, who he/she set with, how long he/she stayed and so on. This is called metadata.

3.1 Related events

In 2013 Edward Snowden leaked details of massive government surveillance programs [20]. Since then a raging debate initiated over digital privacy and security. That debate came to a head in 2016, when Apple refused an FBI court order to access the iPhone of alleged San Bernardino terrorist. Meanwhile, journalists and activists have been under attacks from foreign agents. Is it possible for people to truly protect sensitive information? FBI argued on the court that Apple has the exclusive technical means to get into mobile phones but according to Snowden results, that was possible without the help of Apple [21].

A joint CIA/NSA project called “Shenanigans” [22] was to mount on airplanes an IMSI catcher and fly it around the city. They can tell when the target person have travelled and when he moves. It was happening in Yemen aiming the missiles at terrorists. But usually these programs has a tendency and can move from war front to home front. After 6 months was reported by Wall Street Journal that the same technology is used domestically in US. FBI has an aviation unit flying around cities monitoring protesters instead of violent criminals. But spying technology is used also against state activists like in case of Shehabi who was target of the FinSpy malware emails and became a victim of government surveillance. The malware aim was to turn on the camera and microphone.

Mass surveillance is becoming a big concern. In US during the last years, news highlighted the possibilities of collecting data of Americans from NSA [23]. Foreign intelligence surveillance act (FISA) [24] authorises the secret courts to green light domestic spying programs. In the fundamental law was not mentioned

anything about metadata and collecting records on law abiding people. Furthermore reports claimed that NSA's mass surveillance programs do not have a track record to prevent the attacks [25].

3.2 Threats to human rights

In a Big Data world, mass surveillance is posing threats to private lives of citizens and freedom among political activists and journalists. The surveillance practices are putting in risk the fundamental human rights in democracy: the rights to privacy [26], freedom of information and expression [27], the rights to a fair trial [28] and freedom of religion [29]. If the juridical control is inadequate the violation of these rights also jeopardizes the rule of law. National law should allow the collection and analysis of metadata only if the person will be consent or if the following court order granted on the basis of reasonable suspicion of the target being involved in criminal activity otherwise everything unlawful should penalised.

A lack of proper legal regulation and technical protection at the national and international level, and its effective enforcement was shown. Data protection laws existed in most western countries but limited in terms of regulation of "personal data" and the enforcing existing mechanisms for these regulations were insufficient in the majority of cases [30], [31]. In order to ensure creditability, control mechanism can enforce the national and international legal framework. The law in most states provides some protection for the privacy of their own citizens, but not of foreigners. The Snowden files have shown that the NSA and their foreign partners, in particular among the "Five Eyes" partners (United States, United Kingdom, Canada, Australia, New Zealand) circumvent national restrictions by exchanging data on each other's citizens [32]. There is a need for transatlantic cooperation in the fight against terrorism and other organised crime forms [33] and for cooperation based on trust and on respect for human rights and the rule of law.

Schuster et.al argue that there is a need to strength the basic structure of the internet and to policies addressing software and hardware vulnerabilities and weaknesses of the Internet architecture should be improved [34]. Despite efforts in the field of quality assurance, most hardware and software products and services still include many vulnerabilities that can be exploited. Security measures should be included in the design from the starting point [35]. If malicious practices will be taken into account during the design phase they will not only prevent vulnerabilities but can also reduce their impact. Putting more emphasizes in increasing the use of algorithms to predict upcoming crimes can help on preventing the consequences [36].

From 25th of May 2018 to make consistent data privacy laws across Europe, will take effect the General Data Protection Regulation (GDPR) [37]. Organisations are enforced to look at potential vulnerabilities where sensitive data could be lost or exploited. However, the framing of data protection as a right appears to have imposed much greater obligations on private actors than most other human rights. Under GDPR is required that system designers must take into account human right when developing new products and this might be difficult from their part. As regards international data transfer, GDPR updates legal obligations with new concepts but no massive changes are presented over provisions in the DPD (Data Protection Directive) [38]. EU data protection law can be seen in the lights of limitations as it does not provide emendation for non-EU citizens and only data subjects in the EU are under protection of the GDPR [39]. Nevertheless, user based attacks will be always present and people should be conscious about the risks that the use of smartphones poses.

Conclusions

As the number of smartphones, their functionalities and application scenarios increases and hence also the amount of data stored on them, it is interesting and important to understand the risks that brings the use of them. In this paper was shown that due to their features and capabilities, they are a convenient tool to be used in surveillance. Everyone should be aware of the smartphones' risks, whether legally (by user-based attacks), or illegally (by attackers look to compromise a smartphone). Mass surveillance is posing threats to fundamental human rights in democracy. Data protection and internet security are a necessity for people's safety while the main challenge is about the peoples' data that can be easily found.

Finding the right balance between the interests protected by the right to data protection and the effects coming from attacks will continue to be a subject of debate. The proper legal regulation and technical protection at the national and international level should take place in every organisation. In a changing global order, there is a need to strengthen the realisation of the right to data protection as a fundamental human right.

References

- [1] S. Tzu, "XIII: The use of Spies," in *Art of War*, Leicester , Allandale Online Publishing, 2000, pp. 59-62.
- [2] R. M. Sheldon, *Espionage in the Ancient World: An Annotated Bibliography of Books and Articles in Western Languages*, Jefferson, N.C: McFarland & Co, 2003.
- [3] S. Singh, *The Code Book: The Science of Secrecy from Ancient Egypt to Quantum Cryptography*, Knopf Doubleday Publishing Group, 2011.

- [4] cryptomuseum.com, "History of the Enigma," 30 September 2017. [Online]. Available: <http://www.cryptomuseum.com/crypto/enigma/hist.htm>.
- [5] Joint Task Force Transformation Initiative, "Managing Information Security Risk: Organization, Mission, and Information System View," National Institute of Standards and Technology, Gaithersburg, 2011.
- [6] H. Bidgoli, "Volume III: Threats, Vulnerabilities, Prevention, Detection and Management," in *Handbook of Information Security*, New Jersey, John Wiley & Sons, Inc., 2006, pp. 146-165.
- [7] R. J. Anderson, *Security Engineering: A Guide to Building Dependable Distributed Systems*, 2nd ed., Indiana: Wiley Publishing, Inc., 2008.
- [8] Symantec, "2016 Internet Security Threat Report," Symantec Website Security, 2016.
- [9] D. Lyon, "Surveillance, Snowden, and Big Data: Capacities, consequences, critique," *Big Data & Society*, pp. 1-13, 2014.
- [10] P. Ruggiero and J. Foote, "Cyber Threats to Mobile Phones," Carnegie Mellon University for US-CERT, 2011. [Online]. Available: https://www.us-cert.gov/sites/default/files/publications/cyber_threats_to_mobile_phones.pdf.
- [11] J. Scahill and J. Begley, "The CIA campaign to steal Apple's secrets," *The Intercept*, 10 March 2015. [Online]. Available: <https://theintercept.com/2015/03/10/ispy-cia-campaign-steal-apples-secrets/>.
- [12] K. Jackson Higgins, "Androids Under Attack: 1 Million Google Accounts Hijacked," *Darkreading*, 30 November 2016. [Online]. Available: <https://www.darkreading.com/endpoint/androids-under-attack-1-million-google-accounts-hijacked-/d/d-id/1327604>. [Accessed February 2018].
- [13] M. Apuzzo and M. S. Schmidt, "Secret Back Door in Some U.S. Phones Sent Data to China, Analysts Say," *The New York Times*, 15 November 2016. [Online]. Available: <https://www.nytimes.com/2016/11/16/us/politics/china-phones-software-security.html>.
- [14] imsicatcher.org, "A comprehensive Guide to How IMSI Catchers Work," Imsi catcher organisation, [Online]. Available: <http://imsicatcher.org/imsi-explained/>.
- [15] A. B. Foss and P. A. Johansen, "New report: Clear signs of mobile surveillance in Oslo, despite denial from Police Security Service," *Aftenposten*, 26 June 2015. [Online]. Available: https://www.aftenposten.no/norge/i/kamWB/New-report-Clear-signs-of-mobile-surveillance-in-Oslo_-despite-denial-from-Police-Security-Service.

- [16] J. Goldstein, "New York Police Are Using Covert Cellphone Trackers, Civil Liberties Group Says," The New York Times, 12 February 2016. [Online]. Available: <https://www.nytimes.com/2016/02/12/nyregion/new-york-police-dept-cellphone-tracking-stingrays.html>.
- [17] D. E. Denning, "The Case for Clipper (Clipper Chip offers escrowed encryption)," Encryption_policies.tripod.com, September 1995. [Online]. Available: http://encryption_policies.tripod.com/us/denning_0795_clipper.htm.
- [18] A. Greenberg, "How a Bug in an Obscure Chip Exposed a Billion Smartphones to Hackers," WIRED, 27 September 2017. [Online]. Available: <https://www.wired.com/story/broadpwn-wi-fi-vulnerability-ios-android/>.
- [19] Electronic Frontier Foundation, "Cell-Site Simulators/IMSI Catchers," EFF.
- [20] M. Hosenball, "NSA chief says Snowden leaked up to 200,000 secret documents," REUTERS, 14 November 2013. [Online]. Available: <https://www.reuters.com/article/us-usa-security-nsa/nsa-chief-says-snowden-leaked-up-to-200000-secret-documents-idUSBRE9AD19B20131114>.
- [21] E. Levitz, "Obama administration: No pardon for Edward Snowden," MSNBC, 28 September 2015. [Online]. Available: <http://www.msnbc.com/msnbc/obama-administration-no-pardon-edward-snowden>.
- [22] J. Scahill and G. Greenwald, "The NSA Secret role in the U.S assassination program," The Intercept, 10 February 2014. [Online]. Available: <https://theintercept.com/2014/02/10/the-nsas-secret-role/>.
- [23] G. Kessler, "James Clapper's 'least untruthful' statement to the Senate," The Washington Post, 12 June 2013. [Online]. Available: https://www.washingtonpost.com/blogs/fact-checker/post/james-clappers-least-untruthful-statement-to-the-senate/2013/06/11/e50677a8-d2d8-11e2-a73e-826d299ff459_blog.html?utm_term=.c773c0da10e8.
- [24] fas.org, "Foreign Intelligence Surveillance Act," FAS, 3 May 2017. [Online]. Available: <https://fas.org/irp/agency/doj/fisa/>.
- [25] J. McLaughlin, "U.S. Mass surveillance has not record of thwarting large terror attacks, regardless of Snowden leaks," The Intercept, 17 November 2015. [Online]. Available: <https://theintercept.com/2015/11/17/u-s-mass-surveillance-has-no-record-of-thwarting-large-terror-attacks-regardless-of-snowden-leaks/>.
- [26] ECHR-COE, "European Convention of Human Rights," European Court of Human Rights - Council of Europe, Strasbourg.

- [27] ECHR-COE, "Article 10, European Convention of Human Rights," ECHR-COE, Strasbourg.
- [28] ECHR-COE, "Article 6, European Convention of Human Rights," ECHR-COE, Strasbourg.
- [29] ECHR-COE, "Article 9, European Convention of Human Rights," ECHR-COE, Strasbourg.
- [30] A. M. Arnbak, "Securing private communications: Protecting private communications security in EU law: fundamental rights, functional value chains and market incentives," 2015. [Online]. Available: https://pure.uva.nl/ws/files/2703068/166342_Securing_Private_Communications_PhDthesis_Arbak_def311015.pdf. [Accessed January 2018].
- [31] OECD, "Report on the cross-border enforcement of privacy laws," OECD, 2006.
- [32] C. Nyst and A. Crow, "Unmasking the Five Eyes' global surveillance practices," APC and Hivos, 2014.
- [33] P. Omtzigt, "Mass Surveillance," Committee on Legal Affairs and Human Rights, Strasbourg.
- [34] S. Schuster, M. . van den Bergb, X. Larrucea, T. Sleweb and P. Ide-Kosticc, "Mass surveillance and technological policy options: Improving security of private communications," *Computer Standards & Interfaces*, vol. 50, pp. 76-82, 2017.
- [35] J. Cowie, "The New Threat: Targeted Internet Traffic Misdirection," ORACLE+Dyn, 19 November 2013. [Online]. Available: <https://dyn.com/blog/mitm-internet-hijacking/>. [Accessed April 2018].
- [36] M. de Goede, "The politics of privacy in the age of preemptive security," *International Political Sociology*, vol. 8, no. 1, pp. 100-104, 2014.
- [37] European Parliament and Council , "General Data Protection Regulation (GDPR)," 2016. [Online]. Available: <https://gdpr-info.eu/>. [Accessed February 2018].
- [38] T. Bräutigam, "The Land of Confusion: International Data Transfers between Schrems and the GDPR," *University of Helsinki Faculty of Law Legal Studies Research Paper Series*, pp. 140-177, 19 December 2016.
- [39] E. Perotti, "The European Ruling on the Right to Be Forgotten and Its Extra-EU Implementation," *World Association of Newspapers and News Publishers (WAN-IFRA)*, pp. 1-45, 2015.

Industry: Safety in Human-Robot Collaboration

Sinan Koçak

Óbudai University Doctoral School on Safety and Security Sciences, PhD student,
inan.kocak@bgi.uni-obuda.hu

Abstract: Human-robot collaboration (HRC) defines a working scenario in which people and autonomous machines work and share the same workplace. The latest model, developed with the Fourth Industrial Revolution (cyber-physical system), promises highly flexible workflows, maximum system efficiency and productivity and economic efficiency. However, when HRC fulfils these promises, proper security technology is required for implementation.

One of the most important robot issues associated with Industrial 4.0 Revolution is to make processes flexible. Integrating the human capability and ability to the robots offers production solutions characterized by improved run cycles, improved quality, and lower cost. However, human and robot interaction requires new security concepts that provide effective support to make production processes more flexible.

Keywords: Industry 4.0, human robot collaboration, Risk assessment.

1 Introduction & motivation

The first appeared of the term “robot” in a science fiction play “Rossum's Universal Robots” by Czech author Karel Čapek in 1920. In the author mother language, the robot means “hard work” and refers to artificial “people” who were created to do work for humans in the play [1]. At present, the term robot is generally used to describe a machine that programmable by computer algorithms to perform simple and complex tasks.

The idea has been aimed at robots to imitate people in the best possible way. The robot intelligent is trying to access features such as visual perception, tactile perception, mobility and road intelligence. The first robot in the industry, UNIMATE, was introduced at General Motor's car factory in 1956 as prototype. In 1961 it has been deployed commercially and massively [2]. During the period of time following, many private institutions and universities began to research on this issue.

In the first industrial revolution considered as the introduction of mechanization, hydro power and steam power. The second industrial revolution is understood as

the introduction of mass-production techniques by using electric energy. The third industrial revolution is based on the application of electronics systems and information technology for enhancing manufacturing automation. A significant breakthrough is now expected as the fourth industrial revolution by introduction so-called cyber-physical systems [3]. The effect of industrial development on production techniques is given in Figure 1, together with its historical processes.

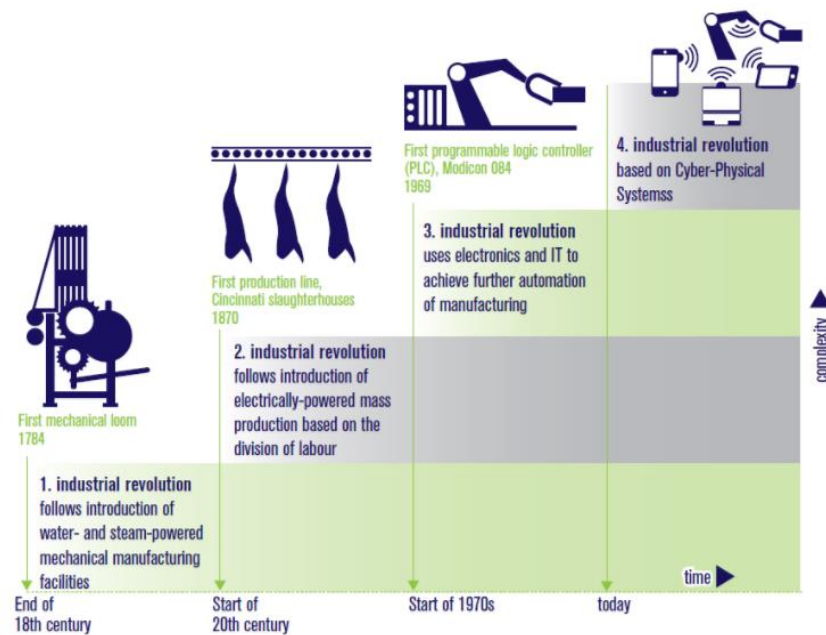


Figure 1

The 4th industrial revolution (source: [4])

Safety is one of those things that humans take for granted until it's too late. In the industries, human and machine are able to work together to make work efficient at the same time, however, this places greater demands on safety [5]. The interaction between human and robot increasingly demands new technologies and solutions. All safety functionality must be considered, from the sensor to the logic and beyond to the actuator.

Over the recent fifteen years, intensive studies have been done and various automation methods have been developed in order to increase productivity. Today, industrial robots are often used in unsafe, health-conscious jobs and in uniform works with high repetition. They consist of different types of applications such as material handling, assembly, welding, cutting (plasma, water jet, laser, etc.), painting, tool changing and so on [6]. These robots are used in production lines of different types without additional safety features. The philosophy in the field of

collaborative robots aim to develop robots in a way that is reliable enough to work with people in a real sense [7].

2 Functional safety

High automation grade and flexible production processes: If humans and robots are to work together in close proximity while maintaining a safe environment, functional safety will take today's production systems one step closer to more flexibility. HRC looks at how this can be achieved.

There are different automation forms depending on how humans and robots work together. When the final goal is complete collaboration in which humans and robots share the same workspace and carry out their work at the same time, then it is meaningful to develop solutions that employ coexistence or cooperation as the first steps toward this. This not only requires a thorough understanding of robotic applications but also requires expertise in assessing risks and accessing the appropriate portfolio of security solutions.

Every process in the development of HRC systems begins with a risk assessment. To conform to the Machinery Directive [8], a comprehensive assessment of possible hazards must be carried out for every machine as defined in EN ISO 12100 [9].

Since robotic systems often have to complete very complex motion sequences, the robotic safety standard EN ISO 10218 requires that each motion sequence is analyzed in addition to the hazard being assessed [10]. Environmental factors and basic conditions related to HRC application must also be considered and documented in risk assessment.

These are absolutely necessary steps to define what to take in the appropriate safety precautions. As a result, the HRC includes a wide range of technology types and components that are required to produce solutions for the various safety measures required, which have to work together as efficiently as possible and avoid any impact on the workflow and thus on productivity.

3 Basics of human-robot collaboration

Industrial classical robots follow a fixed program performs predetermined work and cannot go out of the program. Security measures for robots are also provided with the help of fences and cages. However, collaborative robots (cobots) are designed for people or to work with people. They do not need security measures

such as a cage, they work in the execution of complex tasks, or they help technicians.

3.1 Safety related monitored stop

In safety-related monitored stop application, the cobot stops and remains before the operator enters the common workspace. The application must be restarted for repetition by the operator [11].

3.2 Hand guiding

In a hand guide application, the cobot allows the operator to manually move the robot to various positions, allowing a limited amount of motion control to be released. This application has been used to teach programs, especially when new parts are frequently added [12].

3.3 Speed and separation monitoring

In speed and separation monitoring application, the cobot and operator move at the same time in the same collaborative work area. Risk mitigation is provided at every moment of the work by leaving a minimal protective separation between these two. In this application, when the minimum approach limit is reduced, the robot pulls itself back or changes its movement [13].

3.4 Power and force limiting

In Power and force limiting application, the operator and cobot may work in the collaborative workspace concurrently. There is a possibility of contact between the cobot system, including the end effector and work piece, and the operator [14].

In such applications, it is understood that the contact between operator and cobot is allowed, but the force applied by the cobot cannot exceed the limits allowed in the technical documentation. This is due to the reduction of inertia, appropriate robot geometry and soft material selection, and appropriate control functions.

The ISO / TS 15066: 2016 Technical Specification defines the biomechanical limit values of impact strength and severity for 29 points in the body region [15]. Biomechanical force experiments are performed by contacting a standing prosthesis slowly with a test probe, and the limit values reflect static conditions. However, dynamic experiments are already being carried out and will probably be reflected in the relevant document.

4 Risk assessment

Risk assessment is the most important task for the person who designs, analyzes the robot application and evaluates it in a complex system. As a starting point, every person involved in the design and implementation has to consider the current status of the international standards that deal with the specifically the safety robots for collaborative operation (ISO/TS 15066) [16] and safety of industrial robots (ISO 10218-1/-2) [17] [18].

The risk assessment must be applied on the entire robot system (full machine) when the robots are integrated into the main system (with end-effector, etc.). The resulting derived measures to reduce the risks will safeguard the safe collaboration operation. This risk assessment should be carried out even if the relevant robot has design features that reduce risk. According to the machine safety standards ISO 12100 [19], the risk assessment is an iterative process that involves two consecutive steps which is the risk analysis and risk evaluation as illustrated in figure 2. Risk analysis shows, (1) Determining the limits of machinery, (2) Hazard identification and (3) Estimating the risk. The risk estimation step, which is implemented for each specific hazard and hazardous situation, is important as its results will dictate the risk evaluation and thus select and prioritize risk reduction methods.

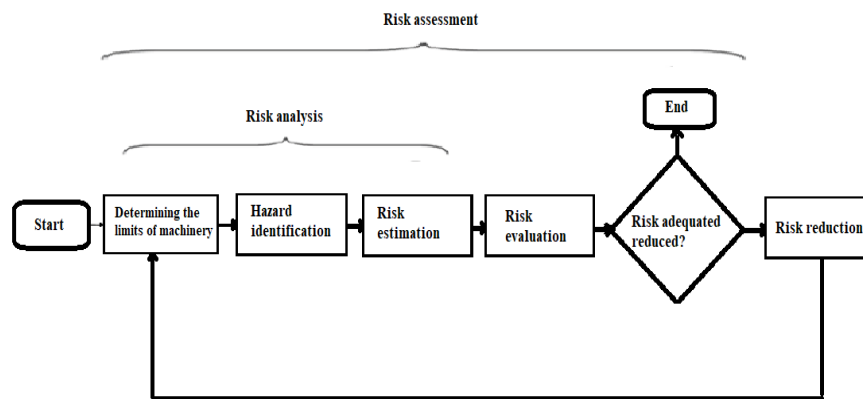


Figure 2. An overview of the risk based on ISO 12100.

5 The rise of collaborative robots market

The World Robotics Report 2017 [20], published by the International Federation of Robotics (IFR) forecasts 18% growth in industrial robot installations for 2017, with the growth of about 15% forecast for 2018–2020. Stronger-than-expected

growth in the global economy, faster business cycles, better variety in customer demand, and the emergence and expected to scale up of “Industry 4.0” concepts are all factors behind the optimistic prediction [21].

The global cooperative robots market is expected to expand at a CAGR of more than 60% during the forecast period 2016-2023 and is estimated to reach \$ 7 billion in 2025 [22]. Cooperative robots allow flexible manufacturing process, portable, and lightweight, require less programmable skills etc. Because of its many advantages, it has applications in automation industry, metal machinery, furniture and equipment etc. [23].

Geographically, Asia pacific has the strongest share in the global collaborative robot market. The growth of the global collaborative robot market in the Asia Pacific region is supported by the presence of major robotics companies. Asian Pacific countries such as Japan, South Korea, China and India accounted for almost 50% of the total revenue in 2015 [24]. At present, in 2017, Chinese automobile manufacturers use only one robot to perform a task equivalent to 25-30 worker [25]. However, this is expected to increase due to the advantages of homogeneous product quality above cost effectiveness. Furthermore, Europe was the first region to use the cooperative robots with the highest revenue in 2015.

The report on market shows that the most successful vendor so far been collaborative specialist Universal, based in Denmark. Other early companies such as US-based RynTech Robotic have achieved some fame, after a slow start, major industrialists, including ABB Ltd. (Switzerland), Kuka AG (Germany), and Yaskawa (Japan), have developed recently new cobots [26].

Conclusions

This article describes a brief overview of safety, risk assessment, and the global marketing of industrial cooperative robots. In many industrial sectors, the number of collaborative robots is expected to increase significantly. Occupational health, safety risk management, and cost assessment, are important to ensure safe and effective business by manufacturers and user of robots.

In the future, the collaborative robots will gain flexibility within the production technology. This development will directly change the factory automation applications concept where humans and robots are working together. Moreover, safety concepts will evolve and costs will be reduced by artificial intelligence and equipment progress.

References

- [1] K. Čapek, P. Selver and N. Playfair, Čapek, Karel, Paul Selver, and Nigel Playfair. RUR:(Rossum's Universal Robots): a Fantastic Melodrama in Three Acts and an Epilogue, S. French, 1923.
- [2] Y. Koren and Y. Koren, Robotics for engineers, vol. 168, New York et al: McGraw-Hill, 1985.
- [3] M.Abramovici, J. C. Göbel and M. Neges, "Smart engineering as enabler for the 4th industrial revolution," in *Integrated systems: Innovations and applications*, Springer, 2015, pp. 163-170.
- [4] K. Henning, "Recommendations for implementing the strategic initiative INDUSTRIE 4.0," 2013.
- [5] C. Heyer, "Human-robot interaction and future industrial robotics applications," in *Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference on*, IEEE, 2010, pp. 4749-4754.
- [6] H. A. Youssef, H. A. El-Hofy and M. H. Ahmed, Manufacturing technology: materials, processes, and equipment, Crc Press, 2011.
- [7] T. B. Sheridan, "Human--robot interaction: status and challenges," *Human factors*, vol. 58, no. 4, pp. 525-532, 2016.
- [8] I. Fraser, "Guide to the application of the Machinery Directive 2006/42/EC, 2nd edit," *European Commission-Enterprise and Industry*, June, 2010.
- [9] M. Hietikko, T. Malm and J. Alanen, "Risk estimation studies in the context of a machine control function," *Reliability Engineering & System Safety*, vol. 96, no. 7, pp. 767-774, 2011.
- [10] B. Matthias, S. Kock, H. Jerregard, M. Källman and I. Lundberg, "Safety of collaborative industrial robots: Certification possibilities for a collaborative assembly robot concept," in *Assembly and Manufacturing (ISAM), 2011 IEEE International Symposium on*, IEEE, 2011, pp. 1-6.
- [11] A. De Santis, B. Siciliano, A. De Luca and A. Bicchi, "An atlas of physical human--robot interaction," *Mechanism and Machine Theory*, vol. 43, no. 3, pp. 253-270, 2008.
- [12] G. Michalos, S. Makris, P. Tsarouchi, T. Guasch, D. Kontovrakis and G. Chryssolouris, "Design considerations for safe human-robot collaborative workplaces," *Procedia ClrP*, vol. 37, pp. 248-253, 2015.

- [13] S. Szabo, W. Shackleford, R. Norcross and J. Marvel, A Testbed for Evaluation of Speed and Separation Monitoring in a Human Robot Collaborative Environment, US Department of Commerce, National Institute of Standards and Technology, 2012.
- [14] C. Thomas, B. Matthias and B. Kuhlenkötter, "Human-Robot-Collaboration- New Applications in Industrial Robotics," in *International Conference on Competitive Manufacturing (COMA)*, Stellenbosch, 2016, pp. 293-299.
- [15] A. M. Djuric, R. Urbanic and J. Rickli, "A framework for collaborative robot (CoBot) integration in advanced manufacturing systems," *SAE International Journal of Materials and Manufacturing*, vol. 9, pp. 457-464, 2016.
- [16] The International Organization for Standardization, "Robots and robotic devices -- Collaborative robots," ISO/TS 15066, 2016.
- [17] Swedish Standards Institute, "Robots and robotic devices -- Safety requirements for industrial robots -- Part 1: Robots," ISO 10218-1:2011, Stockholm, 2011.
- [18] Swedish Standards Institute, "Robots and robotic devices -- Safety requirements for industrial robots -- Part 2: Robot systems and integration," ISO 10218-2:2011, Stockholm, 2011.
- [19] International Organization for Standardization , "Safety of machinery -- General principles for design -- Risk assessment and risk reduction," ISO 12100:2010, 2010.
- [20] IFR International Federation of Robotics, "IFR forecast: 1.7 million new robots to transform the world's factories by 2020," Frankfurt, 2017.
- [21] Universal Robot A/S, "IFR WORLD ROBOTICS REPORT 2017," Smart industry expo, NEC BIRMINGHAM, 2018.
- [22] Occams Business Research & Consulting Pvt. Ltd., "Global Collaborative Robots Market Report Insights, Opportunity Analysis, Market Shares and Forecast, 2017 - 2023," IRO-7140817, 2017.
- [23] R. Bloss, "Collaborative robots are rapidly providing major improvements in productivity, safety, programming ease, portability and cost while addressing many new applications," *Industrial Robot: An International Journal*, vol. 43, no. 5, pp. 463-468, 2016.
- [24] ABISHUR PRAKASH, "East Asian Robotics Sees Collaboration, Competition," HARMONIC DRIVER, 2018.

- [25] O. B. R. a. Consulting, "Global Collaborative Robots Market Report Insights, Opportunity Analysis, Market Shares and Forecast, 2017 - 2023," Research and markets, 2017.
- [26] I. Scales, "Meet your future new 'cobot' colleagues," TelecomTV, 2018.
- [27] Collaborative Robots Market Size & Share, "Collaborative Robots Market Analysis By Payload Capacity (Up to 5kg, Up to 10kg, Above 10kg), By Application (Assembly, Pick & Place, Handling, Packaging, Quality Testing, Machine Tending, Gluing & Welding), By Industry, And Segment Forecasts, 2018 - 2025," Grand view Research, 2017.
- [28] World Robotics Report 2016, "European Union occupies top position in the global automation race," International Federation of Robotics, Frankfurt, 2016.

Business mediation - consensus instead of compromise

Csilla Kohlhoffer-Mizser PhD.

assistant professor Óbuda University Keleti Faculty of Business and Management
Institute of Economics and Social Sciences
mizser.csilla@kgk.uni-obuda.hu

„In all debates, let truth be thy aim, not victory, or an unjust interest.”
(William Penn)

Abstract: Mediation is a voluntary process in which an impartial person helps with communication and promotes reconciliation between the parties which will allow them to reach a mutually acceptable agreement. Conflicts arise in every space of our lives, in the life of natural persons and of legal entities. Companies, enterprises, organizations, corporations has to manage their conflicts. With this background, the knowledge about process and methods of alternative dispute resolution (ADR) can help students to be able to solve conflicts with their own competences. During the teaching process we solve a conflict together with the students, from the beginning until the end of the case, so we finish with a binding agreement -the method shows step by step how to reach a reorganization, a resolution in legal or simply in human relationships. With special attention to business mediation we have to try to use consensus based procedure instead of compromise based solution.

Keywords: transformative mediation; conflict-connection, reorganization, agreement

1 Disputes in business

Disputes have to be solved between natural persons and also between legal entities. Also companies, enterprises, organizations, corporations has to manage their conflicts. While mediation is often thought of in the context of personal or family disputes, business owners realize that mediation services are available to resolve business-related disputes as well. In alternative dispute resolution of business conflicts there are used the three methods, technics of mediation: the evaluative mediation, the restorative mediation and the transformative mediation.

Mediation is an efficient, cost-effective process of problem-solving where the disputing parties work together to find a solution. It is sometimes easier to explain what mediation isn't.

Mediation isn't like litigation.¹⁷ Litigation involves a system of rules and limitations that has evolved over centuries to ensure procedural fairness amongst disputing parties. It often involves lawyers to speak for the parties and help navigate those rules, and ultimately, a judge or jury to decide the outcome. Litigation has value and is often necessary, but it's not the only way.

Mediation isn't a system of rules, but rather a means of communication. It does not involve document filings, discovery or court appearances, and it doesn't require a long wait or high costs. Instead, mediation is a less formal, accessible, flexible process that usually involves the parties meeting together with a mediator in a neutral setting to work out the issue.

The mediation process begins when both parties agree to mediate, and then agree on a mediator. Typically, before the mediation begins each side prepares a summary of the issue for the mediator to review, or each party meets with the mediator individually to provide background.

Once the pre-mediation details are completed, a meeting date and a *neutral location* is chosen, which can be a set of boardrooms, an office, or even an online space. While relations may be strained at the outset of the mediation process, a good mediator can eventually get parties talking to each other, can help identify common goals, and ultimately find a resolution that works for all. (<https://smallbusinessbc.ca/article/mediation-effective-tool-business-dispute-resolution>)

Another important draw to mediation is that it is a confidential way of resolving business related conflict. The parties are asked to sign confidentiality agreements and the inner workings of the business do not end up a matter of public record as they do in litigation. The protection of the parties' right to privacy is a key factor to both the business and the aggrieved party and makes mediation an attractive choice. (Marta J. Papa, 2008)

Mediation is a special non-litigious procedure conducted- according to the hungarian Act on mediation to provide- an alternative to court proceedings in order to resolve conflicts and disputes where the parties involved voluntarily

¹⁷ Litigation –is used not in every country, but for example in US- is the term used to describe proceedings initiated between two opposing parties to enforce or defend a legal right. Litigation is typically settled by agreement between the parties, but may also be heard and decided by a jury or judge in court. Contrary to popular belief, litigation is not simply another name for a lawsuit. Litigation includes any number of activities before, during, and after a lawsuit to enforce a legal right. In addition to the actual lawsuit, pre-suit negotiations, arbitrations, facilitations and appeals may also be part of the litigation process. <https://law.freeadvice.com/litigation/litigation/litigation.htm>

submit the case to a neutral third party (hereinafter referred to as 'mediator') in order to reach a settlement in the process and lay the ensuing agreement down in writing.

If the mediator accepts the invitation, he/she shall send the parties a statement of acceptance, as stipulated in Subsection (1) of Section 24¹⁸ of the Act, inviting the parties to the first mediation hearing and informing them of their right to obtain representation.¹⁹

Where either of the parties fails to appear in the first mediation session, the mediator shall not start the mediation process. The representative may be a person of legal age and legal capacity or a legal counsel acting under a power of attorney. The parties or, if the party is a legal person, the authorized representative must appear together in person at the first mediation hearing and for the conclusion of the agreement. The mediator shall hold the mediation hearing in the place indicated in the register as the official location of mediation activities or at some other location subject to the parties' approval.

The mediator in the first mediation session shall inform the parties

- of the basic principles of mediation and the major stages of mediation negotiations,
- of the process effectively leading to an agreement,
- of the costs of the process,
- of the confidentiality requirement encumbering the mediator and expert who is involved,
- of the option that parties may agree on the confidentiality to which they are subject,
- of the mediator's obligation to present only those legal materials and facts that directly pertain to the case, where it is so warranted by the nature of the case,
- of the contents of Subsection (4) of Section 32²⁰ and Subsection (3) of Section 35 -(3)²¹

In Hungary, there are four known ways for alternative dispute resolution in civil law: (1) mediation by the courts-judicial mediation; (2) arbitration; (3) conciliation; (4) mediation. (Csilla Kohlhoffer-Mizser, 2017)

¹⁸ (1) The invited natural person or the employee acting in the name of a legal person, following consultation with the director of the legal person, shall communicate his acceptance or rejection in writing within eight days following receipt of the invitation. Acceptance of the invitation shall constitute the right of the invited natural person or the employee acting in the name of a legal person to function as the mediator in the mediation process.

¹⁹ Act LV of 2002 on Mediation, Section 28 (1)

²⁰ The mediator may convey any information received from one of the parties to the other party for reply, unless the party supplying the information expressly forbids the mediator to convey it to the other party.

²¹ Where the mediator of a mediation process is a legal advisor, a notary public or an attorney, the mediator shall not be permitted to prepare a legally binding document on the basis of the written settlement, nor shall he/she be entitled to endorse such document in his capacity as a legal advisor or attorney.

Common strategies a mediator might use during a business mediation to help the parties reach settlement include:

- Brainstorming new options;
- Questioning parties regarding the facts, law, interests strengths, and weaknesses of their case and the other party's case;
- Exploring non-monetary settlement options;
- Conditional demands and offers;
- Backwards bargaining;
- Decision tree analysis;
- Last best demand and offer;
- Best alternative to negotiated settlement;
- Mediator's proposal;
- Attorney-only sessions;
- Triangulating the gap;
- Apologies;
- Timing of payments. (Deborah Buyer, 2012)

The ultimate goal of the mediation is for the parties to come to an agreement on a resolution.

The stable continuation of business relationships between companies may be impaired by recourse to courts; additionally, litigation is extremely expensive, especially if the dispute involves complex contractual documents, a large number of witnesses or substantial amounts of time in the courtroom dealing with technical aspects of a business contract. The basic common-law rules of contract²² have been largely and increasingly superseded by specialised and technical statutory provisions requiring corresponding specialism in dispute-prevention and settlement devices and techniques.(Phil Harris, 2007)

2 Consensus instead of compromise?

In the procedure of persuasion the first step is to hear and apprehend the partner. (Neményiné Gyimesi Ilona, 2017.)

To use effective tools to persuasion, parties should lean at the end of the process to make a compromise or create a consensus. We could ascertain that compromise and consensus are one in the same, but there are very important differences between the two definitions.

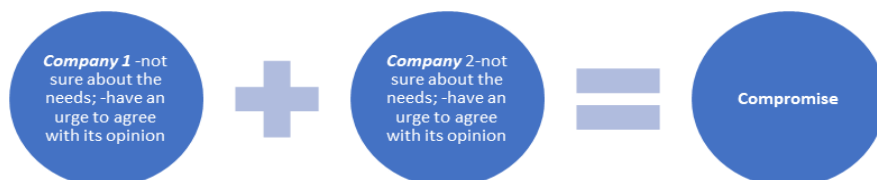
²² examples: past consideration, sufficient consideration, insufficient consideration, implied terms and exclusion clauses, misrepresentation

To compromise is to make a deal between different parties where each party gives up a part of their demand. In arguments, compromise is a concept of finding agreement through communication, through a mutual acceptance of terms—often involving variations from an original goal or desire.

The idea of compromise is usually based upon competing demands and some willingness to give up some part of the demands. Each party says they are willing to give up on getting a portion of their demands to get the other to make an agreement. If there is agreement they feel like they lost or won but neither party trusts the other to follow through. The compromise soon collapses and is often forgotten. This leaves both parties with an increasing sense of powerlessness, bitterness and distrust

The structure of compromise can lead to be manipulative and co-dependent:

1. give away something for the moment;
2. to get something the one needs from the other (Company1-Company2);
3. later parties will seek to modify the agreement or parties will behave as if there is no agreement. Parties can be both being manipulative and controlling, the two pillars of co-dependence. Parties may feel increasingly anxious, increasingly impulsive, and increasingly powerless.

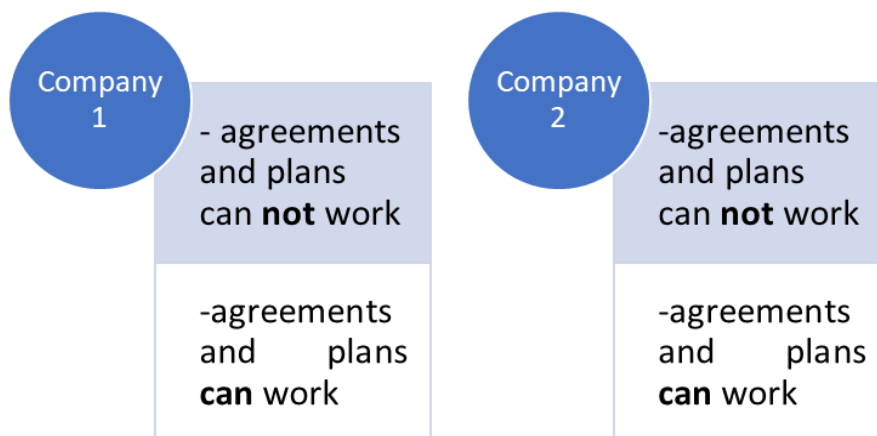


1st graph: author's construction

Consensus decision-making is a group decision making process that seeks the consent, not necessarily the agreement of participants and the resolution of objections. Consensus is defined as, first, general agreement, and second, group solidarity of belief or sentiment. It has its origin in the latin word *cōnsēnsus* (agreement), which is from *cōnsentiō* meaning literally feel together. It is used to describe both the decision and the process of reaching a decision.

The idea of consensus is based upon the reality of overlapping interests. Companies that have chosen to work together for some time and aims almost certainly have a long list of interest in common, especially if they have aims over taking profit. Thing may have become very difficult but there are strengths in the

relationship derived by the strengths of each individual. These strengths usually represent a good portion of the shared values. In consensus parties shall realize they can stop trying to get the other to agree about stuff they do not agree about. They can instead focus on finding agreement to solve problems in any area of common interest.



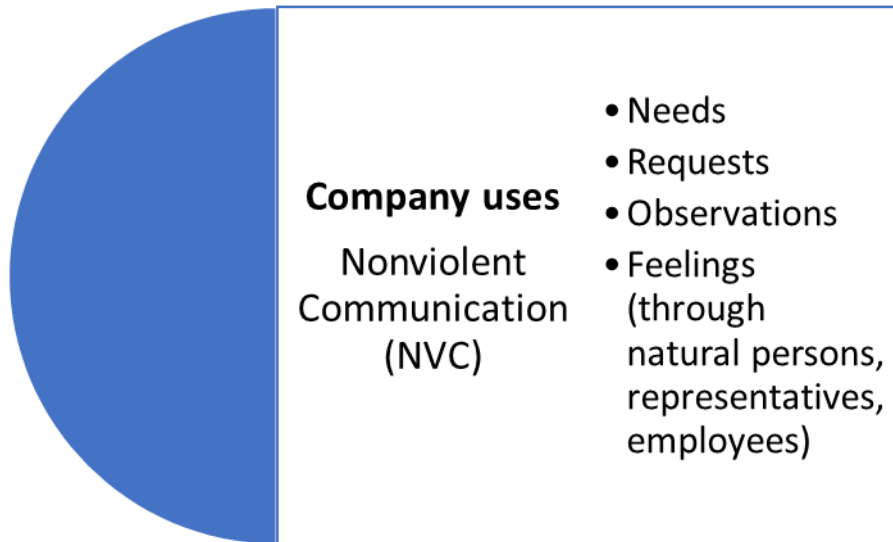
2nd graph: author's construction

In business mediation conflict transformation theory regards the focus not on case, but it considers the case as an opportunity: as such kind of entrance, where through the transformation of the conflict generating environment can be set in motion.

The transformation approach regards the conflict as the catalyzer of the progression. (John Paul Lederach, 2003)

In business dispute-resolving there can be used the four-part Nonviolent Communication Process (NVC). Clearly expressing how I am without blaming or criticizing; empathically receiving how you are without blame or criticism. (Marshall B. Rosenberg, 2015)

Often simply we do not have idea how to escape from the vicious circle of attacks and counter-attacks. Nonviolent communication shows a way, a method, with which we can show our feelings during our conversations and debates and we can express what we really need. It encourages us, to put off our preconceptions and hostility and dare again receive detachedly the friendly overture of the other's. (Serena Rust 2014)



3rd graph: on the grounds John Paul Lederach: The Little Book Of Conflict Transformation, Good Books 2003 p. 15.

In the regulation of the European Union ‘Mediation’ means a structured process, however named or referred to, whereby two or more parties to a dispute attempt by themselves, on a voluntary basis, to reach an agreement on the settlement of their dispute with the assistance of a mediator. This process may be initiated by the parties or suggested or ordered by a court or prescribed by the law of a Member State.

It includes mediation conducted by a judge who is not responsible for any judicial proceedings concerning the dispute in question. It excludes attempts made by the court or the judge seised to settle a dispute in the course of judicial proceedings concerning the dispute in question.

‘Mediator’ means any third person who is asked to conduct a mediation in an effective, impartial and competent way, regardless of the denomination or profession of that third person in the Member State concerned and of the way in which the third person has been appointed or requested to conduct the mediation. (The DIRECTIVE 2008/52/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 May 2008 on certain aspects of mediation in civil and commercial matters. *Article 3 I. Definitions*)

The objective of securing better access to justice, as part of the policy of the European Union to establish an area of freedom, security and justice, should encompass access to judicial as well as extrajudicial dispute resolution methods.

This Directive should contribute to the proper functioning of the internal market, in particular as concerns the availability of mediation services. (The DIRECTIVE 2008/52/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 May 2008 on certain aspects of mediation in civil and commercial matters. (5))

3 Do we want trials in business disputes?

In the hungarian legal regulation there are several ways for businesses how to resolve disputes, how to resolve a conflict, how to continue with business partners. Of course, courts fulfill the task to decide in the complaints of clients, to run the procedures of trials.

Number of registered mediators at Ministry of Justice between 2010-2016 were the following:

	2010	2011	2012	2013	2014	2015	2016
registered mediators at Ministry of Justice	1272	1408	1578	1615	993	1041	1168

1st table: registered mediators at Ministry of Justice Hungary 2010-2016-author's construction based on the given data from Ministry of Justice

The numbers of incoming cases between 2010. and 2016, on the basis of data giving of registered mediators are the following:

	2010	2011	2012	2013	2014	2015	2016
successful	216	708	370	589	851	864	983
unsuccessful	63	203	160	204	260	487	400

2nd table: Incoming cases to registered mediators at Ministry of Justice Hungary 2010. and 2016

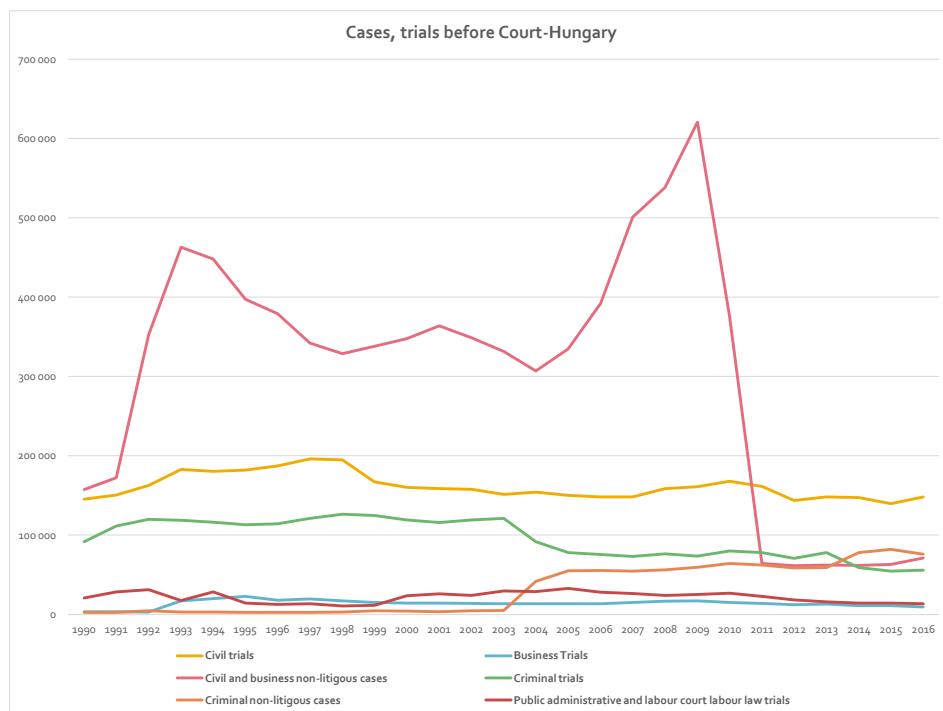
YEAR	Civil trials	Business trials	Civil and business non-litigious cases	Criminal trials	Criminal non-litigious cases	Trial cases at Public Administration and Labour Courts
1990	145 290	3 531	157 316	91 742	2 725	20 959
1991	150 694	3 413	172 424	111 671	2 562	28 253
1992	162 663	3 053	352 760	120 036	4 475	31 319
1993	182 703	17 227	462 891	118 829	3 065	17 394
1994	180 345	19 819	448 138	116 241	3 152	28 243
1995	182 065	22 725	397 232	113 294	2 664	14 458
1996	187 145	18 139	378 983	114 482	2 582	12 842
1997	195 957	19 539	341 927	121 296	2 454	13 318
1998	195 041	17 007	328 882	126 539	2 839	10 589
1999	166 981	15 189	337 930	124 868	4 478	11 490
2000	160 242	14 153	347 783	119 003	4 147	23 732
2001	158 486	14 172	363 681	116 056	3 356	26 099
2002	158 007	13 928	348 822	118 952	4 808	23 798
2003	151 204	13 329	331 601	120 962	5 179	29 801

3

rd table: cases, trials 1990-2003, source: KSH, Central Office of Statistics Hungary

YEAR	Civil trials	Business trials	Civil and business non-litigious cases	Criminal trials	Criminal non-litigious cases	Trial cases at Public Administration and Labour Courts
2004	154 067	13 612	306 928	91 910	41 540	28 856
2005	150 268	13 502	334 956	77 932	55 125	32 818
2006	148 180	13 415	391 954	75 708	55 447	27 903
2007	148 176	15 226	500 964	73 090	54 669	26 538
2008	158 558	16 764	538 364	76 589	56 446	24 086
2009	161 082	17 329	620 597	73 458	59 307	25 075
2010	168 045	15 217	375 981	80 155	64 265	26 745
2011	161 335	13 881	64 328	77 980	62 186	22 844
2012	143 904	12 324	61 521	70 886	58 838	18 299
2013	148 181	12 924	62 138	77 978	59 012	16 023
2014	147 428	10 900	62 019	58 944	78 074	14 186
2015	139 705	11 123	63 293	54 625	82 130	14 273
2016	148 279	9 478	71 247	55 681	76 159	13 477

4th table: cases, trials 2004-2016, source: KSH, Central Office of Statistics Hungary



4th graph: changing of cases, trials 1990-2016 source: KSH decreasing number of civil and business non-litigious cases only, civil trials (1), criminal non-litigious cases (2), business trials (3), criminal trials (4), public administrative and labour law trials (5) stagnate

Conclusions

Business mediation is a kind of mediation which needs researches on the basis of definition of consensus. It will be the real win-win outcome and solution after the procedure where the companies were taking part in. In business mediation we will meet evaluation, we will meet restoration and we will need really the transformation method. It is common in every mediation type, case, that evaluation involves an other evaluation and they are based on emotions. Observation without an evaluation is really necessary and useful in business mediation, where the consensus has to be reached. Transforming the conflict to connection is one of the most important aim in business mediation, where the interests are in the highest degree about economy.

References

- [1] Act LV of 2002 on Mediation
- [2] Annual Report of the President of the National Office for the Judiciary -2015, English Version

- [3] Annual Report of the President of the National Office for the Judiciary -2016 Hungarian Version
- [4] Balázs László, H. Varga Gyula: A hatékony kommunikáció. Tanulmányok. A kommunikáció oktatás 5. Papirusz Book ISBN: 9786155351020, 2013
- [5] Csilla Kohlhoffer-Mizser: Methods of alternative dispute resolution –from conflict to connection FIKUSZ 2017 Symposium For Young Researchers Proceedings p.177.ISBN 978-963-449-064-7
- [6] Csilla Kohlhoffer-Mizser: Mediáció a jogi személyek életében **I.Vállalkozásfejlesztés a XXI. században VI. tanulmánykötet**, Óbudai Egyetem Keleti Károly Gazdasági Kar, Budapest 2016, <http://kgk.uni-obuda.hu/publikaciok>
- [7] Csilla Kohlhoffer-Mizser: Mediáció a jogi személyek életében II.-munkaügyi mediáció **Vállalkozásfejlesztés a XXI. században VII. tanulmánykötet, 2017** Óbudai Egyetem Keleti Károly Gazdasági Kar, Budapest 2017, <http://kgk.uni-obuda.hu/publikaciok>
- [8] Deborah Buyer: Making the Case: Business Dispute Resolution Through Mediation 2012
- [9] John Paul Lederach: The Little Book Of Conflict Transformation, Good Books 2003
- [10] Marshall B. Rosenberg PhD: Nonviolent Communication: A Language of Life 3rdEdition, Puddle Dancer Press 2015 ISBN: 9781892005281/189200528X
- [11] Marshall B. Rosenberg PhD: A szavak ablakok vagy falak Erőszakmentes kommunikáció Agykontroll Kft. ISBN: 9789637959707 2001
- [12] Marshall B. Rosenberg PhD: A szavak ablakok vagy falak Erőszakmentes kommunikáció Agykontroll Kft. ISBN: 9789637959707 2001
- [13] Marta J. Papa: A better way to resolve workplace conflict 2008
- [14] Neményiné Gyimesi Ilona: Hogyan kommunikáljunk tárgyalás közben? Elkerülhető csapdák az üzleti kommunikációban Akadémiai Kiadó, ISBN: 9789630598828, 2017
- [15] Phil Harris: An Introduction to Law. Seventh Edition. Law in Context. Cambridge University Press 2007 ISBN-13 978-0-521-69796-5
- [16] Sáriné Simkó Edit szerk.: Mediáció-Közvetítői eljárások. HVGOrac Lap- és Könyvkiadó Kft., Budapest 2012
- [17] Serena Rust: Erőszakmentes kommunikáció –amikor a zsiráf a sakállal táncol Bioenergetic Kft. 2014. ISBN: 9789632912172

- [18] The DIRECTIVE 2008/52/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 May 2008 on certain aspects of mediation in civil and commercial matters.

Websites

- [1] https://e-justice.europa.eu/content_key_principles_and_stages_of_mediation-383-en.do?clang=en
- [2] www.mediateyourlife.com
- [3] www.ksh.hu
- [4] www.nonviolentcommunication.com
- [5] www.mediate.com
- [6] <http://www.selftimeout.org/assets/consensus.pdf>
- [7] <https://smallbusinessbc.ca/article/mediation-effective-tool-business-dispute-resolution>
- [8] <http://pju.hu/attachments/article/24/e-book.pdf>

Robotic Process Automation – Current State, Expectations and Challenges

Tomasz Kulisiewicz, PhD,

Centre for Studies on Digital Government PL05-830 Nadarzyn, Wrzosowa 10
Poland, tomasz.kulisiewicz@cyfrowepanstwo.pl

Andrzej Sobczak, Associate Professor, PhD

SGH Warsaw School of Economics
PL02-554 Warszawa, Al. Niepodległości 162, Poland
andrzej.sobczak@sgh.waw.pl

Abstract: The paper presents the definitions, potential and the future impact of Robotic Process Automation (RPA), automated execution of business processes using special applications called software robots. It compares the emergence of RPA to automatization of manufacturing industry showing their similarities and differences. The deployment of RPA in Polish banks is presented as distinctive area of RPA deployment. At the last part of the paper the potential impact of RPA in BPO services supplied by CEE countries is discussed.

Keywords: AI, business process outsourcing, robonomics, RPA

1 RPA and process automation at business organizations – emergence of robonomics

According to prevalent definitions Robotic Process Automation (RPA) is an automated execution of business processes using special applications called software robots [1]. In its primary and initial occurrence the RPA software executes basic tasks of the workflow as human workers do, i.e. accepting forms, sending a receipt messages, checking the completeness of the form, range of the values and other parameters, filing the form in a folder, extracting the values from fields, applying the values extracted from the form as the input of other applications in the workflow, registering these activities etc. The main aim of using the RPA software was to reduce the burden of repetitive, simple tasks on

employees. This kind of deployment of RPA follows the path accomplished by robots widely used in the various industries since 60's of 20th century. The role of pioneer is played by an automotive manufacturing, which deploys industrial robots in the typical repetitive arduous and noxious tasks as welding and painting car bodies.

In the last 5 few years the RPA extended its presence at the business entities quickly moving from simple automation of repetitive tasks to the robotization of whole workflows and processes. The difference between automation of tasks and the automation of the processes and workflows is substantial – R. B. Freeman aptly remarks: “Today’s robotization is not your parents’ automation” [2]. The impact of this difference has led to emergence of a new science called *robonomics*. The robonomics – robot-based economy – is defined as an area of economics analysing the influence of robotics on economy, with particular attention to the labour market and the situation of workforce. The key areas of robonomics have been described by John Crews in 2016 in his book “Robonomics – Prepare today for the jobless economy of tomorrow” as an economic system, based on robots, artificial intelligence and (service) automation [3]. Robonomics is an interdisciplinary science investigating the impact of advanced technologies of automation and robotization on economy and organizational aspects of functioning of businesses, mainly on services. By advanced technologies of automation and robotization we mean the technologies using an AI at least to some extent. As a new area of science robonomics has not created its own methodology yet. It relies on achievements of economics and management of business entities, particularly of service industries adapting and utilizing methods and tools of IT, industrial robotics and automation. In its most advanced approach it is applying the advances of cognitivism and AI.

The main areas of robonomics are:

- research on advanced robotization and automation and its economy aspects,
- research on models of advanced robotization and automation at service business entities,
- research on economic analysis of robotization and automation of service business entities,
- research on effectiveness of organization, management and policies of advanced robotization and automation at service business entities [4].

Industry 4.0 vs. Services 4.0

The objectives of deployment of RPA are evolving. At its first phase it has followed the path travelled by industrial robotics in automotive or electronic manufacturing industry. Similarly to the case of welding and painting the car bodies or soldering the elements on motherboards it has developed from reducing the burden of dull, tedious and repetitive tasks to increasing throughput, accuracy

and quality of execution of tasks. In electronic services this approach means executing the formal control of input data (formats, range of values etc.), transferring the data to next stages of processing in the same application or to the application or humans next in the workflow of business process, gathering the output from the last chain of the process and transferring the result to reports and/or presentation on the webpages.

The main difference between automation and use of robots in industry and in the field of services stems from the nature of services. In the traditional form of automation of manufacturing industry the robotization is deployed in a strictly defined and described manufacturing processes. For welding or soldering robot there is no room for any “invention” - it has to repeat the task or procedure strictly as it has been designed, described and programmed in its controls, with precision in a range of millimetres in a case of welding and painting or nanometres in a case of etching the semiconductor layers in manufacturing of integrated circuits. However a wide range of services cannot (or need not) to be described with such deep level of precision, thus leaving room to the humans making decisions, assisted by software robots. The next step in services is represented by software robots making these decisions autonomously but in order to do so these robots have to be equipped with an elements of artificial intelligence and taught by the means and methods of machine learning (ML). Of course it does not mean that the examples of use AI and ML in a manufacturing industry can't be found. In Industry 4.0 there is huge room for dynamic growth, especially in the fields of optimization – not only in the optimization of manufacturing processes, logistics of supply and distribution chains but in optimization of design of elements and whole devices and machines too. But it seems obvious that design and manufacturing of material objects is more conservative, more limited by its nature and less open to automation than design and execution of immaterial, intangible services.

In his paper “Robonomics – Principles, Benefits, Challenges, Solutions” S. Ivanov collates main characteristics of robonomics [5]. Commenting his findings we would like to emphasize the followings:

- High level of automation of production – people oversee the production but are not involved directly in the manufacturing processes or delivery of services;
- Fewer people work and there is no connection between employment and income. For majority of the people employment is not the major source of incomes for households. Instead they are living on universal citizens' salary provided by government or other public institutions. Those who are working are employed in more knowledge-intensive and higher paid jobs. Most of these jobs are creative and AI-assisted;

- Robots are widely used not only in manufacturing, warehousing, logistics and transport, but provide services and act as assistants and companions to humans and even as sexual partners;
- Robotics enables cost-effective production and delivery of deeply personalized (on-demand) goods and services. It will result in 'abundance economics';
- The main advantage of economy of scale which is very effective in mass production does not necessarily apply to robotized manufacturing and delivering of goods and services. Automated production (including 3D printing) allows not only for on-demand products but also for production in smaller, dispersed automated factories, close to consumers. It results in saving on product delivery time and costs, not only for vendors and buyers but for local SMB suppliers as well;
- High level of standardisation of services as result of use of RPA based on algorithmisation of service provision. Ivanov mentions standardisation of services but in our opinion the crucial momentum is the high level of standardisation of the building elements of services which allows for so called mass personalization of goods and services and thus it is not contradictory to deep personalization of goods and services;
- The main sources of competitive advantages are knowledge and creativity – not high amount labour and capital.

2 RPA and AI

S. Ivanov in his paper collates the pros and cons for applying robots in economy – in general terms, not distinguishing the hardware and software robots.

Table 1. Pros and cons for robots

<i>Why robots?</i>	<i>Why not robots?</i>
Robots could work 24/7	Robots lack creativity
Robots could implement various tasks and expand their scope with software and hardware upgrades	Robots will not be any time soon completely independent of human supervision
Robots could provide constant or improving quality of their work	Robots lack personal approach
Robots could fulfil their work correctly and in a timely manner	Robots can orientate in structured situations (at least for the moment)
Robots could do routine work repeatedly	Robots may (will) be perceived as threat by employees (e.g. Neo-Luddism movement)
Robots do not complain, get ill, go on strikes, spread rumours, discriminate, quit their job without notice, show negative emotions, shirk from work	

Source: [5]

It's worth to have a look at AI implemented in software robots used in the field of services today and can be deployed in the nearest or more distant future. Generally we are speaking of three main categories of AI:

- **narrow artificial intelligence** referring to the AI machine solving sophisticated, strictly defined, specific task using ML and deep-learning tools. The example of such solutions are self-learning and self-training programmes designed for playing chess, defeating Go masters, winning in Jeopardy! American game show and finding new planets analysing data taken from the telescopes. First programs using narrow AI were developed decades ago (chess programs, computer games, simulators), this type of AI is used today in many systems, especially in search engines and represent main area of development and deployment of AI;

- **general artificial intelligence** referring to a human-level AI machine able to perform intellectual tasks having the capacity to understand and reason about its environment, applying intelligence to any problem rather than just one specific problem. An examples of this type of AI today still can be seen in SF films (C-3PO and R2-D2 robots in *Star Wars* or HAL 9000 on *2001: A Space Odyssey*) only, but implementation of advances of cognitive science brings general AI closer to practical deployment in various fields of human and machine activities. Such deployment is called cognitive automation, robots equipped with cognitive automation are capable of acting in unpredicted and unstable environment;
- **artificial superintelligence** referring to a machines smarter than the smartest humans in every field, including scientific creativity, general wisdom and social skills. This type of AI – today still considered as SF – is already raising concerns, expressed explicitly in November 2017 by late Stephen Hawking in his interview for *Wired*. [6] In our opinion the danger of outperforming humans seems still to be very distant, a lot bigger danger is the potential for weaponisation of AI.

G. Carrico quotes the words of Carlos Moedas, EU Commissioner for Research, Science and Innovation, who has noted “artificial intelligence is not a threat, how we choose to use it is” [7]. In January 2017 the European Parliament’s Committee on Legal Affairs adopted an motion with broad recommendations to the Commission on Civil Law Rules on Robotics to call the EC “to propose common Union definitions of cyber physical systems, autonomous systems, smart autonomous robots”, “consider the designation of a European Agency for robotics and artificial intelligence” and “asks the Commission to submit (...) a proposal for a legislative instrument on legal questions related to the development and use of robotics and artificial intelligence foreseeable in the next 10 to 15 years” [8].

3 Distinctive areas of RPA deployment

The first implementations of RPA in businesses were in quite simple tasks in supply chain: matching orders, invoices, payments and deliveries, inventory management, work order and freight management. HR area has followed with payroll, personnel administration and benefits management, ICT with installation of applications and their updates, file and email management, server monitoring, communications channels and media management etc. and sales and marketing with vendor management, sales orders and trend tracking.

Today the widest and most mature implementations of RPA are in the field of finance and accounting as this area is considered most attractive for several reasons:

- relatively easy deployment for repetitive, rules-based processes and processes clearly defined by regulations of financial sector,
- the reduction of the amount of rework and errors,
- substantial reductions in average handling and/or cycle times, which is extremely important for very competitive financial sector.

The deployment of RPA in financial and accounting sector is driven by the need to demonstrate strong controls to the regulators, especially in such areas as anti-money laundering (AML). Banking sector continuously has to improve compliance and reduce risk. Executing the AML procedures and improving the compliance is easier to automate, while risk reduction involves more complex tasks, requiring more human analysis and judgment which can be freed from other fields as a result of implementation of RPA. Risk analysis is an area in which the humans can be effectively aided by RPA solutions. In parallel the deployment of automated procedures is seen by banking sector as potentially effective defensive weapon against growing competition from fintech companies which are intercepting lot of areas developed and traditionally occupied by banks.

The interest shown by banking sector in RPA can be seen in an examples of first intensive deployments of RPA in Polish banking sector – a cases of ING Bank Śląski²³, Alior Bank²⁴ and BZ WBK²⁵. All case studies were collected at our www.ronobomika.pl Website.

ING Bank Śląski deploys RPA both in its front office and back office as a result of 10 years of in-house research and development of RPA. In Front Office since Q1 2018 the chatbot *My Assistant* helps users of internet and mobile banking. Internally, in its departments of operations the bank uses more than 1500 robots. In 2017 they were used approx. 600 thousand times, supporting 500 users in bank backoffice. The example of the use is parametrization of script automatically introducing changes to the whole banking systems after the client has signed an annex to his loan agreement. RPA is used to analyse excerpts from the Land and Mortgage Register and clients' files as well. Bank The bank is developing an RPA

²³ ING Bank Śląski is No 5 in ranking of the Polish bank sector (by balance sheet). 75% of its shares is owned by ING Groep N.V. from Netherland.

²⁴ No 8 in ranking in Poland. Established in Poland in 2008 by Italian investor C. Tassara than sold to other investors. In March 2018 approx. 32% of shares is owned by PZU Polish national insurance group, 14% by other insurance companies and 54% is a free-float at Warsaw Stock Exchange.

²⁵ No 3 in ranking in Poland. After privatization in 1995 and consecutive transactions approx. 70% of shares were owned by Iris group of Allied Irish Banks. In 2011 these shares were sold to Spanish Santander Group.

RoboPlatform as a part of its *End User Computing* platform supporting internal non-IT specialists in quick implementation of RPA solutions in their business areas.

Robotization and automation are one of the key elements of “Digital Rebel” [9] strategy of Alior Bank for 2017-2020. From deployment of RPA Alior Bank expects improving its C/I (Cost/Income ratio) from 49% (already best in Poland banking sector) down to 39% due to operational cost savings expected at a range of 20-30%. Its main in-house RPA development is *Dronn* virtual assistant, a solution combining AI, biometry and speech recognition. It has been integrated with statistical software and presentation tools. *Dronn* is supporting so called soft debt collection and marketing of bank services. In 2017 *Dronn* has been assisting 963 thousand debt collecting calls, 1.3 million calls in customers segmenting surveys and in collecting FATCA tax residency statements from 77 thousand customers.

Bank Zachodni WBK (BZ WBK) has initiated its in-house RPA development platform under the name of “Factory of Robots” developing robots for operational departments using virtual platforms, agile software development and scrum frameworks. First implementation was a consumer complaint robot, followed by supporting loan aftersales services and parametrisation of e-services for business customers.

In its „Digital Rebel” strategy Alior Bank indicates the potential of RPA deployment in main fields of bank activities. The biggest potential for deployment is seen at daily operations executing tasks of supplying the transaction data to various systems and supporting verification of criteria for loans. The second in the range are the fields of internal management (HR, accounting), support of Back Office at treasury, fraud detection and AML, customer notification and verification of their documents and preparation of operational reports. Despite successful deployment of *Dronn* the potential of sales support is seen as moderate in digital sales channels and very limited in the support of personnel at local (physical) branches.

4 RPA global market – hype and reality

It seems that business community is very excited about potential of growth of RPA market. The market is still in its onset phase: according to HfS the global market for RPA software and services reached USD 271 million in 2016 and USD 443 million in 2017 [10]. According to Market Research Future, the RPA market is expected to grow to the value of USD 2.7 billion by 2023 with a CAGR of 29% between 2017 and 2023 [11]. The Grand View Research is far more optimistic: in their opinion the global RPA market is expected to reach USD 8.75 billion by 2024 [12]. TMR Analysis predicts even higher pace – in their prognosis CAGR of

the global RPA market in the years 2016-2024 will exceed 47% [13]. The differences are due to assessment of progress and from different definitions of RPA market (some does not include wider operational services like BPO, which may include RPA becoming increasingly embedded in its delivery).

Today the value RPA brings to businesses today lies in the digitizing of basic, rudimentary and routine manual processes and everybody knows that the potential for automation of these processes will run out first. The real potential for the next stage lies in RPA software development toolkits that will allow non-IT specialist easily create bots (software robots) to automate rules-driven business processes.

In reality there are still some hindrances and impediments for massive introduction of RPA. One may call low maturity level of solutions, existence of services more difficult to automate (i.e. customer service activities), limited resources to design and deploy full automation at the integrators/suppliers, substantial implementation time in quickly changing and dynamic environment, lack of economy of scale, the reluctance of SMB sector (quite understandable having regard to the nature of SMBs), cultural and social factors, inertia of organizations.

C. Lambertone from EY Financial Services Insight in his “Get ready for Robotic Process Automation” [14] summarizes challenges of RPA deployments across 20 countries and underlines that as many as 30 to 50% of initial RPA projects fail due some common mistakes done by organizations during these deployments. It does not necessarily mean catastrophic failures, mostly not delivering on the promises or not meeting the expectations. It is worth to notice his interesting statement: “Any technology that can reduce the costs of existing manual operations by 25% to 40% or more without changing existing systems...” The author mentions top 10 issues:

1. not considering RPA as business-led, as opposed to IT led,
2. not having an RPA business case and postponing planning until after proof-of-concepts (POCs) or pilots,
3. underestimating what happens after processes have been automated,
4. treating robotics as a series of automations vs. an end to end change program,
5. targeting RPA at the wrong processes,
6. applying traditional delivery methodologies,
7. automating too much of a process or not optimizing for RPA,
8. forgetting about IT infrastructure,
9. assuming RPA is all that’s needed to achieve a great ROI
10. assuming skills needed to create a PoC are good enough for production automations.

C. Lambertone emphasises that very often more than one of these issues is present or linked, creating a multiplier effect.

On a base of initial production deployments, extending beyond the POC (Proof of Concept) we compiled a list of impediments occurring in Poland today [15]:

1. High level of defragmentation of applications needed to executing given business process. In lot of companies analysed there is at least 4-5 (in some cases even more) applications needed for completion of process, most of them being legacy software;
2. High diversification of input data in its character (e-mail, electronic forms, faxes, scans of paper documents) and structure. The usual problem is that the structure of documents used in business processes was never designed having in mind using it in RPA environment;
3. Still very high share of input documents having the form of paper;
4. Low quality of data in registers and systems planned for robotization;
5. Low level of knowledge on the real trajectories of business processes to be robotized, most of this knowledge is neither defined nor described properly, especially in the cases of by-passes and shortcuts invented and used by employees of the company in the cases of (unreported) small issues and pitfalls;
6. Habit of supplying the final output in the paper form (sometimes imposed by faulty regulations);
 7. IT tools being not enough user-friendly (or even difficult to use).

The interesting observation is that we have not met the hostile attitudes of personnel of companies introducing RPA (“the robot will steal my job”). Just opposite: quite common was the expectation of support by robots relieving employees from burdensome and dull tasks, especially in the usual situation of raising the production targets and quotas in today’s general limitation of human and financial resources. Of course this attitudes may change in the timeframe of 3-4 years when RPA will really grab away their jobs.

5 The manpower vs business robots in Central and Eastern Europe

One of the success stories in delivering services abroad in Poland as well as other CEE countries are BPO services. In the ranking published as AT Kerney Global Services Location Index (GSLI 2017) out of 55 countries listed in its edition of 2017 [16] (and since the beginning of its publications in 2004 as Offshore

Location Attractiveness Index, since 2009 under today's title) not surprisingly No 1 is India. In the ranking there is a strong group of CEE economies: Poland is No 12, Bulgaria No 15, Czech Republic No 16, Romania No 18, Estonia No 25, Hungary No 26. Latvia, Lithuania and Slovakia are present too (No 28, 29, 44 accordingly). The highest number of BPO centres is in Poland – almost 1 thousand of them employing more than 200 thousand people working amongst the others for Accenture, Credit Suisse, Goldman Sachs, Zurich Insurance, and Cathay Pacific Airways. But as RPA gains impact, the cost of licences and deployment process decreases and businesses and suppliers are collecting expertise, the positions of CEE countries are in danger, especially as our advantage is mainly a financial attractiveness, as it can be seen at Figure 1.

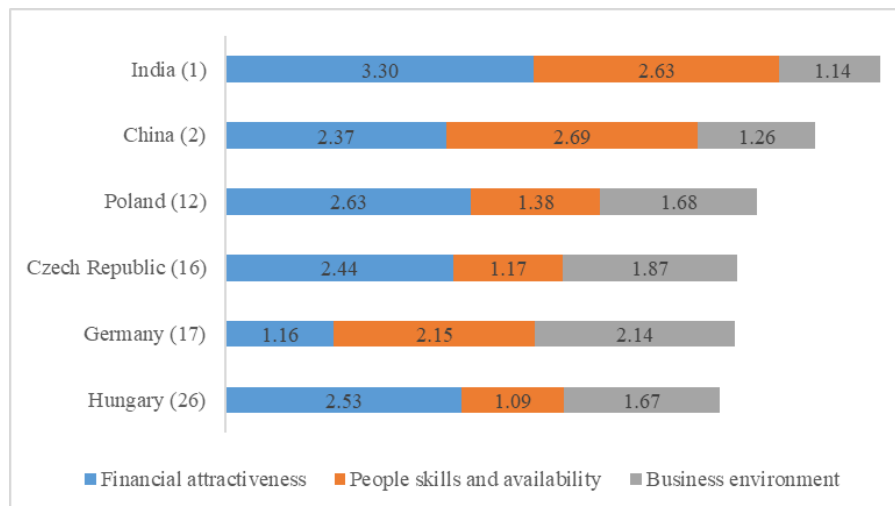


Figure 1. Positions and indexes of chosen countries in AT Kerney GSLI 2017 [16]

In the opinion expressed in the AT Kerney GSLI 2017 in 4 countries which are strong players on the BPO market – India, Philippines, Poland and USA – approx. 1 million jobs may be lost within 5 years as a result of RPA. The jobs in Mexico and Costa Rica strong players in BPO for Spanish-speaking world or Morocco and Tunisia for French speaking countries are threatened as well.

Conclusion

Today we may observe a kind of fashion for RPA but there are distinctive differences in the range of deployment amongst the business areas and industries. However it is non-disputable that RPA market will grow quickly in the near future – both in the development of software tools and deployment in services. A substantial interest in RPA shown by top BPO players can be easily understood considering that on one side the RPA endangers their position on global BPO

market, on other side it promises substantial savings in a cost of supplying BPO services and increase of productivity and efficiency.

From RPA the companies are expecting not only a possibility of reduction of operational costs – they see the potential of bringing additional business values as well.

Observing today's business trends we share the views expressed by a lot of analyst that robotization will destroy low paid, low skilled jobs shifting the labour market focus to the higher skilled workforce and higher-paid jobs. It stands for robotization of industry as well as of services. According to AT Kerney GLSI 2017 in the field of BPO only 1 automated job is created for every 4 lost due to automation²⁶. Another view we share is that companies with labour-intensive processes and employees performing high-volume, highly transactional process functions, will boost their capabilities and save money and time with RPA. Such re-shoring – moving towards high-technology areas: design, maintenance, testing and calibration – may be a countermeasure for CEE countries which positions on BPO global market are threatened.

RPA may offer advantages to businesses suffering the shortage of labour as it can streamline the resource allocation. It is a question of cost of solutions (licences, ease of use of cloud solutions etc.) whether it will offer similar advantages to companies employing low number of people, i.e. SMBs.

References

- [1] Investopedia LLC, „Robotic Process Automation (RPA),” 26 02 2017. [Online]. Available: <https://www.investopedia.com/terms/r/robotic-process-automation-rpa.asp>. [Accessed: 12 03 2018].
- [2] R. B. Freeman, „Who Owns the Robots Rules the World,” 05-06 2016. [Online]. Available: <https://harvardmagazine.com/2016/05/who-owns-the-robots-rules-the-world>. [Accessed: 18 03 2018].
- [3] J. Crews, Robonomics: Prepare Today for the Jobless Economy of Tomorrow, CreateSpace Independent Publishing Platform, 2016, p. 2.
- [4] Sobczak, „Czym jest robonomika - próba definicji,” 12 01 2018. [Online]. Available: <https://robonomika.pl/czym-jest-robonomika-proba-definicji>. [Accessed: 14 03 2018].
- [5] S. H. Ivanov, „Robonomics - principles, benefits, challenges, solutions,” 06 2017. [Online]. Available: <https://www.researchgate.net/publication/318034992>. [Accessed: 08 03 2018].
- [6] J. Medeiros, „Stephen Hawking: 'I fear AI may replace humans altogether',” 28 11 2017. [Online]. Available: <http://www.wired.co.uk/article/stephen->

²⁶ [16], p. 7

- hawking-interview-alien-life-climate-change-donald-trump. [Accessed: 10 03 2018].
- [7] G. Carriço, „The EU and artificial intelligence: A human-centred perspective,” 15 03 2018. [Online]. Available: <http://journals.sagepub.com/doi/10.1177/1781685818764821>. [Accessed: 20 03 2018].
 - [8] European Parliament, „Motion For a European Parliament Resolution with recommendations to the Commission on Civil Law Rules on Robotics,” European Parliament, Strasbourg, 2017.
 - [1] Sobczak, „Wykorzystanie robotów w Alior Bank - stan obecny i perspektywy na przyszłość,” 25 01 2018. [Online]. Available: <https://robonomika.pl/wykorzystanie-robotow-w-alior-bank-stan-obecny-i-perspektywy-na-przyszlosc>. [Accessed: 16 03 2018].
 - [9] Horses for Sources, „The Robotic Process Automation market will reach \$443 million this year,” 10 03 2017. [Online]. Available: https://www.horsesforsources.com/RPA-marketsize-HfS_061017. [Accessed: 16 03 2018].
 - [10] Market Research Future, „Robotic Process Automation (RPA) Market Research Report- Forecast 2023,” 2017. [Online]. Available: <https://www.marketresearchfuture.com/reports/robotic-process-automation-market-2209>. [Accessed: 11 03 2018].
 - [11] Grand View Research, „RPA Market Size Projected To Reach \$8.75 Billion By 2024,” 10 2013. [Online]. Available: <https://www.grandviewresearch.com/press-release/global-robotic-process-automation-rpa-market>. [Accessed: 15 03 2018].
 - [12] Transparency Market Research, „Global IT Robotic Automation Market: Demand for Streamlined Work Processes to Propel Growth,” 03 2018. [Online]. Available: <https://www.transparencymarketresearch.com/pressrelease/it-robotic-automation-market.htm>. [Accessed: 19 03 2018].
 - [13] Lamberton, „Get ready for Robotic Process Automation,” 06 2017. [Online]. Available: <https://fsinsights.ey.com/big-issues/Digital-and-connectivity/get-ready-for-robotic-process-automation>. [Accessed: 14 03 2018].
 - [14] Sobczak, „Jakie utrudnienia występują w polskich organizacjach we wdrażaniu robotyzacji procesów biznesowych (RPA),” 19 01 2018. [Online]. Available: <https://robonomika.pl/jakie-utrudnienia-wystepuja-w-polskich-organizacjach-we-wdrazaniu-robotyzacji-procesow-biznesowych>. [Accessed: 19 03 2018].
 - [15] Sethi i J. Gott, „Global Services Location Index: The Widening Impact of Automation,” AT Kerney, 14 09 2017. [Online]. Available: <https://www.atearney.com/digital-transformation/gсли/full-report>. [Accessed: 11 03 2018].

Precise efficiency of autonomous navigation ergatic transport complexes

Tobias Lazar

Department of Avionics, Faculty of Aeronautics, Technical University in Kosice,
Košice, Slovakia
tobias.lazar@tuke.sk

Alena Novák-Sedláčková

Department of Air Transport, Faculty of Operation and Economics of Transport
and Communications, University of Zilina, Slovakia
alena.sedlackova@fpedas.uniza.sk

Pavol Kurdel

Department of Avionics, Faculty of Aeronautics, Technical University in Kosice,
Košice, Slovakia
pavol.kurdel@tuke.sk

Martin Čatloš

Department of Avionics, Faculty of Aeronautics, Technical University in Kosice,
Košice, Slovakia
martin.catlos@tuke.sk

Abstract: Selected air transport accepts characteristics without crew systems of air objects which are about to move in selected corridor when the requirements of newly created legislation for relevant object have been fulfilled. The first technical requirement of applicability is to particularize the kinesis of an air transport object (ATO). The paper focuses on primary research, the aim of which is to create a premise of applicability of a navigation ergatic complex NEK. Criteria of applicability of the definition methods of autonomous navigation ergatic transport complexes effectiveness [1],[7] are the premise. From the viewpoint of systematic approach, the usability of objective precision effectiveness, which is by relation defined by probability, has been widely discussed. Air transport object controlled by process, along the determined flight trajectory is determined in time by the probability of not leaving the corridor.

Keywords: Random, Markov process, sensor error mathematical model, correlation function, objective precision effectiveness, corridor borders, probability, navigation precision criteria, observation time, correction, Doppler aerometric inertial complex.

1 Introduction

ATO flux along the defined borders or flight corridor (Fig. 1) is supposed.

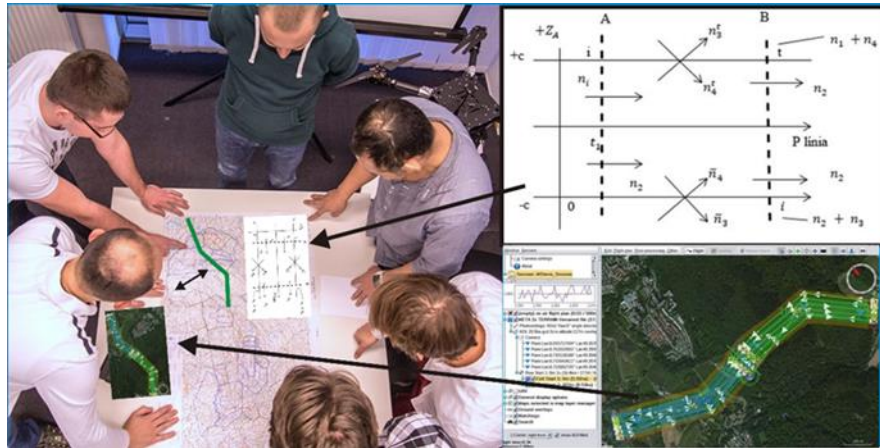


Figure 1

- a) Location of hypothetical scheme into actual map environment; b) hypothetical model with transitions across corridor borders +/- c; c) track in real-world in-site corridor; [1], [9],

Probability according to which no flying object crosses its borders is considered. Actual probability can be determined by relation of the number of 'n' ATO, which has not crossed the corridor border to the number 'N' which have moved with control in the observed section. Movement speed of observed objects as well as the conditions of technosphere do not change. From the total number of 'N', 'n1' ATO returned to the corridor [1] on the border after performing the correction. It means that 'N-n1' ATO have reached the corridor border or crossed it for a short time. To sum up (see fig. 1), at the time of observation, t(0,T) out of the number ATO 'n1', 'n3' have crossed the border and (n4) have returned. In total sum, in final time Tk there have been 'n2' ATO on the corridor readout and 'N-n2' outside. Then: $n_1 + n_4 = n_3 + n_2$. Ratio number of ATO in observed time t(0,T) has been: $(n_1/N) * (1 - n_3/n_1)$; after adjustment there are formed probabilities P1, P3. The difference: $f/F = Pp.e = P1 - P3$, can be defined as the criterion of precision effectiveness, where:

$$P1 = \frac{n_1}{N}; P3 = \frac{n_3}{N}; \quad (1)$$

The criteria used: $P2 = n_2/N$ increases the value of precision effectiveness navigation ergatic complex (NEC):

$$P2 = Pp.e + P4; \quad (2)$$

Criterion: $1 - P_3$ (probability of not crossing of corridor border from inside) increases the estimation of precision effectiveness (NEC):

$$(1 - P_3) = P_p \cdot e + (1 - P_1); \quad (3)$$

Physical importance:

After substitution (2) into (3), after adjustment the following can be stated:

$$P_1 + P_4 = P_2 + P_3; \quad (4)$$

Summary probabilities (4) express lengthwise and side movement of ATO in the observed corridor [5] by indexes. Identity (4) creates premises about the precision effectiveness of autonomous ATO as the bearers of NEC [5]. The criteria of precision effectiveness $f/F = P_p \cdot e$ (the used form f/F replaces the symbol of Greek alphabet Φ) agree with the requirements which are scrutinized by statistic analysis [2],[3],[4],[7].

Let us concentrate on the usability (4) when determining probability characteristics of ATO which is moving inside the corridor, the width of which is 'c'. Process navigation is performed by NEC and together with ATO they create intelligent autonomous *SCOPE* system (*Sky Control-Object-Power-Environment*).

2 Combined experiment – results

The process NEC has been used to measure ATO movement error inside the corridor (see Fig.1) $c = \pm 0.2 \text{ km}$. Sensor reading errors have been accepted for measurement. Environment influences have been ignored. The precision of measured data has been determined by technological system level [5], [7], [8]. Characteristics approximation, their balancing have been tied by MATLAB methods. Time demandingness is decreased if the order of probability calculations P_1, P_2 , which are presented by 2D ATO migration density in the corridor, is used. The process advances as follows: let P_1 be the probability of ATO random movement on level $+c$ (from corridor center upwards) and P_2 be the probability of random movement on level $-c$ (from center towards bottom border). The calculations in time t are performed. Then [1]:

$$P_1 = FI[c/\text{sigmaz}(t)]; \quad (5)$$

$$P_2 = FI[c/\text{sigmaz}(t+T)]; \quad (6)$$

where $FI(\Phi)$ is the function of regular standard distribution [2],[3].

$\text{sigmaz}(t)$, $\text{sigma}(t+T)$ – are semi-quadratic divergences in the first section and next in a timely $(t+T)$ shifted corridor section. In the presented case, model semi-quadratic divergence 'sigmaztm' has been used, which is square root of dispersion

Dz(t). Multiterm Dz(t) contains measured values, sensor reading errors, mutual correlations. Mutuality are important at errors [1] (gradually: labelling; meaning):

ssigmazk – initial value of system error of side divergence measurement,

ssigmapsi0 – system KS error (KS – course system),

ssigmaus – system error of measurement of drift angle, Doppler system

nyomega – degree of influence of random value for a KS flywheel break-out,

sigmaomega – KS flywheel error,

nyus – degree of influence of random value on drift angle,

alfaomega – observation speed of KS system platform,

alfaus – observed value of drift angle after one-time integration,

The influence of measurements (one and double integration) of angle errors of course flywheel have been primarily observed, ..., other [1],[5],[6],[8]. Calculation possibilities of MATLAB [6] environment have enabled to realize the following calculations: P1,(1),(3),(4),(5):

Observation time:

t=0:0.5:5;

*sigmaztm=5.4e-006.*t.^2+0.034.*t+0.14;*

figure,1;stem(t,sigmaztm,'g','LineWidth',2),grid on

title('Recording the side deviation values sigmaztm','FontSize',12),

ylabel('Side deviation values sigmaztm [km]','FontSize',12),

xlabel('Observation time','FontSize',12),hold off,

Table values:

[t;sigmaztm];

Evaluation (5),for +c=0.1[km]:

With the aid of literature [2]page 235,

Achieve find in stage FI=P1:

u=(0.1./[sigmaztm]);

P1=[0.76 0.73 0.71 0.70 0.68 0.67 0.66 0.65 0.64 0.63 0.625];

Graphic record of the probable location of the ATO who uses those parameters

NEC is

figure,2;stem(t,P1,'k','LineWidth',2),grid on

title('Probability input ATO P1 into corridor','FontSize',12),

ylabel('Probability values P1','FontSize',12),

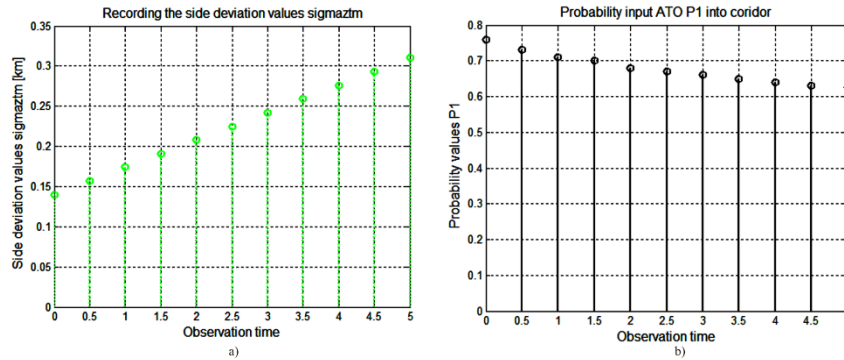


Figure 2

a) Recording the side deviation values sigma_ztm; b) Probability input ATO P1 into corridor

Calculation P2,(2),(4),(6). Probability of helicopter flight in "c" on the exit from corridor P2. After correcting NEC let us determine the probability P2 of the position of helicopter flight path in determined corridor in time $t+T$. Let us determine the probability in known time: $T=3$;[min];

Current flight time was:

$ta=0:0.8:8$; Side errors will be changed to:

$\sigma_{maztam}=5.4e-006 \cdot ta.^2+0.034 \cdot ta+0.14$;

`figure,3;stem(ta,sigmaztam,'b','LineWidth',2),grid on,`

`title('Recording the side deviation values sigma_ztam','FontSize',12),`

`ylabel('Side deviation values sigma_ztam [km]','FontSize',12),`

`xlabel('Observation time ta','FontSize',12),hold off,`

Table value:

`[ta;sigmaztam];`

At the known corridor width:

$c=0.1$; is the argument of the distribution function of the normal standardized FI distribution:

$u=c./\sigma_{maztam}$;

$P2=[0.57 \ 0.25 \ 0.03 \ 0.00 \ 0.00 \ 0.00 \ 0.00 \ 0.00 \ 0.00 \ 0.00 \ 0.00]$;

`figure,4;stem(ta,P2,'m','LineWidth',2),grid on`

`title('Probability of entering ATO P2 into the corridor ','FontSize',12),`

`ylabel('Probability values P2','FontSize',12),`

`xlabel('Observation time','FontSize',12),`

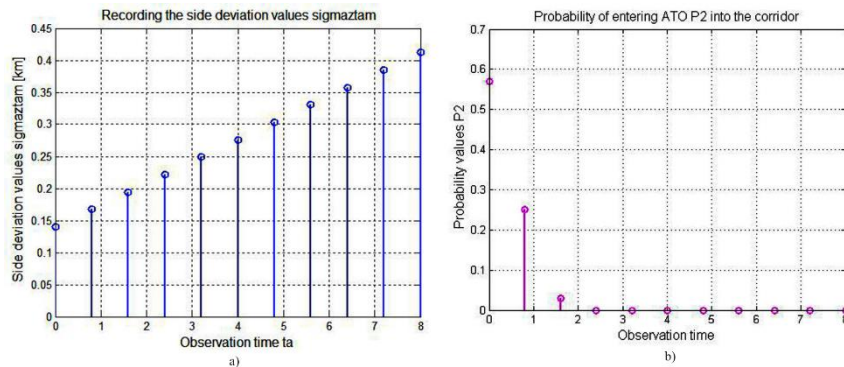


Figure 3

a) Recording the side deviation values sigma_maztam ; b) Probability of entering ATO P2 into the corridor

Conclusion

The performed analysis of NEC precision effectiveness which consists of Doppler, aerometric, inertial complex has accepted the flight corridor of the width $+c = 100m$. Corridor width and inertial system correction performed in suitable time will considerably influence ATO navigation precision. Continuing research performed a priori has shown that for $+c = 800m$, observation time $t=0:5:60[min]$ the probability on the entry into the corridor will be (estimated for two decimal places):

$P1=[1 \ 0.99 \ 0.95 \ 0.89 \ 0.83 \ 0.78 \ 0.75 \ 0.72 \ 0.70 \ 0.68 \ 0.66];$

Observed value on the exit from corridor P2 in shifted time $T=3 \text{ min}$ has been:

$P2=[1 \ 0.99 \ 0.94 \ 0.87 \ 0.82 \ 0.77 \ 0.74 \ 0.71 \ 0.69 \ 0.670 \ 0.66 \ 0.64];$

According to familiar method [2],[3] the probability of not crossing corridor border has been calculated:

$P3=[1 \ 1 \ 1 \ 0.99 \ 0.91 \ 0.83 \ 0.72 \ 0.57 \ 0.44 \ 0.30 \ 0.2];$

Then according to (3) the value of identified precision effectiveness will be:

$Pecplus=(P1-P3);$ Dynamic changes expresses graph:

`figure,5;plot(ta,(P1-P3),'b','LineWidth',3)`

`grid on,`

`title('Identified accuracy of NEC in the corridor +c','FontSize',12),`

`ylabel('Values of NEC accuracy identified in the corridor +c','FontSize',12),`

`xlabel('Observation time ta','FontSize',12),`

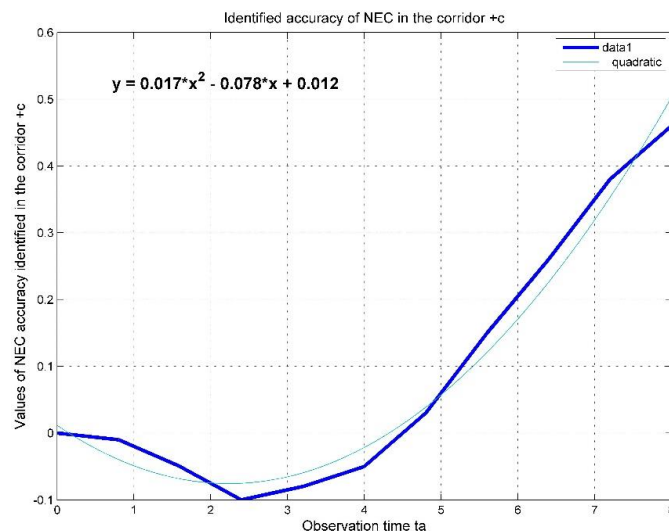


Figure 4 Identified accuracy of NEC in the corridor +c

In conclusion, the justification of the use of method to determine ATO navigation precision in the selected corridor by NEC requires the knowledge of its statistic parameters and corridor values. Data about precision characteristics are the output into the calculation of suggested NEC technical effectiveness.

References

- [1] Kozaruk, V.V, Rebo, Ja.Ju.: Navigacionnyje ergatičeskije komplexy samoletov. Moskva, Mašinostrojenie 1986.
- [2] Riečanová, Z., et al.: Numerické metody a matematická statistika, ALFA, Bratislava 1987.
- [3] Ventcel'ová J.S.: Teória pravdepodobnosti. ALFA, Bratislava, 1973.
- [4] Nekvinda, M., Šrubař, J., Vild, J.: Úvod do numerické matematiky, SNTL, Praha 1976.
- [5] Lazar T., Adamčík F., Labun J.: Systémy riadenia lietadiel. TUKE 2009, ISBN 978-80-553 0214-0.
- [6] Matlab 2017.
- [7] Makarov, N.N.: Sistemy obespečeniya bezopasnosti funkcionirovaniya elementov bortovogo ergatičeskogo kompleksa v konture upravleniya letatel'nogo apparata. Doctoral thesis. Uljanovsk 2009.
- [8] Čěškovič, M., Laššák, M.: UAV testing platform in education process / Marek Čěškovič, Miroslav Laššák - 2015. In: Acta Avionica. Roč. 17, 33, č. 3 (2015), s. 34-40. - ISSN 1335-9479
- [9] Uavonic: <https://uavonic.com/sk/>

The Role of Operating and Financial Leverage in Exports and Technological Development

János Löblin

e-mail address: jloblin@gmail.com

Abstract: The collapse of structured finance transactions led to financial constraints in the highly leveraged corporations and their banks due to the complexity of their embedded risks. The possibilities of sales increase or cost reduction at exporters have exhausted, as well. The appearance of need to introduce new technics and skills, as for AI and Industry 4.0 does not question the necessity for international technological and trade relations. The existence of financial and operating leverages is necessarily long-lasting and may change when complex technologies and closely interlinked systems keep spreading. Leverages have different impact on the owner of the technology as manufacturer or as supplier depending on the type of technology applied. That may encounter financial barriers, either. A basic issue whether is it possible to reconcile the consistency of capital allocation and financing that flawed attributed to the strengthening banking regulation following the set in of the “Great Financial Crisis” to serve the needs of implementation intensive technological change. System integration may increase financial risks and constrains to the availability of both short and long term financial facilities. To strengthen the capital basis and the liquidity both at banks and corporates is reasonable and inevitable because of the existence of leverages. All that predict increase in the level of lending rates and capital costs.

Keywords: operating and financial leverage, cost structure, volatility, technology, banking

1 Leverages and Crises

A major characteristic of the latest global crisis named Great Financial Recession (GFR) is that overlapping leverages appeared in several markets at the same time causing indebtedness. A huge portion of that still need to be settled. The question is whether the role and features of corporations' leverages are long-lasting, what types of effects the start of new stream of technological development – Industry 4.0 – exercises on that and what basis for considerations the past can deliver.

1.1 Emergence of Leverages

There is always financial leverage when an entrepreneurship, financial institution, household or even a government uses external resources (borrowings) additional to its own funds for investments or because of already existing obligations to meet. The coexistence of operating and financial leverages at corporations is natural.

Cost items belong to either the variable or the fix category depending on their functions and both the operating and financial leverages are due to the existence of the fix ones. The degree of leverage is different by industries, applied technologies, market organizations and might be characteristic, too. Leverage signals the rate of risks, that are mainly individual, may be calculated at business level, can be expressed in money terms. Their financial consequence is direct and cannot be simply ignored.

1.1.1 The Types of Leverage and their Indicators

Most of the leverage ratios can be calculated directly from companies' public financial statements and may be aggregated.²⁷ They relate mainly to one feature marking the level of indebtedness through the costs and composition of funds.

The customary Degree of Operating Leverage (DOL) and Degree of Financial Leverage indicate elasticity and are adjusted to the needs of capital markets' operations. The DOL and DFL based on historical data and unchanged other conditions indicate the propensity to volatility, that means the expected risk and rate of elasticity. Their value is dependent from the actual level of production, too. The calculation is simple from corporate financial statements, though they are suitable only to come to indirect conclusions.²⁸

1.1.2 Crises and Leverage – Short Overview

Crises generally come together with the over indebtedness of some sector or the whole economy where and when the magnitude of leverage cannot be managed or can be only with difficulties. The price of risk, e.g. borrowing rate, insurance

²⁷ The relating literature is elaborated, almost every text-book contain variations, perhaps with smaller differences.

²⁸ The basis of these indicators is the EBIT (earnings before interest and taxes), three components of that include fix cost items, that contain essential differences in case of aggregations. If the proportion of fix items is increasing in time or in comparisons, the elasticity indicator, $DOL > 1$. The DFL reflects the elasticity through the EPS/EBIT, if the indicator > 1 , due to the leverage, the corporate risk for investors is growing, too

premium and – previously frequently – the rate of inflation tends to increase parallelly with the risk.²⁹

Numerous economic-financial crises concentrated on certain market or a segment of that, more on several countries or regions, and frequently only one currency. Globalized crises have occurred only in much smaller number.

During the recent crisis (GFR) started from 2005/2007 the consequences of reckless growth of leverages hit first the household – mortgage – loans, then together with the leverage problems of products containing complex risks transmitted to the banks and the capital markets. This appeared in the increased debt levels and the broken solvency of corporations. The role taken by the budgetary means and the monetary policies led rapidly to the debt crises of certain regions and countries which can be characterized as continuous leverage problems whose consequences have still be valid. The management of piled up massive debt remained unsolved for the time being and raise obstacles to growth, too.

Not rarely complicated, less transparent and poorly controlled technical, management or business structures of some companies or products concluded in excessive financial burdens, bankruptcies, and, technological risks included, ended with catastrophies.³⁰ Previously the technical risks had generally been localized, sometimes forgotten but led to such severe situations that generally cause financial collapse of business.

1.1.3 Analogy 1: Leverages at exporters

The large or trans-national exporter companies' operational leverage is generally higher than that of the companies with similar profile but active only in domestic market.

Due to the export, the number of units requiring specialized knowledge is bigger, coupled with higher wages of larger personnel that hardly can be tied to the sales volume of a product or in a market. They should cope with excess administration tasks. All that result in large general administration cost or continuously purchased service costs that increase the proportion and volume of fix cost items. This causes operating leverage to be shortly transformed into financial leverage, too, in the absence of capital increase with a continuously maintained high level of short term

²⁹ REINHART, C.M.- REINHART, V.R. (2015): Financial crises, development, and growth: A long-term perspective. *World Bank Economic Review*, (29), S53-S76. p.

³⁰ E.g. traditional or nuclear power stations, astronautical projects were complex systems, and declared being safe before the accident.

loans. Should the compensation of this excess obligation with cost saving fail, the result is lagging competitiveness or exit from the market.³¹

Short term financing and interim or more continuous financial needs of daughter companies or clause suppliers are frequently met by financial potential or possibilities of owners. In this case the financial leverage practically grows, but it doesn't appear as obligation towards banks.

The higher level of general or fix costs case financial constrains even crisis-less periods. The repeated financial difficulties of project companies or exporters that follow "niche strategy" date back to the beginning of the 2000's. That were caused most frequently the increased risk and refinancing costs because of highly over-than-average fix costs and volatile sales income pattern. With the consequent absence of development (investment), they generally were pushed out of the market or lost the independence of management and ownership.

There was continuous and rapid growth in global export from the 1990's, but the deterioration of competitiveness and productivity, increasing costs in most developed countries were due to the missing investment in technology and infrastructure. It was coupled with the FDI (foreign direct investment) to the developing countries in evenly increasing growth rate (WTO: World Trade Report, 2013).³² That was the beginning of the upheaval of offshoring and outsourcing activities initiated by the large exporters.

A further signal of the problem has emerged from about 2005 with the market difficulties of some strongly exporting-importing industries, like the automotive or the retail trade chains. Credit insurance covers were adjusted or even limited there to the credit risk of final exporter or buyer, irrespectively to the healthy creditworthiness of sub-suppliers.

As sales growth fell, the proportion of fix elements in the cost structure increased. The increasing leverage strengthened both the positive and negative effects even among low inflation and lending rates. All that directly contributed to the

³¹ This feature has been theoretically well based and verified on large corporate samples by the EFIGE researches, domestic reviews (Reszegi-Juhász, 2014) and significant banks (ECB). In the reported countries successful exporters operated with generally higher wages in the beginning of GFR, and after that in the successful countries together with the growing productivity.

³² Important results from different aspects appeared relating the industrialization that was followed by the creation of service sectors that partially took over the place of industries, called deindustrialization. For reference, look at analyses by Dadush, Uri or Rodrik, Dani, www.vox.eu.

decreasing competitiveness and bankruptcies of companies. It was expressed in the concentration of corporations and the banks, too.³³

1.1.4 Analogy 2: Minimizing the Leverages – in Global Frames

The regional and global supply chains continued and followed the scheme of exporters' endeavors. The basic purpose of supply chains that developed to global value chains soon was to drastically decrease all expenditures to the possible minimum. The setting up of local production facilities and infrastructure connected several types of services and extended to the expenditures on local management and administration, and later the „optimized” taxes by switching them into globally organized process and corporate structures. A significant part of the funds and expenditures for the necessary investments in fix assets was displaced out of the hub companies' balance sheets, too. The operating and taxed revenues, the dividend of the central corporation became maximized from economic and financial points of view, with the utilization of positive effects of the leverages.

The growth of the value of the merchandise export mainly from the developed countries reached the peak in 2008 then after an abrupt huge fall it reached the 2007 level again, quite soon. The increase of the volume of industrial output broke in 2010-11 and has been stagnating since then. The moderate pace of development in several developing countries has been preserved both in the production and trade, as well. The global trade volume, however, has stuck close to the trough in 2011.³⁴

This scheme and the problem had already come out before the crisis with the same consequences on the GVCs. The market and refinancing of buyers' solvency were shrinking, the clogged-up payments brought significant volatility of incomes to exporters, as well as all the chain, magnified by the leverage. The availability of funds became limited as risks of the concerned companies increased with the price of the risk, too. Corollary, the weight of the GVCs dropped strongly.³⁵ The

³³ BIS: CGFS Papers No 50.

³⁴ For basis supporting these statements I used data from CPB Netherlands Bureau for Economic Policy Analysis, CPB World Trade Monitor June 2016 és CPB World Trade Monitor March 2017

³⁵ Recently global firms concentrate their activity to the core business as redirecting their funds to locations with expected higher returns, even if the not preferred business was profitable. E.g. GE sold and quit branches in the financial sector, or CEE countries have been replaced with locations in Far-East in the telecommunication and ICT industries.

previous globalizing power fueling the exports has practically exhausted by about 2005. (see Economist, 2018)³⁶

1.1.5 Corporate leverages and the banks

Some of the central issues of the economic policy debates after 2008 were the improvement of corporate performance and financial institutions structural problems, the method of solution to the debt burdens with austerity measures or „growing out“. These questions haven't been answered properly yet. The urgent start of implementation of the Basel III – rules was aimed to serve efficient basis for maintaining the banking system's functions and improving its capabilities, but that piled up on the previous set of regulation just started functioning. Further credit supply was limited among others by the financial stability problems of countries in the EU and the Euro-zone, the structural problems of the single currency and the permanently high proportion of non- performing loans at certain banks and countries.

Since then, the evaluation of leverages to be handled by banks have become more granulated. E.g. Emter et al (2018) attribute much less importance to the impact of the Basel III rules on the deleveraging of banks and dismantling the NPL stock than previously stereotype opinions. However, some newly published results of empirical analyses on the correlation of demand on additional capital with the clients' debts generally justify the majority part of previous hypotheses (Gebauer et al, 2017; Gross et al, 2017; Smith et al, 2017).

Global data present that exporters are strongly exposed to the volatility of sales income from the aspects both of operational and financial leverages. In the case of production this impact is weaker and delayed, as opposed to the much lower volatility of services activities whose sales income was continuously increasing during the past 10-year period.³⁷

³⁶ This doesn't exclude technical or economic development, but companies should calculate with much lower ambitions. This possibility can be found in BCG, 2015 when they mention the technical possibility for consumer oriented, cheap, flexible production in small series.

³⁷ OECD: Trade in value-added: concepts, methodologies and challenges, (Joint OECD-WTO NOTE, 2012).

The World Bank (2017).: Global Value Change Report 2017, OECD: Cardiac Arrest or Dizzy Spell: Why is World Trade So Weak and What Can Policy Do About It? OECD Economic Paper, September 2016 No. 18)

2 Technology and Cost Structure

Although economic policies, the financial positions, and interests in the direction of the solution of problems were very different by countries in the EU, there were significant efforts made to elaborate a concept based on development and growth. That resulted in a series of studies to lay basis of the industrial policy communicated by the European Commission.³⁸ The next milestone became the aforementioned “Industry 4.0” by the BCG Group.

2.1 Structural elements

The concept is decisive in concentrating on the future high-tech developments. The timeframe for the gradual dissemination of Artificial Intelligence (AI) and ICT and the robotics in wide range of industries has been contemplated for 5-10 years together with its consequences on productivity. The limitation of loan-to-deposits ratios and the banks’ leverage, the necessary decrease of banks’ portfolios to achieve financial equilibrium are different from the developments’ needs. The actual low rate of inflation and low interest rates mean favorable conditions to investments, by principle, but that may change. The next problem is prevailing limited demand that relates to the potential low increase of real sales income, too. This means that the corporates’ and the banks’ positions can improve only by the decreasing costs, mainly fix costs – through investments, in accordance with the concept. The question is the proportion of favorable and hindering factors under the new conditions.

It is quite understandable, that the number of available data is limited and sporadic. With given this, it is possible to signal some predictable tendencies only. Those may occur in the fields below:

Change of the proportions of production, sales and services due to the integration and inclusion of AI-ICT and robotics into the processes.

Change of proportions of cost/expenditure items and their modification, including expenditures on cyber security and systems risk.

Potential change in the financial positions of corporations and banks concerning their leverages.³⁹

³⁸ A result of efforts was a volume of studies ([Barbiero et al.](#)); edited by [Veugelers, R.](#); BRUEGEL BLUEPRINT 21), that served as basis to the decision on the industrial development European Commission’s communication on industrial policy ([COM\(2012\) 582 final](#)), later a study based on contemporain approaches on industrial policy (Fontagné et al, 2014), or other research papers for significant fora, as WEF.

³⁹ For technical basis and support to this part the results and data in studies BCG Industry 4.0, and The World Bank: Global Value Chain Development Report 2017 were used.

2.2 Change of Technology and the Potential Effects

2.2.1 Proportion of Technology and Services

Characteristic change that a big portion of a previously purchased item, services become integrated into the process. The software content may partly increase the value of related fixed assets, but the larger effect is the transformation of a previously variable element to become permanent fix type cost. It is indifferent now, whether the service was imported or bought inland or both. The final effect is a question of price difference, but probably tends to increase the elasticity of indicators – the riskiness.

The new software content has an additional item. As its value can be high and the life cycle is shorter, that may lead to increase in depreciation, too. Here a new permanent expenditure item would increase the operating and financial leverages.

Some considerations: as usual, the measure of indicators (volatility, elasticity) are different by the volume of production, and the combination of fixed assets, software related, and the other variable costs generally may have unique structures.

The difference between the previous and expected expenditures may be significant by industries and companies. Depending on the complexity of systems, the operation in all cases requires higher and permanent expenditure. This way a significant portion of variable costs will be transformed into permanent fix item and cause the volatility and the leverage be higher than previously.

Altogether, the weight of fix cost items tends to grow and that of the variable ones decreases. The degree of leverage seems to increase in this bracket.

2.2.2 Change of Proportions and Character of Cost Elements

The new technology should inevitably be introduced in such functions that had not been outsourced or offshored, like R&D, complete lines of administration and partly the control, logistics, management e.c.t, Here lower wages would be transformed into higher additional costs of technical control, management, degree of education e.c.t. but the character of expenditures remains unchanged, the variable and permanent elements can be separately treated. The consequence is mainly an issue of the funding solutions and their costs.

Based on some published estimations decreasing in costs can be expected overwhelmingly in the fields of production, logistic, storing, assembly and control (technical, quality, but partly financial and administrative, as well). The increase in the productivity of the corporations in the review cause cost savings, that vary between 5-8% (with high volatility).

But big cut can be achieved on administration expenses with the replacement of labor with AI and necessary hardware. The reference of MNB (2017) contains an estimated 30% cost reduction at banks due to minimizing the administrative staff by introducing new technology. Similar result can be given at other service firms and in the high banking related administration costs of logistic and foreign trade. Research would be necessary to make estimation of several other types of cost savings, taking that the publications may be obsolete because of the time of the surveys. What is most missing now from cost vs. saving estimations is the highest rated risk of cyber security and cloud technics based on insurance surveys (Allianz Risk Report, 2017). These elements represent core of the Industry 4.0 concept.

The labor cost may have ambivalent effects. The lower bracket by education and wage predicts significant shrinking while the share of the higher bracket grows significantly parallelly with the technology change.

Altogether: the actual consideration of technological reform calculates with significant increase in productivity at company level based on highly developed technology investments. As this shift in the proportionality will be general, the increasing weight of fix elements will trigger larger than the basis volatility, leverage and consequently the risk and the costs of risk, and cost of capital, too. These effects can be compensated, provided all the cost saving stemming from the increased productivity would appear in the operating earnings (hopefully but not necessarily with growing sales income).

2.2.3 The change of financial positions

In this paragraph can be find mainly consequences stemming from the previously detailed features.

For start, there is an observation from a study on the correlation of corporate leverage with investments in five Euro-zone countries between 2005-2014. Gebauer et al (2017) did not find any threshold above that the leverage would have exerted significantly negative influence on investments.

This contradicts, however, the general observations and some statistics, too. So, some reservation and a detailed analysis of the panel of countries and companies before accepting such conclusions, e.g. on the regulation of the financial system.

As the new technology implemented in a wide array of companies, a significant part of expenditures on previously manual activities and administration with human interference will be transformed from current cost to fix ones. This may result in higher interest and debt amortization than in the past. The increasing amounts and proportions of fix items elevate the degree leverage and risk.

The effect of the reintegration of services and other activities into the business, the operation and organization, a need for additional capital investment in these activities appear again. If this is financed with debt, it raises the financial leverage

beside the operating one. The increased corporate risk should be accepted either by the banks or the investors in the capital markets, too.

The investment related issues above are closely linked to the regulation of banking and the capital market activities and institutions.

The increasing proportion of fixed assets in the operating process transform a significant portion of variable costs into lasting permanent expenditure, similarly to the problem of large exporters in funding their extensive current assets, although as opposed to the first one the latter process follows closely the production to sales cycle. This phenomenon is expected to push up additionally the demand for capital or long-term debt, partly because of the higher riskiness. This could induce increase in interest rates and yields.

The changing structure of customers' demand for financial services have direct influence on the financial sector, but taking Europe's next 5-10 years, the banking sector is still more exposed to changes. The higher demand for long term funds push banks to find adequate funding. But they should run the risks of growing degree of leverage of customers and the increasing concentration risk, their problems with the deleveraging of still existing low rated loans, and restructure the clientele, too. The deteriorating credit quality of companies may have the same effect on the banks and their access to funds. They should obey to the strict rules on their leverage ratios and adequate procedures. All in all credit rating will be as important for the customers as for the banks' investors, that's why they should be more selective in improving the quality of the portfolio. It is not clear yet, how the capital market can keep up with the potentially growing demand.

Conclusions

1 The existence of operating leverage in the corporate sector is natural and inevitable. The corporations' operating leverage is closely linked to the origination of their financial leverage, independently from the effects of financial cycles.

2 Difficulties of companies in fulfilling credit obligations are tightly connected to the increase of the degree of their financial leverage. The latter feature, however, cannot be fully attributed to the increasing severity of regulation of financial institutions.

3 The operating and financial leverages are higher at companies engaged in foreign trade or implement complex technological systems operating with larger technical risks due to the increasing proportion and measure of fix costs. This volatility appears together with the growth of leverages and risks. Should that trigger leverages in the banking system, those may raise limits to their financing activities and liquidity, too.

4 The foreseeable development in the technology brings system risks, including the cyber security. The companies' successful operation can be achieved by

counterbalancing the growing proportion of fix cost items and their continuous presence in markets only by permanent improvement of efficiency.

5 Several types of fix cost items had been offshored or outsourced through Global Value Chains, too. Now, a big portion of those is expected to be reintegrated into the core companies' activities and financial statements. As growing leverage (risk) is to cause increasing capital and yield requirements, under the prevailing rules further concentration in both the banking system and the capital markets is expected. Finally, all these may lead to higher interest rates, too.

References

- [1] Boston Consulting Group: Industry 4.0 (Rüßmann et al: Industry 4.0. The Future of Productivity and Growth in Manufacturing Industries. April 2015.
- [2] BRUEGEL BLUEPRINT 15: Békés, Gábor – Halpern, László – Koren, Miklós-Muraközy, Balázs: Still Standing, Third EFIGE Policy Report, 2011.
- [3] BRUEGEL BLUEPRINT 21: Manufacturing Europe's future (Barbiero et al.); edited by Reinhilde Veugelers;, ISBN: 978-90-78910-32-9, www.bruegel.org
- [4] CGFS Papers No 50: Trade finance developments and issues, January 2014; BIS
- [5] CPB Netherlands Bureau for Economic Policy Analysis: CPB World Trade Monitor June 2016 és CPB World Trade Monitor March 2017. CPB Memo, www.cpb.nl
- [6] Economist: In retreat. The multinational company is in trouble. Global firms are surprisingly vulnerable to attack. Jan 28th, 2017. This article appeared in the Leaders section of the print edition under the headline "In retreat"
- [7] Emter, Lorenz, Schmitz, Martin, Tirpák, Marcel: Cross-border banking in the EU since the crisis: what is driving the great retrenchment? No. 2130, 26 February 2018. <http://www.ecb.europa.eu/pub/research/working-papers/html/index.en.html>
- [8] Fontagné, Lionel - Mohnen, Pierre - Wolff, Guntram: No Industry, No Future? Les notes du conseil d'analyse économique, no 13, June 2014, www.cae-eco.fr
- [9] Gebauer, Stefan - Setzer, Ralph - Westphal, Andreas: Corporate debt and investment: a firm level analysis for stressed euro area countries (No. 2101, 12 September 2017), <http://www.ecb.europa.eu/pub/research/working-papers/html/index.en.html>
- [10] Magyar Nemzeti Bank: Pénzügyi Stabilitási Jelentés, 2017 május. p.74.
- [11] OECD - WTO: Trade in value-added: concepts, methodologies, and challenges, (Joint OECD-WTO NOTE, 2012). www.oecd.com

- [12] REINHART, C.M.- REINHART, V.R.-ROGOFF, K.S. (2012): Public debt overhangs: Advanced-economy episodes since 1800. *Journal of Economic Perspectives*, **26** (3), 69-86. p.
- [13] REINHART, C.M.- REINHART, V.R. (2015): Financial crises, development, and growth: A long-term perspective. *World Bank Economic Review*, (29), S53-S76. p.
- [14] Reszegi, László – Juhász, Péter: A vállalati teljesítmény nyomában. Alinea, 2014.
- [15] Smith, Jonathan Acosta - Grill, Michael - Lang, Jan Hannes: The leverage ratio, risk-taking and bank stability, No. 2079, 20 June 2017. <http://www.ecb.europa.eu/pub/research/working-papers/html/index.en.html>
- [16] The World Bank: GLOBAL VALUE CHAIN DEVELOPMENT REPORT 2017: Measuring and Analyzing the Impact of GVCs on Economic Development. (2017). International Bank for Reconstruction and Development/The World Bank, ISBN 978-92-870-4125-8
- [17] WEF: The Future of Manufacturing: Driving Capabilities, Enabling Investments: by the Members of the Global Agenda Council on the Future of Manufacturing (2012-2014); November 2014, www.weforum.org, REF 101114
- [18] World Trade Report 2013, www.wto.org

Are we really prepared for full autonomy?

Nikolett Madarász

Óbuda University, Keleti Faculty of Business and Management, Budapest,
Hungary, madarasz.nikolett@kgk.uni-obuda.hu

Péter Szikora Ph.D.

Óbuda University, Keleti Faculty of Business and Management, Budapest,
Hungary, szikora.peter@kgk.uni-obuda.hu

Abstract: The subject of artificial intelligence has become a very fashionable field today. Its transposition into practice is increasingly widespread, starting with the development of self-propelled cars, which are not just opportunities of the future, but it represents a huge social change in our present. In this study we give a short insight to the international literature of autonomous cars, focusing on their acceptance among the society. The main part of our research is to find out the causes of their fears and to detect the impact of self-driving cars to people.

Keywords: self-driving cars, acceptance, society

1 Introduction

The purpose of this study is to circle a quickly developing, therefore very exciting topic. Nowadays automated devices and features can be utilized in many areas in our everyday lives. However these machines can be taught to perform certain processes, but they only solve problems and optimize processes. In order to be able to make good choices the so-called machine learning is needed, which works by drawing conclusions based on a behavioral pattern and then they can react to a given situation (Autószeaktor, 2018).

With the advancement of this progress, the human presence is becoming more and more useless, but besides positive effects it also can be dangerous. Asimov's three laws of robotics are all about the maintaining the protection of people and that the robots can not rise above on mankind, but the question is that we are really going to stop developing on time? Thus it is a huge change and risk for society, we need to pay attention at people's attitude towards self-driving cars.

Firstly we would like to describe the definition of self-driving cars, then briefly the automation levels, because it is important to make people aware of these concepts. Then finally within the framework of our own research, we are dealing with the issue of acceptance and concerns about self-driving cars.

2 Self-driving cars

Autonomous cars are those vehicles which are driven by digital technologies without any human intervention. They are capable of driving and navigating themselves on the roads by sensing the environmental impacts. With the help of the system built up by different sensors, hardware components and a complex software, the car can go from one place to another safely. Their appearance is designed to occupy less space on the road in order to avoid traffic jams and reduce the likelihood of accidents (Liden, 2017, USC, 2018).

Despite of this enormous developments accepted automated cars on public roads in 2017, were not fully autonomous: each one needed a human driver who noticed when it is necessary to take back the control over the vehicle (Liden, 2017).

NVIDIA predicts that within four years, autonomous vehicles will be actually approached to public roads. They will not only be technically ready, but the rules will be resolved by then (Reuters, 2017).

2.1 Levels of autonomy

In transport, the human factor has a prominent role beside the vehicle and environmental conditions, as one can correct the mistakes and shortcomings of the other two factors. To track what's happening as we make the transition from human to robot drivers – a transition that will have enormous repercussions for the way we live, work and travel in the future-, the National Highway Traffic Safety Administration (NHTSA) adopted the levels of the Society of Automotive Engineers for automated driving systems, which provides a broad spectrum of total human participation to total autonomy (Reese, 2016).

These are the levels of SAE:

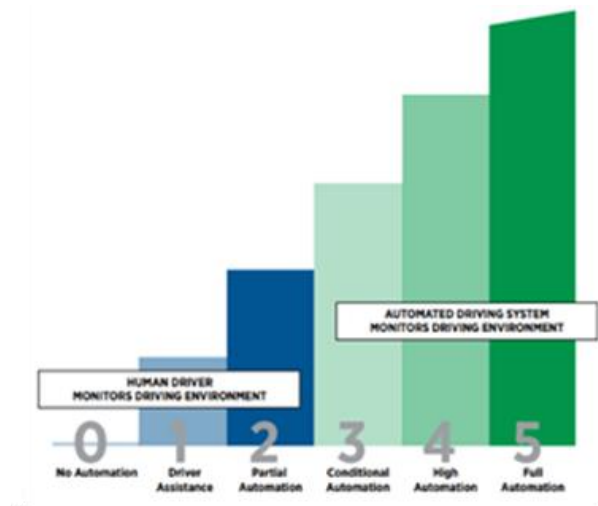


Figure 1
Types of autonomous vehicles (SAE, 2017)

Level 0: No Automation (Blain, 2017)

In this case, there is 100% of human presence. Acceleration, braking and steering are constantly controlled by a human driver, even if they support warning sounds or safety intervention systems. This level also includes automated emergency braking.

Level 1: Driver Assistance (Blain, 2017)

The computer never controls steering and accelerating or braking simultaneously. In certain driving modes, the car can take control of the steering wheel or pedals. The best examples for the first level are adaptive cruise control and parking assistance.

Level 2: Partial Automation (Blain, 2017)

The driver can take his hands off the steering wheel. At this level, there are set-up options in which the car can control both pedals and the steering wheel at the same time, but only under certain circumstances. During this time the driver has to pay attention and if it is necessary, intervene. This is what Tesla Autopilot has known since 2014.

Level 3: Conditional Automation (Blain, 2017)

It approaches full autonomy, but this is dangerous in terms of liability, so therefore, paying attention to them is a very important element. Here the car has a certain mode that can take full responsibility for driving in certain circumstances, but the driver must take the control back when the system asks. At this level, the car can decide when to change lanes and how to respond to dynamic events on the road and it uses the human driver as a backup system.

Level 4: High Automation (Blain, 2017)

It is similar to the previous level, but it is much safer. The vehicle can drive itself under suitable circumstances, and it does not need human intervention. If the car meets something that it cannot handle, it will ask for human help, but it will not endanger passengers if there is no human response. These cars are close to the fully self-driving car.

Level 5: Full Automation (Blain, 2017)

At this level, as the car drives itself, human presence is not a necessity, only an opportunity. The front seats can turn backwards so passengers can talk more easily with each other, because the car does not need help in driving. All driving tasks are performed by the computer on any road under any circumstances, whether there's a human on board or not.

3 Acceptance of self-driving cars

Self-driving cars may be the future of transportation but we do not really know whether it is safer than non-autonomous driving or not. Automakers are spending billions each year to develop self-propelled cars. But it turned out from different studies that people are more concerned than enthusiastic about the appearance of this new technology (Enwemeka, 2017)

3.1 International researches

Numerous researches and surveys have been made in this topic and the majority shows the same results- people do not want the introduction of self-driving cars.

According to AAA's latest survey, the number of Americans who are afraid of fully self-propelled cars has fallen. The survey included fortuitously selected mobile and wire phone number owners, thus 1004 American adult participants took part in it. 63% of the respondents belong to the refusers group, which is an improvement, compared to the previous year's (2017) 78%. The results also show

that both sexes and generations are influencing factors, as 72% of women and only 52% of men fear from the new technology. In addition, the members of the Baby Boom generation are more concerned than members of younger generations who have a much more adaptive attitude (Naughton, 2018, AAA, 2018, Korosec, 2018)

It's important to deal with people's concerns because they will be the potential buyers later on.

3.2 Own research

As the quantitative part of our research we made a questionnaire survey, where besides the issue of social acceptance, the various fears, we also examined moral issues. The form was available online and we could reach 207 person. 110 male and 97 female. The youngest person was 16 years old and the oldest was 65 years old. In terms of age groups, most of them were from the 20-25 year-old group, thanks to the circle of acquaintances

3.2.1 Accidents

During the development faster and more useful vehicles can be produced, but in our accelerated world, with more and more cars, the number of accidents have increased considerably. In most cases, these accidents are the fault of the driver, therefore it could be theoretically replaceable with the help of self-propelled cars. (Szikora, Madarász, 2017)

According to the Statistics Office, in 2017 the number of personal injured road accidents was 16,489. If we consider that one of the main positive aspects of self-propelled cars may be that the number of road accidents can be greatly reduced, it is worth examining the causes of accidents and their distribution.

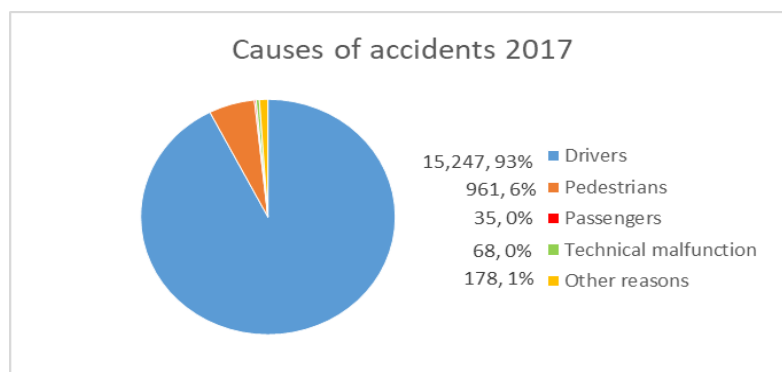


Figure 2
Causes of road accidents (Own edition by KSH data)

It can be seen that 93% of accidents are caused by the drivers, so if it could be filtered by using the driverless cars, the number of accidents would be only 1242 in a year in Hungary (KSH, 2017).

However, things are not that simple. Car manufacturers often think that the vehicle is ready for use, but some accidents have already happened in which the self-driving car was partly or wholly defective and these events made people more concerned than before.

3.2.2 Causes of concerns

Trust in a new technology is never easy, and this will be a major challenge for the public, as few feel secure about using a new, and in addition, non-proven, well-functioning transport technology.

To find the major concerns of people, we have highlighted some of them and we asked the respondents to indicate their degree. They were rated 1 to 5, 1 meant the smallest, and 5 meant the largest. The distribution of this is shown in the diagram below.

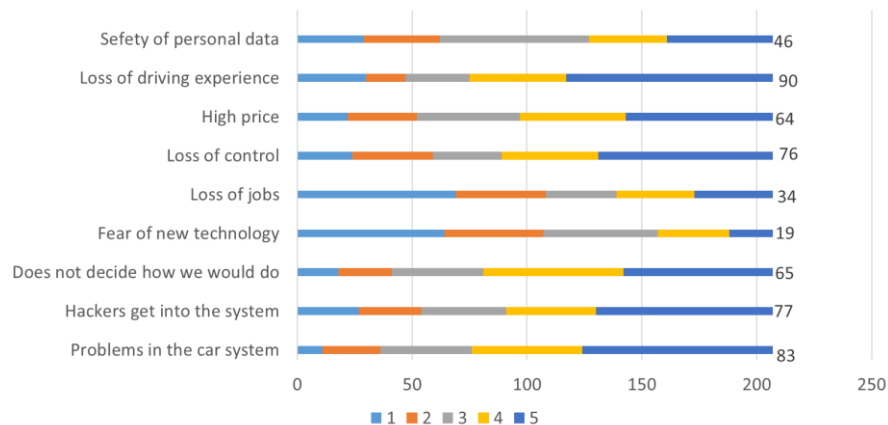


Figure 3
Concerns (per person) (Own data)

In most places the largest degree (5) was indicated by most people, which are the following from the highest to downwards:

- loss of driving experience (90);
- problems in the car system (83);
- hackers get into the system (77);
- loss of control (76);
- does not decide how we would do (65 people).

Except for driving experience, outstanding results can be linked to security issues. Of course, these are not the only factors of fear, the basis for questioning was the most commonly occurring concerns in international researches.

3.2.3 Acceptance

We asked the respondents whether they would support the introduction of self-propelled cars. Since many researches found that answers are different by gender, so the results are represented in the table by gender.

	Women (person/%)		Men (person/%)	
Oppose & rather oppose	35	36%	25	23%
Neutral	30	31%	19	17%
Support & rather support	32	33%	66	60%

Figure 4
Gender differences (Own data)

Who are supportive among women respondents were only "33%", 31% gave neutral answers, and the rest (36%) did not support the introduction of self-propelled cars. While this percentage among men seems to be completely different. 60% of them support driverless cars, 17% are neutral and only 23% of those who do not support the introduction of them.

Conclusions

Different researches highlighted the factors that cause the various fears and, according to my own survey, it was found that the acceptance of the loss of control is a huge difficulty for society. Those who oppose self-propelled cars are also mentioned these factors: how will the computer decide in an accident; who will be responsible; how can we avoid hacker attacks, driving experience will disappear etc. The essence of sceptical questions about the complete automation of transport is the same: do we dare to give the control over to our computers?

These vehicles are useful, but as long as the car manufacturers do not overcome the mistakes and do not find a solution for moral issues and other concerns, people will not accept them.

References

- [1] AAA (2018) More Americans Willing To Ride in Fully Self-Driving Cars [on-line], Available: <https://www.manufacturing.net/news/2018/02/more-americans-willing-ride-fully-self-driving-cars> [Downloaded: 2018.04.03.]
- [2] Autószektor (2018) Önvezető autó, Mesterséges Intelligencia [on-line], Available: <http://www.faktor.hu/faktor-onvezeto-auto-mesterseges-intelligencia/> [Downloaded: 2018. 03.17.]
- [3] Blain, L. (2017). Self-driving vehicles: What are the six levels of autonomy? [on-line], Available: <http://newatlas.com/sae-autonomous-levels-definition-self-driving/49947/> [Downloaded: 2018.01.05.]
- [4] Enwemeka, Z. (2017) Consumers Don't Really Want Self-Driving Cars [on-line], Available: <http://www.wbur.org/bostonmix/2017/05/25/mit-study-self-driving-cars> [Downloaded: 2018.03.16.]
- [5] Korosec, K. (2018) A Majority of U.S. Drivers Still Don't Trust Self-Driving Cars [on-line], Available: <http://fortune.com/2018/01/24/aaa-drivers-fear-self-driving-cars/> [Downloaded: 2018.02.20.]
- [6] KSH (2017) Személy sérüléses közúti közlekedési balesetek az előidéző okok szerint [on-line], Available: http://www.ksh.hu/docs/hun/xstadat/xstadat_evkozi/e_ods002.html [Downloaded: 2018.03.29.]
- [7] Liden, D. (2017) What Is a Driverless Car? [on-line], Available: <http://www.wisegeek.com/what-is-a-driverless-car.htm> [Downloaded: 2018.04.02.]
- [8] Naughton, K. (2018) Americans' Fear of Driverless Cars Subsiding: AAA Survey [on-line], Available: <https://www.insurancejournal.com/news/national/2018/01/29/478685.htm> [Downloaded: 2018.04.03.]
- [9] Reese, H. (2016) Updated: Autonomous driving levels 0 to 5: Understanding the differences [on-line], Available: <http://www.techrepublic.com/article/autonomous-driving-levels-0-to-5-understanding-the-differences/> [Downloaded: 2018.04.03.]
- [10] Reuters (2017) Chipmaker Nvidia's CEO sees fully autonomous cars within 4 years [on-line], Available: <https://www.reuters.com/article/us-nvidia-ai-chips/chipmaker-nvidias-ceo-sees-fully-autonomous-cars-within-4-years-idUSKBN1CV192?feedType=RSS&feedName=technologyNews> [Downloaded: 2018.04.02.]
- [11] Szikora, P. and Madarász, N. (2017) Self-driving cars- the human side, Available: INFORMATICS 2017 pp. 383-387. ISBN:978-1-5386-0888-3
- [12] Union of Concerned Scientists (2018) How do self-driving cars work—and what do they mean for the future? [on-line], Available: <https://www.ucsusa.org/clean-vehicles/how-self-driving-cars-work> [Downloaded: 2018.03.26.]

Governance Gaps in Global Supply Chains: Case study of Supply Chain in Vietnam

Phuong Thao Mai

VNUK Institute for Research and Executive Education, The University of
Danang, Vietnam

thao.mai@vnuk.edu.vn

Abstract: Along with the increasingly expanding of global supply chains in global economy is the emerging governance gaps in supply chains that generate consequences directly impacting on labour force around the globe. This has become a major concern on the link between the development of the global economy and human rights violation. This paper investigates the governance gaps that facilitate the labour exploitation and workers' rights violation in global supply chains. Accordingly, governance gaps might facilitate multinational enterprises to have wrongful acts with their workers such as reducing labour standards and working conditions, unguaranteed job, labour right violation. Hence, the paper seeks to answer a question that how to narrow these governance gaps to eventually bridge the gaps in global supply chains. Vietnam has been chosen as a case study of supply chains to examine the labour practices caused by governance gaps and what consequences have workers in this country been faced in recent years. The paper is expected to provide Eastern enterprises and governments a better understanding of practical labour issues happening throughout the supply chain.

Key Words: global supply chain, governance, labour rights, labour exploitation, Vietnam

1 Introduction

In the context of the global economy, businesses in goods producing industries have increasingly relied on global supply chains to conduct their process of goods production and commodity delivery to consumers. One of the most important highlights of supply chains in global economy is creating millions of job opportunities for the poor in the world, especially in developing countries, to emerge out of extreme poverty. In turn, along with constant development of global supply chains, a number of news headlines have also paid attention to human rights violation and challenges on sustainable environment that have been generated by global supply chain operations, particularly in goods producing countries for these supply chains around the world (World Economic Forum,

2016). Global supply chains are conducted by complex structures and networks that result in labour exploitation, vulnerability and unprotecting workers against abusive labour practices. Over the last few decades, there has been more attention focused towards business responsibilities in the impact of commercial activities on human rights. Whilst, it is argued that the attention to the role and responsibilities of states as economic actors regarding their own supply chain is lacking (Martin-Ortega, 2016).

2 Research aims and methods

Realising the importance of global and state governance in managing the global supply chains as well as addressing labour exploitation issues, this paper seeks to examine one of the most stressed human rights challenges to workers in the age of modern day slavery that has been emerged in global supply chains in recent decades, and to investigate the roles and responsibilities of global and state governance in protecting human rights of workers from abusive labour practices in the political economy perspective. The main argument of this paper is that the root cause of the predicament between global business and human rights in today's climate is basically due to the governance gaps generated by globalisation which is between the scope and impacts of economic forces and involving actors, along with societies' capacity to manage their consequences. These governance gaps may cause the negative environment that allows global businesses to commit wrongful acts with their employees and sub-contractors without adequate sanctions and compensation. As a consequence, a crucial question has been raised that how to narrow these governance gaps to eventually bridge the gaps in relation to human rights in global supply chains also seeks to be answered in this paper.

It is important that most of supply enterprises in global supply chains are located in developing countries where have abundant and cheap labour forces with the incomprehensive national labour legislation and the unstable living standard. Thus, workers employed by supply enterprise in developing countries who are working at the bottom of global supply chain, are also the victims of labour exploitation and human rights violation. Thus, this paper chooses Vietnam as a case study to examine governance gaps as well as labour practices relating to labour exploitation and workers' rights violation in supply chains in Vietnam.

The methodology approach to the paper has primarily been qualitative that is basically based on two-month long literature review of existing research and secondary data relevant to the governance of global supply chains. The main idea on labour exploitation of this paper is based on the range of OpenDemocracy's literatures. Along with literature review, an interview-based research is conducted for qualitative data collection. Ten Oxfam's officials and researchers who had a long term of working experience in labour rights in Vietnam were interviewed for exploring labour practices in global supply in Vietnam and policy recommendation.

3 The governance of global supply chains

The governance gaps have been constantly concerned as one of the most important root causes underpinning business demand for forced labour in global supply chains. The sense of employers' freedom to exploit has been focused on, and is to be investigated as the focal point that facilitates severe labour exploitation. Accordingly, the widespread ability for employers to generate practices of exploitation is parallel with a fact that workers would have no choice but to accept that exploitation. By agreeing with this, Skrivankova (2014: 1) highlighted that "underlying causes include a regulatory framework in which the use of forced labour makes 'business sense' even if illegal, because the risks of discovery and prosecution are low, and weak enforcement of labour standards". This paper recognises the governance gaps in global supply chains in the contexts of regulation and enforcement at both of national and international levels, and also within the cross border nature of global supply chains.

3.1 Public governance

Public governance mechanism traditionally derives from laws and regulation at national and local levels which means that it presents a state's duty in enforcing national laws and regulations of labour as well as in ratifying and implementing international labour Conventions (ILO, 2016). According to Lee (2016), public governance is exercised within both of governments and international organisations such as the United Nations (UN) and the International Labour Organisation (ILO) at various levels. For instance, at the supranational level, the ILO core conventions have issued the fundamental guidelines for labour standards and workers' right which governments base on to enforce the national laws and protect labour rights. Apart from this, Bair and Gereffi (2001) claim that bilateral or multilateral trade agreements can contribute to shape the dynamics of global supply chains through providing an advantageous market access, for example, the North American Free Trade Agreement (NAFTA). These trade agreements can also play a role in influencing the social upgrading by 'social clauses'. The main functions of public governance are to manage and control labour administration, inspection and enforcement (ILO, 2016). For example, resolving labour disputes and conducting legal proceedings against workers' rights violators. Furthermore, governments raise the workplace compliance relied on their distinct context of national history, economic growth and legal system. At the local level, public governance involves laws and regulation on labour issues and workers conducted by national and sub-national government. As mentioned by Amengual (2014), national labour laws can impact directly on conditions of working environment and workers' right across the country; besides, the level of national law enforcement may vary among different areas within a country because the distinct in other local measures such as competition or immigration policy, investment regulations may affect the enforcement.

3.2 Private governance

Lead enterprises have applied private governance to run the compliance in global supply chains. Accordingly, the term of corporate social responsibility (CSR) is used to imply the ability of enterprises' voluntarily self-regulating in economic, social and environmental problems. In the private governance, lead firms or groups of enterprises establish private mechanism that is so-called private compliance initiatives (PCIs). These initiatives would help lead firms monitor the compliance by more specific standards or code of conduct. For example, there have been many PCIs established for addressing emerging concerns in unions or civil society. These initiatives have been more common in industries where the image of their international brands are likely to be influenced by pressure from customer, the trade union or NGOs. However, private governance mechanisms for protecting labour rights have been less common within the business-to-business supply chains (ILO, 2016).

The ILO (2016) argued that there have been many limitations to the efficiency of the private compliance initiatives in guarantying the long-term compliance which include a lack of coordination with labour administration at local level, inadequate accountability and, especially, restrictions from upper-tier suppliers. In order to determine the specific private parameters of enterprises' initiative, they choose issues for addressing and the objects to be covered, then the medication for the violation is carried out. As a result, if there is any change in the priority of the lead firms, its auditing and capacity building could be also scaled back. It is also argued that the multiplicity of codes of conduct with different contents may generate the confusion and impact the effectiveness of the PCIs. There could be another concern about PCIs in private governance is that PCIs lack accountability. This is because they do not establish inclusive processes that support workers' participation or information disclosure. In other words, workers are not participating in PCIs' design or amending, and they do not have opportunities to validate, comment or have voice towards processes of decision making. Practically, when an audit occurs, contracted workers and non-standard workers are not consulted, or they are hesitant to present their concerns as they fear of losing the job (Barrientos, 2008). In this case, workers do not have any presentation to raise their voice to protect their own labour rights.

3.3 Social governance

Social governance is defined by the ILO (2016: 52) as 'the interaction between the social partners at the enterprise, sectoral, national or international levels. In social governance, unions, enterprises, employers' organizations and other civil society organizations engage in a process to define and implement joint governance schemes'. The greatest difference between social governance and private

governance is that there is negotiation between employers and workers in social governance which private governance does not include. This means that unions are the representative of workers who will collectively negotiate about bargaining relating to labour issues with higher management sectors at workplace or at national level. It is believed that social governance contributes to the effectiveness of using international/global framework agreements to enhance labour relations in global supply chains (ILO, 2016). To be more specific, many ILO instruments have reaffirmed the social dialogue's commitment, for example, in the 2008 Declaration on Social Justice for a Fair Globalisation (ILO, 2008) that emphasised that promoting social dialogue is recognised as one of the most appropriate measures for comprehending labour law and institutions. At the same time, showing respect of employment relationship and constantly improving labour inspection systems are necessary. Regarding the implementation and enforcement of national labour laws, it cannot deny the important role of social partners or trade unions in making these processes more effective. Basically, trade unions have responsibility to support labour inspection and to assist to solve issues involving to labour standards through settling claims, representing labourers and cooperate with inspectors in investigating and clarifying the problem. In addition, it is argued that social governance mechanism can be used by social partners in order to improve public governance in global supply chains.

However, there have been a number of challenges for social governance in seeking to work effectively in global supply chains. Social governance help representing workers in ensuring the accountability in issues relating to labour rights and labour standards; yet, the degree of transparency and inclusiveness claimed as uncertain. Also, it raises a concern that adequate worker and employer representation in the full global supply chains is controversial. With this sense, the inclusiveness would be restricted by lacking the participation of lead firms at national level as well as the participation of small and medium enterprises (SMEs) at local level. It is therefore concluded that these challenges could undermine the productivity that social partners can get involve in a comprehensive social dialogue to ensure the effectiveness of workplace compliance in global supply chains.

4 The governance gaps in supply chains in Vietnam

The current labour context in Vietnam has showed that the forms of trade liberalisation and international trade agreements have brought about hyper-competitive pressure in goods production in supplier countries, especially in developing countries which have cheap labour costs and a growing workforce in global supply chains such as Cambodia and Vietnam. It is evaluated that social clauses relating to trade in Vietnam have been lacking of protection for workers on

labour standards, and on ensuring fair wages for workers or social protection (Worker Rights Consortium, 2013). Furthermore, it is important to emphasise that the imbalance in power between the multinational corporations which are at the top of global supply chains and the suppliers which are at the bottom of global supply chains, may allow these multinational businesses to impose low costs on producing procedures. This contributes to the vulnerability of workers in suppliers such as low wages, instable jobs, and vulnerable working conditions. In practices of Vietnam's supplier in global supply chains, there have been empirical evidences presenting the declining respect of labour rights as well as reducing production costs in sectors of textiles and garment which are imported by international brands into the U.S between 1989 and 2014 (Do, 2016). According to the U.S. Department of Labour (2012), the garment products imported from Vietnam were added to the list of products made with forced labour by the U.S. Department of Labour in 2012 that made Vietnam become the one of seven countries receiving this designation.

Recently, a study about labour rights regarding the compliance toward good practices in global supply chains in Vietnam has been conducted by the cooperation between Oxfam Vietnam and Unilever operation. This study has determined key obstacles to labour rights protection in Vietnam. In particular, the legal framework for monitoring and enforcing labour rights has not been fully comprehensive. Particularly, national laws on minimum wage for workers have not adequate to the minimum living needs. Since the ratio of labour inspectors to enterprises is still very low, the labour laws enforcement in Vietnam has been limited. The characteristic of political system in Vietnam that has restricted the freedom of labour unions or associations, and controlled the collective bargaining. Additionally, there has not been the compliance and formalisation of jobs, especially in private sectors. And the final main obstacle determined by Oxfam is the commercial practices of sourcing businesses, for example, the short producing time for fulfilling the orders from demanding countries in contracts relied on minimum wage assumptions (Wilshaw et al, 2016). These obstacles are taken into account for considering and examining what would be the roots causes of labour rights violation in supply chains context of Vietnam.

4.1 Lacking enforcement of international labour standards

While international labour standards have become the most fundamental tool for ensuring labour rights of workers in around the world. Yet, the national labour laws creation and enforcement adequate to the international standards have been reckoned as one of the most concerned governance gaps in global supply chains. In the national legislation context of Vietnam, governmental policies have limited the establishment of independent NGOs at grass-roots level, not excepting organisations for investigating labour rights abuses and workers assisting. Also,

the government have restricts the founding of labour unions that prevent the independent monitoring working conditions of export products factories in Vietnam (Chan, 2010). This could explain for the fact that there have been very few such grassroots labour NGOs existing in Vietnam and mostly there was no chance to approach and contact them for collecting information of labour issues in Vietnam.

According to up-to-dated information from official Oxfam Vietnam staff, Vietnam has ratified 21 ILO Conventions in which there are various important conventions relating to migrant labour and informal labour such as Forced Labour Convention (C029), ILO Convention concerning the minimum age for labour or preventing children labour (C138 and C182), Conventions on Equal Remuneration (C100) and Discrimination (C111), and other Conventions on Labour Inspection (C081), Employment Policy (C122), Occupational Safety and Health (C155, C187)⁴⁰. While these conventions transformation and enforcement in Vietnam have been carried out actively by the government and involved parties, it could be deny the fact that the processes of international labour conventions in Vietnam have been confront a number of challenges as well as restrictions due to the 'gap' or the difference in the link between national law and international law which is regulated in Vietnam national law system that the international laws would be initially transferred and adequate to the national laws and practical context of Vietnam, latterly the complementation would be applied⁴¹. Therefore, there would not be the direct enforcement of international labour laws/conventions in Vietnam. Furthermore, a number of definitions and articles in the ILO's Conventions have not reached to the homogeneity. For example, Mr. Bon Ha Dinh, Director of Legislation Department, Ministry of Labour, Invalids and Social Affairs in Vietnam stated that regarding the transferring and enforcing ILO's Conventions of Child Labour Elimination (C138 and C182), Vietnamese government have not only afforded to transfer ILO's regulations effectively into national laws, but also established many action plans in order to contribute to the campaign of eliminating child labour of the ILO. However, beyond these efforts, there have been some specific cases such as in garment and foods processing factories, It was reported that children have to work 8-9 hours/day, even 10-12 hours/day.

⁴⁰ workers' rights project manager of Oxfam Vietnam, interview, 20 July 2017

⁴¹ workers' rights project researcher in Oxfam Vietnam, interview, 20 July 2017

4.2 The violation of freedom of association and the rights to collective bargaining

4.2.1 The control of government on freedom to join or form a union

As emphasised by the Worker Rights Consortium (2013: 5), "[t]he right of workers to form or join unions of their own choosing is a basic element of the fundamental workplace right of freedom of association". This was mentioned in the Article 2 of the ILO Convention of Freedom of Association and Protection of the Right to Organise Convention in 1948 that "[w]orkers [...] without distinction whatsoever, shall have the right to establish and, subject only to the rules of the organisation concerned, to join organisations of their own choosing without previous authorisation" (International Labour Organisation, 2017d). However, according to the U.S. State Department's annual "Country Reports on Human Rights Practices" blamed that Vietnam persists to violate this fundamental workers' right (U.S. State Department, 2012). In the political context of Vietnam, the freedom of association and collective bargaining have been used in national framework by an only labour union system with dual accountability and governed by the government named the Vietnam General Confederation of Labour (VGCL). It is the only official trade union organisation recognised in Vietnam which is regarded as representative for both of workers' and the Communist Party's interests. However, this labour union system is not responsible for ensuring the independent representation of worker rights and benefits. Hitherto, Vietnam has adopted five out of eight fundamental international conventions regarding forced labour, child labour and discrimination. While the government has not ratified the conventions on freedom of association and collective bargaining, the labour code issued by Vietnamese government regulates particular articles on the freedom of association and collective bargaining which is applied in the national labour union system. Specifically, Article 7 (2) of Vietnamese labour code states that "an employee shall have the right to form, join, or participate in union activities in accordance with the Law on Trade Unions in order to protect his legal rights and benefits" (Ministry of Labour, Invalids and Social Affairs, 2012: 13).

The VGCL has established workplace unions at 80% of formal enterprises in Vietnam which manage at least 30 workers. Nevertheless, according to the General Statistics Office of Vietnam (2014), there are current over 373,000 active enterprises in Vietnam; yet, only 35,000 companies have had grass-root workplace unions. It means that less than 10% of total enterprises have had workplace unions representing for benefits ensuring to labourers. In addition, while workplace dialogues and collective bargaining at the enterprise level have been organised more regularly by the unions since the establishment of 2012 revision of the Labour Code and the labour union law, it is argued that they just consult workers' complaints and opinion, but not actually apply democratic procedures during the

process of negotiation for creating collective pressures. Consequently, the quality and outcomes of collective bargaining agreements (CBA) at enterprises in Vietnam are not high and do not bring effective reflections to labour issues reported; even though over 70% of ratified CBAs include at least one article committing that they would create working condition and benefits to their workers better than what labour law requires. Apart from this, it is regulated that only formal workers who have signed at least six month labour contract are allowed to become the members of workplace unions. This means that informal or temporary workers who have confronted vulnerable jobs would not be able to become a member of labour union and they also would not have any representative to express their difficulties as well as the vulnerabilities due to labour rights violation.

As a result, it is difficult for informal sectors to found labour unions even though VGCL has declared recently that expanding membership to the informal sectors would be focused and carried out actively for ensuring labour rights of workers working at these sectors. As mentioned that workplace unions in Vietnam mostly exist in formal enterprises, there are still a number of informal workers groups which gather labourers working at informal sectors such as cycle drivers, motorbike taxi drivers, garbage collectors, labourers working at harbours, fisheries workers and others⁴². These groups are mainly at local level, small-scale and scattered; at the same time, it is notable that they rarely have opportunities to approach and participate in workplace dialogues with employers or local government. Therefore, informal workers in Vietnam labour market do not have any collective mechanism for negotiation or bargaining which support and help them negotiate with government and employers in order to protect their labour right at both local and national levels.

4.2.2 The prohibition of independent unions' formulation and activities

The government in Vietnam enforces the prohibition of establishing and running independent labour unions through prosecuting and imprisoning citizens who form such organisations (The Worker Rights Consortium, 2013). In particular, specific punishment for those who play a public role in founding an independent labour union has been mentioned in not only national policies, but also the Labour Code that they would be subjected to sustained campaigns of prosecution and imprisonment, especially when they persist in their labour activism (Human Right Watch, 2009). There was a practical case happened in 2007 in Vietnam when Mrs. Khai Thanh Thuy Tran, a writer helped formed the Vietnam Independent Trade Union, was convicted of “disturbing the peace” and jailed for nine months. After releasing from the charge, she continued her ambition and again, she was

⁴² workers' rights project researcher in Oxfam Vietnam, interview, 20 July 2017

convicted of assaulting a police officer and sentenced for 3.5 years in prison (Human Right Watch, 2009).

4.2.3 The employer domination in monitoring and governing labour unions

The Worker Rights Consortium (2013) argued that the fundamental labour rights of freedom of association and collective bargaining accordance to Vietnamese law are not respected. The associational rights of Vietnamese workers have been denied not only in the legally prohibition of forming independent unions, but also in a fact that the mechanism of workplace unions has been also dominated by the employers themselves. Basically, most of workplace union's officials are also play an important role in managing the enterprise which means that the head of enterprise-level labour union is basically chosen by the enterprise's or factory's owners/leaders, not by workers. Additionally, union meetings are organised and monitored by the company-managers-cum-union-leaders (Worker Rights Consortium, 2013). All of these issues blatantly violate the right of freedom of association accordance with the ILO Convention 98 (1949) regulated in the Article 2(1) that "[w]orkers' and employers' organisations shall enjoy adequate protection against any acts of interference by each other or each other's agents or members in their establishment, functioning or administration". The domination of such employers in workplace unions generates a massive conflict-of-interest when union officers who should independently represent workers' interest and have actions to correct labour laws' violation in the factory; yet, they cannot go beyond the responsibility of the company's official who represent the company's interest as an initial priority. Due to this, it is definitely found that the fundamental labour rights of workers in Vietnam have not been fully protected by official labour union at both of workplace and governmental levels.

At the factories where workers are directly impacted by vulnerable working conditions and labour rights abuses; and therefore the collective representation are mostly needed. However, those designated as their representatives are paid to represent the employer and are responsible for ensuring the interests of the company when matters involving to labour relations happened, not for the benefits of workers whom the unions should be represent for in rule. Consequently, it is not surprised when Vietnamese workers show their little trust towards workplace unions. To be more specific, Kerkvliet (2012) has mentioned some practical cases of national labour law regarding this view, there were some groups of workers working in factories in Vietnam attempting to form labour organisations beyond the VGCL dominated by the government and the Communist Party, were prosecuted and jailed on criminal charges as the sanction for their 'wrongful action'. At the enterprise level, the workplace unions are governed by factory managers who basically work as the plant-level unions' officials (Better Work Vietnam, 2011). This is blamed as a fundamental conflict of interests when job

actions like 'wildcat strikes' organised by workers beyond the workplace unions for protesting labour abuses or labour rights violation by enterprises, workers leading such strikes can confront with punishments such as physical violence, firing or imprisonment as a consequence of government and employer retaliation (Gramberg, Teicher, and Nguyen, 2013).

4.3 Lacking laws enforcement and implementation for employment and social protection

One of another important point leading to governance gaps is that attracting foreign investment for GDP growth has been the priority for development of Vietnamese government. Doing so, using cheap labour and low national labour standards is regarded as 'selling points' of workforce in Vietnam. This is so-called "The race to the bottom". With this sense, a number of informal workers suffer most due to a fact that they have been working at the bottom of supply chains in which labour standards as well as wages have been kept lower than the minimum levels of industries. It is strongly emphasised by the Oxfam Vietnam's officials that supply chains governance in Vietnam has been played a fundamental role in creating a legal framework to combat "the race to the bottom" in labour standards and to support negotiations between buyers and suppliers in supply chains. However, this role has been blurred.

According to a report on labour right of Oxfam Vietnam, even though the Labour Code in Vietnam has been updated and progressive, the enforcement is weak. For instance, workers' rights and social protection have been impeded due to social insurance debts from enterprises (Wilshaw et al, 2016). This is proved by an investigation by the State Investigators on social insurance compliance in 2015, all 1261 enterprises which were investigated, have been in debt of social protection for a long period of time and affected over 13 thousands workers who are working for them. Furthermore, according to the laws of social insurance in 2014 which mentioned at Article 124 (1) that with a labour short-term contract (3 months or less) signed by the enterprise and worker, the enterprise has had to pay the social insurance until 2018 when the new laws will be officially applied. Abusing this, it is also invested by the U.S. Department of Labor (2012) that signing short term labour contracts of less than 3 months with workers and repeating them has become a very popular ways that enterprises in most of provinces in Vietnam have done to avoid the expensed for social insurance. In order to tackle this problem, Oxfam Vietnam (2017) has reported that a number of supportive policies by the government are created to help prevent and strengthen these situations in labour market, for example, national policies on promoting flexible labour market or on improving basic health care for workers at the grassroots level, or policy on rising labour investigators to strengthen the labour law enforcement. However, there is not still any financial resource committing for the implementation.

5 Potential Responses and Recommendations

5.1 Establishing national policy on minimum wage that meet the basic needs of living for workers

The governance gaps in global supply chains have caused serious consequences that not only violate labour rights, but also exploit workers and leave them high risks of being vulnerable. In this context, one of the most crucial responses that Vietnamese government has sought to concentrate on in recent years is minimum wage setting. The policies and institutions of wage setting need to be enhanced to meet the demands of changeable labour market in Vietnam and ensure the intensive progress of integration into the economic globalisation⁴³. This response benefits not only workers, but also enterprises in global supply chains and the economic growth of Vietnam in general. With this expectation, the strategic response has become the key message at the national economic conference on “Vietnam wage policy in the context of a market economy and economic integration” organised in November 2014 by the Ministry of Labour, Invalids and Social Affairs (MoLISA) collaborating with the ILO in Hanoi (ILO, 2014). It is believed that the wage employment has been growing rapidly in developing countries in Asia, including Vietnam; hence, wages and purchasing power of wages have great impacts on living standards (International Labour Organisation, 2014). Regarding this, the ILO Deputy Director-General Sandra Polaski stated that “Whether wages are sufficient to meet workers’ basic needs will decide not only if people can feed their family, but also if they can build a better future for themselves and their children” (ILO, 2014). Therefore, minimum wage setting policies by the government that meet the basic needs of living for workers should continue to be the priority of Vietnam government since till this moment, despite of constant efforts of the government to increase the minimum wage for workers, Vietnamese government has not proposed any standard for national minimum wage that meet the basic needs of living for workers (Nguyen et al, 2017).

5.2 Promoting collective bargaining and labour union activities

As mentioned above that collective bargaining is considered as a fundamental labour right that should be respected in any factory in global supply chains to ensure that workers have their own voice in protecting their human rights at workplace. However, it was explained evidently that this basic right has not been respected in Vietnam. The Vice Minister of the MoLISA Pham Minh Huan

⁴³ workers’ rights project researcher in Oxfam Vietnam, interview, 20 July 2017

claimed that collective bargaining has not been recognised in Vietnam which is normally ignored due to the employment pressure (International Labour Organisation, 2014). With the lack of freedom in collective bargaining, wildcat strikes would be more easily to happen because workers do not have other way to express their disagreement in wage or their desire to wage improvement. As said by Ms Polaski “Collective bargaining gives workers and employers a mechanism to better link wages and productivity growth and resolve disputes constructively which benefits both parties” (ILO, 2014). In addition, the dominance of the unique labour union officially recognised by the government has become another challenge to workers in this country to have a truly representative protecting their labour rights⁴⁴. As a result, the most important role of labour union in representing their workers to compact labour right violation has been blurred, at the same time, the trust of workers to their labour union has also been gradually lost overtime. This is not only because of lacking collective bargaining in enterprise in Vietnam, but also the limitation in Vietnam national labour laws which have not ratified a number of ILO’s Conventions, particularly conventions on collective bargaining and freedom of labour union form and activities.

Therefore, promoting collective bargaining and labour union activities is an important recommendation that should be focused in supply chains in Vietnam. In order to achieve this, the interviewees from Oxfam Vietnam suggest that Vietnamese government should more focus on improving their national labour laws and enhancing the ILO’s Conventions enforcement in Vietnam through adopting the ILO Freedom of Association and Protection of the Right to Organise Convention (C087) and the Fee-Charging Employment Agencies Convention (C096)⁴⁵. At the same time, Vietnamese government should pay attention to labour policy on workers empowerment which could bring about a more freedom for workers to present their basic human rights such as right to vote their union leader, right to claim the unfairness in working environment⁴⁶. By doing so, it is expected that there will be more flexibility and freedom in collective bargaining as well as in union policies for protecting and helping workers to have their own voices and supporting from union to combat labour violation and vulnerable working conditions in supply chains. Minimum wage setting and collective bargaining are seen as two important tools of each support the other to help fix the minimum wage in the market economics. While the minimum wage can ensure the basic life for the poorest workers, collective bargaining brings about opportunities to adjust the wage for persons whose income is higher than the minimum wage (ILO, 2014). Stimulating and developing a harmonious labour relationship can help enterprises and workers better adapt to constant transformations derived from broader and deeper economic integration at both of regional and global levels.

⁴⁴ workers’ rights project manager in Oxfam Vietnam, interview, 20 July 2017

⁴⁵ workers’ rights project manager in Oxfam Vietnam, interview, 20 July 2017

⁴⁶ workers’ rights project researcher in Oxfam Vietnam, interview, 20 July 2017

5.3 Promoting multi-stakeholder dialogue in the supply chain in Vietnam

Promoting multi-stakeholder dialogue in supply chains in Vietnam is another recommendation that this paper would like to suggest. According to O'Rourke (2005:2), Multi-stakeholder dialogue is defined as "private and non-governmental stakeholders in negotiating labour, health and safety, and environmental standards, monitoring compliance with these standards, and establishing mechanisms of certification and labelling that provide incentives for firms to meet these standards". As also mentioned by the ILO (2016), the promotion and engagement in effective multi-stakeholders would become an integrated approach that contributes to the improvement of decent work in global supply chains. This approach could be taken place through "sharing good practices on innovative representation mechanisms such as multi-employer bargaining, national tripartite dialogue and the inclusion therein of enterprises and private employment agencies and contractors as well as MNEs and other relevant actors (ILO, 2016: 66). Importantly, The ILO would play an important role as a body which develops the capacity of participators at different levels. Relevant partners base on this capacity to represent and maintain their performance of protecting labour rights as well as addressing issues involving working conditions of labourers at the bottom of supply chains. Regarding multi-stakeholders social dialogue, it cannot deny the importance of international framework agreements (IFAs) which has been recognised as fundamental tools for supporting and protecting labour rights of workers in MNEs' global supply chains. The IFAs' development can be facilitated by the ILO in providing guidelines on minimum requirements for content as well as follow-up mechanism. These tools also strictly follow ILO labour standards and the MNE Declaration as fundamental references to facilitate relevant actors at different levels such as global, regional, sectorial and local (ILO, 2016). As claimed by six out of ten interviewees, there has been not any multi-stakeholder dialogue involving labour standards or workers' right in global supply chains taken place in Vietnam currently⁴⁷. Therefore, if multi-stakeholder dialogue is paid attention with active participation of all actors at different levels in the supply chain, there would be turning points in enhancing labour standards and improving working conditions in factories of supply chains in Vietnam.

5.4 Improving social protection policies

Social protection is an essential demand of workers and this would become more important in developing countries in where the living standard has not been high and stable. However, social protection policies have not been particularly focused

⁴⁷ workers' rights project researcher and manager, interview, 20 July 2017

by Vietnamese government; especially when informal force of workers in medium and small factories in supply chains reported that they have to take more time than normal workers to be able to access the complex administration procedure for access to social protection services as well as public services⁴⁸. According to Munster et al. (2014), the policy system of social protection in Vietnam has been more comprehensive; yet, the basic needs and rights of informal (short-term contracted) workers are still not recognised in the policy. Consequently, 90 per cent of these workers claimed that they cannot access services of social protection at their place where they are living. It is recommended national policies on social protection including social and health insurances, occupational health and safety, and other basic social and public services such as education, health care need to be more paid attention and improved. At the same time, the government should also encourage the social protection enforcement of migrant as informal workers. To achieve this goal, Vietnamese government should allow civil society to have a stronger role in processes of policy making and monitoring the social protection policies enforcement.

Conclusion

In summary, this paper demonstrated the main gaps in supply chain governance which are public governance, private governance and social governance, and investigated their complex mechanism leading to barriers in monitoring and enforcing labour standards from global level to local level. By paying attention to supply chains' labour practices in Vietnam, lacking enforcement of international labour standards, the violation of freedom of association and the rights to collective bargaining and lacking laws enforcement and implementation for social protection are the three mains issues in governance gaps currently happening in Vietnam. Working over-time under poor working conditions, lacking voice in labour right violation claims, not trust labour union and living with very low rate of minimum wage that not meet the basic needs are the worse consequences that millions of workers in Vietnam who work at the bottom of supply chains have been suffering in their daily life. Although Vietnamese government and MNEs together with relevant actors have constantly afforded to respond and improve measures for addressing these issues, labour rights violation and international labour standards disrespect have been widely existed in this country. Through a message said by Mr. Dan Ree, Director of the Better Work Vietnam, "Workers build the wealth" (International Labour Organisation, 2016: 16), the paper's author would like to express her respect to all workers in the world and desire to contribute her knowledge of the severe labour concepts combining with labour practices in Vietnam's supply chain to reader's better understanding about this global concern. This paper would be a potential content that supports further

⁴⁸ workers' rights project researcher in Oxfam Vietnam, interview, 20 July 2017

studies on labour governance in global supply chains, more specifically, in labour standards and workers' rights in Vietnam's global supply chains.

References

- [1] Amengual, M. (2010) "Complementary labor regulation: The uncoordinated combination of state and private regulators in the Dominican Republic", *World Development*, 38 (3): 405–414.
- [2] Bair, J. and Gereffi, G. (2001) "Local Clusters in Global Chains: The Causes and Consequences of Export Dynamism in Torreon's Blue Jeans Industry", *World Development*, 29 (11): 1885-1903
- [3] Barrientos, S. (2008) "Contract Labour: The 'Achilles Heel' of Corporate Codes in Commercial Value Chains", *Development and Change*, 39 (6): 977–990.
- [4] Better Work Vietnam (2011) "Garment Industry", 3rd Compliance Synthesis Report, Better Work, Better Work Vietnam, Vietnam.
- [5] Chan, A. (2010) "Strikes in Vietnam and China: Contrasts in Labor Laws and Diverging Industrial Relations Patterns", Conference paper, ABA International Labor and Employment Law Committee.
- [6] Do, Q. C. (2016) *Vietnam country study Labour Standards in the Garment Supply Chain*, Research Center for Employment Relations.
- [7] General Statistics Office of Vietnam (2017) Population and Employment, http://www.gso.gov.vn/default_en.aspx?tabid=774 (Consulted date: 30 July 2017)
- [8] Gramberg, B. V., Julian Teicher, J. and Nguyen, T. (2013) "Industrial Disputes in Vietnam: the Tale of the Wildcat," *Asia Pacific Journal of Human Resources*, 51 (2): 248-268.
- [9] Human Rights Watch (2009) "Not Yet a Workers Paradise: Vietnam's Suppression of the Independent Worker", Human Rights Watch Report No.2, New York.
- [10] ILO (2008) "ILO Declaration on Social Justice for a Fair Globalization", *19th International Labour Conference*, International Labour Organisation, Geneva.
- [11] ILO (2014) "Protocol of 2014 to the Forced Labour Convention, 1930", *103rd ILC session*, International Labour Organisation, Geneva.
- [12] ILO (2016) "Decent Work in Global Supply Chain", *Report IV*, International Labour Office, Geneva.

- [13] Kerkvliet, B. (2012) “Government Repression and Toleration in Contemporary Vietnam”, Southeast Asia Research Center Working Paper, City University of Hong Kong.
- [14] Lee, J. (2016) Global Supply Chain Dynamics and Labour Governance: Implications for Social Upgrading. ILO Research Paper No. 14, International Labour Organisation.
- [15] Martin-Ortega, O. (2016) “Modern Slavery and Human Rights in Global Supply Chains: Roles and Responsibilities of Public Buyers”, Policy Paper no.2, School of Law, University of Greenwich
- [16] Ministry of Labour, Invalids and Social Affairs (2012) “Labour Codes, General Labour and Employment Acts”, *Official Gazette*, No. 01-03: 4-78
- [17] Munster, F., Mubiru, M., Hoang, P. T., Dang, M. T., Nguyen, B. H. (2014) *Policy Brief: Access to Social Protection of Migrant Workers*, Hanoi, Vietnam Media Print J.S.C.
- [18] Nguyen, D. T., Pham. T. T .T and Nguyen, T. T. (2017) “Tien Luong Toi Thieu o Vietnam: Quan Sat va Nhan Xet”, Bai Thao Luan Chinh Sach, CS13, Hanoi.
- [19] O’Rourke, D. (2005) “Locally accountable good governance: Strengthening non-governmental systems of labor regulation”, Global Economic Governance Working Paper No.16, GEG, Oxford.
- [20] Skrivankova, K (2014) *Force Labour in the United Kingdom*, York, Joseph Rowntree Foundation.
- [21] U.S. Department of Labor (2012), Bureau of Int’l Labor Affairs, Office of Child Labor, Forced Labor and Human Trafficking, List of Goods Produced by Child Labor or Forced Labor (Sep. 26, 2012), <http://www.dol.gov/ilab/programs/ocft/2012TVPRA.pdf>.
- [22] U.S. State Department (2012) Bureau of Democracy, Human Rights and Labor, Country Reports on Human Rights Practices, <http://www.state.gov/j/drl/rls/hrrpt/humanrightsreport/index> (Last Consulted: 20 July 2017)
- [23] Wilshaw, R., Do, Q. C., Fowler, P. and Pham T. T. (2016) “Labour Rights in Vietnam: Unilever’s progress and systemic challenges”, *Research Report*, Oxfam Vietnam
- [24] Worker Rights Consortium (2013) Made in Vietnam Labor Rights Violations in Vietnam’s Export Manufacturing Sector.
- [25] World Economic Forum (2016) “Shared Responsibility: A New Paradigm for Supply Chains”, Global Agenda Council.

Environmental Activities of Enterprises and Zero Waste Logistic Systems

Agata Mesjasz-Lech

Czestochowa University of Technology,

agata.mesjasz-lech@wz.pcz.pl

Abstract: The increase in consumption and production has given a boost to the amount of generated waste. It is counteracted by the field of management which continues to produce new concepts for the reduction of waste and its environmental impact. One of them is the zero waste logistics concept. The purpose of the article is to present the functioning of zero waste logistics systems as a tool for the realization of reverse flows in building closed economic cycles. The article examines the effects of the implementation of the zero waste concept in enterprises. To this end, a multidimensional analysis of data on the processes realized through zero waste logistics systems in European countries in the years 2010, 2012 and 2014 has been carried out.

Keywords: waste, waste treatment, environmental activities of enterprises, zero waste logistics systems

1 Introduction

The increased threat to the environment through waste fueled the emergence of the concept of zero waste. The concept is to encourage sustainable attitudes in both producers and consumers, which can help reduce expenses and build a better world [1]. In the subject literature there is a wide and multithreaded discussion on the premises of the concept [2, 3, 4, 5, 6, 7]. Proecological behaviours of all entities in the flows of resources from supplier to producer determine the directions of the development of zero waste logistic systems.

Proecological activity of enterprises leads to the minimization of the consumption of material and energy resources and to the creation of new outlet markets. Resources can be managed in new ways and the life cycle of products and services as well as their scope and their contribution to the social welfare can be increased [8]. Enterprises often indicate that the reduction of transport and production costs with the simultaneous minimization of environmental impact of their activity is one of their main goals [9], which is realized also by the creation of closed economic cycles. This means that businesses actively participate in the

realization of the principles of the zero waste concept, and constitute an element of a zero waste logistic system through building supply chains. Therefore, an analysis of the effects of proecological activity of enterprises in the context of zero waste logistic systems seems well-founded. And so the goal of the article is to evaluate the effects of the proecological activity of enterprises as well as the stability of these effects in the 28 countries of the European Union.

2 Pro-environmental enterprises – towards zero waste logistic systems

Enterprises generate waste, but at the same time they carry out activities to reintroduce waste materials into the economic system, mainly through the processes of recovery and recycling, creating zero waste strategies [10]. The promotion of these processes is connected with the concept of zero waste. [11, 12]. In view of the fact that the production of a given product is often accompanied by numerous secondary processes, the creation of zero waste logistic systems is reasonable. The implementation and realization of the concept of zero waste is only possible through the coordination and integration of the activities carried out by all members of a supply chain. One could even go as far as to say that although enterprises perform their proecological activities to merely adhere to market standards, they are actually the basic pillar of waste logistic systems. Enterprises which launch pro-environmental products reduce the environmental impact of production processes, carry out the recovery and recycling of waste. Therefore, it is their proecological behaviour that drives the creation of zero waste logistic systems. The proecological activities of businesses which play an important role in the transformation of the traditional economy into a zero waste economy include:

- manufacturing of Cradle to Cradle certified products,
- using the cleaner production technologies,
- implementation of the Extended Producer Responsibility Programme,
- meeting assumed recovery and recycling rates,
- reduction of primary resources and energy consumption,
- making products ready for recycling,
- implementation of zero landfill concept.

Table 1 shows the directions of the proecological activity of small and medium sized enterprises in individual countries of the EU in 2017. Fundamental to that activity are efforts towards the reduction of waste and efficient management of energy, materials and water. Those last three activities lead directly to the reduction of generated waste. The analysis of the data in table 1 makes it clear that the proecological activity of businesses is connected with the geography of Europe. The percentage of enterprises realizing environmental goals in the

countries of Western and Northern Europe (without the Baltic States) and Southern and Central Europe is much higher than in the countries from other regions of Europe.

Table 1

	Minimising waste	Saving energy	Saving materials	Saving water	Recycling, by reusing material of waste within in the company	Designing products that are easier to maintain, repair or reuse	Selling your scrap material to another company	Using predominantly renewable energy (e.g. including own production through solar panels, etc.)
European Union 28	65	63	57	47	42	25	21	14
Belgium	75	70	61	46	41	25	25	20
Bulgaria	28	36	31	29	17	10	16	4
Czech Republic	64	61	47	43	35	33	29	7
Denmark	49	55	52	40	29	26	26	9
Germany	60	69	57	35	38	24	22	32
Estonia	9	21	15	8	13	5	6	4
Ireland	84	69	58	59	71	26	26	18
Greece	37	52	46	33	30	18	26	13
Spain	65	72	69	55	57	32	20	7
France	83	71	60	68	41	33	18	6
Croatia	64	65	62	50	28	17	27	8
Italy	74	57	52	44	37	23	15	15
Cyprus	29	48	30	27	47	8	15	8
Latvia	35	59	55	44	15	16	10	3
Lithuania	20	42	33	36	7	7	15	4
Luxembourg	57	49	52	31	44	27	25	15
Hungary	40	48	45	40	19	16	21	8
Malta	62	74	34	31	51	15	20	15
Netherlands	65	65	61	32	37	21	26	27
Austria	59	71	52	43	47	31	25	32
Poland	55	57	60	49	24	17	21	4
Portugal	55	75	75	63	66	42	24	9
Romania	31	33	29	23	22	6	12	4
Slovenia	51	47	52	35	33	26	22	16
Slovakia	44	58	43	45	35	14	16	5
Finland	55	51	54	27	31	23	18	14
Sweden	76	57	66	36	62	32	26	35
United Kingdom	82	67	62	56	70	25	29	16

The directions of the proecological activity of small and medium sized enterprises in individual countries of the EU in 2017 (percentage of enterprises). *Source: [13]*

Without a doubt, enterprises should increase their participation in pro-environmental design of products and use of renewable energy sources. But positive tendencies in the behaviour of businesses are observable. A big number of them see the need to reduce waste, not only by disposal activities, but also through a resource efficient economy. Proecological activity of enterprises undoubtedly translates into effects for the natural environment. The undertaken activities pave the way for the zero waste logistic systems where material flows are realized in both directions - from producer to consumer, and back - from consumer to producer.

3 Description of diagnostic variables in the evaluation of the effects of the pro-environmental activity of businesses in the context of a zero waste logistic system

In order to evaluate the effects of the proecological activity of enterprises in the context of zero waste logistic systems, the linear ordering method from the area of multidimensional analysis of data was used. It was assumed that the effects can be expressed by a synthetic variable composed of both positive and negative effects of proecological activities carried out by businesses (or the lack of such activities). The analysis encompassed 28 countries of the European Union. It was assumed that the effects achieved in a given country reflect the activities carried out by enterprises in order to implement circular economy and create zero waste logistic systems. The determination of a synthetic variable allowed to create a ranking of the States of the European Union in terms of the achieved level of effects. It was done in the following steps:

1. A matrix was created. Its elements were the observations of the statistical data observed for the individual countries of the European Union (x_{ij}). The variables in the matrix had the character of both stimulants and destimulants.

$$X = [x_{ij}] \ (i=1, 2, \dots, n; j=1, 2, \dots, m). \quad (1)$$

2. The unitarization of variables was done in order to free the variables from their titre and to unify their values according to the formula:

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j}, \ (i=1, 2, \dots, n; j=1, 2, \dots, m) \quad (2)$$

where: n – the number of countries,
 m – the number of variables,
 z_{ij} – standardized value of variable X_j ,

$\bar{x}_j$ – arithmetic average of variable X_j ,
 s_j – standard deviation of variable X_j .

- Euclidean distances from the benchmark were calculated for the individual objects:

$$d_{i0} = \sqrt{\sum_{j=1}^m (z_{ij} - z_{0j})^2} \quad (i = 1, \dots, n) \quad (3)$$

$$z_{0j} = \begin{cases} \max_i z_{ij} \text{ for stimulants} \\ \min_i z_{ij} \text{ for destimulants} \end{cases} \quad (4)$$

The process of distance measurement did not take into consideration the weights, which is tantamount to saying that all variables influence the level of the analyzed phenomenon with equal strength [14].

- A measure of development for every object was estimated by the formula:

$$m_i = 1 - \frac{d_{i0}}{d_0} \quad (i = 1, \dots, n) \quad (5)$$

where:

d_0 – the distance between the pattern and anti-pattern of development:

$$d_0 = \sqrt{\sum_{j=1}^m (z_{ij} - z_{0j})^2} \quad (i = 1, \dots, n) \quad (6)$$

$$z_{0j} = \begin{cases} \min_i z_{ij} \text{ for stimulants} \\ \max_i z_{ij} \text{ for destimulants} \end{cases} \quad (7)$$

The measure of development determined by the formula (5) has the following characteristics [15]:

- The higher the level of the examined phenomenon, the higher the value of the development measure.
- The development measure displays values from the [0, 1] range.

The effects of proecological activities for the countries of the European Union were described by the following set of variables:

- Circular material use rate (%),
- Generation of waste without recyclable waste (kilograms per capita),
- Generation of recyclable waste (kilograms per capita),

4. Recycling rate of all waste excluding major mineral waste (%),
5. Landfill rate of waste excluding major mineral waste (%),
6. Deposit onto or into land (kilograms per capita),
7. Incineration / energy recovery (kilograms per capita).

The use of variables in the form of intensity indicators was to increase their comparability. The data come from the Eurostat database [16]. The variables embody the effects achieved not only by businesses but also households. It was assumed that proecological behaviours in households are spin-offs of such activities carried out by enterprises, especially in the context of zero waste logistic systems. Systemic approach in logistics is based on taking into consideration all entities realizing the flows of resources which include waste materials. Corporate strategies which incorporate reverse flows influence the behaviours of all members of the logistic system in a positive way as they shape their proecological attitudes. The data chosen for the analysis determine the effects achieved by activities in the context of zero waste logistic systems. The variables include stimulants (Circular material use rate, Recycling rate of all waste excluding major mineral waste, and Incineration / energy recovery) and destimulants (Generation of waste without recyclable waste, Generation of recyclable waste, Landfill rate of waste excluding major mineral waste, Deposit onto or into land). The set of stimulants consists of variables which determine the level of effects which are indicative of the reintroduction of waste materials into the economic system. Destimulants are the variables which reveal the negative effects of the activity of enterprises, or in other words, the amount of generated waste and the landfilling rate. Treating the generation of recyclable waste variable as a destimulant in the context of zero waste logistic systems seems plausible because the character of waste in itself does not guarantee that it will be reintroduced into the economic systems, even if requirements in this respect are met. The years 2010, 2012 and 2014 were analysed.

4 Evaluation of the stability of effects of the proecological activity of enterprises in the context of zero waste logistic systems

The analysis of the stability of the effects of proecological activity of enterprises in the context of zero waste logistic systems showed the convergence level of the results of rankings obtained in the procedure explained above. The ranking concordance measure appeared in the form of the Spearman's rank correlation coefficient (r_s) expressed by the relation:

$$r_3 = 1 - \frac{6 \cdot \sum_{i=1}^n d_i^2}{n \cdot (n^2 - 1)} \quad (8)$$

where:

d_i - difference between the rank of an n th object (country) in the ranking,

n – number of analyzed objects (countries).

The analysis yielded three rankings for the countries of the European Union which helped determine the effectiveness of the proecological activities carried out by enterprises. Table 2 presents the rankings.

Table 2

EU countries	Rank in the year			Measure of development in the year		
	2010	2012	2014	2010	2012	2014
Netherlands	1	1	1	0,6001	0,6582	0,7978
Denmark	2	2	2	0,5727	0,5783	0,6511
Germany	3	4	3	0,5411	0,5641	0,6462
Belgium	4	3	11	0,5239	0,5700	0,5464
Sweden	5	9	15	0,5190	0,5083	0,5063
France	6	5	4	0,5134	0,5345	0,6391
Poland	7	11	6	0,4877	0,4958	0,6090
Italy	8	8	5	0,4825	0,5190	0,6360
United Kingdom	9	10	8	0,4804	0,4984	0,5755
Austria	10	6	7	0,4694	0,5328	0,5876
Slovenia	11	7	10	0,4501	0,5231	0,5663
Czech Republic	12	12	12	0,4335	0,4741	0,5454
Spain	13	14	14	0,4266	0,4610	0,5094
Luxembourg	14	13	9	0,4160	0,4699	0,5677
Portugal	15	15	20	0,4091	0,4359	0,4619
Lithuania	16	16	16	0,4043	0,4240	0,4900
Hungary	17	19	17	0,3804	0,4131	0,4820
Slovakia	18	20	21	0,3767	0,4036	0,4568
Latvia	19	17	13	0,3507	0,4230	0,5117
Cyprus	20	21	23	0,3488	0,4032	0,4172
Finland	21	18	25	0,3484	0,4164	0,3789
Ireland	22	22	18	0,3442	0,3991	0,4792
Croatia	23	23	19	0,3253	0,3817	0,4737
Romania	24	26	24	0,3162	0,3245	0,3841
Malta	25	25	22	0,3046	0,3540	0,4323
Estonia	26	24	26	0,2879	0,3686	0,3092
Greece	27	27	27	0,2657	0,2780	0,2806
Bulgaria	28	28	28	0,1436	0,1199	0,1113

Results of linear classification – rank and measure of development of the European Union countries according to the effects of proecological activities carried out by enterprises in the years 2010, 2012 and 2014. Source: Own elaboration based on Eurostat database

The analysis of the value of the synthetic measure shows that the top ranks in the analyzed years were occupied by the Netherlands, Denmark and Germany. Regardless of the year, the Netherlands always appeared on the top position and Denmark always came second. Bottom places in the ranking belonged to Bulgaria (which was ranked last in every year) and Greece (which was always one but last). The analysis of the development measures shows that they were higher in 2014 than in the previous years (especially for the countries ranked on top positions) which means the countries improved their results in terms of the effectiveness of proecological activity of businesses. The development measure for the Netherlands in 2014 was as high as 0,7978 which is enough to see this country as the benchmark for the others.

The biggest variation in the effects of proecological activity of enterprises in the analyzed years was observed in the following countries: Belgium, Sweden, Poland, Austria and Italy. Belgium, which was ranked high in 2010 and 2012 (fourth and third position respectively), dropped to the 11th position in 2014. Also Sweden was gradually losing its position - from the 5th place in 2010 to the 15th in 2014. Positive changes were observed in Italy which was ranked 8th in 2010 and 2012, but 5th in 2014. Austria also improved the results in 2014 compared to 2010. Although Poland in 2012 dropped by as many as four positions in comparison to 2010, in 2014 it improved significantly climbing to the 6th position.

The analysis of the stability of effects of proecological activity of enterprises observed in individual countries showed if there exist similarities in the ranking of positions for every pair of analyzed periods. The values of the Spearman's rank correlation coefficient are presented in table 3.

Table 3

Years	2010	2012	2014
2010	1	0,972633	0,908046
2012	0,972633	1	0,914067
2014	0,908046	0,914067	1

The values of the Spearman's rank correlation coefficient in the years 2010, 2012 and 2014.

Source: Own elaboration based on Eurostat database

High values of the rank correlation coefficients indicate a stability of positions occupied by individual countries in the analyzed years, which also confirms the stability of the effects of proecological activities carried out by businesses in these countries.

Conclusions

The top positions in the ranking of the European Union countries in terms of the effects of proecological activities of enterprises in the context of zero waste logistic systems are taken by the countries with the highest environmental

awareness of the society. These countries have been implementing proecological solutions for years and environmental protection is a vital element of their functioning. The top ten positions in the ranking concerning the effects of proecological activities in every analyzed year are occupied by the countries of Western and Northern Europe (without the Baltic countries). This comes from the fact that enterprises in these countries are involved in proecological activity, especially with respect to the reduction of generated waste. Integration and coordination of these activities between cooperating businesses leads to the creation of a zero waste logistic system. One can conclude, therefore, that the effects of proecological activity of enterprises should be discussed in the context of zero waste logistic systems.

The analysis of the stability of effects of the proecological activity of enterprises in the context of zero waste logistic systems shows that in the individual years there is a convergence in the ranking of the examined countries in terms of the defined synthetic variable. Therefore, we can speak of a stability in the proecological behaviours of businesses which is a positive observation, especially if one considers the countries with the highest level of achieved effects. The increase in the development measure in the majority of countries in 2014 compared to the previous years means that enterprises are more willing to carry out proecological activity aimed at the creation of zero waste logistic systems.

References

- [1] Sunpreet Singh, Seeram Ramakrishna, Munish Kumar Gupta: Towards zero waste manufacturing: A multidisciplinary review, *Journal of Cleaner Production*, vol. 168, 2017, p. 1230.
- [2] Antiq Uz Zaman: Identification of key assessment indicators of the zerowaste management systems, *Ecological Indicators*, vol. 36, 2014, pp. 682-693.
- [3] Antiq Uz Zaman: Measuring waste management performance using the 'Zero Waste Index': the case of Adelaide, Australia, *Journal of Cleaner Production*, vol. 66, 2014, pp. 407-419.
- [4] Antiq Uz Zaman, Steffen Lehmann: Urban growth and waste management optimization towards 'zero waste city', *City, Culture and Society*, vol. 2, 2011, pp. 177-187.
- [5] Ludovica Principato, Carlo Alberto Pratesi, Luca Secondi: Towards Zero Waste: an Exploratory Study on Restaurant managers, *International Journal of Hospitality Management*, vol. 74, 2018, pp. 130-137.
- [6] Tony Curran, Ian Williams: A zero waste vision for industrial networks in Europe, *Journal of Hazardous Materials*, vo. 207-208, 2012, pp. 3-7.
- [7] Ntlibi Matete, Cristina Trois: Towards Zero Waste in emerging countries – A South African experience, *Waste Management*, vol. 28, issue 8, 2008, pp. 1480-1492.

- [8] Tomasz Nitkiewicz: Wykorzystanie ekologicznej oceny cyklu życia w realizacji przedsięwzięć proekologicznych przez przedsiębiorstwa produkcyjne, in *Zrównoważony rozwój organizacji – odpowiedzialność środowiskowa*, Tadeusz Borys, Bartosz Bartniczak, Michał Ptak (red.), Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, Nr 377, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu Wrocław 2015, pp. 55-56.
- [9] Robert Kucęba, Robert Ulewicz: Europejski sektor MSP w wymiarach działalności proekologicznej, in Jan Lichtarski (red.), *Między teorią i praktyką zarządzania. Dokonania, dylematy, inspiracje, Przedsiębiorczość i Zarządzanie*, Wydawnictwo Społecznej Akademii Nauk, Tom XVII, Z. 4, Cz. 1, Łódź-Warszawa, 2016, p. 85.
- [10] Qingbin Song, Jinhui Li, Xianlai Zeng: Minimizing the increasing solid waste through zero waste strategy, *Journal of Cleaner Production*, vol. 104, 2015, pp. 199-210.
- [11] Juris Burlakovs, Yahya Jani, Mait Kriipsalu, Zane Vincevica-Gaile, Fabio Kaczala, Gunita Celma, Ruta Ozola, Laine Rozina, Vita Rudovica, Marika Hogland, Arturs Viksna, Kaur-Mikk Pehme, William Hogland, Maris Klavins: On the way to 'zero waste' management: Recovery potential of elements, including rare earth elements, from fine fraction of waste, *Journal of Cleaner Production*, vol. 186, 2018, pp. 81-90.
- [12] Atiq Uz Zaman: A comprehensive review of the development of zero waste management: lessons learned and guidelines, *Journal of Cleaner Production*, vol. 91, 2015, pp. 12-25.
- [13] European Commission (2018), SMEs, resource efficiency and green market. Report, Flash Euro-barometer 456 - TNS Political & Social, p. 18.
- [14] Aneta Włodarczyk, Marek Szajt: Ocena stabilności sytuacji finansowej przedsiębiorstw sektora przemysłu spożywczego na podstawie TMAI, in *Metody ilościowe w badaniach ekonomicznych*, Tom XIII/1, Bolesław Borkowski, Karol Kukuła (red.), Szkoła Główna Gospodarstwa Wiejskiego, Warszawa, 2012, p. 237.
- [15] Józef Dziechciarz (red.): *Ekonometria*, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław 2002, p. 292.
- [16] Statistical Office of the European Communities, <http://ec.europa.eu/eurostat/data/database>.

Cross-cultural study over the CSR dimensions

Ivan Mihajlović

University of Belgrade, Technical faculty in Bor, imihajlovic@tfbor.bg.ac.rs

Anđelka Stojanović

University of Belgrade, Technical faculty in Bor, anstojanovic@tfbor.bg.ac.rs

Isidora Milošević

University of Belgrade, Technical faculty in Bor, imilosevic@tfbor.bg.ac.rs

Sanela Arsić

University of Belgrade, Technical faculty in Bor, saarsic@tfbor.bg.ac.rs

Ivan Jovanović

University of Belgrade, Technical faculty in Bor, ijovanovic@tfbor.bg.ac.rs

Nenad Milijić

University of Belgrade, Technical faculty in Bor, nmilijic@tfbor.bg.ac.rs

Abstract: The goal of this paper is to determine whether there are differences in opinion among employees from Russia, Bulgaria and Serbia toward Corporate Social Responsibility (CSR). The CSR is examined through five the most important dimensions: environmental, social, economic, stakeholder and voluntariness dimension. The research was conducted using the questionnaires, aiming to investigate differences in perceiving of CSR. For this purpose one-way analysis of variance (ANOVA) was used. Results show that there are statistically significant differences in attitudes of employees toward importance of different activities companies implement based on CSR concept.

Keywords: Corporate Social Responsibility, Five dimensions, Employees,

1 Introduction

Very discussed issue among businessmen, scholars and governments is establishing equilibrium between the mere harvesting of profit through business operations and general social well-being. Defining business strategy taking into account facts that company exists in surrounding and is dependable of its influences can provide sustainable development of the company and long-term competitive advantage. With business globalization and easier and faster access and flow of information, many new issues come to light. Operating of multinational corporations has consequences worldwide and become main drivers for creating and spreading new concept of business, so the influences from local become global [1].

Mediating factor between companies and surrounding become Corporate Social Responsibility. Companies use CSR to mitigate environmental pressure they cause, to empower the workforce, increase commitment and innovative potential and to generate healthy society that can be loyal partner and support to long-term success.

Some of the very widely accepted concepts of defining CSR, as Carroll's pyramid of CSR [2] or Elkington's Triple Bottom Line [3] don't take stakeholders as a separate issue for consideration. However, since Freeman and Liedtka introduced Stakeholder Capitalism theory, it was clear that for longevity and prosperity of company is essential including the stakeholders in all level of business planning and realization [4]. In many articles is identified a need for investigating the perception, influence and consequences of implemented CSR activities on different groups among which one of the most important addressed group are employees [5,6].

Social responsibility towards employees concerns the two courses. It must include the expectation of employees over the activities the company undertakes on empowering of the workforce, improvement of working conditions and enabling participation in decision-making process. The second direction represents involving of employees in outside activities of the company that are oriented on social and environmental issues.

In order to understand the direction of CSR actions, several concepts of CSR have been introduced. The concept presented by Alexander Dahlsrud [7] pointed five the most important dimension of CSR that cover 97% of existing definitions of CSR [8]. According to Dahlsrud, the main dimensions of CSR are the social, environmental, economic, stakeholder and voluntariness dimension [9].

The purpose of this paper is to identify and compare levels of employees' comprehension of CSR concept and it's the most important dimensions. The results of the research can help managers to set the course of their CSR activities,

communicate with employees in the proper manner and to measure the effectiveness of conducted activities.

2 Theoretical background

Acceptance of CSR can be significantly affected by the socio-cultural context in which company operates. CSR concept mainly comes from countries with market economies with strong regulations and public opinion as an important control factor of business operations. In developing countries, however, the institutional framework is weak followed with a low level of self-conscious among companies over fulfilling the obligation beyond required. In those countries, it is still necessary institutional reinforcement in order to companies introduce policies that include CSR elements.

By the late 1990s the Russian companies operates in institutional supervised economy. The fulfillment of social governance goals was considered as social responsibility. During the period of transition many companies show behavior beyond any regulation fill with corruption and unfairness towards workers. The post socialistic Russia opened market to global trade in 2000. Russia, nowadays, belongs to an emerging economic bloc where the economy is fast growing but still is prevailing strong state-run economic system. That means the companies obey the significant number of rules and regulations in order to avoid penalties [10]. In research which was carried out by Crotty was stated that companies focus on adoption of codified CSR policies and harmonization with international standards basically to gain access to international markets [11]. The companies are involved in numerous environmental and social projects and become more aware of benefits they can gain as competitive advantage, economic efficiency etc. Another important motivator for CSR activities is social legacy were companies have goal to ensure the wellbeing of employees.

Bulgaria became a member of European Union in 2007 but still is one of the poorest countries in EU. The concept of CSR was introduced in Bulgaria during the transition period that, in some way, isn't over yet. Simeonov and Stefanova stated that CSR is mainly driven by the pressure of EU and formed on the basis of multinational companies and international organizations[12]. Also, the lack of CSR knowledge is stressed as one important factor for the low level of CSR implementation. The high level of corruption, poverty and unemployment rate provoke high level of skepticism and expectation that companies be more socially responsible. The overall impression is that doesn't exist enough commitment of politics to CSR and resources for its introduction. Also is perceived that companies, mainly multinational, introduce CSR activities and use it for gaining better public image.

Serbia had a very specific socio-economic situation. Although was the communist country, Serbia had the most liberal market. In the pre-transitional period, the responsibility of companies was a part of a social system and was initiated by the government. The war and economic sanctions largely ruined Serbian economy and large state-owned companies. CSR in Serbia as recognized concept appeared after 2000. The introducing of this concept is made by international companies. Still, domestic companies have too little knowledge of advantages of socially responsible business. CSR is perceived as the spending of financial assets without gaining any profit. Some researchers showed that social, philanthropic and environmental activities highly influence the public perception of a company but perception is based on advertising and media reporting [13]. The overall impression is that CSR is used more as a trend then really integrated into the daily operation of companies.

2.1 The five dimensions of CSR

At the beginning, CSR dimensions consisted of two main pillars, social and economic because all other are considered within them. The environmental dimension is included later and becomes a very important third pillar of CSR. Other two dimensions, stakeholder and voluntariness are added as a necessity to point separately interests of groups connected with business operation of company and necessity of defining ethical norms and behavior that are above legal norms and that society expects [14].

The environmental dimension of CSR refers ecological impact the company makes while operating a regular business and striving to reduce it. Environmentally responsible oriented companies change the perspective over resource exploitation, recycling, development of ecological products, reverse logistics, using renewable sources of energy, decreasing pollution and lowering the carbon footprint. Including environmental concerns in operations can be beneficial in terms of stimulating innovation, reduce costs and making a favorable reputation.

The social dimension of CSR presupposes concerning for society as a whole and implies steering the activities in the way everyone has benefits of the business. Many companies become increasingly involved in solving social concerns by including people from the company in CSR activities, finding balance in life of workers and their families, implementing ethical policies trough whole supply chain, being responsible to consumers and offer proper value, participating in solving problems of socially vulnerable groups, influencing on achieving of community welfare, and sharing the companies principles and values.

The economic dimension of CSR implies that the impact of the company's operations it is not only the matter of financial results but should consider the direct as well as indirect impact on the surrounding. Company has obligation to

earn profit to shareholders, to gain and retain leading market position, to preserve the loyalty of customers and employees, to guarantee the quality of products and services and conduct responsible marketing campaigns. It must be taking into account the fact that the main goal of every business is profit and therefore the volume of investments in philanthropic and environmental activities must not jeopardize the existence of the company.

Stakeholders are people who have influence or are in positive or negative manner influenced by the business. The stakeholder dimension of CSR is dealing with different needs of stakeholder with a goal to fulfill as many requirements as possible without harming one group in favor of another. Since requests of different sides can be conflicting it is very important to find procedures for managing relations with all stakeholders that are positive and beneficial [15].

Voluntariness as a dimension of CSR can be perceived through those activities that are undertaken beyond legal or other mandatory obligations. The activities the company implements beyond any prescribed requirements are the reflection of ethical values the company stands for [16].

3 Research methodology

In this study, for evaluation of CSR dimensions the questionnaire was used. The questionnaire was developed from questionnaires from literature and adjusted for the needs of this research [6, 17]. The questionnaire consists of three groups of questions. In the first group are questions which are used to determine the overall level of recognizing CSR concept among employees. In the second group are questions concerning CSR dimensions where different CSR activities have been evaluated (Appendix 1). In the third group are the demographic and organizational-related questions.

The employees from Russia, Bulgaria and Serbia were mostly personally interviewed in order to achieve a high understanding of questions by respondents. This way of research implementation conditioned high degree of correctly filled questionnaires and reliability of received answers. Respondents were asked to indicate at what level, according to their opinion, the company they work for, implements certain CSR activities. They expressed their opinion toward CSR activities connected with five dimensions using a typical five-point Likert scale where responses went from 1-strongly disagree to 5- strongly agree. Researchers had been trying to achieve heterogeneity of the sample by interviewing employees from companies of different sizes and sectors.

It was collected 169 properly filled questionnaires from Russia, 114 from Bulgaria and 184 from Serbia. The following descriptive statistic is obtained. The respondents from the age 26-35 are the most numerous in three countries more

than 35% in each. About 60% of all respondents are female. Regarding the position in the company respondents from Russia are mainly on higher level named “headworker” 47.9% while from Bulgaria 57.9% and from Serbia 53.7 are workers. The largest number of respondents from Russia works in companies with over 1000 employees and the second group is 11-50 employees where work 29.6% of respondents. Categories for the size of the company are very evenly distributed among workers from Serbia between 7.6%-19.6% while from Bulgaria 21.1% working in companies with over than 1000 employees and 11-50 employees.

Questions, of which 5 dimensions of CSR consist, were analyzed with Exploratory factor analysis (EFA) to identify basic item structure and remove unrelated and cross-loading items from each factor.

For evaluating the environmental dimension (ENV) five questions were used. The correlation matrix shows that all correlation coefficients have a value greater than 0.3, therefore, the questions are suitable for factoring [18]. Statistical significance of Bartlett's Test of Sphericity (<0.05) and Kaiser-Meyer-Olkin value 0.827 indicate the adequacy of data for factor analysis [19].

The scale for estimation of social dimension (SOC) included 13 questions. Exploring the results of factor analysis, two questions can be excluded due to the low correlation with all other questions. The rest of questions give good indices for factoring and belong to one factor with statistical significance of Bartlett's Test of Sphericity (<0.05) and Kaiser-Meyer-Olkin value 0.93.

The employees perception concerned economic dimension (EC) was measured with four questions. Bartlett's Test of Sphericity has statistical significance (<0.05) and Kaiser-Meyer-Olkin has value 0.682.

Group of question connected with stakeholders dimension (ST) consisted of five items. Those questions shows the lowest inter correlations compared with other groups. Therefore one question is removed from further analysis due to correlation value lower then 0.3 with all other questions. Results of factor analysis for stakeholder dimension are: Bartlett's Test of Sphericity has statistical significance (<0.05) and Kaiser-Meyer-Olkin has value 0.665.

The scale for voluntaries dimension (VO) included 9 questions. Only one question is excluded from voluntariness dimension due to the very low correlations with other questions. Other questions belong to one factor with Kaiser-Meyer-Olkin value 0.91 and statistically significant Bartlett's Test of Sphericity (<0.05).

Factor loadings for each group of questions and explained variances are presented in Table 1.

Table 1. Factor loadings for CSR dimensions

Environmental dimension		Social dimension		Economic dimension		Stakeholder dimension		Voluntariness dimension	
Questions	Factor loading	Questions	Factor loading	Questions	Factor loading	Questions	Factor loading	Questions	Factor loading
ENV2	.833	SOC6	.832	EC2	.794	ST4	.721	VO4	.821
ENV4	.827	SOC9	.777	EC3	.726	ST1	.709	VO1	.790
ENV1	.772	SOC7	.772	EC4	.722	ST2	.707	VO2	.788
ENV3	.748	SOC5	.769	EC1	.721	ST5	.666	VO8	.771
ENV5	.673	SOC4	.756					VO6	.768
		SOC12	.748					VO3	.749
		SOC11	.740					VO7	.689
		SOC3	.734					VO5	.561
		SOC8	.726						
		SOC2	.704						
		SOC10	.654						
Eigenvalue	2.988	Eigenvalue	6.153	Eigenvalue	2.199	Eigenvalue	1.966	Eigenvalue	4.453
Variance explained	59.761	Variance explained	55.933	Variance explained	54.966	Variance explained	49.153	Variance explained	55.663
%		%		%		%		%	

Reliability of items is checked using Cronbach's α coefficient [1] and since values, except stakeholder dimension with 0.654, exceed 0.7 then it is considered as highly reliable [19]. Cronbach's α for environmental group has value 0.83, for social group 0.92, for economic group 0.727 and voluntariness group 0.874.

4 Results

The series of ANOVA tests were performed to determine whether there are differences between attitudes of employees from considered countries toward dimensions of CSR and whether those differences are statistically significant. For test value and significance value, Browne-Forsythe statistic is used. Since Levene test of homogeneity of variances showed that variances of the population for some question are not equal for post-hoc test Dannett C procedure is used [19].

ANOVA for environmental dimension indicates that there are differences in stated opinions between countries because all F values are statistically significant. By observing the results for means and standard deviations can be concluded that answers of employees from Bulgaria have lower values. Post-hoc test show that statistically significant difference exists in all questions between Bulgaria and other two countries while differences between Russia and Serbia are not statistically significant.

Differences in the opinion of employees with respect to the engagement of company in social issues show statistical significance. The post-hoc analysis proves that in pairwise comparisons between countries almost all differences are statistically significant. There is three question concerned this dimension where differences between Bulgaria and Serbia are not statistically significant.

Conducted ANOVA for economic dimension shows the existence of statistically significant differences in given answers between countries. By observing mean values for all dimension is seen that questions from economic dimension got the highest overall mean value. The highest mean value in this group is given to question that examine relations with costumes created through communication of companies values. Also, in this case, respondents from Bulgaria gave the lowest scores than others (M=2.4825, St=1.40311). Employees from Russia gave to this question the highest scores (M=4.2604, St=.81117) among respondents which means they highly appreciate communication and information sharing. When it comes to general opinion of the state of economic aspect of CSR, employees from Serbia gave higher values than others (M=4.0109, St=1.01889).

The questions from the stakeholder group have had the lowest percentage of variance explained 49.153% (Table 1). In ANOVA testing all differences are not statistically significant. The question that investigates opinion over socially responsible marketing campaigns doesn't have statistical significance. The post-hoc test shows that differences in answers are significant only in question about employees satisfaction. The highest value of satisfaction with the company they are working for is expressed by employees from Russia (M=4.0237, St= 0.96949) followed by Serbian employees (M=3.3478, St=1.25393) and the lowest value is from Bulgaria (M=2.6754, St=1.32034).

When it comes to voluntariness dimension the respondents gave more homogenous answers than in other groups of questions, therefore, 3 of 8 questions are not showing statistically significant differences. Those questions concerned the internal and external engagement of employees in voluntary CSR activities and support of the company to their participation. The only question in this group that have statistical significance between all countries investigate the general perception of employees over CSR engagement of the company where for Russia the value is highest (M=3.8462, St= 1.14953), Serbia (M=3.3152, St= 1.27977) and Bulgaria (M=2.9737, St= 1.15567). The result reveals essential distinctions and proves the earlier pointed difference between three countries which arise from the level of development.

Conclusions

During changing the system from the socialist to the liberal market, various transition problems and the dynamics of accepting new business conditions emerged. Contrary to developed countries where market economy prevails and the compliance with regulation is habitually, developing countries give different cultural and socio-economic base for CSR.

The main goal of this paper is to define and analyze differences in employees' attitudes on CSR activities of the firm in three European countries in different stages of transition. The findings indicate that employees from Russia, Bulgaria and Serbia have different attitudes toward environmental activities that company supports. The highest values of means for all items are given by employees from

Russia and the lowest by employees from Bulgaria. The research suggests that employees understand and recognize the social involvement of company since this scale has the highest item reliability (Cronbach's $\alpha = 0.92$). Companies that provide opportunities for participating in different activities insist on fair operations and equal possibilities fulfill the obligations beyond employees' expectations. Social impact is also measured through involvement in society and this aspect was evaluated differently. Results show that the lowest importance of this dimension is given by employees from Bulgaria and highest from Russia.

Taking into account the way in which the transition and the current level of development have taken place, it can be concluded that employees in Bulgaria value CSR efforts the lowest to because they doubt their honesty. CSR dimensions are most valued by Russian employees. Although the economic system is run by the state, a fast-growing economy and the international connection of companies from Russia condition the rapid acceptance of the corporative practice of developed economies. In Serbia, respondents appreciate the efforts of companies mostly in environmental and social engagement.

Understanding of CSR in emerging countries can be enhanced through getting to know the practice of multinational companies, academic perspectives, increasing the awareness of community and solid institutional environment. This may help to establish and develop CSR in an appropriate form for each particular country.

References

- [1] Ubrežiová, I., & Moravčíková, K. (2017). How to perceive the corporate social responsibility in the agro-food companies? *Serbian Journal of Management*, 12(2), 201-215.
- [2] Carroll, A. (2016). Carroll's pyramid of CSR: taking another look. *International Journal of Corporate Social Responsibility*, 1(3).
- [3] Elkington, J. (1997). *Cannibals with Forks: the Triple Bottom Line of 21st Century Business*, second ed. Oxford: Capstone Publishing Ltd.
- [4] Freeman, E. & Liedtka, J. (1997). Stakeholder Capitalism and the Value Chain. *European Management Journal*, 15(3), 286-296.
- [5] Mahoney, J.T. (2012). *Towards a stakeholder theory of strategic management*. University of Illinois at Urbana-Champaign
- [6] Turker, D. (2009). How Corporate Social Responsibility Influences Organizational Commitment. *Journal of Business Ethics*, 89, 89-204.
- [7] Dahlsrud, A. (2008). How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions. *Corporate Social Responsibility and Environmental Management*, 15(1), 1-13.
- [8] Mueller, K., Hattrup, K., Spiess, S.O. & Lin-Hi, N. (2012). The Effects of Corporate Social Responsibility on Employees' Affective Commitment: A

Cross-Cultural Investigation. *Journal of Applied Psychology*, 97(6), 1186–1200.

- [9] Arsić, S., Stojanović, A., & Mihajlović, I. (2017). The Most Important Dimensions Of Corporate Social Responsibility, *International May Conference on Strategic Management – IMKSM17*, Bor, 436-454.
- [10] Li, S., Fetscherin, M., Alon, I., Lattemann, C. & Yeh, K. (2010). Corporate Social Responsibility in Emerging Markets -The Importance of the Governance Environment. *Management International Review*, 50, 635-654.
- [11] Crotty, J. (2016). *Corporate social responsibility in the Russian federation: A contextualized approach*. Manchester: University of Salford.
- [12] Simeonov, S. & Stefanova, M. (2015). Corporate Social Responsibility in Bulgaria: The Current State of the Field. In S. Idowu, R. Schmidpeter, & M. Fifka (Eds.), *Corporate Social Responsibility in Europe*. Springer International Publishing Switzerland, 313-332.
- [13] Vlastelica Bakić, T. (2012). *Reputation management by applying concept of corporate social responsibility in marketing and public relation* (Doctoral Dissertation, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia).
- [14] Carroll, A.B., (1999). Corporate social responsibility – evolution of a definitional construction. *Business and Society*, 38(3), 268–295
- [15] Bauman, C. & Skitka, L. (2012). Corporate social responsibility as a source of employee satisfaction. *Research in Organizational Behavior*, 32, 63–86.
- [16] Cicyota, C., Ferrante, C. & Schroeder, J. (2016). Corporate social responsibility and employee volunteerism: What do the best companies do? *Business Horizons*, 59, 321—329.
- [17] Fortier, A. (2013). *The Effects of Corporate Social Responsibility on Employees' Job Satisfaction: An Empirical Study with Cross- Cultural Dimensions*. Curtin University.
- [18] Coakes, S. J. (2013). *SPSS: analysis without anguish: version 20 for Windows*. Milton, Qld. John Wiley & Sons.
- [19] Field, A. (2009). *Discovering statistics using SPSS*. 3 rd ed. London: SAGE.

Appendix 1.

Environmental Dimension of CSR:

ENV1. We participate in activities related to the protection and improvement of our natural environment.

ENV2. We have a positive attitude toward the use, purchase, or producing the ecological goods.

ENV3. We use recyclable containers and packaging.

ENV4. We are aware of the relevance of firms' planning their investments to reduce the environmental impact that we generate.

ENV5. What do you think about Environmental aspect of your company in general? Company should improve or enhance their activities and efforts.

Social Dimension of CSR:

SOC2. Company fosters training and professional development of employees.

SOC3. Company complies with standards related to labor risks, health, safety and hygiene programs.

SOC4. Company has human resource policies aimed at facilitating the conciliation of employees' professional and personal lives.

SOC5. Company considers employees' initiatives and proposals in management decisions.

SOC6. Company is committed to the improvement of the quality of life of our employees.

SOC7. Equal opportunities exist for all employees without any type of discrimination

SOC8. Company is aware of the importance of making pension plans for our employees.

SOC9. Company is aware of the employees' quality of life.

SOC10. Company pay wages above the average in our region and/or in our industry.

SOC11. Employees' compensation is related to their skills and their results.

SOC12. Employees' initiatives are taken seriously into account in management decisions.

Economic Dimension of CSR:

EC1. The guarantee of our products and/or services is broader than the market average.

EC2. We provide our customers with accurate and complete information about our products and/or services.

EC3. Social responsibility programs increase a company's costs.

EC4. What do you think about Economic aspect of your company in general? Company should improve or enhance their activities and efforts.

Stakeholder dimension of CSR:

ST1. Company is developing and executing advertising programs.

ST2. I am talking about our company with pleasure, sometimes with proudness outside of the working place, when talking with other people within my private neighborhood.

ST4. We participate in social projects in the community.

ST5. What do you think about Stakeholder aspect of your company in general? Company should improve or enhance their activities and efforts.

Voluntariness dimension of CSR:

VO1. Our company helps solve social problems.

VO2. Our company has a strong sense of corporate social responsibility.

VO3. Our company gives adequate contributions to local communities.

VO4. Our company allocates some of their resources to philanthropic activities.

VO5. Our company plays a role in society that goes beyond the mere generation of profits.

VO6. Our company encourages us to participate in volunteer activities.

VO7. Our company organizes ethics training programs for us.

VO8. Our company encourages us to participate in volunteer activities or in collaboration with NGOs.

The model of prioritization of strategies for regional development of ecotourism in Eastern Serbia

Isidora Milošević

Technical Faculty in Boru, University of Belgrade, imilosevic@tfbor.bg.ac.rs

Danijela Voza

Technical Faculty in Boru, University of Belgrade, dvoza@tfbor.bg.ac.rs

Ivica Nikolić

Technical Faculty in Boru, University of Belgrade, inikolic@tfbor.bg.ac.rs

Predrag Dorđević

Technical Faculty in Boru, University of Belgrade, pdjordjevic@tfbor.bg.ac.rs

Milica Arsić

Technical Faculty in Boru, University of Belgrade, e-mail: marsic@tfbor.bg.ac.rs

Abstract: Development of the tourism, especially ecotourism as a sector which provides one of the biggest potentials for growth in Serbia, is based on the strategic planning of sustainable regional development. Based on the analysis of spatial distribution of natural resources in Serbia, the Eastern region of the country showed the biggest potential for the development of this type of tourism. One of fastest emerging types of accommodation in ecotourism is eco-lodging. Due to the fact that accommodation units of this type do not require large financial investment, this type of accommodation presents a very promising strategy for improvement ecotourism in Serbia. Strategic planning of development of all forms of tourism, especially ecotourism, requires a detailed analysis of all external and internal factors that influence the local environment. The aim of this paper is to detect the most significant natural resources of the selected region by using SWOT analysis. This enables establishment of the reliable foundation for strategic planning of the development of ecotourism in this area, while minimizing the negative anthropogenic impact on the regional natural resources. Furthermore AHP method was used to define the sequence of prioritization of defined strategies for tourism development in the region in regards to the construction of eco-lodges.

Keywords: strategic planning, ecotourism, eco-lodging, SWOT, AHP

1. Introduction

The rapid increase of the population during the 20th century contributed to the constant reduction of available natural resources and living space, as well as to the endangering of environmental factors. Recognizing the urgency of solving the existing and preventing the further development of ecological problems has led to the emergence of the concept of sustainable development. Sustainable development is most often defined as "... a development that meets current needs, without compromising the ability of future generations to meet their needs" [1]. The concept of sustainable development has gained its greatest affirmation in the UN Convention on Environment and Development in Rio de Janeiro in 1992. It is primarily based on the need for integrating socio - economic development and improving the quality of the environment. Therefore, when individuals make plans or decisions about future economic activities, it is necessary to maximally respect the needs of the environment, because only in this way long-term development can be ensured. This refers particularly to tourism as an activity that takes place in the natural environment and uses significant amounts of natural resources [2]. The degree of preservation and attractiveness of the environment is a basic precondition for tourism development. Enhancement of environmental awareness has led to the fact that, nowadays, when tourists choose a touristic destination they pay much more attention on true values, such as ecology, tradition and similar. Ecotourism, or green tourism, is one of the responses to the consumers' new needs. Ecotourism's destinations should satisfy the basic principles of sustainability, both in ecological and socio-economic terms. The preconditions for the development of these destinations are:

- the presence of protected natural resources or areas with preserved natural characteristics and rich biodiversity;
- areas and facilities intended for recreation of guests in accordance with natural capacities;
- accommodation facilities owned by the local community;
- local population aware of its cultural identity and ready to participate in the promotion of local heritage;
- friendly relationship between eco-tourists and local population.

In line with the new tourist trends, there has been also a change in the business policy of accommodation facilities. Hoteliers and caterers are more and more dealing with measuring and controlling impacts they have on the environment. Several reasons contributed to the beginning of the implementation of environmental practice. The most important are the recognition of the negative impact which this activity has on nature, that is reflected in the reduction of the number of natural habitats, water pollution, waste production and contribution to

global warming [3, 4]. Other reasons are reflected in the managers' tendency to achieve a competitive position and respond to legislative regulations.

Countries as Sri Lanka, Mexico, Belize, Peru, Australia, Brazil have a great ecotourism potential, because of its rich biodiversity. One of the types of accommodation that is consistent with the philosophy and principles of ecotourism are the eco lodges [5]. Eco lodge is a service and accommodation unit located within or near natural areas [6]. In recent years, numerous studies of eco-lodges in tourist destinations from all over the world has been conducted [7, 8, 9, 10, 11]. In Europe, some of the most popular eco-lodges are located in England, Iceland, Finland, Sweden, Greece and Austria. It is characterized by modest equipment and the need for small financial investments. Programs that the real eco-lodges should offer to their guests are based on sightseeing of natural and cultural sights, direct contact with the local population, sports activities, all with respect to basic ethical principles and minimizing the impact on the environment. The diversity of natural and cultural heritage of Serbia offers a great opportunities for the development of ecotourism. Unfortunately, in Serbia, strategies of this type have not been fully implemented. There are no real eco lodges yet. Considering that they do not require large investments and include the local community, the construction of these facilities in natural and culturally authentic areas would enable the economic development of the whole region. However, the development of ecotourism must be based on a thorough analysis of all environmental conditions and clearly defined strategic goals and activities.

The development of eco-tourism as a result of strategic planning is a complex multidisciplinary task based on the principles of the sustainability concept. Clearly defined and set goals can be achieved only with well-conceived environmental management in tourism. The tasks of the environmental management of the tourist destination are directed towards preserving the living environment of the area, which implies the application of global standards, active involvement in relevant ecological actions and the creation of a partnership with other participants in the realization of goals [12]. Sustainable development, in this sense, represents the general framework of environmental management.

The aim of this paper is to present the process of creating an adequate strategic planning model in order to develop ecotourism on a practical basis. For this purpose, integrated SWOT (Strengths, Weaknesses, Opportunities, Threats, engl) and AHP (Analytic Hierarchy Process,) methods were applied. The task of the SWOT analysis was to determine, based on the estimated strengths, weaknesses, opportunities and threats that prevail at the selected site, strategies that can be most effective for the development of eco destination and the construction of the eco lodge. Using AHP method, based on SWOT analysis, prioritization of strategic alternatives according to their degree of significance, was performed.

The SWOT-AHP hybrid model based analysis was used in various areas such as the energy, agriculture and machine industries, but there are not many studies in

the field of tourism in which it was used [13]. SWOT-AHP analysis phases are: (1) SWOT analysis, (2) comparative analysis of SWOT factors within each SWOT group, (3) comparative analysis of four SWOT groups and (4) defining the strategy based on the obtained results.

2 Methodology

2.1 Research area

By analyzing the natural and cultural potentials in the territory of the Republic of Serbia, numerous regions can be identified for the development of ecotourism and the construction of eco lodges. One of them is the area located in the eastern part of Serbia, about twenty kilometers away from Bor. It is located between the mountains of Veliki Krš, Mali Krš and Stol, known as the "Alps of Eastern Serbia". This landscape is characterized by the carefully preserved and untouched nature. The diversity of the relief provides shelter and represents a habitat to numerous plant and animal species, indicating a large biodiversity and the existence of several endemic species. In this region there are over 70 speleological objects, caves, pit and this region represents habitat for 11 species of predators. Also, nearby is the archaeological site called Manastiriste. The highlands with meadows, arable land and foresters, are suitable for the development of animal husbandry, the collection of medical herbs and mushrooms. Thanks to this, excellent conditions for the production of organic food are created (cheese, honey, milk, vegetables and fruits). This mountain region provides the opportunity for the development of extreme and winter sports (cycling, paragliding, hiking, skiing).

Based on the abovementioned, numerous advantages of this region for the development of ecotourism have been recognized. Preserved nature can attract a large number of environmentally oriented tourists who want to spend an active holiday, enjoy in nature and get to know the culture of the local population.

2.2 SWOT analysis

SWOT analysis is an acronym of its main components: strength, weaknesses, opportunities and threats [14]. SWOT analysis of external opportunities and threats, as well as internal strengths and weaknesses, is important for the formulation and development of strategy [15]. If it is properly used, SWOT analysis can provide a good basis for successful formulation of the strategy, and the main purpose of its application in strategic decisions is to select or present and implement a strategy that will result in good fit between internal and external

factors [16]. The chosen strategy must also be in line with the objectives of the decision maker. However, the result of SWOT analysis is often only a list or incomplete qualitative examination of internal and external factors, without concrete end-use in the decision-making process [17]. It implies systematic thinking and a comprehensive diagnosis of factors related to new product, technology, management or planning, while for the decision-making process it is necessary to apply one of the multi-criteria decision-making methods.

2.3 AHP method

The Analytical Hierarchical Process is one of the most famous multi-criteria methods established in 1980 by Thomas L. Saaty. Many studies have confirmed that the AHP method is a very useful, reliable and systematic MCDM (Multi Criteria Decision Making) tool for solving complex decision-making problems [16, 18, 119, 20, 21, 22]. The AHP method performs expert analysis of scenarios and decision-making by consistently evaluating hierarchies that consist of goals, scenarios, criteria, and alternatives. It first allows the interactive design of the hierarchy of problems as preparation of the decision-making scenarios, and then evaluating the pairs of elements of the hierarchy (goals, criteria, and alternatives). In the end, an analysis of all grades is performed and according to a strictly defined mathematical model the weight factors of all elements of the hierarchy are determined. Frequent application of the AHP method is recognized in various areas of strategic management in which decisions have high significance and where decision makers are given high-quality and reliable advice at the stage of analyzing possible alternatives and determining their impact on set goals [18].

3 Results

The first step in defining potential strategies and selecting the most effective strategies for the development of eco-tourism by the means of construction of eco-lodges at a selected locality is a situational analysis, which includes internal analysis of strengths and weaknesses and external analysis of opportunities and threats. Based on the defined SWOT analysis, the TOWS matrix was formed (Table 1), in which criteria, sub-criteria and generated strategies are defined.

Table 1. SWOT-TOWS matrix

	Strengths S₁ Interest of the local community towards the development of ecotourism S₂ Activities of local self-government towards more intensive development of the region S₃ Significant natural and cultural potentials S₄ Alpine-like mountain range	Weaknesses W₁ Inadequate protection of natural resources in the region W₂ Insufficient utilization of the tourist potential of the region W₃ Low level of awareness about the existence of this destination on the regional and international market W₄ The current interest of investors to invest in the region
Opportunities O₁ Tourism development in the region O₂ Lack of eco-lodges in the region O₃ The potential to practice extreme sports (cycling, paragliding, mountaineering...) O₄ Attracting foreign and domestic tourists throughout the year	SO SO₁ Strategy for maintaining and improving the level of interest of the local community for the development of ecotourism SO₂ Strategy for creating tourist offers which will provide opportunities for tourists' accommodation throughout the year	WO WO₁ Strategy for attracting tourists by highlighting the natural and cultural potentials of this region in promotional activities, in order to familiarize them with the destination WO₂ Strategy for utilizing the increasing number of visits of foreign tourist in order to attract foreign investors to develop an eco-tourism destination
Threats T₁ Poor development of tourism in this region and unfamiliarity of the local residents regarding the concept of ecotourism T₂ Failure to attract domestic and foreign investors T₃ Insufficient state interest and unsatisfactory level of implementation of tourism development strategy T₄ Prejudice about environmental pollution due to the operation of the Mining and Smelting Basin in Bor	ST ST₁ Strategy for the integration of all stakeholders in the construction and development of eco-lodges ST₂ A strategy for promoting the destination in order to break prejudices about the pollution of the industrial environment	WT WT₁ Implementation of tourism development strategy for the period of 2016-2025, adopted by the Government of Serbia with an emphasis on the development of ecotourism WT₂ Strategy for influencing local self-government to create a fund for development of eco-destinations

In further analysis, the significance of the criteria and sub-criteria was determined by the expert team using the AHP methodology. During the group decision making process experts had been evaluating the criteria and sub-criteria, while taking the mean values for each, and made the decision on the basis of the final ranking. The obtained results provide information on the mutual importance of individual SWOT factors. In this case, Opportunities have the biggest importance (0.519), followed by Weaknesses (0.295), Strengths (0.133) and Threats (0.053).

$$W_1 = \begin{bmatrix} S \\ W \\ O \\ T \end{bmatrix} = \begin{bmatrix} 0.133 \\ 0.295 \\ 0.519 \\ 0.053 \end{bmatrix}$$

The local and global priorities of the SWOT factor are calculated, and the results are presented in Table 2.

In this way normalized results were obtained, indicating the dominant influence of the following sub-criteria within each SWOT group: S_4 - Alpine-like mountain range (0.506); W_3 - Low level of awareness about the existence of this destination on the regional and international market (0.527); O_2 - Lack of eco-lodges in the region (0.401); T_4 -Prejudice about environmental pollution due to the operation of the Mining and Smelting Basin in Bor (0.501).

Figure 1 contains a graphic representation of the situational analysis of the SWOT results based on the data in Table 2. The obtained results indicate the size of the impact of SWOT criteria in the following descending order: $O \rightarrow W \rightarrow S \rightarrow T$. The value of the overall significance of the SWOT sub-criterion with the greatest significance within a factor, are presented in the following descending order: $O_4 \rightarrow W_3 \rightarrow S_2 \rightarrow T_1$. Given the most significant role of the Opportunities in the considered case (importance weight of 51.9%), as well as the sub-criteria O_1 and O_2 (their cumulative global importance is 37.6%), it is expected that the strategies generated for the purpose of exploiting the opportunities from environment will have priority over other strategies in the model.

Table 2. The importance of the criteria and sub-criteria of the SWOT analysis, determined by AHP methodology

SWOT groups	Importance of the SWOT factors	SWOT sub-criteria	Local importance	The overall importance
Strengths (S)	0.133	S ₁ Interest of the local community towards the development of ecotourism	0.070	0.009
		S ₂ Activities of local self-government towards more intensive development of the region	0.294	0.039
		S ₃ Significant natural and cultural potentials	0.130	0.017
		S ₄ Alpine-like mountain range	0.506	0.067
Weaknesses (W)	0.295	W ₁ Inadequate protection of natural resources in the region	0.131	0.039
		W ₂ Insufficient utilization of the tourist potential of the region	0.064	0.019
		W ₃ Low level of awareness about the existence of this destination on the regional and international market	0.527	0.155
		W ₄ The current interest of investors to invest in the region	0.279	0.082
Opportunities (O)	0.519	O ₁ Tourism development in the region	0.325	0.168
		O ₂ Lack of eco-lodges in the region	0.401	0.208
		O ₃ The potential to practice extreme sports (cycling, paragliding, mountaineering ...)	0.088	0.046
		O ₄ Attracting foreign and domestic tourists throughout the year	0.106	0.055
Threats (T)	0.053	T ₁ Poor development of tourism in this region and unfamiliarity of the local residents regarding the concept of ecotourism	0.132	0.007
		T ₂ Failure to attract domestic and foreign investors	0.271	0.014
		T ₃ Insufficient state interest and unsatisfactory level of implementation of tourism development strategy	0.097	0.005
		T ₄ Prejudice about environmental pollution due to the operation of the Mining and Smelting Basin in Bor	0.501	0.027

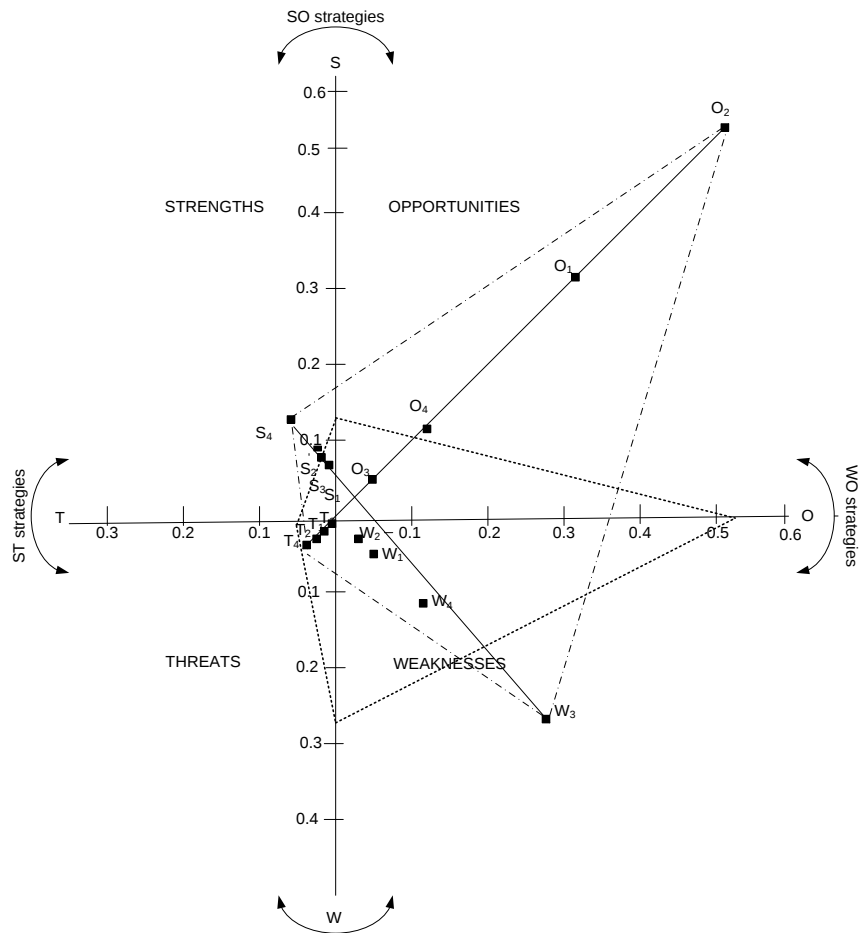


Figure 1.

Situation analysis of comparison of weighted SWOT criteria and overall importance of SWOT sub-criteria based on the AHP procedure

Subsequently, based of expert evaluation, importance weights were assigned for each alternative strategy (SO_1 , SO_2 , WO_1 , WO_2 , ST_1 , ST_2 , WT_1 , WT_2) in relation to the defined SWOT sub-criteria, where the overall priority of the considered strategies were calculated as following:

$$W_{\text{alternatives}} = \begin{bmatrix} ST_1 \\ SO_2 \\ SO_1 \\ WO_1 \\ ST_2 \\ WO_2 \\ WT_2 \\ WT_1 \end{bmatrix} = W_3 \times W_{\text{SWOTsub - factors(global)}} = \begin{bmatrix} 0.312 \\ 0.202 \\ 0.172 \\ 0.100 \\ 0.068 \\ 0.054 \\ 0.054 \\ 0.038 \end{bmatrix}$$

The obtained results define the prioritization of the proposed alternative strategies in the following descending sequence: $ST_1 \rightarrow SO_2 \rightarrow SO_1 \rightarrow WO_1 \rightarrow ST_2 \rightarrow WO_2 \rightarrow WT_2 \rightarrow WT_1$ ($ST_1 = 0.312$; $SO_2 = 0.202$; $SO_1 = 0.172$; $WO_1 = 0.100$; $ST_2 = 0.068$; $WO_2 = 0.054$; $WT_2 = 0.054$; $WT_1 = 0.038$)

The dynamic role of the strategy implies that after achieving a certain result using the chosen strategy, a new stage of growth and development of the organization is entered, which requires the implementation of a new strategy. According to the established model for determining the priorities of the proposed alternative strategies, the strategy ST_1 has the priority in implementation (Figure 2).

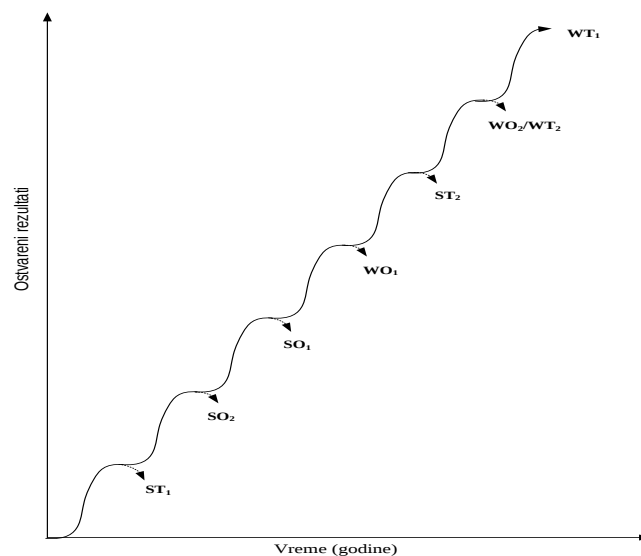


Figure 2.

Life cycle of strategies for the development of ecotourism in the analyzed region

4 Discussion

Based on the previous analysis, several strategic alternatives can be outlined. The strategy for the integration of all stakeholders in the construction and development of eco-lodges (ST₁) is the key to success in the development of sustainable tourism. Implementation of this strategy should enable the establishment of cooperation between all stakeholders (local self-government, local population, tourist organizations, etc.), thus achieving their synchronous functioning and realization of defined strategic goals.

Successful implementation of this strategy would represent the basis for creating tourist offer that would provide opportunities for tourists' accommodation throughout the year (SO₂). The result of the joint cooperation of stakeholders would, among other things, contribute to the successful planning and realization of activities for creating a diverse and rich tourist offer. In this way, conditions for the successful operation of eco-lodges would be ensured beyond the tourist season. Services provided to tourists would have to comply with the requirements of the *"Environmental Management System ISO 14001:2004"*, thus meeting the criteria prescribed by international standards.

As the implementation of this strategy would come to an end, the implementation of the strategy for maintaining and improving the level of interest of the local community for the development of ecotourism (SO₁) would follow. The goal of the SO₁ strategy could be achieved by stimulating the participation of the local population in the development of ecotourism by creating opportunities for realizing their entrepreneurial activities and raising the quality of life. After the realization of the strategy, there is a need to implement the strategy of attracting tourists by emphasizing the natural and cultural potentials of this region in promotional activities, in order to familiarize them with the destination (WO₁). Since the WO₁ strategy is used to raise awareness about the existence of a destination on the regional and international market, conditions are created for continuation of the successful development using the strategy of promoting the destination and breaking prejudices about the high level of industrial pollution in the region (ST₂).

By realizing the ST₂ strategy, it is possible to implement and fulfill the strategic goal of proclaiming the locality as a protected natural resource. The following strategies, which according to the obtained equal values of weight factors in the AHP analysis, need to be implemented simultaneously, represent the strategy for utilizing the increasing number of visits of foreign tourist in order to attract foreign investors to develop the eco-tourism destination (WO₂) as well as the strategy for influencing local self-government to create a fund for development of eco-destinations (WT₂). The influx of foreign capital will positively influence the local government authorities to contribute to the development of the eco-destination with the existing fund. The last in a series of strategies to be

implemented is the implementation of the tourism development strategy for the period 2016-2025, adopted by the Government of Serbia [21], in which emphasis is placed on the future development of ecotourism (WT₁).

Conclusion

The eco-lodge represents a form of the accommodation facility which fully meets the requirements of the ecotourists. The construction of this type of facility at the considered location in eastern Serbia could contribute to the realization of the idea of ecotourism development, defined by the official Strategy for the Development of Tourism 2016-2025 which was adopted by the Government of the Republic of Serbia. Considering that the construction of accommodation units of this type does not require large material investments, this type of accommodation can be considered as an ideal way of improving ecotourism in Serbia, a country of limited financial resources. Increase in the number of visits of this region, both by domestic and foreign tourists, would significantly increase state and local revenues. Also, there would be a need for increased employment and development of entrepreneurship among the local population. The surrounding villages in the region where the construction of eco-lodges is planned are characterized by the presence of problems regarding aging population and migration of young people to nearby cities. By developing tourism, problems of this kind could be solved, as this would provide young people the opportunity of self-employment in the field of rural tourism and also the opportunity to sell domestic organic food products. This would significantly increase the standard of the population and partially solve the problem of unemployment.

The specificity of the observed region is also reflected in the vicinity of the Bulgarian and Romanian borders. This fact creates the conditions for establishing strong cross-border cooperation. The adoption of EU standards and the harmonization of legislative regulations in the field of tourism and environmental protection is an indispensable and priority task of the Government of Serbia in the forthcoming period, all with the aim of joining the EU, therefore any progress and initiatives in this regard can bring multiple benefits.

Acknowledgments

Prepared within the project Sustainability of the Identity of Serbs and National Minorities in Border Municipalities of Eastern and Southeastern Serbia (179013), which is being carried out at the University of Niš - Faculty of Mechanical Engineering and financed by the Ministry of Science and Technological Development of the Republic of Serbia.

References

- [1] UN: Report of the World Commission on Environment and Development, General Assembly Resolution 42/87, dec. 1987.

- [2] Scanlon, N. L. (2007). An analysis and assessment of environmental operating practices in hotel and resort properties. *Journal of Hospitality Management*, 26, 711–723.
- [3] Briguglio, L., & Briguglio, M. (1996). *Sustainable tourism in islands and small states: Case studies*. London: Cassell Pinter.
- [4] Kirk, D. (1998). Attitudes to environmental management held by a group of hotel managers in Edinburgh. *Journal of Hospitality Management*, 17, 33-47
- [5] Russell, D., Bottrill, C., & Meredith, G. (1995). *International ecolodge survey*. Burlington, VT: The International Ecotourism Society.
- [6] Osland, G. E., & Mackoy, R. (2004). Ecolodge performance goals and evaluations. *Journal of Ecotourism*, 3(2), 109–128.
- [7] Kwan, P., Eagles, F.J.P. & Gebhardt, A. (2010) Ecolodge patrons' characteristics and motivations: a study of Belize, *Journal of Ecotourism*, 9 (1): 1-20 <https://doi.org/10.1080/14724040802140576>
- [8] Osland, E.G. & Mackoy, R. (2004) Ecolodge Performance Goals and Evaluations, *Journal of Ecotourism*, 3(2): 109-128 <https://doi.org/10.1080/14724040408668153>
- [9] Mic, M. & Eagles, F.J.P. (2018) Cooperative branding for mid-range ecolodges: Costa Rica case study, *Journal of Outdoor Recreation and Tourism*,
- [10] Fernando, S.M.D. & Kaluarachchi, K.A.S.P., (2016). Ecotourism Practices in Sri Lanka: The Case Study of Rainforest Eco Lodge. *Colombo Business Journal*, 7 (2), 50–62 <http://doi.org/10.4038/cbj.v7i2.9>
- [11] do Paço, A., Alves, H. & Nunes, C. (2012) Ecotourism from both Hotels and Tourists' Perspective, *Economics & Sociology*, 5 (2): 132-142.
- [12] Ban, J. & Ramsaran, R.R. (2016) An Exploratory Examination of Service Quality Attributes in the Ecotourism Industry, *Journal of Travel & Tourism Marketing*, 34 (1), 132 148, DOI: 10.1080/10548408.2016.1141155
- [13] Đorđević, M., Kokić Arsić, A. Ekološki menadžment - uslov održivog razvoja turizma, 5. nacionalna konferencija o kvalitetu života – Zbornik radova, Kragujevac, 19-21. Maj. 2010.
- [14] Kahraman, C., Demirel, N., & Demirel, T. (2007). Prioritization of e-Government strategies using a SWOT-AHP analysis: The case of Turkey. *European Journal of Information Systems*, 16(3), 284-298.
- [15] Glaister, K. W. and Falshaw, J. R. (1999), Strategic planning still going strong. *Long Range Planning*, 32(1), 107-116
- [16] Hsu-Hsi Chang, Wen-Chih Huang, Application of a quantification SWOT analytical method, *Mathematical and Computer Modelling* 43 (2006) 158–169)
- [17] Kangas, J., Pesonen, M., Kurttila, M. and Kajanus, M. (2001), A'WOT: Integrating the AHP with SWOT Analysis, 6th ISAHP 2001 Proceedings, Berne, Switzerland, pp. 189-198).

- [18] Miika Kajanus, Pekka Leskinen, Mikko Kurttila, Jyrki Kangas, Making use of MCDS methods in SWOT analysis—Lessons learnt in strategic natural resources management, *Forest Policy and Economics* 20 (2012) 1–9
- [19] Saaty, How to make a decision: The Analytic Hierarchy Process, *European Journal of Operational Research* 48 (1990) 9-26.
- [20] Kurttila, M., Pesonen, J., Kangas, M., & Kajanus, M. (2000). Utilizing the analytic hierarchy process (AHP) in SWOT analysis hybrid method and its application to a forest-certification case. *Forest Policy and Economics*, 1: 41-52.
- [21] Marija Savica, Djordje Nikolica, Ivan Mihajlovica, Zivan Zivkovica, Bojan Bojanovb & Predrag, Djordjevic, Multi-Criteria Decision Support System for Optimal Blending Process in Zinc Production, *Mineral Processing & Extractive Metall. Rev.* 2015. 36: 267–280.
- [22] Government of the Republic Serbia. (2016). Tourism Development Strategy of the Republic of Serbia. *Official Gazette of RS*, 36/09, 88/10, 99/11.

Factors affecting the adoption of management accounting practices: a literature review for a vietnamese textile enterprises – based research

Nguyen Thi Kim Ngoc

The University of Danang, Vietnam

ntkngoc@cit.udn.vn

Prof. Dr. István Takács

The Óbuda University, Keleti Faculty of Business and Management

takacs.istvan@kgk.uni-obuda.hu

Abstract: Changes in global business environment lead to fierce competition between domestic and foreign businesses. To survive and remain sustainable, businesses need to take into account financial information as well as non-financial information. Management accounting (MA) could be seen as the most important support tool for enterprises which assist them in improving their managerial functions since management accounting incorporates and emphasizes both financial and non-financial information. However, the application of MA in Vietnam enterprises is currently limited. There has been little research on the factors influencing on the adoption of the management accounting practices (MAPs) in Vietnam entrepreneurship available so far, especially in a specific sector like textile. This article would like to give an overview of various previous studies on the factors having impacts on the adoption of MAPs in businesses as a basis for investigating factors affecting the adoption of MAPs in textile enterprises in Vietnam.

Keywords: “management accounting”; “management accounting practices”; “the adoption of management accounting practices”.

1 Introduction

Changes in production methods as well as increasing competition among enterprises all over the world require businesses to survive and remain sustainable, they need to take into account financial information as well as non-financial information. Reid and Smith (2002) state that firms can gain access to financial

and non-financial information through the use of MAPs [40]. Likewise, Ahmad (2012) also reports that MAPs can enhance business profitability through continuous waste reduction and effective resource utilization [3]. In addition, there have been many studies on the use of MA around the world. Most of the research to date focus on MAPs in manufacturing companies. These studies show that firms are applying MA and that the use of MAPs in firms in different countries is not the same. However, there have not been many studies on the factors influencing the use of MAPs in a specific sector like textile in the world in general as well as in Vietnam in particular. In Vietnam, one of the key export industries is textile and garment, which has the second largest export value with exports accounting for 10-15% of GDP. In 2016, Vietnam is the fifth largest textile exporter in the world [45]. Despite the high export turnover, Vietnam's garment and textile sector is still concentrating on export of garments in the form of outsourcing - the bottom of the global value chain - with relatively low added value while manufacturers around the world are competing with each other by shifting to FOB level III or ODM production in order to respond to significant changes in the world textile market. Thus, the challenge of Vietnamese garment enterprises is in order to succeed, they must shift to produce products with higher added value by upgrading their competitiveness [35]. Therefore, to survive and develop in an intense competitive environment, garment enterprises need a more effective support system for managers in controlling and managing production factors, cost, price, supply and cost information analysis to make investment decisions. This shows that Vietnamese garment enterprises are in need of a MA system to control costs, lower production costs, increase competitiveness and improve production efficiency. The Vietnamese accounting law, issued in 2003, recognizes that an accounting system consists of financial accounting and management accounting. For financial accounting, the system is issued by state management agencies and has basically followed international accounting practices and standards. In contrast, the application of MAPs in enterprises is not mandatory. These practices have been introduced by Vietnamese enterprises only since Vietnam implemented the renovation policy. Therefore, the adoption rates of MAPs is different among enterprises. Based on researches on the current state of MA application in Vietnamese enterprises in the majors such as pharmaceutical products Pham (2007), construction Hoang (2010), confectionery Nguyen (2012), textile and garments Ho (2013), the results show that these enterprises have not applied or fully applied the contents of MA. Thus, the generalization of MAPs to be applied as well as the identification of factors influencing the use of MAPs has played an important role in promoting the adoption of MAPs, improving competitiveness of Vietnamese enterprises in general and Vietnamese textile enterprises in particular and help business executives know which MAPs should be applied in their businesses. Accordingly, they could enhance the management capacity of their businesses. And yet, in Vietnam, very few studies related to this aspect have been conducted. Because of this, I have been promoting this research project. The objective of this research is to synthesise the world's studies on the

factors affecting the application of MAPs in enterprises to get foundation for the study of the factors affecting the application of MAPs in the context of Vietnamese textile enterprises. Thus, this paper is designed to achieve the following objects: (i): to examine the use of MAPs in developed and developing countries, and (ii): to summarize factors that impact on the adoption of MAPs in developed and developing countries.

2 Literature review

This section presents a review of the previous studies on the concept of MA, the development of MA, theories related to MA and factors affecting the adoption of MAPS in developed and developing countries.

2.1 The concept of management accounting

Currently, there have been many definitions of MA. According to Horngren (1996), MA is the process of defining, recognizing, processing, synthesising and analysing accounting information to support managers in decision making in order to reach organization's targets [20]. According International Federation of Accountant (1998) defines MA as a specialized field of accounting which focuses on information for managerial planning, evaluating, and controlling in organizations. MAPs, a subset of MA and refer to tools and techniques specifically designed to support the management functions in improving operational efficiency and achieving optimal performance [22]. Dearden (1988) assumes MA has 4 functions: control, decision-making support, change measurement and target set [14]. Definitions of MA have a common point that MA system creates information assisting managers in estimating, coordinating activities, monitoring and evaluating performance of each department as well as the whole unit (MacDonald, 1999) [30].

2.2 The development of management accounting

Prior to 1925, enterprises used MAPs such as norm cost, break-even diagram (Joseph, G. 2006) [23]. Till 1925, businesses have developed MAPs, which continue to be used today, such as ROI, cost estimation and planning, flexible budgeting (Kaplan, 1984) [25]. Since the mid-1980s, many new MAPs have been introduced and adapted to corporate administration to accommodate increased global competition such as activity-based pricing, dynamic, balance point card, benchmarking. These MAPs are divided into two groups: traditional ones and contemporary ones (Chenhall and Langfield – Smith, 1998; Sulaiman et al. 2004)

[11], [43]. The traditional practices are based mainly on financial information while, contemporary practices focus and rely on the strategic issue of the business and both financial and non-financial information, both past and future. Traditional practices include standard costing, cost volume profit analysis, ROI and budgets. By contrast, contemporary tools include total quality management (TQM), activity based costing (ABC), target costing and balanced scorecard (BSC).

In 1998, International Federations of Accountants (IFAC) (Financial & Committee, 1998) determined four stages of MA evolution including: (1) the first stage before 1950- Cost determination and financial control using budgeting and cost accounting techniques, (2) the second stage from 1950 to 1964- management planning and control through the use of responsibility accounting and decision analysis, (3) the third stage from 1965 to 1984- reduction of waste of resources in business process using process analysis and cost management, and (4) the final stage from 1985 till now- creation of value through effective resources use [22].

2.3 Theories related to management accounting

2.3.1 The diffusion theory

Rogers (2003, p.11) defines “diffusion as the process by which an innovation is communicated through certain channels over time among members of a social systems” [41]. Innovation is any idea, practice or object which is perceived as new by participants. Accordingly, MAPs are relatively new practices in developing countries such as Vietnam, the adoption of MAPs in the developing countries can be equivalent with innovation adoption. Rogers (2003) stated that the diffusion theory has been adopted in more than 5000 studies across different fields of research [41]. In recent years, some studies in the MA discipline (Lapsley and Wright, 2004; Ax and Bjornenak, 2005 and Alcouffe et al. 2008) [27], [8], [6] have applied the conceptual framework from diffusion theory to explore the manner and means of diffusion of some contemporary MAPs such as the balanced scorecard, activity based costing. The diffusion theory is served as a useful conceptual framework for the study. New practices that are less familiar with current ones will be less likely to be used.

2.3.2 The contingency theory

Otley (1980, p.413) specifies that “a contingency theory must identify specific aspects of an accounting system which are associated with certain defined circumstances and demonstrate an appropriate matching” [39]. The contingency theory of MA is based on the idea that “there is no universally appropriate accounting system which applies equally to all organizations in all circumstances” (Otley, 1980, p.413) [39]. In the other words, an appropriate MA system will depend on a specific enterprise and specific contexts in which the enterprise

operates (Otley, 1980) [39]. The contingency theory has provided scholars in the MA disciplines with an important framework around which to conduct empirical studies over last 20 years.

2.4 Factors affecting the adoption of MAPs in the developed countries

Since the theories related to management accounting have emerged, there have been many empirical studies of applying MA as well as the factors influencing the application of MA for theoretical validation so far. This section will present a review of the previous studies on applying MA and factors affecting the adoption of MAPs in the developed countries.

Management accounting is used in enterprises in the developed countries. For example, Chenhall and Langfield – Smith (1998) found that most of the practices surveyed had been adopted by a majority of the manufacturing firms in Australia and the adoption rates of traditional MAPs were higher than contemporary ones in [11]. Hyvonen (2005) used the same method as that of Chenhall and Langfield – Smith (1998) to study the adoption MAPs in Finland [21]. The results show that most of the MAPs used in Finnish businesses and the application rate of recently developed MAPs in Finnish enterprises is higher than the Australian ones. Abdel-Kader and Luther (2006) told that there are differences in the application of MAPs. Traditional practices are more commonly used than modern ones [1]. There have been many empirical studies of the factors influencing on the use of MAPs in developed countries. MAPs was affected by many factors such as: competition, size of firm, decentralization, organizational capacity to learn, ownership and culture.

Competition

According to Mia and Clarke (1999), competition generates turbulence, stress, risk and uncertainty for enterprises; therefore, enterprises must adjust their control systems to respond to threats as well as opportunities from the competitive environment [33]. Libby and Waterhouse (1996), Williams and Seaman (2001), Hoque (2008) used the competitive scale of Khandwalla (1977), which consist of five questions rating intensive competition for raw material, technical personnel, selling and distribution, quality and the variety of products and price [28], [47], [19], [26]. The results of several studies suggest that the higher the level of competition is, the higher the use of the MA is. Along similar lines, Hoque (2008) has shown that the higher the level of competition is, the greater the contribution to MA use in Australia [19]. Mia and Clarke (1999) also showed similar results [33]. By contrast, Williams and Seaman (2001) found that the intensity of competition was inversely proportional to the change of MA [47].

Size of firm

There is no conclusive answer on the nature of the link between MAPs and firm size. Al-Omiri and Drury (2007) argue that there is a positive relationship between firm size and the rate of application of complex pricing systems in UK institutions [5]. Abdel-Kader and Luther (2008) found that large enterprises in the UK food and drink industry adopted more sophisticated MAPs than small ones [2]. In contrast, Williams and Seaman (2001) found that small-scale enterprises are more likely to experience changes in the MA system than large-scale ones [47].

Decentralization

Chenhall and Morris (1986, P.18) defined that “decentralization refers to the level of autonomy delegated to managers” [10]. Gordon and Nayananan (1984) and Chia (1995) have measured the degree of decentralization of decision making through five aspects: development of new products or services, hiring and firing of management personnel, selection of investments, budget allocation, pricing decision [17], [12]. Abdel-Kader and Luther (2008) show that firms in the UK with the higher levels of decentralization have more sophisticated MAPs than less-decentralized firms [2]. Soobaroyen and Poorundersing (2008) show a positive relationship between decentralization and the application of MA system [42].

Organizational capacity to learn

Libby and Waterhouse (1996) measured organizational capacity to learn by the number of management accounting systems (MASs) that existed in the organization [28]. William and Seaman (2001) have argued that the competence of an organization is an important factor influencing the change of Singapore MA systems [47]. The study of predictive change in supervisory and MA systems in Australia by Hoque et al. (2008) also showed similar results [19].

Ownership

In the study of privatization and change of MA system at the Spanish tobacco company, Macias (2002) pointed out that privatization motivates the development of new control tools as well as for control purposes, especially with regard to profitability and efficiency, the MA system has changed dramatically since the company changed from state ownership to private ownership [31].

Culture

Hofstede (1980), Choe (2004) define culture as a set of norms, values, beliefs and behaviors of an organization making the difference between members of the organization and other members of other organizations [18], [13]. MacArthur (2006) studying on cultural effects for MA application in the United States have argued that MA systems in companies of different countries will differ from those because they are influenced by culture, economic factors, corporate culture. Cultural factors are part of the cost-benefit considerations for MA choices. The MA system in German may not be available in the United States [29].

2.5 Factors affecting the use of management accounting in developing countries

This section will summarize determinants of the adoption of MAPs in developing countries. In particular, a number of factors affecting the use of MAPs in developed countries have also been studied in developing countries.

Management accounting is also adopted in the developing countries. For example, El-Ebaishi et al. (2003) argue that traditional MAPs are widely used, whereas modern ones are used only in a small number of medium and large manufacturing companies in Saudi [15]. Alleyne (2011) asserted that the use of MA was necessary in manufacturing companies in Barbados - a small developing country [7]. Oncioiu (2013) has asserted that MA is important in supporting effectiveness of managers, decision-making and process control in small businesses in Romania [38]. Wu and Drury (2007) found that Chinese enterprises are mainly using traditional tools, and state-owned enterprise managers will focus on traditional tools while managers in joint ventures tend to pay attention to modern tools [48]. Doan (2012) found rate of traditional MAPs application is higher than modern MAPs in Vietnamese enterprises [9]. Afirah and Noorhayati (2017) provide evidence that majority of small – medium sized enterprises in Malaysia are still practicing the traditional MAPs [4]. The adoption of MAPs was affected by many factors such as: competition, size, ownership, demand on information for managers and technology, cost for operating accounting management system and staff qualifications education, firm's age

Competition

Competition has been measured differently in different studies. Firth (1996), for example, measured competition based on the percentage of turnover of partners in the market [16]. By construct, Waweru (2004) measured the level of competition on the scale proposed by Khandwalla (1977) [46], [26]. About the research results, Tuanmat and Smith (2011) argued that the use of MA in Malaysian manufacturing companies has been increasing with the increase of global competition [44]. Maelah and Daing (2007) shows that increasing competition has made it more difficult for many companies in the manufacturing industry in Malaysia to have more accurate and useful information as a basis for decisions and ABC systems will be a useful tool that should be used in these companies [32]. Firth (1996) found that the adoption rate of MAPs Chinese enterprises increased with the increase in the level of competition [16]. Doan (2012) shows the relationship between competition and the use of MAPs [9]. On the contrary, Afirah and Noorhayati (2017) showed that there was no significant relationship between market competition and the MAPs adoption [4].

Size of firm

In most of studies in devoping countries, size of firm was measured only by total assets. The study by El-Ebaishi et al. Naser (2003) shows that the size of firm is positively correlated with the use of different MAPs in large and medium in manufacturing companies in Saudi [15]. Joshi (2001) also noted that large-scale enterprises tend to use more modern MAPs than small firms in India [24]. Doan (2012) shows that business size does not affect the use of MAPs [9].

Ownership

Wu and Drury (2007) found that there was a significant difference in the level of MAPs application in Chinese enterprises in the form of corporate ownership. Joint ventures with foreign countries have made many changes in the MA system compared to non-venture cooperatives, joint ventures use more international accounting than state enterprises [48]. Doan (2012) also shows that the rate of application of MA in state-owned enterprises in Vietnam is lower than in joint stock companies [9].

Demand on information for managers and technology

Afirah and Noorhayati (2017) showed that operational technology has a positive impact on the MAPs in Malaysian small – medium enterprises [4]. Alleyne (2011) pointed out that the need for information for managers and technology was an important factor influencing MA use in manufacturing companies in Barbados [7]. In a specific study in Vietnam by a group of US scientists including Pomberg et al. in 2012 examined 53 hospitals in Hanoi and 9 neighboring provinces to study how to manage and what are conditions of application of modern cost management methods. The study suggests that the need for cost information among executives is a factor that affects the ability to apply modern MA methods to hospitals. However, this study has not assessed the impact of cost information demand on business executives to apply cost MA [34].

Cost for operating accounting management system and staff qualifications

Omar (2012) shows that hotels in Jodhpur, India are facing some difficulties related to the application of cost-management accounting information systems such as the cost to operate a MA system is too high, human qualification is not enough to optimize the application of MA system. The research has shown that the qualification of staff and the cost of operating MA are factors that influence the application of MA [37].

Education

O’Conner (2004) measured education by using five aspects: in – house or on – the job training by Chinese managers, training provided in local schools, training provided by government officials, academic exchange with experienced administrators and sending Chinese employees overseas for training and

development. He discovered that the use of MAPs in SOEs increased with the availability of training [36].

Firm's age

The duration of an enterprise is calculated from the time of establishment to the time of research. Research results by O'Connor et al. (2004) also suggest that firms with a longer operating life use more MAPs [36].

3 Discussion and Conclusion

From the studies on the use of MA in different countries, it is clear that different countries have different MA uses, and different firms in different sectors also differ in their use of MA. This could be fully explained based on the contingency theory mentioned above. Studies on the use of MAPs in developing countries show the general trend is that traditional practices are more commonly applied than modern ones. This could be explained by diffusion theory. New MA practices that are considered unfamiliar or less familiar with the current ones will be less likely to be used.

Previous studies in developed and developing countries have shown that there are many factors influencing the use of MA, in which, a number of factors that have been studied in developed and developing countries. At the same time, there are a number of factors that only work in developing countries (firm's age, education, cost for operating accounting management system). It could be seen that the results are not exactly the same in different contexts. Williams and Seaman (2001) found that size of firm and competition had a negative impact on the use of MA [47]. Afirah and Noorhayati (2017) showed that there was no significant relationship between market competition and the MAPs adoption [4]. Whereas, Hoque (2008); Mia and Clarke (1999); Tuanmat and Smith (2011) concluded that there was positive relationship between intensive competition and the use of MAPs [19], [33], [44]. Doan (2012) does not accept that enterprise size affects the use of MA, while studies by Joshi (2001) in India found that the adoption rates of MAPs in large firms was higher than small businesses. When studying the factors affecting the use of MA in Vietnamese enterprises, Doan (2012) ignores some of the factors that may affect the use of MA that have been considered in other studies such as culture, technology, education, costs to operate the MA system [9].

In conclusion, the paper summarizes the factors influencing the use of MAPs in both developed and developing countries. Based on the results of this study, future researches may be performed to further explore the factors affecting the adoption of MAPs in the context of Vietnamese textile enterprises. To carry out this study, the author needs to carry out empirical research to identify and verify that these factors are true to the characteristics of the Vietnamese textile and garment

enterprises and the extent of these factors to the use of MA. This study helps managers identify which MAPs should be applied, which factors should be considered when applying MA in their business to best meet information needs of managers, improve management competence of enterprises, competitiveness, ensuring the textile and garment enterprises to grow and develop sustainably in the context in which the world economy has many fluctuations. Policymakers should pay attention to the education-socio-economic characteristics to develop the most appropriate accounting policies to promote the use of MA in Vietnamese enterprises; strengthen the training of accounting to be able to form a generation of accountants capable of undertaking in the period of international economic integration. The research will be expected to fill the gap in the MA literature especially from the views of developing countries in Asia, in particularly, the field of textile.

Acknowledgement

I would like to express the deepest gratitude to my supervisors Dr. Habil. Velencei Jolán and Prof. Dr. Takács – Gyorgy Katalin for their support, useful guidance, insightful comments, and considerable encouragements to my study at The Óbuda University.

References

- [1] Abdel-Kader, Magdy; Luther, Robert (2006). Management accounting practices in the British food and drinks industry. *British Food Journal*, 108(5): 336-357. Abdel-Kader, Magdy; Luther, Robert (2008). The impact of firm characteristics on management accounting practices: a UK – based empirical analysis. *The British Accounting Review*, 40(1): 2-27
- [2] Ahmad, K.(2012). The use of management accounting practices in Malaysian SMEs. 48 p. Online: http://eprints.uthm.edu.my/4639/1/Kamilah_Ahmad.pdf. Retrieved July 15,2013.
- [3] Afirah Azudin, Noorhayati Mansor (2017). Management Accounting practices of SMEs: The impact of organizational DNA, business potential and operational technology. *Asia Pacific Management Review*: 1-5.
- [4] Al – Omiri and Drury (2007). A survey of factors influencing the choice of product costing systems in UK organization. *Management Accounting Research*, 18(4): 399 – 424.
- [5] Alcouffe, S., Berland., N., and Levant, Y. (2008). Actor-networks and the diffusion of management accounting innovations: A comparative study. *Management Accounting Research*, 19, 1-17.
- [6] Alleyne, P., & Weekes-Marshall, D. (2011). An exploratory study of management accounting practices in Manufacturing Companies in Barbados. *International Journal of Business and Social Science*, 2(9), 49-58.

- [7] Ax, C., and Bjornenak, T. (2005). Bundling and diffusion of management accounting innovations – the case of the balanced scorecard in Sweden. *Management Accounting Research*, 16(1), 1-20.
- [8] Doan Ngoc Phi Anh (2012). Factors affecting the adoption of management practices in Vietnamese enterprises, Final report in science and technology at the University of Danang.
- [9] Chenhall, R.H., and Morris, D.(1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. *The Accounting Review*, LXI(1):16-35.
- [10] Chenhall, R.H., and Langfield-Smith, K.(1998). Adoption and benefits of management accounting practices: an Australian study. *Management Accounting Research*, 9(1):1-19.
- [11] Chia, Y.M. (1995). Decentralization, management accounting system (MAS) information characteristics and their interaction effects on managerial performance: a Singapore study. *Journal of Business Finance and Accounting*, 22(6): 811-830.
- [12] Choe, J.M (2004). The consideration of cultural differences in the design of information systems. *Information and Management*, 41(5):669-684.
- [13] Dearden, J.(1988). *Management accounting: text and cases*. New Jersey: Prentice Hall.
- [14] El-Ebaishi, Karbhari and Naser (2003). Empirical evidence on the use of management accounting techniques in a sample of Saudi manufacturing companies. *International Journal of Commerce and Management*, 13(2): 74-101.
- [15] Firth, M. (1996). The diffusion of managerial accounting procedures in the People's Republic of China and the influence of foreign partnered joint ventures. *Accounting, Organizations and Society*, 21(7-8):629-654).
- [16] Gordon, L.A., and Narayanan,V.K (1984). Management accounting systems, perceived environmental uncertainty and organization structure: an empirical investigation. *Accounting, Organization and Society*, 9(1): 33-47.
- [17] Hofstede, G.H.(1980). *Culture's consequences: international differences in work-related values*. Beverly Hills, California:Sage Publication.
- [18] Hoque (2008). Predicting change in management accounting and control systems: additional evidence from Australia, *Social Science Research Network*.
- [19] Horngren, C.T., Sundem, G., Stratton, W.(1996). *Introduction to management accounting*. (10th ed.), London: Prentice Hall.
- [20] Hyvonen, J.(2005). Adoption and benefits of management accounting systems: Evidence from Finland and Australia. *Advances in International*

Accounting, 18:97-120.

- [21] International Federation of Accountant. (1998). International management accounting practice statement. New York: Management Accounting Concepts.
- [22] Joseph, G.(2006). Understanding management accounting techniques in the context of organizational change. *Management Accounting*,7(4):24-32.
- [23] Joshi (2001). The international diffusion of new management accounting practices: The cause of India. *Journal of International Accounting Auditing and Taxation*, 10(1): 85-109.
- [24] Kaplan,R.S.(1984). The evolution of management accounting. *The Accounting Review*, LIX(3):390-418.
- [25] Khandwalla, P.N.(1977). The design of organizations. New York: Harcourt Brace Jovanovich.
- [26] Lapsley, I., Wright, E., (2004). The diffusion of management accounting innovations in the public sector: a research agenda. *Management Accounting Research*, 15(3), 355-374.
- [27] Libby, T., and Waterhouse, J.H.(1996). Predicting change in management accounting systems. *Journal of Management Accounting Research*,8:137-150.
- [28] MacArthur, John B (2006). Cultural Influences on German versus U.S. Management Accounting Practices. *Management Accounting Quarterly* 7.2 : 10.
- [29] MacDonald, L.D.(1999) Innovation in management accounting systems: a dual core analysis, Queen's University, Ontario, Canada.
- [30] Macias (2002). Privatization and management accounting system change: the case of the 19th century Spanish Tobacco monopoly. *Accounting Historian Journal*, 29(2): 31-57.
- [31] Maelah, Ruhanita; Daing Nasir Ibrahim (2007). Factors influencing activity based costing (ABC) adoption in manufacturing industry.
- [32] Mia, L., and Clarke, B.(1999). Market competition, management accounting systems and business unit performance. *Management Accounting Research*, 10(2):137-158.
- [33] Michele Pomberg, Hamid Pournalali, Shirley Daniel, Marinilka Barros (2012). Management Accounting Information System: a case of developing country: VietNam. *Asia-Pacific Journal of Accounting & Economics*, Vol.19, Nol. April 2012.
- [34] Dang Thi Tuyet Nhung, Dinh Cong Khai. Summary of researching on value chain policies in Vietnam textile and garment, Fulbright economic intruction program.

- [35] O'Connor and Wu (2004). The adoption of Western management accounting in China's state-owned enterprises during economic transition. *Accounting, Organizations and Society* 29(3-4): 349-375
- [36] Omar A.A.Jawabreh (2012). The impact of Accounting Information System in Planning, Controlling and Decision – making Processes in Jodhpur Hotels, *Asian Journal of Finance & Accounting*, Vol 4, 173-186.
- [37] Oncioiu, Ionica (2013). Managemnet accounting practices (MAPS) in Romania small business. *Global Conference on Business & Finance Proceedings* 8.1: 229-235. Institute for Business & Finance Research.
- [38] Otley, D.T.(1980). The contingency theory of management accounting: Achivement and prognos. *Accounting, Organizations and Society*, 5(4): 413-428.
- [39] Reid, G, C., & Smith, J.A.(2002). The impact of contingencies on management accounting system development. *Management Accounting Research*,1, 427-450.
- [40] Rogers, E.M.(2003). *Diffusion of innovations* (5 th ed.), New York; London Free Press.
- [41] Soobaroyen and Poorundersing (2008). The effectiveness of management accounting systems: Evidence from functional managers in a developing country. *Managerial Auditing Journal*, 23(2): 187-219.
- [42] Sulaiman, M.B., Ahmad, N.N.N., and Alwi,N.(2004). Management accounting practices in selected Asian countries: A review of the literature, *Managerial Auditing Journal*,19:493-508.
- [43] Tuanmat, Tuan Zainun; Smith, Malcolm (2011). Changes in management accounting practices in Malaysia. *Asian Review of Accounting* 19(3): 221-242.
- [44] Vietnamese Association of Textile and Garment Economic News in 2016.
- [45] Waweru, N.M., Hoque, Z., and Uliana, E.(2004). Management accounting change in South Africa: case studies from retail services. *Accounting, Auditing and Accountability Journal*, 17(5):675-704.
- [46] William and Seaman (2001). Predicting change in management accounting system: national culture and industry effects. *Accounting, Organizations and Society*, 26(4-5).
- [47] Wu, Junjie; Drury, Colin (2007). An exploratory study on the environment factors influencing the adoption of MAPs in Chinese SOEs and JVs. *Journal of Technology Management in China* 2.1:54.

Innovation activity of Hungarian SMEs: an empirical examination

Dr. András Rideg

University of Pécs Faculty of Business and Economics,
H-7622, Pécs Rákóczi st 80., ridega@ktk.pte.hu

Abstract: While there has been great attention surrounding researches on innovation on the macro level (eg. propagation rate of innovations, spatial pattern, tender systems, contribution to economic performance, etc.), research on the firm-level (micro level) have been pushed to the background due to the high costs associated with data collection. In my view, making statements about the micro level of innovation without having the necessary firm-level data can only be done under restricted conditions. For this article I used University of Pécs' Small Business Competitiveness Research Group's (led by Prof. Dr. László Szerb) small business database, regarding innovation of new or improved products and services, and innovation of production/service processes. This is the database which I intend to analyse in this article, using descriptive statistics, relationship exploratory statistics and cluster analysis.

1 The relationship of SMEs and innovation

In the European Union and Hungary, the significance of SMEs is well known. The sector cannot be neglected for many reasons: its share in overall economic performance, role in job creation, retaining economic-social plurality, balancing territorial inequality, the increasing life quality owing to the diversified value proposition and self-realization of the individual are all significant. Therefore, the number of studies examining small businesses and their business environment has increased extremely fast in previous years.

The Small Business Act of Europe (SBA) has warned for years that there are many weak spots in Hungary's SBA profile (most recent is COM 207). Out of the SBA fact sheets' 9 pillars Hungary performs below the EU average in 6, and two out of this (including skills & innovation) shows a deteriorating trend in the 2007-2018 time frame. The variables within skill & innovation – except for one – are all unfavourable.

As a result of the EU's policies the Hungary's Office for National Economic Planning made an action plan in 2013, called „SME strategy for 2014-2020” (NTH 2013). The document contains the situation analysis, which results in low

growth potential of the SME sector as a root problem. One of the reasons for low growth potential was the weakness of innovation activity.

Innovation activity at the firm-level (micro level) and generally the success and / or failure of enterprises may be influenced by a number of factors. Without the need for completeness: the legal environment (legal protection or other regulations), the institutional factors, (higher) education system, state R & D & I systems, accounting and taxation systems (eg. accounting for innovation costs), the company's external relationships (eg. cooperation), the country's average level of development (primarily technical-technological), the financing of innovation, the infrastructural conditions of innovation, the general economic environment, general supply and demand conditions and certain elements of the socio-cultural environment (eg. social acceptance / reception of innovation) can have a significant impact on innovation activity individually and as an interconnected system as well.

The innovation activity, the operation and success (or survival) of SMEs are shaped by many firm-size-specific advantages and difficulties at a micro level. These characteristics are well known from the literature of the small business management (eg. Man et al. 2002, Dholakia – Kshetri 2004, Aragón-Sánchez – Sánchez-Marín 2005, Singh et al. 2007, Vecsenyi 2011, Longenecker et al. 2016).

Small businesses – unlike large firms – handle much less resources, run less processes and activities, and produce smaller quantities of products and services on a narrower palette. All this makes it possible to keep the organizational structure flat, making communication and decision making faster and more efficient. Small and informal working relationships are typical for small businesses, the operation is less formalized, the employee's work satisfaction is higher, and the familiar atmosphere is more typical.

These features provide flexibility so that small businesses can respond in an adaptive way to the effects of the economic environment and to changes in the segment of the buyer's markets and to concentrate on precious corners with specific, unique needs. Flexibility supports firm-level innovation processes, because of which new ideas are often incubated in small businesses (valuable for large companies as well). Meeting the focus and meeting individual needs also increases social well-being and quality of life. This is especially the case in most of the national economies in the dominant service sectors where demand for investment and entry barriers are typically lower.

Many sector related difficulties can be found in small businesses' lives. Managing tasks are most often carried out by the owner, and rarely have professional management. The use of management methods is less typical, decision making is rather intuitive and ad hoc.

Much of small businesses operate on a linear, functional basis or on a blended organizational structure organized on their own. It is known that in the linear

organization there is an overload of managerial staff, and in the functional organization over time, performance reserves are necessarily generated. In addition, there is a limited range of internal division of labour, no specialized positions, employees need to understand multiple tasks, there is no place for "hijackers".

In such organizations the top executives carry out all the "unowned" tasks, and operate all activities and functions with no agent, which will be the other source of the burden. When the top manager is overwhelmed with operational tasks, he cannot pay enough attention to matters of strategic importance or to the organization's development and future success. He tends to anchor and stay in the magic of the first idea – the founding idea – and renewal becomes cumbersome. They are limited in information about funding opportunities, co-operation or internationalization, as well as potential EU / national tenders. The development of dependence of the operating processes on top managers is also rapid, which makes it difficult to pass on managerial tasks to specialized professionals, succession and a possible sale.

Small businesses will be characterized by under-capitalization. Generally lacking financial management, these small businesses usually cannot get the adequate financial resources they need. Innovation typically is a cost in the present, and only in the future does it contribute to financial performance. In business however a large part of the decisions are made on the basis of ex-post financial data, which leads to innovation having low priority. If these difficulties cannot be effectively addressed, they will be the source of uncompetitiveness, founder and growth "traps" and the loss of orientation in customer segments.

After the description of firm-size-specific advantages and difficulties of SMEs determining / influencing firm-level innovation activity, it is necessary to define business innovation as well, to create a clear basic conceptual base. (In this paper I ignore the discussion of debate about the definitions of innovation, the description of evolution of concepts, and the introduction of the trans- and multidisciplinary aspects of innovation.) Among the many existing innovation definitions, it is my view that the following application is the most promising when we look at innovation at firm-level and we give this notion a meaning based on that: innovation is a multifaceted process by which companies transform their ideas into new or improved products / services, production / service processes, methods used in company and / or business models in order to succeed, develop, compete and differentiate themselves in their market segments (using Baregheh et al., 2009). I also considered the application of the general business innovation concept to be appropriate for SMEs as well.

The scope of methods used in company is the only one that needs to be clarified in the definition: sales, marketing, investment, finance, management, organizational structure, HRM, work organization ... etc. methods are also covered, which is why

the definition is broad, and the practice that complies with it can be realized in many ways.

2 Empirical examinations

The Small Business Competitiveness Research Group of University of Pécs, led by Prof. Dr. László Szerb, was kind to provide an SME dataset for my disposal, which was compiled for years, starting in 2013 (date stamp of version used: 01/01/2017). The data set included a questionnaire on the self-assessment of innovation activity, whose empirical analysis results have not been implemented yet, have not been published.

2.1 Introduction of sample and observed variables

The dataset contained data of 987 Hungarian small businesses, from which I have filtered duplications, organizations that are not considered SMEs under COM 2003, 361/EC, responses with missing critically deficient answers, registered but non-operating companies and companies involved in liquidation, winding-up and / or bankruptcy. The filtered sample number is n=768.

The sample is not representative in terms of firm-size categories, geographic location (according to NUTS1 / NUTS2) and / or sectoral affiliation (according to TEÁOR'08), and the deviation from the composition of the population cannot be corrected by a weighting system with statistically acceptable weights. Because of the lack of representativeness, the conclusions of analysis cannot be generalized to the basic population. Nevertheless the sample is suitable for conducting interesting investigations. Now I show the composition of the sample along the firm-size categories from the various options of the listed nominal (observed) cross-variables (Table 1).

1. Smaller sized micro enterprise	employs 1.001-4.999 people	250 pcs	32.55%
2. Bigger sized micro enterprise	employs 5.000-9.999 people	186 pcs	24.22%
3. Smaller sized small enterprise	employs 10.000-19.999 people	134 pcs	17.45%
4. Bigger sized small enterprise	employs 20.000-49.999 people	121 pcs	15.76%
5. Medium sized enterprise	employs 50.000-249.999 people	77 pcs	10.03%
Sum:		768 pcs	100.00%

Table 1
Firms size composition of the sample (n=768)

The implementation of the described business innovation conceptualization is possible in 8 ways, among which the dataset can be examined in boldface in Table 2. Respondents were asked about the intensity of innovation activity and the

answers were requested on a scale of 0 to 3 (0: none; 1: low intensity; 2: medium intensity; 3: high intensity).

<i>Improvement of existing products/services</i>	<i>Development and introduction of new products/services</i>
<i>Improvement of existing production/service processes</i>	<i>Development and introduction of new production/service processes</i>
<i>Improvement of already used methods within the company</i>	<i>Development and introduction of new methods</i>
<i>Improvement of existing business model</i>	<i>Development and introduction of new business model</i>

Table 2
Examined areas of implementation of business innovation

In addition, respondents were asked about the success of innovation, intellectual property under industrial property rights, related costs and benefits, and innovation co-operation. In this paper, I only analyse variables suitable for communicating consistent results.

2.2 Results and discussion

In 174 SMEs (in case of 22.66% of the total sample) “some” innovation activity was associated with "some" efforts intensity. The proportion of different sized enterprises that belonged to innovators are as follows: 14% of smaller sized micro enterprises, 24.2% of bigger sized micro enterprises, 25.4% of smaller sized small enterprises, 32.2% of bigger sized small enterprises and 27.3% of medium sized enterprises. 24.7% of innovative companies innovate in 1, 23.0% in 2, 16.7% in 3, 33.9% in 4 areas of innovation (1.7% did not elaborate innovation activity). Table 3 shows the frequency and relative frequency of responses by area and the intensity of related innovation efforts.

Areas of innovation	sum			Intensity of the related innovation efforts [pcs]		
	freq. [pcs]	rel. freq. [%] in proportion to innovators	rel. freq. [%] in proportion to total sample	low	medium	high
Existing prod./service	116	66.7%	15.1%	26	59	31
New prod./service	130	74.7%	16.9%	28	64	38
Existing process	113	64.9%	14.7%	31	56	26
New process	87	50.0%	11.3%	19	48	20

Table 3
Intensity of innovation examined by areas (n=174)

This means that 26.2% of all (intensity-weighted) innovation efforts target the improvement of existing products / services; 29.9% targets new products / services

development and introduction, 24.5% targets existing process improvement, and 19.4% targets new process development and introduction.

I also examined whether there was any dependency between the different areas. During the cross-variable independence test between ordinal variables, I formulated the following conditions: a) a strong condition is that the asymptotic significance of Pearson's χ^2 test shall be below the 0.050 threshold; (b) a weak condition is that the proportion of cells have expected count less than 5 cases shall be below the 20% threshold; and the minimum expected count shall be above a threshold of 1. Of the usable indicators of crosstab statistics for ordinary variables and non-symmetric tables, I chose Kendall's τ_c and Goodman-Kruskal's γ to assess the strength of the relationship. It is known that γ sometimes overestimates the strength of the relationship, so I examined the difference between τ_c and γ . If the difference is greater than 0.05, then τ_c is considered, γ if smaller. The results are shown in Table 4.

		New prod./service		Existing process		New process	
		Results	Evaluation	Results	Evaluation	Results	Evaluation
Existing prod./service	Pearson χ^2 test value	39.079	OK	75.597	OK	54.113	OK
	Pearson χ^2 test asymp. sign.	0.000		0.000		0.000	
	Ratio of cells having expected count less than 5 [%]	12.5%	OK	18.8%	OK	25.0%	NO ¹
	Minimum expected count [pcs]	4.18	OK	3.89	OK	2.84	OK
	Kendall's τ_c	0.220	moderately strong connection	0.337	strong connection	0.226	moderately strong connection
	Goodman-Kruskal's γ	0.305		0.460		0.348	
New prod./service	Pearson χ^2 test value	–	–	31.107	OK	44.436	OK
	Pearson χ^2 test asymp. sign.	–	–	0.000		0.000	
	Ratio of cells having expected count less than 5 [%]	–	–	12.5%	OK	31.2%	NO ¹
	Minimum expected count [pcs]	–	–	4.18	OK	3.06	OK
	Kendall's τ_c	–	–	0.053	no or very weak connection	0.153	weak connection
	Goodman-Kruskal's γ	–	–	0.074		0.237	
Existing process	Pearson χ^2 test value	–	–	–	–	150.091	OK
	Pearson χ^2 test asymp. sign.	–	–	–	–	0.000	
	Ratio of cells having expected count less than 5 [%]	–	–	–	–	25.0%	NO ¹
	Minimum expected count [pcs]	–	–	–	–	2.84	OK
	Kendall's τ_c	–	–	–	–	0.494	extremely strong connection
	Goodman-Kruskal's γ	–	–	–	–	0.708	

Comment: ¹ = one weak condition is not met.

Table 4
Crosstab statistics of areas of innovation (n=174)

The table shows that the innovations of existing and new processes are strongly related, and these are often go hand in hand. Similarly, there is a significant, but substantially inferior relationship between existing products / services and existing processes. This is probably due to the fact that existing features are often (though not always) enough to cover existing competencies, so such innovations are likely to be less costly.

In the following, I implemented a cluster analysis based on the similarity of properties, involving the normalized values of the intensity of the innovation activity associated with each area. As a first step, I examined the desirable number of clusters to be created by hierarchical cluster analysis using the Ward method based on the squared Euclidean distance. Based on the agglomeration schedule and the dendrogram, it is recommended to create 5 clusters. After that the cluster formation was done with K-means cluster analysis. The relevance of the 5 groups was confirmed by the ANOVA table. Table 5 shows the number of cases, the relative frequency of the generated subsamples (relative to the innovators and to the total sample), the average of normalized intensity values by areas of innovation and the name of the cluster.

Cluster No.	freq. [pcs]	rel. freq. [%] in proportion to innovators	rel. freq. [%] in proportion to total sample	Average of normalized innovation intensity values (per area per cluster)					Description
				Existing prod./service	New prod./service	Existing process	New process	Sum	
1	53	30.5%	6.9%	0.09	0.32	0.15	0.16	0.71	low intensity innovators
2	47	27.0%	6.1%	0.58	0.69	0.19	0.05	1.51	product developers
3	17	9.8%	2.2%	0.61	0.10	0.78	0.26	1.75	developing the existing ones
4	13	7.5%	1.7%	0.15	0.31	0.74	0.80	2.00	process developers
5	44	25.3%	5.7%	0.79	0.80	0.77	0.75	3.11	high intensity innovators

Table 5
Characterization of innovation activity clusters (n=174)

An attempt was made to investigate the relationships between the innovation activity clusters and the nominal (observed) cross-variables (firm-size-category, NUTS1, NUTS2 geographical location, size (and status) of settlement where firm operates, sectoral affiliation based on the TEÁOR'08 code of the most important activity and the ownership background). Only one significant linkage emerged in this test: the frequency of occurrence of high intensity innovators is the lowest among smaller size micro-enterprises and it grows as firm-size increases. Among medium sized enterprises the presence of high intensity innovators is lower than in the size category of bigger sized small enterprises but is still high in comparison to other groups. The statistical evidences of connection between firm-size-category and presence of high intensity innovators: Pearson's χ^2 test of association had a value of 9.892 (n=174) and the asymptotic significance was below the 0.050 threshold (0.042). The weak conditions were also met: the proportion of cells have expected count less than 5 cases was below the 20% threshold (0.00%), and the

minimum expected count was above a threshold of 1 (5.31). The strength of relationship between the nominal variables was measured by Cramer's V value (ϕ_c), which showed a moderately strong relationship of 0.238. With no other nominal (observed) cross-variables was it possible to detect a consistent relationship. Although interesting, geographical and sectoral difference could be observed, but they did not prove to be significant.

We have conducted some interesting observations on the level of simple variables:

- Direct cost allocation to innovation activity was not present in 43.2% of innovative companies. Expenditure on innovation activity is proportional to the 3% or less of the net sales revenue in 59.5% of companies; 5% or less in 73.0% ; 10% or less in 86.5% of companies (n=174).
- We listed 10 innovation co-operation partners for each of the respondents, in each case we asked for an evaluation of cooperation on the [1-3] scale. In the weighted co-operation rankings co-operations with competitors, technology parks (geographically close-to-field sector actors) and public research centres proved to be the closest. Interestingly, at the end of the ranking we find the buyers and suppliers. It appears that companies are in a “meeting-expecting” relationship with customers and suppliers, with less chance and intensity to innovate with them, although it is known that they are the most often starting points of innovation (theoretically).

Conclusions

In my view, drawing conclusions from the firm-level can only be done by examining firm-level data. It is not different in case of studying the innovation activity of SMEs. The focus of the article was the empirical analysis of a questionnaire for innovation activity in a non-representative dataset containing n=768 (n'=174) Hungarian SMEs. In addition, apart from the presentation of some other interesting results from the level of simple variables, I examined the intensity of the innovation efforts of firms for new or improved products / services and production / service processes.

22.66% of the sample SMEs carried out innovation activity in at least one of the examined areas, while 7.68% of the sampled firms made efforts in all four areas. Generally speaking, the development of products / services is + 27.80% more intensive than the development of production / service processes. Comparing the different directions it is also clear that “novelty” has higher priority when firms implement product / service innovation and the key phrase of “improving the existing ones” is more important when they innovate processes.

Innovation activities in different fields are related: simultaneous innovation of existing and new processes is very often, and firms develop existing products / services and existing processes at the same time moderately frequent.

The cluster analysis of innovation activities revealed: (1) 30.5% of innovative SMEs are low intensity innovators in all areas; (2) 27.0% are explicitly product developers; (3) 9.8% are only developing existing products / services and existing processes (4) 7.5% are process developers; (5) 25.3% are high intensity innovators.

In the sample, the frequency of occurrence of high intensity innovators is the lowest among smaller sized micro enterprises and it grows as firm-size increases till the firm-size-category of larger sized small enterprises. Among medium sized enterprises the presence of high intensity innovators is lower than in the size category of bigger sized small enterprises but is still high in comparison to other groups. It can also be considered that there was no statistical relation between the occurrence of high intensity innovators and other cross-variables (eg. no sectoral specificities).

Overall, besides research on systemic innovation it is important to have empirical researches on firm-level innovation activities as well, a topic to which I want to contribute with this article.

References

- [1] Aragón-Sánchez, Antonio; Sánchez-Marín, Gregorio: Strategic orientation, management characteristics, and performance: A study of Spanish SMEs, *Journal of Small Business Management*, 2005, 43:3, pp. 287-308
- [2] Baregheh, Anahita; Rowley, Jennifer; Sambrook, Sally: Towards a multidisciplinary definition of innovation, *Management decision*, 2009, 47:8, pp. 1323-1339
- [3] Dholakia, Ruby Roy; Kshetri, Nir: Factors impacting the adoption of the internet among SMEs, *Small Business Economics*, 2004, 23:4, pp. 311-322
- [4] [European Commission]: The new SME definition – user guide and model declaration, Brussels, EU COM, 2003, 50 p.
- [5] [European Commission]: Enterprise and Industry - HUNGARY - 2017 SBA Fact Sheet, Brussels, EU COM, 2017, 20 p.
- [6] Longenecker, G. Justin; Petty, J. William; Palich, E. Leslie; Hoy, Frank: *Small Business Management: Launching & Growing Entrepreneurial Ventures*, Mason (OH), South-Western College Pub, 2016, 712 p.
- [7] Man, Thomas W.Y; Lau, Theresa; Chan, K.F.: The competitiveness of small and Medium enterprises A conceptualization with focus on entrepreneurial competencies, *Journal of Business Venturing*, 2002, 17:2, pp. 123-142

- [8] [Nemzetgazdasági Tervezési Hivatal]: Kis- és középvállalkozások stratégiája 2014-2020, Budapest, NTH, 2013, 85 p.
- [9] Singh, Rajesh K.; Garg, Suresh K.; Deshmukh, S. G.: Interpretive structural modelling of factors for improving competitiveness of SMEs, International Journal of Productivity and Quality Management, 2007, 2:4, pp. 423-440
- [10] Vecsenyi János: Kisvállalkozások indítása és működtetése 4. kiad., Budapest, 72h.com MEEEXO, 2011, 413 p.

A Critical infrastructure from a sustainable public transportation perspective: Jordan as A Case Study

Malak M. Shatnawi

Department of Safety and Security Science, Obuda university, Budapest

malak.shatnawi@phd.ui-obuda.hu

Abstract: Infrastructure is the fundamental facilities that plays an important part in socio-economic development for modern societies, if such sector is well planned, managed by decision makers in a way that is compatible with the population growth, safety, and national security needs; it will enrich progress, prosperity, awareness, social and economic welfare for any country. Infrastructure is the most important socioeconomic aspect of life, because it can provide materials, products and services that will improve and facilitate living conditions and maintain sustainability at the same time, and in order to study critical infrastructure in general we must think sustainability, otherwise there will be a significant gap.

Recently researchers all over the world are paying more and more attention to the critical infrastructure systems the urban infrastructure is considered one of the most important sectors of the economy, which affect all sectors in the communities of both developing and developed countries because it is linked to the civilizational and urban development, meanwhile, choosing the appropriate transportation mode that will provide a good level of service and increase the satisfaction of the potential users is a difficult task.

This research paper tries to assess where is Jordan located vs. each Transportation Sustainability dimensions in aspects related to social, economic and environmental dimensions based on (Zietsman et al. 2006) adopted model for Sustainability Transportation infrastructure. Performance measures for each dimensional goal were traced and supported with needed data and statistical findings. The study uses Analytical descriptive style and methodology based on different references and previous studies from secondary data sources to support the case and conclude with recommended actions and future directions to reform the investigated case. Although this is the case for Jordan, it also can be applied to most developed countries, since most of them suffering from significant problems related to infrastructure and public transportation services.

Keywords: Infrastructure Transportation Sustainability, Economic, Social, Environmental.

1. Introduction

Critical infrastructure can be defined as industries, institutions, distribution networks that provide a continual flow of goods and services essential to country's defense, economic, security and to the health, welfare, and safety of its citizens. Five major sectors can in general be considered: Critical human services, information and telecommunication, energy, banking and finance, and physical distribution. They play a crucial role in the life and they are much more dependent on each other, once any of them are damaged, there will be a direct threat to the stability of economic, to public health, to safety and security aspects and the damage may even lead to disasters and collapse of the entire socioeconomic system. With the development of society and the application of information technology, critical infrastructure systems are much more efficient.

The scope definition of infrastructure differs according to country, for example in UK "The [Critical National Infrastructure] comprises those assets, services and systems that support the economic, political and social life of the UK whose importance is such that loss could: 1) cause large scale loss of life; 2) have a serious impact on the national economy; 3) have other grave social consequences for the community; or 3) be of immediate concern to the national government." [1].

While in United States The general definition of critical infrastructure in the overall US critical infrastructure plan is: "systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters." For investment policy purposes, this definition is narrower". [2]

Sustainability implies the provision of more efficient services that maintain public health and welfare, are cost-effective, and reduce negative environmental impacts, today and into the future. A definition of sustainable development from an ASCE/UNESCO working group on developing sustainability.

Sustainable development is truly about achieving a balance between several objectives (environmental, economic, and social) over dynamic time and spatial horizons. Accordingly, Research in the area of sustainable urban infrastructure reflects the need to design and manage engineering systems in light of both environmental and socioeconomic considerations. A principal challenge for the engineer is the development of practical tools for measuring and enhancing the sustainability of urban infrastructure over its life cycle [3][4].

Infrastructure as well as transportation sector in Jordan like any other developing countries suffers from short sighted planning and lack comprehensive and integrated vision, which have left Jordan now days with serious problems related to high congestions in general especially at a certain time (rush hours), low safety procedures, high incremental traffic accidents figures combined with high fatal rates and low quality requirement for transporting goods and passengers.

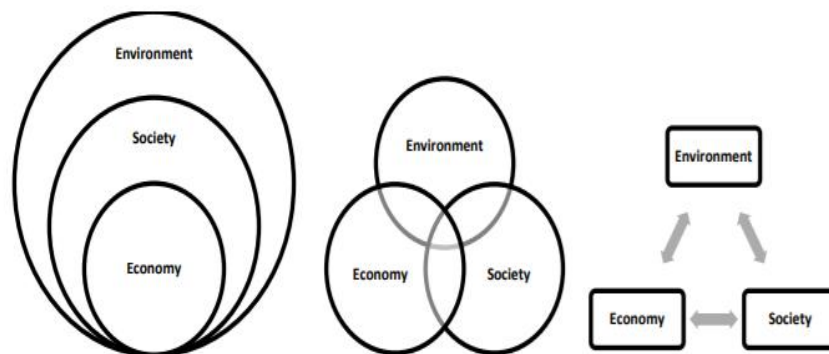
This paper will consist of the following sections; first section is literature review regarding sustainability definition in general and transportation sustainability in specific, second section analysis of Jordan infrastructure from public transport perspective, third Section explains the methodology of research, last section provides Results of analysis, conclusions and main recommendations.

2 Literature review

2.1 Sustainability, transportation sustainability

According to the World Business Council on Sustainable Development (WBCSD), sustainability involves “the simultaneous pursuit of economic prosperity, environmental quality and social equity. Companies aiming for sustainability need to perform not against a single, financial bottom line but against the triple bottom line” (WBCSD 2000) [5]. The term “Sustainable Development” (SD) was popularized in the 1987 within UN report “Our Common Future”, also known as the “Brundtland Report”, of the UN World Commission on Environment and Development. This term provided what later became one of the most cited definition of sustainable development in literature:

The “three-dimensional model” of sustainable development was introduced in the Rio Summit’s declaration as one of two main pillars (UN 1992). The concept rests on: (1) equity between and within generations, and (2) the equal status of social, economic, and environmental goals (IFRAS 2004) [6]. The combination of these two pillars is illustrated in Figure 1 below.



Source: (Mann, 2009) [7]

However, sustainable transportation in specific balances “the need to travel with the need to improve quality of life [7]. In the US context, the Committee for the Conference on Introducing Sustainability into Surface Transportation Planning [8] defined a sustainable transportation system as “one in which (a) current social and economic transportation needs are met in an environmentally conscious manner and (b) the ability of future generations to meet their own needs is not compromised”. The American Association of State Highway and Transportation Officials (AASHTO) listed a set of 17 goals for sustainable transportation, which include improved accessibility, mobility, and safety, reduced pollution, ecosystem impacts, et [9]. The substantial impacts of transportation on environment, society and economy strongly urge the integration and incorporation of sustainability into transportation. A comprehensive definition of sustainable transportation that includes most of the social, economic and environmental concerns is provided by the European Council of Ministers of Transport (ECMT 2001, pp.16.) [10] defines a sustainable transportation system as one that 1) allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations, 2) is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy, 3) limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise.

There is no universally accepted framework for assessing sustainability, whereas research has been conducted mostly after 2000 by universities and institutes on sustainability performance measures that have the potential to move a transportation system towards sustainability. The Center for Sustainable Transportation (CTS 2002) developed and used indicators to study whether the transportation sector improves in respect to its adverse impacts on environment and health.

Jeon and Amekudzi (2008) [11] have studied the sustainability initiatives in North America, Europe and Oceania and reported that a standard definition of transportation system sustainability which is followed by a standard set of indicators for the assessment of transportation systems is not available suggested 28 indicators representing 13 goals and four sustainability categories for evaluating transportation system sustainability.

Renne (2009) [12] evaluated Transit Oriented Development (TOD) sustainability by deploying a survey in five transit stations and by using indicators based on six categories. The six categories with the number of proposed indicators for each one shown in the parentheses are: 1. Travel behavior (11) 2. Local economy (11) 3. Natural environment (4) 4. Built environment (21) 5. Social Environment (12) 6. Policy context (3).

Jeon et al. (2008), [11], eleven indicators that were quantified to determine environmental, social and economic impacts as well as the sustainability

performance of the transportation system for different scenarios in the Metropolitan Atlanta. The eleven quantified indicators were aggregated into four dimensions of sustainability indices. Scenarios were evaluated based on a composite sustainability index that was embracing the indices for the four sustainability category (environmental, social, economic impacts and transportation performance.) (Jeon et al. 2010) [13].

Sustainability dimension	Goals and objectives	Performance measures
Transportation System Effectiveness	A1. Improve Mobility	A11. Freeway/arterial congestion A12. Travel rate (minute/mile)
	A2. Improve System Performance	A21. Total vehicle-miles traveled A22. Freight ton-miles A23. Transit passenger miles traveled A24. Public transit share
		B11. CO ₂ emissions B12. Ozone emissions
		B21. VOC emissions B22. CO emissions B23. NO _x emissions
Environmental Sustainability	B1. Minimize Greenhouse Effect	B31. Traffic noise level
	B2. Minimize Air Pollution	B41. Fuel consumption
Economic Sustainability	B3. Minimize Noise Pollution	C11. User welfare changes C12. Total time spent in traffic C21. Point-to-point travel cost
	B4. Minimize Energy Use	C31. Improved accessibility
	C1. Maximize Economic efficiency	D11. Equity of welfare changes D12. Equity of exposure to emissions D13. Equity of exposure to noise
	C2. Maximize Affordability	D21. Exposure to emissions D22. Exposure to noise
Social Sustainability	C3. Promote Economic development	D31. Accidents per VMT D32. Crash disabilities D33. Crash fatalities
	D1. Maximize Equity	D41. Access to activity centers D42. Access to major services D43. Access to open space
	D2. Improve Public Health	
	D3. Increase Safety and Security	
	D4. Increase Accessibility	

(Jeon et al. 2010.) [13]) developed a tool as an add-on module in an integrated and transportation land use model for assessing urban sustainability. Indicator were based on large scale simulation models such as the SPARTACUS, PROPOLIS and PROSPECTS to reflect aspects of environment, society and economy. The indicators, which represent five distinct criteria, were grouped into three sustainability categories. The weights for the individual criteria were developed through a Delphi process using four experts in the field of transportation planning. The weights of the indicators were based on the relative costs to society for those indicators, [14] It provides information on identifying appropriate performance measures for sustainable transportation as follows:

<i>Sustainability Dimension</i>	<i>Goals</i>	<i>Performance measures</i>
Social	Maximize mobility	Travel rate
	Maximize safety	Accidents per VMT
Economic	Maximize affordability	Point-to-point travel cost
Environmental	Minimize air pollution	VOC, Car on CO and NO _x emissions.
	Minimize energy use	Fuel consumption

Based on: Zietsman et al. (2006) [15].

2.2 Sustainable transportation – jordan

Infrastructure projects in Jordan suffer from significant problems that has its impact on Sustainability dimensions for transportation, as this the case in most underdeveloped countries which hinder the economic growth and social development and welfare for any country.

In this paper we will evaluate to which extent Jordan Critical Transportation's structure meet the performance indicators for each dimension in order to see how far effective we are in applying sustainable transportation dimensions.

In Jordan (existing of narrow roads, expensive costs of opening new roads, pavements, lack of modern developed wide roads, building bridges, tunnels, culverts and circles as well as traffic light systems, etc.) all of these unable to meet the fast and quick growth.

The main reasons for major infrastructure projects problems are mostly due to lack of service oriented perspective in actual implementation due to poor comprehensive planning, lack of funding and Inflation in project costs.

To add to above points, there is lack of safety and secure studies, lack of professionally and risk management studies, in fact there are some times under estimated or poor estimated of the importance of risk management capabilities.

All of the above and more can be controlled if across the entire life cycle of the project and in each stage risks are managed, well planned, well designed and well implementation and revisable are applied when needed.

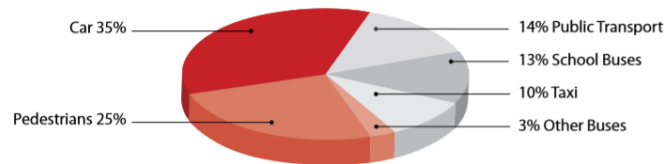
2.3 Sustainability dimension

Although the three Sustainability Dimension are the basics that need to be considered in explaining and solving any problems the following also should not be negligible in studding the Public Transportation and Infrastructure.

2.3.1 Mobility performance measure: Travel rates

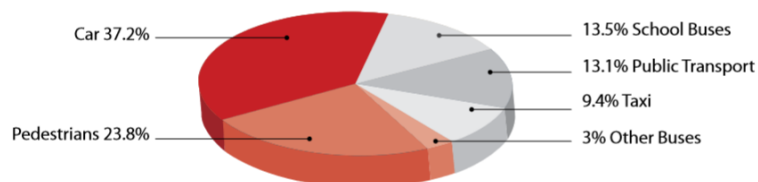
Urban development is an issue that many cities are facing, due to the demography growth which results from the economic attractiveness of the urban centers. Based on common standards, it is necessary to structure the transportation system according to sustainability requirements [16].

Jordan actual figures in term of mobility shows that based on 2010 the percentage of public transport users is very humble 14%, this shows that in the base year the most important mode with highest share of trips is the private car, whereas Public Transportation(PT) has a rather low share. as shown below: [22].

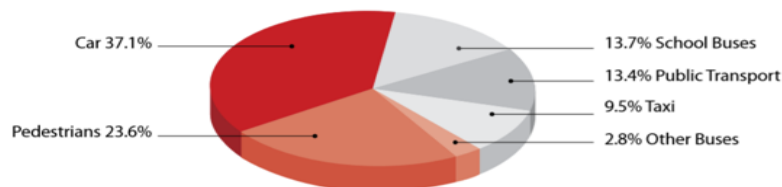


The following chart scenarios present the models split that has been calculated to forecast mobility in the future, comparing with base year an increase of car trips can be observed, whereas the share of Public Transportation(PT) decreases as shown below: [22].

Modal Split 2030 (Baseline Scenario)



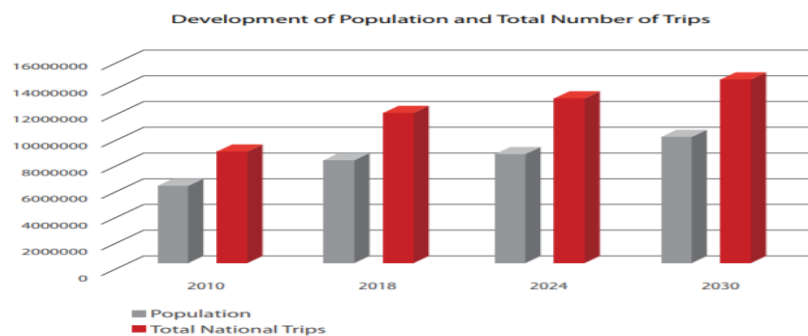
Modal Split 2030 (Strategy Scenario)



However, based on long run Jordan Transportation and transport model simulations, Passenger transport requires a strong commitment towards the promotion of alternatives to pure private, road transport. At this regard, the Strategy proposes a set of integrated and complementary measures to increase the quality attractiveness of public transport: the full implementation of new bus network and services, setting and enforcing minimum standards for vehicles in order to improve safety and quality, restructuring the sector and the way Public Transportation (PT) services are operated and awarded to operators, upgrading the facilities (terminal, bus stops, border crossing) while fostering inter modality. Developing and specializing Jordan airports (Amman Queen Alia, Amman Marka, Aqaba King Hussein) is also a key strategy in order to improve the passenger (and

freight) connections of Jordan to the Region and beyond. As a result, while in the baseline scenario the share of the demand using public transport is declining through time, in the strategy it shows a moderate increase reaching 13.7% of the total demand compared to 13.1 % in the baseline scenario. A number of cross cutting issues are addressed by the Strategy as well.

It is expected by planners that in the long term (2030) the new railways will attract 21.2 million tons of freight per year amounting to 5,100 million ton kilometers on Jordan rail tracks. This will ease road traffic flows by 4,200 ton kilometers. If accompanied by proper “push and pull” policy measures to modernize and consolidate the trucking industry (such as for instance incentives to renewing the fleets, enforcement of regulations and licenses, tolling of highways), [22].



The significance of transport infrastructure as a factor for destination development is another factor to consider within mobility and considered within many research papers showing it to be part of the classical demand for international tourism functions.

One paper has investigated the significance of transport infrastructure as a factor in destination development [17], showing it to be part of the classical demand for international tourism functions.

An application involving the island of Mauritius is presented, whereby total tourist arrivals are modeled. The findings show that tourists from Europe/America and Asia are particularly sensitive to the island’s transport infrastructure.

Gearing (1974) [18] study the case of Turkey as a destination and find that infrastructure (comprising roads, water, electricity, safety services, health services, communications, and public transportation) is a key determinant explaining arrivals. More recently [19] for the case of Sun Lost City, South Africa, and for the case of 51 islands highlight the importance of infrastructure, particularly government-financed, in the success of a destination [20].

2.3.2 Safety

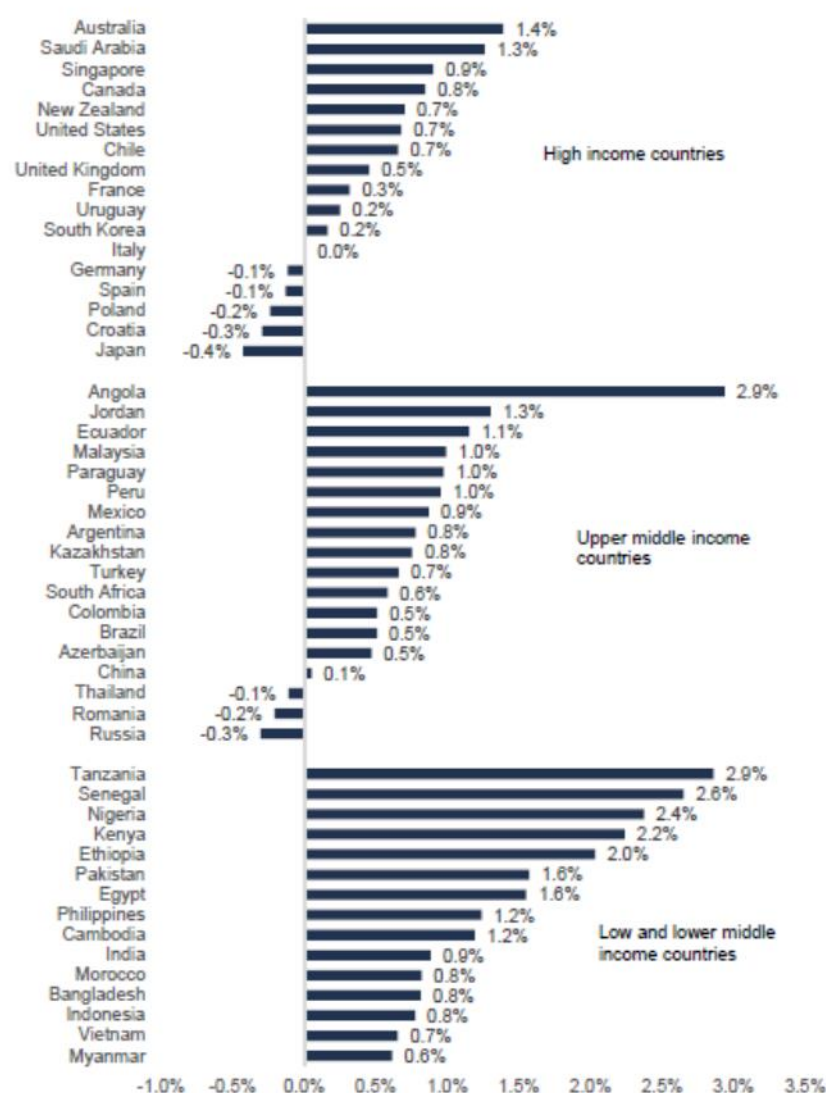
Performance measure: Accidents per VMT (accidents per vehicle-miles traveled),

Jordan is considered one of the top countries worldwide in terms of having higher number of traffic accidents involving fatalities and injuries. Where there is an annual increase of population and vehicles in Jordan, in addition to the arrival of many foreign visitors and vehicles to the country, Statistics show that at the end of 2016, the population of Jordan reached 9.798 million, compared to 6.4 million in 2010.

Jordan with limited infrastructure and resources has faced several immigrations waves from neighboring countries (Iraq, Syria, Yemen and other countries) due to geopolitical reasons which has created a sudden population increase and added extra pressure on the roads and traffic. The total length of roads has been estimated at 18500 km in the year 2016.

Statistics show that during 2016 the number of people who They entered the kingdom was 926658 persons, in 2016 a total of 144521 traffic accident occurred in the Kingdom, with 10835 casualty's accident resulted in 750 deaths, 1841 seriously injured and 15594 Simple injuries at an estimated total cost of \$455 million US\$, graphs below show the average annual population growth,2016-2040, and the location of Jordan,

Fig. 95 Average annual population growth, 2016-2040



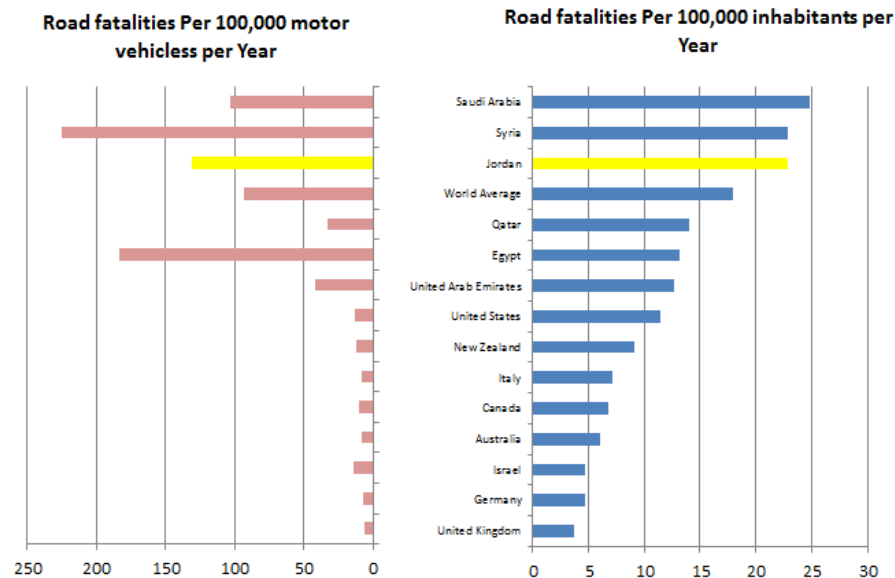
Source: UN, Haver, Eurostat, Oxford Economics and National Sources

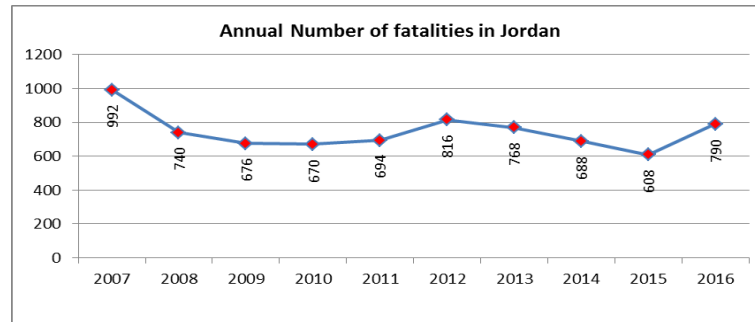
The fatality rate per 100,000 populations in 2015 was 6.38, which means;

- high congestions in general especially at a certain time (rush hours),
- low pedestrian's safety procedures,
- high incremental traffic accidents with high fatal rates,

It is shown below how serious is the situation compared to the rest of world [23] [24].

Country Region	Road fatalities Per 100,000 inhabitants per Year	Road fatalities Per 100,000 motor vehicles per Year
United Kingdom	3.7	6.5
Germany	4.7	7.6
Israel	4.7	14.3
Australia	6.1	8.5
Canada	6.8	10.7
Italy	7.2	8.3
New Zealand	9.1	12.3
United States	11.4	13.7
United Arab Emirates	12.7	42.3
Egypt	13.2	183.3
Qatar	14	32.7
World Average	18	93.3
Jordan	22.9	131.5
Syria	22.9	225.5
Saudi Arabia	24.8	103





Risk is inherent in large construction projects and refers to the potential complications in achieving the project goals and impact safety aspects [21], it is greatly plagued the construction industries which necessitate the risk assessment for the large scale construction projects. especially, risk assessment is critical for new construction or renewal of ‘Critical Infrastructure (CI)’, such as bridges as they are the vital links for a transport network. Gradually increasing complexity in road construction and constant exposure to environmental conditions increase the vulnerability of large Critical Infrastructure construction projects to the unexpected hazardous events.

Based on Jordan Long Term National Transport Strategy; Transport safety is a critical issue in Jordan. Although the Jordan National Transport Strategy encompasses all transport modes, it can be easily asserted that significant improvements in Jordan’s transport-related safety challenges are to be achieved mainly in the road sector. Several priority areas have been identified as posing particular concern and deserving special attention in the design of the measures: young drivers, impaired driving, speeding, vulnerable road users, motorcyclists and road infrastructures. The proposed relevant measures considered cover three fields of action: road users’ behavior, vehicles characteristics and infrastructure characteristics

A National Transport Safety Program is a fundamental part of it, being aware that significant improvements in Jordan’s transport-related safety challenges can be achieved mainly in the road sector. Relevant measures therefore cover three fields of action: road user’s behavior, vehicles characteristics and infrastructure characteristics.

Jordan long term transportation strategy is keen to improve traffic and Transport safety. Although the Jordan National Transport Strategy encompasses all transport modes, it can be easily asserted that significant improvements in Jordan’s transport-related safety challenges can be achieved mainly in the road sector. A number of policies and actions, as well as legislation acts, are in place in Jordan, although a transport safety national strategy is still missing. A separate National Transport Safety Programme, which complement this Strategy document, aims at filling in this gap, suggesting a number of integrated measures to face the major risk factors affecting road safety. Several priority areas have been identified as

posing particular concern and deserving special attention in the design of the measures: young drivers, impaired driving, speeding, vulnerable road users, motorcyclists and road infrastructures.

Renewing the fleet of public transport buses (to be coordinated with the progressive implementation of hierarchical network levels) is fundamental to improve quality (comfort and attractiveness), safety while reducing environmental impacts and fuel consumption. Two are the policies to be considered in this respect: 1-To deploy financial contributions for the purchase of new vehicles, or taxes/duties reductions 2-To set (and enforce) minimum standards for vehicles: definition of quality standards, technical specifications, maximum age for busses transport Policies/Regulations REF 2018 2024 2030 ,1. Renewing the fleet of public transport buses (to be coordinated with the progressive implementation of hierarchical network levels) ✓✓ 2. Minimum standards for vehicles. Definition of quality standards, technical specifications, maximum age for busses, enforcement ✓ 3. Restructuring of the sector/ industry: consolidating small operators into bigger organizations, 4. competition and efficiency ✓5. Fares and contracts 5.1 New contracts replacing old licenses (never expiring) ✓ 5.2 Revision of fare system (incl. technologies, ETMs electronic ticket machines) ✓ 5.3 Separate services for which fares can be liberalized from regulated services and assess the need to introduce subsidies (to be coordinated with the progressive implementation of hierarchical [22] [23].

2.3.3 Economic, affordability:

Performance measure: Point to point Travel Cost:

We Need data regarding transportation affordability (expenses – cost – charges)

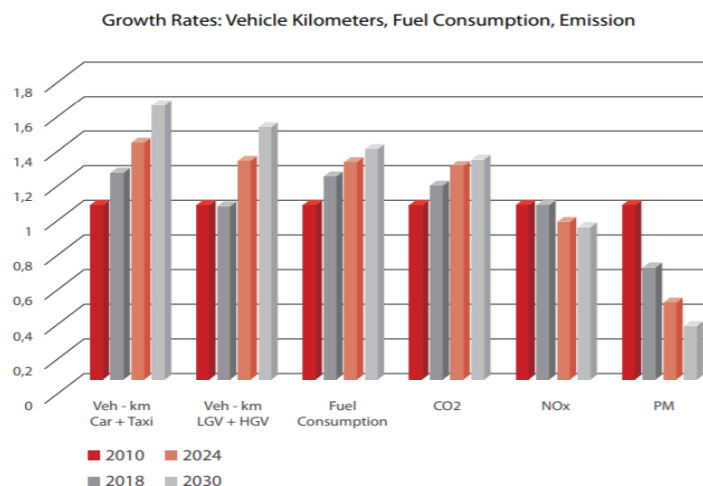
2.3.4 Environmental

Air pollution:

Performance measure: VOC, Car on CO and NO, emissions

Energy use:

Performance measure: Fuel consumption



Jordan Long Term National Transport Strategy and Action Plan | Drafting of the Strategy: main steps 68 Finally, the reduction of impacts of the transport sector related to the environment (pollutant emissions, greenhouse gasses, fuel consumption) is pursued by the Strategy, besides improving the competitiveness of alternatives to pure road, private transport, both for passengers and freight: incentives to renovate public and private fleets, through financial, regulatory and enforcement incentives and disincentives, and improving efficiency of the logistic and passengers transport chains (multimodal centers, facilities). As a consequence, while the vehicle kilometers in private transport increase by 56% (road freight transport by 44%) in the long term (2030), the fuel consumption only grows by approximately 30%, CO2 emissions show an increase by 26%, and NOx emission even decreases by 14% according to the transport model simulations [22].

3. Methodology of research:

The study used initially information from authorized Institutions, organizations, companies either from governmental side or private sector, the analytical descriptive style and methodology based on different references and previous academic studies that contrive from the following: -

- from published research.
- study via field questionnaire surveys, interviews, accurate observations.
- Secondary sources, periodicals, brochures, articles, regional, local and international similar studies

Conclusion, Remarks and recommendations

- -the behaviors, attitudes from the involved parties are randomly and unorganized.
- -individual traditions and habits which may contradict with legislations implementation.
- -several and random public transport stops,
- high density of passengers in the morning and evening,
- no public transit separated lanes.
- unplanned timing schedule for public transportation's vehicles
- -the slow movement of these vehicles due to lack of efficiency.
- all of these consider the main problems, while suggested solutions and recommendations can be summarized as mentioned below: -
- the future looking for serious and sustainable solutions that can be implemented easily
- -improving the infrastructure of public transportation to increase the effectiveness and the efficiency.
- -conducting new procedures and restricted legislations and rules for individuals and train the staff of the public transportation vehicles.
- -using modern intelligent techniques.
- -encourage and facilitate investments in all the different modes of transportations
- -serious and sustainable studies for the population growth and related topics.
- -making statistical periodicals survey to predict the future needs (establish data bank, short term and long term strategies with environmental support).
- -develop complain, suggestions and inquiries system and conduct regional workshops to discuss transport issues.
- -increasing the efficiency of infrastructure and public transportation will not happen unless we choose the best analyzing methods to reach the most appropriate, social, economic methodology with minimum risk.
- -establish and built modern, intelligent and smart systems to serve the infrastructure and the public transportation sector.

Acknowledgement

To each person made this possible starting with my family and ending with my colleagues, my doctors and my university.

References:

- [1] (United Kingdom Home Office Security. Counter Terrorism Strategy: Protecting the Critical National Infrastructure (www.security.homeoffice.gov.uk).
- [2] United States: Department of Homeland "National Infrastructure Protection Plan" (2006) (www.dhs.gov).

- [3] Haimes, Y.Y. 1992. Sustainable development: a holistic approach to natural resource management. *IEEE Transactions on Systems, Man, and Cybernetics*, 22(3): 413–417
- [4] Hellström, D., Jeppsson, U., and Kärrman, E. 2000. A framework for systems analysis of sustainable urban water management. *Environmental Impact Assessment Review*, 20: 311–321.
- [5] WBCSD. 2000. “Corporate Social Responsibility: Making Good Business Sense”. World Business Council for Sustainable Development.
- [6] IFRAS. 2004. “Sustainable Development in Switzerland: Methodological Foundations”. Swiss Agency for Development and Cooperation (SDC) and Federal Office for Spatial Development (ARE). www.are.admin.ch.
- [7] Mann, Samuel. 2009. “Visualizing Sustainability « Computing for Sustainability.”
- [8] <http://computingforsustainability.wordpress.com/2009/03/15/visualisingsustainability/>.
- [9] Black, W. R. Sustainable Transport: Definitions and Responses. *Integrating Sustainability into the Transportation Planning Process*, Conference Proceedings 37, Committee for the Conference on Introducing Sustainability into Surface Transportation Planning, July 11-13, 2004, Baltimore. Transportation Research Board, Washington, D.C., 2005, pp. 35-43.
- [10] AASHTO Center for Environmental Excellence. American Association of State Highway and Transportation Officials. http://environment.transportation.org/environmental_issues/sustainability/#bookmarksubGoalsforTransportation. Accessed February 2010.
- [11] European Conference of Ministers of Transport (ECMT). Assessment and Decision Making for Sustainable Transport. Organization of Economic Coordination and Development, 2004.
- [12] Jeon, C.M., Amekudzi, A.A. and Guensler, R.L., (2008). Sustainability Assessment at the Transportation Planning Level: Performances and Measures and Indexes. *Proceedings of the 2008 Transportation Research Board Annual Conference*. CD-ROM, January 13-17, 2008, Washington D.C.
- [13] Renne, J.L., (2009). Evaluating Transit—Oriented Development Using a Sustainability Framework: Lessons from Perth’s Network City. *Planning Sustainable Communities: Diversity of Approaches and Implementation Challenges*, University of Calgary, pp. 115-148.
- [14] Jeon, C.M., Amekudzi, A.A. and Guensler, R.L. (2010) Evaluating Plan Alternatives for Transportation System Sustainability: Atlanta Metropolitan Region. *International Journal of Sustainable Transportation*, 4, 227-247. <http://dx.doi.org/10.1080/15568310902940209>

- [15] Maoh, H. and Kanaroglou, P., (2009). A Tool for Evaluating Urban Sustainability via Integrated Transportation and Land Use Simulation Models. *Urban Environment*, No.3, pp.28-46.
- [16] Zietsman, J., Rilett, L.R. and Kim S-J., (2006). Transportation Corridor Decision-Making with Multi-Attribute Utility Theory. *International Journal Management and Decision Making*.7 (2/3), pp. 254-266.
- [17] Ngossaha, J.M., Ngouna, R.H., Archimède, B., Nlong, J.M. sustainability assessment of a transportation system under uncertainty: an integrated multi criteria approach FAC-Papers On Line, Volume 50, Issue 1, July 2017
- [18] Khadaroo, J., Seetanah, B. (2007), "Transport Infrastructure and Tourism Development", *Annals of Tourism Research*, Vol. 34, No. 4, pp. 1021-1032
- [19] GEARING, C.E. 1974 Establishing a measure of touristic attractiveness. *Journal of Travel Research* 12: 1-8.
- [20] Kim, S.-S., Crompton, J., & Botha, C. (2000). Responding to competition: A strategy for sun/lost city, South Africa. *Tourism Management*, 21(1), 33 – 41.
- [21] McElroy J, L (2003) Small Island Tourist Economies Across the Lifecycle, Paper prepared for the International Conference, Beyond MIRAB: The Political Economy of Small Islands in the 21st Century, School of Economics and Finance, Victoria University, Wellington, New Zealand, 23-25 February 2004
- [22] Alam, J., Habib, M., A., & Quigley, K. (2016). Critical infrastructure renewal: a framework for fuzzy logic based risk assessment and microscopic traffic simulation modeling. *Journal of Transportation Research Procedia*.
- [23] Jordan Long Term National Transport Strategy and Action Plan Jordan.
- [24] Directorate of Public Security, Jordan.
- [25] Annual Statistical Reports Central Traffic Department and Traffic Institute, Traffic Accidents, Indicators and Jordanian Results. Annual statistical reports for vehicles - Licensing of drivers and vehicles. Annual statistical reports issued by the Jordanian Department of Statistics.

Literature review: the impact of corporate social responsibility on firm performance

Le Ha Nhu Thao

The University of Danang, School of Information and Communication Technology, lhnthao@sict.udn.vn

Dr. Jolán Velencei

Óbuda University, Keleti Faculty of Business and Management, velencei.jolan@kgk.uni-obuda.hu

Abstract: In modern world, there much concerns on corporate social responsibility (CSR) toward sustainable development. The number of researches on CSR in recent years has been increasing and focusing on the conceptual framework and analysis CSR's effects in business. According to various researches, CSR has impact on business operation and become one of the most important objectives of enterprises. This issue attracts many researchers as well as managers and practitioners conducting study on finding the relationship between corporate social performance and firm performance. However, the answer to question "Is there the strong relationship for CSR and firm performance?" has been controversial. This obvious inner conflict in CSR outcomes welcomes a literature study that can clear up the open deliberation and take into consideration the reaching of determinations. The paper aims to present the definition of CSR based on stakeholder theory conceptual framework. CSR measurement is also indicated to clarify the analysis content as well as level of CSR. Furthermore, this research debates with literature review of analysing the relationship between CSR and firm performance. In these studies, CSR was independent variable; whereas, financial performance was dependent variable. Majority of researches showed positive relationship, while others exposed no relationship, or negative one.

1 Introduction

The increasing controversy on Corporate Social Responsibility (CSR) which is a matter concerned the modern economics phenomena has been pressurizing on enterprises in legal, social, moral, and financial aspects [1]. The government put more restrictions relating to social obligations by policies and laws [2]. Customer demands on sustainable and organic products are growing as a result of explicit

markets [3]. Before making decision, investors tend to consider corporate financial performance as well as their social responsibility [4]. These changes lead companies' concentration to broader orientation toward not only shareholders' wealth but also other stakeholder's requirement. Companies, thus, take into consideration corporate social performance [5].

The number of scholars related to CSR has been rising. According to Wang, one of top themes in CSR is conceptual review and link between corporate social performance and corporate financial performance [6]. However, the empirical results of these researchers are not homogeneous so it should pay attention to what can we use the debate and comprehension of these studies in deliberation the CSR concepts. This paper focuses on finding the answer to the question: Does corporate social performance impact on firm performance?

This study will present the conceptual framework for CSR consisting of the definition and measurement. The results of previous research on the link between CSR and firm performance are indicated in the next part. Finally, recommendation for future research will be discussed in the last part.

2 Corporate social responsibility

2.1 Conceptualization

A research on CSR has long time history. In the early of 1970s, Friedman's statement under shareholder theory indicated that managers concentrate on increasing shareholders' wealth and separates corporate and managerial responsibility. They pay much effort in conducting the business operation to get as much profit as possible [7].

By contrast, later research support the perspective of CSR concept in different perspective and theories as summarized in Table 1.

Viewpoint	Referential Author/ Organization	Domain
CSR pyramidal model	Carroll A. B. (1979)	Economic/ Legal/ Ethical/ Philanthropic
Sustainable development perspectives	UN World Commission on Environment and Development (1987)	Economic/ Environmental/ Social
Stakeholder management theory	Freeman (1984)	Shareholders/ Customers/ Employees/ Society/ Others

Table 1
The summary of CSR concept

First, the multidimensional approach proposed by Carroll has been widely supported in CSR concept. He defines CSR as all the “economic, legal, ethical and discretionary expectations that society put on organizations at a given point in time” [8].

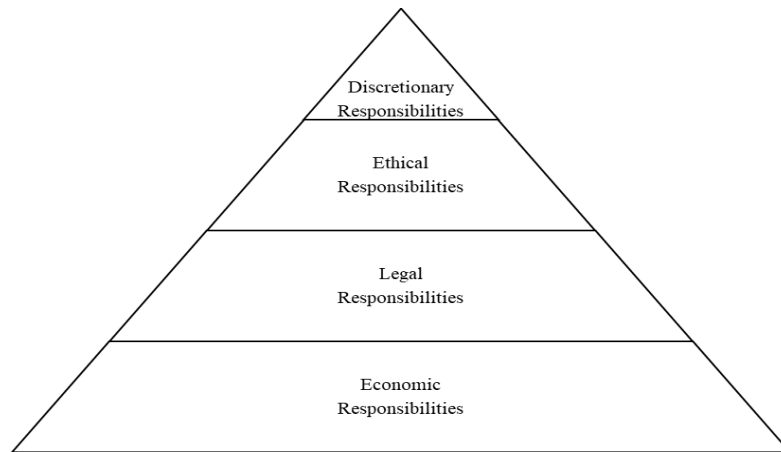


Figure 1
Categories proposed by Carroll (1979)

The expectations are stimulated in a dynamic model as seen in Figure 1. Responsibility in economic domain is required for the business that they have to ensure liabilities such as maximizing shareholders’ profit, increase competitive position or remaining firm performance at a high level. The legal liability dimension is notified as an obligation of obeying the law. The ethical category includes all legal enterprises’ activities that are expected by society. Philanthropic domain exposes series of charitable actions relating to environment reservation, voluntary donation or sponsorship to cultural activities [8].

A second the sustainable development is another method to understand CSR perspective in other categories. CSR is conceptualized as following dynamic and incorporated philosophy in which companies consider to balance economic benefit and environmental as well as social performance [9].

Finally, the third most common CSR perspective is proposed by stakeholder theory. Freeman argued in stakeholder theory that enterprises should concern on social responsibility to attain business legitimacy. The success of a business depends on the capability of managing its relationship with both internal and external key groups. It means that managers have not only paid attention to shareholders but also other stakeholders such as customers, employees, and communities [10].

2.2 Corporate social performance (CSP)

Corporate social responsibility is related to multidimensional inside and outside subjects, thus, it is impossible to measure. CSP is a way to transfer CSR into measurable variables. CSP is measured in the multidimension structure concerning social actions, behavior or processes, especially in the analysis of the effects of CSR on firm performance. According to Beurden, the measurement can be classified in three main methods as follows [2]:

CSP measured by Social Content Disclosure

The social activities which companies conducted are reflected in their announcement. CSP can be evaluated by content analysis on enterprises report disclosed to the public.

CSP measured by Social Actions

Social actions such as pollution control, voluntary or social program are considered as observable social outcomes. Questionnaires address to leaders or managers to assess social results.

CSP measured by Social Reputation Rating

Corporate reputation ratings carried out by outside organizations are assumed that good show of the corporate social performance. Some famous rating can be mentioned such as KLD, MSCI, ESG, Fortune, STATS, Moskowitz, and Business Ethics.

3 Firm performance in the relationship with corporate social performance

In the research on the link between corporate social performance and corporate financial performance (CFP), economic results are measured in different ways which are able to influence the findings. According to Beurden, firm performance is mentioned as two classifications consisting of accounting-based and market-based measurement [2].

Accounting-based measurement

Accounting-based measures comprise profitability, assets and equity utilization which reflects the financial internal efficiency of the organization. They are influenced by corporate social responsibility, especially, in the dimension such as customers, suppliers, or investors.

Market-based measurement

Market-based measures supply information for market participants to evaluate stock price and then market value of enterprises, as a consequence, predict the stock returns in the future. This is also predicted to be affected by corporate social performance. Stock performance, market return, market value to book value, or price per share are some market-based proxies.

Beurden debated that market-based measurement is better than accounting-based one to analyse the link between CSP and CFP as it isolated CSR activities. In addition, CFP based on market value is closer to shareholders' wealth [2]. On the other hand, Wu argued that market-based CFP resulted in the smaller association with CSP than accounting-based measurement [11]. He, thus, prefer to CFP measured by accounting proxies to figure out the relationship between CSP and CFP.

4 Review on the impact of CSP on CFP

The controversy over CSR, as mentioned in the introduction, has been rising the crucial question that "Is it worth being socially responsible in business operation?". One of the main concerns of the research is the direction of the relationship between social responsibility and firm performance, which is classified in the positive, negative and neutral relationship [12].

4.1 CSP has a positive effect on CFP

Regarding researchers who found the positive relationship between CSR and firm performance, CSR is a range of social actions to reach the corporates' target and wealth [13]. Empirical results proved that enhancing CSP will improve company economic benefits [14] as well as non-financial performance such as leading to a competitive advantage [15], boosting company reputation, and also substantially attaining firm strategy [16].

Companies with more socially responsible activities had stronger economic results in profitability, market value and non-financial performance. Findings in some scholars which measured CSR by conducting questionnaires on corporate social actions and assessed firm performance through accounting-based proxies proved that better social performance significantly relates to a stronger monetary performance [6,13,17]. In addition, the empirical results still convinced the significant relationship between CSP as evaluated by reputation rating and firm profitability [1, 18]. Other authors used content analysis in the report to assess CSR find out the same positive results of CSP – CFP relationship [18].

Performing obligations as a good corporate citizen, enterprises will be able to reach a better market achievement. Research analysed the interaction between different-measured CSR and market-based firm performance. While Balabanis follow reputation ranking to measure CSP; Klassen and McLaughlin choose questionnaires in analysing the link between CSP and CFP [19, 20].

Blasi et al. investigated the relationship between global environmental standards and market value as well as accounting-based measurements. They found the positive impact of CSR on firm performance. It means that the enhancement of corporate social responsibility brings benefit for financial performance [21].

Moreover, CSR not only affects the financial performance but also strongly correlates non-financial performance. Most of corporations obtain their CSR as a consequence of management mindset, which could benefit corporate reputation and boost the influence in marketing strategies, while positively relates to firm performance. In addition, Rettab also recognized that CSP has a significant relationship with financial performance, personal commitment, and corporate integrity [22]. Maqbool highlighted that improving CSR such as ameliorating working conditions and paying more attention to workers leads to better working efficiency [18]. Significant correlation occurs when alteration of CSP leads to short-term and long-term business strategy [16, 23]. Similarly, Judge and Douglas discovered that the extent of integration of environmental matters positively associates with building strategy and reaching the high firm's financial performance [24].

4.2 CSP has a negative effect on CFP

On the contrary, the studies argued that the only purpose of business is gaining as much as possible profit for shareholder on condition of obeying legal and ethical policy [7]. This debate is consistent with the Trade-off hypothesis as suggested by Preston and O'Bannon as well as proven by empirical research [12].

Brammer et al. presented the negative relationship between CSP and CFP using stock returns [25]. In the research of Wrana and Diez, global CSR has been found that it has a negative impact on productivity growth [26]. These findings advocate that non-economic pressures are able to affect corporate administrative tactics rather than value-added objectives.

4.3 CSP has no effect on CFP

There are some studies supporting the statement that the corporate economic performance was not modified whether the companies did socially responsible activities or not [27].

CSP has not influenced in the market performance of enterprises. Hamilton et al. showed that social responsibility elements have no effects on the expected stock return or companies' cost of capital [28]. The share value of stocks is not impacted by CSR disclosure even if corporates pay much effort on presenting more information about these issues. Socially screened equities have not remarkably linked to the unscreened equities in average return [29]. Benefits of investment in corporate social responsibility have no significant relationship in business strategies and market-based performance [9].

In addition, no evidence of the association between corporate philanthropy and the profitability of the firm [30]. The neutral relationship also found in the studies of Wuttichindanon [31].

5 Discussion

According to the findings of research in literature, the outcomes are not consensus. Majority of the included studies found a positive relationship between CSP and CFP. It means that most authors are in favor of the positive relationship between corporate social responsibility and firm performance, which was supported by stakeholder theorist [10]. However, it is hard to generalize the findings in the different period of time and the results must be placed in the proper perspective [2]. For instance, the concept of CSR nowadays is much more complicated as compared to the decade of 1970 when shareholder theory proposed by Friedman appeared [7]. Another reason is that the social action is not definitely conceived by law but it also depends on what society supposed [5]. We can not decide whether the companies react in a responsible way to get much profit or it is not clear to state that enterprises' benefit can increase for those act responsibly.

Furthermore, the measurement of CSP and CFP are varying in different studies. Regarding CSP measurement, the social reputation rating is used most widely in empirical research as compared to other two categories, especially in developed countries. It is believed that the CSR information evaluated by outside organization is objective and reliable. Nevertheless, the reputation ranking does not exist in most of developing countries so it causes some difficulties for research in those countries. For CFP measurement, the number of accounting-based research found positive CSP – CFP relationship is larger than market-based ones. In general, that is difficult to create a consistency in the field of CSP and CFP measurement, which restrain the generalizability of research results.

Conclusions

To sum up, the paper has introduced the widely supported definition of CSR, the measurement of corporate social performance and corporate financial performance in the CSP – CFP relationship. The empirical findings discussed in literature

review showed that the CSR's effect on firm performance is still debatable because of the contradictory results in the previous studies. The review has shown that the majority of research present the positive association between CSP and CFP. On the other hand, the analysis of the link between CSP – CFP has focused on financial performance and there are a few scholars mentioned in non-financial performance. Nevertheless, the firm performance should be considered in the overall picture of the mix between financial and non-financial performance. In addition, the number of research in developing countries is limited so it needs more research carried out in case of those nations in order to find out the more adequate results on the real impact of CSP on firm performance.

References

- [1] Waddock, S., Creating Corporate Accountability: Foundational Principles to Make Corporate Citizenship Real, *Journal of Business Ethics*, 2004. 50(4), pp. 313 – 327
- [2] Beurden, P., T. Gossling, The worth of value – A literature review on the relation between corporate social and financial performance, *Journal of Business Ethics*, 2008. (82), pp. 407 – 424
- [3] Gauthier, C., Measuring Corporate Social and Environmental Performance: The Extended Life-Cycle Assessment, *Journal of Business Ethics*, 2005. 59(1), pp. 199 – 206
- [4] Barnett, M. I. and R.M. Salomon, Beyond Dichotomy: The Curvilinear Relationship Between Social Responsibility and Financial Performance, *Strategic Management Journal*, 2006. 27(11), pp. 1101 – 1122
- [5] Go'ssling, T., The Price of Morality. An Analysis of Personality, Moral Behaviour, and Social Rules in Economic Terms', *Journal of Business Ethics*, 2003. 45(1–2), pp.121–131
- [6] Wang, D. H. M., Chen, P. H., Yu, T. H. K., Hsiao C. Y., The effects of corporate social responsibility on brand equity and firm performance, *Journal of Business Research*, 2015. (68), pp. 2232–2236
- [7] Friedman, M., The Social Responsibility of Business is to Increase Its Profits', *New York Times*, 1970, pp. 122–126
- [8] Carroll, A. B., A three-dimensional conceptual model of corporate performance, *The Academy of Management Review*, 1979. (184), pp. 560 – 577
- [9] Van de Velde, E., W. Vermeir and F. Corten, Finance and Accounting: Corporate Social Responsibility and Financial Performance, *Corporate Governance*, 2005. 5(3), pp. 129–137

- [10] Freeman, R. E., *Strategic Management: A stakeholder approach*, Boston, 1984
- [11] Wu, M., Corporate Social Performance, Corporate Financial Performance, and Firm Size: A Meta Analysis, *Journal of American Academy of Business*, 2006. 8(1), pp.163–171
- [12] Preston, L. E. and D. P. O'Bannon, The Corporate Social-Financial Performance Relationship: A Typology and Analysis, *Business and Society*, 1997. 36(4), pp. 419–429
- [13] Garriga, E. and D. Mele', Corporate Social Responsibility Theories: Mapping the Territory, *Journal of Business Ethics*, 2004. 53(1–2), pp. 51–71
- [14] Shen, C.H. and Y. Chang, Does Corporate Social Responsibility Improve Financial Performance? Evidence from FTSE4GOOD UK Index. *Acad. Econ. Papers*, 2008. 36 (3), pp. 341 – 385
- [15] Branco, M. and L.L. Rodrigues, Corporate Social Responsibility and Resource Based Perspectives, *Journal of Business Ethics*, 2006. 69(2), pp. 111 – 132
- [16] Ruf, B. M., K. Muralidhar, R. M. Brown, J. J. Janney and K. Paul, An Empirical Investigation of the Relationship Between Change in Corporate Social Performance and Financial Performance: A Stakeholder Theory Perspective, *Journal of Business Ethics*, 2001. 32(2), pp. 143–156
- [17] Moneva, J. M., J. M. Rivera-Lirio, and M.J Munoz-Torres, The Corporate Stakeholder Commitment and Social and Financial Performance, *Industrial Management & Data Systems*, 2007. 107 (1), pp. 84 – 102
- [18] Maqbool, S., M., N. Zameern, Corporate social responsibility and financial performance: An empirical analysis of Indian banks, *Future Business Journal*, 2018. (4), pp. 84–93
- [19] Balabanis, G., H. C. Philips and J. Lyall, Corporate Social Responsibility and Economic Performance in the Top British Companies: Are They Linked?, *European Business Review*, 1998. 98(1), pp. 25–42
- [20] Klassen, R. D. and C. P. McLaughlin, The Impact of Environmental Management on Firm Performance, *Management Science*, 1996. 42(8), pp. 1199–1214
- [21] Blasi, S., Caporinb, M., Fontini, F., A Multidimensional Analysis of the Relationship Between Corporate Social Responsibility and Firms' Economic Performance, *Ecological Economics*, 2018. (147), pp. 218–229

- [22] Rettab, B., A. Brik, and K. Mellahi, A Study of Management Perceptions of the Impact of Corporate Social Responsibility on Organizational Performance in Emerging Economies: The Case of Dubai, *Journal of Business Ethics*, 2009. 89 (3), pp. 371 – 390
- [23] Theodoulidis, B., Diaz, D., Crotto, F., Rancati, E., Exploring corporate social responsibility and financial performance through stakeholder theory in the tourism industries, *Tourism Management*, 2017. (62), pp. 173 – 188
- [24] Judge, W. Q. Jr. and T. J. Douglas, Performance Implications of Incorporating Natural Environmental Issues into the Strategic Planning Process: An Empirical Assessment, *Journal of Management Studies*, 1998. 35(2), pp. 241–262
- [25] Brammer, S., C. Brooks and S. Pavelin, Corporate Social Performance and Stock Returns UK Evidence from Disaggregate Measures, *Financial Management*, 2006. 35(3), pp. 97–116
- [26] Wrana, J., Diez, J., Multinational enterprises or the quality of regional institutions – What drivers the diffusion of global CSR certificates in a transition economy? Evidence from Vietnam, *Journal of Cleaner Production*, 2018. (186), pp. 168 – 179.
- [27] Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., Saeidi, S. A., How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction, *Journal of Business Research*, 2015. (68), pp. 341–350
- [28] Hamilton, S., H. Jo and M. Statman, Doing Well While Doing Good? The Investment Performance of Socially Responsible Mutual Funds, *Financial Analysts Journal*, 1993. (49), pp. 62–66
- [29] Guerard, J. B. Jr., Is There a Cost to Being Socially Responsible in Investing?, *Journal of Investing*, 1997. 6(2), pp. 11–18
- [30] Seifert, B., S. A. Morris and B. R. Bartkus, Having, Giving, and Getting: Slack Resources, Corporate Philanthropy, and Firm Financial Performance, *Business and Society*, 2004. 43(2), pp. 135–161
- [31] Wuttichindanon, S., Corporate social responsibility disclosure choices of report and its determinants: Empirical evidence from firms listed on the Stock Exchange of Thailand, 2017, *Kasetsart Journal of Social Sciences*, 2017. (38), pp. 156 – 162

Testing The Weak Form of Efficient Market Hypothesis on Stock Market: Comparison of Turkey and Hungary

Emre Esat Topaloğlu

Asst. Prof. Dr., Department of Accounting and Finance, Sirtak University,
Turkey, emresatopal@hotmail.com

Ilhan EGE

Assoc. Prof. Dr., Department of Business Administration, Mersin University,
Turkey, ilhanege2005@hotmail.com

Abstract: In the study, we aimed to test the weak form of efficient market hypothesis on stock market of turkey and hungary. In this context, the observations are monthly closing values of stock market indices for Turkey and Hungary. Observations are taken for the period October 2003 to January 2018. BIST100, BIST30, BISTservice, BISTfinancial and BISTindustrial indices from Turkey; Budapest SE, BUMIX, FTSE Hungary and HTX (HUF) indices from Hungary were investigated. Unit root tests were used to test the market efficiency in the study. Carrion, I.Silvestre et all. (2005) Multiple Break Test KPSS, Pesaran (2007) CADF and CIPS, Breuer vd. (2002) SUR ADF, Bai and Ng (2004) Panic and Hadri and Kurozumi (2012) HK Panel unit root tests under cross section dependence were selected for test of unit root. Results of the analyses, The Turkish and Hungarian stock market indeces (except for BUMIX according to KPSS test) appear to dont have a unit root (stationary structure) and we can conclude that the both countries stock markets are not a weakform efficient Keywords: Efficient Market Hypothesis, Stock Markets, Unit Root Tests.

1 Introduction

Business organizations understand the importance of stock markets in the economic growth of an country. The stock market is a place where long-term debt securities and securities are traded. It is a platform where business enterprises and governments can collect money against long-term investments of individuals. An important feature of the capital market is that securities prices reflect all available information and that new information quickly adjusts to prices and therefore

investors do not earn more than the use of such information (Nisar and Hanif, 2012: 414).

The Efficient Market Hypothesis is based on the assumption that stock prices are to absorb the most recent stream of information. For this reason, the current prices completely duplicate all available information. This theory does not seem to be able to perform extraordinary performance on the market by practicing any information already known on the stock exchange, and the exception is only a lucky element. In the Efficient Market Hypothesis, any news or information is defined as anything that is unknown in the present scenario and can affect the prices that appear randomly in the future perspective. In the study progresses in the following order. In the second part of the literature review, data and methodology, findings and discussions in the third section are presented in the fourth section and the results are presented in the fifth section.

2 Review of related literatures

The test of the weak form of the market efficiency hypothesis is involved with the foreseeability of historical prices or the returns. For This Reason to test the weak form of the market efficiency hypothesis, we need to look at whether there is a change in security prices or incentives with random walk behavior. There are some studies in charge of examining the validity of the weak form of EMF in countries' stock markets. Findings from some of these studies are explained below. In this context, in the study Conducted by Borges (2010), from January 1993 to December 2007 UK, France, Germany, Spain, Greece and Portugal report the results of weak market performance tests applied to stock market indexes. They found mixed evidence on the efficiency market hypothesis in the results of the study. The hypothesis was rejected because of the first degree positive autocorrelation in the returns, according to daily reports in Portugal and Greece. Furthermore, empirical tests showed that these two countries have been approaching martingale behavior after 2003. France and the UK rejected the efficient market hypothesis. Conducted by Lee et. Al (2010), in the period from January 1999 to May 2007, investigated whether the effective market hypothesis is in stock markets at different levels of economic development. They found that the actual stock price indices were consistent with the efficient market hypothesis. Kim et. Al (2011) aimed to predict and adaptive markets hypothesis from 1900 to 2009. In the results of study, they found that the predictability of returns is smaller than the normal duration of economic bubbles. They also found evidence that return predictability is related to stock market volatility and economic defaults. Nisar and Hanif (2012) aimed to examine the weak form of the efficient market hypothesis on the four major South Asian markets, including India, Pakistan, Bangladesh and Sri Lanka. The conclusion of the analysis, none of the four major

stock markets in south-Asia follows Random walk, and for this reason all of these markets were not the weakest form of productive market. Conducted by Kristouefek and Vosvrda (2013) offered a new measure for capital market efficiency. They found that the Japanese NIKKEI is the most efficient market. In addition, more efficient markets dominated by European stock indices and less efficient markets are predominantly covered by Latin America, Asia and Oceania. Dong et. Al (2013), 44 global financial markets index tested the efficient market hypothesis. They founded that it was a lasting influence on the current levels of historical information from global markets, and that it created this effect consistently in a cyclical order over decades. This finding can be interpreted as a violation of the efficient market hypothesis in weak form. In the study conducted by Hiremath and Kumari (2014), the question of whether the adaptive market hypothesis is better defined as India's emerging stock market behavior. They found that the Indian stock market was moving towards efficiency. Titan (2015) aimed to examine the basis of increasing experimental research on efficient market hypothesis. The conclusion of this article, he found that the tests for market efficiency are difficult and that the probability of developing a new theoretical model to take into account all the changes due to changes in market / economic conditions is high. Noda (2016) aimed to test of adaptive market hypothesis in Japanese stock markets. Also used a time-varying model approach to measure the degree of market efficiency. The empirical results showed that the degree of market efficiency changes over time in the two markets, the level of market efficiency of the TSE2 is lower than that of the TOPIX in most periods and the market efficiency of the TOPIX has evolved. Hamid et al. (2017) aimed to test weak market efficiency of stocks in Pakistan, India, Sri Lanka, China, Korea, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, Thailand, Taiwan, Japan and Australia from January 2004 to December 2009. In the results of study, they found that the monthly prices did not come follows random walks in all countries of the Asia-Pacific region

3 Data and methodology

In the study, it was examined the weak form of efficient market hypothesis on stock markets in Turkey and Hungary. In this context, the observations are monthly closing values of stock market indices for Turkey and Hungary. Observations are taken for the period October 2003 to January 2018. BIST100, BIST30, BISTservice, BISTfinancial and BISTindustrial indices from Turkey; Budapest SE, BUMIX, FTSE Hungary and HTX (HUF) indices from Hungary were investigated. Market returns are computed as follows.

$$R_t = \ln (P_t / P_{t-1}) \quad (1)$$

P_t = Market Price at time 't'

P_{t-1} = Market Price at time 't-1'

This empirical study of stock returns in Turkey and Hungary conducted to test the weak form of market efficiency. The Unit Root Tests are used to test the hypothesis that the stock market follows a random walk. In the time series of stock price changes in the indices, unit root tests are applied to test the unit root existence. Majorly It is often used to test the stability of time series.

3.1 Cross-sectional dependence

The literature of econometric theory has turned attention to testing and correcting cross-sectional dependence. From this point, in the first step of the econometric analysis, we examine the unit root properties of the data with advanced panel unit root tests. The first generation Panel unit root tests can cause fake results. if significant degrees of positive residual cross-section dependence exist and are ignored. In this context, the implementation of second-generation panel unit root tests is desirable only when it has been established that the panel is subject to a significant degree of residual cross-section dependence. Consequently, it is very important to provide some evidence of the residual cross-section dependency before choosing the appropriate panel unit root test. Pesaran, Ullah ve Yagamata (2008) LMadj test was used to check for crosssectional independence. If the time dimension is too large for the cross section size, this test can be used. Furthermore, this test removes the deviations in the LM test and the correlation of the Pesaran CD test are likely to be zero. The results from the cross-section dependence tests for Turkey and Hungary are reported in Table 1.

Table 1. Cross-Sectional Dependency Test Results for Fixed and Trended Models

Return	LMadj			
	<i>Turkey</i>		<i>Hungary</i>	
	Ist.	Prob.	Ist.	Prob.
	9.891	0.000	5.430	0.000
Null hypothesis is cross-sectional independence. Statistical significance indicated by * <0.001.				

The cross section dependency tests strongly suggest that the null hypothesis with no cross-sectional dependence is rejected at the 1% significance level. Therefore, we used second-generation panel unit root tests for testing market efficiency.

3.2 Unit root tests

Standard panel unit root tests Prior to applying the transformed series, a series of panel unit root tests allowing cross-sectional dependence have been proposed in the literature using orthogonalization-type procedures to asymptotically eliminate series cross-dependence. In this paper we used second-generation panel unit root tests; Carrion, I.Silvestre et al. (2005) Multiple Break Test, Pesaran (2007) CADF and CIPS, Breuer vd. (2002) SUR ADF, Bai and Ng (2004) Panic and Hadri and Kurozumi (2012) HK Panel unit root tests under cross section dependence.

4 Findings and discussion

The unit root tests are applied to check the stationarity as a necessary condition for Random walk. According to the random walk hypothesis, if the daily price series have a unit root, the return series must be stationary. For this purpose, Carrion, I.Silvestre et al. (2005) Multiple Break Test, Pesaran (2007) CADF and CIPS,

Breuer vd. (2002) SUR ADF, Bai and Ng (2004) Panic and Hadri and Kurozumi (2012) HK tests are used to test the stationarity of the time series. In this context, the data includes monthly closing values of stock market indexes for Turkey and Hungary. The data includes monthly observations from October 2003 to January

2018. We first employ the panel KPSS stationarity test with multiple breaks (Carrion-i-Silvestre et al., 2005). The null hypothesis is that there is panel stationarity. The panel KPSS test has many advantages. It allows for n structural breaks; it allows that the number of structural breaks are different between the indices and reports the results for the individual index. In addition to the stationarity test, this test allows the identification of five structural breaks dates in each series. The results for both countries are presented in Table 2.

Table 2. Results for the individual indices from the panel KPSS test

Turkey			
Index	Statistics	Critical Value	Structural Breaks
BIST100	0.078*	0.151	1- November 2006 2- February 2009 3- December 2011 4- January 2014
BIST30	0.077*	0.151	1- December 2006 2- February 2009 3- December 2011 4- January 2014
BISTSER	0.090*	0.148	July 2006 October 2008 December 2011 4- October 2015
BISTFIN	0.075*	0.148	1- December 2006 2- February 2009 3- December 2011 4- January 2014
BISTIND	0.056*	0.150	1- September 2006 2- November 2008 3- April 2011
			4- May 2013
Panel	0.369*	4.147	
Hungary			
BudapestSE	0.134*	0.150	1- November 2006 2- February 2009 3- September 2011 4- January 2015
BUMIX	0.253	0.147	1- November 2006 2- February 2009 3- December 2011 4- February 2014
FTSE Hungary	0.130*	0.150	1- September 2006 2- February 2009 3- September 2011 4- January 2015
HTX (HUF)	0.131*	0.150	1- January 2007 2- February 2009 3- September 2011 4- January 2015
Panel	4.520	3.561	
Notes: Bootstrap critical values are based on a Monte Carlo simulation with 5000 replications. All results presented for a model with an intercept and trend.			
*Denotes significance at the 5% level.			

Prior to results of the Carrion, I.Silvestre et all. (2005) Multiple Break Test, the null of hypothesis is rejected for the BIST100, BIST30, BISTSER, BISTFIN and

BISTIND at the 5 per cent level for Turkey's indices. When the test results are examined for hungary, the null of hypothesis is rejected for the BudapestSE, FTSE Hungary and HTX (HUF). On the other hand, the null of hypothesis is not only rejected for the BUMIX. For most of the series, break dates fall around five periods for both countries; 2006, 2009, 2011, 2014 and 2015. Consequently, that no one market except for BUMIX is weak form efficient and strongly rejects the null hypothesis. In other words, all indeces except for BUMIX are inefficiency.

The cross-sectionally augmented Dickey Fuller (CADF and CIPS) unit root test developed by Pesaran (2007) and CADF-CIPS tests produce accurate results in the presence of cross-sectional dependence. The null hypothesis is that there is no panel stationarity. Results from the second-generation tests, the CADF and the CIPS, are reported in Table 3.

Table 3. CADF and CIPS Results

Index	Lags	Intercept	Intercept and Trend
		CADF-t Sta.	CADF-t Sta.
BIST100	12	-11.647*	-11.636*
BIST30	12	-10.209*	-10.195*
BISTER	12	-10.916*	-10.952*
BISTFIN	12	-10.274*	-10.319*
BISTIND	12	-8.998*	-9.121*
Panel (CIPS)		-10.409*	-10.444*
BudapestSE	12	-7.711*	-7.753*
BUMIX	12	-7.396*	-7.437*
FTSEHungary	12	-8.174*	-8.196*
HTX(HUF)	12	-7.193*	-7.237*
Panel (CIPS)		-7.618*	-7.656*

Note 1: The max lag order considered is 12. Indicates lag order selected by the Schwarz information criterion.

Note 2: CADF, Intercept -3.22 (%5) (Pesaran 2007, table I(b), p:275); Intercept and Trend -3.69 (%5) (Pesaran 2007, table I(c), p:276). CIPS, Intercept -2.32 (%5) (Pesaran 2007, table II(b), p:280); Intercept and Trend -2.83 (%5) (Pesaran 2007, table II(c), p:281). **Note 3:** Denotes significance at the 5% level.

The results from the nonlinear unit root test in Table 3 indicate that, for series, the null hypothesis of the unit root can be rejected for the all indeces. The results show that the Turkish and Hungarian stock market indeces appear to dont have a unit root (stationary structure) and we can conclude that the both countries stock markets are not a weak form efficient. The SURADF test developed by Breuer vd. (2002) for the null hypothesis of stationarity in the panel, cross-sectional dependence in the form of a common factor in the disturbance. The SURADF unit root test results reported in Table 4 for both countries indeces.

Table 4. Breuer et all. (2002) SURADF Test Results

		Intercept				Intercept and Trend		
		Lags	SURADF t-stat	5%		Lags	SURADF t-stat	5%
BIST100	12	-21.4943*	3.5831	12	-21.7821*	-4.5518		
BIST30	12	-21.5634*	-4.0833	12	-21.8565*	-5.4195		
BISTSER	12	-16.8693*	-3.5604	12	-17.2132*	-4.5945		
BISTFIN	12	-20.5620*	-3.9519	12	-20.8740*	-5.1050		
BISTIND	12	-18.0755*	-4.0434	12	-18.2953*	-5.4336		
BudapestSE	12	-16.3848*	-3.7540	12	-16.4147*	-4.5890		
BUMIX	12	-10.1253*	-3.1594	12	-10.1831*	-3.8412		
FTSEHungary	12	-15.9626*	-3.3644	12	-15.9879*	-4.3430		
HTX(HUF)	12	-16.2193*	-3.1800	12	-16.2522*	-4.1183		

*The max lag order considered is 12. Indicates lag order selected by the Schwarz information criterion.
Bootstrap critical values are based on a Monte Carlo simulation with 1000 replication
ADF test was carried out including both intercept and trend.
* indicate rejection of the null hypothesis at 5% levels of significance, respectively.

Prior to results of the SURADF test, the null hypothesis of the unit root be rejected for the all indeces. The Turkish and Hungarian stock market indeces appear to dont have a unit root (stationary structure) and we can conclude that the both countries stock markets are not a weak form efficient.

Conclusions

The test of the weak form of the market efficiency hypothesis is involved with the foreseeability of historical prices or the returns. For this reason, the current prices completely duplicate all available information. In the Efficient Market Hypothesis, any news or information is defined as anything that is unknown in the present scenario and can affect the prices that appear randomly in the future perspective.

In the study, it was examined the weak form of efficient market hypothesis on stock markets in Turkey and Hungary. In this context, the observations are monthly closing values of stock market indices for Turkey and Hungary. Observations are taken for the period October 2003 to January 2018. The Unit

Root Tests are used to test the hypothesis that the stock market follows a random walk. we used second-generation panel unit root tests; Carrion, I. Silvestre et al. (2005) Multiple Break Test, Pesaran (2007) CADF and CIPS, Breuer vd. (2002) SUR ADF, Bai and Ng (2004) Panic and Hadri and Kurozumi (2012) HK Panel unit root tests under cross section dependence. Results of the analyses, The Turkish and Hungarian stock market indeces (except for BUMIX according to KPSS test) appear to not have a unit root (stationary structure) and we can conclude that the both countries stock markets are not a weakform efficient.

Investors need to consider that these markets are ineffective when investing in the capital markets of Turkey and Hungary. The study can be developed by comparing the capital markets of different countries and using different methods.

References

- [1] Bai, J. and Ng, S. (2004). A PANIC Attack on Unit Roots and Cointegration, *Econometrica*, 72 (4), 1127–1177.
- [2] Borges, M. R. (2010). Efficient Market Hypothesis in European Stock Markets, *The European Journal of Finance*, 16 (7), 711-726.
- [3] Breuer, J. B., McNown, R. and Wallace, M. S. (2002). Series-Specific Unit Root Tests With Panel Data, *Oxford Bulletin of Economics and Statistics*, 64, 527-546.
- [4] Carrion Silvestre, J. L., Barrio-Castro, T. D. and L'opez-Bazo, E. (2005). Breaking The Panels: An Application to The GDP Per Capita, *Econometrics Journal*, 8, 159–175.
- [5] Dong, H., Bowers, H. M. and Latham, W. R. (2013). Evidence on the Efficient
- [6] Market Hypothesis from 44 Global Financial Market Indexes, *Economics Research International*, (2013), 1-12.
- [7] Hadri, K. and Kurozumi, E. (2012). A Simple Panel Stationarity Test in The Presence of Serial Correlation and A Common Factor, *Economics Letters*, 115 (1), 31-34.
- [8] Hamid, K., Suleman, M. T., Shah, Z. S. A. and Akash, R. S. I. (2010). Testing the
- [9] Weak form of Efficient Market Hypothesis: Empirical Evidence from Asia-Pacific Markets, *International Research Journal of Finance and Economics*, 58, 121-133.
- [10] Hiremath, G. S. and Kumari, J. (2014). Stock Returns Predictability and The Adaptive Market Hypothesis in Emerging Markets: Evidence From India, Hiremath and Kumari, *Springer Plus*, 3 (42), 1-14.

- [11] Kim, J. H., Shamsuddin, A. And Lim, K. P. (2011). Stock Return Predictability and The Adaptive Markets Hypothesis: Evidence From Century-Long U.S. Data, *Journal of Empirical Finance*, 18 (5), 868-879.
- [12] Kristoufek, L. and Vosvrda, M. (2013). Measuring Capital Market Efficiency: Global and Local Correlations Structure, *Physica A: Statistical Mechanics and its Applications*, 392 (1), 184-193.
- [13] Lee, C. C., Lee, J. D. and Lee, C. C. (2010). Stock Prices and The Efficient Market Hypothesis: Evidence From A Panel Stationary Test With Structural Breaks, *Japan and the World Economy*, 22 (1), 49-58.
- [14] Noda, A. (2016). A Test of The Adaptive Market Hypothesis Using A TimeVarying AR Model In Japan, *Finance Research Letters*, 17, 66-71.
- [15] Pesaran, M. H. and Yamagata, T. (2008). Testing Slope Homogeneity in Large Panels. *Journal Of Econometrics*, 142, 50–93.
- [16] Pesaran, M. H. (2007). A Simple Panel Unit Root Test in The Presence of Cross
- [17] Section Dependence. *Journal of Applied Econometrics*, 22 (2), 265–[18] 312.
- [19] Țițan, A. G. (2015). The Efficient Market Hypothesis: Review of Specialized Literature and Empirical Research, *Procedia Economics and Finance*, 32, 442449.

The impact of ownership structure on bank risk taking – theoretical outlook

Vo Hoang Diem Trinh,

University of Danang, The University of Economics, Vietnam

trinhvhhd@due.edu.vn, trindhdiem79@gmail.com

Prof. Dr. Takács-György, Katalin,

Óbuda University, Keleti Faculty

takacsnegyorgy.katalin@kgk.uni-obuda.hu

Abstracts: Ownership structure plays a more relevant role in determining corporate governance because it influences the motivation of executives and hence firms' effectiveness. This paper focuses on the main theories of the relationship between ownership structure and bank risk taking. Moreover, this paper summaries the literature review on impact of ownership structure on bank risk taking, generally in the world and particularly in Vietnam. Based on the systematization of the theoretical and empirical studies related to the impact of ownership structure on bank risk taking, the paper will help researchers, policy makers and bank managers understanding this relationship more clearly. And from the understanding, they can change or re-structure bank ownership effectively to limit the risks in Vietnamese banking system.

1 Introduction

Globalization and free trade is an indispensable trend that has created significant changes in all economic sectors of almost all countries around the world and Vietnam is not an exception. In the process, Vietnam has integrated more closely, has made extremely significant changes in many fields, and gradually removing the barriers to the domestic market. As a consequence, the financial market as well as the others markets are challenged by integration.

The Vietnamese banking system has experienced major changes since the 1990s and has obtained certain achievements. The number, scale, quality and ownership structure of banks have great changes, notably the degree of privatization of the banking sector and the appearance of foreign banks. This has created favorable

conditions for the banking system to enter the period of international economic integration following the modern tendency.

However, the operation of the banking system has had still obstacles; especially the bad debt ratio is still relatively high. The system still has high probability of default, especially for small-sized-banks with weak operation and low profitability. One of the potential causes of this turbulent situation relates to the widespread cross-ownership of banks and the effects of different patterns of ownership, according to experts in the banking sector.

The empirical evidence on relationship between ownership and bank risk taking are documented with different approaches around the world. To date, however, the potentially important relationship between ownership and risk bank taking has not been studied comprehensively in the context of Vietnamese commercial banks. Meanwhile, Vietnamese commercial banks' ownership structure is rather diversified and has changed dramatically in recent years. In order to create the scientific basis for investigating the effect of ownership structure on the risk of Vietnamese commercial banks, systematizing the theoretical study, nationally and internationally empirical evidence on ownership structure, risks faced by commercial banks as well as the impact of ownership structure on bank risk taking is essential.

The aim of the paper is introducing the main theories of the relationship between ownership structure and bank risk taking. In addition, the paper summarizing the literature review on impact of ownership structure on bank risk taking, generally in the world and particularly in Vietnam. Based on the systematization of the theoretical and empirical studies related to the impact of ownership structure on bank risk taking the paper will discuss about the results and help policy makers and bank managers understanding the relationship between ownership structure and bank risk taking.

2 Material and methods

2.1 Material

Materials used in the research are secondary data sources, papers around the worlds and Vietnam. For international papers usually through electronic databases, such as sciencedirect.com, onlinelibrary.wiley.com, springer.com, papers.ssrn.com ...

Database for testing the impact of ownership structure on bank risk taking in Vietnamese commercial banks are collected from financial statements of 39 commercial banks that operated in the Vietnam banking industry during the years

2007-2015. The raw data are provided by Stoxplus, a company focusing on gathering and analysing financial data in Vietnam. Moreover, due to lack of some information, we also found some bank's financial statements to implement and check the data from the Stoxplus.

2.2 Methods

To test the relationship between ownership structure and Vietnamese bank risk taking, the Stata software is applied in this study. Descriptive statistics are used to describe the basic features of the data in this study. They provide simple summaries about the sample and the measures and assist in exploring the data and identifying any potential data errors. The clear scenes from descriptive statistics will somehow provide the probable answers to the results of regression analysis (Jiang, 2007). In addition, multiple regression analysis on the panel data is conducted to investigate the degree and direction of the variables' relationships.

Especially, the paper has applied an outlier rule to the variables which allows to drop some variables that are either not available or contain extreme values for certain indicators. Outlier detection is very important in many fields of study, since an outlier indicates the bad behavior of the dataset (Alwadi, 2015). The variables are winsorized at the 1st and 99th percentiles to eliminate outliers so they are closer to within the normal distribution curve. Furthermore, the multivariate panel regression analysis framework based on the Ordinary Least Square (OLS), the Fixed Effect (FE), the Random Effect (RE) models adopted to examine the determinants of banks profitability. Then some tests are conducted to approach the panel data modelling and choose which model is better.

Generalized method of moments (GMM) model is performed in order to validate the results and fix some disadvantages of FE model. The study uses a two-step GMM panel estimator with heteroskedasticity-robust standard errors introduced by Hansen (1982). Baum, Schaffer, & Stillman (2003) suggest that GMM makes use of the orthogonality conditions to produce consistent and efficient estimates in the presence of heteroskedasticity. Two-step GMM results in more asymptotic efficient estimates than one step.

3 Literature review

3.1 Theories on the relationship between ownership and bank risk taking

Studies on the impact of ownership structure on the bank's performance and risk taking are based on two main theories: Agency Cost, Public Choice Theory

3.1.1 The agency cost

The agency cost occurs when there is a lack of agreement between the manager's purposes and the aims of the firm owners. The representative is the owner of the company, because the owner tends to be less able to monitor regularly, resulting in asymmetric informative status, thereby causing adverse selection and moral hazard.

One of the earliest studies of agency cost is the study by Jensen & Meckling (1976). In this study, the agency cost is defined as the sum of costs including controlling costs, negotiation costs and loss of interest. In detail, the controlling cost is paid to the controllers to alert shareholders when the management makes profit for themselves. The cost of contracting aims to prevent bad consequences that may arise from dishonest actions by executives. Benefit losses are the losses that occur due to the difference between the actual decisions of the executives and the decisions to maximize the benefits to the shareholders.

Another theoretical study on the agency cost and ownership structure was made by Fama & Jensen (1983). This study concludes that in a company there is a separation between ownership and control, or in other words, the true owner of the company does not participate in the management of the company. The agency cost will appear due to information asymmetry between the manager and the shareholders... Managers have more information about the company's situation and they will use the management right to profit themselves. In addition, there are many empirical studies exploring the effects of ownership levels of institutional investors on the agency cost.

Brickley, Lease, & Smith (1988); Agrawal, A., & Mandelker (1990) argues that because individual characteristics are compared to individual shareholders, institutional investors are fully capable and motivated to act as controllers in the company, thus reducing the cost of representation. Agency theory also assumes that the first source of conflict between managers and shareholders comes from their perceptions of risk. According to Jensen & Meckling (1976), shareholders with diversified portfolios seem to accept more risk for higher expected returns, but the managers do not prefer risks in order to ensure safety in their own benefit

and position. Moreover, controlling shareholders enjoy significant benefits; they have many incentives to monitor managers, to gather information and thus increase the company's profitability by implementing risky projects Shleifer & Vishny (1986).

3.1.2 Public choice theory

According to James Madison (1788), "In shaping a man-made government, the greatest difficulty bases on, in first and foremost, ensuring that the government controls those who are governed; and next, must ensure that the government is in control of itself." Public choice is a process in which the will of individuals is combined in a collective decision.

The theory of public choice believes that private companies are better performing than state firms in the view of government functions. According to this theory, because the perfect effect does not exist in the political environment, it is difficult for government officials to act for the benefits of social members (Vickers & Yarrow, 1989). In an inefficient political environment, government officials and lawmakers tend to seek to maximize their benefits.

State-run managers often focus more on how to maximize their power and prestige while government officials are more interested in political goals such as supporting rates rather than the companies' economic efficiency. Vining & Boardman (1992) found that, in western countries, the performance of state firms improved significantly after privatization, so they believed that state-owned companies' risk is higher than that of non-state-owned companies.

Shapiro & Willig, (1990) believed that managers in state-owned firms can pursue both social welfare and personal gain or any goals when the political environment is imperfect. The more politically the environment is, the more likely it is for state employees to pursue personal benefits. Shleifer et al (1996) also recognized that governmental behavior often occur in state agencies. Government officials who have control over state-owned companies can gain more benefits than performing government-mandated tasks. In short, public choice theory studies the behavior of decisions made by politicians based on assumptions about self-interest, maximizing utility, and thereby identifying the purpose of politicians that they are not necessarily maximizing profits, but rather maximizing personal and political utility, which makes state banks less efficient and riskier than private banks.

In sum, these theories show the relationship between the ownership structure and the bank's risk. It is noteworthy that both of these theories emphasize public sector tend to present lower performance and higher risk than private companies.

3.2 International literature review

Risk in banking business is a constant concern for policy makers as a stable banking system is a prerequisite to ensuring the stability of the financial system and generally, the stability of the whole economic system. Major risks in commercial banking system can lead to financial crisis and financial system collapse. According to the agency theory, risk is largely influenced by ownership structure. In fact, controlling shareholders have the incentive and power to influence the company's decision in order to maximize benefits by increasing the risk Shleifer & Vishny (1986) and they can offset losses by multiplying diversify the portfolio.

Agency theory assumes that the first source of conflict between managers and shareholders comes from their perceptions of risk. According to Jensen & Meckling (1976) shareholders with diversified portfolios seem to accept more risk for higher expected returns, but managers do not like risks to ensure safety in the market position and personal interests. Moreover, controlling shareholders enjoy significant benefits; they have many incentives to monitor managers, to collect information Shleifer & Vishny (1986) and thus increase the company's profitability by implementing risky projects.

The research by Saunders, Strock, & Travlos, (1990) is the first study to examine the impact of ownership structures on the risk of US commercial banks. This study investigates the relationship between ownership structure and risk. The research indicated that banks are controlled by shareholders perform more risky behaviors than banks controlled by managers during the period 1979-1982 involving the process of decentralization (also known as non-management). After a study by Saunders et al. (1990), there is a series of studies examined the effect of ownership structure on risk.

Fraser & Zardkoohi (1996) used data from the savings and loan industry between 1976 and 1986 to examine two risk-related hypotheses. The ownership structure hypothesis holds the view that the activities of stock associations are more risky than the mutual associations, and the deregulation hypothesis denotes that savings and lending regimes are more risky in an unregulated environment.

Anderson & Fraser (2000) used the data of 150 commercial banks listed in industrial countries from 1987 to 1994 to provide evidence that ownership of managers was a significant factor in the commercial banks risk taking. Ownership of managers is correlated with the general risk and specific risk of commercial banks in the late 1980s when commercial banks are less regulated by regulations and in case of the banking sector is in financial crisis. However, the provisions of the law of 1989 and 1991 aimed to reduce the risk as well as bring significant improvements in the brand value of the banks, the manager's ownership is inversely correlated with the the general risk and specific risk of commercial

banks in the early 1990s. In contrast, systemic risk did not relate to the ownership of managers in both periods.

Iannotta, Nocera, & Sironi (2007) used a database of 181 banks in 15 European countries for the period 1999-2004 to study the relationship between ownership and profitability as well as risk of European commercial banks. The study uses a measure of ownership concentration that represents different ownership structures and divides banks into four types of ownership: state-owned banks, private-owned banks, mutual banks and savings banks. Based on the empirical results of the study, the authors draw some conclusions. Firstly, state-owned commercial banks have lower credit quality and higher default risk than other types of banks. Second, public banks have better loan quality and lower bankruptcy risk than other banks. Third, while the concentrated ownership structure does not affect the profitability of commercial banks, the highly concentrated ownership structure correlates with better credit quality, asset risk and default risk.

Garcia-Marco & Robles-Fernandez (2008) analyzed data from 1993-2000 of 127 financial institutions including 50 savings banks and the rest were commercial banks. The authors analyze the factors that influence the risk of Spanish financial intermediaries, with particular emphasis on the ownership structure and the size of the different units. In addition, the separate legal system of Spanish savings banks may lead to risky behavior different from commercial banks. In particular, they can invest in high-risk projects. However, other theories suggest that commercial banks controlled by major shareholders may face greater risks in certain situations. In this study, the authors tested these hypotheses using the active table data model (1993-2000) for commercial banks and Spanish savings banks. The study examined whether the difference in risk behavior was related to different ownership structures or related to other factors such as the size of the organizations. In general, small-scale institutions appear to be at lower risk. As the size and ownership structure variables interact in the model, Spanish medium-sized commercial banks appear to have a higher level of risk. The empirical results of this study also show that the high concentration of shareholders has a negative impact on risk.

Shehzad, de Haan, & Scholtens (2010) examined the impact of concentrated ownership on two of the bank's risk indices, the bank's NPL and capital adequacy ratios⁴⁹. The authors used information based on the balance sheet of 500 commercial banks from more than 50 countries for the period 2005-2007. They found that concentrated ownership leads to decrease significantly bank's NPL ratio, supervisory conditions, and shareholders' benefits. In addition, the concentration of owners affects the minimum capital adequacy ratio (CAR) based

⁴⁹ Non-performing loans (NPL): The ratio of non-performing loans to total loans to measure a bank's loan quality
Capital Adequacy Ratio (CAR): The ratio of a bank's capital to its risk

on shareholder protection. When the right to protect shareholders and supervisory control is low, concentrated ownership reduces the bank's risk.

The mixed results of the relationship between ownership structure and risk take into account the characteristics of shareholders. In fact, risky behavior depends on the shareholder's portfolio and their goals. Acceptance of risk will be clearer when controlling shareholders have the opportunity to diversify their portfolio and vice versa. Accordingly, empirical studies have examined some types of owners.

Barry et al. (2011) analyzed the data of 249 European commercial banks for the period 1999-2005 to examine the relationship between the ownership structure and the risk of private and publicly held commercial banks. They found that the ownership structure plays vital role in explaining the difference in risk mainly in private banks. Higher ownership ratio of individuals/ families or banking institutions is associated with a reduction in asset risk and default risk. In addition, institutional investors and non-financial companies take advantage of the highest risk strategies when they hold multiple shares. For public banks, changes in ownership structure do not affect risk. Market forces seem to fit the behavior of public banks, so the ownership structure is no longer a decisive factor in explaining the difference in risk. However, high levels of ownership of banking institutions in public banks are correlated with lower credit risk and default risk.

Chun et al. (2011) analyzed the effect of managerial ownership on risk-taking behaviors of Korean and Japanese banks during the late 1990s to early years 2000. Research illustrated that the ownership of managers does not affect the level of risk or profitability of Korean banks. Conversely, the increase in ownership of managers will increase the risk for Japanese banks. However, this does not bring higher profits for Japanese commercial banks. The study also shows that increasing the ownership ratio of managers in well-known commercial banks will not encourage risk-taking behavior. Their result confirms the role of brand value for risk-taking behaviors of banks which is consistent with previous studies that support the hypothesis of moral hazard based on data on the economies of the United States and other countries.

Mohsni & Otchere (2014) used a sample of 242 private commercial banks in 42 countries between 1988 and 2007 to analyze risk-taking behaviors of private commercial banks before and after privatization. This empirical study has shown that the risk of private banks is significantly reduced after privatization; however, these banks still have higher risks than other types of banks. This finding is in line with the assertion that after the privatization and elimination of government guarantees and grants, privatized banks became more cautious. Since other types of banks do not have a significant change in risk tolerance, the authors argue that the risk reduction of private banks is due to changes in the ownership structure of banks rather than industry factors. It can be seen that the higher proportion of private equity, which exceeds the average, pose a higher risk because private banks become more accountable to shareholders. The results show that there is a

nonlinear relationship between state/private ownership of banks and risk. The results of further analysis are consistent with the U-shaped nonlinear relationship between private ownership and risk.

Zhu & Yang (2016) focuses on whether public ownership influences the commercial bank risk-taking. By using unbalance data on 123 Chinese commercial banks from 2002 to 2013, the authors found that the share of state ownership was generally correlated with the high level of risk. In addition, the study also found that commercial banks controlled by the central government had the highest credit risk, while commercial banks controlled by local governments had the lowest capital adequacy and liquidity ratios. The study also shows that foreign investors' acquisition has the effect of reducing the risk of state-owned commercial banks, and this effect is particularly important for central government-owned banks or local-owned banks. The authors also found that the risk-reduction effect depends on foreign ownership, participation in the business of foreign investors and the number of foreign members in the board of directors of commercial banks.

Zheng, Moudud-Ul-Huq, Rahman, & Ashraf (2017) applied the two-stage least square estimator (2SLS) to examine the two-way relationship between bank capital regulation and adopting risk behavior related to the impact of ownership structure. The authors used the statistical data of 32 commercial banks from a developing country, Bangladesh, from 2006 to 2014. The empirical findings of this study suggest that higher capital regulation increases the stability of banks, against credit risk, but higher credit risk often reduces the capital ratio. This study shows that different ownership structure has different effects on risk, such as private banks and Islamic banks are less risky and more stable than state-owned banks and other banks. This result is similar to the results of Srairi (2013). However, these banks are prone to high liquidity risk. On the other hand, banks with low levels of concentrated ownership tend to accept low risk and vice versa, banks with high concentration of ownership improve the bank's capital ratio.

Thus, through the overview of researches can be seen that there are not many authors concentrate deeply on the impact of ownership structure on the risk of commercial banks. These results above show converse opinions, and each study focuses on the different disaggregation of ownership structure.

3.3 The literature review in Viet Nam

Until now, the impact of ownership structure on risk of commercial banks has been concentrated in some countries in Europe, China, South Korea and some developing countries like Bangladesh. However, there is no study on this issue in Vietnam, except the study by Võ Xuân Vinh & Mai Xuân Đức (2017) on the influence of foreign ownership. Therefore, in this section, we will synthesize a number of research analyzes on risk of commercial banks as a basis for selecting

dependent variables representing the risk types of commercial banks and specific control variables of commercial banks.

Nguyễn Thị Tuyết Nga (2016) used data from audited financial reports published on the website of 22 commercial banks in Vietnam and data collected from the World Bank's website over the period 2008-2015 to assess the impact of equity on credit risk at Vietnamese commercial banks. The research shows that when the rate of equity increases, the credit risk decreases. As a certain level, the bank is ineffective operation, thus loosening lending, causing credit risk to increase. Thus, this research only stopped at the conclusion that equity has an impact on credit risk, and has not studied deeply the impact of each type of ownership on the risk of commercial banks, as well as not yet studied in other types of risks such as bankruptcy risk, liquidity risk.

Man Duy Pham (2016) studied the relationship between size and risk of Vietnamese commercial banks, taking into account the impact of state ownership on scale efficiency based on theories in the banking field and empirical research. The author used the econometric model on the unbalanced sample of 30 Vietnamese commercial banks for the period 2006 – 2015 by using Z-score to measuring risk following Boyd et al. (1993). The results of the study indicated that bank size positively correlated with the bank's risk. In terms of ownership structure, there is no empirical evidence of the correlation between state ownership, bank size and bank risk, while foreign ownership is negatively correlated with the level of risk.

Vo Xuan Vinh and Mai Xuan Duc (2017) studied the influence of foreign ownership on the liquidity risk of Vietnamese commercial banks in the period 2009-2015. The author used two regression methods for panel data: fixed-effects regression model (FEM) and random-effects regression model (REM) with sample data including 35 commercial banks in Vietnam. The results show that the higher the foreign ownership, the lower the liquidity risk of commercial banks and vice versa. In addition, credit risk and liquidity risk in the previous year are in line with liquidity risk of commercial banks in the current year. The results of the study have important implications for providing additional empirical evidence to prove the role of foreign shareholders in managing liquidity risk and other activities in Vietnamese commercial banks.

4 Discussion

In conclusion, through the overview of researches can be seen that there are not many authors concentrate deeply on the impact of ownership structure on the risk of commercial banks. These results above show converse opinions, and each study focuses on the different disaggregation of ownership structure. Saunders et al.

(1990), Anderson and Fraser (2000) and Chun et al. (2011) focused on the impact of ownership on risk managers, but the results are not entirely consistent. According to Saunders (1990), commercial banks were controlled by shareholders who performed higher risk behaviors than commercial banks controlled by managers during the period 1979-1982. Meanwhile, Anderson and Fraser (2000) showed that ownership of managers is correlated with the general risk and specific risk of commercial banks in the late 1980s. However, in the early 1990s, the ownership of managers was negatively correlated with the general risk and specific risk of commercial banks. According to the results of Chun et al. (2011), managerial ownership does not affect the risk of Korean commercial banks, but the increase in managerial ownership will increase the risk for Japanese commercial banks. Garcia-Marco & Robles-Fernandez (2008), Shehzad et al. (2010), Haw et al. (2010), Zheng et al. (2017) mainly focused on the impact of concentrated ownership on bank risk taking. Although these studies performed in different countries at different timescales, it provided quite consistent results for the relationship between concentrated ownership and risk; the higher in concentrated ownership, the higher the risk.

In Vietnam, there are a few official studies that clarify the impact of the ownership structure on the risk of commercial banks. Therefore, the understanding of the relationship between the ownership structure and bank risk taking in the countries of the world and the mechanism of the impact of the ownership structure on bank risk taking should be considered and investigated carefully. Especially, when the ownership structure of Vietnamese banks is changing rapidly and after the financial crisis, the Vietnamese banking system is still facing many risks.

The sustainable development of Vietnamese banking system in line with international standards is driven by the progress of international integration. In this period, banks have continually increased chartered capital to compete more fiercely with the aim of taking market share. However, Vietnamese commercial banks also confront certain obstacles. One of them is competitiveness among Vietnamese commercial and foreign banks. More specially, Vietnamese banking system has been influenced significantly by the recent financial crisis and economic recession that one of the most prominent feature is that NPLs increase dramatically while the risk management system is not sufficient to control loss-given-default for the small banks. In contrast, the large banks have taken advantage of extra income from debt loans. In other words, they trade-off between risk-taking and income.

Understanding the impact of ownership structures on bank risk taking will help policy makers and bank managers to change or re-structure bank ownership effectively to limit the risks in Vietnamese banking system.

References

- [1] Agrawal, A., & Mandelker, G. (1990). Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments. *The Journal of Financial and Quantitative Analysis*, 25(2), 143–161.

<https://doi.org/10.2307/2330821>

- [2] Alwadi, S. (2015). Existing Outlier Values in Financial Data Via Wavelet Transform. *European Scientific Journal*, 11(22), 245–254.
- [3] Anderson, R. C., & Fraser, D. R. (2000). Corporate control, bank risk taking, and the health of the banking industry. *Journal of Banking & Finance*, 24(8), 1383–1398. [https://doi.org/10.1016/S0378-4266\(99\)00088-6](https://doi.org/10.1016/S0378-4266(99)00088-6)
- [4] Barry, T. A., Lepetit, L., & Tarazi, A. (2011). Ownership structure and risk in publicly held and privately owned banks. *Journal of Banking and Finance*, 35(5), 1327–1340. <https://doi.org/10.1016/j.jbankfin.2010.10.004>
- [5] Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *Stata Journal*, 3(1), 1–31. <https://doi.org/10.1002/gepi.21758>
- [6] Brickley, J. A., Lease, R. C., & Smith, C. W. (1988). Ownership structure and voting on antitakeover amendments. *Journal of Financial Economics*, 20(C), 267–291. [https://doi.org/10.1016/0304-405X\(88\)90047-5](https://doi.org/10.1016/0304-405X(88)90047-5)
- [7] Chun, S. E., Nagano, M., & Lee, M. H. (2011). Ownership Structure and Risk-taking Behavior: Evidence from Banks in Korea and Japan. *Asian Economic Journal*, 25(2), 151–175. <https://doi.org/10.1111/j.1467-8381.2011.02056.x>
- [8] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control SEPARATION OF OWNERSHIP A N D CONTROL *. *Journal of Law and Economics*, 26(2), 301–325.
- [9] Fraser, D. R., & Zardkoohi, A. (1996). Ownership structure, deregulation, and risk in the savings and loan industry. *Journal of Business Research*, 37(1), 63–69. [https://doi.org/10.1016/0148-2963\(96\)00027-6](https://doi.org/10.1016/0148-2963(96)00027-6)
- [10] Garcia-Marco, T., & Robles-Fernndez, M. D. (2008). Risk-taking behaviour and ownership in the banking industry: The Spanish evidence. *Journal of Economics and Business*, 60(4), 332–354. <https://doi.org/10.1016/j.jeconbus.2007.04.008>
- [11] Hansen, L. P. (1982). Large Sample Properties of Generalized Method of Moments. *The Econometric Society Stable*, 50(4), 1029–1054.
- [12] Iannotta, G., Nocera, G., & Sironi, A. (2007). Ownership structure, risk and performance in the European banking industry. *Journal of Banking & Finance*, 31(7), 2127–2149. <https://doi.org/10.1016/j.jbankfin.2006.07.013>
- [13] Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/http://dx.doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/http://dx.doi.org/10.1016/0304-405X(76)90026-X)
- [14] Jiang, J. (2007). A Study on the Relationship between Foreign Ownership and the Performance of Chinese Listed Companies. Bangkok: Bangkok

University.

- [15] Man Duy Pham. (2016). *SIZE , OWNERSHIP STRUCTURE AND RISK-TAKING BEHAVIOR : An Empirical Study of Vietnamese Commercial Banks*. <https://doi.org/10.2139/ssrn.2864261>
- [16] Mohsni, S., & Otchere, I. (2014). Risk taking behavior of privatized banks. *Journal of Corporate Finance*, 29, 122–142. <https://doi.org/10.1016/j.jcorpfin.2014.07.007>
- [17] Nguyễn Thị Tuyết Nga. (2016). Tác động của vốn chủ sở hữu đến rủi ro tín dụng tại các ngân hàng thương mại Việt Nam. *Tạp Chí Tài Chính*, 23–30.
- [18] Saunders, A., Strock, E., & Travlos, N. G. (1990). Ownership Structure , Deregulation , and Bank Risk Taking. *THE JOURNAL OF FINANCE*, XLV(2), 643–654.
- [19] Shapiro, C., & Willig, R. D. (1990). On the Antitrust Treatment of Production Joint Ventures. *Journal of Economic Perspectives*, 4(3), 113–130. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9604085535&site=ehost-live%5Cnhttp://content.ebscohost.com/ContentServer.asp?T=P&P=AN&K=9604085535&S=R&D=bth&EbscoContent=dGJyMMTo50SeqK84xNvgOLCmr0yepRrsae4SrGWxWXS&ContentCustomer=dGJyMPGut0i>
- [20] Shehzad, C. T., de Haan, J., & Scholtens, B. (2010). The impact of bank ownership concentration on impaired loans and capital adequacy. *Journal of Banking and Finance*, 34(2), 399–408. <https://doi.org/10.1016/j.jbankfin.2009.08.007>
- [21] Shleifer, Andrei, Maxim Boycko, and R. W. V. (1996). A Theory of Privatization. *Economic Journal*, 106(435), 309–319.
- [22] Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*, 94(3, Part 1), 461–488. <https://doi.org/10.1086/261385>
- [23] Srairi, S. (2013). Ownership structure and risk-taking behaviour in conventional and Islamic banks: Evidence for MENA countries. *Borsa Istanbul Review*, 13(4), 115–127. <https://doi.org/10.1016/j.bir.2013.10.010>
- [25] Vickers, J. and G., & Yarrow. (1989). *Privatization: An Economic Analysis*. MA: MIT Press. Cambridge.
- [26] Vining, A. R., & Boardman, A. E. (1992). Ownership versus competition: Efficiency in public enterprise. *Public Choice*, 73(2), 205–239. <https://doi.org/10.1007/BF00145092>
- [27] Võ Xuân Vinh, & Mai Xuân Đức. (2017). Sở hữu nước ngoài và rủi ro thanh khoản của các Ngân hàng thương mại Việt Nam. *Tạp Chí Khoa Học ĐHQGHN*, 33(3), 1–11.

- [28] Zheng, C., Moudud-Ul-Huq, S., Rahman, M. M., & Ashraf, B. N. (2017). The Effects of Ownership Structure on Banks' Capital and Risk-taking Behavior: Empirical Evidence from Developing Country. *Research in International Business and Finance*, 42(July), 404–421. <https://doi.org/10.1016/j.ribaf.2017.07.035>
- [29] Zhu, W., & Yang, J. (2016). State ownership, cross-border acquisition, and risk-taking: Evidence from China's banking industry. *Journal of Banking and Finance*, 71, 133–153. <https://doi.org/10.1016/j.jbankfin.2016.05.004>

Tourism as a chance for development of serbian border regions

Danijela Voza, Aleksandra Fedajev, Marija Panić, Isidora Milošević, Sanela Arsić, Đorđe Nikolić

University of Belgrade, Technical faculty in Bor, Vojske Jugoslavije 12, Bor, Serbia, e-mail: dvoza@tfbor.bg.ac.rs

Abstract: Tourism as an activity of the future is the driving force of the rural and peripheral European regions development. Those areas are usually located near the geospatial borders of the countries and they are often considered as an ideal area for the promotion of different types of the tourism. Border area could become a tourist attraction if it has enough potential represented by specific and unique features which can attract many tourists and curious visitors. Only as such, the border area provides opportunities for the development of tourism types which are not based on massiveness, but on the individualization of the modern tourists needs.

The aim of this paper was to identify the possibilities for tourism development in the border region Lower Danube in Serbia. Based on the detailed overview of this region, it was concluded that this area has significant advantages compared to the other tourist destinations located around the Serbian borders. Possibilities for regional development are predominantly reflected in the different types of the tourism - ecotourism, nature tourism, sport tourism, cultural tourism, etc. Nevertheless, identified potentials are still insufficiently used. In order to develop tourism and the region as a whole, precisely defined tourist product and comprehensive strategy is required. Also, some of the guidelines could be: stimulation of cross-border cooperation between the interested neighbour countries, implementation of measures for improving the educational structure of tourist workers in this area and encouragement of the public-private partnerships.

Keywords: Regional development, Tourism, Border region, Lower Danube, Serbia

1 Introduction

Tourism is becoming one of the most important factors of economic development in many countries of the world. Modern tourism experts are increasingly emphasizing the great importance that the border has in the development of tourism. The complex and mutual connection of tourism and border phenomenon represents an interesting and attractive field of research. By considering tourism as a complex economic branch and boundary as a complex term, it can be concluded

that their relationship is an area that has significant potential for research. In many European Commission documents, tourism is seen as one of the significant opportunities for the development of border (mainly remote and poorly populated) municipalities [1].

In this paper, the concept of the border is first examined, especially the term of political boundary. Then, the relationship between tourism and border phenomenon is considered. In the central part of the paper, opportunities for the development of specific forms of tourism in the five border municipalities of northeastern Serbia, the border region of central Serbia against Romania, are being analyzed. Concluding part of the paper pointed out some limitations that hinder the development of tourism in this "most prosperous tourist zone" in Serbia, and therefore propose appropriate measures in order to promote the development of tourism in the area from Veliko Gradište to Negotin.

2 Cross-national border as tourist attraction

For a long time, the borders were vague areas of suspicious political control. However, today most of the international borders are clearly defined and labeled intentionally, and many are more attractive than they were in the past. The political boundary is a term used in political geography and signifies a landmark of a given political entity or legal jurisdiction, state or sub-national administrative units and their divisions. The process of globalization, as the most important contemporary social process of global dimensions, is best studied right at the borders. The complexity and multidimensional nature of globalization contributes to a great extent to increased interest in the border phenomenon.

In tourism researches, interest in studying the border phenomenon has developed just recently. The researchers' attention was mainly focused on three specific research questions: (1) the perception of crossing the border; (2) tourism management and tourism development strategy in border municipalities; and (3) tourism development through co-operative cross-border projects [2][3][4]. The border phenomenon, as a tourist attraction, can be viewed from two aspects [5][6]. First, it is a borderline with all its demarcation objects that attract curious tourists. These objects are also classified as so-called "known boundaries" (for example, the former Berlin Wall). The border may represent a tourist attraction if its marking uses unusual methods, which distinguish it from the usual surrounding landscapes. Another way in which international borders can attract tourists and recreationists are not lines themselves, but activities, attractions and specific characteristics of communities living close to the borders [7]. The border of Serbia with Romania in the Lower Danube Region is an obvious example. The Vlach national community living in the border municipalities of eastern Serbia, with its specific language and customs, can attract tourists eager to get to know new

cultures. Also, Djerdap National Park, located at the very border of these two countries, is a natural tourism potential that can be even more tourist valorised if the cooperation of the two neighboring countries is raised to a higher level.

The relationship between borders and tourism can be described in three ways [8]. First, it is possible to talk about the boundaries that pass between the two tourist destinations, but they are considerably distant from both. In the second case, the tourist area touches the border only on one side. Finally, in the third case, there are tourist areas that "lean" on the border line on both sides. The border in the form of an obstacle to the development of tourism is characteristic for the first situation – the movement of tourists depends on the degree of its permeability. The cohesion of the two neighboring tourist regions depends to a large extent on the degree of openness of the border between these countries [5].

2.1 Specific types of tourism in border regions

The greater orientation of tourist activity towards border regions, as well as the border itself, is in line with modern tendencies in tourism trends. Potential tourist destinations, including border areas, are the easiest to include in the tourist offer through the realization of specific forms of tourism. Various tourist potentials influence the "creation of specificities of certain tourist destinations, which also influences the possibilities of developing certain forms of tourism in them" [9]. Depending on the primary motive of travel, the four main areas within which specific forms of tourism are formed: (1) *the environment*, (2) *culture*, (3) *events* and (4) *the rest*. The first group of specific forms of tourism includes those whose development is based on the richness of natural resources (ie. care about their preservation), so in that sense, in practice, tourism forms such as: green, hunting, ecotourism and wildlife tourism are recognized. When it comes to specific forms of tourism based on cultural heritage, then most often it is thought of: heritage tourism, commune tourism, aboriginal tourism, wine tours, gastronomic tours, religious tourism, third-world tourism, and ethnic tourism. Congress tourism, sports events, festivals and carnivals are examples of specific forms of tourism in the field of "events". Finally, the "rest" from the point of view of specific forms of tourism refers to: educational tourism, health tourism, spa tourism, rural tourism, cruises, nautical tourism, urban, transit, adventure and hiking tourism. A wide range of specific forms of tourism can be considered as a result of the "individualization of needs" that characterizes tourism in the 21st century [10].

The core of a specific tourist product is its authenticity, uniqueness, accentuated locality, and individual approach to potential tourists. The development of these forms of tourism is based on the potential of the local community, the discovery of hidden natural values, the valorization of natural and anthropogenic motives, the involvement of a local (underdeveloped) community, the use of local knowledge and workforce, and the local community investment in new development programs [9]. All of these factors should be taken into account in assessing the

ability of border municipalities to put their natural and cultural values into the function of tourism development.

3 Tourist destination lower danube in serbia

The Lower Danube region covers the administrative territory of five border municipalities in northeastern Serbia (Veliko Gradište, Golubac, Majdanpek, Kladovo and Negotin). It spreads over the border with Romania (from Rama to Prahovo) and partly with Bulgaria (Figure 1). The boundary of this area towards the inland hinterland is determined by the water reservoir between the Danube and the Morava river basins, across the Veliko brdo, Rakoborski vis and Šomrda, descending to the south to the Carpathian Mountains (Homoljske planine, Mali and Veliki krš and Deli Jovan). The proximity of the eastern Mediterranean direction and the river corridor VII contributes to the good strategic position of this geographical area. The tourist position of the Lower Danube region in Serbia is favorable because this area is well connected with the largest emitting zone in the country (Belgrade). On the other hand, connection with other cities in Serbia is hampered.

The connection between tourism and environmental factors is evident at the tourist destination Lower Danube, which has typically border character, particularly. Usually, the border regions are naturally created relief continents, that provide opportunities for the formation of transnational tourist regions as specific tourist destinations [11]. Since recently, there has been made a progress in the upgrading transnational cooperation between Serbia and Romania. Romania's involvement in European development projects, especially after joining the European Union, sets the basis for a coherent approach to the natural resources management and increasing the level of populations' awareness about the urgency of joint planning and realization of the activities, primarily related to the Danube river [12].

The Danube river flows through the Lower Danube region in the length of 250 km, approximately. Considering that this is the largest water course in Europe, the Danube river can be viewed as the backbone of the European Union. Exceptional attractiveness and specificity of the Danube river and its tributaries presents basis for the tourist development of all of the five municipalities in Đerdap tourist area. The Djerdap national park, as the greatest value of this tourist region, spreads over the right bank of Danube (from Golubac to Karataš near Kladovo). The main natural beauty of this national park is 98 km long Djerdap gorge.

The great wealth of the Djerdap National Park is reflected in large forest area, diverse flora and fauna and numerous cultural and historical monuments dating from the earliest epochs. Djerdap national park is distinguished by one of the richest fauna in this European region. This park presents the habitat for more than

150 bird species and this fact indicates the existence of significant opportunities for the “birdwatching” – activity which is especially attractive for ecotourists. Also, here grows about 1,100 plant species. Very significant species among them are tertiary relics – ancient species that survived the Ice Age and still exist today. There are ten nature reserve in Djerdap national park.

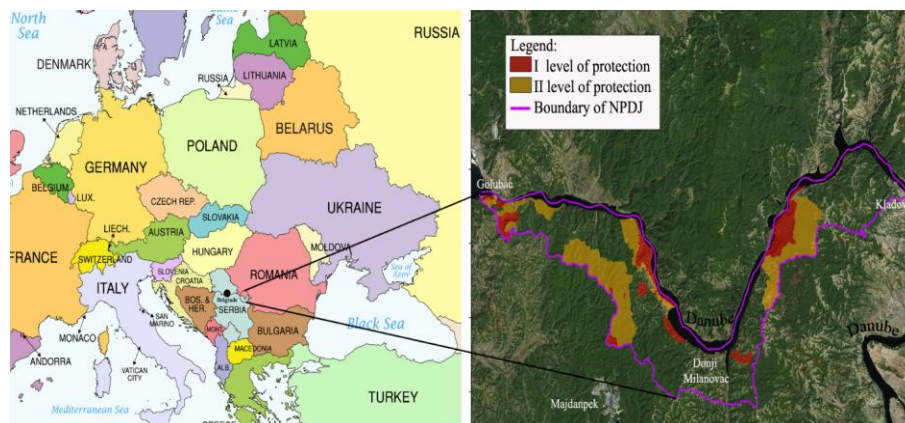


Figure 1
Lower Danube region

Djerdap lake is the greatest hydrological value of the national park Djerdap. Favorable climate provides good conditions for the long bath season, but high water pollution is a limiting factor. Also, this area is consisted of numerous mountains, geo-heritage objects, caves, prerasts, the oldest monument of mining, canyons, diverse and unique water forms (Figure 1).

In spite of the numerous comparative advantages of this region, tourism product and destination position are not at satisfactory level. Current tourism product includes only few types of tourism. In order to take advantages of the main natural values of Djerdap tourism area, it is necessary to create and implement innovative and sustainable tourism strategy. For the purpose of elaborating tourism development plan of the mentioned border municipalities, it should be considered all potential target groups and adapted tourism product according to the specific customer demands.

3.1 Analysis od natural geographical features of Lower Danube region

In order to gain clear insight into the advantages and disadvantages of natural geographical features of Lower Danube tourism destination, it is necessary to

carry out detailed analysis. Obtained results should be the basis for finding the most optimal tourism development strategy. For that purpose, in this article SWOT analysis (Strenghts, Weaknesses, Opportunities and Threaths - acronym) was conducted. The results of the SWOT analysis of Lower Danube natural geographical features are shown in Table 1.

Table 1
SWOT analysis of Lower Danube natural geographical features

STRENGHTS • Favorable climate conditions • Forest wealth • Flora and fauna diversity • Water resources (Danube with tributaries, Djerdap lake, Silver lake...) • Djerdap national park • Morphological diversity	WEAKNESSES • Lack of local communities cohesion and cooperation • Insufficient care for the environment • Neglected rivers and lakes areas • Cloudness • Poor infrastructure
OPPORTUNITIES • Higher demand for ecotourism • Higher demand for rural tourism • Contemporary environmental legislative • Waterways (Danube) • Cross-border cooperation with Romania	THREATS • Neglected natural resources • Investments in other border tourist destinations (Stara Planina, Vlasina, Zlatibor) • Seasonal character of special forms of tourism • Decrasing volume and intensity of cooperation between local government and tourist organizations

Natural geographical features of Lower Danube tourism destination satisfy all conditions for the development of various tourism types, particulary special forms that arise from the environmental factors. In the last few years, there has been an expansion of ecotourism and rural tourism, that were recognized as the main opportunities for the development of this region. Contemporary environmental protection legislative of the Republic of Serbia, as an active factor of the environment, contributes to the preservation and improvement of the natural resources state. Also, cross-border cooperation with Romania is very important, esspecially in the case of Djerdap national park, which is located on the border of those two countries. In that sense, there is an initiative for the foundation of unique national park, which will include left bank and coastal area of Danube river and Djerdap lake in Romania. Tourist valorization of Djerdap region indicated that humans are the main causer of this region weaknesess. Environmental awareness of domestic population is at very low level. The best ways for overcoming these problems are: organization of study programs, seminars, trainings, as well as providing information of tourism strategy and its importance for regional development. On the other hand, irresponsibility of local community regarding municipal waste disposal led to the occurence of many rural wild

dumps. Accordingly, for the creation of future tourism strategies for border municipalities in Lower Danube region, it will be very important to pay attention on preventing environmental degradation.

3.2 Special forms of tourism in the Lower Danube region

Lower Danube, as one of the most important tourist destinations, requires strategic adjustment and improvement of existing tourism forms, as well as design of new products customized to the trends of tourist demand. Modern tourists are increasingly interested in seeking the adventure and discovering new areas, while number of the so-called "traditional" trips for fun and vacation are reducing. Novelties that are dictated by tourism nowadays present a development opportunity for all five municipalities in the Lower Danube region in order to exploit all the described natural potentials.

In the previous period, pupils and youth tourism, resident tourism, recreational and sport tourism, short-term tourism (weekends and holidays) and business tourism were dominant forms of tourism in this tourist destination. Bearing in mind the already analyzed natural tourist values of the Danube municipalities, it can be concluded that the Lower Danube region have potentials for development of other, specific forms of tourism. In this regard, it could be emphasized the following types of tourism: (1) ecotourism, (2) hunting and fishing tourism (3) rural tourism, (4) nautical tourism (as well as cruises) and (5) pedestrian tourism (Table 2).

Table 2
Potentials for specific types of tourism in Lower Danube region

Potentials	Type of tourism
Preserved natural ecosystems; archaeological sites; historical monuments; healthy water and food	Ecotourism
Rich wildlife; fish species diversity	Hunting and fishing tourism
Healthy water and food; hospitality; authentic rural areas	Rural tourism
Danube - river corridor VII	Nautical tourism
Road sections E7 and E4	Pedestrian tourism
Rich natural heritage	Cyclotourism

Ecotourism. Ecotourism is usually defined as a responsible travel and visits to areas of relatively conserved nature in order to enjoy the natural values, as well as all the accompanying cultural objects from the past and present. The International Ecotourism Society - TIES defines this form of tourism as "responsible travel to the nature areas, that preserves the environment and maintains the welfare of the local population" [13]. The fact of great importance, which stems from the previous definition, is that ecotourism creates opportunities for the socio-economic involvement of the local population. Opportunities for the development of ecotourism in the Lower Danube are based on preserved natural ecosystems, archaeological sites, historical monuments, healthy water and food and hospitality.

Finally, the diverse features of indigenous culture complement the tourism product of this region, which, hence, can be considered a potential eco-destination. The renewal of passenger water transport on Danube will accelerate the development of ecotourism, due to possibility to offer to the tourist circular journey to this destination. Journey (and cruise) on Danube provides additional experience regarding its status of border river that physically separates the two countries.

Hunting and fishing tourism. The hunting grounds of the Djerdap tourist region considered to be the richest hunting grounds for deer, roe deer, wild boars, foxes, rabbits, wolves, and other large and small wild game. The coastal areas of the Danube and its tributaries, as well as numerous lakes in the area, are the favorite destinations for fishermen. However, due to lack of accommodation capacities (huts, log cabins, hunting lodges and arranged camping sites), the expected effects of this type of tourism are missing. Nevertheless, numerous manifestations that affirm the richness of river fauna and hunting have been revived in the Lower Danube region.

Rural tourism. Although over 85% of the territory in the Republic of Serbia is rural, rural tourism is the most developed in parts of western Serbia (Dragovic et al., 2009). Regarding the Lower Danube region, the future of rural tourism in recent development studies is relaying on the development of tourist supply during the entire year. This, of course, implies the complementarity of rural tourism with ecotourism, hunting tourism, healthy food and mountain tourism, i.e. hiking.

Nautical tourism. On the European market, there is a trend of increasing interest in nautical tourism on the rivers and the Danube and the Djerdap area are one of the most attractive destinations in Europe in that sense. Nautical tourists are a significant factor of increasing demand in the future, bearing in mind that they spend a lot of money during the trip. However, the capacities of existing infrastructure (marinas) in the Lower Danube region still does not comply with increased demand trend. The Danube cruise in this region is also not sufficiently exploited due to a number of limitations (lack of arranged access roads and ports, border controls and lack of diversity of tourist facilities), so the large tourist ships still bypass Lower Danube region on their route.

In addition to the mentioned four forms of tourism, it should be pointed out that there are conditions for the development of some additional forms of tourism in the Lower Danube region, like the city tourism (Donji Milanovac, Kladovo, Veliko Gradište), transit tourism (after the restoration of water transport by the Danube) and sports and recreational tourism, due to expansion of tourism capacities in Kladovo, as well as in Veliko Gradište (new accommodation capacities on the Silver Lake).

Pedestrian tourism. A particularly attractive possibility for expansion of tourism supply in the Lower Danube region is reflected in the fact that the European footpath passes through Republic of Serbia - road section E7 passes through the western and road section E4 through the eastern part of the country (Figure 1). The road section E4 firstly passes along the right bank of the Danube (from Ram fortress and further through Veliko Gradište and Golubac) and then over the

mountains (Mali krš, Liskovac, Veliki Greben and Miroč) to Vratna and Rajačke Pimnice. The future development of pedestrian tourism will contribute to increase of Lower Danube region attractiveness.

The rich natural heritage of the region represent the ideal basis for the expansion of a special form of selective tourism - *cyclotourism* (or bicycle tourism). The cyclotourism, which can be defined as a recreational form of tourism, usually includes one night or a daily visit, where cycling is an essential part of the stay. The future of tourist destination Lower Danube is reflected in the development of specific forms of tourism, which are mostly determined by available natural resources. The quality of the tourist supply depends primarily on the quality of the natural-geographic characteristics of the region. In this context, it is necessary to take concrete measures to preserve and protect the environment and to establish cross-border cooperation.

Conclusion

Decades before, borders have been viewed as barriers or obstacles to tourism trends. Such a perception of the relations between boundary and tourism originated from the belief of most tourists that the border is, first and foremost, a symbol of strict controls and formalities that are often exposed at the border crossings. Service economic activities, including tourism, are particularly sensitive to political boundaries and all the negative connotations associated with them.

However, in recent years, increasing attention has been paid to analysis of the border as tourist potential, having in mind its tourist attractiveness. The border itself can become a tourist attraction, if it has the potential to attract numerous tourists and curious visitors by some specificity and interesting characteristic. An analysis of tourist natural values in the Danube border municipalities showed that the Lower Danube region has comparative advantages for the specific forms of tourism development compared to the other border tourist destinations in Republic of Serbia. This is especially true for ecotourism, but also for other types of tourism such as recreational, excursion, congress, nautical and pedestrian tourism. Among all natural resources, hydro-resources, like Danube, Djerdap Lake and Silver Lake, have the highest tourist value.

In addition, it is necessary to be "better, cheaper and faster than others" in order to achieve the competitive advantage of the Lower Danube region in the tourist market in Republic of Serbia, which implies "inventive" behavior of every individual in the region that is participating in the provision of tourist services [14]. Tourism workers in all border municipalities must, first of all, pay attention to the positioning of the tourism product - the main instrument of the marketing mix - taking into account the complementarity of special forms of tourism. Only a precisely defined structure of the tourism product and supply can enable the tourism development and the choice of the appropriate tourism strategy (nautical tourism, for example, is not sufficiently included in the offer despite the increased demand for such form of tourism in other destinations). In order to improve the

quality of tourism services in the Lower Danube region, some measures should be implemented, like improvement of the educational structure of the tourism employees, strengthening of promotional attitudes, designing new projects of cross-border cooperation, establishing of cooperation between the municipalities in the Djerdap tourist region and greater involvement of their tourist organizations in the implementation of tourism projects. Finally, cooperation between the private and public sectors in the tourism of this border tourist region should be raised to the higher level. The exploitation of all opportunities for developing specific forms of tourism in the mentioned area is particularly important due to poor economic development.

Acknowledgement

Prepared as a part of the project *Sustainability of the Identity of Serbs and National Minorities in the Border Municipalities of Eastern and Southeastern Serbia* (179013), conducted at the University of Niš – Faculty of Mechanical Engineering, and supported by the Ministry of Science and Technological Development of the Republic of Serbia.

References

- [1] European Commission. 2003. Making best use of structural funds. Luxembourg: Office for official publications of the European Communities.
- [2] Faby, H. 2006. Tourism policy tools applied by the European Union to support tourism. In *Tourism and borders*, edited by H. Wachowiak, 19–30. Aldershot, Hampshire: Ashgate.
- [3] Prokkola, E. 2007. Cross-border regionalization and tourism development at the Swedish-Finnish border: Destination Arctic circle. *Scandinavian Journal of Hospitality and Tourism* 7 (1): 120–38.
- [4] Prokkola, E. 2010. Borders in tourism: The transformation of the Swedish-Finnish border landscape. *Current Issues in Tourism* 13 (3): 223–38.
- [5] Timothy, J.D. 1995. Political boundaries and tourism: Borders as tourist attractions. *Tourism Management* 16 (7): 525–32.
- [6] Timothy, J.D. 2001. *Tourism and political boundaries*. London: Poutledge.
- [7] Timothy, J.D. 2006. Pelationships between tourism and international boundaries. In *Tourism and borders: Contemporary issues, policies and international research*, edited by Helmut Wachowiak, 9–19. Hampshire: Ashgate publishing company.
- [8] Matznetter, J. 1978. Border and tourism: Fundamental relations. In *Tourism and borders proceedings of the meeting of the IGU working group – Geography of tourism and pecreation*, edited by G. Gruber et al., 61–73. Frankfurt: Institut fur wirtschafts – und sozialgeographie der Johann Wolfgang Goethe Universitat.
- [9] Štetić, S. 2002. Nove tendencije svetskih turističkih kretanja. *Turizam* 6: 7–8.

- [10] Kosar, Lj. 2011. Prilagođavanje hotelijerstva savremenim oblicima turizma. *Turizam* 11: 10–3.
- [11] Bjeljac, Ž. and Ćurčić, N. 2006. Tourism in the Serbian, Romanian and Hungarian borderline area as part of cross-border cooperation. *Geographica Pannonica* 10: 73–7.
- [12] Šećerov, V. and Nevenić, M. 2004. Podunavlje kroz istoriju do danas. *Glasnik srpskog geografskog društva* 84 (2): 223–30.
- [13] Dragović, R. 2009. Iskoristivost prirodno-geografskih uslova Zlatibora i Zlatara za razvoj ekoturizma i zdravstvenog turizma. *Glasnik srpskog geografskog društva* 89 (1): 115–28.
- [14] Stefanović, Vidoje. 2007. Inovativnost kao pretpostavka konkurentnosti u turizmu. *Teme* 31 (2): 339–50.

Motivation, Incentives and the Complexity of the Complexity of Human Behaviour

Zsigri Ferenc

zsferenc923@gmail.com

Abstract: Employee motivation is key for the long term upkeep of high performance in all companies. Unfortunately, innumerable fully fledged managers are in misunderstanding about what motivation means and how it works. Many of them confuse motivation with incentives and thus commit grave HR blunders. By doing so, they involuntarily damage shareholder value whilst they intentionally try to enhance it. This article highlights the difference between incentives and motivation. It also gives some insight into the mysterious world of human motivation. It deals with not only well-known drives of motivation but also less known ones which still influence us on each day of our lives.

Keywords: Motivation, hedonic treadmill, motivation crowding, perception

1 Foreword

We live in a highly competitive world where the survival of all companies and all people depend on their competitiveness and their ability to win. Business enterprises can build their competitiveness on their know-hows, on their technology and on their employees. The most attractive – and possibly the cheapest – way for them is generally to use their workforce as the engine of competitiveness. There are different attitudes among firms towards their staff. Some – too many - believe in the forceful exploitation of workers, while others understand the importance of the willing labourer – colleagues who find pleasure in serving a common goal with their employers (Bolino & Klotz, 2017). For the latter enterprises, motivated jobholders are key (Gruman & Saks, 2011).

In this article I make a humble attempt to amalgamate my two decades managerial **experience** with the **literature** available in this field.

2 Motivation or incentives?

Despite the importance of motivation, there is a widespread misunderstanding about its meaning. Uncounted managers use the word ‘motivation’ and ‘incentive’ interchangeably. This confusion may lead to incorrect managerial actions and thus to organisational harm.

What is the difference between motivation and incentive?

To illuminate this, let me use a resemblance. I have a dog. I often make her fetch back a piece of stick. She is overjoyed to do it. When I throw the stick away she rushes after it and runs back to me with the stick in her mouth. Then I reward her with a bit of cheese for her great work. This ritual makes both of us jolly. Nevertheless, it is important to discern which one of us is motivated by what. I am happy to see that my pet is jolly to obey my command. My cherished tail-wagger wants a mouthful of delicious cheese. She is not the least interested in carrying back a piece of inedible piece of wood. On the contrary: she may find this outright dull. I am motivated to make her obey. She is motivated to satisfy her appetite for cheese. The two motivations are clearly distinct. My gamesome canine is incentivised by a bite of food to play the game in which she would otherwise be uninterested. The two completely different motivations are joined in a common action: throwing and carrying that piece of wood.

Humans also ceaselessly chase their motives and their employers generally offer them glass beads as incentives in order to make them do activities that they otherwise dislike doing.

And now the definition of motivation: the will so satisfy an inner need. The origin of motivation is **intrinsic**, it may only arise from our souls.

Incentives: **extrinsic** factors, by which the attitudes and acts of individuals are influenced (Reiss, 2012; Ryan & Deci, 2000). Monetary incentives prevail in business life.

By downplaying the importance of motivation and focussing merely on incentives in their stead – which happens too often – we unintentionally destroy employee motivation and as a consequence, the erosion of corporate health is sure to follow.

3 Theories based on human needs

Mayo’s experiments showed that we are all **social** beings. We desire to be in societies, we must have contact with other people. When a workplace society is good, it will motivate all employees to be part of it and to exert extra effort for the common goal (O’Connor, 1999).

Maslow proved that we have a multi-layered, hierarchical system of needs. The lowest layer is that of the psychological needs, while the topmost layer is self-actualisation. We are motivated to reach as high among these layers of existence as possible. Our current level is determined by the lowest layer which we miss. Even if other, higher layers are fulfilled, we are still motivated to strive for the lowest one that we lack. The lower layers require monetary spending, whereas the topmost ones cannot be bought for money. (A.H. Maslow, 1943)

Herzberg differentiated two groups of workplace factors: motivators and hygiene factors. He emphasized that the antonym of satisfaction is not dissatisfaction but 'non-satisfaction and likewise, the opposite of dissatisfaction is not satisfaction but 'not-dissatisfaction'. This is an important message for all managers, since we must comprehend that satisfaction and dissatisfaction depend on unsimilar factors. Bad hygiene factors may destroy satisfaction, but good hygiene factors can create only non-dissatisfaction. (Herzberg, 1974)(William, 2010)

Alderfer's ERG (existence, relatedness, growth) theory integrates other motivation theories. His contribution is that he reveals the complexity of human motivation. He believes that we are motivated by our physical needs (Maslow – bottom of the pyramid), social needs (Mayo) and growth (Maslow – top of the pyramid). (Alderfer, 1972)(Arnolds & Boshoff, 2002)

McClelland realized that we all have some urges which are not born with us but we **acquire** these during our life. These are: need for achievement, (the pleasure we take in success), need for affiliation (we desire to be loved), need for power (we wish to have an impact on others). (Deci & Ryan, 2000)

4 Process based theories

Vroom's in his **expectancy theory** claims that people are motivated by the likelihood they perceive their expectations to be fulfilled. This expectancy comprises three components:

- Are their efforts likely to lead to the expected performance (expectancy)?
- Will the achievement of the expected performance result in the expected results (instrumentality)?
- How big is the value of the outcomes for the individual (valence)?

People will invariably adjust their efforts to their expected value of the outcome. If the expected value is less or more than their current level of effort, it will equally lead to the reduction of their efforts.(Lawler, 1973)

Locke&Latham revealed that properly **set goals** are motivating for people, even if no incentives are involved. Properness of goals are influenced by how clearly

are they defined, how devoted to are people to the outcomes, whether they can influence the goals and their achievement, how complex the goal is, how well the goal achievement is supported by operation mechanisms and company infrastructure.(Locke & Latham, 2002)

Arousal theory: proper level of arousal functions as a natural dopping. He recognises the positive role of positive stress in the performance of people. He also highlights that this is a hazardous field, since optimal arousal level may be very diverse for each individual. Too little stress fails to motivate the individual, too much will lead to destroying (burnout) her/him. (Teigen, 1994)

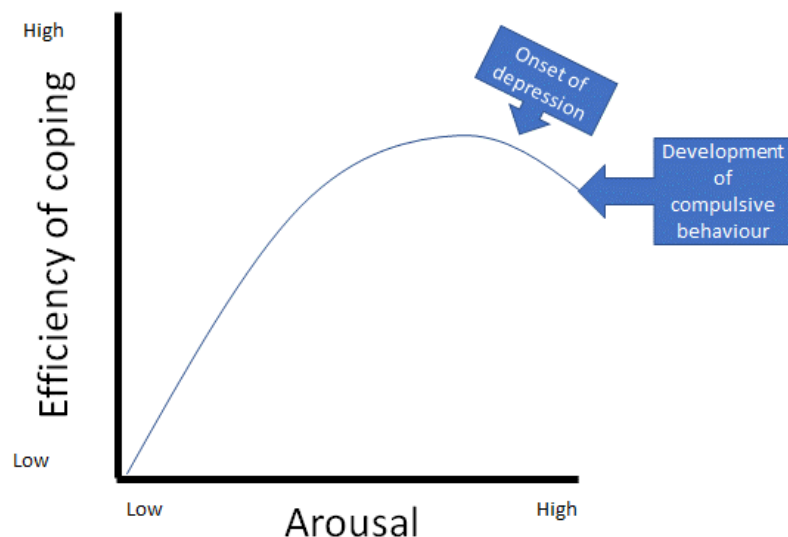


Figure 1: The Yerkes-Dodson Curve, source: (Teigen, 1994)

Equity theory suggests that employees constantly measure their own efforts (outputs) versus reimbursement they receive (inputs) from their employers in return. They will eternally strive for equilibrium (Chapman, 2001). What makes the situation complex is that this is a comparative equilibrium, not an absolute one. This means that people measure their own equilibrium in light of other people's.(Huseman, Hatfield, & Miles, 1987)(Chapman, 2001)

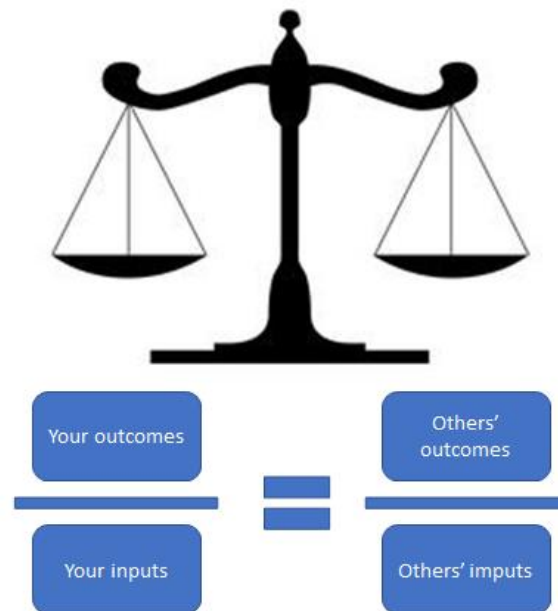


Figure 2: The Equity Theory, source: (Geddes, 2016)

Csikszentmihályi claims that motivation is a state when people feel a kind of **flow**. This flow is a state when everything goes smoothly, effortlessly. This state is determined by where we are located in a two-dimension area: the level of challenge and the level of our knowledge. The level of challenge must always correspond to the level of our knowledge. When it does, we feel the 'flow' and our motivation will be high. Less experienced people require less challenge, senior people function better when they have more – in order to reach the state of flow. Csikszentmihályi calls this lane within his diagram '**the flow channel**'. (Nakamura & Csikszentmihályi, 2014)

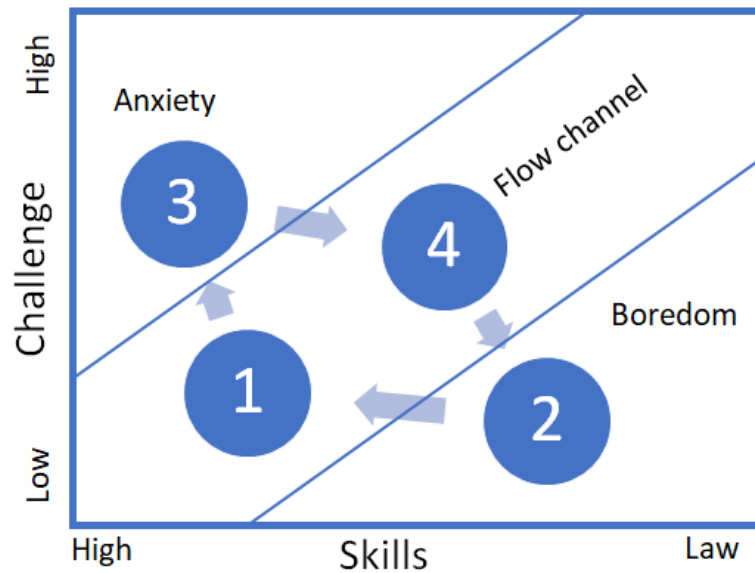


Figure 3: The Flow, source: (Bailey, 2013)

Gamification is a workflow design that builds on our love for play. We do not like boredom, therefore, we dislike tasks that do not offer us some amusement. It is possible to design jobs with the inclusion of game elements: opportunities to compete, win and feel success (pleasurable feelings). This will improve our performance and prevent burnout.(Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2015)

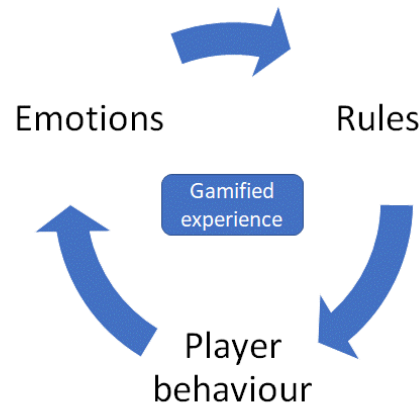


Figure 4: MDA network of gamification principles, source: (Robson et al., 2015)

5 Hedonic treadmill

Consumerism is the major force behind the mechanisms of our current economy. Humans are not people any more, but most importantly, consumers. Their extraorbitant consumption is an imperative must for the operation of the economy. This paradigm has changed their attitude to purchases. People used to buy only needful things, only when they needed them. Nowadays they buy lots of things they do not really require and they do this daily. They do it for the momentary pleasure of taking ownership of things. (Nava, 1987)

At workplaces, incentives have a congruent effect. When we create the culture of continuous incentives, people will soon get **addicted** to them. Incentives will function only as long as we give them. Unfortunately, **hedonic adaptation** (Graham & Oswald, 2010) will also muscle in: people get used to incentives and thus, their impact will diminish unless we increase their level – like in the case of other addictions.

The phrase '**hedonic treadmill**' (Lykken, 2007) refers to the mechanically urge to follow the never ending cycle: chase incentives, getting used to them, losing interest and seeking new pleasure again. In this cycle there is only momentary satisfaction (happiness) – the moment of the acquisition - while the urge is constant.

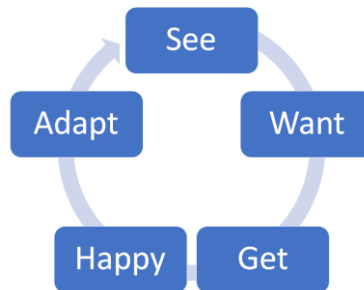


Figure 5: The Hedonic treadmill, source: (Cozzie, 2017)

6 The dark side of human soul

When we say ‘human’, we always think of something frail but lovable. We like to think of ourselves as nice, positive creatures with a few pardonable weaknesses. The truth is unfortunately, very offbeat. Besides all our cuteness, we all have our nefarious sides, too. The infernal side is evil, full of malicious intent and capable of anything for power, for sex, or out of fear. Quite understandably, we spend a lot of effort on hiding our dark sides from our fellow humans. Furthermore, it is not very fashionable to talk about fundamental human flaws today – since all HR people are expected to emphasize the bright side of humans, which also exists - but I think it is outright dangerous to deny the existence of our wicked selves. If we want to successfully deal with people, we must understand their both faces. The real importance of the wicked self is the fact that people can be – and in deed are – controlled by the manipulation of their appetite for evil.

An abundance great thinkers had devoted a lot of time to discover this immoral part of souls. Sun Tzu, the famous Chinese general, who plenty of generations before us harvested great victories simply by building on general human weaknesses. Machiavelli, who empirically observed the tactics of bright Italian princes (Machiavelli, 1513). He came to the conclusion that it is better for a leader to be feared than be loved -since fear is more constant, thus easier to manage. Adam Smith (Smith, 1776) masterminded a theory that attributes everything to human selfishness. Some call Fayol, Taylor and Weber jointly the “evil triad” since they lived in the same period and they all base their theories on common human flaws.

7 Motivation crowding

Managers who do not understand the mechanisms of motivation often act like elephants in a china shop. Improper extrinsic incentives – especially monetary ones – have a great chance to destroy intrinsic motivation (Frey & Jegen, 2001). Unwisely chosen rewards will crowd out vital motivation, and to make the situation even worse, may crowd in unwanted, harmful motives.

Creativity is more and more imperative in every job. Financial incentives, unfortunately destroy this gift (Charness & Grieco, 2014). Financial rewards may have positive impact only in a few cases – especially in those when a given task requires focussing on a simple process that does not require creativity (Pink, 2009).

8 Perceptions

Not only people are motivated by a multitude of unsimilar motives, what makes motivation even more intangible is that fact-based reality is often invisible for us, humans. We all look at the world through multiple distorting lenses. These distorting lenses are momentary emotions, our education, our personalities, our company culture and our national cultures (Nisbett & Miyamoto, 2005). Such crucial factors like the passage of time and risk are also distorted by our subjective perception. (Droit-Volet & Meck, 2007) (Slovic & Peters, 2006)

The picture that finally comes through the multiple layers of these lenses is what we call reality (Kahneman, 2011). This is our perception of the world. The same reality will look very different when we look at it through other lenses. Likewise, the very same reality will create distinctly diverse perceptions in different people. This is apparently true of our motivation. The consequences are profound:

- reality does not necessarily matter,
- what matters most is perception (and this can be very distant from reality).

Illusions motivate people as much as – maybe more than - reality does.

9 Conclusion

Never mistake extrinsic incentives for intrinsic motivation. Different personalities are driven by deviating motives. Each and every one of their motives targets the fulfilment of some personal urges. Without proper motivation there is

no good work performance in the long run. It might be a good idea to stimulate a company culture that cherishes a certain kind of personality. Make sure that this environment makes it easy to satisfy the intrinsic needs that are important for this kind of people. Attract and keep the kind of employees who fit into this environment. Make sure they forever have some reason to be satisfied. In return, they will be motivated to work for you. The two things to be parallelly observed: allow your people to enjoy themselves and avoid demotivating them.

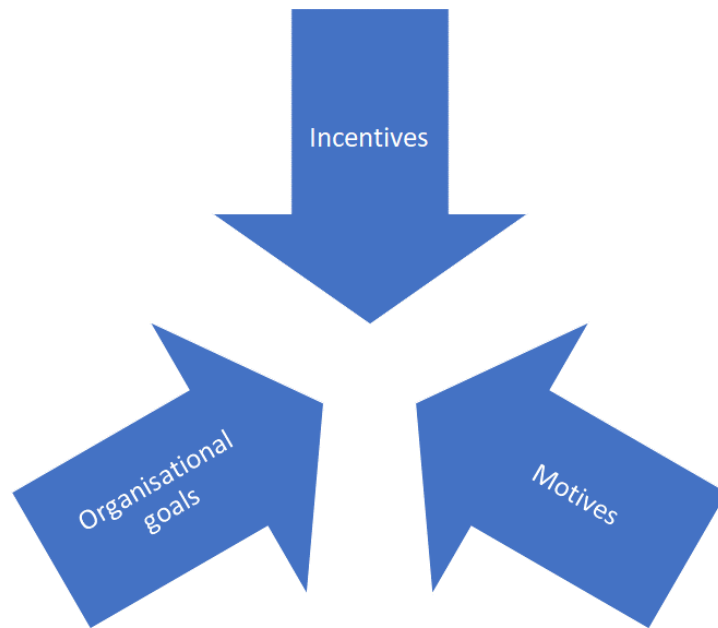


Figure 6: The congruence of three forces, source: own

Your task will be similar to that of a gardener. You offer fertile soil to the proper kind of seeds. You make sure there is the right level of sunshine and humidity. Nature will do the rest. Your plants will know by themselves how to grow. You do not have to tell them how to grow.

List of figures

Figure 1: The Yerkes-Dodson Curve, source: (Teigen, 1994)

Figure 2: The Equity Theory, source: (Geddes, 2016)

Figure 3: The Flow, source: (Bailey, 2013)

Figure 4: MDA network of gamification principles, source: (Robson et al., 2015)

Figure 5: The Hedonic treadmill, source: (Cozzie, 2017)

Figure 6: The congruence of three forces, source: own

References

- [1] A.H. Maslow. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi.org/10.1037/h0054346>
- [2] Alderfer, C. (1972). ERG Theory. *New York: Free Press*. Retrieved from http://changingminds.org/explanations/theories/erg_theory.htm
- [3] Arnolds, C. A., & Boshoff, C. (2002). Compensation, esteem valence and job performance: an empirical assessment of Alderfer's ERG theory. *The International Journal of Human Resource Management*, 13(4), 697–719. Retrieved from <http://www.informaworld.com/10.1080/09585190210125868>
- [4] Bailey, C. (2013). How to “Flow”: Here's the most magical chart you'll come across today. Retrieved from <http://alifeofproductivity.com/how-to-experience-flow-magical-chart/>
- [5] Bolino, C. M., & Klotz, A. (2017). How to Motivate Employees to Go Beyond Their Jobs. *Harvard Business Review*, September.
- [6] Chapman, A. (2001). adams equity theory - workplace motivational theory - how individuals measure inputs and outcomes in relation to market norms and “referents.” Retrieved from <http://www.businessballs.com/adamsequitytheory.htm>
- [7] Charness, G., & Grieco, D. (2014). Creativity and Financial Incentives. *UCSD Mimeo*, 12(1), 130–187. Retrieved from <http://www.econ.ucsb.edu/~charness/papers/creativity.pdf>
- [8] Cozzie, T. (2017). Money Can't Buy (All) The Happiness. Retrieved from <http://www.hotsaucedrops.com/tag/hedonic-treadmill/>
- [9] Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11, 227–268. Retrieved from <http://users.ugent.be/~wbeyers/scripties2012/artikels/The-what-and-why-of-goal-pursuits.pdf>

- [10] Droit-Volet, S., & Meck, W. H. (2007). How emotions colour our perception of time. *Trends in Cognitive Sciences*, 11(12), 504–513. <https://doi.org/10.1016/j.tics.2007.09.008>
- [11] Frey, B. S., & Jegen, R. (2001). Motivation Crowding Theory : A Survey of Empirical Evidence , REVISED VERSION Juni 2000. *Journal of Economic Surveys*, 15(49), 589–611. <https://doi.org/10.1111/j.1467-629X.1980.tb00220.x>
- [12] Geddes, J. (2016). Equity Theory – What’s in it for UX designers. Retrieved from <https://www.interaction-design.org/literature/article/equity-theory-what-s-in-it-for-ux-designers>
- [13] Graham, L., & Oswald, A. J. (2010). Hedonic capital, adaptation and resilience. *Journal of Economic Behavior and Organization*, 76(2), 372–384. <https://doi.org/10.1016/j.jebo.2010.07.003>
- [14] Gruman, J. A., & Saks, A. M. (2011). Performance management and employee engagement. *Human Resource Management Review*, 21(2), 123–136. <https://doi.org/10.1016/j.hrmr.2010.09.004>
- [15] Herzberg, F. (1974). Motivation-hygiene profiles: Pinpointing what ails the organization. *Organizational Dynamics*, 3(2), 18–29. [https://doi.org/10.1016/0090-2616\(74\)90007-2](https://doi.org/10.1016/0090-2616(74)90007-2)
- [16] Huseman, R. C., Hatfield, J. D., & Miles, E. W. (1987). A New Perspective on Equity Theory: The Equity Sensitivity Construct. *Academy of Management Review*, 12(2), 222–234. <https://doi.org/10.5465/AMR.1987.4307799>
- [17] Kahneman, D. (2011). *Thinking , Fast and Slow (Abstract)*. Book. <https://doi.org/10.1007/s13398-014-0173-7.2>
- [18] Lawler, E. E. (1973). Expectancy Theory and Job Behavior. *Organisational Behaviour and Human Performance*, 9, 482–503.
- [19] Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717. <https://doi.org/10.1037/0003-066X.57.9.705>
- [20] Lykken, D. T. (2007). “Beyond the hedonic treadmill: Revising the adaptation theory of well-being”: Comment on Diener, Lucas, and Scollon (2006). *American Psychologist*, 62(6), 611–612. <https://doi.org/10.1037/0003-066X62.6.611>
- [21] Machiavelli, N. (1513). *The Prince. Italica* (Vol. 55). <https://doi.org/10.2307/478897>
- [22] Nakamura, J., & Csíkszentmihályi, M. (2014). The Concept of Flow. In *Applications of Flow in Human Development and Education* (pp. 475–494). Retrieved from

<http://www.academia.edu/download/31572339/ConceptOfFlow.pdf>

- [23] Nava, M. (1987). Consumerism and its contradictions. *Cultural Studies*, 1(2), 204–210. <https://doi.org/10.1080/09502388700490151>
- [24] Nisbett, R. E., & Miyamoto, Y. (2005). The influence of culture: Holistic versus analytic perception. *Trends in Cognitive Sciences*. <https://doi.org/10.1016/j.tics.2005.08.004>
- [25] O'Connor, E. (1999). Minding the Workers: The Meaning of “Human” and “Human Relations” in Elton Mayo. *Organization*, 6(2), 223. <https://doi.org/10.1177/135050849962004>
- [26] Pink, D. (2009). *The puzzle of motivation*. TED Talks. Retrieved from <https://www.youtube.com/watch?v=rrkrvAUbU9Y>
- [27] Reiss, S. (2012). Intrinsic and Extrinsic Motivation. *Teaching of Psychology*, 39(2), 152–156. <https://doi.org/10.1177/0098628312437704>
- [28] Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2015). Is it all a game? Understanding the principles of gamification. *Business Horizons*, 58(4), 411–420. <https://doi.org/10.1016/j.bushor.2015.03.006>
- [29] Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- [30] Slovic, P., & Peters, E. (2006). Risk perception and affect. *Current Directions in Psychological Science*. <https://doi.org/10.1111/j.1467-8721.2006.00461.x>
- [31] Smith, A. (1776). *The Wealth of Nations*. Book (Vol. 2). <https://doi.org/10.2307/2221259>
- [32] Teigen, K. H. (1994). Yerkes-Dodson: A Law for all Seasons. *Theory & Psychology*, 4(4), 525–547. <https://doi.org/10.1177/0959354394044004>
- [33] William, A. N. (2010). EMPLOYEE MOTIVATION AND PERFORMANCE. *Business Management*, (December), 1–81. Retrieved from http://www.theseus.fi/bitstream/handle/10024/22787/akah_william.pdf