



Proceedings of the International Scientific Conference
of Business Economics, Management and Marketing

ISCOBEMM 2017



Organized by
Department of Corporate Economy
Faculty of Economics and Administration
Masaryk University



May 25-26, 2017
Zaječí, Czech Republic



Suggested citation:

AUTHOR, A. Title of the Paper. In: International Scientific Conference of Business Economics Management and Marketing 2017. Proceedings of International Scientific Conference of Business Economics Management and Marketing 2017, Brno: Masaryk University, 2017, pp. xx-xx. ISBN 978-80-210-8714-9.

Editors:

Ing. et Ing. Lenka Janošová
Ing. Ladislava Kuchynková, Ph.D.
Ing. Martin Cenek

All rights reserved. No part of this e-book may be reproduced or transmitted in any form or by any means without prior written permission of copyright administrator which can be contacted at Masaryk University Press, Žerotínovo náměstí 9, 601 77 Brno.

Typesetting:

Ing. et Ing. Lenka Janošová

© 2017 Masaryk University

ISBN 978-80-210-8714-9

All published papers have been double-peer reviewed before publishing.
The proceedings have not been amended or proofread.
Editors are not responsible for the language used in the papers.

Scientific Committee of the Conference

Chairman: Prof. Ing. Ladislav Blažek, CSc. (Masaryk University)

Members:

- Doc. JUDr. Ing. Aneta Bobenič Hintošová, PhD. (University of Economics)
- Prof. Dr. Rainer Born (Johannes Kepler University)
- Doc. Paedr. Ludvík Eger, CSc. (University of West Bohemia)
- Doc. Ing. Alena Klapalová, Ph.D. (Masaryk University)
- Doc. Mgr. Anna Lašáková, Ph.D. (Comenius University)
- Prof. Dr. Johannes Lehner (Johannes Kepler University)
- Prof. Dr. László MÉRÖ (Eötvös Loránd University)
- Doc. Ing. Petr Pirožek, Ph.D. (Masaryk University)
- Prof. Ing. Pavel Pudil, DrSc. (The University of Economics)
- RNDr. Petr Somol, Ph.D. (The Academy of Sciences)
- Doc. Ing. Petr Suchánek, Ph.D. (Masaryk University)
- Doc. Ing. Radoslav Škapa, Ph.D. (Masaryk University)
- Prof. Dipl.-Ing. Dr. Dr. h.c. Udo Wagner, (The University of Vienna)

Organizing Committee of the Conference

Chairman: Ing. Ladislava Kuchynková, Ph.D.

Members:

- Ing. Martin Cenek
- Ing. et Ing. Lenka Janošová
- Ing. Michal Jirásek
- Mgr. Ing. Martin Štěrba

List of reviewers:

- prof. Ing. Ladislav Blažek, CSc.
- Ing. Martin Cenek
- Ing. Ondřej Částek, Ph.D.
- Ing. Jaroslav Dugas, Ph.D.
- Mag. Dr. Eva Gatarik
- Ing. et Ing. Lenka Janošová
- Ing. Ivana Jašková, Ph.D.
- Ing. Michal Jirásek
- Ing. Klára Kašparová, Ph.D.
- doc. Ing. Alena Klapalová, Ph.D.
- Ing. Mgr. Michal Krčál
- Ing. Ladislava Kuchynková, Ph.D.
- Ing. Peter Marinič, Ph.D.
- Ing. Petr Mikuš, Ph.D.
- Ing. Pavla Odehnalová, Ph.D.
- doc. Ing. Petr Pirožek, Ph.D.
- Ing. Mgr. Jakub Procházka, Ph.D.
- Mgr. Ing. Milan Sedláček, Ph.D.
- doc. Ing. Bc. Petr Suchánek, Ph.D.
- Ing. Bc. Alena Šafrová Drášilová, Ph.D.
- Ing. Ladislav Šiška, Ph.D.
- doc. Ing. Radoslav Škapa, Ph.D.
- Mgr. Ing. Martin Štěrba
- Ing. Eva Švandová, Ph.D.
- Ing. Viliam Záthurecký, Ph.D., MBA
- Ing. Bc. Sylva Žáková Talpová, Ph.D.

Conference website:

iscobemm.com

PREFACE

Dear readers!

It is my pleasure to present you with a collection of papers from the 2nd annual International Scientific Conference of Business Economics, Management and Marketing ISCOBEMM 2017 organized by the Department of Corporate Economy of the Faculty of Economics and Administration of Masaryk University and held in Zaječí, Czech Republic. After successful first year, our conference has grown in size and international importance and I believe that positive changes we implemented for this year's edition (change of venue, scientific workshops etc.) will inspire you to attend our conference in the future and share your research with a broader audience.

The topic of this year's conference was "Corporate Management vs. Upcoming Challenges". Specifically, the participants covered tracks of Finance and Economic Analysis, Human Resource Management, Marketing, Innovation, Business and Management and Social Issues of Today's Business. Participants from numerous universities from the Czech Republic, Poland, Slovak Republic and Austria were accompanied by researchers from more distant countries like Algeria and China. These proceedings present their latest findings and I hope you will find them as inspirational as direct attendants of the conference.

I wish you pleasant reading.

Petr Suchánek

Head of the Department of Corporate Economy

TABLE OF CONTENTS

DOROTA BEDNARSKA-OLEJNICZAK

How to Effectively Build Employer's Brand on the Internet? Activities of Employers Versus Opinions of Representatives of Y Generation _____ 1

MARKÉTA BERANOVÁ, HANA VOSTROVSKÁ, MIROSLAVA NAVRÁTILOVÁ, HELENA ČERMÁKOVÁ, HANA URBANCOVÁ

The Unemployment Development in Relation to the Performance of Agricultural Enterprises in Selected Regions of the Czech Republic _____ 9

PORTIA OPOKU BOADI, LI GUOXIN, PHILIP ANTWI

The Consequences of Consumer Dissatisfaction _____ 20

ANETA BOBENIČ HINTOŠOVÁ, RASTISLAV RUČINSKÝ

Foreign Direct Investments and Forms of Investment Aid _____ 29

JAN BOUBÍN

Importance of Open Innovation Mode for Start-up Projects _____ 36

MARTIN CENEK

On Abductive Reasoning for Strategic Cases Solution _____ 44

GABRIELA DUBCOVÁ, KATARÍNA GRANČIČOVÁ, DANA HRUŠOVSKÁ

Marketing Performance Assessment in Businesses in Slovakia _____ 56

LUDVÍK EGER, DANA EGEROVÁ, MICHAL MIČÍK, DAVID PRANTL

Corporate and Recruitment Websites as Tools for Recruiting _____ 65

VLADIMÍR HOJDÍK, ŠTEFAN MAJTÁN

Online Reputation Management as an Integral Part of Company Business Management _____ 76

JAROSLAV HRADÍLEK

Can some performance model be used to evaluate the level of strategic leadership? _____ 84

MICHAL JIRÁSEK

Simulation-based influence of aspiration models on firms' behavior _____ 101

MICHAL JIRÁSEK, BACHIR OUDDANE

Human Resource Management Themes and their coverage by Arabic written dissertation theses _ 110

KLÁRA KAŠPAROVÁ

Family firms and their social responsibility disclosure _____ 119

JUSTYNA KOGUT

The Analysis of the Economic Situation of Family Businesses in Poland and in Europe _____ 128

MICHAL KRČÁL, RADOSLAV ŠKAPA

How Knowledge from Customers Affects Product Design and Process Management: Initial Evidence from Systematic Literature Review _____ 138

LUBICA LESÁKOVÁ Assessment of the Small Business Act's Implementation in Small and Medium Enterprises in Slovakia	149
HELENA MAJDÚCHOVÁ, BERNADETA SIVÁKOVÁ, JAKUB KINTLER Systematic risk determinants	160
MARTA MARTINOVÁ, MARTINA HEDVIČÁKOVÁ, LIBUŠE SVOBODOVÁ Implementation of Electronic Records of Sales in the Czech Republic and It's Economic Benefits	171
JAN MERTL, RADIM VALENČÍK Improving Sustainability of Human Resources through Pension System Extension	180
MARTA NOSKOVÁ Business Intelligence System Implementation and Its Application in Management of Medium-sized Enterprise	192
PAVLA ODEHNALOVÁ Technology Transfer Industry University Cooperation - Evidence in Practice	200
CECÍLIA OLEXOVÁ, FRANTIŠEK SUDZINA Gender and personality traits' (BFI-10) effect on trust	208
ANTONÍN PAVLÍČEK, FRANTIŠEK SUDZINA Impact of Gender and Personality Traits on Preferred Pricing of Public Transport in Rush Hours	220
LINDA PLAVÁKOVÁ, ONDŘEJ ČÁSTEK The effect of Czech consumers' sociodemographic characteristics on Fairtrade goods buying	231
PAVEL PUDIL, LENKA KOMÁRKOVÁ, IRENA MÍKOVÁ Importance of Incorporating Professional Education into Organisations' Long-term Strategies	249
LUKAS SMEREK Employees' Competencies Development Depending on the Implementation of new Forms of Marketing Communication	256
SYLWIA STANCZYK Organizational Routines, Levels, Types and Aspects	264
PETR SUCHÁNEK, MARTIN ŠTĚRBA The Efficiency of the Value Creation Model in the Manufacturing Industry in the Czech Republic	273
LIBUŠE SVOBODOVÁ, MARTINA HEDVIČÁKOVÁ, MARTA MARTINOVÁ Electronic Records of Sales and It's Costs for the Companies in the Czech Republic	284
JANA ŠKOLUDOVÁ IT challenges of Human Resource Management for generation Y	293
DAŠA VÁCLAVÍKOVÁ Benefits and Risks of the Implementation of the Concept of Freedom at Work	300

JOANNA WOŹNIAK

Preferred method of acquiring information by mass event participants _____ 308

VILIAM ZÁTHURECKÝ

Social Housing Costs _____ 316

PETR ZIMČÍK

Growth of a New Market: Innovation in Space Industry _____ 328

DOMINIK ZIMON

Impact of Implementation of ISO 9001 Requirements on Streamlining of Processes Integration in the Supply Chain from a Perspective Small and Medium-sized Organizations _____ 339

GRZEGORZ ZIMON

Strategies for Assets Financing in Companies Operating in Branch Group Purchasing Organizations
_____ 350

HOW TO EFFECTIVELY BUILD EMPLOYER'S BRAND ON THE INTERNET? ACTIVITIES OF EMPLOYERS VERSUS OPINIONS OF REPRESENTATIVES OF Y GENERATION

Dorota Bednarska-Olejniczak

Wroclaw University of Economics
Marketing Management Department
Komandorska 118/120
Wroclaw 53-345, Poland
dorota.olejniczak@ue.wroc.pl

Abstract

The article broaches the subject of employer brand creation on the Internet. The goal of this work is to describe these actions within external employer branding which are performed on the Internet, and to show their possibilities and limitations, especially among the audience most active in the medium (Millennials, Generation Y). The basis for employer brand creation is the Employer Value Proposition, which describes functional, emotional and self-expression advantages. For Millennials, the biggest factors in positive image of an employer brand are: aiding in personal development, integrity, honesty, and credibility of the employer, attractive and reliable salary, and good workplace atmosphere. The most important self-expression factor is the employer brand prestige.

Keywords

employer branding, employer image, generation Y, internet

Introduction, theoretical basis and hypotheses

This article broaches the subject of employer brand creation on the Internet. The goal of this work is to indicate and describe the actions within external employer branding which are performed on the Internet, and to show their possibilities and limitations, especially among the audience most active in the medium (Millennials, Generation Y). Decisions related to choosing the workplace are high-risk and high uncertainty decisions (Gomez-Mejia et al., 2001). This uncertainty of decision process when choosing employment is influenced by information asymmetry, a characteristic trait of the job market, as remarked by M. Spence (1973). In these circumstances, individuals making an employment decision search for information that will reduce that risk. The sources of this information can be the media, other people and previous experience (Peterson, Merino, 2003). A factor reducing the uncertainty and risk may be a strong employer brand (Roselius, 1973,). It allows a company to create an image of itself as a good place to work in (Edwards 2010), to facilitate recruitment (Turban, Cable, 2003), and to draw and keep employees (Randstad, 2013). The first research

into the link between a brand as a marketing concept and human resources management was conducted by Ambler and Barrow (1996). They described an **employer brand** as a set of functional, economic and psychological advantages obtained by employment in a given institution and identified with the employer. Backhaus and Tikko (2004), on their part, stated that employer brand underlines the unique aspect of working for a given company, allows to distinguish the employer from others and is based on encouraging, motivating and keeping the existing employees and on obtaining new ones. These unique traits of the employment offer, the set of advantages and values offered, are called the **Employer Value Proposition (EVP)** (Barrow and Mosley, 2005; Edwards, 2010). It is the EVP that forms the base of employer brand creation. A properly prepared EVP should entail three types of advantages: 1) functional, resulting from the employee objectively seeing advantages of being employed and of their needs being met 2) emotional (symbolic), the employee finding pleasure and pride in working for the company in question, and believing in its honesty, innovativeness and competitive advantage 3) related to self-expression, resulting from the image of the employer brand and the way the employee perceives themselves being in harmony (Wojtaszczyk, 2012). EVP is a distillation of the company values, represented through visual and communication strategies directed at various audiences. Employer branding actions can be divided into two types: internal, directed at current employees, and external. **External employer branding** are actions that aim to shape the image of the employer in an environment formed by people who are in direct relation to the company employees, as well as potential employees (Bednarska-Olejniczak, 2013). External employer branding can be further divided into two categories, image-related and recruitment-related. The first type concentrates on creating the image of the company as an attractive employer, and the other on obtaining new employees.

Due to several characteristics (age, creativity, knowledge of new technologies), an especially important audience for image-related actions is **the Generation Y**, also known as the Millennials. These are people born between 1980 and 2000 (although other brackets are also proposed, such as 1980-1994, or 1977-1997), and raised during the technological revolution, a fact which impacts their style of life, style of work, and consumption habits. Millennials are supposedly competent with new technologies, able to function in a global, multicultural environment, focused on personal development, and good at teamwork (Rogozińska-Pawełczyk, 2015). Research done by Ł. Jurek (2014) on the functioning of Millennials on the job market shows that they are strongly attached to new technologies, mostly look for job offers on the Internet and rarely by traditional means, and when making the decision they are mostly motivated by the salary, followed by promotion possibilities and workplace atmosphere. Contrary to previous generations, Millennials mostly expect

development possibilities, obtaining experience and a chance to develop their own career, from an employer (Legnerova, 2017).

From the point of view of employer image building strategy, choosing the right instruments is very important. Among the tools used by employers to **create their brand image on the Internet** are: 1) search engines, 2) company websites, particularly a "career" section, 3) employer profiles on social media, both those specialised in employment like GoldenLine or LinkedIn, and personal social media (Facebook, Twitter, Instagram, nk.pl etc.) 4) company blogs, often using the potential and involvement of their current employees, informing the environment about the life in the firm, thus successfully shaping the image of the employer, 5) recruitment and image-related videos (on YouTube and other sites), 6) up to date information on job offers on recruitment websites (pracuj.pl etc.) 7) employment offers published on the Internet. Using virtual networks for image purposes requires the employees pay attention to: choosing the network, promoting the network among its potential users, and ensuring that the image-related actions will be up to communication standards of the chosen medium (Kantowicz-Gdańska, 2012).

This article states following working hypotheses:

H1: Millennials use the Internet intensely and for various aspects of their lives, including searching for employment,

H2: Millennials use information on employment and employers mostly on the Internet, and the data most important for them concerns salary amount and development possibilities,

H3: Information on high salaries, friendly workplace atmosphere and development possibilities is the chief factor in creating a positive image of an employer among the Millennials,

H4: Employer brand prestige is important for Millennials and may be more important than salary when choosing an employer.

1. Methodology

Research consisted of desk research and direct questionnaire questions (auditorium questionnaire and Internet questionnaire). It was conducted in February and March of 2017 among the last year students of the Wrocław University of Economics, and the WSB University (Wyższa Szkoła Bankowa) in Wrocław, Poland. Nonprobability sampling was chosen due to the fact that the students were all Millennials, and all at the stage of their lives where their interest in potential employers was very high (finishing education and entering the workforce). They are also people who naturally communicate through the Internet for both professional and social reasons, and who

all declared intense use of digital sources when jobhunting and choosing offers. The sample was 207 students, 75.4% being women and 24.6% being men. The number of full time and part time students was almost even (55.1% and 44.9% respectively). Since being part of the Millennial generation was a factor, the age group represented in the study was between 20 and 40 years of age, with 91% of respondents being between 20 and 30 (75% women and 25% men) and 9% between 30 and 40 (all women). The majority of the respondents were professionally active (69.9%). Due to nonprobability sampling, results of the questionnaire research should not be treated as representative for the population. They are exploratory in character and can introduce the subject of the article to wider discussion.

2. Results

The first phase of research aimed to establish the frequency and the character of Millennials' activities on the Internet. In order to verify, partially at least, hypothesis H1, the questionnaire asked how often do the respondents use the Internet and how often they use its various facilities. Almost everyone (96.1%) declared using the Internet multiple times every day, with only 3.9% declaring once or twice per day. 98.5% declared daily use of web browsers, with the rest saying they use them several times a week. Social media are used with similar frequency – 93.2% using them every day, and 5% several times a week. Another frequently used product is the email (81% using it every day and 17% several times a week). Internet communicators are used every day by 65.5% of the respondents, 15.5% several times a week, and 15% rarer than that. A relatively small amount of respondents declared use of news websites – 39% - and the least frequently used were profession-specific portals (12.6%) and online stores (8.7%). In the case of news websites and professional sites, about 40% of the respondents declared using them several times a week, while for online stores this was only 15%. Further verification of H1 required establishing the reasons for these Internet activities. The most popular reason for using the Internet was searching for information on various subjects (97.1%), social life (92.8%) education (90.8%) and entertainment (89.4%). 52.2% of the respondents indicated using the Internet for professional reasons.

The second phase of research verified the sources and types of information used by the respondents when jobhunting. 84.4% of them had used the Internet to find out more about the prospective employer. To avoid mistakes connected to hypothetical questions, the questionnaire asked about actual previous behaviour, about what sources they used to find out information when looking for their last job. These were: employment agency and recruitment type websites (57%), their acquaintances (55%), social media (47%), employers' own websites (37%), job fairs and opinions expressed by other Internet users (36% each) and employment advertisements in newspapers

(32%). Facilities such as University Career Office, events organised by employers at the university, videos on youtube and official company blogs were less popular. Among other sources, a miniscule percentage of the respondents indicated training courses organised by employers, company stands present at the university at events other than job fairs, advertisement websites such as gumtree, olx and similar, government employment agencies and press articles. The type of information most often searched for is: information on possible salaries and expectations towards a candidate (100% among those searching for information), information on personal development possibilities (90%), workplace atmosphere (81%), perks and benefits (57%), prestige of the company (43%) and work-life-balance (41%).

The next phase concerned the means of shaping positive image of the employer: it was to find out what traits add up to a "perfect employer" in the eyes of the respondents, an employer they would judge favourably. This was a qualitative type question using the free association technique. Respondents were asked to enter their own answers which were then categorised into three groups of advantages of EVP (functional, emotional, and self-expression related). Table 1 presents the results.

Table 1: Traits of the "perfect employer"

EVP category	Types of traits	Number of mentions
Functional	Traits describing the employer:	
	Professional (competent, diligent)	26
	Creative, innovative, visionary	15
	International scope	6
	Organised, well managed	5
	Good localisation	4
	Solvent, financially stable	3
	Good market position	3
	Behaviour towards employees:	
	Cares about employee development	61
	Ensures attractive/stable/fair remuneration	39
	Supportive, helpful, supplying required tools	15
	Communicative (good contact, ensures good communication)	11
	Flexible (flexible approach)	10
	7	

	Keeping their word	7
	Offers perks/benefits (attractive social benefits, health benefits)	6
	Ensures good working conditions	6
	States their expectations clearly	5
	Offers stable employment (employment contract)	4
	Offers interesting work, ambitious goals	3 and less
	Others: mentor, good-looking offices, punctual, motivating, cares about work-life-balance	
Emotional	Traits describing the employer (towards all subjects):	
	Honest, reliable, credible, open	56
	Warm, friendly, positive attitude	18
	Understanding	14
	Caring, responsible	8
	Sense of humour	8
	Fair	8
	Wise	6
	Others: empathic, polite, cares about keeping good relations, consistent, involved, loyal	5 and less
	Behaviour towards employees:	
Cares about good workplace atmosphere	31	
Gives credit where due, rewards	14	
Respects employees	12	
Others: partner, oriented towards employee success, "humane", cares about employee opinion	5 and less	
Self-expression related	Employer prestige	18
	Has a good opinion	7
	Others: successful, ambitious, charismatic	1

Source: original research

In order to verify hypothesis H4, respondents were asked to choose out of two job offers presented to them, all for the same post, with the same scope of duties and responsibilities. The first offer was from a company that was renowned in its field, which is worth to have in one's resume and which is admired and valued by the respondent's acquaintances, but offers significantly smaller salary than the other

offer. The second offer was from a company that had a bad employer image, with negative connotations, but offering significantly higher salary. Over 90% respondents chose the first option – smaller salary from a prestigious company. Only 9.7% chose the second option – larger salary from a company with bad press.

Discussion and conclusions

Millennials use the Internet extensively and for many aspects of their lives, both professional and social. They use web browsers, social media and emails most often. Their reasons to use the Internet are also related to various aspects of their lives, mostly being: searching for information, social life, education and entertainment. One of the reasons for searching for information is jobhunting, for which purpose Millennials most often use employment websites, social media, the "career" section of corporate websites, and opinions of other Internet users. Millennials are interested the most in information on salaries and expectations towards a candidate, personal development possibilities and workplace atmosphere. The basis for creating employer brand is the Employer Value Proposition, which showcases the functional, emotional and self-expression related advantages of working for the employer in question. For Millennials, there are two functional and two emotional advantages that best build a positive image of the employer: caring about employee development, attractive and stable salary, honesty and credibility of the employer, and good workplace atmosphere. Among the self-expression related factors, employer prestige is the most important one, and for Millennials it influences the employer choice significantly. Millennials are not convinced to work for a company with a bad image even with very high salaries. A prestigious image can, on the other hand, make up for a smaller salary.

References

- Ambler, T. & Barrow, S. (1996). The employer Brand. *Journal of Brand Management*, 4, 185-206. doi: 10.1057/bm.1996.42
- Backhaus, K.B. & Tikoo, S., (2004). Conceptualizing and researching employer branding. *Career Development International*, 9, 501-517. doi: 10.1108/13620430410550754
- Barrow, S. & Mosley, R., (2005). *The Employer Brand: Bringing the Best of Brand Management to People at Work*. Chichester: John Wiley & Sons.
- Bednarska-Olejniczak, D. (2013). Wybrane problemy kształtowania wizerunku przedsiębiorstwa jako pracodawcy. *Ekonomiczno-zarządcze problemy w gospodarce*, 3, 7-18.

- Edwards, M. R. (2010). An integrative review of employer branding and OB theory. *Personnel Review*, 39(1-2), 5–23. doi: 10.1108/00483481011012809
- Gomez-Mejia, L.R. Balkin, D.B. & Cardy, R.L. (2001). *Managing Human Resources*. Upper Saddle River: Pearson Education.
- Jurek, Ł. (2014). Wybrane zagadnienia dotyczące zachowań osób z pokolenia Y na rynku pracy. In: Długosz, P., Kotarski, H., Jedynak, W. (ed.) *Czy stracone pokolenie? Młodzież i jej dylematy na początku XXI wieku*. Rzeszów: Wydawnictwo Uniwersytetu Rzeszowskiego, 110-120.
- Kantowicz-Gdańska, M. (2012). Kształtowanie marki i wizerunku pracodawcy w wirtualnych sieciach społecznych. *Zarządzanie Zasobami Ludzkimi*, 1(84), 63-82.
- Legnerova, K. (2017). Management of Generation Y. In: Jedlicka, P., Soukal, I. & Maresova, P., (ed.). *Hradec Economic Days*, 7(1), 513-519.
- Peterson, R.A. & Merino, M.C. (2003). Consumer information search behavior and the Internet. *Psychology & Marketing*, 20(2), 99–121. doi:10.1002/mar.10062
- Randstad USA (2013, retrieved 2017, March) 20). What Workers Want: Employer Branding in a Rebounding Job Market *PRnewswire*.. Retrieved from: <http://www.prnewswire.com/news-releases/what-workers-want-employer-branding-in-a-rebounding-jobmarket-203213161.html>
- Rogozińska-Pawelczyk, A. (2015). *Pokolenia na rynku pracy*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
- Roselius, T. (1971). Consumer rankings of risk reduction methods. *Journal of Marketing*, 35, 56-61.
- Spence, M. A. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.
- Turban, D. B. & Cable, D. M. (2003). Firm Reputation and Applicant Pool Characteristics. *Journal of Organizational Behavior*, 24(6), 733-751. doi:10.1002/job.215.
- Wojtaszczyk, K. (2012). *Employer branding czyli zarządzanie marką pracodawcy. Uwarunkowania, procesy, pomiar*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.

THE UNEMPLOYMENT DEVELOPMENT IN RELATION TO THE PERFORMANCE OF AGRICULTURAL ENTERPRISES IN SELECTED REGIONS OF THE CZECH REPUBLIC

Markéta Beranová, Hana Vostrovská, Miroslava Navrátilová,
Helena Čermáková, Hana Urbancová

Faculty of Economics and Management
Czech University of Life Sciences
Kamýcká 129, 165 21 Prague
Czech Republic
mberanova@pef.czu.cz

Abstract

Since 1989, not only has the economy of the agricultural sector been fundamentally transformed, but also those of other sectors. The consequences of changes in agricultural enterprises have primarily become evident in the employment rate and their performance. This article aims to evaluate the financial performance of agricultural enterprises in selected regions in relation to the general unemployment rate in these regions. The results obtained are based on the collection and processing of secondary data from the database of economic and financial records called Amadeus ($n_a = 117$, $n_b = 81$) and from publicly available financial statements of enterprises. The evaluated results have shown that the general unemployment rate does not affect the financial results and personnel costs, and thus neither the performance of agricultural enterprises.

Keywords

agriculture, general unemployment rate, region, profit or loss, personnel costs

Introduction

This article deals with employment in the agricultural sector and the performance of agricultural enterprises. The development of agriculture after 1989 has significantly been influenced by the change in the structure of ownership relations of agricultural land (restitution, private enterprises) and by an increased pressure to rationalize work. The transformation of agriculture has been related to changes in the social and economic situation as well as to the Czech Republic's accession to the European Union. "The position of agriculture among other sectors of the economy is rather specific because its importance is irreplaceable in terms of nourishing the population and protecting all the components of the environment" (Brožová and Beranová, 2017). Zasada (2011) draws attention to the phenomenon of the so-called multifunctional agriculture, especially in suburban areas around conurbations, which includes a wide range of

activities, diversification of approaches within the environmental protection, and social and economic functions of agriculture.

The majority of entities operating in the sector are natural persons (self-employed persons) and small businesses with fewer than 50 employees that manage one-third of agricultural and arable land. In 2013, their number exceeded 44 thousand. The remaining two-thirds of the land are cultivated by agricultural enterprises of different legal forms (Agrarian Chamber of CR, 2015), which is, inter alia, the consequence of restitution. In addition to small agricultural enterprises, also medium-sized business (with 50 - 250 employees) play a key role; those two types together employ 63% of workers in the sector (it is 28% in small businesses) (TUAEF AFTU CR, 2013).

“Because of the specifics of this sector (regarding both the production process and the market operation process), economic performance is more difficult to achieve than in other economic sectors” (Brožová and Beranová, 2017). One of the basic factors that influence the development and efficiency of the agricultural sector is employment. The number of employees in the sector was 2.63% of the total number of employees in the Czech Republic itself (Agrarian Chamber of CR, 2014). The number of employees in agriculture has steadily been declining over a long period. Over the last 20 years, the number of employees in the agricultural sector has decreased by two-thirds (Agrarian Chamber of CR, 2014). In terms of interest in employment in the agricultural sector represents one of the few exceptions, for example sugar industry (Levá, Navrátilová and Čermáková, 2016).

The agricultural sector is the only sector which predominantly employs rural population, which is also confirmed by the data from 2011, when 62.8% of all employees in this sector lived in the country (Ministry of Agriculture, 2014). The crucial social importance of support of small-scale agriculture in the country, which would ensure incomes to a large number of farmers and their families and prevent the outflow of population to cities and depopulation of rural areas (Davidova, 2014).

The long-term trend is aging of workers in agriculture, which is in line with the situation in most European countries. In 2013 the proportion of workers older than 45 was 54.3%, while in the entire national economy of the Czech Republic it was 41.3% (Agrarian Chamber of CR, 2015). *“The development of Czech agricultural labour market has been continuously predominantly negative since 1989 and recently, the problem of youth unemployment is acute in many countries, not only in the Czech Republic”* (Grigoryeva, 2012). Despite the fact that employment in the sector has been declining, the education of people employed in the agricultural sector has been increasing in connection with the increasing qualification requirements, which have been caused mainly by automation and technology development (TUAEF AFTU CR, 2013).

The success in management of agricultural enterprises has a decisive influence on the employment development as well as employee wages. The most significant risks that are perceived by agricultural entities include risks of volatile agricultural prices, risks of fluctuation in yields, the risk of changes in the agrarian policy measures and sales risks (Špička, 2009). The volume of agricultural financial aid and subsidies, without which farmers could not do without, has had a significant impact on profits. The Czech agriculture is profitable because of subsidies. The sector would be at a loss of approximately CZK 11 billion without them or the food prices in the CR would have to be much higher (Agricultural Association of CR, 2015).

This article aims to evaluate the financial performance of agricultural enterprises in the observed regions in relation to the general employment rate in the selected regions. To meet the aims of the paper, the following research questions have been formulated:

- Is the unemployment rate reflected in profits of agricultural enterprises in the selected regions?
- Is the amount of personnel costs higher in the region with a lower unemployment rate?

1. Methodology

The main source of data on management of agricultural enterprises was the Amadeus database. It is a database of economic and financial information of companies that are obliged to disclose their financial statements in accordance with the Accounting Act. The Amadeus database collects economic data on companies in whole Europe and is the most commonly used source for research, development of financial analyses and observed trends, and for sectoral comparisons. Other sources are publicly available statements, namely financial statements (balance sheets, profit or loss statements) and annual reports. These statements are available in the Commercial Register of the Czech Republic. The unemployment rate, which is mentioned in this paper, has been taken from the Czech Statistical Office that describes it as the general unemployment rate expressing the ratio of the unemployed to the total labour force (the sum of all the employed and the unemployed).

The regions, for which the unemployment rate was observed in relation to profit or loss and other economic variables, were selected deliberately and on the basis of obtained data from the Czech Statistical Office. The South Bohemian Region, which is a region with the lowest general unemployment rate in 2013 - the general unemployment rate was around 5.2%, and the Usti nad Labem Region, which is a

region with the highest general unemployment rate in 2013 - the average unemployment rate was 9.4%, were compared.

Companies in the selected regions were also chosen deliberately. As for the South Bohemian Region the sample included $n_a=117$ of agricultural enterprises and as for the Usti nad Labem Region it was $n_b=81$ of agricultural enterprises. The selection was made according to the CZ-NACE classification and based on knowledge of activities of individual companies, with these reporting agricultural activity as their predominant principal activity of their business.

Concerning the South Bohemia Region sample ($n_a=117$), this group of enterprises included 81.20% (95) of small agricultural enterprises (fewer than 50 employees) and 18.80% (22) of medium-sized agricultural enterprises (from 51 to 249 employees), classified by the number of employees. Large agricultural enterprises with more than 250 employees were not represented in the sample n_a .

The Usti nad Labem Region sample ($n_b=81$) included 85.19% (69) of small agricultural enterprises (fewer than 50 employees) and 14.81% (12) of medium-sized agricultural enterprises (from 51 to 249 employees), classified by the company size (number of employees). Large agricultural enterprises with more than 250 employees were not represented in the sample n_b , namely due to the fact that according to the Czech Statistical Office most enterprises fall into in the category of small and medium-sized enterprises (not more than 249 employees).

In terms of ownership interest, the vast majority of selected organisations were enterprises with the Czech majority ownership interest. 6 companies (i.e. 5.13%) have the majority foreign interest out of the selected agricultural enterprises ($n_a=117$) in the South Bohemian Region. Compared to the observed sample of agricultural enterprises in the Usti nad Labem Region ($n_b = 81$), only 2 companies (i.e. 2.47%) have the majority foreign interest.

The following indicators and relations have been used in the presented paper: Number of employees, Profit per employee, Operating revenue per employee, Average cost of employee, Shareholders funds per employee, Total assets per employee. Also the tools of descriptive statistics, methods of analysis and synthesis, comparison, and induction and deduction have been used in the data processing and evaluation.

2. Results

The following part of the paper presents the data evaluation and interpretation. An emphasis is laid on the evaluation of the situation in relation to the general

unemployment rate and profits of agricultural enterprises in the selected regions between 2011 and 2013 (see Table 1).

Table 1: Selected indicators from 2011 to 2013 for the South Bohemian Region in thousands of CZK

Indicator	2011			2012			2013		
	Median	Standard Deviation	Average	Median	Standard Deviation	Average	Median	Standard Deviation	Average
Operating revenue (Turnover) th of CZK	54,831	52,914	71,060	56,462	54,059	72,660	58,545	55,571	74,195
Number of employees	38	39	50	38	38	49	38	33	47
Profit per employee th CZK	106	253	127	88	235	127	92	230	123
Operating revenue per employee th CZK	1,441	1,799	1,904	1,545	1,867	2,037	1,512	2,247	2,116
Average cost of employee th CZK	278	98	293	296	121	317	292	91	311
Shareholders' funds per employee th CZK	1,107	1,099	1,334	1,168	1,087	1,410	1,217	1,218	1,516
Total assets per employee th CZK	1,959	2,119	2,552	2,135	1,978	2,665	2,331	4,003	3,016

Source: own processing based on the Amadeus database, 2016

The results given in Table 1 clearly show that the number of employees in the selected agricultural enterprises farming in the South Bohemian Region is stable. The average number of employees in 2011 was 50, in 2012 it was 49 (compared to 2011, the number of employees decreased by 2%) and in 2013 it was 47 (compared to 2012,

the number of employees decreased by 4.08%). There was a slight increase in the Total revenue per employee indicator in the reference period. In relation to the development of recalculated number of employees, the inverse proportion is applied, which can be considered as a consequence of labour rationalization, the use of modern technologies, and effective practices in agriculture. There was a slight increase in the Average cost per employee in 2012, even though the average recalculated number of employees decreased. The reason for this was the reduction of wage disparities in agriculture. The reduction of wage disparities continued also in 2013 and is expected to go on. As for the Profit per employee (i.e. profit before tax) almost the same amount is reported in the entire reference period. In 2011 Profit before tax amounted to CZK 127,000 per employee, in 2012 it was also CZK 127,000 per employee, but in 2013 there was a slight decline to CZK 123,000 per employee (in relation to 2011 and 2012 the Profit before tax declined by 3.15%). In the entire reference period, the inverse proportion in relation to the development of the average recalculated number of employees is evident for Shareholders' funds per employee and Total assets per employee. Table 2 presents the results for the Usti nad Labem Region.

Table 2: Selected indicators from 2011 to 2013 for the Usti nad Labem Region in thousands of CZK

Indicator	2011			2012			2013		
	Median	Standard Deviation	Average	Median	Standard Deviation	Average	Median	Standard Deviation	Average
Operating revenue (Turnover) th CZK	27,79	38,339	42,969	30,308	46,618	46,032	32,001	49,065	48,418
Number of employees	15	31	30	38	30	29	15	32	30
Profit per employee th CZK	52	475	193	84	530	190	125	661	198
Operating revenue per employee th CZK	1,333	2,727	2,262	1,373	3,970	2,839	1,333	4,526	2,965

Average cost of employee th CZK	290	97	297	283	103	304	274	167	313
Shareholders' funds per employee th CZK	1,748	2,252	1,667	1,294	2,048	1,884	1,326	2,252	1,956
Total assets per employee th CZK	1,938	2,558	2,744	1,992	4,044	3,378	1,947	6,167	3,981

Source: own processing based on the Amadeus database, 2016

The results in Table 2 show that the average number of employees working in the selected agricultural enterprises in the Usti nad Labem Region is also stable. In 2011, the average recalculated headcount was 30, in the following year of 2012 the number was 29 (compared to 2011, the number of employees decreased by 3.33%) and in 2013 it returned to the level of 2011, i.e. 30 employees (compared to 2012, the number of employees increased by 3.45%). In the reference period, there was a marked increase in Revenue per employee even though the average recalculated number of employees remained almost unchanged. This may again be caused by the labour rationalization, the use of modern technologies and effective processes, as well as by increasing strike prices of agricultural commodities and reducing the accessory costs in agriculture. The average cost per employee slightly increased, which was caused by the reduction of wage disparities in agriculture. In the entire reference period almost identical results are achieved in the profit per employee indicator (i.e. profit before tax). In 2011 the profit before tax per employee amounted to CZK 193,000. In 2012 it was CZK 190,000 and in the last observed year of 2013 there was a slight increase to CZK 198,000. In the whole reference period, the inverse proportion is evident in relation to the development of the average recalculated number of employees for shareholders' funds and total assets per employee.

When comparing the profit before tax per employee for the selected regions, it is advisable to use median values, which are not affected by extreme values influencing the indicator value. In 2011 the median value of profit before tax per employee was CZK 106,000 for an agricultural enterprise in the South Bohemian Region and for the Usti nad Labem Region this value was lower than a half, namely the median value of CZK 52,000 of profit before tax per employee. In 2012 the median values of profit before tax per employee were almost identical in both regions. The median value of this indicator for the South Bohemian Region amounted to CZK 88,000 and for the Usti nad Labem Region it amounted to CZK 84,000. In the last observed year of 2013, the situation in both regions changed and the higher profit before tax was reported

for the Usti nad Labem Region, namely the median value of CZK 125,000; the median value of this indicator for the South Bohemian Region amounted only to CZK 92,000. When comparing the median values, the South Bohemian Region unequivocally predominated in terms of total revenue per employee reported by agricultural enterprises; in 2011 the median value of total revenue per employee for this region amounted to CZK 1,441,000; in 2012 the median value was CZK 1,545,000 and in 2013 it amounted to CZK 1,512,000. The agricultural companies in the Usti nad Labem Region reported lower total revenue per employee, namely in 2011 the median value amounted to CZK 1,333,000; in 2012 the median value was CZK 1,373,000 and in 2013 the medium value amounted to CZK 1,333,000.

Table 3: The unemployment rate in the selected regions in %

Region	2011	2012	2013
Usti nad Labem Region	9.9	10.8	9.4
South Bohemian Region	5.5	5.7	5.2
CR	6.7	7.0	7.0

Source: CSO (2015)

The Usti nad Labem Region has long been struggling with a high unemployment rate, which is, at the same time, reflected in the economic performance of the region. Compared to the South Bohemian Region, where the unemployment rate is below the national average over a long period, the Usti nad Labem Region has a nearly double unemployment rate.

Despite the increase in wages in this sector in 2014, the wage disparity of agriculture (including forestry and fishing) against industry has virtually remained unchanged at the level of 81.0%, the relation of wages to the national economy (Ministry of Agriculture, 2015).

Despite the falling employment in the sector, certain types of professions in agriculture are lacking, especially those that require higher and broader qualifications of workers. In the next few years, we can expect that the qualification structure of employees will change due to automation and technological development in the sector as well as due to the development of biofuels, ecological farms or agricultural tourism (National Education Fund 2015). Vnoučková et al. (2015) point out that the competitiveness of Czech agriculture is also threatened by the declining capacity to adopt the latest knowledge and innovations. An increase in jobs cannot be expected, but demands on education and qualifications of employees in agriculture will be rising.

Discussion, limitations and conclusions

Agriculture has been dealing with the problem of how to attract new employees to this sector for a long period. The main reasons are low wages in comparison with other sectors and demands and specific characteristics of agricultural work.

In terms of overall performance of agricultural enterprises, it can be concluded that the economic situation of agricultural enterprises may be considered stable. In their paper, Novotná and Svoboda (2014) hold the same opinion and state that an average Czech agricultural enterprise is in profit and good financial position. The favourable economic situation and the growth of production of agricultural enterprises in the observed period were primarily caused by stable prices and the growth in yield of crop farming and by better yield of animal farming (Lososová and Zdeněk 2014).

Despite the falling employment in the sector, certain types of professions in agriculture are lacking, especially those that require higher and broader qualifications of workers. In the next few years, we can expect that the qualification structure of employees will change due to automation and technological development in the sector as well as due to the development of biofuels, ecological farms or agricultural tourism (National Education Fund 2015).

In summary, to find and recruit the most capable employees within the region is a crucial factor of doing successful business in agriculture. However, it is possible to choose the best potential employees already at secondary schools or higher education institutions, and thus to improve the not exactly optimal development of employment in this sector. Bein and Ciftcioglu (2017) said *“Our findings suggest that agriculture may play a potential role in lowering the prevailing rates of high unemployment; but this potential is likely to vary between countries”*.

It is also important to take into account the connection of agricultural enterprises to the subsidy policy, especially because of the fact that agricultural subsidies have been rising over a long period. The profits adjusted for subsidies are alarming, as companies begin to be at a loss all at once, which is also reflected in other indicators. (Losová and Zdeněk, 2014; Střeleček, Lososová and Zdeněk, 2011).

The limit of the contribution is the narrowing of results for only two selected regions in the Czech Republic and a limited time series. Another direction of research should be focus on extending time series and other regions in the Czech Republic or abroad.

Based on the obtained results, it can be concluded that the general unemployment rate does not affect the financial performance of agricultural enterprises in the selected regions. The results have shown that in the case of Profit before tax recalculated per 1 employee, the Usti nad Labem Region showed higher values in the reference period, (the average values ranged from CZK 190,000 to CZK 198, 000), i.e.

a region where the general unemployment rate is higher than in the South Bohemian Region (the average values ranged from CZK 123,000 to CZK 127,000). As for the Average cost recalculated per 1 employee, both the observed regions are almost equal, with the indicator showing the average values ranging from CZK 292,000 to CZK 313,000; the impact of unemployment rate is thus more than negligible.

Acknowledgement

This publication is a follow-up to the project of the Faculty of Economics and Management of the University of Life Sciences Prague; the project of Internal Grant Agency (IGA), number 20171012 – Proposal of economic data collection to create an economic information system in forestry in the Czech Republic. This publication is a follow-up to the project of the Faculty of Forestry and Wood Sciences of the University of Life Sciences Prague; the project of Wide Internal Grant Agency (CIGA CULS in Prague), number 20174315 - Analysis of the Wood Processing Industry State and Prospects in the Czech Republic.

References

Agrarian Chamber of CR (2014, retrieved 2017, January 20). Zpráva o stavu zemědělství ČR za rok 2014: "Zelená zpráva". APIC-AK.cz: AGRÁRNÍ KOMORA ČR. Retrieved from: <http://www.apic-ak.cz/zelena-zprava.php>

Agrarian Chamber CR (2015, retrieved 2017, January 23). Zpráva o stavu zemědělství ČR za rok 2015: "Zelená zpráva". APIC-AK.cz: AGRÁRNÍ KOMORA ČR. Retrieved from: <http://www.apic-ak.cz/zelena-zprava.php>

Agricultural Association CR (2015, retrieved 2017, February 10). V roce 2014 dosáhl výsledek hospodaření v zemědělství ČR nadprůměrně dobrého výsledku. Zemědělský svaz ČR. Retrieved from: <http://www.zscr.cz/clanek/v-roce-2014-dosahl-vysledek-hospodareni-v-zemedelstvi-cr-nadprumerne-dobreho-vysledku-1065>

Amadeus (2016, retrieved 2016, January 21). A database of comparable financial information for public and private companies across Europe. BUREAU VAN DIJK, Bratislava. Retrieved from: <https://amadeus.bvdinfo.com/version-201739/home.serv?product=amadeusneo>

Bein, A.M. & Ciftcioglu, S. (2017). The relationship between the relative GDP share of agriculture and the unemployment rate in selected Central and Eastern European countries. *Agricultural Economics*, 63, 1-10. doi: 10.17221/372/2015-AGRICECON

- Brožová, I. & Beranová, M. (2017). A Comparative Analysis of Organic and Conventional Farming Profitability. *AGRIS on-line Papers in Economics and Informatics*, 9(1), 3-15. Retrieved from: <http://dx.doi.org/10.7160/aol.2017.090101>
- Davidova, S. (2014). Small and Semi-subsistence Farms in the EU: Significance and Development Paths. *EuroChoices*, 13(1), 5-9. Retrieved from: <http://dx.doi.org/10.1111/1746-692X.12043>
- Grigoryeva N. (2012). The Problem of Youth Unemployment in Rural Area. *AGRIS on-line Papers in Economics and Informatics*, 4, 3-12.
- Levá, M., Navrátilová, M. & Čermáková, H. (2016). Zhodnocení hospodaření českých cukrovarů a jejich porovnání s EU-28. *Listy cukrovarnické a řepařské*, 132(9-10), 322-324.
- Lososová J. & Zdeněk R. (2014). Key factors affecting the profitability of farms in the Czech Republic, *Agris on-line Papers in Economics and Informatics*, 6(1), 68-74.
- National Education Fund (2016, retrieved 2017, February 26). Zemědělství, lesnictví, myslivost a rybolov. Budoucnost profesí: Národní vzdělávací fond, o.p.s. Retrieved from: <http://www.budoucnostprofesi.cz/cs/vyvoj-v-odvetvich/zemedelstvi.html>
- Novotná, M. & Svoboda, J. (2014). The economic results of farms in the Czech Republic. *Central European Agriculture Journal*, 15(4), 31-50. doi: <http://dx.doi.org/10.5513/JCEA01/15.4.1505>
- Střeleček, F., Lososová, J. & Zdeněk, R. (2011). Economic results of agricultural enterprises in 2009. *Agricultural Economics (Zemědělská ekonomika)*, 57(3), 103-117.
- Špička, J. (2009). Analýza rizika v zemědělských podnicích metodou Earnings at Risk Method. *Ekonomika a management*, 3(3), 67-80.
- TUAEF AFTU CR - Trade Union of Employees in Agriculture and Food: The Association of Free Trade Unions of CR, 2013. Současná situace a dosavadní vývoj v odvětví zemědělství. (2013, retrieved 2017, April 5). Odborový svaz pracovníků zemědělství a výživy: Asociace svobodných odborů ČR. Retrieved from: <https://www.ospzv-aso.cz/obsah/71/soucasna-situace-dosavadni-vyvoj-v-odvetvi-zemedelstvi/3205>
- Vnoučková, L., Urbancová H. & Smolová, H. (2015). Rozvoj zaměstnanců v zemědělství a lesnictví. *Ekonomické Listy*, 6(1), 3-12.
- Zasada, I. (2011). Multifunctional peri-urban agriculture—A review of societal demands and the provision of goods and services by farming. *Land Use Policy*, 28(4), 639-648.

THE CONSEQUENCES OF CONSUMER DISSATISFACTION

Portia Opoku Boadi, Li Guoxin, Philip Antwi

School of Economy and Management
Harbin Institute of Technology (HIT)
Harbin, China
portiaopokuboadi@yahoo.com

Abstract

Research into consumer satisfaction levels has gone far enough for several years now, however, much has not been done to reiterate how consumers will react and deal with their dissatisfaction and the effect it has on the companies. The focus of this study is mainly to know how far a consumer is willing to go when dissatisfied with a product or service, in effect, weighing all the pros and cons of consumer dissatisfaction. The major consequences of consumer dissatisfaction discussed in this paper include negative Word-of-mouth, switch, complaints and no co-creation intentions. One major finding of this study is that all literature on consumer satisfaction relates it with consumer dissatisfaction by using several theories to explain a consumer's judgement after consuming a product or service.

Keywords

consumer dissatisfaction, complaints, negative WOM, inertia, co-creation, intention

Introduction

Every consumer at one point in time has experienced dissatisfaction, either with a product or a service. However there are few researches on consumer dissatisfaction, as most articles focus on consumer satisfaction. According to R L Oliver (2014), dissatisfaction can be interpreted as the unpleasant experience that one gets from using a product or service after usage (Oliver, 2014). Before purchase, every consumer has an expected outcome and several theories have been proposed to explain consumer satisfaction. In all of these theories, there is a distinction between the expectation before use and the actual performance after use. It is at this point that a consumer can decide whether he/she is satisfied or dissatisfied. Since consumers are aware that it is the duty of companies and service providers to cater for their needs especially when they have paid for it, they exhibit several attitudes towards dissatisfaction. To this effect, Kärnä (2014) emphasizes that companies, government agencies and most consumers are keen to find out the results of consumer satisfaction and dissatisfaction (Kärnä, 2014). The more satisfied consumers become the more profits the companies will make. When consumers are satisfied, it has a positive impact on companies as they incur high profits, consumers will spread positive word of mouth and continue purchasing their products(Oliver, 2014). On the

other hand when dissatisfied, consumers might stop repurchase, spread negative word of mouth, complain and even return products (Duygun, 2015). As consumer dissatisfaction has a negative impact, companies are very careful in their dealings so as to avoid dissatisfaction among consumers. Some of the impacts of dissatisfaction to be discussed include Complaints, Negative Word of Mouth, Switching intentions, Inertia, disappointment, regret and no co-creation intentions.

1. Theoretical Background

1.1 Consumer dissatisfaction

As long as consumer expectations are higher than actual experience after the use of a product or service, dissatisfaction will set in. Zoll (2014) asserts that when there is a tremendous decline in service, dissatisfaction is bound to occur (Zoll, 2014). When consumers are dissatisfied with a product or service they become very emotional and they exhibit all kinds of behaviors such as regrets and feelings of disappointment (Jang and Kim, 2011). Many researchers have come up with dissatisfaction behavior that consumers portray. As asserted by Ferguson and Johnston, (2011) it is obvious that a consumer's decision to re-purchase a product or service is highly dependent on the experiences in the past with the same product or service (Ferguson and Johnston, 2011).

1.2 Negative Word of Mouth (WOM)

In his research, (Buttle, 1998) argues that WOM can be seen in how people are impacted, among workers and hiring as well. However, because WOM has no boundaries, it is considered to be different from advertising (Stern, 1994), in this regard, every company takes WOM very seriously as it can make or break their profits. WOM comes in different forms but with the recent inception of information technology, it is mostly done virtually through online platforms, and can either be negative or positive based on the consumer's emotions. According to G Nejad et al. (2015), negative WOM can have serious effect on the profits of a firm whose market involves consumers with different needs and wants, especially as the firm cannot explicitly control WOM (Yadav and Pavlou, 2014). With the introduction of social media, consumers often share their bitter experiences on such platforms.

1.3 Switching intentions

There have been several studies on consumer switching intentions. Indeed, in most cases dissatisfied consumers are more likely to switch than satisfied consumers as asserted by Loveman (1998). Others like (Antón et al. (2007), Sloot and Verhoef, 2008, Jones et al., 2000, Chih et al., 2012) have as well discussed the subject matter. Switching means the discontinuance of the use of a product or service to another

Zeelenberg and Pieters (2004). In this regard, a consumer is more likely to switch to a more preferable alternative that brings better satisfaction.

1.4 Consumer Complaints

People complain from being dissatisfied with a product or service (Hansen et al. (2010), Garrett and Toumanoff, 2010). People choose direct means to complain, such as on company provided platforms or indirect means such as complaining to people who are in no way connected to the product or service. In whichever way that consumers choose to complain, it leaves an effect on the company and its products.

1.5 Inertia

Sometimes consumers can be passive about dissatisfaction, and this is associated with inertia. In most instances, consumers' inertia behaviors are due to the fact that they find it irritating to look for other alternatives as it also requires time and energy Wirtz et al. (2006). Although Oliver Richard (1997) asserted that inertia could be way of ensuring consumer loyalty, companies should not rely on it as such behaviors cannot last for longer periods.

1.6 Research questions

This paper sets to answer the following questions:

What do consumers do when they are dissatisfied with a product or service?

Is company feedback important to consumers?

How does emotions, trust and negative disconfirmation affect consumer dissatisfaction

1.7 Research Gaps

Most literature based consumer dissatisfaction on emotions, and the focus of the studies continue to be in the hospitality and service industries which includes mostly hotels and restaurants. In this regard, this paper adopts a conceptual framework from existing consumer behaviour literature to address these gaps.

2. Methodology

This paper adopts a qualitative analytical approach to address the research questions presented in the first chapter.

2.1 Antecedents of dissatisfaction

Emotions

Literature on emotions in relation to consumer satisfaction and dissatisfaction was not really in the known until 1983, when Westbrook and Reilly presented an empirical work in the direction of consumer satisfaction and dissatisfaction in which he stated that emotions cannot be explained in a specific way as it involves an act in a particular manner. They used the Izard's differential emotion theory which presents ten different kinds of emotions (Westbrook and Reilly, 1983). However, their methods predicted a fluctuating alliance in relation to factors associated with emotions. Currently, theories on emotions posit that perception and intuition results in unequivocal feelings, as and when it becomes profitable and vice versa. Per this notion, consumer dissatisfaction will be seen as a "negative emotion" based on a consumer's anticipation of how a product or service will work out as against how it actually works out after utilization.

Trust

Prior to the purchase of a product, most consumers have some level of expectations as to the level of satisfaction of the product. However, if it does not go accordingly after usage, there tend to be dissatisfaction. Most literature on consumer trust connects it with loyalty. As a result of uncertainty and risks, trust has become a very crucial topic being discussed in recent literature. Several marketing literature links consumer trust and satisfaction. In view of this, it is better for a consumer to have a higher opinion about a seller since it is more persuading than the other way round. From the above literature, one can clearly point out that a consumer's trust prior to the use of a product is positively related to the dissatisfaction level. The lower the trust, the higher the dissatisfaction level in the product.

Negative Disconfirmation

Disconfirmation refers to an instance when a consumer has a set of beliefs as to how a product or service should work out prior to usage. After usage, if the consumer is highly satisfied it means disconfirmation is positive. If the consumer however becomes disappointed, the disconfirmation is negative, hence dissatisfaction. In most cases, negative disconfirmation increases dissatisfaction. Even though research on satisfaction stresses disconfirmation as a very important and central variable, R L Oliver (2014) suggested that one should ascertain expectations and disconfirmation differently as he posited that disconfirmation does not control satisfaction in any way. Prior literature on disconfirmation focused on how one's expectations, disconfirmations and level of satisfaction are related to one another.

2.2 Consumer response to dissatisfaction

This section discusses four main behaviors that consumers demonstrate when faced with dissatisfactory experiences with a product. These include Negative WOM, Switching, Complaints and No co-creation intentions. Kamins (2014) describe negative WOM as “interpersonal communication among consumers concerning a marketing organization or product which denigrates the object of the communication” (Kamins, 2014).

Another response to consumer dissatisfaction is to switch products. This behavior is defined as the demeanor that consumers show in relation to their “satisfactory level”. Therefore the more dissatisfied they are, the more easily and faster it becomes for them to switch to other competitor brands, irrespective of their level of loyalty to the company. The third response is complaints. Some scholars defined complaints as violating a situation that a consumer anticipates to achieve. It can also be defined as when a consumer shows any sign of dissatisfaction and hostility. The focal point of consumer complaining behavior is dissatisfaction, which eventually helps companies on ways to correct all errors and mistakes. The final response to dissatisfaction is ‘no intention to co-create’. Co-creation is about involving consumers actively in the production process and allowing them to use their discretion. Initially, it was the company who determined what value is, however, the emergence of co-creation came to redefine value in that, consumers and the company act together (Ind and Coates, 2013). Consumer dissatisfaction can influence a person’s willingness to co-create.

Most consumer satisfaction literature is based on Oliver’s findings that suggested that the results a consumer gets after using a product is not in any way related to what the consumer expects to achieve prior to purchasing, that is disconfirmation . Ferguson & Johnston (2011) concluded even though dissatisfaction is irrefutable, companies can dwell on the conduct of dissatisfied consumers and try to solve the effect dissatisfaction has on consumers (Ferguson and Johnston, 2011) . Even though most research focuses on satisfaction responses, the few research that discussed dissatisfaction did not delve much into the entire manner in which consumers behave when dissatisfied.

3. Implications

3.1 Implications for managers

Consumer dissatisfaction is an unavoidable phenomenon in every business environment. In view of this, every company should make it a point to please their customers. Although practically this is not possible, companies can still try their best to render better services to consumers as they are the backbone to their profit

margins. The research of Zeelenberg & Pieters (2004) used the “valence-based approach and the “specific emotions approach” to conclude that dissatisfaction mainly occurs when emotions are hostile. And this means that the reason for dissatisfaction needs a little bit of in-depth analysis as it can cause very severe damaging effects on a company. Therefore, managers can persuade consumers to voice out their dissatisfaction in a cordial manner instead of using harsh ways such as negative WOM, switching and not being involved in co-creation activities.

Managers can as well create a platform for consumers to voice out their dissatisfactory experiences and ensure that complaints are dealt with appropriately so as to address consumer problems because dissatisfaction can cause a consumer to switch products which can affect the profit margin of the company. Dissatisfaction tends to increase when the company is silent on consumer complaints. Negative WOM also has a way of affecting the company’s integrity that has been built over a period of time. Therefore addressing consumer dissatisfactory experiences can reduce or eliminate negative WOM.

In addition, managers should always ensure that consumer problems are addressed on time and in a proper manner. As the saying goes, “the customer is always right”. This can be done by setting up a team to solely oversee such complaints from customers. Though it can bring about extra costs, it is worth it as consumers are very essential for every business organization in terms of profit margin. Managers could as well find other ways to compensate consumers who have not been satisfied in the process. This could be in a form of granting discounts, offering free delivery, etc. as this will encourage such consumers to feel special and engage in co-creation activities.

Conclusion

The aim of this research was to contribute to existing literature on consumer dissatisfaction by exploring how consumers will react to dissatisfaction with products and services. A consumer may be dissatisfied based on a number of reasons prior to purchase, during consumption and after consumption. However, upon dissatisfaction, consumers have every right to complain and make companies and suppliers aware of their disappointment and when nothing is done about the situation consumers go further to exhibit dissatisfactory behaviors such as negative WOM, switch, complain or not engage in any co-creation activities. Since most research on consumer dissatisfaction focuses on the hospitality sector, mostly restaurants and hotels, and few in the health sector further studies can focus on dissatisfactory behaviors in everyday consumer goods.

Again most research administer questionnaires that incorporates simple 'yes' and 'no' answers. For lack of space, consumers are not able to express the proper level of dissatisfaction as well as their true feelings about the product; in this regard methods such as personal interviews will work well to reveal the true feelings of the consumer. From literature studied, this paper can affirm that consumer dissatisfaction can result in negative WOM, switching intentions, complains and not engaging in any co-creation activities. From previous literature, it can be explicitly stated that when consumers are not happy with a product or service, they will complain, ask questions and make suggestions to service providers and companies the best way to improve. Upon this feedback given by customers, companies and service providers are expected to give a feedback to convince customers of their willingness to co-operate in resolving the issue. As long as companies respond in this manner, consumers feel empowered. However, when customers do not receive any feedback, they are tempted to react in specific ways such as negative WOM, switching to other providers, complaining and not engaging in co-creation activities especially when they encounter "failed services" (Zeelenberg and Pieters, 2004). Generally speaking, feedback is very important and it should be a two-way affair; from companies to consumers and vice versa, as in the case of Business to consumers (B2C).

Acknowledgements

The authors would like to thank the **National Natural Science Foundation of China** for providing funds for this research.

References

- Antón, C., Camarero, C., & Carrero, M. (2007). Analysing firms' failures as determinants of consumer switching intentions: the effect of moderating factors. *European Journal of Marketing*, 41, 135-158.
- Buttle, F. A. (1998). Word of mouth: understanding and managing referral marketing. *Journal of strategic marketing*, 6, 241-254.
- Chih, W.-H., Wang, K.-Y., Hsu, L.-C., & Cheng, I.-S. (2012). From disconfirmation to switching: an empirical investigation of switching intentions after service failure and recovery. *The Service Industries Journal*, 32, 1305-1321.
- Duygun, A. (2015). The impacts of customer loyalty on negative word-of-mouth communication and repurchase intention. *Journal of Marketing and Management*, 6, 16.

- Ferguson, J. L., & Johnston, W. J. (2011). Customer response to dissatisfaction: A synthesis of literature and conceptual framework. *Industrial Marketing Management*, 40, 118-127.
- G Nejad, M., Amini, M., & Sherrell, D. (2015). The Profit Impact of Revenue Heterogeneity and Assortativity in the Presence of Negative Word-of-Mouth. *Nejad, Mohammad G., Mehdi Amini, and Daniel L. Sherrell (2016), "The Profit Impact of Revenue Heterogeneity and Assortativity in the Presence of Negative Word-of-Mouth," International Journal of Research in Marketing*, 33.
- Garrett, D. E., & Toumanoff, P. G. (2010). Are consumers disadvantaged or vulnerable? An examination of consumer complaints to the better business bureau. *Journal of Consumer Affairs*, 44, 3-23.
- Hansen, T., Wilke, R., & Zaichkowsky, J. (2010). Managing consumer complaints: differences and similarities among heterogeneous retailers. *International Journal of Retail & Distribution Management*, 38, 6-23.
- Ind, N. & Coates, N. (2013). The meanings of co-creation. *European Business Review*, 25, 86-95.
- Jang, Y. J., & Kim, W. G. (2011). *The Role of Negative Emotions in Explaining Restaurant Customer Dissatisfaction and Behavioral Intention*.
- Jones, M. A., Mothersbaugh, D. L., & Beatty, S. E. (2000). Switching barriers and repurchase intentions in services. *Journal of retailing*, 76, 259-274.
- Kamins, M. A. (2014). The Impact of Word of Mouth and the Facilitative Effects of Social Media. *The Handbook of Persuasion and Social Marketing*, 3, 129.
- Kärnä, S. (2014). Analysing customer satisfaction and quality in construction—the case of public and private customers. *Nordic journal of surveying and real estate research*, 2.
- Loveman, G. W. (1998). Employee satisfaction, customer loyalty, and financial performance an empirical examination of the service profit chain in retail banking. *Journal of Service Research*, 1, 18-31.
- Oliver R. L. (1997). *Satisfaction: A behavioral perspective on the consumer*. NY: Irwin-McGraw-Hill.
- Oliver, R. L. (2014). *Satisfaction: A behavioral perspective on the consumer*, Routledge.
- Sloot, L. M., & Verhoef, P. C. (2008). The impact of brand delisting on store switching and brand switching intentions. *Journal of Retailing*, 84, 281-296.

- Stern, B. B. (1994). A revised communication model for advertising: Multiple dimensions of the source, the message, and the recipient. *Journal of Advertising*, 23, 5-15.
- Westbrook, R. A., & Reilly, M. D. (1983). Value-percept disparity: an alternative to the disconfirmation of expectations theory of consumer satisfaction. *NA-Advances in Consumer Research*, 10.
- Wirtz, J., Brah, S., Yanamandram, V., & White, L. (2006). Switching barriers in business-to-business services: a qualitative study. *International Journal of Service Industry Management*, 17, 158-192.
- Yadav, M. S., & Pavlou, P. A. (2014). Marketing in computer-mediated environments: Research synthesis and new directions. *Journal of Marketing*, 78, 20-40.
- Zeelenberg, M., & Pieters, R. (2004). Beyond valence in customer dissatisfaction: A review and new findings on behavioral responses to regret and disappointment in failed services. *Journal of business Research*, 57, 445-455.
- Zoll, M. (2014). *Dissatisfaction, Welfare and Democracy: Explaining the link between welfare state service satisfaction and the voting behaviour of dissatisfied voters in the European Union*. University of Twente.

FOREIGN DIRECT INVESTMENTS AND FORMS OF INVESTMENT AID

Aneta Bobenič Hintošová, Rastislav Ručinský

University of Economics in Bratislava
Faculty of Business Economics
Tajovského 13
041 30 Košice, Slovak Republic
aneta.bobenic-hintosova@euke.sk
rastislav.rucinsky@euke.sk

Abstract

The paper deals with a problem of the association between foreign direct investment inflows and special forms of investment aid. Based on theoretical background as well as previous empirical findings the role of investment aid in attracting foreign direct investment is rather disputable. In our interest is to study the relationship between particular forms of investment aid (fiscal and financial aid) and foreign direct investment inflows in conditions of Slovak republic. Our research conducted in the period of 2003 – 2015 using correlation and regression analyses confirms positive and statistically significant relationship between given fiscal investment aid and foreign direct investment inflows in conditions of Slovak republic.

Keywords

foreign direct investment, investment aid, fiscal aid, financial aid

Introduction

There are plenty of studies dealing with the issue of the role of investment aid in attracting foreign direct investment (hereinafter also „FDI“) inflows into particular countries (see e.g. Lim, 2008;Ginevičius, Šimelyté, 2011;Donaubauer, 2014;Arazmuradov, 2015). However, the effect of governmental instruments, specifically investment aid, towards attracting FDI varies (Šimelyté, Liučvaitienė, 2012). From the theoretical point of view, the sign of the effect of investment aid on FDI inflows is not unambiguous. In addition, many authors studied separately the role of different forms of investment aid in attracting FDI inflows.

From the theoretical point of view we can generally distinguish three basic forms of direct investment incentives as a tools of governmental pro-investment policy, namely (based on OECD, 2003):

Regulatory FDI incentives are attracting foreign-own firms by means of offering them derogations from national rules and regulations. They include e.g. easing the environmental, social or labour-market related requirements placed on investors.

Fiscal FDI incentives are usually applied by countries with limited funds available for financial incentives. They are typically granted in the form of reduced rates of corporate income tax, tax holidays, tax credits against profits that are reinvested in the host country, withholding tax, VAT reduction, etc.

Financial FDI incentives are often motivated by disadvantages in the area in comparison to sites elsewhere. Besides infrastructure subsidies, there are available also incentives connected with labour force as temporary wage subsidies or job training subsidies. Into the group of financial incentives, we can include also credits to investors or grants in form of cost participation.

However, as stated by Rosenboim et al. (2008) the two most common types of incentives are grants and tax relief. The impact of these incentives on the localization decision-making of the company has increased over time and, as a result, an incentive competition has emerged. This competition may very often lead a country to “race to the bottom” especially when the countries are competing for the same investors. In this case, the country invests more in the attraction of the foreign capital than it benefits from existing or future FDI, as the country may lose its revenues from excessive tax reliefs or suffer expenditures from big grants or subsidies (Šimelyté, Liučvaitienė, 2012).

Based on investigation of previous scientific literature Ginevičius and Šimelyté (2011) conclude that the major incentive affecting FDI inflows involve more fiscal than financial incentives. Rosenboim et al. (2008) argue that under risk aversion and increasing risk, foreign investors prefer a one-time grant whereas the countries prefer tax relief. In addition, Burger et al. (2012) state that in general, developed and transition countries frequently employ financial incentives, while developing countries (which cannot afford a direct drain on the government budget) prefer fiscal measures. Thus, empirical findings on the FDI – investment aid forms link are mixed and inconclusive.

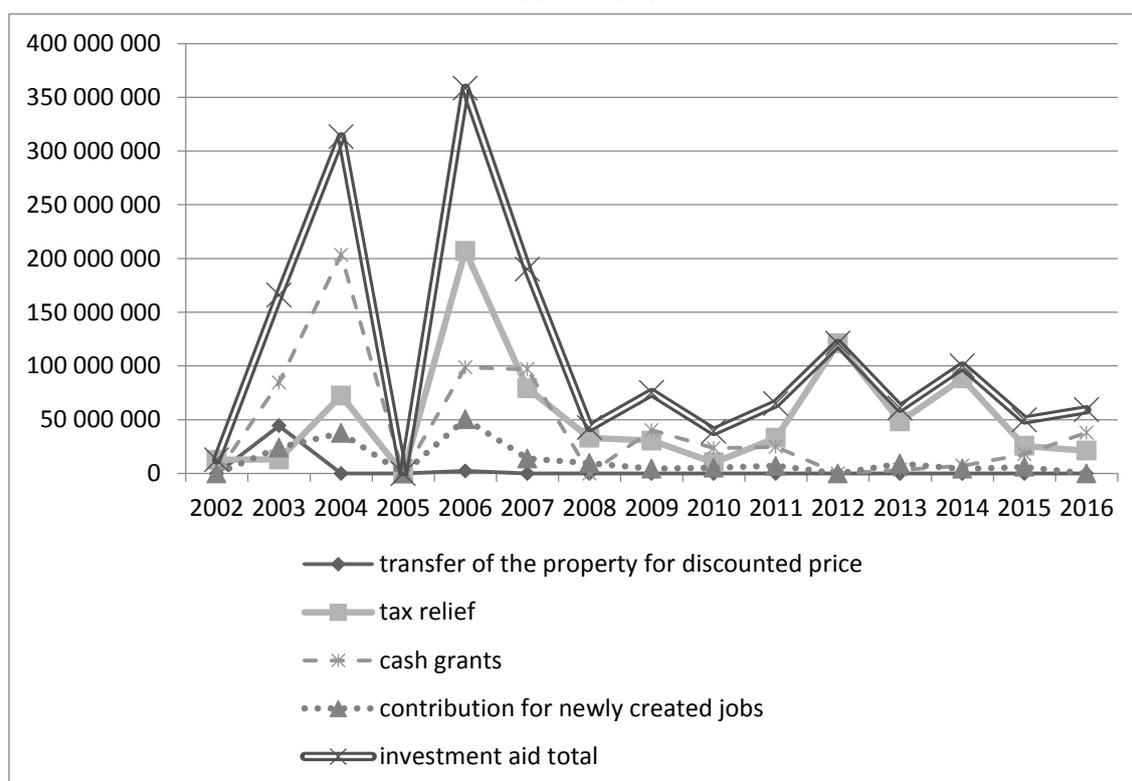
The aim of the present paper is to identify existence of the relationship between particular forms of investment aid (fiscal and financial aid) and foreign direct investment inflows in conditions of Slovak republic. The rest of the paper is organized as follows: section 1 brings short overview of the amount and structure of investment aid provided to companies incorporated in Slovak republic, section 2 explains the empirical methodology and introduces dataset structure including summary statistics of the used variables, section 3 brings own empirical results and their discussion followed by concluding remarks.

1. Forms of Provided Investment Aid in the Slovak Republic

The forms of investment aid, eligible projects and costs as well as other related issues are in conditions of Slovak republic regulated primarily by the Act on Investment Aid No. 561/2007 Coll. as amended. Generally, the Slovak investment aid program is focused on industry, high-tech sector, strategic services, tourism and it is oriented to promote economic development of certain disadvantaged areas to eliminate regional disparities and to target investments and job creation to most vulnerable regions. Thus, the type and the amount of the subsidy depends on the region. Typically, there are four applicable forms of investment aid, namely tax relief, cash grant, contributions for the newly created jobs and transfer of state/ municipal property for a discounted price. According to law, there is no entitlement to the granting of investment aid.

Based on the data published by the Ministry of Economy of the Slovak republic, the development of provided investment aid and its forms is obvious from the following figures.

Figure 1: Overview of provided investment aid in Slovak republic in the period of 2002 - 2016



Source: own processing of data taken from www.economy.gov.sk

In the observed period, totally 176 applications for provision of investment aid were approved in the total amount of 1.653 billion EUR. Figure 1 shows that the highest amount of investment aid was provided in 2006. From that time, we can notice more

stable investment politics from the amount of provided aid point of view. There are significant differences in portion of forms of aid on the total aid provided. Most frequently tax relief was used (48.15%), followed by cash grants (38.64%), contribution for newly created jobs (10.39%) and transfer of the state/ municipal property for a discounted price (2.82%). However, the portion of the forms of investment aid changed over observed period. While the direct financial contribution for acquisition of property was the most frequently used form of investment aid till 2006, in the following period till 2009, the tax relief played a major role. However, in the next two years, mainly due to global economic crisis, the government tried to support entrepreneurship and investment activities especially through direct subsidy for property acquisition. From the year 2011 the tax relief accounted for the largest share of granted investment aid.

3. Methodology and Data

The relationship between FDI inflows and investment aid is commonly studied through regression models (see e.g. Arazmuradov, 2015). In our interest is to examine this relationship deeper, namely between FDI inflows and particular forms of investment aid through following regression model:

$$\ln FDI_t = \beta_0 + \beta_1 \ln FisA_t + \beta_2 \ln FinA_t + \varepsilon_t \quad (1)$$

In the model (1), the dependent variable, the logarithm of FDI measured in thousands EUR ($\ln FDI_t$) is regressed with the logarithm of fiscal aid ($\ln FisA_t$), and financial aid ($\ln FinA_t$), both measured in thousands EUR. Fiscal aid represents amount of provided tax relief and financial aid represents sum of provided cash grants and contributions for newly created jobs. β_0 represents the constant, while β_1 and β_2 are the coefficient of our main interest, and ε_t represents the residuals of the model (1).

Data on FDI inflows are taken from the statistics published by National Bank of Slovakia. Data on provided investment aid and its forms are taken from the database published by Ministry of Economy of the Slovak republic. We use complete time series data over the period from 2003 to 2015. Before we analyse the empirical results of the model, we present the summary statistics of all variables (Table 1). The FDI are on average in sum of 1 717 250 thousands EUR. The distribution of dependent variable is approximately symmetric, based on skewness, and platykurtic, based on excess kurtosis. The particular forms of investment aid are on average 56 858 thousands EUR in case of fiscal aid, and 67 541 thousands EUR in case of financial aid. The distributions of both forms are highly skewed to the right side, and seem leptokurtic (mainly in case of distribution of fiscal aid).

Table 1: Summary statistics of the variables

Variable	Mean	Median	Maximum	Minimum	St. dev.	Skewness	Kurtosis
FDI	1 717 250	2 320 630	3 741 390	-454 968	1 482 210	-0.42	-1.32
FisA	56 858	33 067	206 950	10 223	54 478	1.63	2.10
FinA	67 541	34 894	241 030	9 626	71 276	1.35	0.82

Source: own processing

The correlation matrix of model (1) is presented in table 2. Based on Pearson correlation coefficients, we expect positive impact of both forms of investment aid, and no collinearity problem in the model (1).

Table 2: Correlation matrix of model (2)

Pearson correlation coefficients	FDI	FinA	FisA
FDI	1	0.60 ** (0.05)	0.39 (0.24)
FinA		1	0.45 (0.16)
FisA			1

Source: own processing

4. Results and Discussion

The empirical results of the model (1) obtained from OLS estimation are shown in the table 3. Based on R-squared, this model can explain 73 % of the dependent variable variance. The model shows no evidence on presence of heteroscedasticity, and the independent variables show no indication of a collinearity problem.

Except for the constant, the independent variable fiscal aid has the statistically significant impact on the dependent variable, while the variable financial aid seems not having statistically significant impact on FDI based on p-value. After removing the logarithms of variables, we can interpret the impact of fiscal aid on FDI as 10 % increase of the fiscal aid causes the FDI increase of almost 3 %. Thus, from the particular forms of investment aid point of view, the provided fiscal aid seems to attract more foreign direct investments.

Table 3: Empirical results of model (1)

Variable	Coefficient	Std. error	t-ratio	p-value	VIF
The constant	12.28***	1.00	12.32	0.00	-
lnFinA	-0.06	0.09	-0.70	0.52	1.07
lnFisA	0.30**	0.09	3.16	0.03	1.07

*Note: the asterisk denotes statistical significance - * on a level of 10 %, ** on a level of 5 %, and *** on a level of 1 %. The VIF value above 10.00 may indicate a collinearity problem.*

R-squared	0.73	Adjusted R-squared	0.60
F-statistic	5.45	With p-value	0.07
LM statistic (test for heteroskedsticity)	2.30	With p-value	0.31

Source: own processing

Our results are in line with some other findings based on a belief that FDI inflows usually depend on fiscal stimulus (Ginevičius, Šimelytė, 2011). Similarly, Cleeve (2008) concluded that tax holidays seem to be the most significant in attracting foreign investment. From the presented overview of provided investment aid in case of Slovakia it is obvious that the preference of the particular forms of investment aid changed over the time. In the light of our findings we can agree with Rosenboim et al. (2008) that a country can raise its level of attractiveness for foreign investment by changing the structure of the incentives basket, without changing the basket's cost.

Conclusion

In the centre of our interest within this paper was to examine the relationship between FDI inflows and particular forms of investment aid provided in conditions of Slovak republic. For this country, it is typical to provide rich scope of investment incentives primarily focusing on attracting inward foreign direct investment and to use this tool also as a mean of competition for foreign investor also with other countries in the region. Based on analysis covering 2003 - 2015 period we can conclude that provided fiscal investment aid has positive and statistically significant impact on FDI inflows; however the similar effect was not detected in case of financial aid. Our results can be used for planning a set of incentives to raise the attractiveness of the country to foreign investors. However, as concluded e.g. by Ruane (2008) the FDI incentives must be complemented by favourable overall policy framework that focus on economic and political stability, provide physical, human and institutional infrastructure and reduce the cost of doing business in the host country. These issues are on agenda of our further research.

Acknowledgements

The paper presents partial results of the research project VEGA No. 1/0842/17“The causality links between foreign direct investments and firms’ performance”.

References

- Arazmударov, A. (2015). Can development aid help promote foreign direct investment? Evidence from Central Asia. *Economic Affairs*, 35(1), 123-136.
- Burger, A., Jaklič, A. & Rojec, M. (2012). The effectiveness of investment incentives: the Slovenian FDI co-financing grant scheme. *Post-Communist Economies*, 24(3), 383-401
- Cleeve, E. (2008). How effective are fiscal incentives to attract FDI to Sub-Saharan Africa? *Journal of Developing Areas*, 42(1), 135-153.
- Donaubauer, J. (2014). Does foreign aid really attract foreign investors? New evidence from panel cointegration. *Applied Economics Letters*, 21(15), 1094-1098.
- Ginevičius, R. & Šimelyté, A. (2011). Government incentives directed towards foreign direct investment: A case of Central and Eastern Europe. *Journal of Business Economics and Management*, 12(3), 435-450.
- Lim, S. H. (2008). How investment promotion affects attracting foreign direct investment: Analytical argument and empirical analysis. *International Business Review*, 17(1), 39-53.
- OECD. (2003, retrieved 2017, March). Checklist for Foreign Direct Investment Policies. Retrieved from <https://www.oecd.org/investment/investment-policy/2506900.pdf>
- Rosenboim, M., Luski, I. & Shavit, T. (2008). Behavioral approaches to optimal FDI incentives. *Managerial and Decision Economics*, 29(7), 601-607.
- Ruane, M., C., M., 2008. Attracting foreign direct investments: Challenges and opportunities for smaller host economies. *Journal of International Business Research*, 7(2), 65-74.
- Šimelyté, A. & Liučvaitienė, A. (2012). Foreign direct policy-friendly business environment in R&D sectors: Baltic states versus Visegrad countries. *Journal of East-West Business*, 18(1), 66-93.

IMPORTANCE OF OPEN INNOVATION MODE FOR START-UP PROJECTS

Jan Boubín

Technical University of Liberec
Studentská 1402/2
461 17 Liberec 1
Jan.Boubin@tul.cz

Abstract

Innovation represents a potential for economic development and its acceleration. Start-up projects constitute another significant potential for this development. Valuable ideas of young ambitious people may help to open up a new business ways and can be a motivation for development even in various companies and in a large spectrum of business sectors. On the other side, there is a lack of experience and information base of young people this way. This make risks that may limit the possibility of realization of the project or reduce the economic return on investment of the project. Elimination of these risks may pose a Open Innovation mode and application of Open Data for the purpose of establishing and managing a Start-up project. The aim of the paper is to evaluate alternatives to the use of Open Innovation mode for Start-up projects, with emphasis on the application of Open Data for the implementation and management of projects. The outcome of this paper is a comprehensive overview of the practical use of Open Data and Open Innovation mode for Start-up projects.

Keywords

closed innovation, implementation, open innovation, open data, start-up

Introduction

Innovation has become an integral part of the organization of the companies and it used to develop the business processes and activities. Innovation help develop the manufacturing capabilities of enterprises, of which a significant extent benefit not only for the company but also for the customers. Mutual interaction increase customer loyalty and brings stability and higher profitability for companies. For many companies innovation potential is existentially important.

The concept of innovation in addition to the recovery seen primarily in connection with the change that can affect human activities, thinking or single production. Innovation can only be considered a modification or renewal that was actually applied in the manufacturing process or be directly placed on the market. In the first case, the improvement of the production process, which often leads to higher

production efficiency or cost savings. In the second case, the change relates directly to the customer who is offered a modified or new product. (Drucker, 1993)

Start-up is an emerging project or business based on new ideas. It represents a specific part of innovation potential. Start-up company often stands in the beginning only an idea of creative people and its business plan is being born. Range of areas in which the start-up created is virtually unlimited. Most often it is a technology or online business. (Corvello, 2017)

1. Methodology

The paper has descriptive character. This paper aims to comprehensively assess the application possibilities of open innovation for the purpose of implementing and managing start-up projects with an emphasis on practical use of the information shared in the success of the start-up, with emphasis on the application of Open Data for the implementation and management of projects. Also evaluate the pros and cons of open innovations and compare them with the closed innovation mode. Then describe the impact of innovation modes on market development. The outcome of this paper is a comprehensive overview of the practical use of Open Data and Open Innovation mode for Start-up projects.

Methodology of the paper includes a literature review, the analysis of obtained data and draft of possibilities of application open innovation mode for start-up projects.

2. Results - Closed and Open innovation mode

Start-up is based primarily on a unique idea. The idea represents a breakthrough innovation that could benefit from a broader spectrum of the population. Based on the idea arises project. Sophisticated project is an outline of ideas in terms of their implementation, management and financing. They outline the forms and procedures which should lead to the achievement of the assumed targets and to commercialize the project. The emergence of start-ups is then usually the last but the most problematic phase, requiring a large initial financial requirements. (Corvello, 2017)

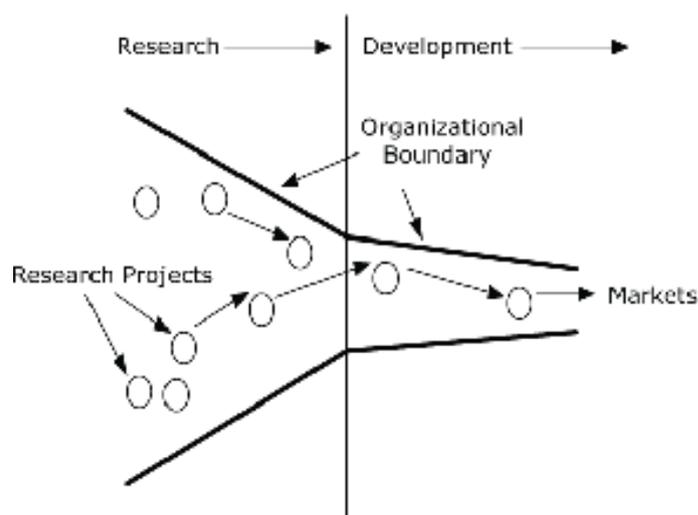
Colombo et. al. (2016) explain, that implementation of start-up is very difficult. Often new ideas creators embark on projects with the deployment, but without sufficient financial basis and experience. Projects are often very ambitious and therefore require a significant financial cost. Apart from its own resources and very often the financing and information support of projects from external sources. Option is more often applied to various forms of sponsorship or donation of financial and material resources by the legal and natural persons. These projects are popular with investors focusing on new business ideas, ie. Business angels. Investors also bring significant experience necessary for the implementation of projects.

Tidd (2007) wrote, that the principal advantage of start-ups is their positive impact on the global innovation potential. Young people come up with something new, as a rule, positively influencing the market and incentives for development important established companies. In a number of cases, start-ups represented the start of a successful global project (eg. Google). At the same time bring important experience for young people, whether in management, planning or development of a specific project. A certain disadvantage may be too ambitious consultation on a project that ultimately will not bring adequate financial return, whether due to excessive financial return of the project or due to unsuccessful commercialization. Risk of application is thus relatively high and the lack of experience of young people can sometimes cause too much effort for the implementation of the project with less chance of success. Cooperation with experienced investors eliminates this risk, on the other hand reduces the profit for the founder of the project. Here it is necessary to consider the ratio of the real level of risk to the financial return of the project.

In the past, companies effort to protect their findings, which resulted in preference of closed innovation models. It is a model where companies innovate based on internal knowledge and tend not to further disseminate their knowledge. These innovations are often implemented by larger companies that can afford to not only separate project implementation (from research and development to implementation and commercialization of innovations) and financially ensure full protection of information. (Hazdra, 2016)

Within the closed innovation models (Figure 1) there is an influx of ideas only inside the company. This means that companies rely solely on internal resources. Ideas are not consulted nor confronted with the external environment of the company. At the beginning of the process is a large number of ideas, evaluating passes a certain percentage of ideas in the development phase. Here the further reduction ideas. The process of testing "then survive" only a small percentage of ideas, even if any innovation is realize.

Figure 1: Closed innovation mode



Source: own processing

All the negative effects of closed innovation efforts have resulted in the opening innovation, information sharing and the development of an information market. This view was taken mainly by governmental and supranational institutions, but more and more often private companies are also inclined towards these initiatives. Therefore, so-called open innovation models are increasingly being promoted. (Johnston, 2003)

Chesbrough (2014) says that open innovation is a situation where the company is to a certain extent willing to share his knowledge and experience with external subjects and institutions. Through this companies continue to develop the potential of innovation. In recent years, helping to develop open innovation a number of factors. Globalization of the economy generally helps communications between markets subjects and participation in various projects. Emerging alliances or clusters in some areas can bring significant economic effect for all stakeholders, which businesses are realizing. Within the framework of cooperation seeks to significantly differentiate from the competition, which is not part of the type of business cooperation.

The system of open innovation is supported by a variety of business and economic factors. SMBs themselves frequently would not be able to realize significant innovation. This is due to lack of funds, not only in the case of the realization of innovation, but already at the stage of research and development. Participation of large companies brings mutual benefits. "Smaller players" will have the opportunity to realize his idea, including subsequent profit from the changes. "Great actors" can sift of applications from smaller companies to implement a change that will bring

them a significant competitive advantage. In this case it is a mutually beneficial process, from which benefit all interested parties. (Stanko and Henard, 2014)

Apart from inter-firm cooperation in the field of innovation may also meet with the open data. These are data that are freely distributable free of charge and in electronic form. It can to discuss the details of governmental and municipal institutions as well as private companies. The open innovation model, these data may be crucial. Based on data experts can deduce or calculate the success of any innovation or return. So to conclude whether it is worth the upgrade introduced. Or how it adjusted to being successful. Likewise, it is possible to freely share certain elements of know-how, which generally leads to the development of a specific market segment and progress of all companies of the area. This has resulted in the development of the economy, so there are several initiatives (in the Czech Republic and the European Union) to support the development of open data. At least at the institutional level, this effort is evident because of its positive economic effects. (Boček, 2012)

Open data can often reveal a hole in the market. Table 1 shows the quality of selected data that can be used for start-up projects. (Open Knowledge International, 2016) In weak areas can be implemented (for example, data link maps and timetables, creating applications and programs) or, conversely, according to certain statistics and data to choose whether a given innovation suitable for realization or not. Even the information barrier may be a sign to end the process of introducing innovations.

Table 1: Open Data Index

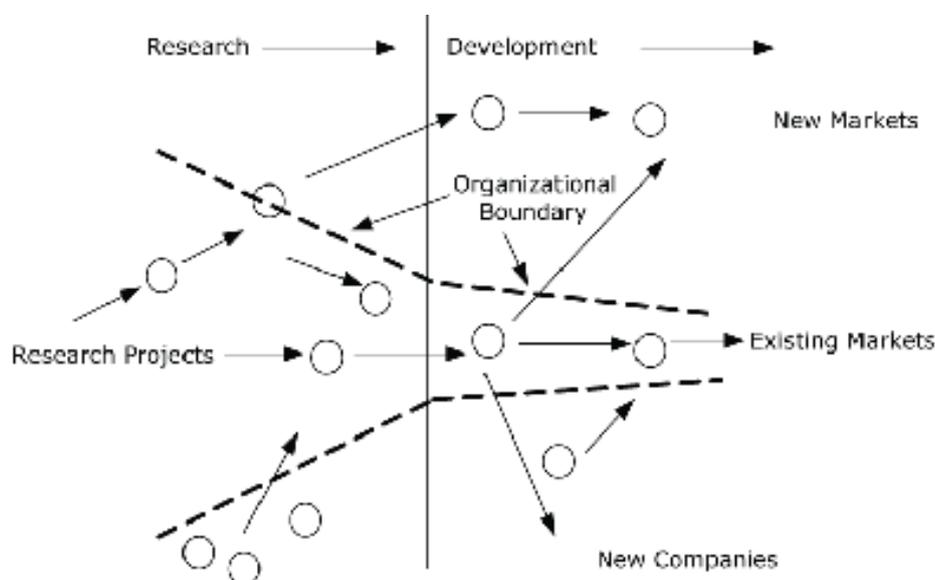
	2013		2014		2015	
	Score	Rank	Score	Rank	Score	Rank
National Statistics	80%	12.	90%	16.	100%	1.
Government Budget	45%	36.	70%	22.	100%	1.
Legislation	45%	26.	45%	33.	60%	27.
Procurement tenders	-	-	-	-	60%	26.
Election results	100%	1.	100%	1.	100%	1.
National Map	30%	44.	100%	1.	45%	35.
Weather forecast	-	-	-	-	10%	77.
Pollutant Emissions	35%	35.	35%	51.	45%	30.
Company Register	50%	13.	90%	5.	15%	58.
Location datasets	20%	41.	70%	10.	70%	14.

Water quality	-	-	-	-	10%	46.
Land Ownership	-	-	-	-	45%	12.
Government Spending	0%	40.	10%	15.	10%	8.
Transport Timetables	45%	13.	45%	24.	-	-
Total	45%	29.	66%	13.	52%	21.

Source: own processing

Within the open innovation (Figure 2) occurs throughout the process to intervene from the outside, whether it is a partner company, contractors or consultants of the company. Ideas in the individual phases can strongly modify and in the process may move after expert consultation. These consultations have resulted in a significantly higher success rate of implementation of ideas. No premature elimination of ideas. On the contrary, it is likely the emergence of changes that will be implemented and successfully commercialized. Due to professional participation of a larger number of subjects is an open innovation is considered nowadays as beneficial, since in most cases achieved successful commercialization of a positive financial impact on stakeholders within the innovation. (Freeman, 1997)

Figure 2: Open innovation mode



Source: own processing

Conclusions

Open innovation mode is important for the success of specific start-up projects. Correct work with information is important in all phases of start-ups - research, development and deployment. Without outside information does not ensure project success. Adequate use of external information also allows precise definition of the objectives and vision of the project. In combination with information from external advisors increases the success of start-up projects as well as a few percent. At the same cause it increases the experience of the authors of the project, who can adequately develop the project, or come up with another successful project. External cooperation is also important in the field of project management in the right direction and evaluation of all errors or eliminate bad decisions.

Closed innovation are now seen largely as an obstacle to market development. For this reason, the closed innovation model considered very effective and vice versa can bring business and financial loss rate, the capital invested in the innovation process reaches its return. On the other side is a series of projects that directly require a certain level of confidentiality. These include the development of new materials, projects closely linked with the know-how and unique experience of the company or project subject to a specific security mode (for example the development of weapons for the military). In these cases, closed model of innovation management not only beneficial, but also desirable and often necessary.

Start - up projects are a powerful tool for the development of the economy. Start - up projects bring new experience and develop the growth potential of individual market sectors. Risks often represent little experience with certain elements, the issue of strategic project management and the overall definition of a particular project. To eliminate the risks, it is just the connection with an open innovation model. Another possibility to eliminate risks is to use open data. This, along with other external knowledge, allows you to adequately set the specifics of the project and increase its chances of success. Data can be applied in a variety of management areas, ranging from price setting, selection of partners or to selection of raw materials.

The risks of applying only internal knowledge are primarily that they represent a brake for the development of the project. Lack of external knowledge may be liquidated for the project. The brake is also evident in the overall market system. Ideas cannot be adequately developed and this can also slow down effective overall market development.

In recent years, start-up prevails effort to create an open innovation models. Start-up projects today are not enough merely to internal knowledge and information, but also need information and external stimuli. Only minimum innovation becomes successful if based on a closed innovation (except in specific sectors). Open

innovation is beneficial not only for quality innovation companies involved, but also for the development of the market sectors.

References

- Boček, J. et. al. (2012, retrived 2017, April 3). *Otevřená data: Příležitost pro Českou republiku*. Praha: Nadace Open Society Fund. Retrieved from: <http://www.otevrenadata.cz/>
- Colombo, M. et. al. (2016). Open business models and venture capital finance. *Industrial and corporate change*, 25(2), 353-370.
- Corvello, V. et. al. (2017). Start-ups and open innovation. *European Journal of innovation management*, 20(1), 2-3.
- Chesbrough, H. (2003). *Open Innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press.
- Drucker, P. F. (1993). *Innovation and entrepreneurship*. Praha: Managment Press.
- Freeman, Ch. & Soete, L. (1997). *The economics of Industrial Innovation*. MIT Press.
- Hazdra, A. (2016, retrieved 2017, March 28). *Otevřený inovační model*. Retrieved from: adam-hazdra.webz.cz/download/Otevreny_inovacni_model.pdf
- Johnston, R. & Bate, J. (2003). *The Power of Strategy Innovation: A New Way of Linking Creativity and Strategic Planning to Discover Great Business Opportunities*. New York: American Management Association.
- Open Knowledge Foundation (2012, retrieved 2017, April 2). *Open Data Handbook*. Retrieved from: <http://opendatahandbook.org/en/>
- Stanko, A. & Henard, D. (2017). Toward a better understanding of crowdfunding, openness and the consequences for innovation. *Research Policy*, 46(4), 784-798.
- Tidd, J. et al. (2007). *Innovation management*. Brno: Computer Press.

ON ABDUCTIVE REASONING FOR STRATEGIC CASES SOLUTION

Martin Cenek

Department of Corporate Economy
Faculty of Economics and Administration
Masaryk University
Lipová 41a, 602 00 Brno
martin.cenek@mail.muni.cz

Abstract

The most important task for every company is to set an optimum strategy – a strategy that determines future success and the very survival of the company on the market. This involves an intricate decision-making in the context of increasingly complex conditions of the entrepreneurial environment and hypercompetition. These conditions, however, do not eliminate the need for rational decisions; quite the contrary, they offer a suitable stimulus for creating new approaches which accommodate current conditions. The subject of this paper is an introduction of a new methodology for solving strategic cases with a focus on conducting a strategic analysis from the point of view of the solver. The paper presents the basis of the methodology and the solution process based on the methodology itself. For better illustration, a case study demonstrating the solution of a real-life strategic case is included.

Keywords

strategic management, abductive reasoning, inference, logic, pragmatism

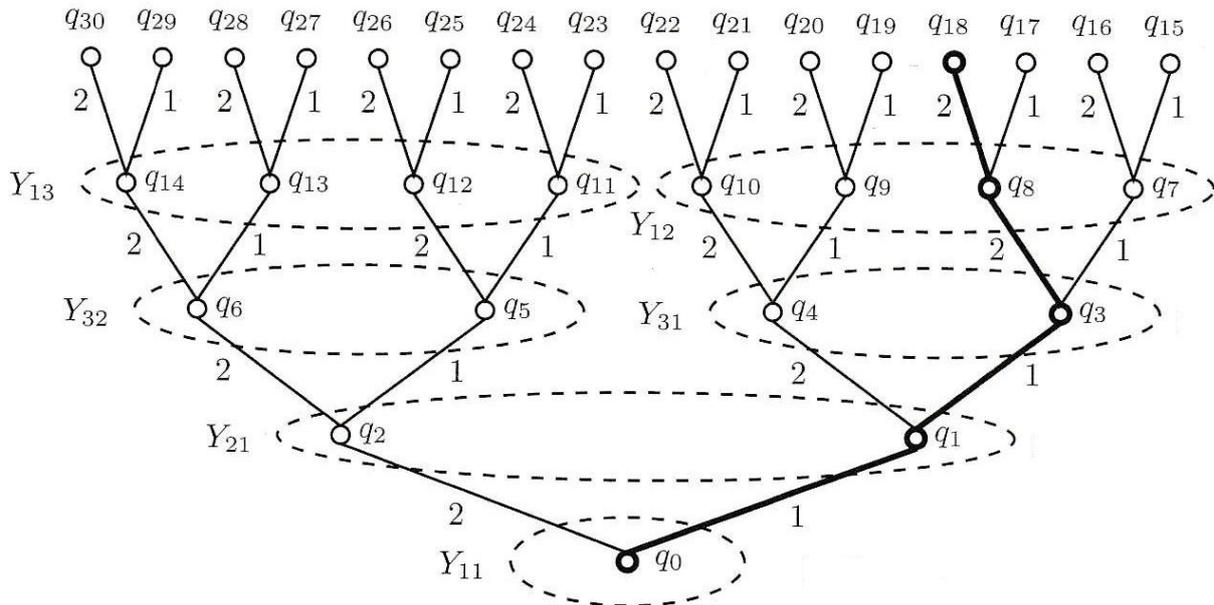
Introduction

Strategic management is best explained by analogy with a chess game. The players use their pieces (stakeholders) to beat the opponent (competitor). In the relationship between the player (company) and a chess piece (stakeholder), cooperative strategies as defined by Axelrod (1984) in the context of win-win strategies (non-zero sum) are realized. In contrast, the relationship between the player (company) and the opponent (competitor) transpires through competitive strategies, in the context of an antagonistic conflict (the win is maximised at the expense of the opponent – zero sum).

Deciding on the optimum strategy takes the form of a definition of a real function expressing payments of the individual game participants depending on the outcome of the game. In the game tree shown below (Fig.1), the decision tree contains 16 end positions, which means that there are 16 different outcomes of the game and 16 different paths $m(q_0, q'), \dots, q' \in Y_x$, connecting the initial position q_0 with the $q' \in Y_x$

position. Every position in the tree represents a situation which the player can find himself in (in the course of the game).

Figure 1: Decision tree



Source: Volek (2010, pp. 62)

In contrast to chess, however, a solver of a strategic case is not aware of all the possible varieties of the opponent's moves, which do not follow commonly known rules (in the state of complete information about the rules of the game). The opponent's (competitor's) moves determine the outcome of the strategic game to the same extent as the player's moves. That is why, in strategic management, strategic analysis occupies such a significant role with the aim of obtaining as much relevant information as possible to be able to determine the optimum strategy.

However, no existing method of strategic analysis suffices to ensure suitable inputs for arriving at a decision in the context of game theory in corporate strategic decision-making. The new methodology of strategic management, which is being developed as a part of my dissertation, therefore utilizes a highly elaborate strategic analysis based on its own methodology, which is introduced in this paper.

1. Axioms and limitations of the practical research

Optimality is a strong term in any context. Instead of interpreting its meaning in the absolute sense, let us work with the meaning of the best possible solution from a variety of available solutions, in accordance with Alchian (1950, pp. 211-221). If we are, in the context of strategic management, looking for an optimum strategy (i.e. the best option), the solver of complex decision-making situations (a strategist) and his activities are often neglected.

Let us imagine the beginning of a strategic case from the point of view of the solver, who enters a game for which he has incomplete information. The competitor has made several moves in the game, and that is all that we are able to identify and that we can use to make decisions (we have the outcomes – the moves taken – and we are trying to ascertain what led to them). Unlike in the state of complete information in game theory, we do not know all the possible moves of the opponent in the context of firmly set rules, but we have to find out what can rationalize the given move (why it was taken and with what motive) and what the goal of the move is. The axioms for the strategic analysis are:

- Every action can be rationalized.
 - If an action does not seem to be rational, there are facts we are unaware of that would rationalize it.
- People (players taking part in antagonistic relationships) lie.
 - If we ask about what we are interested in directly, we facilitate lying.

It is impossible to act irrationally¹. That is the key to abductive inference of the final outcome. When we use abductive reasoning, we always work with a certain probability that our conclusions are correct or not. The only fixed point a solver can rely on is facts. That is why we always adapt our hypothesis to the newly discovered facts and not vice versa. We do not formulate a hypothesis before learning the facts, so that we can avoid adapting facts to the hypothesis, which is undesirable; we always adapt the hypothesis to the facts. Facts are the metaphorical bricks from which the hypothesis wall is constructed to help us discover the truth, however improbable it might be.

People are the best source of facts. They like to chat and when we do not nudge them in a desired direction, we will find out what we need to know without them realizing it. It is necessary to take the context in which people think into consideration, and use it in the conversation. In most cases, people are not literally liars, but they tend to fudge the facts and twist the meaning of expressions. This behaviour is understandable if strategy is the highest value in the company and is information-based, because then the information about the strategy and about the individual moves the company makes within the context of that strategy has to be protected (an

¹ Even a madman's behaviour can be rationalized by the particular mental illness, just like any other behaviour.

opponent in a chess game will naturally not be willing to disclose the aim of the moves he has already made or is planning to make, either).

2. Methodological principles and their implementation

Accurate and systematic analysis is at the heart of a successful solution of every case. Any existence – of a person or a company – is one long chain. We can learn everything about it if we examine a single link and draw the right conclusions.

A successful solution of a case requires three elements: knowledge, logical analysis (data collection) and abductive reasoning (inference to the best explanation)².

The most serious mistake made by strategists so far is that they pay too much attention to large-scale formal issues and that their analyses are based on desk research³. In practice, however, it is the small details that are critical. They reveal much more than a formal attitude and proclamations which can be deliberately controlled and adapted.

We can never observe the essence of the case directly; nevertheless, through superficial symptoms or signs (often considered irrelevant by a layman) we can, by thorough and systematic examination and identification of all these indications (permeating outside the system) determine the causes of the phenomena from the ascertained consequences.

If the solver adopts the qualities mentioned above, then, if he is given a single fact possessing all the characteristic features, he'll be able to infer not only the chain of events, which led to the examined link, but also outcomes that it will result in.

Guesswork is a vice that has to be avoided, as it undermines the ability to reason logically. We work with guesses as defined by Sebeok and Umiker-Sebeok (1983, pp. 21). Guesses in their definition are not random, but the results of logical operations⁴. They are created as a result of reasoning, which is based on observing a particular fact through complex circumstances leading to another particular fact. Thus we accept inference by reasoning.

² From an analysis we find out, for example, that a competitor bought the shares of its previously little used supplier. From the abduction, we infer what the reason for this action was and what it should result in in the future.

³ Financial analysis based on statistical indicators operating with past data will reveal only what the competitor has intended to be revealed.

⁴ A simplification for better understanding is that we reason so well that we choose the best hypothesis.

We create hypotheses from information about the strategic case that we gathered, and these hypotheses are then tested and verified.

When solving decision situations, the solver cannot work without reasoning based on the induction-abduction-deduction triad. The process starts with observing, recording, and matching the relevant data (induction), followed by the formulation of a hypothesis, which reflects or explains the obtained facts, so that possible reasons or consequences can be identified (abduction).

Abduction not only explains how events transpired, but also predicts their future development and then enables to infer consequences, which result from the given hypothesis (deduction) (Bonfantini and Proni 1983, pp. 123). Abduction is a crucial element, which has to be given sufficient attention.

The solver is in a situation which has to be elucidated in the context of incomplete information and bounded rationality. It is necessary to first become oriented in the situation and gather facts to be evaluated. The evaluation is conducted by induction, using individual facts from which a rule that should explain the situation is derived. This rule is probabilistic and it corresponds to the conditions of risk with the benefit of a new fact to be used in reasoning. In this way, premises for further reasoning through abduction in the form of adopting a certain hypothesis are created. We follow Bonfantini and Proni's (1983, pp. 128) imperative of simplicity and probability according to logical and empirical criteria.

Every hypothesis has to give some explanation of the situation in a simple and adequate way. It is also necessary to establish ways to confirm the hypothesis. Verification is achieved through experimentation, or by verifying concrete facts through repeated induction. If the examination of the individual cases corresponds with the hypothesis, then the premises inevitably lead to an explanation (Eco and Sebeok 1988). The confirmed hypothesis becomes certain and an explanation is necessarily produced by deduction.

3. Abductive reasoning and inference to the best explanation

Although it might seem so, knowledge is no magic. Charles Sanders Peirce (1958) uses the term common sense for the tool for finding reasonable solutions of situations. It was Peirce who more than anyone else examined reasoning in full detail, constructing logical procedures and methods with focus on the previously marginalized abduction. Fann (1970, s. 8-9), in accordance with Burks (1946, pp. 301-306), notes two phases of the development of Peirce's research:

- Early phase - induction, abduction, and deduction seen as distinct, independent forms of reasoning.

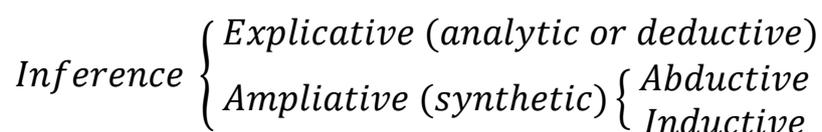
- Later phase – the interconnection of the three methods is admitted and the relationships between them are examined. Each method has its place in the whole reasoning process.

In the early period Peirce attempted to create an inference trichotomy, after he had realised that a certain correlation exists between the three types of inference and three types of syllogism (Fann 1970, pp. 11). Peirce proposes the idea that each human syllogism implements a reference of predicate to the subject. The predicate is comprised of the experience of the solver, while the subject is not experience, but a predicted consequence (Peirce 1957). As a consequence, each reasoning consists of experience, which enables the reference to a probabilistic syllogism. The combination of experience and observation leads to the creation of an syllogism or a hypothesis. Each partial process of reasoning is logical and brings forth an inference, be it an inductive, abductive, or deductive one.

Inference itself is a process through which we ascertain the truth value of a judgment (conclusion), using the truth value of other judgments (premises). Novák and Dvořák (2011, s. 140) see it as a relationship of logical implication between the conclusion and premises. Peirce divided inferences into two groups:

- Analytic inferences (explicative) – should explain or specify knowledge.
- Synthetic inferences (ampliative) – should increase, extend, or enhance knowledge.

Figure 2: The trichotomy of methods



Source: own processing, based on Fann (1970, pp. 7)

Analytic inference includes deduction, while synthetic inference includes abduction and induction. These three methods have been known since the era of Plato and Aristotle (Eco 1999). The significance of Peirce's work lies in the definition of the trichotomy of the methods and the above mentioned elaboration of abduction, which was previously equated with induction. Ignorance of abduction can be inferred from historical evidence, which shows the attempts to find the absolute truth in the conditions of certainty (i.e. on a deductive basis). The certainty of the correct inference becomes probabilistic in the context of abduction (Fann 1970, pp. 8).

There are significant differences between analytic and synthetic inferences; synthetic inferences lack the condition of logical implication of conclusions from premises, which is necessary for deductive inferences. "Implication is the relationship between a

succession of claims, called premises, and another claim, called conclusion, which is based on the idea that it is not possible for the premises to be true and simultaneously for the conclusion to be false" (Novák, Dvořák, 2011, 33).

Logical implication does not offer information value, which would say whether the premises are true or not, but it states that a situation in which premises are true and conclusion is not cannot arise. This means that premises can be assigned a truth value. Fann (1970, pp. 7-8) talks about the value of synthetic inferences in their prolificity which enable expansion of knowledge through new ideas and findings, which are converted into conclusion and knowledge. Synthetic inferences explain what the premises state. Each method is structured into a syllogism with an argument based on three categorical judgments of two premises and a conclusion (Novák a Dvořák 2011, pp. 144):

Subject "S" – what is talked about.

- Predicate "P" – what is ascribed to the subject.
- Mediator – a middle term connecting the subject and predicate in the premise.

If we use certain terms in premises, then their meaning has to remain the same in the whole syllogism. Otherwise a nonsense conclusion would be implied and the identity of terms would not be observed.

Table 1: Structures of a deduction, abduction and induction syllogism

Deduction		Abduction		Induction	
Rule	All beans in this bag are blue	Rule	All beans in this bag are blue	Case	These beans are from this bag
Case	These beans are from this bag	Conclusion	These beans are blue	Conclusion	These beans are blue
Conclusion	These beans are blue	Case	These beans are from this bag	Rule	All beans in this bag are blue

Source: own processing, based on Peirce (1958)

The solver finds himself, in the context of strategic cases, in a situation, in which certain activities that need to be explained (what the aim of the competitor's moves is and what measures he has already taken, what the customers' requirements will be, etc.) take place. The solver is not automatically given a set of clear premises to draw a clear conclusion, but he has to choose from the various gathered data those relevant

for the case and include them in his reasoning. The whole reasoning process can be formally noted as follows (Douven 2011):

- Fact C is observed.
- C would be obvious if A was true.
- Therefore, we can assume that A is true.

Facts enable the construction of a chain of events and the most valuable ones are those that reveal that something is missing in the chain. Some facts can, of course, be deliberately confusing, which has to be taken into consideration (for example the “leaks” of blueprints for Samsung flagship prototype, with the aim to confuse their main rival, Apple).

The solver is thus thrown into an apparent chaos with countless possible combinations. To be able to work with such chaos, it is necessary to create a rule or hypothesis, which should bring the simplest possible explanation. Abduction, as opposed to deduction, does not build upon general validity, but it implements new findings.

Abduction abandons the system of unequivocal implication used in deduction and offers room for new possibilities, which might be erroneous, but able to bring the desired true conclusion if used correctly. Lower certainty of the inference is compensated in abduction by strict criteria for formulating and verifying the hypothesis (Frankfurt 1958, pp. 593-597). Thus, abduction represents the dynamics of knowledge, while the validity of complex claims is not a function of validity of the individual parts of the claim.

Peirce (1958) literally defined abduction as a way to “*invert deductive argument to create a synthetic inference*”. In the syllogism, the way of thinking changes and the inference has to reflect that. We adopt a provisional hypothesis as the only rational possibility to elucidate the situation. This hypothesis has certain consequences, which can be verified experimentally to determine conformity or non-conformity with the facts.

4. Case study

If a rival company (with competitive interests) expands its production (a fact found in annual reports, where a strongly expansive strategy supported by the owners is presented) and at the same time decreases the number of relationships with suppliers (based on information given by the suppliers themselves) and with employees (mass dismissals, indicated by information from the labour market) without establishing

new relationships, then it is clearly indicated that there is a missing fact which would rationalize the chosen approach and event chain. From what we know:

- The rival company is reducing the number of factors of production.
- The goal of the company presented to the public is considerable expansion on the purchaser market.
- It is in the owners' and management's interest to maximize the number of relationships with purchasers.

The first fact is seemingly in conflict with facts two and three, which gives us valuable information to infer the character of the planned attack in the environment of the purchaser market. We will not create a working hypothesis to avoid psychological distortion of facts so that they correspond to our theory (inferring from facts only) and we will obtain more necessary information to enhance the working hypotheses we adopted before.

- If the number of relationships between the company and the suppliers has been reduced in spite of growth in production, which cannot occur without supplier input (while without apparent manifestations the activities cannot be integrated in outside environment), then the remaining relationships are strengthened, and the current suppliers can provide information about the features of the deliveries (for example in a business meeting when asking for references).
- We test the psychological profile of members of top management to infer their attitude to risk from their behaviour in various situations (for example searching for information on the internet, meeting in person under a pretence etc.).
- We interrogate former employees of the company to gain internal (mainly informal) information about events occurring in the rival company before they were dismissed and about reasons for the reduction in employee numbers (for example as a part of a job interview).
- We ascertain the history of the owners' engagement in other companies and of the investment opportunities they sought, determining the main interests and the way of influencing the management.

We do nothing more than gather more facts and uncover psychological deformities influencing the rationality of our opponent. If the opponent was, based on his previous behaviour, inclined to seek risk, then he will probably maintain this

tendency in his current position (unless a significant fact having an impact on remaining is identified – for example previous business failure, which would cause him to be more cautious or, conversely, even more inclined to take risks because he might feel there is nothing to lose).

When we put the gathered facts together, a probable causal chain, which led to the current situation, emerges. Suppliers will indirectly reveal the technological edge on the supplier market; the testing of management will show a strong tendency to take risks and historical inclinations to innovative activities; former employees will confide that the working environment was changing dramatically and that the company installed new technologies capable of replacing human labour; and the owners will be found to have a common interest in being involved in innovative companies with ambitious goals.

The company was, based on the gathered data, likely involved in innovation (in close cooperation with selected suppliers) of production technologies, which are able to produce more output with a different quality value for purchasers in the function of a tool of competition, with lower human labour input requirements. The attack on the purchaser market will be based on higher quality of production at comparable or lower prices in connection to the desired level of sales.

Conclusion

A company is a social system, which is based on the interaction between individuals. These individuals have limited rationality and are, to a certain extent, predictable. If an individual is predictable and has limited rationality, then the system, including the company itself, takes on the same characteristics. Even if the opponent adopted the strategy of random decision-making, no human activity can be said to be completely random. Knowledge of the calculation of probability together with thorough understanding of human psychology and disposition of the specific individual have the ability to reduce the number of variables considerably. Scientific developments enable the use of a large number of techniques to reduce the seemingly infinite range of randomly generated possibilities to the lowest possible number of manageable alternatives.

Peirce himself (1958) considered the logic postulate claiming that everything is explicable to be fundamental. *“The only justification of an inference from signs is that the conclusion explains the fact. To suppose the fact absolutely inexplicable, is not to explain it, and hence this supposition is never allowable”.*

The presented methodology for solving strategic cases as a basis for creation of new methodology of strategic management allows us to address the need to find explanations of solutions in highly complex conditions of the entrepreneurial

environment. Competitors are well aware that the opacity of their current and future moves means an advantage over the opponent in games with incomplete information. Incomplete information, however, does not mean no information and so it can be utilized in an appropriate way.

This paper offered a methodology to find a way to explanation of even seemingly insoluble cases. Rationality is the core which has to be built upon in any period of time and in any environment. Straightforward and pragmatic thinking and resistance to the influence of emotion are the highest values a person can achieve in cogitation. In combination with gaining wide knowledge of relevant sciences and of the rules of human behaviour and laws of nature, Peirce's "guessing instinct", which connects the human mind with laws of nature, can be successfully acquired.

References

- Alchian, A. A. (1950). Uncertainty, Evolution, and Economic Theory. *The Journal of Political Economy*, 58(3), 211-221.
- Axelrod, R. M. (1984). *The evolution of cooperation*. New York: Basic Books.
- Bonfantini, M. A. & G. Proni. (1983). *To Guess or Not to Guess?* In Eco, U. and Sebeok, T. A. (1988). *The Sign of Three (Advances in Semiotics)*. Indiana University Press.
- Burks, A. W. (1946). Peirce's Theory of Abduction. *Philosophy of Science*, 13(4), 301-306.
- Douven, I. (2011). *Peirce on Abduction*. The Stanford Encyclopedia of Philosophy.
- Eco, U. & Sebeok, T. A. (1988). *The Sign of Three (Advances in Semiotics)*. Indiana University Press.
- Eco, U. (1999). *Kant and the platypus: essays on language and cognition*. London: Secker & Warburg.
- Fann, K. T. (1970). *Peirce's Theory of Abduction*. The Hague: Martinus Nijhoff.
- Frankfurt, Harry G. (1958). Peirce's Notion of Abduction. *The Journal of Philosophy*, 55(14), 593-597.
- Novák, L. & P. Dvořák. (2011). *Úvod do logiky aristotelské tradice*. Praha: Krystal OP.
- Peirce, C. S. (1958). *Collected Papers of Charles Sanders Peirce*, vols. 1-6, 1931-1935, Ch. Hartshorne and P. Weiss, eds., vols. 7-8, Arthur W. Burks, ed., Harvard University Press, Cambridge, MA.
- Peirce, Ch. S. (1957) *Essays in the philosophy of science*. New York: Bobbs-Merrill company. American heritage series.

- Sebeok, T. & J. Umiker-Sebeok. (1983). *You Know My Method*. In Eco, U. & Sebeok, T. Albert. (1988). *The Sign of Three (Advances in Semiotics)*. Indiana University Press.
- Volek, J. (2010). *Modelování a řešení rozhodovacích situací*. Pardubice: Univerzita Pardubice.

MARKETING PERFORMANCE ASSESSMENT IN BUSINESSES IN SLOVAKIA

Dubcová Gabriela, Grančičová Katarína, Hrušovská Dana

University of Economics
Faculty of Business Management
Dolnozemská 1/B
852 35 Bratislava
Slovakia
dana.hrusovska@euba.sk

Abstract

This article aims to emphasize the need for assessment of marketing performance in relation to business performance, it suggests a number of approaches in this area and defines the most commonly used indicators and measures of marketing performance in business practice based on published statistics from already conducted surveys. Managers can use various methods of analysis to understand the own firm's capabilities, customers, and business environment. We focused on companies in the Slovak Republic based on the trends suggested in the area of marketing performance assessment and data from the surveys. We analyze the level of marketing performance assessment of businesses in Slovakia as well as the problems of measuring marketing performance.

Keywords

marketing, marketing performance, indicators of marketing performance, marketing metrics

Introduction

The aim of this article is to point out some of the trends in the area of marketing performance assessment – mainly the growing interest and necessity to measure marketing performance of businesses and the growing number of indicators used in this area. Following these trends, it also presents the results of the first part of a research focused on the issue of marketing performance assessment in Slovak businesses. In the conclusion, it summarizes the findings, points out problems and their possible solutions.

1. Theoretical Basis and Hypothesis

The term business performance is most generally used when establishing the very nature of a company's existence in business environment, its success and ability to survive in terms of the future. Therefore, business performance can be considered one of the fundamental preconditions for competitiveness and strengthening of the company's position on the market.

Several sources (e.g. Ambler et al. 2004, Oreský 2011, Pajtinková – Bartáková et al. 2013) suggest that there is a positive relationship between business performance and marketing, i.e. the reason for introducing the conception of marketing in a company is the very fact that it will improve its performance. Therefore, one of the characteristics of current marketing management is the fact, that from a long-term point of view, it is the functional area of a company that contributes to its overall success. O'Sullivan (O'Sullivan et al. 2009) states that the ability to measure marketing performance can positively affect overall business performance, whether in relation to sales development or profitability, but also the business value (since financial influences affect an organization's value).

Nowadays, the existence of provable positive relationship between business performance and marketing is not the only reason of growing need to measure marketing performance. Other reasons that lead to the growth of the importance of performance indicators in marketing are:

- business performance assessment as a whole, without any data about the performance of individual functional areas is incomplete and insufficient. Therefore, assessment of marketing results should be an inseparable part of marketing and business management.
- realization of decisions based on sufficient amount of information and measurable indicators makes it possible to lead, develop and improve marketing activities and also to perceive marketing seriously in the process of resource allocation (Farris 2015).
- growing number of resources invested in marketing and the need to recognize marketing expenses as investments. In most organizations marketing expenses are often considerably higher than capital expenses, yet capital expenses are assessed much more precisely than marketing expenses. Therefore, it is necessary to improve the assessment of the return of marketing investments and tie marketing to business finances (Oreský 2011).
- growing interest in marketing metrics, mainly by owners who begin to pressure for better justification for spending their financial means on marketing. They take concern in which part of their budget for marketing affects their company's financial performance the most, i.e. calculating the importance of marketing for creation of value or added value (Ambler et al. 2004).
- development of new information technologies and the related possibilities of obtaining, recording, monitoring and evaluating number of data from available databases and determining performance indicators for marketing assessment (Farris, et al. 2015, Anderson, 2010, TASR 2011).

Therefore, marketing performance measurement and assessment should nowadays be an integral part of a complex business performance assessment and an important addition to marketing activities of a company.

Nowadays, the result of the growth of the need and interest in marketing performance assessment is the creation of more indicators focused on anything in marketing – from customer satisfaction to counting the clicks on a web site (Ambler et al. 2004, Farris et al. 2015). Factors that lead to the growth in the number of performance indicators are mainly:

- discontent with traditional (financial/accounting) metrics and their informative ability.
- effort to cover all marketing activities in a complex way with reliable indicators/metrics in order to provide assessment of their performance.
- development of marketing itself, e.g. shift of marketing from transactional marketing that mainly focuses on number, value and quality of transactions to relationship marketing. Relationship marketing monitors and measures relationships with customers, their quality and value.
- improvement of technologies that allow companies to obtain and evaluate more and more information. For example, the significant improvement of software solutions for CRM allows a company to measure profit per customer, contains information about loyalty to a brand, allows a company to choose marketing strategies according to the obtained characteristics of a target group of customers or to monitor performance of processes and personnel in sales (Oreský 2006).

As a result today's theory possesses a number of individual marketing indicators – e.g. Clark identified 20 indicators, hundreds of them were described by Mayer (Abler et al. 2003). Farris et al.(2015) offers for the needs of marketing managers almost 120 basic marketing metrics in 9 main categories. Business practice also points out a multitude of marketing indicators (Ambler et al. 2000, 2003, 2004) while it considers financial indicators to be the dominant category of marketing metrics, even though they have several shortcomings. Nonfinancial indicators are nowadays in demand too, but their use in reality is often very selective depending on the company's abilities or the abilities of its managers to handle the use of the metrics (Oreský 2011). Business practice also signalizes that the selection of metrics can influence a number of factors – the very area of business activity, the size of a company, the level of management, the importance of marketing in the company, as well as the possibilities and abilities of the company's managers.

The trends mentioned above have become the basis for defining objectives and research questions in the first part of the research focused on the issue of marketing

performance assessment in businesses in Slovakia. For purposes of this part of the research these objectives and hypotheses have been formed:

- Find out the state of involvement or the extent to which businesses in Slovakia are involved in marketing performance assessment.

RQ1: What number of businesses in Slovakia assesses marketing performance?

- Find out which category of Slovak businesses according to surveyed characteristics assesses marketing performance the most.

RQ2: In which categories of Slovak businesses, based on the researched characteristics, prevails marketing performance assessment?

- Find out which of the main categories of marketing performance indicators are preferred by businesses in Slovakia.

RQ3: What are the basic categories of marketing performance indicators that prevail in Slovak businesses?

2. Methodology

The established objectives required the application of methods of secondary as well as primary research. The secondary research consisted of literary research and presented a premise for compiling a questionnaire that would make it possible to evaluate the state of marketing performance assessment in businesses in Slovakia. A questionnaire was used as the main means of collecting data. Its first part was designed to obtain basic characteristics of the respondents. The second part focused on areas such as the need, importance, problems and basic categories of marketing performance indicators. The data collecting took place between November 2016 and March 2017 in various businesses in Slovakia. The selected sample group in the first stage consisted of 500 companies out of which 230 were included in database. The data obtained in the survey were afterwards processed by mathematical methods.

3. Results

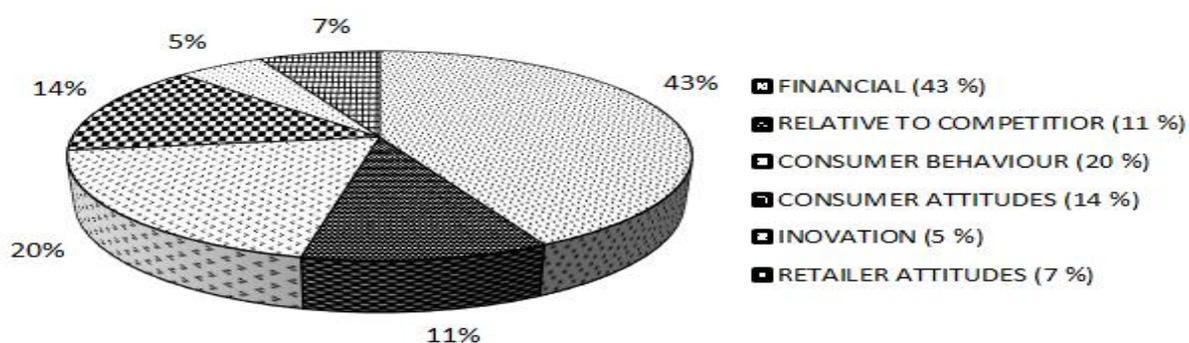
We characterized the sample group of companies that have taken part in the survey in terms of their size – the number of employees; business structure – existence and competence of marketing department; affiliation to a sector, how long it has been active in the sector; prevailing market orientation of the company. We also studied the importance of marketing in a company – from the amount of marketing expenses. The selection of these characteristics resulted from their potential effect on the area of marketing performance assessment of a company. As for the structure of respondents, the largest part – 50.43% was represented by small businesses (up to 50

employees). 25.22% was represented by medium-size businesses (50 – 249 employees) and the rest was represented by large businesses with 250 – 499 employees – 8.7%; 550 – 999 employees – 3.91%; 1000 – 4999 employees – 8.7%; more than 5000 employees – 2.61%. As for other characteristics relevant to this research, businesses without a separate marketing department represented the highest number – 50.4%, which equals the representation of small businesses; businesses oriented on consumer market represented 75.65%, where almost a half – 48.85% operates in services; as for the time of business activity in the sector, the biggest part was represented by companies that have been in business from 16 to 50 years – 34.78%; and as for the importance of marketing in the business, the largest group was represented by companies with average marketing expenses – 26.2%.

This part of the research was focused mainly on the 3 questions mentioned in “theoretical basis” of this article. Based on the total number of 230 companies that took part in the survey we can conclude that more than 2/3 of businesses in Slovakia – 68.8% consider it necessary to assess marketing performance of their company. Majority of these companies are not only aware of the importance of marketing performance assessment, but they also carry it out. The number of companies who actually assess marketing performance is in reality just a little lower – 62.6%, which can be evaluated as positive and we can conclude that it confirms our first research question (RQ1). Companies that do not perform marketing assessment stated as the main reasons: the size of the company (small business, local business...); minimum marketing expenses (companies with an established position on the market) and its lesser importance from the point of view of market orientation of the company; or that these assessments are carried out by the parent company or headquarters and also that this issue is relatively difficult – in terms of data as well as experts.

The basic categories of marketing performance assessment that businesses in Slovakia prefer when measuring their marketing success were also the object of research. The basic classification of marketing performance indicators was mainly based on already conducted studies in this area and the indicators were divided into 6 categories – financial indicators, competition-oriented indicators, indicators that evaluate perception and attitude of consumers, indicators that assess consumers’ behavior, indicators oriented on business customer and innovation indicators. This division represents mainly how marketing metrics are grouped together in practice. The results of the preference of the basic categories of marketing performance indicators in businesses in Slovakia are shown in chart no.1.

Figure 1: Basic categories metrics of marketing performance



Source: own processing

As we assumed, the most favored category are financial indicators that are preferred by 43% of businesses in Slovakia that assess their marketing performance (RQ3). This trend agrees with theoretical basis. The main reason for their preference is the simplicity of obtaining data for their evaluation and comparison.

The survey conducted in businesses in Slovakia was also trying to find out which category of businesses, according to used characteristics, assesses marketing performance more. From the point of view of the size of the company, marketing performance assessment prevails in large businesses out of which 78.57% assess marketing performance. The highest rate of assessment was among companies with 250 – 499 employees – 85%. Even though majority of small businesses also assess marketing performance, the rate was considerably lower – 54.31%; which confirmed our second hypothesis (RQ2).

In terms of the business structure, assessment is typical mainly for companies that have a separate marketing department – 89.87%. In companies that operate as a subsidiary or are a part of a larger complex with more complicated structure, marketing performance is assessed by majority of respondents – 65% - 67%. We can assume that the lower rate can be a result of the parent company or headquarters carrying out this activity. On the other hand, in companies without a separate marketing department, which are mainly represented by small businesses, prevail those that do not assess marketing performance – 54.31%.

From the point of view of the focus of activity we can say that in every category majority of companies assess their marketing performance. Companies oriented on consumer markets however assess their marketing performance slightly more – 63.79%. Among companies oriented on the market of organizations the total of 58% assesses marketing performance. The highest rate of marketing performance

assessment is in the category of companies that target consumer market and are simultaneously in retail business – 75% (RQ2).

As for the category of years in business we can say that the longer a company has been in business the higher its rate of marketing performance assessment is. Companies that assess their marketing performance the most are those that have been in business for more than 50 years – 83%, while the lowest rate is in companies that have been in business for less than 1 year – 33.33%.

The results of the survey confirmed that both trends generally followed in marketing performance assessment equally apply to marketing performance assessment in businesses in Slovakia. Majority of businesses in Slovakia are not only aware of the assessment's importance but they also perform it. As we assumed, it applies mainly to larger businesses and businesses that are oriented on the consumer market. We also found out, that the businesses that have higher rates of marketing performance assessment are those that have a separate marketing department; have been in business for longer period of time and put more emphasis on marketing which reflects in their amount of expenses invested in this area. Which indicators in particular are the object of assessment, what influences their selection and what problems relate to this issue in our conditions will be the objective of the next stage of the analysis in this research. It should allow us to review this topic in business practice in Slovakia, point out possible problems and their solutions.

Discussion, limitations and conclusions

We can conclude that certainly there are currently more trends in the area of marketing performance assessment. Among them we can mention for example creation of new indicators, improvement of already existing ones and their systematic studying for new demands and following this, the effort to create a functional model that would allow effective monitoring of marketing performance. The solution to these questions is in research and in realization of surveys in business practice. This article is a part of the project VEGA no.1/0546/15: "Assessment of performance of modern marketing approaches and their effect on business performance" and it presents a basis for the next stage of the project focused on the state of marketing performance assessment in business practice in Slovakia.

References

Anderson, J. (2010, retrieved 2017, May 1). *The state of consumers and technology: mengmarke*. Retrieved from <http://www.cade1.com/downloads/State%20of%20Consumers%20and%20Technology%20.pdf>

Ambler, T., & Riley, D. (2000). *Marketing Metrics: A Review of Performance Measures in Use in The UK and Spain*. London: London Business School, 1-30.

Ambler, T., & Xiucun, W. (2003). Measures of Marketing Success: A Comparison between China and the United Kingdom. *Asian Pacific Journal of Management*, May 2003, 267 - 280.

Ambler, T., Kokkinaki, F., & Puntoni, S. (2004). Assessing Marketing Performance: Reasons for Metrics Selection. *Journal of Marketing*, 20(3-4), 475-498.

Farris, P. W., Bendle, N. T., Pfeifer, P. E., & Reibstein, D. J. (2006). *Marketing metrics, 50+ metrics every executive should master*. Pearson Education, Inc.

Farris, P. W., Bendle, N. T., Pfeifer, P. E., & Reibstein, D. J. (2015). *Marketing metrics: The Managers Guide to measuring Marketing Performance*. Pearson FT Press.

Fibírová, J., & Šoljaková, L. (2005). *Hodnotové nástroje řízení a měření výkonnosti podniku*, 1.vyd. Praha: ASPI, a.s.

Oreský, M. (2011, retrieved 2014, April 10). *Hodnotenie efektívnosti marketingu – východiská tvorby a uplatnenia merných ukazovateľov v marketingu*. Retrieved from http://of.euba.sk/zbornik2011/ZBORNIK%20VEDECKYCH%20STATI%202011-PDF/KMR/ORESK%C3%9D_M._KMR.pdf

Oreský, M. (2006). *Riadenie vzťahov so zákazníkmi: odporúčania, praktické postupy, príklady, prehľadné schémy a tabuľky*. Bratislava: Verlag Dashofer.

O'Sullivan, D., Abela, A. V., & Hutchinson, M. (2009). Marketing performance measurement and firm performance. *European Journal of Marketing*, 43(5/6). 843-862.

Pajtinková-Bartáková, G., Gubíniová, K., & Cibák, L. (2013). Teoretické a praktické aspekty hodnotenia marketingovej výkonnosti. *Marketing Science and Inspirations*, 8(2).

Štetka, P., & Majtán, Š. (2015). *Analýza väzieb faktorov podnikovej konkurencieschopnosti podniku*. In Majtán, Š. *Aktuálne problémy podnikovej sféry 2015*. Zborník vedeckých prác. Bratislava: Ekonóm. 687-695.

TASR. (2011, retrieved 2014, April 10). Retrieved from <http://dennik.hnonline.sk/492029-lidri-svetoveho-marketingu-chcu-viac-vyuzivat-socialne-siete>

Turisová, R. (2009, retrieved 2015, December 7). *Meranie výkonnosti marketingových procesov*. The 12th International Scientific Conference Trends and Innovative Approaches in Business Processes. Retrieved from https://www.sjf.tuke.sk/kpam/taipvpp/2009/index_soubory/clanky/Ren%C3%A

1ta%20TURISOV%C3%81%20MERANIE%20V%C3%9DKONNOSTI%20MARKETIN
GOV%C3%9DCH%20PROCESOV.pdf

Mapi. Marketing Council. (2014, retrieved 2014, April 7). Retrieved from
http://www.mapi.net/spotlight/Pages/marketing_council_001.aspx

CORPORATE AND RECRUITMENT WEBSITES AS TOOLS FOR RECRUITING

Ludvík Eger, Dana Egerová, Michal Mičík, David Prantl

University of West Bohemia
Faculty of Economics
Univerzitní 8, 306 14 Plzeň
Czech Republic
leger@kmo.zcu.cz
egerova@kpm.zcu.cz
micikm@kmo.zcu.cz
prantld@kmo.zcu.cz

Abstract

In recent years, the use of corporate websites to recruit potential job applicants has played an important role in HR practises. It is also evident that corporate websites are considered as one of the major tools for attracting and selecting new employees. Despite this trend, the empirical research on the use of corporate websites for recruitment processes is still limited. The paper reports the findings from the survey focused on evaluation of 107 corporate websites of the association AutoSAP in the Czech Republic with the aim to better understand how these companies use their own websites for recruiting and selection of potential job applicants., In this study, 16 items were divided into three sections and were used for evaluation of corporate websites and social media sites. Our findings show that most companies provide explicit organisation-related information and available information regarding job characteristics. On the other hand, the findings highlight that most companies do not communicate elements regarding their culture and do not provide content particularly targeting college or university candidates. Moreover, only a half of companies from our sample (AutoSAP) uses social media as a part of their recruitment efforts. Findings of this study are useful for an improvement of company's communication and their recruitment process on the Internet. Outcomes can also improve attractiveness of a company for talented young people who are looking for their future employer.

Keywords

recruiting, corporate websites, recruitment websites, social media, job seekers

Introduction

Many human resources professionals (HR experts) increasingly view the Internet and corporate websites as a viable and attractive tool for recruiting employees. Cober et al. (2004b) state that the Internet has emerged as a growing and high-potential recruitment medium for recruiting and selecting employees. The Internet provides companies and HR experts with a tool to convey a large amount of information about

the company to job seekers. Among the many e-recruiting methods company websites are considered one of the best tool for recruiting potential applicants and an important means by which job-seeker initially gather information about future employers (Williamson et al., 2010). Corporate recruitment websites (in the Czech Republic also known as career websites) allow companies to provide prospective applicants with both job descriptions and other information about organization.

1. Theoretical background

1.1 Company recruitment websites and the content

Surveys show that companies more and more have utilized websites that are primarily focused on communication of recruitment information to job seekers (Cober et al. 2004b). It is also evident that corporate websites play a central role in terms of providing a variety of information about a company to job seekers which can be communicated in different ways such as text, images, interactive links etc. (Allen et al., 2012). The effective company communication via corporate websites is regarded as a crucial determinant of a company's ability to successfully attract qualified applicants (Cappelli, 2001, Lepak, and King, 2003, Williamson, King, Lepak, Sarma, 2010). The importance of recruitment communication is particularly evident in the early stages of the recruitment process (Allen et al., 2012).

An explanatory framework for why corporate websites and recruiting websites affect an applicant's perception of the organisation provides signalling theory (Spence, 1974). The vital factors of the first reaction and subsequent attitudes of applicants, both towards organisation and vacant position are the content and the appearance of a corporate websites and communication features (Cober et al., 2004b). Evidence from recruitment literature suggest that website content such as organisational and job-related information and website stylistic features can enhance the job seekers fit perception and attraction to the organisation (Chen,Ch-Ch, Lin and Chen, Ch-M, 2012). Similarly, Roberson, Collins and Oreg (2005) suggest that the individual's application intention is affected by the content of recruitment messages.

According to many authors (Cober, Brown and Levy, 2004a; Roberson, Collins and Oreg, 2005) content related to organisational goals, mission statements, culture and values, training and career development, benefits and employment opportunity have received a great attention in job-seeker evaluations of an employment opportunity. And in recent times not only company websites and recruitment websites are important but also social media play an important role as a new recruitment tool (e.g. Melanthiou, Pavlou, Constantinou, 2015).

1.2 Company recruitment websites and the target recruitment communication

The ability to target and attract different applicant groups explicitly is one of the important benefits of corporate websites. There are some research studies suggesting that targeted messages have a positive effect on applicants' perceptions of the company and job vacancy (Cober, Brown and Levy, 2004a). Thus, clearly defined target job applicants and knowing their behaviour, motivation and job product knowledge should be a useful starting point for the company to design websites. In addition, different target groups/generations have different expectations and may look for different things when considering an employer. These are important predictors of applicants interesting in a job (Eger, Egerová and Mičík, 2015). For this reason, company websites need to provide relevant message content, vividness, and interactivity required to effect different targeted job applicants (Mauer, Liu, 2007).

2. Methodology

The presented study focused on evaluation of company websites with the aim to better understand how companies use their own websites to acquire potential employees, specifically millennial talents. This study follows the research from 2015 (Egerová, 2016).

The study provides the answers to the following research sub-questions:

- To what extent companies provide organisation-related information to job seekers on their websites?
- To what extent companies provide job-related information to job seekers on their websites?
- What is the level of corporate and recruitment websites of companies, members of AutoSAP association?
- Do companies communicate with potential applicants with the emphasis on social media communication?

2.1 Research method and tool

As a research method and instrument for data gathering we used „unobtrusive measures“ (Gray, 2009).

Drawing from literature and surveys on corporate websites with the focus on online recruitment communication and talent management (Egerová et al., 2015; Jobvite, 2013; Llopis, Gonzales and Gasco, 2010; PwC, 2011; Williamson, Lepak and King, 2003) 16 items broken down into three sections were used for evaluation of the corporate websites.

All items were rated on a dichotomous yes-no basis by three independent experts. Key websites were archived in accordance with early mentioned methodology. Once the assessment was completed, the experts met to compare findings and reconcile discrepancies.

The survey was carried out in January 2017 and follows research from 2015 conducted by Egerová (2016).

2.2 Sample

The companies for this study were not selected randomly - they are members of Automotive Industry Association (AIA). The AIA is an industrial association of the Czech manufacturers of vehicles, suppliers and other companies and institutions involved in the Czech automotive industry. The aim of this Association is to develop the automotive industry as a specific manufacturing sector. We chose these companies because of their importance in the Czech economy. The automotive industry belongs to the most important sectors in the Czech Republic (CR) and represents one of the traditional drivers of the Czech national economy (Egerová, 2016).

Our study is focused on 13 enterprises, members of vehicle manufactures division and 98 enterprises, members of components suppliers division (special purpose division was not included in research sample because these companies are usually not manufacturers). It means, we conducted a study of the corporate websites of the 107 companies. Four companies did not have corporate websites (January, 2017) and were excluded from survey.

3. Results and discussion

In this subchapter we report and discuss findings for the given sections and items.

3.1 Section 1 – Essential corporate websites content attributes

In this section we evaluated six items. The results are presented in Table 1. To evaluate the item Company general information (e.g. revenues, number of employees, locations etc.) the emphasis was put on the comprehensiveness and “richness” of information provided on websites such as about us, about company etc. For evaluation of the item Vision, mission, goals we used websites providing explicit information about organizational vision, mission and goals and also company documents referring to these issues if they were expressed in visible form on corporate websites. To assess the item Product portfolio, the emphasis was put mainly on the presence of up-to-date information about company’s products. Concerning the items Organisational culture and corporate social responsibility, we

assessed the amount of information related to the organisational culture and corporate social responsibility. Concerning the item Currency of websites, we evaluated whether the information, sources and links are current and working.

Table 1: Evaluation of corporate websites

Outputs of evaluation of websites related to essential organisational attributes, AutoSAP, January, 2017							
Items	Company general information	Vision, mission, goals	Company's product portfolio	Corporate culture. (values)	Corporate social responsibility	Currency of websites	N - total number of companies
Frequency	107	85	107	54	65	80	107
%	100	79,4	100	50,5	60,7	74,8	100

Source: own processing

As can be seen in Table 1 all surveyed companies provided information about product portfolio on their websites. Referring to the item Company general information all companies except one included essential information about the company on their websites. In terms of website currency, a significant majority of the companies (74.8 %) had updated websites and the content (including links) was current and working. Our findings show that 60.7 % of the companies displayed information explicitly referring interest in implementing corporate social responsibility activities and 79.4 % (in prior research only 54,5 %, Egerová, 2016) of them provided information related to their vision, mission and goals on their websites. A lower percentage of companies provided job seekers with information concerning corporate culture (50.5 %, similar in prior research 48,2 %, Egerová, 2016). We consider this finding as negative especially for the fact that individuals seek companies with corporate culture that matches their own beliefs, attitudes and values (De Goede, Van Vianen and Klehe, 2011). Thus, the more information about corporate culture is available the more attractive the company is for job-seekers (Egerová, 2016).

3.2 Section 2 – Job related attributes, recruitment websites

In this section we assessed seven items. The results are presented in Table 2. The item Link to recruitment website was rated yes if there was link to recruitment website and the recruitment website exists. Referring to the items Job description and Job requirement we evaluated the presence of essential information regarding these areas. To assess the item Benefits the emphasis was put mainly on the content of information. To assess the items Opportunities for college/university candidates (e.g.

offer internships, mentorships programmes etc.) and Opportunities for training and development the emphasis was put mainly on the presence of actual and available information. The item Link to contact person/HR was rated yes if the company's websites contained visible link to a contact person or human resource department.

Table 2: Evaluation of carer websites

Outputs of evaluation of websites related to job related attributes, AutoSAP, January, 2017								
Items	Link to employment website/ Existence of employment website	Job description	Job requirements	Benefits associated with given position	Opportunities for college / university candidates	Training and development opportunities	Contact person /HR	N - total number of companies
Frequency	84	84	84	64	48	57	78	112
%	75,0	75,0	75,0	57,1	42,9	50,9	69,6	100

Source: own processing

As can be seen from the Table 2 most employers (75 %) provided prospective candidates with a link to employment website and had employment website. More than 75 % companies included explicit job description information on their websites. Results show that 75 % of the employers' recruitment websites included information about job requirements and 69,6 % about a contact person. However, only 57.1 % of companies communicated possible benefits associated with a given job opportunity and 50.9 % of companies included information about training and development opportunities on their websites. These findings prove that these two areas are not pursued very intensively by organisations although the past survey indicated that including information regarding benefits and development opportunities may improve applicant perceptions of company attractiveness and thus influenced his/her decisions (Roberson, Collins and Oreg 2005). Only a minority of the companies (42,9 %) provided section targeting college or university candidates, although they represent the largest pool of talent for many companies (in prior research 33,9 %, Egerová, 2016). Furthermore, some surveys found that information regarding graduate opportunities is very important criterion for deciding generation of Millennials (Eger, Egerová, Mič, 2015; Jobvite, 2013; PwC, 2011).

3.3 Section 3 – Communication and interaction

This section was focused on communication and interaction of companies with potential applicants. The results are presented in Table 3. The items in this section were selected mostly with the emphasis on specific characteristics and expectations of millennial generation. In this section we evaluated five items.

To assess the item Links to social media sites the emphasis was put mainly on connection of corporate website to social or professional network. We focused primary on the most frequently used social networks in the Czech Republic such as Facebook, LinkedIn, YouTube, and also Twitter that is frequently used by foreign companies. Referring to the item Organisational profile we primary followed whether the company had its profile on Facebook and LinkedIn. The item Currency of social media sites were assessed with the regard to Facebook that is the most frequently used social media network in the Czech Republic.

Table 3: Evaluation of social media corporate websites AutoSAP, January, 2017

Evaluation of social media websites related to AutoSAP, January, 2017				
Items	Links to social media sites	Organisational profile on Facebook and LinkedIn	Currency of social media sites/Facebook	N - total number of companies
Frequency	46	58	55	107
%	43	54,2	51,4	100

Source: own processing

Table 3 shows, that less than a half of the companies in our sample had links to social media on their corporate websites. The findings also indicate that corporate websites are usually linked to Facebook. With regard to recruitment of talents, it is also important to link recruitment websites with a professional network LinkedIn. To support Facebook and LinkedIn, keeping other social media up-to-date, such as YouTube and Twitter, is of high importance. Currently, YouTube is one of the most used social media sites in the Czech Republic, whereas Twitter is used only sporadically. Overall, findings from this section show that over a half of companies from our sample (AutoSAP) uses social media actively (updated regularly) as a part of their recruitment efforts.

3.4 Section 4 - Corporate websites and recruitment websites quality

Following contingency table shows valuable information for personal marketing and use of the Internet for communication with potential employees. The table interconnects expert (Eger et al. 2015) evaluation of company websites with recruitment websites, see table 4.

Table 4: Expert evaluation of corporate and recruitment websites, AutoSAP, January, 2017

Heuristic evaluation of corporate websites and recruitment websites, AutoSAP									
	Recruitment websites in %								
Corporate www pages	0	1	2	3	4	5	6	7	Sum
Worst = 2	5,6%	0,9%	0,0%	0,9%	0,9%	0,9%	0,0%	0,0%	9,3%
3	2,8%	0,9%	0,0%	0,0%	1,9%	3,7%	3,7%	0,0%	13,1%
4	2,8%	0,9%	0,0%	0,9%	1,9%	1,9%	2,8%	3,7%	15,0%
5	1,9%	0,0%	0,0%	0,9%	2,8%	5,6%	3,7%	2,8%	17,8%
Best = 6	1,9%	0,0%	1,9%	0,9%	2,8%	5,6%	8,4%	23,4%	44,9%
TOTAL	15,0%	2,8%	1,9%	3,7%	10,3%	17,8%	18,7%	29,9%	100,0%

Source: own processing

As clearly shown in table 4, almost 40 % of the companies have their corporate and employment websites at very good or excellent level. On the other hand, 12 companies in our survey achieved very poor results. In addition to that, 4 companies did not have functional corporate websites during data collection.

Conclusion

The purpose of this study was to provide an insight about how companies use their own websites to engage potential employees with the primary focus on Millennials. Specifically, based on prior recruitment research and studies on online recruitment the present study explore the extent to which companies provide organization-related content, job-related content and how companies communicate with potential applicants with emphasis on their social media websites.

First, the findings suggest that most companies provide explicit organisational related information. In particular, significant majority of the companies provide information about the company and its production portfolio on their website and has up-to date websites. The majority of the companies communicate information referring their mission, vision and goals and CSR activities. Thus, potential candidates get basic and timely information necessary for their orientation and subsequent decisions. However, despite the importance of culture relevant information that allowed potential applicants to assess their fit with companies' culture only half of companies communicate their culture information.

Second, the survey demonstrates that most companies provide available information regarding job characteristics. In particular, the significant majority of surveyed companies has a link to the recruitment websites, maintain recruitment websites, describe job opportunity including requirements for vacant position and provide available contact link. Slightly more than a half of companies provide job seekers with information concerning benefits and training and development opportunities. Only 43 % of the companies from our sample provided section targeting college or university candidates.

Third, only less than a half of the companies in our sample had links to social media on their corporate websites. Therefore the shift towards use of social media for recruitment is an important challenge for companies and the way how to increase success of acquiring millennial talents.

This study represents important contributions to the growing knowledge about corporate online recruiting practices in the context of Czech companies. Findings, identified in this survey in 2017, indicate improving of recruitment on the Internet in comparison to research results from the study conducted in 2015 by Egerová (2016).

Limitation of the study

This study has several limitations that call for further research. First, the study is focused primarily on the content attributes, but less attention is paid to vividness attributes of corporate websites and to technology acceptance etc. Second, the current study has taken in consideration the companies only from the automotive industry.

References

- Allen, D. G., Biggane, J. E., Pitts, M., Otondo, R., & Scotter, J. (2013). Reactions to recruitment web sites: visual and verbal attention, attraction, and intentions to pursue employment. *Journal of Business and Psychology*, 28(3), 263-285.
- Automotive Industry Association (AIA). About AIA. (2015, August 28). Retrieved from: <http://www.autosap.cz/en>
- Cappelli, P. (2001). Making the most of on-line recruiting. *Harvard Business Review*, 79(3), 139-146.
- Cober, R. T., Brown, D. J., & Levy, P. E. (2004a). Form, content and function: an evaluative methodology for corporate employment web sites. *Human Resource Management*, 43(2/3), 201-218. doi: 10.1002/hrm.20015.

- Cober, R. T., Brown, D. J., Keeping, L. M., & Levy, P. (2004b). E. Recruitment on the Net: How Do Organizational Web Site Characteristics Influence Applicant Attraction? *Journal of management*, 30(5), 623-646. doi: 10.1016/j.jm.04.03.001.
- De Goede, M. E. E., Van Vianen, A. E. M., & Klehe, U-Ch. (2011). Attracting Applicants on the Web: PO fit, industry culture stereotypes, and website design. *International Journal of Selection*, 19(1), 51-6. doi: 10.1111/j.1468-2389.2010.00534.x.
- Eger, L., Petrtyl, J., Mičík, M., Kunešová, H., & Peška, M. (2015). *Marketing na internetu*. Plzeň: ZČU v Plzni.
- Eger, L., Egerová, D., & Mičík, M. (2015). Is the generation Y looking for the employer with higher purpose? In *Corporate social responsibility and human resource management in V4 countries*. Nitra: Slovak University of Agriculture, 166-175.
- Egerová, D. (2016). Corporate website as a tool for attracting and recruiting Millennial talent. *Economics Management Innovation*, 8(1), 17-25,
- Egerová, D., Lančarič, D., Eger, L., & Savov, R. (2015). Perspectives of talent management: Evidence from Czech and Slovak business organisations. *E&M Economics and Management*, 18(4), 108-120. doi: 10.15240/tul/001/2015-4-008.
- ČeSU & ASA. (2015). *Almanach Top zaměstnavatelé*. Praha: ASA.
- Gray, D. E. (2009). *Doing Research in the Real World*. London: Sage Publications.
- Chen, Ch. Ch., Lin, M. M., & Chen, Ch. M. (2012). Exploring the mechanism of the relationship between website characteristics and organizational attraction. *Journal: International Journal of Human Resource Management*, 23(4), 867-885. doi: 10.1080/09585192.2011.579916.
- Jobvite. *Social recruiting survey results*. (2013, retrieved 2015, June 30). Retrieved from http://web.jobvite.com/rs/jobvite/images/Jobvite_2013_SocialRecruitingSurveyResultSo.pdf
- Llopis, J., Gonzalez, R., & Gasco, J. (2010). Web pages as a tool for strategic description of the Spanish largest firms, *Information Processing*. 46(3), 320-330. doi: 10.1016/j.ipm.2009.06.004.
- Mauer, S. D., & Cook, D. P. (2011). Using web sites to e-recruit qualified applicants: A job marketing review of theory-based research. *Computer in human behaviour*, 27(1), 106-117, doi: 10.1016/j.chb.2010.07.013.
- Melantiou, Y., Pavlou, F., & Constantinou, E. (2015). The Use of Social Network Sites as an E-Recruitment Tool. *Journal of Transnational Management*, 20(31-49).

Miller, R. L., & Brewwer, J. D. (2003). *The A-Z of Social Research: A Dictionary of Key Social Science Research Concepts*. London: Sage Publication.

PWC. *Millennials at work. Reshaping the workplace*. (2011, retrieved 2015, June 30). Retrieved from https://www.pwc.com/en_M1/m1/services/consulting/documents/millennials-at-work.pdf

Roberson, Q. M., Collins, Ch. J., & Oreg, S. (2005). The effects of recruitment message specificity on applicant attraction to organizations. *Journal of Business and Psychology*, 19(3), 310-338. doi: 10.1007/s10869-004-2231-1.

Spence, A. M. (1974). *Market signaling: Informational transfer in hiring and related screening processes*. Cambridge: Harvard University Press.

Williamson, I. O., Lepak, D. P., & King, J. (2003). The effect of company recruitment web site orientation on individuals' perceptions of organizational attractiveness. *Journal of Vocational Behavior*, 63(2), 242-263. doi: 10.1016/S0001-8791(03)00043-5.

Williamson, I. O., King JR, J. E., Lepak, D., & Sarma, A. (2010). Firm reputation, recruitment web sites, and attracting applicants. *Human Resource Management*, 49(4), 669-687.

ONLINE REPUTATION MANAGEMENT AS AN INTEGRAL PART OF COMPANY BUSINESS MANAGEMENT

Vladimír Hojdík, Štefan Majtán

University of Economics in Bratislava
Faculty of Business Management
Department of Business Economy
Dolnozemská cesta 1/b
852 35 Bratislava
Slovenská republika
majtan@euba.sk
vladimir.hojdik@euba.sk

Abstract

Corporate reputation is one of the most important factors which influence the image of company in public. A positive reputation can result in many benefits for company and thus improve a corporate performance. Nowadays, companies need to deal with big challenges. Growing potential of Internet and digital technologies cause that companies have to manage their reputation in the online environment, too. Online marketing and online business activities of firms are forcing managers to pay attention to online reputation management (ORM). The aim of this paper is to bring the issue of online reputation management and underline its growing importance in business management. It also explains one of mostly used concepts for measuring the online reputation management – sentiment analysis and real examples of its usage. This work should also inspire managers to focus on building positive online reputation and manage it in a way it will be favourable for the company.

Keywords

online reputation, online reputation management, ORM, sentiment analysis, business management

Introduction

Corporate reputation is one of the most important assets of companies. As Benjamin Franklin said, it takes many years to build a reputation, but only one moment can ruin it completely. Companies should be aware of building a positive corporate reputation. They should also take measures which will help to protect their reputation. Building and also protecting positive reputation represents a huge challenge for companies, and that is mainly a consequence of the Internet rise.

1. Reputation and online reputation

Reputation is a reflection of how other stakeholders are regarding a company. There has been growing interest in defining and measuring a reputation of company, especially in recent years. An organization's reputation can lead to trust and credibility in society, and thus help the company to achieve its goals and objectives (Baur & Schmitz, 2011).

Each company has some reputation. Reputation always exists (Marsden, 2013). The reputation of company is considered as a very valuable asset. According to Balmer and Greyser (2003), the reputation of company is a state, which is formed over a longer period on the basis of what the company does and how it is maintained. Other definition says that reputation is a collective evaluation of individual impressions (Gottschalk, 2011).

Online reputation is a reputation of company in online environment, and it is very important element which impacts its success. Walter (2013) says that business reputation is everything. It means, that it is very fragile and only one mistake can damage it completely. All these suggestions are even stronger in the digital environment. Nowadays, people or customers are able to express their opinion about the brand, and share it via the Internet. Such comments are creating the online corporate reputation, and therefore company should take an active approach in its management.

The Internet rapidly changed the perception of reputation. What used to be local, is now global and what used to be private, is now public. All these changes are a consequence of technological development and growing number of the Internet users. In the era of worldwide popularity of social networks we can see that spreading of information is not a matter of days, but hours or seconds.

Social networks are used for many reasons. One of them is that users want to find out which subjects are trustworthy and which are not. As the result of their findings, they usually incline to subjects with stronger reputation. Reputation in online community has very similar signs as a classic reputation, but it also considers other elements as business website, social media, social networks communication or information technologies – finally it should provide a company possible ways how to reach high level of reputation and keep it stable (Pollák, 2015).

2. How reputation is created?

Corporate reputation consists of three forms. i.e. primary, secondary and cyclic (Svoboda, 2009). Reputation represents a collective assessment of the company's

ability to provide valuable product, service or other value to a group of customers (Fombrun, 2001).

Building and maintaining of positive corporate reputation has been primarily attributed to departments of marketing and communication policy. Burke (2011) states that nowadays reputation is not influenced only by marketing activities, but it has been also integrated into human resource management and corporate strategy. It is generally accepted that reputation is created from the inside out and communicated to the public by company managers.

According to Fombrun, it is necessary for company to take care of its reputation. He outlines the following principles, which help the companies to build strong reputation (Fombrun, 2011):

- a) Distinctiveness - strong reputation arises when companies have a distinctive position in the minds of customers.
- b) Focus - strong reputation arises when companies try to focus their actions and communication around a single core theme.
- c) Consistency - strong reputation arises when companies remain consistent in their actions and communication with internal and external environment as well.
- d) Identity - strong reputation arises when companies act in ways that are consistent with their supposed principles of identity. The main task is that the companies are perceived as real by its customers and the public.
- e) Transparency - strong reputation arises when companies are transparent in the way they execute their business activities. In particular, companies should be perceived as open and honest in their actions. Transparency is tightly linked with communication. It is a communication that supports transparency and is therefore necessary for successful reputation building.

3. Online reputation management

A term online reputation management is still an undiscovered area of Slovak market. Even though companies should be interested in brand protection and brand awareness, the problem of online reputation management remains quite unknown.

Online reputation management can be defined as the process of analysis and management for entities' reputation – people, organizations etc. – which is characterized by the existent content within all kinds of online media. What is very important for organizations is to be able to answer fast enough when people express their opinions about them in online environment (Hung et al., 2012).

Online reputation management is based on monitoring media, detecting relevant contents, analyzing what people say about company and also interact with consumers. Especially negative comments may influence reputation of company. Comments with negative sentiment can seriously affect the corporate reputation in negative way and therefore online reputation management is becoming increasingly important part of company communication.

Sasko (2014) outlined four main activities of online reputation management:

- online monitoring of the Internet and users,
- communication with clients and public,
- evaluation and interpretation of results,
- crisis reputation management.

The process of online reputation management has these stages: identification, analysis, reaction and controlling. Identification represents the stage in which entities should search for potential issues or risks that could lead to negative reputation. Depending on the business/industry, these activities need to be constantly developed and then monitored. For the success of this step, inclusion of employees in the monitoring process could eventually result in higher added value for the organization. The analysis stage follows after identification where the identified issues need to be analysed and included in the business strategies. The process then continues with the reaction stage – actions for an appropriate business strategy should be developed and also implemented. Control stage that represents the evaluation of the actions implemented for improvement is a final stage of the process. What is very important for the whole process is the fact, that it need to be improved and maintained over time (Portmann, 2013).

Activities of online reputation management should protect the reputation of person, brand or business in the Internet and also eliminate the causes of negative sentiment. To do this, companies have to find out, what is written about them in the Internet, identify a potential cause of negative image and act appropriately towards the audience.

The rise of the Internet and especially social media gives people the opportunity to access and share information and also express their sentiment and opinions about anything more frequently than ever before (Xianghua, 2013). Therefore, considering the dramatic increase in the usage of social networks, blogs, and other online platforms, it became very interesting for organizations to keep monitoring and analysing online sentiments. A tool that can address these issues and is very popular is called sentiment analysis.

4. Sentiment analysis as a method of online reputation measurement

Using social networks means that both organizations and consumers generate a huge amount of data. Users interact with each other, discuss about experiences with various companies and their products, and subsequently influence each other's opinions and decisions. Sentiment analysis is one of the tools which enable us to measure the level of business online reputation.

Sentiment analysis is a systematic analysis of online expressions. Sentiment analysis is focusing on evaluating opinions and attitudes on a specific topic. It can be defined from two perspectives: operational and functional. Operational is aimed on the operations of the techniques in the computational linguistics subfield. Functional focuses on the practical use of the method. Despite these few differences the general description remains the same and says that sentiment analysis is a data mining technique that uses natural language processing, computational linguistic and text analytics to identify and extract content of interest from a body of textual data (Rambocas, Gama, 2013).

Sentiment analysis is one of the most used rating systems for online reputation in Europe. Rajzák (2010) used this method in the context of banks on-line reputation evaluation. This method is based on assessment of first ten organic results of a search engine. Each partial result and sentiment is analysed and followed by the final assessment of the company. That serves as an criterion for evaluation of success or failure of the entity in selected segments. In order to eliminate the probability of customized search results, it is recommended to use a proxy server, which secures anonymity and finds only the most relevant results. The final score is calculated according to scoring system listed in below table (Tab 1).

Table 1: Sentiment analysis scoring system

Sentiment/Position of the result	1	2	3	4	5	6	7	8	9	10
Positive sentiment	20	19	18	17	16	15	14	13	12	11
Website of company	10	9	8	7	6	5	4	3	2	1
Neutral sentiment	2	2	2	2	2	2	2	2	2	2
Negative sentiment	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11

Source: Rohál, Sasko (2011)

Fedorko, Nastiřin and Pollák (2015) used this method in their research to analyze online reputation of selected Slovak start-up companies. The aim of this study was to calculate online reputation of selected subjects, and recommend venture capitalists they should take corporate reputation seriously since it reflects many actual and ongoing indications that can be helpful when deciding about future actions.

Bačůk, Paolone and Nastiřin (2016) examined the relationship of corporate performance indicators and online reputation in selected Europe food industry countries, and in their paper a sentiment analysis was used as well. They found that for food industry, online reputation has no direct impact on performance of companies. However, they note that the relationship of online reputation and company performance should be analysed and evaluated in other industries.

Sentiment analysis was used also to evaluate online reputation of twenty biggest Slovak towns (Dorčák, Pollák, Szabó, 2014). The result of the study, according to authors, should motivate towns to publish information that are relevant and needed for potential visitors. Towns ought to decrease negative publicity and focus on improving the sentiment at least in first ten results of search engine.

Dorčák, Breza and Pollák (2013) did the research in health care subjects operationg in Slovakia. They found the differences in online reputation and real-world reputation of these subjects by using sentiment analysis. The results of their findings backs the thesis that online reputation management is very important part of complete corporate management, especially in health care entities.

Rambocas and Gama (2013) used sentiment analysis in their paper and found that sentiment analysis is an important technique capable of triangulating qualitative and quantitative methods through innovative real time data collection and analysis.

Conclusion

In today's era of the Internet, only highly specialized entities using new technologies come to the fore. It is a general effort in applying marketing tools to build a quality brand and publicizing the brand to wider audience. It does not matter whether it is a product, service, or organization. This paper underlines the importance of reputation in the online world and its growing impact on the overall success of companies. Positive reputation, especially in the online environment of immediate decisions, is often a critical factor for customers when purchasing products, visiting an institution, or ordering services. Organizations must be aware of online reputation phenomena, and they should also implement systems for measuring of online reputation. Sentiment analysis is one most popular methods which can reliably measure the online reputation of companies.

Aknowledgement

This article is one of the partial outputs of the currently solved research grant APVV no. APVV-15-0511 entitled "Research of the issue of Online Reputation Management (ORM) of subjects from automotive industry".

References

- Bačík, R., Paolone, F., Nastišin, Ľ. (2016). Financial Performance and On-Line Reputation: Empirical Evidence from a Random Sample of European Food Industry. *Mediterranean Journal of Social Sciences*, 7(1), 105-115.
- Balmer, J., Greyser, S. (2003). *Revealing the Corporation: Perspectives on Identity, Image, Reputation, Corporate Branding and Corporate-level marketing*. Oxford: Routledge.
- Baur, D., Schmitz, H. P. (2011). Corporations and NGOs: when accountability leads to co-optation. *Journal of Business Ethics*, 106(1), 9-21.
- Burke, J. et al. (2011). *Corporate Reputation: Managing Opportunities and Threats*. UK: Gower Publishing Ltd.
- Dorčák, P., Breza, J., Pollák, F. (2013). On-line reputácia poskytovateľov zdravotnej starostlivosti na slovenskom trhu. In: *Manažment podnikania a veci verejných – dialógy*, 9(25), 55-63.
- Dorčák, P., Pollák, F., Szabó, S. (2014). Analysis of the possibilities of improving an online reputation of public institutions. In: *IDIMT-2014. Networking societies – cooperation and conflict: 22nd interdisciplinary information management talks*. Linz: Johannes Kepler Universitat, 275-282.
- Fedorko, R., Nastišin, Ľ., Pollák, F. (2015). On-line Reputation of the Selected Slovak Start-ups. In: *Central European Conference in Finance and Economics (CEGE2015), Technical university of Košice*, 164-170.
- Fombrun, C. J., Foss, C. B. (2001, retrieved 2017, March). The Reputation Quotient, Part 1: Developing a Reputation Quotient. Retrieved from https://www.reputationinstitute.com/frames/press/01_15_14_GUAGE.pdf
- Gottschalk, P. (2011). *Corporate Social Responsibility, Governance and Corporate Reputation*. USA: World Scientific Publishing Co. Ptc. Ltd.
- Hung, Y. H. et al. (2012). Online reputation management for improving marketing by using a hybrid MCDM model. *Knowledge-based systems*, 35(1), 87-93.
- Marsden, H. (2013). *Guard Your Reputation On-line*. Birmingham: Smartebookshop.

Pollák, F. (2015). *On-line reputačný manažment v podmienkach stredoeurópskeho virtuálneho trhu*. Prešov: Bookman, s.r.o.

Portmann, E. (2013). *The FORA Framework. A Fuzzy Grassroots Ontology for Online Reputation Management*.

Rambocas, M., Gama, J. (2013, retrieved 2017, March). Marketing Research: The Role of Sentiment Analysis. Retrieved from: <http://www.fep.up.pt/investigacao/workingpapers/wp489.pdf>

Rajzák, P. et. al. (2010). Systém pre hodnotenie on-line reputácie bánk. In *Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice*, 652-657.

Rohaľ, R., Sasko, J. (2011). *Analýza sentimentu výsledkov slovenských firiem*. Visibility, s.r.o.

Sasko, J. (2014, retrieved 2017, March). Dbáte na hodnotu svojej značky? Retrieved from https://www.reputationinstitute.com/frames/press/01_15_14_GUAGE.pdf

Svoboda, V. (2009). *Public relations – moderne a účinnne*. Praha: Grada Publishing.

Walter, E. (2013, retrieved 2017, March). 10 Tips For Reputation And Crisis Management In The Digital World. Retrieved from <https://www.forbes.com/forbes/welcome/?toURL=https://www.forbes.com/sites/ekaterinawalter/2013/11/12/10-tips-for-reputation-and-crisis-management-in-the-digital-world/&refURL=&referrer=#2ca443c25075>

Xianghua, F. et al. (2013). Multi-aspect sentiment analysis for Chinese online social reviews based on topic modeling and HowNet lexicon. *Knowledge-Based Systems*, 37(1), 186-195.

CAN SOME PERFORMANCE MODEL BE USED TO EVALUATE THE LEVEL OF STRATEGICAL LEADERSHIP?

Jaroslav Hradílek

KRÁLOVOPOLSKÁ RIA, a.s.

Okružní 19a

638 00 Brno

Česká republika

jhradilek@seznam.cz

Abstract

The value of a company for all stakeholders and a future success can hardly be predicted with means of financial analysis only, for non-profit entities not at all. Can we evaluate and measure the quality of leadership? What are the factors which a successful organization must have? The aim of the article is to identify the performance model, which can be used as a tool to measure the quality of the leadership and predict the success of the company/non-profit organization. It compares various methods/models used for financial analysis and performance models leading to a best suitable model, though no model can be used without constraints. Own performance benchmarking model has been therefore developed to enable such evaluation in a time and effort effective way, yet robust enough to get a fair overview over an evaluated entity.

Keywords

leadership quality, non-financial factors, performance model, benchmarking, comparison

Introduction

The area of financial analysis is broadly investigated and a score of financial analysis exists and is being constantly developed. This is acceptable for purposes, financial analysis was meant for – comparing different entities, benchmarking, measuring the development over time. There exists, however, very few techniques and methods being able to measure the soft factors of the company – like company culture, leadership, employees engagement or customer satisfaction. But obviously these factors have a vital influence on the company future performance. As published by Ernst & Young, nearly 40% of the market valuation of the average company was “missing from its balance sheet,” For high-tech firms, that percentage was over 50% (Ernst & Young, 1997). So what ways of measuring those non-financial factors do we have? And can we tell, which are the important ones? And is there any way for an external observer to get the data needed? The suitable way in addressing the outstanding questions can be some of the Performance Measurement Systems (PMS).

Not only that they address the key processes of the entity, but also describe the vital cause-and-effect relationship. The aim is to find the most suitable model which can describe and quantify the maturity of an organization, quality of a leadership and its contribution to their stakeholders.

1. Theoretical framework

The good leadership: There is no sole definition of a good leadership, as if there was any, every company would do the same to nullify the effect of being the best (Margretta, 2012). Collins (2001) uses the opposite logic and identifies eight factors, which differentiate successful companies from the unsuccessful/average. He applied strict metrics (outperform the industry average in a market value growth in last 30 years) to avoid on time effects like personal charisma of a leader or one good idea being marketed. No theoretical approach aims to measure the quality of the company management, or, alternatively, puts it in a connection with the company results. Intuitively, a good leadership leads the company to a financial success, to create a value for the owners. To be more precise on the topic, we formulate the good management of a company as a “never ending effort to sustain the best results in customer relationship, internal processes, employee management, company culture, communication, integrity and responsibility to create the maximal satisfaction of all the stakeholders”.

The hypothesis: Does the quality of the leadership and strategical thinking have a measurable impact on the value generated by a company, or are the economical results more substantially influenced by the external factors like a market growth, costs advantage, entry barriers etc.? Are the companies without strong strategical thinking just lucky being on the right place in the right time and are doomed to go bankrupt as the conditions change? Or is a market environment so dynamic and changeable that no strategy can survive the speed of changes and being quick in the respond is the only way to survive? This article aims to solve the question if a quality of a management can be evaluated based on existing analytical tools and if such a model can be used for predictive purposes, either in capital valuation, or in academic research.

The Overview: The Bititci, 2016 describes a wide range of PMS, where some of them have higher potential to serve as a measurement tool or model to describe the level of the management quality in an entity. The suitable models are:

- the Business Excellence Model of the European foundation for quality management (EFQM)
- the Performance Prism by Neely et al. (2002)

- the Strategic measurement analysis and reporting technique (SMART), known as the Performance Pyramid by Cross and Lynch, 1989

Additionally, the well-known Balance Scorecard model has to be mentioned here (Kaplan et al, 2000).

For benchmarking purposes, we added also DuPont model to compare the traditional financial analysis with the required goal of the research.

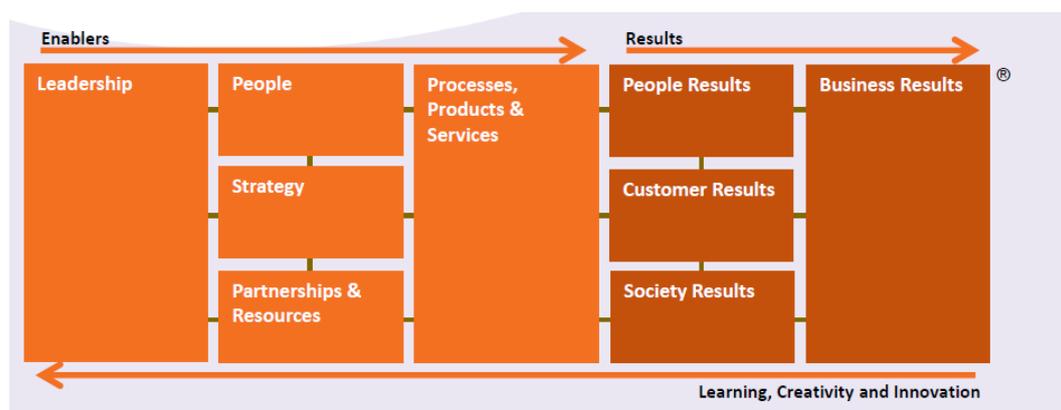
We have investigated all of the chosen models in terms of cause-and-effect descriptiveness, effort to introduce, ability of benchmarking, availability of data, objectivity of the information provided, generality (suitability for both profit/non-profit entities). By a complex set of criterion we try to evaluate which of the models can fit at best to our desired goal, to describe the level of leadership and management in an entity.

Short description of the models: I recommend to learn more about the models in a literature, here is just an essential description of the chosen models.

EFQM

The model has been developed by the European foundation for quality management (EFQM) and is being updated regularly, the last version is of year 2013. The model has a strong cause and effect relationship between the Enablers (first 5 boxes from the left) and the Results (last 4 boxes from the left). Each criterion is structured to several sub-criteria and can be assessed on a standardized scale which enables to compare the results with other entities. The disadvantage is rather high effort needed for the assessment / implementation, for which the ordinary training is required.

Figure 1: The EFQM model.



Source: www.efqm.org

Baldrige Excellence Framework (BEF)

The Baldrige Award was designed to raise awareness of quality management and recognize U.S. companies that have implemented successful quality-management systems. Recipients are selected based on achievement and improvement in seven areas, known as the Baldrige Criteria for Performance Excellence:

Leadership: How upper management leads the organization, and how the organization leads within the community.

Strategy: How the organization establishes and plans to implement strategic directions.

Customers: How the organization builds and maintains strong, lasting relationships with customers.

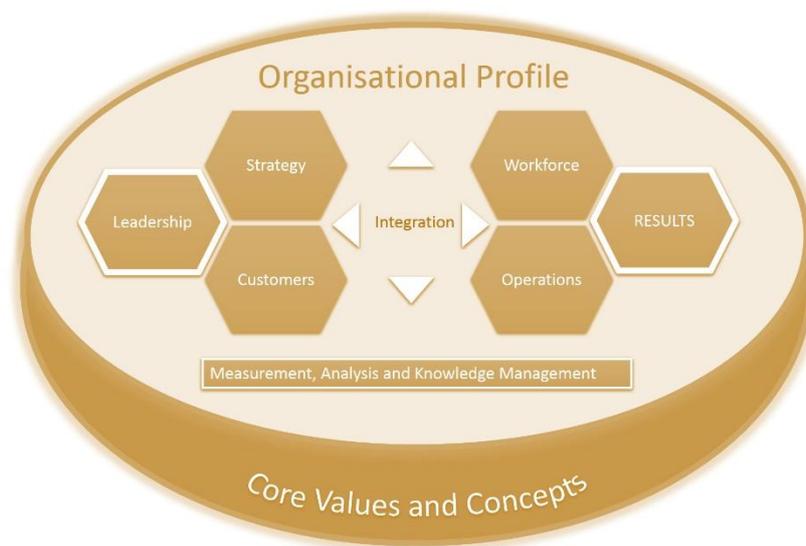
Measurement, analysis, and knowledge management: How the organization uses data to support key processes and manage performance.

Workforce: How the organization empowers and involves its workforce.

Operations: How the organization designs, manages and improves key processes.

Results: How the organization performs in terms of customer satisfaction, finances, human resources, supplier and partner performance, operations, governance and social responsibility, and how the organization compares to its competitors.

Figure 2: the Baldrige Excellence Framework



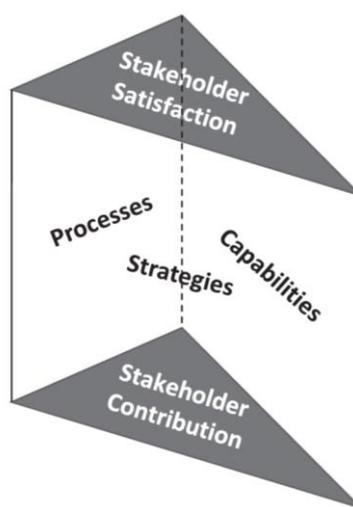
Source: <http://www.nzbef.org.nz/>

Performance prism

The authors – Neely and Adams claim the Performance prism being the second generation performance management framework. They incorporate the view of all

major stakeholders of the organization, who have not only to expect something from the organization, but also have to contribute something to the organization. The model focuses on the changes in strategies which have to take place in order to meet the needs of the stakeholders. The five interrelated perspectives in the Performance Prism framework can be observed from the graphic. The technique used to align the strategies, processes, capabilities with the delivery of stakeholders expectations and contributions is “Success mapping”.

Figure 3: The performance Prism

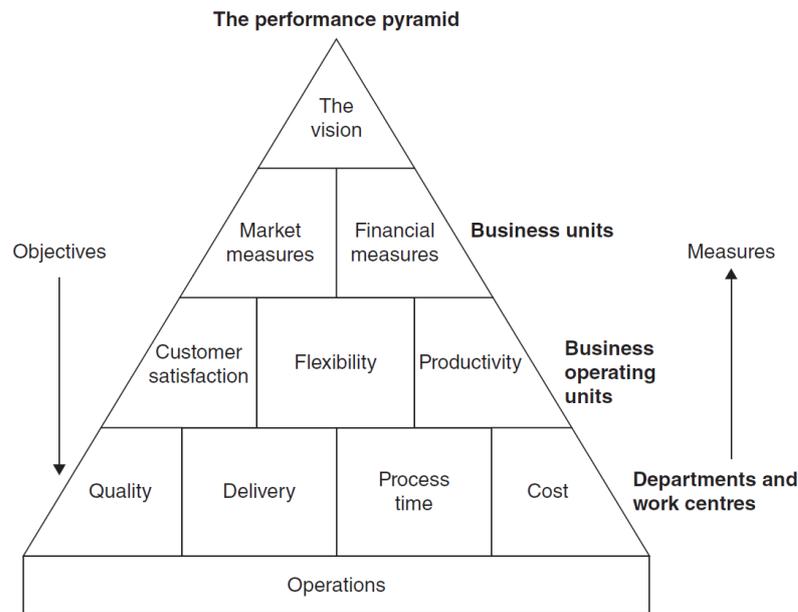


Source: Bititci, Umit S. Managing business performance

Performance pyramid

The Strategic measurement analysis and reporting technique (SMART) is also known as the Performance Pyramid. It was developed by Cross and Lynch in 1989 and eliminate the disadvantages associated with traditional, financially focused performance measurement systems. This pyramid integrates the strategic objectives and operational performance dimensions through a four level structure. The right-hand part focuses on internal efficiency measures, the left-hand side of the pyramid reflects external effectiveness measures (Bitici et al, 2016).

Figure 4: The performance pyramid

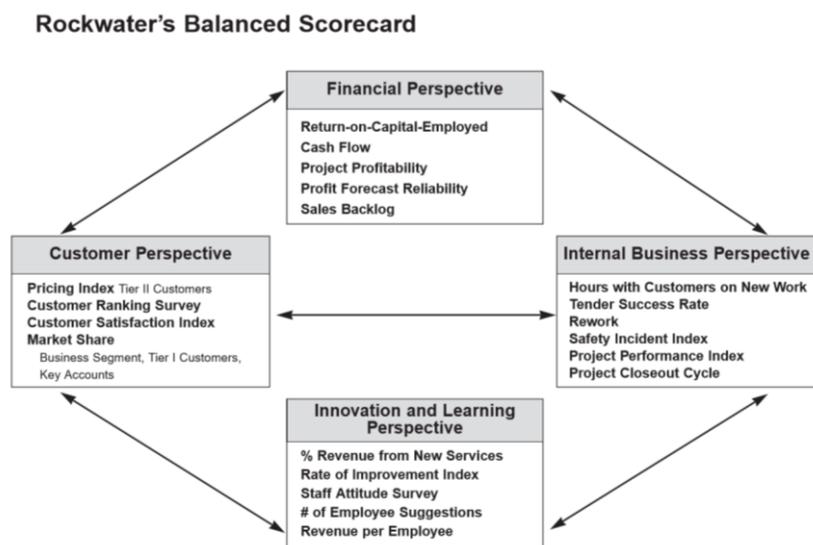


Source: Bititci, Umit S. *Managing business performance*

Balanced Scorecard

The scorecard presents managers with four different perspectives from which to choose measures. It complements traditional financial indicators with measures of performance for customers, internal processes, and innovation and improvement activities. The balanced scorecard is not a template that can be applied to businesses in general, different entities customize scorecards to fit their mission, strategy, technology, and culture instead (Kaplan, Norton, 1993).

Figure 5: Example of BSC

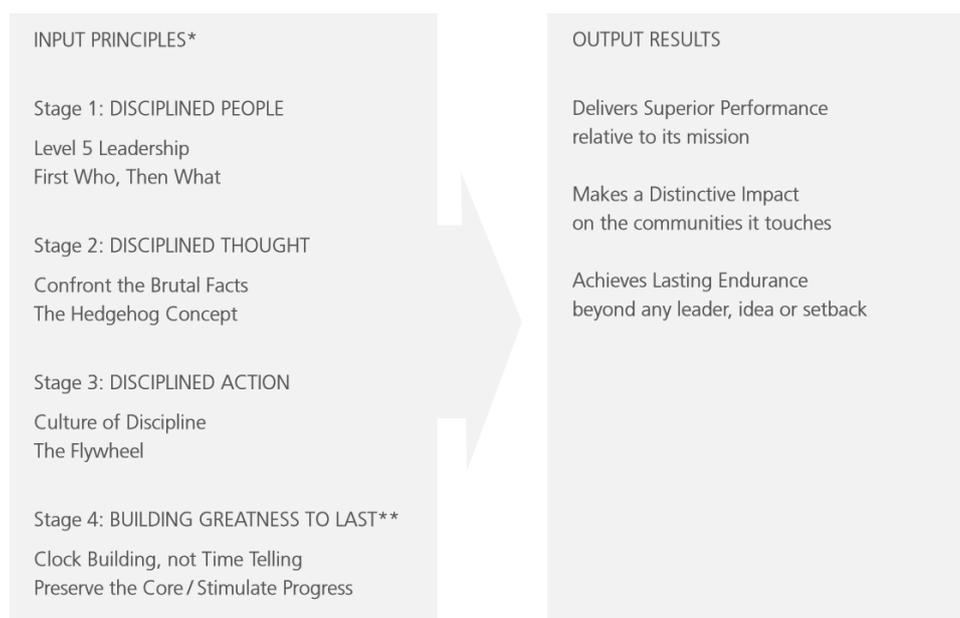


Source: R. Kaplan, D. Norton, *Putting the Balanced Scorecard to work*

Good to Great

The G2G framework has been developed by J. Collins, based on his book Good To Great. He identifies the basic differences between successful companies (Great) and the others. Based on these guiding principles of great companies he developed own diagnostics tool, which can an organization easily self-implement and with moderate effort repeat over time enabling it to track its changes over time.

Picture 6: Good to Great diagnostics tool

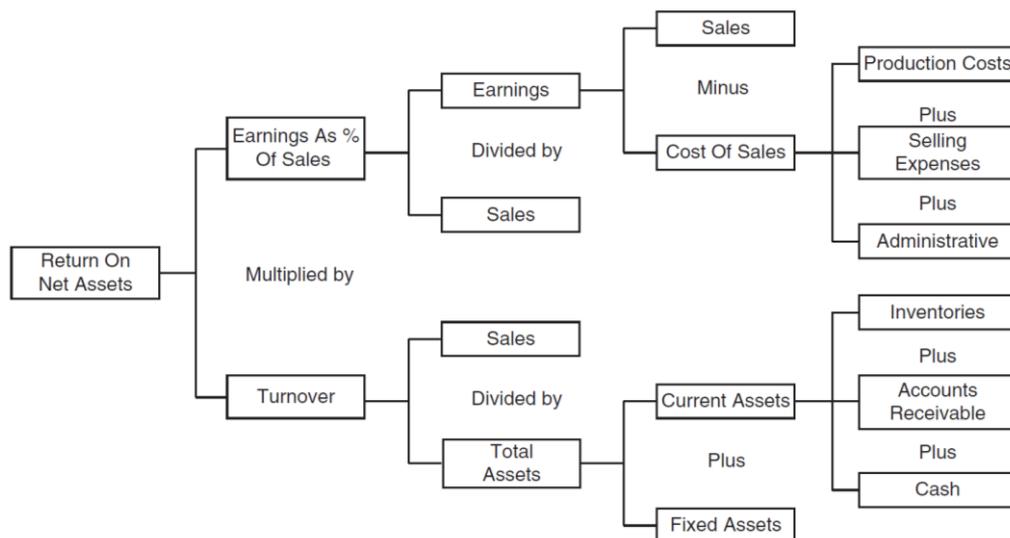


Source: <http://www.jimcollins.com/tools/diagnostic-tool.pdf>

DuPont

This is one of the original performance measurement systems that was developed by Du Pont, the American chemicals giant. Du Pont developed a structure by linking accounting measures and financial ratios – such as Return On Net Assets (RONA), Return On Investment (ROI) and Return On Equity (ROE) – to more operational indicators and measures. One of the advantages of Du Pont's model is its structure, which integrates financial measures with operational indicators. In contrast, the main drawback is that it is mainly focused on financial measures (Bitici et al, 2016).

Picture 7: DuPont RONA pyramid



Source: Bititci, Umit S. *Managing business performance*

2. Methodology

The measurement: If there is no clear definition of a good leadership, how to measure it in terms of financial results? Obviously, we cannot put any absolute metric like a good leadership causes at least XX % ROI in three consecutive years. Not only that the industry averages differ significantly, but there is a good score of other factors which influence the financial performance of the company, internal and external alike. Can we then use some relative metrics? Like outperforming the industry, growing faster than the industry, creating value, earning more each year. The possible way could be the Collins approach – creating sustainably more value for the shareholders than the industry average. The one-time effects would be cleared and strong link between performance and leadership can be thus established. However, as this sound promising, the time series over 20 years is in practical use somewhat too long and we do not investigate the ability of a management in a past, but in present. So past successes can hardly be evidence of a present management capabilities. Moreover, in past years the market value can perhaps be an indicator of a company success and therefore of a level of leadership, but the development of today's capital markets is in many cases influenced by too strong non-financial factors to take it as an adequate metrics.⁵ Similarly, Peters et al, 1982, defines six

⁵ E. g. in April 2017 the market value of Tesla Motors exceeded the value of Ford, whereas Ford reported in 5 years net income over \$26 bil., Tesla reported loss of \$2,3 bil. Revenue was \$151.8 billion

KPI's to identify long-term outstanding companies. Also here are all indicators of a financial nature, whereas three are connected to the growth and treasury (market capitalization), the other three are indicating the rentability ability of the company. And there is one more substantial reason why to look for a new way of measuring the level of management – there are not only profit maximizing entities, where the quality of management plays vital role, but many more. From wide range of governmental entities like schools, councils, police, army, non-profit organizations to organizations where financial success is important, but not crucial like sport organizations, culture venues and even central banks.

Even if we narrow our focus on the profit-making companies (what is not our intention), we have to admit that the interests of all stakeholders need not usually be the same, namely maximizing the profit. So, if we set the ultimate objective of an entity to maximize the fulfillment of the expectations of all stakeholder's interest (which bring us back to both profit and non-profit organizations), we can hardly use any financial metric or set of financial metrics as a sole indicator of a quality of management.

The studies (e.g. Hendricks and Singhal, 1996 or the Centre of Quality Excellence, the University of Leicester, 2005) confirm a strong correlation between having implemented some kind of Business Excellence principles and financial results in both short and long term. Having such a strong evidence that the implementation of TQM principles has a positive influence on an organizational performance (business results in case of a companies) , it was decided to go vice-versa and try to examine the usability of the performance models as an evaluation and predictive tool.

We have been inspired by OGER & PLATT, 2002 who compared the value creation models EFQM and Baldrige Award Criteria. As this methodology refers to two models only, we have extended and reworked their methodology for our purpose. Rusev & Salonits, 2016, have identified its own method, however solely focused on the operational effectiveness of manufacturing companies and thought their aspiration to develop a self-assessment tool based on qualitative diagnostics would sound promising, the results are from the too narrow point of view not fit for our purpose.

The evaluation: For the evaluation purposes 5 grade the scale have been created (with 0,5 points step) and seven main characteristics have been chosen. They include

last year for Ford, compared with Tesla's \$7 billion. Tesla sold 76,000 cars last year, compared to 6.7 million for Ford.

the important areas the model should cover and also address an important issue – the availability of the data. The characteristics chosen are:

Financial status: The descriptive power of the model regarding the financial results of the company.

Process maturity: How does the company master its processes? Can the model evaluate them?

Leadership: Does the company has set a clear vision, mission, values, company culture, communication?

Stakeholders: Does the model include the interests of major stakeholders? Namely owners, employees, customers, suppliers, government?

Forward/lead: Is the model based just on historical data or has also predictive power?

External factors: Is the success of the company influenced just by their quality, or external factors play vital role (market growth, change of regulations, competition)

Prescriptiveness: Is the model generally usable regardless the size, maturity, profit/non-profit nature of the organization?

Data availability: Are the data for the model publicly available, available on demand, restricted, secret?

Measurability: Is the model fit for comparisons among entities?

3. Results

Having tested all selected performance models, the following results were achieved:

Table 1: The results

The model	Financials	Process maturity	Leadership	Stakeholders	Forward/lead	External factors	Prescriptiveness	Data availability	Measurability	Total points
EFQM	4	5	5	4,5	5	2	5	2	5	37,5
BEF	5	5	5	3	5	1,5	4,5	2	5	36
Performance Prism	2	5	3	5	4	2	5	2	2	30
Performance Pyramid	4	4	3	2	4	2,5	3	1,5	2	26
Balanced Scorecard	4,5	3,5	3	3,5	3	3,5	4	2,5	3	30,5
Good to Great	1	2	5	2	4,5	1	5	3	4	27,5
DuPont	5	1,5	1	2	2	1	1	4	5	22,5

Source: own processin

EFQM: The best evaluation gained the EFQM model. It addresses the leadership abilities and organization strategy as a potential (enablers), but also evaluates the respective results very thoroughly. The disadvantage is that due to the robustness of the model the data collection is very difficult and even that there are several ways how to get the results (self-assessment, questionnaire, workshop etc.). The intention

of the model is not only to describe, but to improve the overall performance of the organization. Main advantage over the other models is the RADAR evaluation matrix, with a fixed scale from 1-1000 points. Due to broadly deployed usage of the model the benchmarking is then rather easy. The assessment is recommended to carry on with a certified assessor, otherwise the results will not be comparable. The advantage of the model is non-prescriptiveness so any organization can use it.

BEF: Both EFQM and BEF model are very similar in its purpose and construction, therefore exhibits very similar score of our test. However, as the BEF model is focused primarily on the US market, there are differences in weighting of the elements, attributable to differences in socioeconomic environments of Europe and the United States. The EFQM model places much more emphasis on tactical issues relating to the diffusion and implementation of strategy and the monitoring of customer, employee and society results, while the Baldrige model emphasizes the development of strategy and the reporting and analysis of business (financial) results. (OGER & PLATT, 2012). The slight difference in a final score is due to the higher focus on business results, earning more points in financial category, but successively losing points in stakeholders, external factors and prescriptiveness categories. For profit oriented entities, however, this could be the best model.

Performance Prism: In comparison with EFQM model the Performance Prism is intended primarily for the business corporations whereas it does not address financial performance (as it is being monitored elsewhere), but the connection among processes, strategies and capabilities, aligned with stakeholders' interests and, unlike other models, also contributions.

Performance pyramid: Score of this model has been determined by single purpose of its usage in a business environment and rather limited measurability among entities with intensive requirements on data for its construction. On the contrary, like the other models it combines the capabilities and results creating a sound picture of company pros and cons.

Balanced scorecard: Probably best known performance model. It suits very well in terms of establishing clear relation of strategies and goals and its measurable indicators. It comprehends internal topics and external alike. The purpose of the model is to measure the effect of the strategies and if they contribute to achieving selected goals, not primarily on the assessing/benchmarking the entity. Also the nature of the model, which is being adapted uniquely for each organization inhibits its potential as a measuring tool for our purposes. The model is very open and allows the usage in any form of business/non-profit organization.

Good to Great: As G2G is not a performance model, it has been actually developed for our purposes – to evaluate a company's leadership quality and figuring out its

future performance. The tool is usable for own managers solely as all the inputs are “soft”. Also, the tool does not reflect categories like external environment or all stakeholders, on the other hand is quite easy for the organization to be performed, and therefore repeated and compared every year. If an organization has the intention to focus primarily on the management of the entity, this would be the leading tool.

DuPont: The RONA Pyramid is not a performance model comparable with the others and was included in this comparison to demonstrate the difference between traditional financial analyze based on short-term figures with limited predictive power and the performance approach. From the nature of the model it earned most point in financial, data availability and measurability categories.

Own model: As none of the models above fulfill our needs completely, we have decided to develop own performance model. As the methodology and testing exceeds the aim of this paper we will give you only a brief description here, while separate paper will be published on this topic. Basic goals of the model are that the model has a reasonable power in describing the maturity and management level of the company and its financial strength, has a sound prediction power while the usability and data availability would not prevent it from both practical usage and academic research. Still, certain level of insider information has to be used.

Model description: There are 16 criteria of the model scaled from 1 to 5. They represent the most vital, yet most concentrated important criteria. They are divided in four groups (Management, Stakeholders, Financials, External). All criteria are scaled from 1 to 5, where 1, 3 and 5 scorings have described the typical achievements to allow comparability of the results. The results than vary from 16 to 80. Results below 32 mean very poor company, existing by a coincidence or market favourable (like natural monopoly) conditions. Range between 32 to 48 is “grey zone” with additional interpretation needed. Range 49- 64 indicates above-average company with a good potential of future success. Results over 64 are the indications of excellently managed, mature entity. The criteria cover all important elements of a company’s value flow and its ability to generate value for its stakeholders. More detailed description you can find in the Annex 1. Here we describe, how the model will cope with mentioned requirements in all assessed categories:

Financial status: The financial KPI were chosen to represent mid-term stability and growth. Thus it contains CASH FLOW/ EBIT ratio, new orders growth, rentability of sales (ROS). All ratios are calculated as last three years averages, considering one-off effects like investments/ divestments etc.

Process maturity: Here the model evaluates if the company has process optimization in place, if there is a reliable process performance measuring in place and if the core processes are described and process management system takes place.

Leadership: Does the purpose, vision and values of the entity exist and are they properly communicated and lived?

Stakeholders: Does company creates long term partnership with stakeholders, namely customers, suppliers, owners etc.? Does it communicate with them their needs and their contributions as well?

Forward/lead: The selection of important KPI's gives a good overview of the company

External factors: Was there a significant external factor influencing the company performance within last three years (Change in regulations, significant market change, political/economical shifts)?

Prescriptiveness: The model has different set of relevant performance KPI's in first category (financial) for non-profit organizations to be widely usable.

Data availability: The model is constructed to be as low data-intensive as possible. Most data necessary are collected from standardized interview form and can be completed without big efforts (a few hours).

Measurability: All categories in the model are standardized on the scale 1-5 (5 is best) with a clear description what each assessment means enabling comparison among entities/within specified time frame.

4. Discussion

There is no absolute winner of the evaluation. However, we can state that for assessing a company as a whole we can choose some of the Excellence models (EFQM or BEF), which fits for most of the entities potentially evaluated. If we narrow our focus to a management and leadership only, the best model turns out to be Good to great, however for academical research very limited usable (due to the detailed knowledge of the organization needed). The other studies conducted on this topic were with a different aim or purpose, so we cannot compare our findings with them. None of the described models can be used for quick check of the company without constraints. As far as the research conducted by the author goes, no comparable results/models for this purpose have been published. Bogetoft, 2012 introduces an in-depth view on the benchmarking and performance models, involving performance analysis and interactive benchmarking. However, for the purposes of this paper, to get a lean, easy-to-use performance model all the assessed models are

too robust and data and calculations intensive. Therefore, own model has been invented based on literature, author practical experience and the aim of the work – to recognize in advance the future performance of a company, to distinguish a good leadership. The model aims to be both lean and still have a sound explanatory power. Limited number of criteria and clear description allows the general usage of the model, though still the best way to complete is to have a structured interview/questionnaire with a company representative. The main advantage over financial model is that it includes important non-financial criteria give it prediction power and broader view. On the other hand, keeping it lean and structured allows, unlike many others PMS, measuring and benchmarking over time or industry. And the main advantage over sophisticated PMS like EFQM and Baldrige model is the data intensity – our own model can be used by any external user without any training or intensive data mining needed.

Conclusion

The basic purpose of creation of performance models was not to evaluate or benchmark companies, thus the usage of them has its limitations. However, both the EFQM and Baldrige models can serve in this regard as a useful tool, which enables us to rate an entity on the standardized scale. The purpose of this evaluation was intended to benchmark the entities to each other, so we can use this feature. The Enablers and Results, on which each model assessment is based, have very strong informational value on the level of management in each entity. The Good to Great diagnostics tool have a strong descriptive power in terms of management quality of the organization. The non-prescriptiveness of the models enables it to use it in any organization independent of its size, purpose or sector. However, the data needed for the EFQM and BEF models are very detailed, any of possible methods of conducting the assessment is demanding in terms of efforts and skill, limiting the practical use of the business excellence models for the purposes of capital valuation or the academic research. Also the confidentiality of the data used is an issue, as not every organization is willing to publish so sensitive data freely. Own model published here shall overcome these obstacles, allowing a researcher or investor to get first glance on an entity's maturity and a quality of a leadership easily. There is still need for the model to conduct a field research with specified model on both profit and non-profit organizations and discuss the results in a broader expert community, for which purpose the own publication will follow.

References

Bititci, U. S. (2016). *Managing business performance: The science and the art*. John Wiley & Sons.

- Blitz, A. (1997, retrieved 2017, April 12). Measures that Matter. Boston: Ernst & Young's Center for Business Innovation. Retrieved from: <http://valumentors.com/pdf/Measures%20that%20Matter.pdf>
- Bogetoft, P. (2013). *Performance benchmarking: Measuring and managing performance*. Springer Science & Business Media.
- Bukhari, J. (2017, retrieved 2017, April 3). Tesla Is Now More Valuable Than Ford. New York: Time Inc., Retrieved from: <http://fortune.com/2017/04/03/tesla-ford-market-cap/>
- Collins, J. C. (2001). *Good to great: Why some companies make the leap... and others don't*. Random House.
- EFQM Introductory webinar. (2017, retrieved 2017, May 12). EFQM foundation.
- Hendricks, K. B., & Singhal, V. R. (1996). Quality awards and the market value of the firm: An empirical investigation. *Management science*, 42(3), 415-436.
- Kaplan, R. & Norton, D. (2000). *Balanced Scorecard. Strategický systém měření výkonnosti firmy*. Praha.
- Kaplan, R. S., & Norton, D. P. (1995, retrieved 2017, April 12). Putting the balanced scorecard to work. *Performance measurement, management, and appraisal sourcebook*. Harvard Business Review. Retrieved from: <https://hbr.org/1993/09/putting-the-balanced-scorecard-to-work>
- Krishnapillai, A. (2009). *Understanding Key Performance Indicators Through Driver Measures*. Ottawa, University of Ottawa.
- Neely, A. D., Adams, C. & Kennerley, M. (2002). *The performance prism: The scorecard for measuring and managing business success*. London: Financial Times/Prentice Hall.
- Oger, B. & Platt, D. E. (2002). Value measurement and value creation models in Europe and the US: a comparison of the EFQM excellence model and the Baldrige award criteria. *Comptabilité-Contrôle-Audit*, 8(3), 99-115.
- Organisational excellence strategies & improved financial performance. (2005, retrieved 2017, April 20). The Centre of Quality Excellence, the University of Leicester. Retrieved from www.efqm.org
- Peters, T. J., Waterman, R. H. & Jones, I. (2006). *In search of excellence: Lessons from America's best-run companies*. New York, Harper Collins.
- Petrašová, I a kol. (2003). *Hodnocení pro excelenci: EFQM: praktický návod pro úspěšné vypracování, provádění a přezkoumávání strategie sebehodnocení vaší organizace*. Praha: Česká společnost pro jakost.

Rusev, S. J. & Salonitis, K. (2016). Operational excellence assessment framework for manufacturing companies. In *Procedia CIRP*, 55, 272-277.

Welch, D. & Hull, D. (2017, 2017 retrieved April 3). New York: Bloomberg. Retrieved from <https://www.bloomberg.com/news/articles/2017-04-03/tesla-passes-ford-by-market-value-before-musk-delivers-model-3>

Annex 1: Performance benchmarking model

Category	Criterion	Description	1	3	5
Management	Leadership	Does the company have a vision, values, purpose clearly communicated?	Not existent or not communicated	Values and vision exist and the team can find where it is	Values and vision/purpose are regularly communicated and most employees know them well
	Leadership	Is the strategy aligned with values and successfully transformed into operations?	No strategy communicated/no alignment with values, no goals set	Entity strategy exists, no direct link between values/strategy/goals, goals not fulfilled	Values are aligned with strategy and goals, implementation of strategy is being evaluated, the fulfillment of goals is satisfactory
	Quality	Is the quality the cornerstone of a company?	No, quality is either not important or no effective measures in place.	There are initiatives and measures regarding quality, effect not measured/improved	The quality of work/processes/results is the main cornerstone, each individual is committed to it, results being evaluated on a regular basis
	Performance	Is individual performance measured/managed? Is the compensation based on performance?	No, the individual performance is not measured, no goals set, no effect on salary	Goals are set, but no real influence on salary/not measured regularly	The direct link between performance and pay, goals are set based on the strategy objectives of the company
	Processes	Core processes are described, the effectivity of processes is being monitored	Processes are not described, no effectivity monitored	Core processes described, no effective evaluation/improvement in place	Processes sufficiently described, regularly tested, evaluated and improved
	People	The communication and cooperation within company is an important topic.	Internal communication on a poor level, the cooperation among departments is poor	Regular formal means of internal communication, the cooperation issues are being solved	Very good internal communication both formal and informal, cooperation improvement initiatives supported
	People	Is the employee engagement and satisfaction being monitored?	No	Irregularly, not evaluated over time	Regularly evaluated, measures being derived
	People	The fluctuation rate of the employees/year is below industry average.	Fluctuation rate is above 10%/above industry average by 3%	Fluctuation rate is between 5-7% or on industry average +/- 1%	Fluctuation rate is below 3%/below industry average by 3%
	Customers	Is customer the key element in company's life? The total cost of ownership is preferred over short term benefits, long term relationship favoured	No customer dedication, internal issues more important.	Frequent customers contact from sales people, demands being delivered by them.	All positions have a frequent contact with customer, R&D, sales, manufacturing, services are fully aligned with a customer
	Suppliers	The interest of the owner are same as of the company	Main selection criterion is price/discount	All purchasing criteria are evaluated like lifecycle costs, OPEX, warranty	TCO is key decisive factor, long term relations (frame contracts) established, cooperation with supplier (e.g. in R&D) in place
Financials	Owners	The relationship is mutually beneficial.	Owners follow short term financial targets only	Owners are ready to sacrifice (a part of) remuneration in order to further develop the company	The owners and company interests are closely aligned, owners support the company (investments, development, PR).
	Public authorities	FREE CASH FLOW/ EBIT ratio in three consecutive years	There are disputes between company and authorities	The relationship with public authority is without any negative connotations.	The company is a good corporate citizen, working in mutual benefit with a local authority
	Cash/EBIT	Booked New orders in last three years	The ratio is negative or below 0,8	The ratio is 1	The ratio is >1,2
	ROS	Ebit/Sales ratio (the quality of a business)	Negative in total, negative in last two years The ROS is negative/zero/below industry benchmark more than 50%	In average the growth is between -5% and 5% The ROS is on an industry standard	The average growth exceeds 10% The ROS exceeds industry standard by more than 50%
External	External factors	Was there a significant external factor influencing the company performance within last three years (Change in regulations, significant market change, political/economical shifts)?	Yes, the performance was positively influenced significantly	No/not relevant	Yes, the performance was negatively influenced significantly

Source: own processing

SIMULATION-BASED INFLUENCE OF ASPIRATION MODELS ON FIRMS' BEHAVIOR

Michal Jirásek

Department of Business Economics and Management
Faculty of Economics and Management
Masaryk University
Lipová 41a, 602 00 Brno
Czech Republic
mijirasek@mail.muni.cz

Abstract

The performance feedback process is according to the behavioral theory of the firm one of key factors influencing firms' decisions on strategies and their changes. The research contained in this paper compares influences of four classical aspiration models (historical, social, mixed and switching) on firms' strategy choices. Using NetLogo simulation software, a simple model of firms' behavior is constructed and used for analysis of these effects. The role of the social aspiration model is highlighted as it partially differs from the other aspiration models analyzed. This points out to the need to put an attention to a firm's reference group of competitors. The paper itself in general advocates the use of simulation for behavioral research as a useful, yet supplemental, tool of researchers.

Keywords

aspiration models, firm behavior, simulation-based testing

Introduction

Performance feedback is a key component of a firm strategic behavior (Cyert and March, 1963; Greve, 2003). Its process consists of four basic stages: (1) setting a goal, so-called aspiration, i.e. level of performance a firm seeks to attain; (2) choosing a strategy that a boundedly rational (Simon, 1955) firm believes fits the best, i.e. has the highest perceived chances of delivering the desired performance; (3) realizing the selected strategy; (4) assessing whether the strategy lead to the aspired performance or not – consecutive learning process then either strengthen or weaken perceived suitability of the strategy (increase or decrease a probability of its future use).

The model presented in this paper simplifies these basic stages and study how particular aspiration models influence firms' behavior. Simulating effects of aspiration models might be beneficial for an analysis of a real strategic behavior of firms. The simulation software used is NetLogo 6.0.1, frequently used freeware for agent based modelling. Although numerous features of agent based modelling are not used in this model (e.g. spatial configuration), the modelling approach is close to

performance feedback literature that theorizes on decision-making of individual firms rather than system dynamics. Agents are in this case firms deciding whether they invest in increasing their competitiveness or not. A particular firm's competitiveness level – in comparison to market level – determines how a firm is successful, in this case how much it is able to supply.

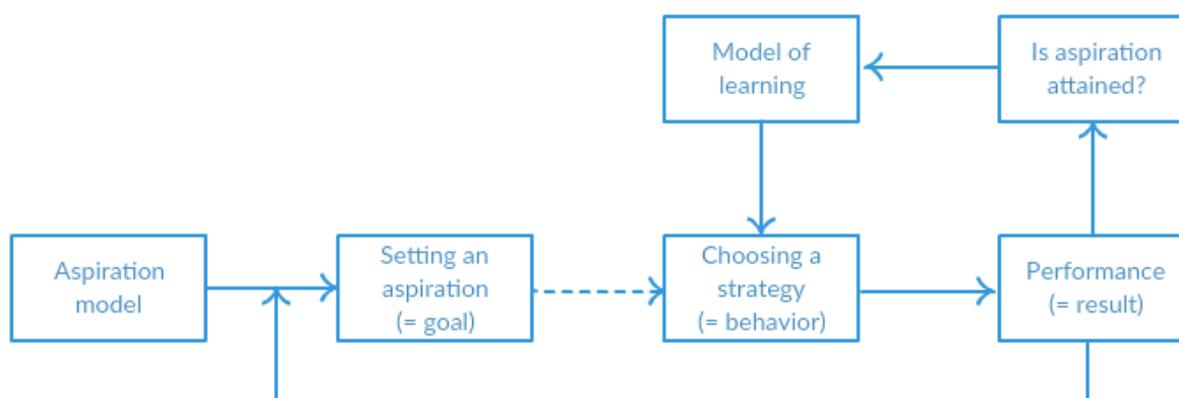
1. The model used

Key relations among components of agents' decision-making are illustrated in Figure 1. The most important components that are set are: (i) aspiration models, affecting a goal formation of a firm, and (ii) models of learning, affecting how a performance feedback influences future use of strategies.

In the paper, four simplified aspiration models are used (based on Bromiley and Harris, 2014): (i) historical, comparing a current performance with a previous one; (ii) social, comparing a current performance with an overall performance of all firms; (iii) mixed, comparing a current performance to equally combined historical and social aspirations; and (iv) switching, comparing a current performance to a higher from historical and social aspirations.

Five models of learning are used, all of them based on experience stemming from success rates of strategies, i.e. performance feedback. Three of them are based on Posen and Levinthal (2012) and are commonly used in bandit models literature: (i) greedy, in which a firm always chooses a strategy with the highest perceived chance of success), (ii) ϵ -greedy (ϵ -greedy), in which a firm in $e * 100\%$ of cases randomly experiments with strategies, otherwise in $(1 - e) * 100\%$ cases it behaves as in greedy and (iii) softmax, in which based on τ parameter a firm also experiment with strategies, although not randomly, but based on previous experience with them. Beside these three, (iv) probabilistic model is used, in which a firm randomly chooses a strategies – however from probability distribution constructed from previous experience, i.e. more successful strategies are selected more often. Finally, (v) fully random model is used as a control. In it a firm does not reflect prior experience and fully randomly experiment with strategies (note that the model is identical to an ϵ -greedy model with e based on 1).

Figure 1: Main components of agents-firms decision-making



Source: own processing

The environment in the model consists of customers, each with a random demand. Over time (tics in the case of NetLogo) this demand is partially stored, partially dispersed among neighbors and partially disappears. The real-life parallel of such a model are static firms (e.g. office branches) satisfying customers' demands based on quality (competitiveness) of their products. Customers are moving around the market, looking for a firm that satisfies their demands (dispersion), wait for it (storing of a demand) or exit market (disappearance).

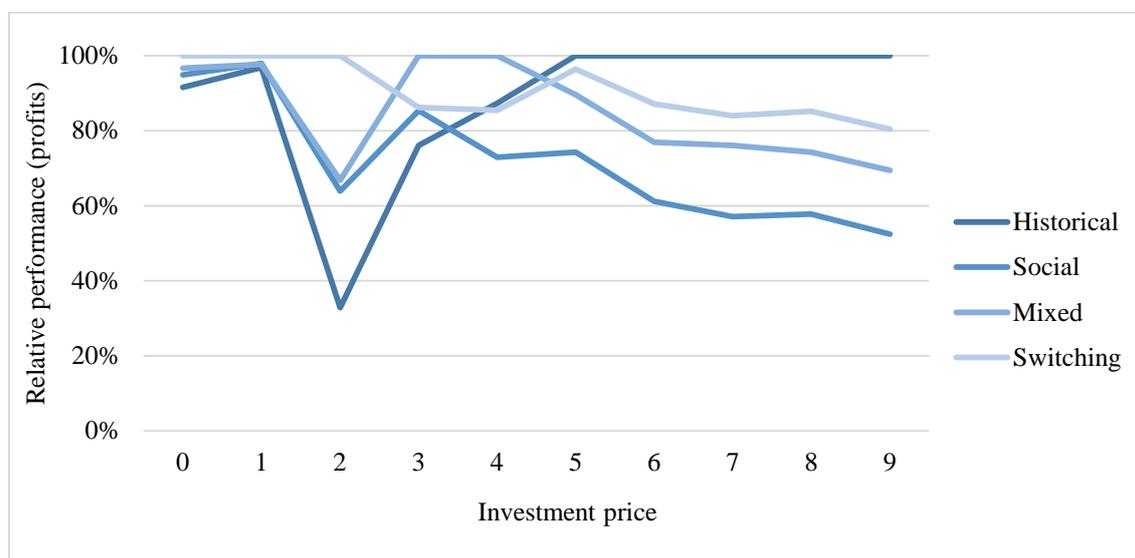
Agents in the model choose among three strategies: (i) disinvestment, in which their competitiveness diminishes, but costs decrease as well, (ii) status quo, in which they keep their competitiveness, and (iii) investment, in which their competitiveness rise, but costs increase as well. A strategy is considered as successful when it leads to non-zero positive supplies and attains or exceeds an aspiration-goal defined by a particular aspiration model. The effect on further probability of use of such a strategy is defined by a particular model of learning with earlier experience with strategies having higher weight than later (corresponding to a model of Posen and Levinthal, 2012), leading to gradual convergence to probabilities (not strategies).

2. Results

Two areas are chosen for simulation of firms' behavior – the first one studies the influence of various aspiration models under softmax model of learning (preferred in the literature – see Posen and Levinthal, 2012; Aggarwal, Posen a Workiewicz, 2017) with τ set on 0.5 and changing investment costs. The second one studies the interaction among models of aspiration and learning with constant cost of investment – in this case set on 1 (which is 4 % of firms' basic supply). The reason for choosing value 1 is that using such a cost, a relative performance of aspiration models differ only little (see Figure 2). This enables easier study of other influences.

All possible combinations of settings were tested in 10 separate simulations, each containing 100 firms-agents.

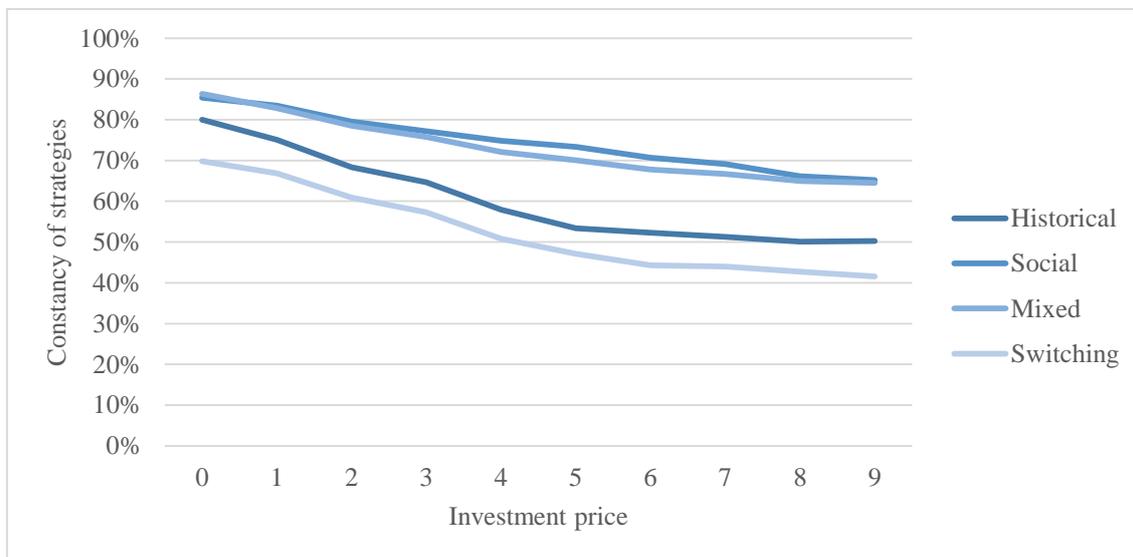
Figure 2: Relative performance (for a given price) of firms in the relation to changing investment price and aspiration models



Source: own processing

The first area of the simulation (with changing parameters of investment price and aspiration models) yield expected results. With increasing costs and consequently decreasing profitability of firms, a constancy of a strategy decreases (Figure 3) as firms are more likely to get into a situation in which they do not attain their aspirations. With the exception of mixed and social aspiration models with overlapping constancies, all the other aspiration models are significantly different on 1% level using two-sample t-tests (standard deviations are around 1-3%). Similarly to a constancy, a market level of competitiveness decreases with increasing investment costs, meaning that firms decrease their investments.

Figure 3: Constancy of a strategy in the relation to changing investment price and aspiration models



Source: own processing

It is possible to infer from previous results that aspiration models with lower level of a constancy (Figure 3) have higher demands on firms, which consequently attain aspirations less frequently and therefore do not create strong beliefs about a preferred strategy. The switching aspiration model is logically one of them as it, from its construction, compares a firm with higher from historical and social aspirations. More interesting is to compare historical and social aspiration models themselves as it seems that social aspiration rather inhibits strategy changing activity in this simulation model's settings. However, it is important to note that in the reality firms are not existing on markets with homogeneously modelled competition (in models of both learning and aspiration). Nevertheless, the results of simulations still point out to the need to carefully analyze an overall level of performance of a firm's reference group as it influences its own perception of success.

The second area of simulation is the interaction of models of learning and aspiration (in this case, both were changing parameters). With a low relative cost of investment set in this case, the firms with investment strategy dominated as summarized in Table 1. The only exception is the random model of learning with even distribution across all three strategies.

Table 1: Average number of firms (n = 100) with a particular strategy in the relation to changing models of learning and aspiration

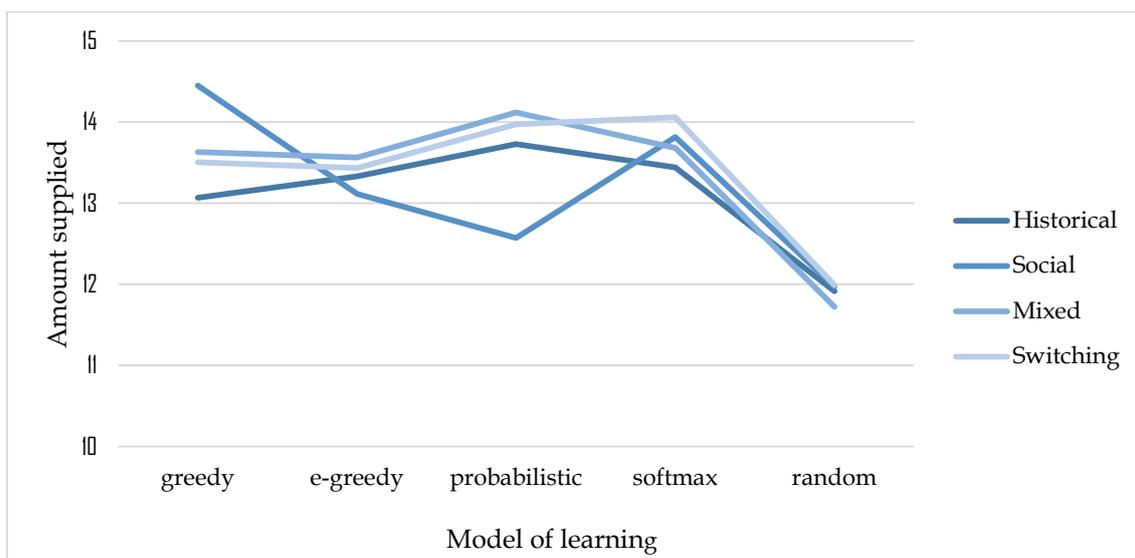
Divestment strategy				
	Historical asp.	Social asp.	Mixed asp.	Switching asp.
greedy	3	5	5	7
e-greedy	12	12	13	13
probabilistic	18	25	15	16
softmax	6	6	7	8
random	33	33	33	33
Status quo strategy				
	Historical asp.	Social asp.	Mixed asp.	Switching asp.
greedy	15	11	10	14
e-greedy	18	23	18	15
probabilistic	37	35	40	37
softmax	29	19	19	27
random	33	33	33	33
Investment strategy				
	Historical asp.	Social asp.	Mixed asp.	Switching asp.
greedy	82	84	85	79
e-greedy	71	65	70	72
probabilistic	45	40	45	47
softmax	65	75	74	64
random	33	33	33	33

Source: own processing

Relatively close to the random is the probabilistic model of learning and that highlights the fact that in firms were not able to build strong beliefs about the best strategy in simulations. The closeness is however not uniform and surprising is the high share of firms with divestment strategy in combination with the social aspiration model (especially when the switching model does not differ from the others although it should be closely like the social one as it is possible to observe in Figure 3). The cause of this situation is probably in a lower market level of

competitiveness (6.67 for the social aspiration model and 7.48-7.9 for the others) that increases a probability of success for divesting firms as well. This lower value can be in turn caused by diminished information value about performance of particular firms. This corresponds to lower performance of firms with the probabilistic model of learning and the social aspiration model (Figure 4). The social aspiration model in general deviates from the others in the greedy model of learning as well. The situation will be similar in e-greedy models with lower levels of experimentation.

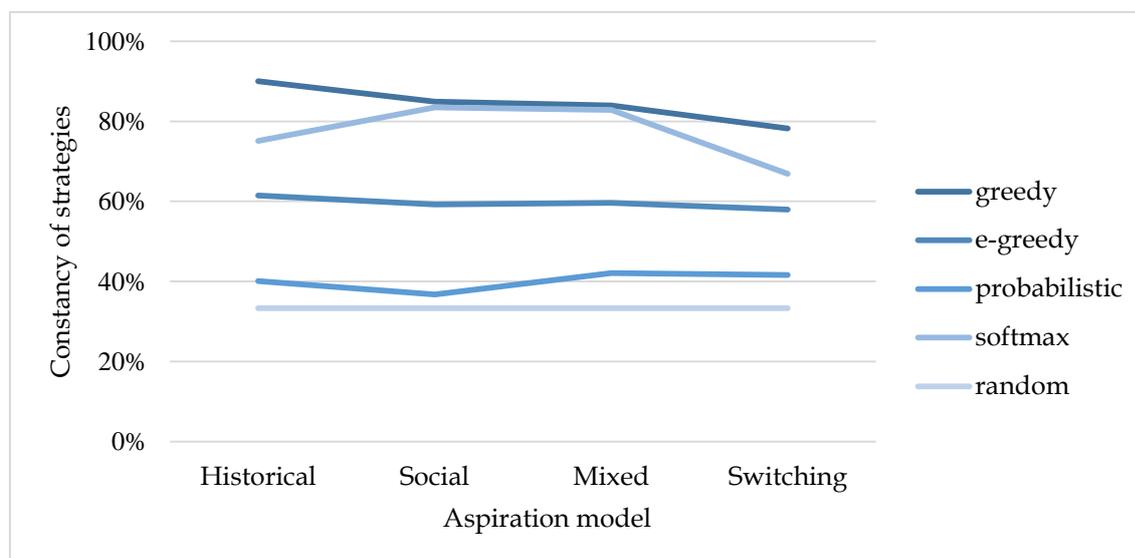
Figure 4: Firm performance in the relation to changing models of learning and aspiration



Source: own processing

When comparing a constancy of a strategy (Figure 5), the greedy model dominates from its construction as it changes a strategy only in a case in which expectations about a current strategy fall behind expectation of one of the others. Based on a level of experimentation, such a constancy is resembled by the e-greedy model that has, beside the random model, the most similar values of constancy across aspiration models. Relatively close to the greedy is the softmax model of learning. That is the testament of its ability to learn – especially when compared to the probabilistic model that has really low ability to learn in simulations and is approaching the random model.

Figure 5: Constancy of a strategy in the relation to changing models of learning and aspiration



Source: own processing

Discussion and Conclusion

Simulation is clearly one of the tools that can bring interesting insights into the behavioral theory of the firm. Indeed, Cyert and March (1963) tested their ideas by a simple simulation, although the literature since then focused much more on statistical analysis of real behavior of firms. That is reasonable as the primary interest of the behavioral theory of the firm is to make inferences about real subjects, not about firms in simulations. Yet this cannot lead to the dismissal of methods such as simulations that can supplement primary tools of behavioral researchers in some research areas.

Even primitive models may inspire further research and highlight important implications of theoretical concepts (such as models of learning and aspiration). The research contained in his paper notably points out to the specific role of social aspiration. Moreover, it is a social aspiration that is challenging for a real life behavior as well as it is much more ambiguous than a historical one. And the research on firms' data really shows that it has a specific role in firms' behavior (Jirásek, 2017).

The research presented in this paper is limited by the work-in-progress nature of the simulation model, especially when compared with value added of bandit models used by Posen and Levinthal (2012) and Aggarwal, Posen and Workiewicz (2017). The future research could test separation of preferred strategies based on the fact that

the firm is under- or over-performing, more similar to the performance feedback literature (Greve, 2003).

Acknowledgements

The paper was supported by the Masaryk University research project: Strategic behavior-performance cycle and factors influencing it.

References

- Aggarwal, V. A., H. E. Posen & M. Workiewicz (2017). Adaptive capacity to technological change: A microfoundational approach. *Strategic Management Journal*, 38(6), 1212–1231.
- Bromiley, P. & J. D. Harris (2014). A comparison of alternative measures of organizational aspirations. *Strategic Management Journal*, 35(3), 338–357.
- Cyert, R. M. & J. G. March (1963). *A Behavioral Theory of the Firm*. Prentice Hall/Pearson Education.
- Greve, H. R. (2003). *Organizational Learning From Performance Feedback: A Behavioral Perspective on Innovation and Change*. Cambridge: Cambridge University Press.
- Jirásek, M. (2017). R&D investment behavior of U.S. pharmaceutical firms. *International Journal of Innovation Science*, 9(2).
- Posen, H. E. & D. A. Levinthal (2012). Chasing a Moving Target: Exploitation and Exploration in Dynamic Environments. *Management Science*, 58(3), 587–601.
- Simon H. (1955). Behavioral Model of Rational Choice. *Quarterly Journal of Economics*, 69(1), 99–118.

HUMAN RESOURCE MANAGEMENT THEMES AND THEIR COVERAGE BY ARABIC WRITTEN DISSERTATION THESES

Michal Jirásek, Bachir Ouddane

Department of Business Economics and Management
Faculty of Economics and Management
Masaryk University
Lipová 41a, 602 00 Brno
Czech Republic
mijirasek@mail.muni.cz

Kasdi Merbeh University
Ourgla, Algeria

Abstract

Human Resource Management is gaining increased attention reflecting the growing importance of this field for organizations trying to successfully exist in the global competitive environment. The research presented in the paper is a scoping review focused on Arabic language written dissertation literature on classical Human Resource Management themes. Although English is clearly becoming universal academic language, this paper argues for a need of research written in practitioners' native languages in order to spread the theoretical ideas among both managers and employees. First, the systematic review of Human Resource Management themes is done on recent course books from major educational publishers. Second, the search for dissertation theses written in Arabic language, using case study approach and focusing on these themes is conducted. These theses are generally not accessible through worldwide databases. All the identified studies are at least partially focused on Training and Development field and after summing up the most important findings from them, suggestions for further research are formulated.

Keywords

human resource management; dissertation thesis; arabic language

Theoretical introduction

Human Resources Management is considered to be one of the most important parts in an organization because of the role it is playing in providing the necessary services to members of an organization. Furthermore it is arguably providing an important essence of organizational competitive advantage and performance. To have a broad overview of numerous perspective, some of numerous definitions of Human Resource Management (abbreviated as HRM) are following:

- HRM is "...the process of analyzing and managing an organization's human resource needs to ensure satisfaction of its strategic objectives," (Coyle-Shapiro et al., 2013: 12).

- HRM is "... a philosophy of science of people management based on the belief that human resources are uniquely important in sustained business success. An organization gains competitive advantage by using its people effectively, drawing on their expertise and ingenuity to meet clearly defined objectives. HRM is aimed at recruiting capable, flexible and committed people, managing and rewarding their performance and developing key competencies," (Price, as cited in Wilton, 2013: 6).

- HRM "...involves all management decisions and action that affect the nature of the relationship between the organization and its employees," (Armstrong, 2009: 4).

Although this paper might also serve the purpose of an enrichment of the current English-written literature, the primary goal is to assess to what extent are Human Resource Management themes covered in Arabic-written dissertation theses - with focus on case studies. The motivation behind this is the assumption that in order to spread academic know-how among local managers it is necessary to draw these ideas closer to practitioners by writing in their native language. Consequently, there is a need for such literature to cover whole range of themes in a given area, in our case Human Resource Management.

Therefore, a research question formulated for this paper is: What Human Resource Management Themes are researched via case studies by Arabic-writing authors in their dissertation theses? For this purpose, it is necessary to establish a list of HRM Themes. Since the paper assumes that native written literature should serve for the purposes of Arabic-speaking HR managers of organizations, the source of themes is not academic research per se, but rather HRM course books. Therefore, a systematic review of recent HRM course books from leading educational publishers was conducted to shortlist these themes.

1. Methodology

The HRM Themes were formulated based on a systematic review of contents of HRM course books from major educational publishers Palgrave, Kogan Page, Pearson and Wiley, published between 2015-2017 (as for the 2017 books, this study used only those with contents available by mid-May 2017). Only the latest editions of course books were included, course books focused on particular topics (e.g. International HR) were excluded, as well as additional books by the same author (in this case Dessler and Armstrong, in order not to overweight their viewpoints). In the end, 18 course books' contents were textually analyzed and 10 HRM Themes were identified and briefly described in Table 1. List of all the books analyzed is in Appendix A.

Table 1: Identified Human Resource Management Themes

Identified Themes	Relative occurrence*	Components
Strategic HR	12,7%	Strategic HR, Job Design, Organizational culture, Change management, Knowledge management
Leadership and Behavior	6,6%	Management and Leadership, Employee involvement and Engagement, Motivation
Resourcing and Diversity	18,4%	Recruitment and Selection, Resourcing, Staffing, Diversity
Training and Development	9,2%	Training, Learning, Development, Talent Management
Performance	7,5%	Performance and Productivity
Reward	11,4%	Reward, Compensation, Benefits
Employee Relations	10,5%	Employee Relations, Labor Unions, Bargaining
Responsible HR	10,1%	Sustainable HR, Green HR, Work life balance, CSR Ethics, Health and Safety
Global HR	7,5%	Global and International HR
Contemporary HR Issues	6,1%	Contemporary HR Issues - Regional, Economic, Technology and Legal focus, SME and NGO
* Excluding introductory chapters		

Source: own processing

As for the search for Arabic language-written HR literature, this paper was limited by the unavailability of large scale Arabian scientific database (although part of research is available through worldwide databases such as Ebscohost), therefore it is focused on less available sources like official websites of universities and libraries. In the end, the paper ended up with 9 researches. Due to the nature of theses, all of the analyzed were at least partially connected to the theme Training and Development

2. Literature overview

In this section the identified research works (all of them are listed in Table 2 below) are discussed mostly in terms of their findings. Although this review is far from systematic, we argue that it is possible to get an overview of the research interests of Arabic-writing PhD students. Training and Development theme, already mentioned

to be connected with all the identified papers (not by a search design), seems to be of major interest for these authors.

Table 2: Arabic-written case studies analyzed in the paper

Author (Year)	Title	Region	Methods
Farida Abdallah Bassam (2003)	human resources crisis in Saudian universities Their indicators - their methods - how to deal with them	Kingdom Of Saudi Arabia	Questionnaire to 485 participants
Abdelkader Baba (2009)	Measuring the Role of Training in Human Resources Development A Field Study on Income and Sales Tax Department in	Algeria, Jordan	Questionnaire to 255 participants
Abdellatif Chelil (2009)	From training to developing competencies in the organization	Algeria	Descriptive method
Rashud Khudair Al-Dayyeni (2010)	The Impact of Electronic Management and the role of Human Resource Development in Improving organizational Performance	Jordan	Questionnaire to 214 participants
Noman Ahmed Ali Abdullah (2012)	Strategic Planning: An Introduction to the Development of Human Resources in Yemeni Universities	Egypt, Yemen	Descriptive method
Ilhem Tayeb (2012)	The application of administrative engineering and total quality management to activate the management of human resources	Algeria	Descriptive method
Adel Boumedjane (2015)	Training of human resources to improve the performance of the economic organizations	Algeria	Questionnaire - 143 participants
Rouchem Ben Zayan (2016)	Training in the Economic Enterprises Case Study: few companies in Bechar region Algeria	Algeria	Questionnaire - 290 participants from different enterprises
Khaled Redjam (2017)	Evaluation the Impact of human resources information system (HRIS) on Strategies Human Resource Management (SHRM)	Algeria	Descriptive method

Source: own processing

The dominant body of the literature reviewed was directly focused on Training and Development theme, therefore this study starts with review of these works and

gradually moves to more distant topics. Multiple company's case study research by Ben Zayan (2016) highlighted the need for Algerian companies to keep up with the newest development in training methods while considering local environment. Boumedjane's (2015) single-company research discussed the role of training and development in improving the performance of the company. Besides that, Chelil (2009) followed development of a training function of Human Resource Department from routine tasks to developing competencies allowing organizations to reach their goals while investing minimal required cost in training. Multiple companies were studied using comparative analysis with general recommendation for Algerian companies to keep up training employees in order to ensure successful long-term development of a company. Baba (2009) in his single company case study focused on the role of training materials and suggested that organizations should pay increased attention to diversity of training material as it facilitates acquisition of diverse skills by employees.

The influence of development level of Human Resources on organizational performance in the Jordanian banking sector was analyzed by Al-Dayyeni (2010) in multiple case study analysis. Beside supporting the hypothesis of a positive influence, the author also shown its mediating role in the relationship between Electronic Management and organizational performance. Tayeb (2012) linked fundamental principles of Administrative Engineering and Total Quality Management to Human Resource Management. In her work she stresses the need for continuous improvement of Human Resource Management processes with a focus on a staff composition and a continuous training. Tayeb also points to the need of taking moral and social systems of employees into account when drawing any administrative policies.

The connection between HR and IT was a subject of Redjam's (2017) research performed on several oil sector Algerian companies. His work was by design comparative study between local- (Algerian) and foreign-owned oil companies working in the same region, in the same conditions, and he pointed out differences in level of use of Human Resource information systems. Local companies in his study have generally lower use of IT systems and their focus more is limited to short term performance of around one year. Contrary to it, foreign-owned companies considered Human Resource information systems as the main tool contributing to the efficient formulation, implementation and supervision of Human Resource Management strategies. The final conclusion of his research is that local companies should follow the methods which the foreign companies are using because of the significant difference on their performance.

The problematic situation in state-governed organizations was further studied in case of local universities (i.e. Bassam, 2003, on Saudi universities; Abdullah, 2012, on Yemeni universities). Abdullah (2012) pointed out to the absence of a clear strategy of Human Resource Development as a primary source of underdevelopment in this field.

Discussion and Conclusion

Although Tayeb (2012) discussed the need to take local environment into account when drawing new policies, it doesn't seem from studies that were reviewed that there is any systematic difference in major Human Resource Management methods between Arabic and Western world. Definitely, there are differences in particular practices, policies and processes resulting from different cultural setting etc., but it seems that Arabic authors are directing practitioners towards the very same objectives and standards as Western world authors (Abdullah, 2012; Redjam, 2017). Redjam (2017) considers foreign companies as a kind of examples of good practice in the field worth following,

The discussion about efficiency of state (public) and private companies is very long and one of the seminal reviews by Rainey, Backoff and Levine (1976) already mentioned several authors considering public organizations less efficient. The same issue seems to be opened up for Arabic authors (Bassam, 2003; Abdullah, 2012; Redjam, 2017). There are clear differences among countries and their particular economic sectors, yet reviewed authors are not researching only low-efficiency organizations (e.g. Al-Dayyeni, 2010, found Jordanian banks developed on a high level in terms of HR electronic management).

This paper represents only the initial step towards the goal of mapping current situation of Arabic-written Human Resource Management literature. The topic is clearly limited by difficulty to access a big portion of research through research databases and that limits possibilities to spread research ideas as well. It is probable that the number of original literature is already high and therefore reviews focusing on particular HR themes might be better placed. Beside this, one of the most interesting research areas would be contrasting Arabic specifics in term of Human Resource Management practices as compared to traditional and scientifically dominant Western world perspective. It is believed that this might significantly enrich our current knowledge. The study itself is limited by the search method that allowed only small portion of current Arabic-language written HRM literature contained in dissertation theses to be identified and reviewed.

Acknowledgements

The paper was supported by the Masaryk University research project: Strategic behavior-performance cycle and factors influencing it.

References

- Abdullah, N. A. A. (2012). *Strategic Planning: An Introduction to the Development of Human Resources in Yemeni Universities (A Case study)*. Assiut: Assiut University. Dissertation Thesis.
- Al-Dayyeni, R. K. (2010). *The Impact of Electronic Management and the role of Human Resource Development in Improving organizational Performance*. Amman: Middle East University. Dissertation Thesis.
- Armstrong, M. & Taylor, S. (2017). *Armstrong's Handbook of Human Resource Management Practice*. London: Kogan Page.
- Armstrong, M. (2009). *Armstrong's Handbook of Human Resource Management Practice*. London: Kogan Page.
- Baba, A. (2009). *Measuring the Role of Training in Human Resources Development A Field Study on Income and Sales Tax Department in Jordan*. Saida: University of Saida. Dissertation Thesis.
- Bassam, F. A. (2003). *Human resources crisis in Saudian universities Their indicators - their methods - how to deal with them*. Makkah: University of Oum Elquraa. Dissertation Thesis.
- Beardwell, J. & Thompson, A. (2017). *Human Resource Management. A Contemporary Approach*. Upper Saddle River: Pearson.
- Ben Zayan, R. (2016). *Training in the Economic Enterprises Case Study: few companies in Bechar region Algeria*. Chetouane: University of Abou Bekr Belkaïd. Dissertation Thesis.
- Boumedjane, A. (2015). *Training of human resources to improve the performance of the economic institution Case Study: Cable Industry Corporation*. Biskra: University Of Biskra. Dissertation Thesis.
- Bratton, J. & Gold, J. (2017). *Human Resource Management. Theory and Practice*. London: Palgrave.
- Chelil, A. (2009). *From training to developing competencies in the organization A field study of some organizations in Tlemcen state*. Chetouane: University of Abou Bekr Belkaïd. Dissertation Thesis.

- Coyle-Shapiro, J.; Hogue, K.; Kessler, I.; Pepper, A.; Richardson, R. & Walker, L. (2013). *Human Resources Management. Undergraduate study in Economics, Management, Finance and the Social Sciences*. London: University of London. Subject Guide.
- Crawshaw, J.; Budhwar, P. & Davis, A. (2017). *Human Resource Management Strategic and International Perspectives*. London: Sage.
- DeCenzo, D.; Robbins, S. & Verhulst, S. (2016). *Fundamentals of Human Resource Management*. Hoboken: Wiley.
- Dessler, G. (2017). *Human Resource Management*. Upper Saddle River: Pearson.
- Gomez-Mejia, L.; Balkin, D. & Cardy, R. (2016). *Managing Human Resources*. Upper Saddle River: Pearson.
- Henderson, I. (2017). *Human Resource Management for MBA and Business Masters*. London: Kogan Page.
- Hook, C.; Jenkins, A. & Foot, M. (2015). *Introducing Human Resource Management*. Upper Saddle River: Pearson.
- Lussier, R. & Hendon, J. (2017). *Fundamentals of Human Resource Management. Functions, Applications, Skill Development*. London: Sage.
- Marchington, M.; Wilkinson, A.; Donnelly, R. & Kynighou, A. (2016). *Human Resource Management at Work*. London: Kogan Page.
- Mondy, W. & Martocchio, J. (2016). *Human Resource Management*. Upper Saddle River: Pearson.
- Rainey, H.; Backoff, R. & Levine, Ch. (1976). Comparing Public and Private Organizations. *Public Administration Review*, 36(2), 233-244.
- Redjam, K. (2016). *Evaluation the Impact of Human Resources Information System (HRIS) on Strategies Human Resource Management (SHRM) Comparative Study of a Sample of the Oil Companies in Algeria*. Ourgala: University of Ouargla. Dissertation Thesis.
- Stone, R. (2017). *Human Resource Management*. Hoboken: Wiley.
- Syed, J. & Kramar, R. (2017). *Human Resource Management. A Global and Critical Perspective*. London: Palgrave.
- Tayeb, I. (2012). *The application of administrative engineering and total quality management to activate the management of human resources*. Alger: University of Algiers. Dissertation Thesis.
- Taylor, S. & Woodhams, C. (2016). *Human Resource Management. People and Organisations*. London: Kogan Page.

Torrington, D.; Hall, L.; Atkinson, C. & Taylor, S. (2017). *Human Resource Management*. Upper Saddle River: Pearson.

Wilton, N. (2013). *An Introduction to Human Resource Management*. London: Sage.

Wilkinson, A.; Redman, T. & Dundon, T. (2016). *Contemporary Human Resource Management. Text and Cases*. Upper Saddle River: Pearson.

Wilton, N. (2016). *An Introduction to Human Resource Management*. London: Sage.

FAMILY FIRMS AND THEIR SOCIAL RESPONSIBILITY DISCLOSURE

Klára Kašparová

Department of Business Economics and Management
Faculty of Economics and Administration
Masaryk University
Lipová 41 a, 602 00 Brno
Czech Republic
klarad@econ.muni.cz

Abstract

Family firms play an important role in the economy. Even they are more conservative than non-family firms, they monitor new trends like corporate social responsibility reporting as well. Studies on family business CSR reporting are not widespread. Because of this, the aim of paper was to find out whether and about what topics family firms disclose information, in what detail and where. Author analysed websites of the 30 Czech largest family firms using content analysis. Results show that family firms disclose more often information about their activities in the community and about their certification standards or more precisely about fulfilment of their commitments resulting from voluntarily accepted norms. If they decide to disclose CSR information, they often provide information in more detail. Information about their social responsibility behaviour is placed usually in the section called "About Us" most frequently in subsections and partly directly in the main body of the section.

Keywords

family firms, CSR reporting, website, community, standards

Introduction

Family businesses play a significant role in the national economy. Although they are known for their cautious approach, they also follow and reflect new trends in management (Miller and Le Breton-Miller, 2006), such as corporate social responsibility reporting (CSR). According to KPMG, this can be defined as a process by which a company can gather and analyse the data it needs to create long-term value and resilience to environmental and social change (de Boer et al., 2013).

With the increase in the amount of information on socially responsible behaviour, there has also been an increase in the number of studies about CSR reporting in relation to various factors. However, so far there have been few studies exploring how family businesses report their socially responsible behaviour (Campopiano and De Massis, 2014). This was the main reason why this paper focused on discovering

which CSR activities Czech family business provide information on and to what extent.

The structure of the paper is as follows: The first section introduces theories explaining the motivation of family businesses for CSR and presents the activities they concentrate on. The second section describes the methodology used. The next section presents the empirical results which is followed by a discussion on their value and limitations, followed by a conclusion.

1. Family firms and their CSR disclosure

According to the Association of Small and Medium-Sized Enterprises and Crafts of the Czech Republic, family businesses make up 30% of the total GDP of the Czech Republic (Jenšíková, 2017), and their share will probably continue to increase in the future (Specifics of Family Business, 2016). Therefore, it is surprising how little research has been carried out into this form of business, including in relation to other concepts such as social responsibility (Panwar et al., 2013; Campopiano and De Massis, 2014).

In order to explain the reasons for family firms being linked to CSR, two concepts are most often used – stewardship theory and the socioemotional wealth model. By employing these, we are able to identify the themes which these firms are most involved in. This might also accurately predict which CSR themes family firms will provide information on. Therefore, the following text presents the aforementioned concepts and the preferred CSR activities of family firms.

According to stewardship theory, the managers of family firms subordinate their own interests to the collective goals (Miller and Le Breton-Miller, 2006, Marques, Presas and Simon, 2014). The firm is thus seen as an expansion of the family and they dedicate themselves to those activities which are beneficial for the family (Marques, Presas and Simon, 2014). The more the family members are attached to the firm, the greater the willingness of the firm to be involved in socially responsible activities (Marques, Presas and Simon, 2014). According to this theory, family firms view stakeholders more often as partners (Laguir, Laguir and Elbaz, 2015). They are more involved with community issues, they invest more in their employees, they protect their reputation and try to provide superior products or services (Miller and Le Breton-Miller, 2006).

The socioemotional wealth model rejects the idea that family firms have a self-sacrificing management (Berrone, Cruz and Gomez-Mejia, 2012). However, in common with the stewardship theory it suggests that the managers of family firms are strongly interested in transgenerational sustainability, which is why they try to build a positive image of the firm and protect it, even at the cost of short-term

economic losses. There is also an explanation for why family firms with longer histories in the market show a greater sensitivity towards CSR, which they see as a tool for preserving the firm for its successors (Campopiano and De Massis, 2014). Due to the various types of kinship ties and the perception of the surroundings as an extension of the family, family firms are more involved in the local community through sponsorship or philanthropy (Berrone, Cruz and Gomez-Mejia, 2012), and there is a greater level of environmental protection (Campopiano and De Massis, 2014).

2. Methodology

This paper had two objectives – the first was to discover which socially responsible activities family firms mentioned in their websites, while the second was to discover in which sections of the websites the information on CSR activities was provided and how detailed the information was. The author chose to analyse the contents of websites despite the KPMG's findings that the majority of companies provide most of their CSR information in their annual reports (King et al., 2015). The author decided on this approach because annual reports in the Czech Republic are not widely used to provide this information (Kašparová, 2015) and Czech firms often provide information on their CSR activities in their websites (Peters, Wagner and Boučková, 2014; Strouhal et al., 2015).

For the analysis the author selected the first 30 Czech family firms from a list established by the magazine Forbes for 2016 (Forbes, 2017). One condition for being on the list was not just the size of the firm (measured by sales and EBITDA), but the requirement that at least two generations from the family or siblings worked for the firm (Forbes, 2017). These two requirements (size and longevity in the market) increased the probability of the firm implementing CSR and publishing information on CSR (Laguir, Laguir and Elbaz, 2015; Campopiano and De Massis, 2014).

To acquire the data the author used a conceptual content analysis focused primarily on quantifying the presence of defined characters. The coding scheme was created with the help of open coding, i.e., it emerged from the raw data. As recommended by Neuendorf (2002), the author read all of the websites to find any information relating to CSR. This was then arranged according to the level of similarity and the text was coded. The data was processed using MS Excel.

3. Results

This section of the paper presents the results of the research in relation to the established objectives. The analysis shows that family firms do provide information on their socially responsible activities and that this information tends to be quite

detailed when they decide to report. They not only show that they carry out activities in these areas, but they describe these activities in more detail (they specify the activity, they identify the recipient, and sometimes they even provide data on the activity).

Table 1: The occurrence of CSR themes in individual website sections

Theme/detail	Information not provided	General information	Detailed information
Activities in the community	17	4	9
Information on certification, fulfilling selected standards	17	1	12
Activities focusing on employees	18	5	7
Activities or commitments towards protecting the environment	18	5	7
Ethical behaviour in the market	22	8	0
Awards	23	2	5
Commitment to choose suppliers who also effectively use resources/ act responsibly	26	1	3

Source: own processing

Table 1 provides an overview of the themes represented. If a particular theme appeared on a website on more than one occasion (e.g. in different sections), then it was only counted once. The analysis shows that family firms most often provide information on their activities in the community on their websites (information on donations, sponsorship and cooperation with schools) and their certifications or pledges resulting from voluntarily accepting standards (most often mentioned are the ISO standards). 43.3% of firms provide information on these themes.

Other frequently mentioned themes are activities which firms develop for their employees or potential employees and activities or commitments directed towards protecting the environment. These themes are mentioned by 40.0% of firms. Other themes are mentioned less frequently. 26.7% of firms provide information on the firm's ethical behaviour, and 23.3% on awards they have received. Only 13.3% of family firms provided information on commitments to choose suppliers who act socially responsibly.

Table 2: The occurrence of CSR themes in individual sections of websites

Themes/placing	Main pages	About us	Subsection of the section About us	Current events	Careers	Other
Activities in the community	3	3	9	3	2	0
Information on certification, fulfilling selected standards	2	6	8	2	0	3
Activities focusing on employees	0	0	4	3	7	1
Activities or commitments towards protecting the environment	1	2	7	1	0	2
Ethical behaviour in the market	2	3	2	0	0	1
Awards	1	3	3	3	1	1
Commitment to choose suppliers who also effectively use resources/act responsibly	0	0	3	0	0	1

Source: own processing

Table 2 presents the occurrence of CSR themes in individual sections of websites. The analysis shows that family firms most often provide information on their CSR activities in a subsection of the section About us, or directly in the section About us. One exception is the information about activities focused on employees, which most often appear in the Careers section. Information on CSR themes also quite frequently appears in the Current events section.

A comparison of the themes in Tab. 1 and 2 shows that some of the themes appear in the website on more than one occasion. The most frequently published information concerns awards received relating to the quality of a product, treating employees fairly and information about certifications based on selected standards, and activities in the community. There is only one place where there is information on the firm's ethical behaviour in the market and about commitments to choose suppliers who act socially responsibly.

Discussion, limitation and conclusion

Despite the fact that family firms play a significant role in the economy, which can be expected to increase in the coming years, until now there has been little research into how they provide information on their socially responsible activities. Therefore, one

of this paper's objectives was to discover which CSR activities family firms provide information on and how detailed this information is. It was decided to analyse their websites as in the case of the Czech Republic this is where most of the information on CSR is to be found (Petera, Wagner and Boučková, 2014; Strouhal et al., 2015). The second objective was to discover which sections this information fell under.

However, the research has several limitations. The first of these is due to the choice of objectives and methods. It focuses only on researching CSR disclosure and does not correspond to the firm's actual conduct. Further research, however, could connect these areas and discover whether there exists a disparity between the information provided and the actual conduct. Another limitation lies in analysing family firms as a whole due to the sample size. As Bergamaschi and Randerson (2016) point out family firms are heterogeneous and their perception of CSR and CSR reporting are influenced by which of the three elements of Tagiuri and Davis's three-circle model is dominant. The final limitation comes from the coding carried out by the author herself. According to Neuendorf (2002), the involvement of independent coders who are not part of the research design increases the reliability of the research.

The research shows that the firms under research most often provided information on their activities within the community. This finding is quite surprising in the context of other Czech research work, which, however, did not take into account the specifics of family firms. Here it was discovered that firms most often provided information on their activities linked to the environment (Kašparová, 2011, Zborková, 2012, Petera, Wagner and Boučková, 2014). However, this could be due to the specific characteristics of the family firm as indicated by stewardship theory and the socioemotional wealth model. It would be interesting in further research to discover whether there exists a difference in CSR reporting between Czech family firms and non-family firms.

Family firms put the same amount of effort into providing information about their certifications, based on certain standards and fulfilling the commitments that emerged from them, as they did for their activities in the community. Kašparová (2012) also came to a similar position in an analysis of annual reports of Czech businesses. One reason for providing this information might be an attempt to demonstrate that the processes within the firm are well established and monitored continuously. Consequently, this could contribute towards building a positive image, which according to the aforementioned theoretical approaches is one of the priorities of family-firm managers (Miller and Le Breton-Miller, 2006, Campopiano and De Massis, 2014). The same reasoning could be behind the publication of information on awards they have received. Although only 23.3% of firms published this information,

alongside information on certifications, this is mentioned most frequently in various sections of the websites.

The research also shows that if a firm decides to provide information on its CSR activities, then it often provides detailed information. Due to the lack of development of CSR reporting in the Czech Republic, this finding is slightly surprising (King et al., 2015, Kašparová, 2015). However, it is possible that the result was due to the medium chosen, as this observation is often based on an analysis of annual reports or sustainability reports. On the other hand, most of the information is to be found in the various subsections of the About us section, i.e., the information is at first glance hidden to visitors to the website and they have to search for it in the firm's website. This may testify to the fact that family firms do not see CSR as a comprehensive concept in the co-creation of the firm's strategy.

One exception to this is the provision of information about a firm's activities aimed at its employees. This is the only information which is found in a different section – the Careers section. Family firms struggle over the long term to acquire and motivate workers who are not members of the family (Specifics of Family Business, 2016; European Family Business Barometer, 2016). Highlighting the benefits which the firm offers and explaining the values they hold can help in recruiting a suitable workforce. It also shows that the first thing Czechs expect from firms is that they will treat their employees fairly (CSR & Reputation Research, 2017). Therefore, providing information on these issues makes sense for attracting potential candidates.

The IPOS research also shows that for 79% of Czechs it is important that their employer is responsible (CSR & Reputation Research, 2017). Marques, Presas and Simo (2014) state that an employer's socially responsible behaviour in the community even increases employee satisfaction and strengthens pride in the firm. Therefore, in light of the aforementioned problem with the recruitment and motivation of non-family employees, it makes sense to provide information on these activities in the Careers section. However, the data suggests that family firms do not do this very often.

References

- Bergamaschi, M. & Randerson, K. (2016). The future of family businesses and the development of corporate social responsibility. *Futures*, (75), .54-65.
- Berrone, P., Cruz, C. & Gomez-Mejia, L. (2012). Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research. *Family Business Review*, 25(3), 258-279.

Campopiano, G. & De Massis, A. (2014). Corporate Social Responsibility Reporting: A Content Analysis in Family and Non-family Firms. *Journal of Business Ethics*, 129(3), 511-534.

CSR & REPUTATION RESEARCH (2017, retrieved 2017, April 17). Vybrané výsledky výzkumu - veřejná část. Retrieved from: http://www.ipsos.cz/public/media/tiskove_zpravy/Ipsos%20CSR%20REPUTATION%20RESEARCH%202016_vybran%C3%A9%20v%C3%BDsledky%20z%20ve%C5%99ejn%C3%A9%20%C4%8D%C3%A1sti%20v%C3%BDzkumu.pdf

De Boer, Y., Bartels, W., McKenzie, M., Austin, E., Javaux, B. & Canteenwalla, A. (2013, retrieved 2017, April 1). The KPMG Survey of Corporate Responsibility Reporting. Retrieved from: <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/08/kpmg-survey-of-corporate-responsibility-reporting-2013.pdf>

European Family Business Barometer 2016. (2016, retrieved 2017, April 3). Retrieved from: <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2016/08/european-family-business-barometer.pdf>

Forbes. (2017, retrieved 2017, April 3). 65 největších rodinných firem. 65 největších rodinných firem ve speciálu Forbes. Retrieved from: <http://www.forbes.cz/rodinne-firmy/>

Jenšíková, J. (2017, retrieved 2017, April 19). Rodinné stříbro se neprodává, pečuje se o ně. TRADE NEWS. Retrieved from: <https://itradenews.cz/rozhovory/462/rodinne-stibro-se-neprodava-pecuje-se-o-ne>

Kašparová, K. (2015). Implementation of innovative practices in corporate social responsibility of Czech company In: *Proceedings of the 3rd International Conference*. Prague: Oeconomica, 108-117.

Kašparová, K. (2011). *Reportování o společenské odpovědnosti podniku*. Brno: Masarykova univerzita.

King, A., Bartels, W., McKenzie, M. & Austin, E. (2015). *Currents of change: The KPMG Survey of Corporate Responsibility Reporting 2015*. Retrieved from: <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/02/kpmg-international-survey-of-corporate-responsibility-reporting-2015.pdf>

Laguir, I., Laguir, L. & Elbaz, J. (2015). Are Family Small- and Medium-Sized Enterprises More Socially Responsible Than Nonfamily Small- and Medium-Sized Enterprises? *Corporate Social Responsibility and Environmental Management*, 23(6), 386-398.

Miller, D. & Le Breton-Miller, I. (2006). Family Governance and Firm Performance: Agency, Stewardship, and Capabilities. *Family Business Review*, 19(1), 73-87.

Neuendorf, K. (2002). *The content analysis guidebook*. Thousand Oaks: SAGE.

Panwar, R., Paul, K., Nybakk, E., Hansen, E. & Thompson, D. (2013). The Legitimacy of CSR Actions of Publicly Traded Companies Versus Family-Owned Companies. *Journal of Business Ethics*, 125(3), 481-496.

Petera, P., Wagner, J. & Boučková, M. (2014). Analysis of CSR Reporting Practices of the Largest Companies Domiciled in the Czech Republic. In: *Proceedings of the 8th International Scientific Conference INPROFORUM*. České Budějovice: INPROFORUM, 21-27.

Marques, P., Presas, P. & Simon, A. (2014). The Heterogeneity of Family Firms in CSR Engagement. *Family Business Review*, 27(3), 206-227.

Specifika rodinného podnikání. (2016, retrieved 2017, April 2). Retrieved from: <http://www.asz.cz/filemanager/files/file.php?file=222808>

Strouhal, J., Gurviš, N., Nikitina-Kalamäe, M. & Startseva, E. (2015). Finding the Link between CSR Reporting and Corporate Financial Performance: Evidence on Czech and Estonian Listed Companies. *Central European Business Review*, 4(3), 48-59.

Zborková, J. (2012). Corporate Leadership in the 21st Century and Its Influence on Sustainability Reporting. In: *Proceedings of the European Conference on Management, Leadership*. Reading: Academic Publishing International Limited, 442-448.

THE ANALYSIS OF THE ECONOMIC SITUATION OF FAMILY BUSINESSES IN POLAND AND IN EUROPE

Justyna Kogut

Kazimierz Pulaski University of Technology and Humanities in Radom
Faculty of Economic and Legal Sciences
Department of Economic
Chrobrego 31, 26-600 Radom, Poland
j.kogut@uthrad.pl

Abstract

In Poland, as well as in Europe, there are many family businesses, in which the management is passed down from one generation to another. These companies aim to achieve the highest possible profit, continuous improvement and development and Struve to remain on the market. Running well developer, inherited family business seems to be much easier than building a business from scratch. However it can be observed that family businesses also encounter many obstacles and challenges. The purpose of this article is a comparative analysis of the economic situation of family businesses in Poland and in Europe. In the theoretical part of paper, the concept of "family businesses" was defined and elaborated. The empirical part contains the analysis of the research results presented in the fifth edition of the report "Barometr firm rodzinnych. Konsekwentnie do sukcesu" ("Barometer of family firms. Consequently to success"). The study was conducted by KPMG in 2016 among family businesses in Poland and family businesses operating in selected European countries. The theoretical and empirical parts of the article allows for in-depth understanding the economic situation of family businesses in Poland and Europe. The paper draws attention to these entities which are necessary and beneficial for various social groups, the government, local authorities and non-governmental organizations. It also brings closer the most important challenges facing family businesses, builds awareness of their importance and discusses specific strategic behavior.

Keywords

Polish family businesses, European family businesses, the economic situation of enterprises

Introduction

Family businesses are an important part of economic life. Increase in their significance can be seen especially in the last two decades. More interest on this issue has appeared in both science, and economic policy. Across the globe, many academic centers and NGOs are aware of the importance of understanding the characteristics of this type of enterprise, in case of a stable economic growth. Although research has been ongoing for years to get the most accurate picture of this sort of business, there

is still a huge need for research into this type of enterprise, and there is still room for expansion and deepening.

The aim of the article is therefore to analyze the economic situation of family businesses in Poland and in Europe. This paper is a theoretical-empirical attempt of describing the issue. It labels the concept of "family businesses", presents the situation of family businesses in Poland and in Europe, the challenges these companies facing, and the investment plans they want to undertake in the near future.

The following research questions were answered in the paper:

1. How did the economic situation of family businesses in Poland and in Europe develop?
2. What was the biggest challenge for Polish and European family businesses?
3. What investment plans do family companies have in Poland and in Europe?

Consequently, the following hypotheses were made:

H1: Both, Polish and European family companies consider their economic situation as positive

H2: The biggest challenge for European family companies was political instability; in the case of Polish companies - rising labor costs.

H3: Family businesses in Poland and in Europe prefer to invest primarily in core business.

The article presents and discusses the results of the research included in "Barometr firm rodzinnych. Konsekwentnie do sukcesu", which is the next edition of the KPMG report. In the latest study (published in November 2016), Polish family businesses have been examined.

The research report used a methodology, which is a Computer Assisted Web Interview. Interviews were conducted between May 1 and July 30, 2016. Consequently, 959 responses from European entrepreneurs were collected, of which 139 came from Polish companies. Apart from Poland, the following countries participated in the study: Andorra, Austria, Belgium, Croatia, Czech Republic, Estonia, Finland, France, Greece, Germany, Hungary, Italy, Lithuania, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Spain, Sweden, United Kingdom.

1. Characteristics of family businesses

Nowadays it can be seen a growing interest among researchers theorists, investors, policy makers, entrepreneurs practitioners, and many others in the area of family business. Recent research has shown that family companies are top performers. Whether measured by the bottom line, value creation for shareholders, or their capacity to create jobs, family firms often outperform their nonfamily equivalents (Poza, Daugherty, 2014).

Almost every publication concerning family businesses starts with a definition of this concept. Although there is no uniform definition, the most commonly used is: "a Family Company is understood as an enterprise of any legal form or a business person, whose capital is wholly or partly owned by the family, at least one of its members has a decisive influence on the management or manage company by himself, with concern of responsibly maintaining the enterprise in the hands of the family" (Sobiecki, Kargul, Kochanowska, 2014).

Family businesses have long been present in the economies of all countries. They create the natural form of family and local entrepreneurship which, under favorable conditions, develops and lasts for many generations (Lemańska-Majdzik, 2014). Estimates of the size of family businesses in Poland and around the world are the subject of debate among scientists. Nevertheless, the number of these companies are estimated at 90% of all operating companies in the world (Więcek-Janka, 2013).

There is no doubt that family businesses are very diverse in every way (industry, size, pedigree, experience, market position, affluence, etc.). Many things makes them different and unique, but also many aspects links them together. Family relationship is first and foremost feature that distinguishes them and means that family entrepreneurs share similar values and claims. In situations that are difficult for the company, the whole family is trying to save it. No one then thinks or asks for leave or pay.

Family and company are undoubtedly two levels, and one can risk the claim that the functioning of a family business is more difficult than any other. However, in this situation every family is trying to find a way to do it (Projekt szkoleniowo-doradczy Firmy rodzinne 2, 2015). Family companies are most proper in uncertain surroundings or societies where nonfamily members are not expected to behave in a believable and honest way, as well as in sectors with comparatively straight technologies (Royer, Simons, et. al., 2008).

The economic strength and growing social relevance of family businesses in Poland require in-depth empirical research to capture their specific characteristics, against non-family businesses of similar size and profile. Family business is the area in which

relationships and family goals meet those that are specific to the business. Obtaining information on the relationship between family ties and the functioning of an enterprise is not easy (Daszkiewicz, et al., 2015; Marakova, et al., 2016).

2. Challenges for family businesses

The latest report “Barometr firm rodzinnych. Konsekwentnie do sukcesu” consists the results of research on the economic situation of family businesses in Poland and in Europe. As compared to 2015, the number of optimists increased by as much as 9% in Polish companies in 2016. One-third of respondents evaluates their situation neutrally. The percentage of bad and very bad grades has decreased by 3% and settles at 10%.

In European companies, the level of respondents assessing their economic situation in last years as good and very good changed dramatically. It increased significantly from 2013 to 2015. The changes appeared in 2016, where the share of optimists slightly decreased (by 2%). More than one-fifth of surveyed companies evaluates their situation as neutral. At the same time the share of pessimists fell from 8% to 7%.

Table 1: Evaluation of family businesses in terms of economic situation in the next twelve months (in %)

Rating \ Period	Poland				Europe			
	December 2013	December 2014	September 2015	September 2016	December 2013	December 2014	September 2015	September 2016
Bad and very bad	-	57	47	56	54	70	75	72
Neutral	-	36	40	33	34	25	17	21
Good and very good	-	7	13	10	12	5	8	7

Source: own processing based on: (Barometr firm..., 2016; Barometr firm..., 2015)

Income and employment in family businesses in Poland are growing. According to the 2016 report, 42% of companies stated an increase in the revenue. This is up by 20% more than in the previous year (in September 2015 this figure was 22%). At the same time, the percentage of companies whose revenue has declined has fallen. In September 2015 it was 27% and in 2016 - 21%. In the case of European companies, their revenues within the year have hardly fallen. In the last twelve months, the share of those companies that increased their income reached 54% (table 2).

Table 2: Family business activity in the last twelve months in 2015 (%)

Rating \ Criterion	Poland			Europe		
	Revenue	Employment	Foreign activity	Revenue	Employment	Foreign activity
Increased	22	17	34	58	46	58
Maintained	51	63	55	26	38	35
Decreased	27	20	11	16	16	7

Source: own processing based on: (Barometr firm..., 2015)

In 2016, in Poland a decrease in the number of companies that maintained their employment was recorded. It settled at 59%. 29% of companies have decided to increase their employment. By 2015 this figure was over 17%. When it comes to reducing employment, the situation on this field looks better. Compared to the previous year, Polish family companies have shown an increase in the share in companies that have reduced the number of employees by 8%. There are similar trends in Europe. There has been an increase in the percentage of companies that have reduced employment and some companies that have increased employment shown small growth. 39% of Polish family businesses are conducting business abroad. Most of them, as much as 52%, maintained their intensity in the past twelve months. In Europe, the percentage of active companies on foreign markets in 2016 was significantly higher than in Poland and it settled at 65%.

Table 3: Family business activity in the last twelve months in 2016 (%)

Rating \ Criterion	Poland			Europe		
	Revenue	Employment	Foreign activity	Revenue	Employment	Foreign activity
Increased	42	29	39	54	47	65
Maintained	37	59	52	30	44	31
Decreased	21	12	9	16	9	4

Source: own processing based on: (Barometr firm..., 2016)

In conclusion, Polish family businesses are more optimistic about the future. This situation can be accounted to much better results in terms of income and employment than the last year. In Europe, family companies also are optimistic about the future and positively assess prospects for the coming year. Although their percentage decreased slightly (by 2%), the number of optimists remained high (72%).

3. Challenges for family businesses

Invariably for several years, the biggest problem for Polish companies is the rising of labor costs. This response was indicated by 50% of respondents. Another concern was political instability (32% of respondents). The third major problem was the acquisition of skilled staff in 2016.

Table 4: Problems of functioning of family businesses in Poland and in Europe (in %)

Criterion Rating	Poland			Europe		
	Rising labor costs	Political instability	Acquiring qualified personnel	Political instability	Acquiring qualified personnel	Increasing competition
September 2016	50	32	29	37	36	36

Source: own processing based on: (Barometr firm..., 2016)

The problems of European companies differ slightly from those from Poland. Growing labor costs are not their greatest concern. In the first place they point the political instability. The acquisition of qualified staff and growing competition are also on the list of major concerns of European entrepreneurs. They were indicated in both cases by 36% of the respondents.

Table 5: Favorable growth conditions for family businesses (%)

Field Criterion	Poland	Europe
Reduction of non-wage labor costs	40	29
Simpler tax rules	35	21
Lower level of taxation	32	21
More favorable taxation and administrative procedures for taking over a family business by successive generations	19	17
More flexible labor market rules	14	30
Reduction of administrative obstacles	14	27

Source: own processing based on Barometr firm..., 2016

Among Polish and European family companies, a study was conducted to identify changes and improvements that would have a positive impact on their growth conditions. In Poland it is mainly: reduction of non-wage labor costs, simpler tax regulations and lower level of taxation. There is a completely different situation for

European companies. Improvements in the labor market regulations are certainly needed there. A favorable condition for growth of these companies would be the reduction of non-wage labor markets (indicated by 29% of respondents) and reduction of administrative obstacles (27%).

The success of Polish as well as European family businesses depends to a great extent on the ability to cope with encountered problems. Such companies want and expect foremost even greater changes in the legal system and laws passed in each country.

4. The future and investment plans of family businesses in Poland and in Europe

Family businesses, which think of the future and want to expand, must take into account their investment plans in company strategy. Polish and European family companies are planning more and more of big investments. This is to a certain extent a sign that they are preparing for future growth and are certain that they have the power to generate profits through reinvestment.

Polish and European entrepreneurs, who were asked to identify future targets, often pointed the increase of profitability, increase of revenues, and attracting a new talented staff. Although innovation is not so important for Polish companies, it is a priority for European companies. It should also be mentioned that although family businesses want to attract new employees, they are not keen to train them.

Table 6: Priorities of family businesses for the next two years (%)

Field Criterion	Poland	Europe
Increasing profitability	53	57
Increasing revenue	45	34
Attracting new, talented employees	26	18
Entering new markets	21	22
Offering new products/services	21	17
Increasing innovation	14	25
Staff training	8	13

Source: own processing based on: Barometr firm..., 2016

When setting business goals, these companies have no doubts that the factors that allow them to increase their competitive advantage are people and innovation. The results of this analysis prove the point. Both Polish and European companies primarily want to invest in their core business (in Poland 59% and in Europe 78%). While training employees is not the top priority for these organizations, they still want to invest in people. In Europe, less than half of respondents answered that way

and 20% in Poland. It is also important for Europeans to invest in new technologies, and execute the internationalization of the company. For Poles these issues appear to be a less important.

Table 7: Investment plans of family businesses (multiple choices question, %)

Field Criterion	Poland	Europe
Investments in core business	59	78
Investments in people (recruiting and training)	20	47
Investments in diversification	20	28
Investments in new technologies	16	52
Investments in the internationalization of the company	5	40

Source: own processing based on: (Barometr firm..., 2016)

The most frequently planned strategic change among Polish family businesses is the transfer of ownership to the next generation (18%) or putting them in charge of the company (15%). Interesting fact is that in European companies transfer of management is more popular than transfer of ownership. Polish entrepreneurs are also driven by other priorities for strategic change than the management of European companies. The first would prefer that the influences remain in the family and do not want to transfer power to people outside their home environment. They are also not in favor of selling the company (in Poland it is 6%, in Europe it is 8%). It should also be mentioned that the smallest percentage of companies, both in Poland and in Europe, is considering entering the stock exchange. In both cases it is only 1%.

Table 8: Strategic changes considered by companies in the next twelve months
(multiple choices question, %)

Field Criterion	Poland	Europe
Transferring ownership of the business to the next generation	18	9
Transferring company management to the next generation	15	18
Transferring power to the next generation	12	8
Appointing non-family member for the CEO, maintaining ownership / control of the family company	8	10

Sale of company	6	8
Entering the stock exchange	1	1

Source: own processing based on: (Barometr firm..., 2016)

In summary, each assigned goal and each strategic plan of the company should cover its planned investments. Although many companies are afraid of the risks involved and have concerns about it, in order to be able to achieve competitive advantage and to grow, they must constantly invest.

Conclusion

In summary, the economic situation of family businesses in Poland and in Europe is slightly different and has changed considerably within a few years. This has been influenced by many factors. Research shows that:

in 2016, both Polish and European family companies rate their economic situation well or very well. 56% of Polish family companies answer this way, and 72% of the European ones. Among entrepreneurs who negatively evaluate their economic situation, the downward trend is visible, compared to 2015;

entrepreneurs running their family businesses face many challenges. In Poland, the main problem is: rising labor costs (50%), political instability (32%), and acquisition of qualified staff (29%). Europeans pointed the political instability (37%), increased competition (36%) and the acquisition of qualified staff (36%);

the entrepreneurs also pointed out the favorable growth conditions for their companies. In Poland: reducing non-wage labor costs (40%), simpler tax regulations (35%), and lower taxation (32%). European entrepreneurs said that they would appreciate more flexible labor market rules (30%), reduction of non-wage labor costs (29%), and reduction of administrative obstacles (27%);

family businesses around the world want to invest. Polish companies want to invest their capital primarily in the area of their core business (59%). In Europe, this is also a priority, since 78% of respondents indicated this option. In addition, European entrepreneurs want to invest in new technologies (52%) and people (47%). In Poland those indicators are definitely smaller. 16% of respondents want to invest in new technologies, and in people - 20%;

the key strategic change that Polish family businesses are considering is the transfer of ownership to subsequent generations (18%). The management of the family is ranked in second place (15%). In Europe this situation looks completely different. In the first place, the respondents pointed out the transfer of management (18%) and the

transfer of the ownership of the company to the next generation. Family businesses do not plan to enter the stock market at all. Both in Poland and in Europe only 1% consider this action.

References

Barometr firm rodzinnych. Konsekwentnie do sukcesu. (2016). 5-19.

Barometr firm rodzinnych. W oczekiwaniu na zmiany. (2015). 5-6.

Daszkiewicz, N., Olczyk, M. (2015). Determinants of the internationalization of family firms - a structural equation modeling analysis. *Przedsiębiorczość i Zarządzanie*, 16(7), 11-12.

Lemańska-Majdzik, A. (2014). Firmy rodzinne na rynku nieruchomości - studium przypadku. *Przedsiębiorczość i zarządzanie*, 15(7), 10.

Marakova, V., Dyr. T., Wolak-Tuzimek, A. (2016). Factors of tourism's competitiveness in the European Union countries. *E&M Ekonomie a Management*, 19(3), 92-93.

Poza, E. J., Daugherty, M. S. (2014). *Family Business*. USA: South-Western, a part of Cengage Learning.

Projekt szkoleniowo-doradczy Firmy rodzinne (2015, retrieved 2015, January). Retrieved from <http://firmyrodzinne.eu/>

Royer, S., Simons. R., Boyd, B. & Rafferty, A. (2008). Promoting Family: A Contingency Model of Family Business Succession. *Family Business Review*, 21(1). 16.

Sobiecki, R., Kargul. A., & Kochanowska, J. (2014). Przedsiębiorstwo rodzinne - definicje i stan wiedzy. In: R. Sobiecki. *Przedsiębiorstwo rodzinne w gospodarce lokalnej*. Warszawa: Szkoła Główna Handlowa w Warszawie.

Więcek-Janka, E. (2013). *Wiodące wartości w zarządzaniu przedsiębiorstwami rodzinnymi*. *Rozprawy nr 488*. Poznań: Wydawnictwo Politechniki Poznańskiej.

HOW KNOWLEDGE FROM CUSTOMERS AFFECTS PRODUCT DESIGN AND PROCESS MANAGEMENT: INITIAL EVIDENCE FROM SYSTEMATIC LITERATURE REVIEW

Michal Krčál, Radoslav Škapa

Department of Business Economics and Management
Faculty of Economics and Administration
Masaryk University
Lipová 41 a, 602 00 Brno
Czech Republic

Abstract

The goal of this paper is to report the initial evidence from an ongoing systematic literature review that focuses on the use of knowledge from customers. This article shows how the knowledge from customers affects the intersections of two disciplines: product (re)design and business process management (process optimization). We are using part of the data from a vast ongoing literature review that analyses the content of research articles that investigated how is any form of information or knowledge used for or within product design or business process management. The results of the content analysis show that not much research is focusing on the concept of using knowledge from customers in the two disciplines. Therefore, we are concluding with suggestions and directions for further research.

Keywords

customer satisfaction, reverse flows, continuous improvement, literature review

Introduction

Mastering the customer knowledge seems to be a major focus of any business endeavour, regardless the knowledge from, about or for the customer. Although it seems that the knowledge about the customers is considered as the most important, the highest benefit could be obtained from the knowledge from customers. However, gathering the knowledge from customers represents more challenges than the mostly automatic gathering of information about customers that may be utilized for creating new knowledge.

Optimizing products and processes is the corner stone of organizational survival and a way to increase its competitiveness. The improvement efforts are mostly studied separately for processes and products, although they can be part of the same initiative and they both need to be managed and viewed as a change. These similarities tempt to investigate their intersections. Moreover, when the importance

and level of reverse flows is growing (Agrawal et al., 2015) and thus opening a space for using these reverse flows and more importantly, the information about the reverse flows as an opportunity to improve the products, services, and processes. This possibility was mentioned by Mourtzis et al. (2016).

The increase of use of mathematical and statistical tools (e.g. fuzzy approach in quality function deployment) in product design is improving measuring of customer expectations (Geng and Chu, 2012; Liu et al., 2014). Besides customer expectations, real user experience is starting to play a role in the product design. Social networks play an important part in this shift because they allow the system of user reviews to influence the buyer's decisions. However, the user reviews can be useful also for the producers as a feedback used for process improvement or product design (Mourtzis et al., 2016). This can lead even to a direct cooperation between producers and customers on the product design (Zhang et al., 2013), although the mentioned product has an intangible nature (i.e. digital product).

Therefore, this paper aims at investigating the potential of the knowledge from the customer for optimizing and (or) designing new products (including services) and processes in the context of lowering the reverse flows. The results of this paper are built on published studies from the respective fields. The main outcome of this paper is an overview of past research with conclusions for the intersections of the investigated disciplines (product design and business process management) and thus the directions for the subsequent empirical research. Therefore, in the following text, we are discussing the background of the customer knowledge and investigated disciplines in the context of gathering knowledge from customers. Then, methodology used in the study is briefly discussed, followed by presentations of results, which are subsequently discussed.

1. Theoretical basis

Built on knowledge management (KM) and customer relationship management (CRM), customer knowledge management (CKM) was introduced at the start of the new millennia (see Davenport et al., 2001). CKM stresses the importance of knowledge (and information) that relates to customers, specifically knowledge from, about and for customers (Srikantaiah and Koenig, 2000). The importance of CKM is seen in providing the competitive advantage through product innovation that is based on customer knowledge (Taherparvar et al., 2014).

Knowledge from customers can be conveniently used in product (or service) design; in all the areas product design covers or is closely related to new product development and innovation, product strategy, marketing promotion, price, engineering and operations, consumer choice/response, industrial design, business

management (Luchs and Swan, 2011). In other words, product design is a process that integrates work of a wide range of professions such as industrial and mechanical designers, manufacturing engineer, the purchasing specialists, and marketing professionals (Ulrich, 2015).

However, external stakeholders (customers and suppliers) should also be involved as they dispose of resources or knowledge absent in a producer. For example, an empirical research proved that in incremental product innovations, the customers' involvement improves new product performance (Menguc et al., 2014). Generally, customer co-creation belongs to the recent tendencies in product design, and it can be classified into three forms: Besides a direct involvement of customers in product design as co-developers or innovators, the customers can also be involved as "information source" (Cui and Wu, 2016), which is highly relevant from reverse flows perspective.

Improving products or services can be considered as an 'external' way how to achieve a competitive advantage. However, internal improvements are necessary too and can be achieved by employing tools and methods from Business Process Management (BPM). For the purpose of this study, BPM is understood as "the art and science of overseeing how work is performed in an organization to ensure consistent outcomes and to take advantage of improvement opportunities" (Dumas et al., 2013, p. 1). Specifically, BPM can be divided into six core elements, i.e. Strategy, Governance, Methods, IT, People, and Culture (Rosemann and Brocke, 2010).

2. Methodology

The literature review methodology was 'mixed' in the way that we did not systematically review the articles but only search them in a systematic way. We searched the articles in indexing databases Web of Science (WOS) and SCOPUS. We used following general search string (WOS syntax):

```
TS=((customer* OR consumer* OR client*) NEAR/4 (feedback OR *satisf* OR complain* OR experienc* OR opinion*)) AND TS=((collect* OR obtain* OR provid* OR giv* OR measur* OR assess* OR gather* OR acquir*) NEAR/4 (feedback OR *satisf* OR complain* OR experienc* OR opinion*)) AND LANGUAGE: (English)
```

This string was enhanced with specific search strings for BPM and product and service design:

```
TS=(process* NEAR/2 (innovat* OR manag* OR chang* OR optimiz* OR improv*))
```

```
TS=((product NEAR/2 design) OR (product NEAR/2 innovation) OR (product NEAR/2 development) OR (product NEAR/2 improvement))
```

Only peer-reviewed journal articles and articles written in English were included into the search. We first analysed the suitability of the articles according to the abstract. The articles with subject area as mathematics, energy or chemical engineering were excluded, as the articles that did not focus on feedback gathering. Overall, we screened 259 articles which yielded only 11 articles to review.

3. Results

In Table 1, we present the results of our narrative review of 11 articles. The table contains information about the employed methodology (QUAL = qualitative; QUANT = quantitative), discipline (see below), the purpose of the reviewed article and interpretations of the implications of the content of the reviewed article for the topic we are investigating (see Background). We abbreviated the names of the disciplines as follows: BPM = Business Process Management, CRM = Customer Relationship Management, QM = Quality Management, CPM = Corporate Performance Management, KM = Knowledge Management, SED = Service Design (including improvement), PD = Product Design (including improvement).

Table 4: Overview of reviewed articles

Paper	Methodology	Area	Purpose	Implications for intersection
Athaide et al. (1996)	Mixed (interviews in exploratory phase, survey among 242 companies)	CRMPIM KM	Examination of diverse aspects of a relationship management between seller and buyer in hi-tech industries.	Cross functional cooperation (R&D, sale, support) improves product design (including make/build to order environment) and customer satisfaction. Product failures/customer complaints is an essential source of information for it.
Bragge and Merisalo-Rantanen (2009)	QUAL (action research)	PIM KM BPM	The design of e-collaboration processes that enable the end-users' involvement in the IS development.	Information flow that accompanies product return (reverse flows) can be collected from end-users effectively when appropriate web based IS is designed and employed.

				However, the customer's motivation for providing feedback remains the main barrier, regardless on web based IS functionalities.
Davis (1996)	Descriptive case study	CPM	An illustration of a link between frontline employees and corporate objective via BSC.	A performance measure of return/complaint processes can be used for effective employee remuneration.
Franke et al. (2008)	Experiment (simulation in laboratory settings on students).	PIM KM CRM	Testing the impact of peer-consumers on product design (product specification) done by a customer in mass customization production.	Captured customers experience with the products can diminish reverse flows generated by other customers by peers' suggestions and technical advice.
Herrmann et al. (2000)	Case study	PIM QM	The proposed framework that integrates technical and marketing tools for product development and improvement is illustrated in a single case study.	When analysing a (dis)satisfied customer two approaches to collecting and analysing data need to be employed: product/service attributes can be enquired by mean of the survey. More latent variables (such as received benefits or cost) related to return process need to be the subject of qualitative research.
Kang and Song (2013)	Theoretical	BPMDES QM	To design a method for efficient customer feedback integration in service industry.	Social networks can be used for automatic gathering and analysing data containing feedback

				and customer satisfaction for service and process improvement.
Livotov (2016)	Case study employing surveys, quantitative research	PIM	When inputs from external customers are unavailable during product development/improvement process, the internal expert are able to substitute for them; the loss in information reliability is acceptable in some situations.	The information about customers' wishes/market trends (including reverse flows) is more reliable to be enquired directly from customers than from experts' opinion. This is crucial especially when generating ideas about new products.
Mourtzis et al. (2016)	QUAL Review (multiple case study)	DES KM	To propose a framework for Lean PSS design, evaluation and improvement	Using sentiment analysis (ontology-based context modelling) on customer feedback can be more effective than other analytical methods.
Mugridge and Poehlmann(2015)	QUAL (descriptive case study)	BPM DES	To present implementation of a customer survey in a library to improve processes.	Customer satisfaction survey can positively affect marketing and CRM initiatives, and enable internal initiatives (change initiatives, assessment efforts).
Schulte (2008)	Conceptual paper, case study	IS PIM QM	A design of methodology, which incorporates both the potential and current users/customers into product development process.	The reverse logistics of a product should not be designed with the respect to current customers only, but the voice of potential customers should be included too.

Sharabi (2010)	QUANT (survey)	BPM QM DES	To present how the results of satisfaction survey were used for human resource management improvements in a college environment.	Feedback from customers (students) can be used for process improvements in the HR area that can lead to service improvements and increase in customer satisfaction.
----------------	-------------------	---------------	--	---

Source: own processing

4. Discussion

The results show that often process improvements are closely connected to service (and partially product) improvements. This can be expected as QM also involves process improvement; more specifically, process improvement belongs to critical success factors in QM (Powell, 1995). Other managerial disciplines that relate to service (product) and process improvements consist from KM and CPM. This, indeed, implicates that multidisciplinary research is a viable (and required) direction to investigate gathering and using customer feedback in organizations.

The diversity is a key not only in the context of the disciplines that are defining the research scope and discourse but also in methodology. The reviewed articles revealed that not a single methodological approach is prevailing. In the studies, the methodological choices ranged from theoretical through qualitative to quantitative. However, except Athaide et al. (1996) paper, all studies used single methodology approach. Therefore, mixed research in multidisciplinary context could reveal rich data about the customer feedback gathering and analysis.

The reviewed articles focused most of the times on designing or proposing some methods, frameworks or processes. However, few articles reported results from empirical data. Overall, the scope of the articles was narrow or vague, focusing either on very limited and isolated topics or on general problems that were researched in some other form earlier. This is consistent with the previously discussed findings and it shows that more in-depth investigation is therefore needed.

The implications of the reviewed articles suggest few detailed directions which the further research could target. The prevalent means how to gather feedback from customers is a survey. However, with the penetration of social networks, an automatic gathering of data containing the feedback from customers' needs not to be limited only to surveys (see Sharabi, 2010). Other tools that can help with feedback gathering are web-based information systems (Bragge and Merisalo-Rantanen, 2009).

Moreover, Herrmann et al. (2000) stressed that (dis)satisfaction does not need to be measured quantitatively, but qualitative approaches are useful, especially when latent variables are considered.

To keep the pace with the growing palette of gathering tools, set of analytical tools need to be enriched too. As an example, Mourtzis et al. (2016) suggested, sentiment analysis could be more effective than other analytical methods. Connected with the analysis, the source of the feedback from customers is crucial too. The market trends are predicted better when analysing data from opinion from customers and not from experts (Livotov, 2016). Moreover, potential customers (Schulte, 2008) or technical advice and sharing help between customers (Franke et al., 2008) could be beneficial. However, it is still an issue to collect the feedback when customers are hesitant to provide it, therefore the customers' motivation is the main barrier (Bragge and Merisalo-Rantanen, 2009).

Another frequent topic that emerged during reviewing the articles consisted from the way how the feedback is used. Sharabi (2010) and Kang and Song (2013) presented how the feedback from customers could be used for process improvement in the HR area which subsequently leads to service improvement and customer satisfaction. The impact of the feedback from customers can affect also marketing and CRM initiatives (Mugridge and Poehlmann, 2015) and employee remuneration (Davis, 1996). When using the feedback from customers, it is beneficial to establish a cross-functional cooperation (e.g. R&D, sale, and support) which improves the product design (Athaide et al., 1996).

Conclusion

In this paper, we narratively reviewed 11 articles that investigate the intersection between gathering and analysing feedback from customers and service (products) and process improvements. We suggest that future research efforts might follow the multidisciplinary direction and employ the mixed methods methodology. We recommend focusing on tools for feedback gathering, methods used for analysing the gathered data and the ways how the feedback is used. When considering the topics and goals of the reviewed articles we would specifically highlight the ICT sector and e-commerce. The former is typical for its close connection between customers and providers and feedback loop ('bug' solving and support), the latter is integrating social networks and a new form of communication which can provide rich data containing knowledge from customers.

Acknowledgement

The Czech Science Foundation supported this research as part of the project called Managerial approach to reduction of reverse flows in connection to customer satisfaction and continuous improvement (project number: GA16-16260S).

References

- Agrawal, S., Singh, R. K. & Murtaza, Q. (2015). A literature review and perspectives in reverse logistics. *Resources, Conservation and Recycling*, 97, 76-92.
- Athaide, G. A., Meyers, P. W. & Wilemon, D. L. (1996). Seller-buyer interactions during the commercialization of technological process innovations. *Journal of Product Innovation Management*, 13(5), 406-421.
- Bragge, J. & Merisalo-Rantanen, H. (2009). Engineering e-collaboration processes to obtain innovative end-user feedback on advanced web-based information systems. *Journal of the Association for Information Systems*, 10(3), 196.
- Cui, A. S. & Wu, F. (2016). Utilizing customer knowledge in innovation: antecedents and impact of customer involvement on new product performance. *Journal of the academy of marketing science*, 44(4), 516-538.
- Davenport, T. H., Harris, J. G. & Kohli, A. K. (2001). How do they know their customers so well?. *MIT Sloan Management Review*, 42(2), 63.
- Davis, T. R. (1996). Developing an employee balanced scorecard: linking frontline performance to corporate objectives. *Management Decision*, 34(4), 14-18.
- Dumas, M., La Rosa, M., Mendling, J. & Reijers, H. A. (2013). *Fundamentals of business process management*. Heidelberg: Springer.
- Eppinger, S. & Ulrich, K. (2015). *Product design and development*. McGraw-Hill Higher Education.
- Franke, N., Keinz, P. & Schreier, M. (2008). Complementing mass customization toolkits with user communities: How peer input improves customer self-design. *Journal of product innovation management*, 25(6), 546-559.
- Geng, X. & Chu, X. (2012). A new importance-performance analysis approach for customer satisfaction evaluation supporting PSS design. *Expert Systems with Applications*, 39(1), 1492-1502.
- Herrmann, A., Huber, F. & Braunstein, C. (2000). Market-driven product and service design: Bridging the gap between customer needs, quality management, and customer satisfaction. *International Journal of production economics*, 66(1), 77-96.

- Kang, M. S. & Song, E. J. (2013). A Study on the System for Customer Feedback Integration Inference in B2C Service Industries. In *Future Information Communication Technology and Applications*, Springer Netherlands, 1007-1014.
- Koenig, M. E. & Srikantaiah, T. K. (2000). The evolution of knowledge management. *Knowledge management for the information professional*, 23-36.
- Liu, Y., Zhou, J. & Chen, Y. (2014). Using fuzzy non-linear regression to identify the degree of compensation among customer requirements in QFD. *Neurocomputing*, 142, 115-124.
- Livotov, P. (2016). Estimation of New-Product Success by Company's Internal Experts in the Early Phases of Innovation Process. *Procedia CIRP*, 39, 150-155.
- Luchs, M. & K. S. Swan. (2011). Perspective: The Emergence of Product Design as a Field of Marketing Inquiry. *Journal of Product Innovation Management*, 28(3), 327-345.
- Menguc, B., Auh, S. & Yannopoulos, P. (2014). Customer and supplier involvement in design: The moderating role of incremental and radical innovation capability. *Journal of Product Innovation Management*, 31(2), 313-328.
- Mourtzis, D., Fotia, S., Gamito, M., Neves-Silva, R., Correia, A., Spindler, P., ... & Rossi, M. (2016). PSS Design Considering Feedback from the Entire Product-service Lifecycle and Social Media. *Procedia CIRP*, 47, 156-161.
- Mugridge, R. & Poehlmann, N. M. (2015). Internal customer service assessment of cataloging, acquisitions, and library systems. *OCLC Systems & Services: International digital library perspectives*, 31(4), 219-248.
- Powell, T. C. (1995). Total quality management as competitive advantage: a review and empirical study. *Strategic management journal*, 16(1), 15-37.
- Rosemann, M. & vom Brocke, J. (2015). The six core elements of business process management. In *Handbook on business process management 1*. Springer Berlin Heidelberg, 105-122.
- Sharabi, M. (2010). HR manager leadership in quality improvement in a college environment. *Quality Assurance in Education*, 18(4), 317-327.
- Schulte, S. (2008). Customer centric PLM: integrating customers' feedback into product data and lifecycle processes. *International Journal of Product Lifecycle Management*, 3(4), 295-307.
- Taherparvar, N., Esmailpour, R. & Dostar, M. (2014). Customer knowledge management, innovation capability and business performance: a case study of the banking industry. *Journal of knowledge management*, 18(3), 591-610.

Zhang, X., Auriol, G., Eres, H. & Baron, C. (2013). A prescriptive approach to qualify and quantify customer value for value-based requirements engineering. *International Journal of Computer Integrated Manufacturing*, 26(4), 327-345.

ASSESSMENT OF THE SMALL BUSINESS ACT'S IMPLEMENTATION IN SMALL AND MEDIUM ENTERPRISES IN SLOVAKIA

Lubica Lesáková

Faculty of Economics
Matej Bel University in Banská Bystrica
Slovak Republic
lubica.lesakova@umb.sk

Abstract

Implementing Small Business Act for Europe (SBA) represents the key appeal for the European Union and its member countries within the support of small and medium entrepreneurial activity. Small Business Act for Europe consists of a set of ten principles that lay down the measures for the support of small and medium (SME) in varied fields. These principles have to be respected when suggesting the measures of complex character aimed at the support of small and medium enterprises development in the EU member countries. The aim of the paper is to assess the state in implementing the SBA's initiative in small and medium enterprises in Slovakia, to identify the policy areas (principles) in which main strengths and weaknesses in implementing the SBA's initiative is evident and to list specific factors (programmes, measures, initiatives, acts) which affected the state in concrete principles. Following the aim of the paper a set of research questions will be formulated. To fulfil the settled aim several scientific methods of examination, namely the method of analysis, synthesis, induction and deduction will be used.

Keywords

Small Business Act, small and medium enterprises, principles, Slovak Republic

Introduction

Problems concerning entrepreneurial activity, entrepreneurial environment and especially the small and medium enterprises (SMEs) come to the front nowadays in all European countries (Kressel & Lento, 2012). The stated problems were projected into several strategic initiatives that define policies of the EU in concrete spheres. The basic document is represented by the "Strategy Europe 2020" that is a basic strategic development document of the EU. For the SMEs sector there is the key initiative "Small Business Act for Europe". Implementing Small Business Act for Europe (SBA) represents the key appeal for the European Union and its member countries within the support of small and medium entrepreneurial activity and creation of suitable entrepreneurial environment, as well for the smallest enterprises.

SBA creates new political framework that includes political and economic tools in the field of support of entrepreneurial activity. It consists of a set of ten principles that lay down the measures for the support of SMEs in varied fields (Small Business Act for Europe, 2008).

Principle 1: to create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded.

Principle 2: to ensure that honest entrepreneurs who have faced bankruptcy quickly get a second chance.

Principle 3: to design rules according to the principle “think small first”.

Principle 4: make public administration responsible to SMEs needs.

Principle 5: to adapt public policy tools to SMEs needs: to facilitate SMEs participation in public procurement and better use State Aid possibilities for SMEs.

Principle 6: to facilitate SMEs access to finance and develop a legal and business environment supportive to timely payments in commercial transaction.

Principle 7: to help SMEs to benefit more from the opportunities offered by the Single market.

Principle 8: to promote the upgrading of skills in SMEs and all forms of innovation.

Principle 9: to enable SMEs to turn environmental challenges into opportunities.

Principle 10: to encourage and support SMEs to benefit from the growth of international markets.

These principles have to be respected when suggesting the measures of complex character aimed at the support of SMEs development in the EU member countries. Implementation of measures of the Small Business Act is inevitable for reaching progress in the relation to ensure favourable and motivating entrepreneurial environment.

One of the main tools the European Commission uses to monitor and assess countries' progress in implementing the SBA is the SMEs Performance Review. The review brings comprehensive information on the performance of SMEs in EU countries. It consists of two parts: an annual report on European SMEs and SBA country fact sheet.

1. SBA initiative in SMEs in Slovakia – research questions and methodology of research

The government of the Slovak Republic (SR) promised to implement the European principles for the development of small and medium entrepreneurship by means of the initiative of SBA in Slovakia. Exhaustive implementation of EU strategic initiative for the support of the development of SMEs in Slovakia is in charge of the Ministry of Economy of the SR and of the Small Business Agency of the SR, which is also the body responsible for the monitoring of SBA implementation.

In 2013 a dedicated SBA working group was set up to ensure that the SBA is implemented properly. The activities of the working group include a preparation and implementation of significant measures and policies in the area of SMEs development, consultations on recommendations and tasks of the EU and preparation of measures supporting SMEs growth with aim to maintain sustainable SMEs growth. The group is made up of representatives of the Slovak Business Agency and 10 ministries with responsibilities relating to SMEs.

The Slovak government intends to implement the SBA under its SMEs development strategy, which is due to run until 2020. At this time the strategy is still in preparation. The strategy is intended to be the document focused directly on SMEs. It will include the Slovak authorities' response to the SBA, the Europe 2020 strategy and the Entrepreneurship 2020 action plan. At present the SBA is integrated into various support programmes, measures and initiatives developed by the Slovak ministries and agencies, mainly into the Strategy for Smart Specialisation of the Slovak Republic (2013).

The aim of the paper is to assess the state in implementing SBA's initiative in SMEs in Slovakia (the assessment will be based on data showing performance in individual indicators according to the EU average), to identify the policy areas (principles) in which main strengths and weaknesses in implementing the SBA's initiative in Slovak SMEs is evident and to list specific factors (programmes, measures, initiatives, acts) which affected the state in the concrete principles. To fulfil the settled aim several scientific methods of examination, namely the method of analysis, synthesis, induction and deduction will be used.

Following the aim of the paper we have formulated a set of research questions:

What is the state of implementing SBA's initiative in Slovak SMEs?

What are the policy areas (principles) in which main strengths and weaknesses in implementing the SBA initiative in Slovak SMEs are evident?

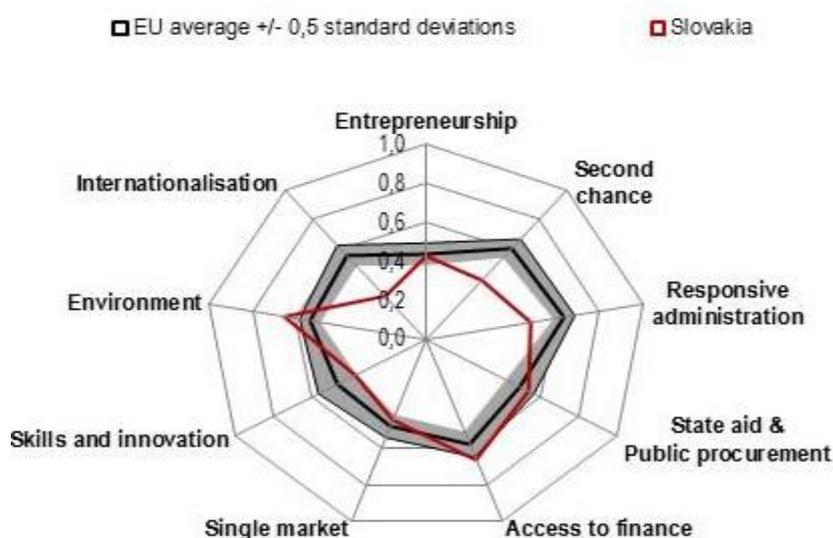
What are the specific factors (programmes, measures, initiatives, acts) which affected the state in the concrete principles?

To evaluate the state in implementing the SBA initiative in Slovak SMEs we will comment on main indicators representing the individual principles given in the SBA Fact Sheet 2015 – Slovakia. The evaluation is based on data showing performance in individual indicators according to the EU average. The stress will be given to the evaluation of the state in implementing the SBA's initiative in individual principles and in the formulation of main measures to be implemented to improve the state in most problematic policy areas (principles).

2. Assessing the implementation of SBA's initiative in Slovak SMEs – the findings and discussion

According the SBA Fact Sheet 2015 – Slovakia has achieved an-above EU average performance (strengths) only in one policy area (principle) "Access to finance" and partly in "Environment". Average scores were achieved for "Entrepreneurship", "State aid and public procurement" and "Single market". Low performance (weaknesses) was achieved in "Responsive administration", "Second chance" and "Skills and innovation". The biggest challenge is "Internationalisation" (SBA Fact Sheet 2015 – Slovakia).

Figure 1: Slovakia's SBA profile in 2015



Source: SBA Fact Sheet 2015 – Slovakia, European Commission

What concerns the principle "Access to finance" Slovakia's performance in this area exceeded the EU average.

According to SBA Fact Sheet 2015 – Slovakia the indicator on “Access to public financial support” (as a percentage of respondents that indicated deterioration) was in Slovakia only 11.21 % to 21.36 % of EU average. “Willingness of banks to provide a loan” (as a percentage that indicated a deterioration) was in Slovakia 10.67 to 21.17 of EU average. The indicator “Total amount of time it takes to get paid” (in days) was in Slovakia 42 days to 49.6 days of EU average. Indicator concerning the loss on bad debts was similar to EU average value while the indicator measuring the strength of legal rights outperformed the EU average (Slovakia 7, EU average 5.75).

Since 2008 a number of policy measures have been adopted in this area (Prehľad základných skutočností o iniciatíve Small Business Act for Europe, 2012). The Slovak Guarantee and Development Bank's, the JEREMIE programme's and EXIM bank's schemes supporting export provide dedicated financing facilities (Sobeková Majková, 2011). A micro loan programme is available from the Slovak Business Agency, while the European Investment Bank and the European Bank for Reconstruction and Development provide preferential financing for SMEs through commercial banks. The micro lending programme has been implemented as of January 2013 to increase the survival rate of small entrepreneurs and start-ups as a condition for maintaining existing employment and enabling creation of new jobs.

Thought it can be stated positive results in this policy area, there is still much to do. SMEs perceive deterioration in access to public guarantees as well as evident is high cost of borrowing for small loans relative to large loans – it is by 60 % higher to EU average.

For the future it will be necessary to focus in greater extend on funding of start-up businesses and small entrepreneurs and to supplement financial aid (in the form of grants or loans) by providing educational and consulting services and interconnect these aids.

As the second principle in which partly positive results were achieved is indicated “**Environment**”. Since 2008 Slovakia has put in place various policy measures in the area of the principle “Environment”. Positively may be viewed the implementation of the Energy Efficient Act with the aim to support better monitoring of energy use and energy efficiency. The Act is expected to increase the efficiency of energy use along the whole energy chain, with the highest potential for energy savings. All measures towards ensuring energy efficiency and the use of renewable sources in SMEs help to develop innovative eco-efficient processes, products or services.

The percentage of SMEs that have benefited from public support measures for their resource-efficiency actions was two times higher to the EU average (64 % in Slovakia to 35 % of EU average) as well as the percentage of SMEs that offer green products or services (32 % in Slovakia to 26 % in EU average) (SBA Fact Sheet 2015 – Slovakia).

For the future attention should be given to support the development of entrepreneurial thinking, entrepreneurial culture and entrepreneurial skills at all school levels, while it is necessary to combine the formal approach with the non-formal approach to create closer contact with the business practice.

On the contrary, there are four (!) policy areas (principles) in which Slovakia's performance is significantly below the EU average. It is: "Internationalisation", "Responsive administration", "Second chance" and "Skills and innovation".

As the worst evaluated appears to be "**Internationalisation**"; it is the weakest link in the implementation of SBA in Slovakia. All available indicators given in SBA Fact Sheet for Slovakia outperformed the EU average level. Because increasing of the cost of trading across borders the situation of Slovak SMEs has deteriorated. The cost required to export as well as the cost required to import increased by 40 % between 2015 and 2008 (indicator "Cost required to export" was in 2015 in Slovakia 1525 USD to 1042 USD of EU average; "Cost required to import" was in 2015 in Slovakia 1505 USD, in EU average it was 1079 USD).

Thought since 2008 some of the SBA recommendations in this area have been implemented (measures stimulating trade and exports, financial support for internationalisation of SMEs, support for clusters, accelerators and trade organisations) the available figures point to the need for improvements in their effectiveness and efficiency.

As a positive example of export promotion can be mentioned the measure - project "MISIA14 - Made in Slovakia". The project was launched in September 2013 and aims to increase exports from SMEs and increase the share of SMEs exports in total export of Slovakia.

The newly adopted "Act on administration, operation and use of the central electronic file information system in the import, export and transit of goods" is the measure to allow international traders, forwarders and carriers to perform the paperwork for the movement of goods more quickly, cheaply and in one place. This could help to reduce the number of required business documents and accelerate their handling (thanks to e-services) (Wagner & Hollenbeck, 2012). In addition, it should bring also more efficiency and easier exchange of information between state administration bodies.

Strategy for Smart Specialisation of the Slovak Republic (2013) aims to stimulate the international expansion of local companies and provide financial support. The strategy also plans to introduce networking events to boost new market entry for SMEs in other countries.

For the future special measures should be aimed at the support of counselling and education in the field of developing the business in third countries and in improving the level of management of exporting SMEs.

One of the weaknesses in implementing the SBA's in Slovakia is indicated the **"Responsive administration"**. Responsive administration refers to public administration being responsive to the needs of SMEs. As far as Responsive administration most of the indicators achieved lower value to the EU average. It can be stated that none of the indicators significantly moved from last year's level. The progress in this area since 2008 is still limited.

The time to start a business (SBA Fact Sheet 2015 Slovakia) was almost 3 times longer than the EU average (10 days compared with 3.5 days). In 2013 Slovakia has put in place measures to lower the length of the procedure to start the business down to two days, but it was not achieved. An average Slovak Business made 20 tax payments a year, 8 payments more than the EU average. The cost of enforcing contracts (% of claim) was in Slovakia higher than the EU average (30.00 % in Slovakia to 21.54 % of EU average). The frequent changes in legislation, the pure complexity of administrative procedures and the requirements imposed by government regulations were perceived by Slovak SMEs as a burden.

Since the adoption of the SBA in 2008 Slovakia has made some progress in making administrative procedures to set up a firm SME-friendly. It has also put in place some e-government solutions. However, there is still much for improvements in several areas related to "Responsive administration". Firstly, the single point of contact for start-up procedures needs to work more efficiently. Secondly, dealing with government services should be made faster and more effective. Thirdly, it is essential to connect different databases for the successful application of the once-only principle. It is also necessary to establish a one-stop shop where SMEs can have any administrative procedure or to obtain guidance on different areas of their activity, such as access to finance or fiscal advice.

The government started with the special measure based on implementing the effective, reliable and open public administration programme (known in Slovakia as ESO reform). This is the most extensive reform of state administration since 1989. Its ambition is to make the operations of local public administration more efficient and to provide high quality, transparent and available services to the public. The reform will take place in several stages up until 2020. Reorganisation of local public administration was carried out in 2013-2014. The reform provides for opening client centres which will not only bring local public administration closer to the public and businesses but helps to achieve substantial cost savings thanks to the increased use of e-solutions.

Slovakia's performance in the "**Second chance**" is significantly below the EU average, mainly driven by the time (twice higher than the EU average) and cost (80% higher than the EU average) to close a business (SBA Fact Sheet 2015 - Slovakia). Second chance refers to ensuring that honest entrepreneurs who have gone bankrupt get a second chance quickly.

Closing up (winding up) an insolvent business took in Slovakia a long time (four years) and generated a high cost for the liquidated businesses (18 % of the debtor's estate). Despite several amendments to the bankruptcy law (the Insolvency Act was amended to facilitate reorganisation of businesses at risk of bankruptcy), since 2008 the progress is very limited. No specific measures supporting a second start for bankrupt entrepreneurs have been put in place and no rules were laid down for re-starting. No new measures were introduced in this area during the last years.

It is urgent to propose measures which will lead to quick action associated with closing (winding up) an insolvent enterprise and with the settlement of financial and property relationships in accordance with the recommendation given in the SBA initiative for promoting a "second chance" for entrepreneurs.

As far as the principle "**Skills & Innovation**" concerns, Slovakia's performance in this area is much below the EU average in most indicators. Since the adoption of the SBA in 2008 Slovakia has made limited progress on skills & innovation policy. Though some measures supporting SME's research and development were implemented, many of SBA recommendations remain unaddressed (Lendel & Varmus, 2014). These include measures to support skills and professional competences and those promoting research, development and innovation in SMEs.

Almost all innovation-related indicators have deteriorated since last year (SBA Fact Sheet 2015 - Slovakia). Two main indicators decreased significantly. Percentage of SMEs introducing product or process innovation achieved in Slovak SMEs only 17.67 % to 30.6 % of EU average and the percentage of SMEs introducing marketing or organisational innovations was in Slovakia 26.23 % to 36.19 % of EU average. It is not quite clear why in this predominantly unfavourable innovation landscape sales of new-to-market and new-to-firm solutions significantly outperformed the average. Positive is viewed that during the reference period for this fact sheet the government introduced a special measure - a tax deduction for research and development expenses. The deduction will cover a broad selection of eligible costs including wages, insurance and other employment claims.

Starting January 2013 the Ministry of Economy has adopted a State aid scheme to support the introduction of innovative and advanced technologies in industry and services. Moreover, a programme to support clusters was implemented by the Slovak Innovation and Energy Agency. It aims at connecting the business with scientific and

research institutions, to facilitate the subsequent development of new manufacturing processes and materials. The Innovation Vouchers Grant was introduced as a subsidy for entrepreneurs to support innovations and to work with specialists for knowledge transfers.

For the future more attention should be given to increase the awareness of entrepreneurs on the significance of innovation activities in small and medium enterprises. Positive examples from EU countries confirm that the participation of small and medium enterprises in networks and support of partnership's building is the way how to involve them into the innovation activities.

Conclusion

According to the 2015 SBA Fact Sheet Slovakia ranked below the EU average in applying most of the SBA principles. There was only one area out of ten in which Slovakia performed better than the EU average: "Access to finance" and partly in "Environment".

To improve the state in implementing SBA initiatives in Slovakia needs to create suitable entrepreneurial environment for small and medium businesses (Belás et al., 2015). This should be achieved through a broader application of the "think small first" principle, in particular through regulatory impact assessment, appropriate stakeholder consultation mechanism and the SMEs test. Public administration needs to be more transparent and address widely perceived corruption. It should also better respond to SMEs needs by providing higher quality services. E-government solutions, currently in an early phase, may play an important role in this process. Slovakia needs to continue to boost skills and innovation in SMEs and enable them to achieve their international potential.

It is primarily a business friendly environment in which both start-ups and experienced entrepreneurs could benefit from a wide range of instruments to support their business ideas. Such an environment could also provide an opportunity for entrepreneurship of identified marginalized groups (women, seniors, youth, handicapped) to participate in entrepreneurial activity. Failure in business should be perceived as an opportunity for repeated market entry and not automatically understood as a failure.

Moreover, entrepreneurship should be accepted as a relevant career choice and receive support in the educational process. Building entrepreneurial competencies at a young age might be utilized by both entrepreneurs as well as employees at a later stage.

Finally, efficient introduction of electronic communication between the public and private sectors would help lower the cost of sharing mandatory information for private businesses and also for the public sector when providing services to its customers.

The new EU multiannual financial framework for 2014-2020 offers for Slovakia a chance to support SMEs via a number of financial and non-financial instruments (loans, equity funding, regulatory impact assessment system implementation, mentoring services, incentives for marginalized groups, start-up promotion, one-stop-shop solutions, etc.) as defined in the national Operational Programs (Letovanec, 2014). This might be the time to formulate a clear SME strategy, a special Act on SMEs, utilizing the best EU and international practices in a long-term framework that would also accelerate the fulfilment of key SBA recommendations.

References

Belás, J. et al. (2015). The Business Environment of Small and Medium-sized Enterprises in Selected Regions of the Czech Republic and Slovakia. *E+M Ekonomie a Management*, 18(1), 95 – 110.

European Commission. (2010, retrieved 2016, June). *Europe 2020. A strategy for smart, sustainable and inclusive growth*. Retrieved from: http://www.ec.europa.eu/eu2020/index_en.htm/

European Commission. (2008, retrieved 2016, April). Small Business Act for Europe. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52008DC0394>

European Commission. (2015, retrieved 2016, June). SBA Fact Sheet 2015 – Slovakia. Retrieved from: <http://www.sbaagency.sk/en/small-business-act-for-europe>

Kressel, H., & Lento, T. (2012). *Entrepreneurship in the global economy. Engine for economic growth*. Cambridge University Press.

Lendel, V., & Varmus, M. (2014). Evaluation of the innovative business performance. *Procedia Social and Behavioral Sciences*, 129, 504-511.

Letovanec, M. (2014, retrieved 2015, April). Revival of SMEs in the spotlight! [Cit. April 11, 2015]. Retrieved from: www.sbaagency.sk/en/revival-of-smes-in-the-spotlight/

Prehľad základných skutočností o iniciatíve Small Business Act for Europe. (2012, retrieved 2015, May). Bratislava: Zastúpenie Európskej komisie na Slovensku. Retrieved from: http://www.economy.gov.sk/ext_dok-sba-factsheet-2012/143870c?ext=orig

Strategy for Smart Specialisation of the Slovak Republic (RIS3). (2013, retrieved 2015, May). Bratislava, Ministry of Economy. Retrieved from: <https://rio.jrc.ec.europa.eu/en/library/strategy-smart-specialisation-slovak-republic-ris3>

Sobeková Majková, M. (2011). Analýza bariér a faktorov financovania malých a stredných podnikov v Slovenskej republike. *Ekonomický časopis*, 59(10), 1033-1049.

Wagner, J. & Hollenbeck, J. (2012). *Organization behaviour. Securing Competitive Advantage*. London: Routledge, Taylor & Francis Group, Ltd.

SYSTEMATIC RISK DETERMINANTS

Helena Majdúchová, Bernadeta Siváková, Jakub Kintler

Department of Business Economy
Faculty of Business Management
University of Economics in Bratislava
Dolnozemska cesta 1, 852 35 Bratislava
helena.majduchova@euba.sk
bernadeta.sivakova@euba.sk
jakub.kintler@euba.sk

Abstract

In case of the non-tradable companies, the systematic risk cannot be received through the movements of the prices traded on the stock market. Therefore, in practise there are also different approaches for determining the beta coefficient. Based on the relevant researches, the systematic risk reflects both external and internal factors and their identification offers new alternative approaches for its quantification. For example, the accounting information reflects all events and decisions. However, they include not only the systematic risk, but also the specific one. Therefore, it is likely that the accounting information will not be in a perfect correlation with the beta coefficient. Despite of this, the accounting information are considered as the most appropriate approach of defining the overall risk of the company. The aim of the paper is to define the determinants that affect the determination of systematic risk by testing the selected accounting variables.

Keywords

return risk, beta coefficient, alternative approaches, panel data, simple linear regression

Introduction

For the last half century, the researchers in finance and accounting have been dealing with theoretical as well as empirical correlation between systematic risk and different variables of financial and accounting nature such as financial leverage, company size, dividend growth, and others. The systematic risk is the only reliable benchmark for the valuation of assets based on the theory of capital market. All the models based on the theory of capital market suggest that markets are efficient. One of these models is the Capital Asset Pricing Model (CAPM). This model has significantly influenced the opinions of economists on the capital markets functioning. Its key variable is the beta coefficient. For publicly traded companies with available data, it is estimated using the regression coefficient, and gives a ratio of the revenues of securities of the companies and market returns. For other companies, it is necessary to apply an alternative approach. Start-ups, young and growing companies are included since they have very limited opportunities to diversify their risk, which can cause that

their expected return is linked to other factors, such as those recorded in the CAPM. When applying the historical beta coefficient, we use historical data, which the newly established companies miss. Determining the value of young companies is difficult, not only because of the lack of historical data, but also because their business is not profitable at the beginning of their life cycle. (Damodaran 2009)

When a company changes its financial and operating decisions, these decisions are changing the corporate revenues and the business risk, leading to a change of the systematic risk. In addition to the problems related to the risk measurement, the question of the risk determinant specification gets into the foreground and leads to the beta coefficient differentiation of the individual securities.

1. Alternative approaches to the systematic risk determination

In non-tradable companies, the systematic risk cannot be captured through movements in the prices traded on the stock exchange market, and therefore there are other approaches to capture the beta coefficient applied in a practice. The research in this area suggests that the systematic risk reflects the internal and external factors and their consideration in the quantification gives rise to the formation of *alternative approaches*. One of them is the use of the accounting data reflecting all the events and decisions. However, the accounting data do not only imply the systematic, but also the specific risk, so it is likely that the accounting data will show a perfect correlation with the beta coefficient. Nevertheless, these data are considered one of the best ways to capture the overall risk of the company. The beta coefficient forecast, therefore, is not based on the market information, but on the values reported in the books of the analysed company. We can read the value of the company's profit among them. A regression of a private company would then not be based on dependency of the return on shares and the market profitability, but it would examine the correlation between company's profit and profitability of the market.

We have summarized the most important current studies in this area in the international context in the following table.

Table 1: Studies dealing with the correlation of the market beta coefficient and accounting variables

Authors	Findings
Ball and Brown (1969)	The object of their research was net income, operating profit and earnings per one share in relation to the systematic risk. One of the recommendations was to use the variance in profits as a more appropriate variable compared to their absolute value. The three variables explained 35% to 40% variations in the systematic risk
Beaver (1971)	Model with the variance profit indicators, the payout ratio, the accounting beta and creditors' risk indicator explained 23% to 43% changes in the market beta.
Hamada (1969,1972)	They divided the systematic risk to the operational and financial risks. The operational (financial) risk relates to the operational (financial) decisions and is estimated based on the operational (financial) leverage.
Robichek and Cohn (1974)	They tested the impact of the GDP growth and the inflation on the systematic risk. This effect was significant only in a few companies.
Lev (1977)	There is a positive correlation between the operating leverage and the systematic risk.
Myers (1977)	There is a positive correlation between the financial leverage and the systematic risk.
Castagna and Matolcsy (1981)	The average beta for the merging companies is higher than for the sustainable companies.
Gahlon and Gentry (1982)	Systematic risk is a feature of the operating and financial leverage, total revenue variance, correlation coefficient between EBIT and the market portfolio revenues.
Breen and Lerner (1973, 1989)	They built on the study of Beaver, Kettler and Scholes, and found that some financial variables are statistically not equal to zero and marks of these variables do not exhibit stability.
Rosenberg and McKibben (1973-1995)	They analysed 32 financial variables. 13 of them showed statistically significant correlation with the systematic risk. Four of them were positively correlated, three were negative and 4 variables had a very strong correlation with the systematic risk, even if expecting a very weak correlation.

Source: own processing

One of the basic problems, which are closely associated with the accounting approach in determining the systematic risk, is that the accounting data provide accurate, unbiased and relevant information.

Accuracy and reliability of the financial reporting are in the interest not only of institutions dealing with standardization and regulation of accounting data, but also investors' decision-makers. They use the financial reporting, which should provide useful information necessary for decision-making in analysing the financial position of the company. Based on this information, investors make decisions on the selection of an efficient portfolio, sale or acquisition of equity, which ultimately affects the share price.

The quality of the financial reporting should be improved by accounting standards that have been applied in several countries. The related International Financial Reporting Standards, also known as IFRS, are to be a kind of instruction manual for the companies how to present their financial statements most appropriately. Since 2002, by the regulation of European Union (EC) no. 1606/2002, publicly traded companies have been required to publish consolidated financial statements with the respect to IFRS. In relation to the IFRS, the year 2005 was an important one for the European Union member states, when a requirement was expressed that all the companies traded on the market are required to publish their consolidated financial statements about IFRS to ensure transparency in financial reporting.

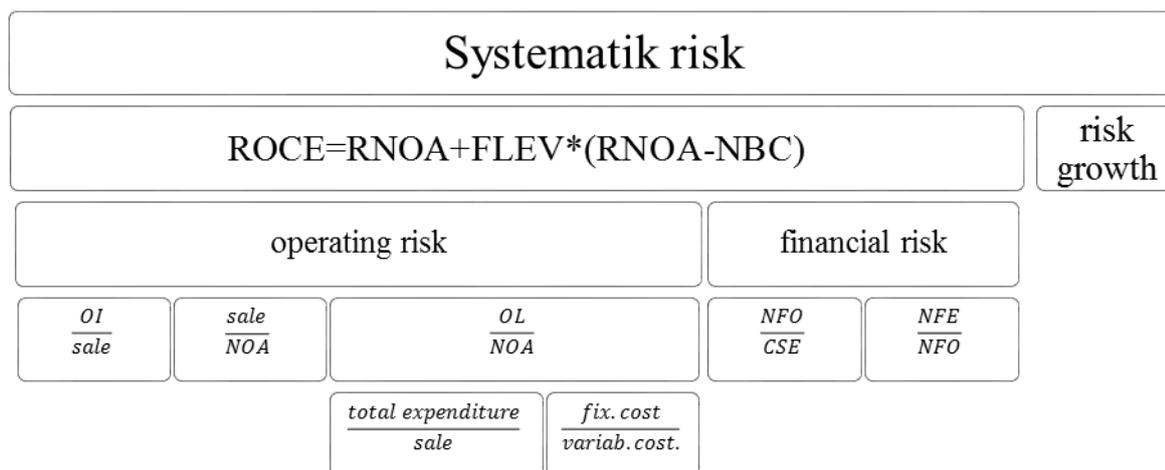
This problem is even more pronounced for small businesses, for whom the quality of accounting information is generally lower compared to the larger companies. In some EU countries, all the public and private companies are required to publish their financial statements; the financial statements must be audited by an auditor and business tax is the same as for the public and private companies. Despite this, however, there are significant differences in the financial reporting. This is due to the higher sensitivity of private companies on the tax and dividend policy, leading to a lower quality.

For the purposes of our research, we have chosen the Brimble Hodgson accounting model. *Brimble and Hodgson (2012)* in their study analysed the correlation between the systematic risk (beta) and accounting variables. They were based on the latest available data. The results indicated a very strong correlation between accounting variables and beta coefficient with the achieved coefficient of 67% determination. However, this outcome was being changed not only within the industry but also at considering the size of a company. This model became the starting model for our analysis and was applied to a sample of 129 Australian listed companies between 1991 and 2000. The model analysed 12 financial variables - the accounting beta, the variability of earnings, cash flow, operating leverage, liquidity, interest coverage, the

payments of dividends, financial leverage and market to book ratio. (Brimble, Hodgson, 2007)

Brimble and Hodgson (2007) analysed the correlation of the systematic risk and financial variables in their study, while selecting them, they relied on the analysis of the systematic risk, which Penman published in his study. It was concerning the following decomposition of the systematic risk:

Figure 1: Decomposition of the systematic risk



Source: Penman, S.H. (2001). *Financial Statements Analysis and Security Valuation*. New York: McGraw-Hill.

Where:

- ROCE is *Return on Common Equity*;
- OI is *Operating Income*;
- NOA is *Net Operating Assets*;
- RNOA is *Return on net operating assets*;
- NBC is *Net Borrowing Costs*;
- OL is *Operating Leverage*;
- NFO is *Net Financial Obligation*;
- CSE is *Common Shareholders Equity*;
- NF is *Net Financial Expense*.

Based on this decomposition, Brimble and Hodgson analysed 12 financial variables that we describe in the table 2. The expected impact of the variable indicates what correlation we assume the independent variable will have on the systematic risk. If the mark is positive, there is a positive correlation between the dependent and independent variable and vice versa. Some of the variables used by Brimble and Hodgson were used in the previous studies, or may have been defined in another way, so we have modified the original model with respect to the data that were

available, and we adjusted the accounting beta, the dummy variable for EBIT and the standard deviation of profit to the formula which is shown in Table 2.

Table 2: Independent variables in Brimble- Hodgson accounting model

Independent variable	Description	Impact
$Accbeta_{it} = \frac{\Delta ROE_{it}}{\Delta ROE_m}$	ΔROE_{it} is the variance of return on equity after two consecutive periods. ΔROE_m is the variance of return on equity after two consecutive periods in the market portfolio.	+
$sdebit_{it} = \sqrt{\frac{(EBIT - \overline{EBIT})^2}{n}}$	The standard deviation of the EBIT variable. Where EBIT is the value of the indicator in the year <i>i</i> and \overline{EBIT} is the average value of this indicator for the previous 5 years, including the year <i>i</i> for the company <i>j</i> .	+
$DUebit_{it}$	The mark of economy outcome – the dummy variable, if it includes a negative number, zero is applied, otherwise 1.	+/-
$CF2_{it} = \frac{ebitda}{mv}$	Cash Flow calculated as a proportion of <i>ebitda</i> and a market value.	
$DPR_{it} = \text{dividend/profit } (t)$	The payout ratio calculated as a proportion of the dividend paid in the year <i>t</i> and profit in year <i>t</i> .	-
$OPL_{it} = EBIT/\text{revenue}$	The return on sales measured as a proportion of the earnings before interest and income taxes, and total sales.	+
$Liq_{it} = \frac{\text{total non - current assets}}{\text{liabilities}}$	The third-degree liquidity, measured as a proportion of total assets and current liabilities.	-
$Flev_{it} = \frac{\text{total liabilities}}{\text{total assest}}$	The financial leverage.	+

$ICov_{it} = \frac{EBIT}{interest}$	Interest coverage, measured as a proportion of the earnings before the interest and income taxes, and the total sales.	-
$Gth_{it} = \ln \frac{total\ assest}{total\ assest_{-1}}$	The growth calculated as a natural logarithm of the proportion of total assets and total assets in the year $n-1$.	+
$Size_{it} = \ln (total\ assest)$	The size of a business entity measured by the natural logarithm of total assets.	-
$MB_{it} = \frac{marker\ value\ own\ equity}{booking\ value\ own\ equity}$	The market to book ratio calculated as a proportion of the market value proportion and a booking value of own equity.	-

Source: own processing

2. Objectives and methodology

The aim of the research is to identify the determinants that affect the determination of the systematic risk using the Brimble and Hodgson model. The data of 1965 companies from various sectors of the 15 EU countries with the largest volume of GDP of the period 2005-2014 were the source of our research. This information was obtained during the period of study in Germany at the Graduate School of Management in Leipzig. Several observations were carried out within each sector. For the data analysis, we used a statistical Stata model and the simple linear regression and the analysis of the panel data method.

Based on the variables specified above and studies from Brimble and Hodgson, we tested the following variables: accounting beta, the standard deviation indicator EBIT, the mark of the EBIT indicator, cash flow, payout ratio, return on sales, liquidity, financial leverage, interest coverage, the growth, the size and the market to book ratio. The final accounting model has the following formula:

$$\beta_{jit} = \alpha_i + b_1 accbeta_{it} + b_2 sdebit_{it} + b_3 DUebit_{it} + b_4 CF2_{it} + b_5 Gth_{it} + b_6 SIZE_{it} + b_7 DPR_{it} + b_8 Liq_{it} + b_9 Flev_{it} + b_{10} Icov_{it} + b_{11} OPL_{it} + b_{12} MB_{it} + \varepsilon_{it}$$

, where $\beta_{i,t}$ is the market beta coefficient for the company "i" ($i = 1, \dots, 1965$) in the year "t" ($t=2005, \dots, 2014$). The model is applied on the business entities in the 15 countries of the EU.

We need to emphasize that, there are no external factors in the model, as several studies have confirmed their non-significant effect on the systematic risk.

3. Results and discussion

The testing results of this model are shown in the following table.

Table 3: Results of model

Sample	EU 15								
Determinant	Total	SIC A	SIC B	SIC C	SIC D	SIC E	SIC F	SIC G	SIC I
<i>Accbeta</i>	+				+				+
<i>sdebit</i>	+				-				
<i>DUEbit</i>					-				
<i>CF2</i>								-	
<i>Payout ratio</i>			+			-			
<i>OPL</i>	-				-			+	
<i>Liquidity</i>	+				+				
<i>Fin. leverage</i>	+	+	-		+				
<i>Interest cov.</i>		+	-		-	-			
<i>Growth</i>									
<i>Size</i>	+			+	+	+	+	+	
<i>MB</i>									
<i>Insdebit</i>		+	+						+
<i>lnMB</i>	-		-	-	-	-	-	-	-
<i>lnOPL</i>				-		-	-		-
<i>lnDPR</i>							+		
<i>lnLiq</i>							+		+
<i>lnFlev</i>				+			+	+	
<i>lnCF</i>	-								

<i>lnGrowth</i>	-		-	-	-			-	
R2	0,7698	0,6323	0,5042	0,401	0,3382	0,2761	0,6272	0,3761	0,285

Source: own processing

The independent variables of the Brimble- Hodgson accounting model are shown in the left column. There are sectors expressed as a Category SIC in the top line, and the last line shows the coefficient of determination of the model for the analysed sector. The fields are indicated for the individual variables by a plus or minus mark in grey or dark grey colour in the table. The mark reflects the impact of a given variable on the systematic risk, and whether this effect meets our expectations. If so, the box has dark grey colour for the variable of the sector, if not, it is grey. We observe that the effect of certain variables is changing in relation to the systematic risk depending on the sector. This phenomenon is apparent in the variable payout ratio, financial leverage, operating leverage and interest coverage. Other variables retain the same impact in every sector. Industry of agriculture, forestry and fishing (Sic A) has the smallest number of statistically significant variables, including a financial leverage, interest coverage and the natural logarithm of the standard deviation indicator. On the other hand, the industrial sector (SIC D) has 10 statistically significant variables.

Based on an analysis of the model structure, we can conclude that the size of the asset is most often occurred as statistically significant, but in neither case reached the desired effect. The rule is that the larger the size of the company's assets, the lower the systematic risk. The impact of the size on the systematic risk was positive in the models for the sectors SIC C, SIC D, SIC E, SIC F and SIC G. The positive impact on the size of the systematic risk is not entirely a new knowledge. Even Bergesen Ward (1996) in the analysis of the South African companies, and Castagna and Maltocsy (1978) and Brimble (2003) in the analysis of Australian companies reached the same impact of this indicator in the researches. Castagna and Maltocsy argue that this positive correlation between the systematic risk and the size may result from the following two factors: a relativity of the size and a willingness of taking the risk. The relativity of the size means that what is a small company in small markets, such as the markets in Australia and in South Africa is, in fact, a big company. The second factor, which is the willingness to take risks indicates that larger companies in smaller markets are generally active in more risky areas rather than the small companies. The proof is the proper correlation of this indicator of the systematic risk in the testing of the companies in the US. We replaced the size indicator with the natural logarithm of the standard deviation of the EBIT indicator in case of the incorrect model specification. This was a sector of agriculture, forestry and fishing (SIC A) and mining and quarrying (SIC B). In this case, we have achieved the right effect of this indicator on the systematic risk. The natural logarithm of the market to

book ratio is a very important determinant of the systematic risk. Except for the SIC A sector, it has made a positive impact in all other sectors. The expected impact on the systematic risk can be seen in the financial leverage. When analysing all sectors together, as well as sector-specific analysis, we have confirmed a statistically significant and positive correlation with the systematic risk. The financial leverage had a statistically insignificant effect only in the service sector (SIC I) and the wholesale sector (SIC E). In the wholesale and retail sectors, this variable was significant in the logarithm form also having a positive impact on the systematic risk.

Conclusion

The Brimble-Hodgson accounting model could explain 28-77% of variability of the systematic risk. We came to the following conclusions based on the results of testing this model. The sector is a major determinant of the systematic risk, because the structure and the number of statistically significant variables were being changed for certain sectors.

We state, that if the market value indicators are included in the model, it achieves a higher coefficient of determination and the financial variables are positively correlated with the systematic risk. We state too, analysis of the panel data provides a better forecast of the parameters in comparison to a simple linear regression.

The size of the company is one of the most important determinants of the systematic risk, but it achieves the opposite effect on the systematic risk on the small capital markets than on the major capital markets. The reason is, the positive correlation between the systematic risk and the size may be the result of the two factors: what is a small company in small markets such as Australia and South Africa, it is, in fact, a big company. The second factor is that the larger companies on the smaller markets are generally active in more risky areas than the small companies. This confirms the negative correlation of this indicator with the systematic risk in the US.

In conclusion, we would like to emphasize that the main objective of the research, using the theoretical approaches and practical survey, was to identify determinants that affect the systematic risk determination, followed by the selected sample of businesses to test and evaluate correlations of the determinants with the systematic risk. Based on the practical survey, we identified the size of the company, return on assets, financial leverage, net working capital, interest coverage and dummy indicator for the EBIT variable to be the most important determinants of the systematic risk. (Majdúchová, Siváková, 2016)

This paper is an outcome of the VEGA No. 1/0857/16 "Increasing the competitiveness of SMEs through the introduction of innovation in the global economic environment" research project.

References

- Bergesen, M., & Ward, M. (1996). Modelling systematic risk and return using accounting – based information. *Investment Analysts Journal*, 25(43), 31-48.
- Brimble, M. & Hodgson, A. (2007). Assessing the Risk relevance of accounting variables in diverse economic conditions. *Managerial Finance*, 33(8), 553-573.
- Castagna, A. D. & Matolcsy, Z. P. (1978). The Correlation Between Accounting Variables and Systematic Risk and the Prediction of Systematic Risk. *Australian Journal of Management*, vol. 3, 113-126.
- Damodaran, A. (2009). *Valuing Young, Start –up and growth Companies*. Retrieved from <http://people.stern.nyu.edu/adamodar/pdfiles/papers/younggrowth.pdf>
- Kachecha, C. & Strydom, B. (2011). Using Accounting data as a Measure of Systematic Risk. *University of Kwazulu-Natal. Working papers in finance*. doi:10.13140/RG.2.1.1536.9445
- Majdúchová, H. & Siváková, B. (2016). *Hodnotenie vzťahu systematického rizika a jeho determinantov vo vybranom súbore európskych a slovenských spoločností. (Assessment of the Correlation of the Systematic Risk and Its Determinants in the Selected Set of European and Slovak Companies.)* 1. edition. KARTPRINT.
- Penman, S. H. (2001). *Financial Statements Analysis and Security Valuation*. New York: McGraw-Hill.

IMPLEMENTATION OF ELECTRONIC RECORDS OF SALES IN THE CZECH REPUBLIC AND IT'S ECONOMIC BENEFITS

Marta Martinová, Martina Hedvičáková, Libuše Svobodová

University of Hradec Králové
Faculty of Informatics and Management
Rokitanského 62, 500 03 Hradec Králové
Czech Republic
marta.martinova@uhk.cz
martina.hedvicakova@uhk.cz
libuse.svobodova@uhk.cz

Abstract

This article aims to evaluate the main benefits and effects of the Electronic records of sales (hereinafter referred to as EET). EET obligation was compulsory established for all legal entities doing business in the country. EET system is starting in several stages. The first stage covered the restaurants and hotels. The second stage covered approximately 250 thousand of traders. Final third and fourth stage will cover the rest of legal entities in the Czech Republic. The objective of implementing the EET system is straightening business environment for all legal entities in the Czech Republic, because part of the economic activity takes place in the so-called shadow zone that is not under the control of financial administration of the state. State administration expects the increase of tax collection. In the article there will be examined recent experience with tax collection and the impact of implementing EET on the state budget. There will also be evaluated the benefits to businesses and government entities. Based on the review of existing models of Electronic records of sales there will be compared amount of collect taxes and economic situation with other countries that have implemented EET with an emphasis on the Republic of Croatia.

Keywords

electronic records of sales, tax, Croatia, costs

Introduction

The introduction of EET promoted the finance minister and founder of the parliamentary group ANO - Andrej Babiš. According to him, EET is a proven way to ensure fair and efficient tax collection. (Elektronickaevideencetrzeb.net, 2015) EET was established mainly due to long-term reduction of tax obligations, which in some areas of the business in the Czech Republic become a commonplace. According to the Czech Statistical Office these leaks in the Czech Republic achieve amounts of about 170 bln. CZK per year, which is more than twice the state budget deficit. (Finanční správa České republiky, 2016)

Electronic records of sales in four stages:

- 1. stage** – since 1st December 2016 EET concerned accommodation segment and food service activities - CZ-NACE group 55 and 56,
- 2. stage** - since 1st March 2017 joined retail and wholesale segment - CZ-NACE group 45, 46 and 47,
- 3. stage** - since 1st March 2018 entrepreneurs engaged in any other activity will be involved. This means for example the liberal professions (doctors, lawyers, accountants), transport and agriculture, with the exception of those classified within a fourth stage,
- 4. stage** - since 1st June 2018 the last to join EET will be the selected crafts and production activities - CZ-NACE group 13-17, 20.4, 22, 23, 25, 31-33, 43, 95, 96. (Eltržby.cz, 2016)

1. Methodology and goal

The article is based on primary and secondary sources. Secondary sources comprise information about Electronic records of sales in the Czech Republic and abroad, professional literature, information collected from professional press, discussions or previous participations in professional seminars and conferences relating to the chosen subject. Primary sources are based on the data from the Czech statistical office and Eurostat and Ministry of Finance, Republic of Croatia and Ministry of Finance Czech Republic. Then it was necessary to select, classify and update accessible relevant information from the numerous published materials that would provide the basic knowledge of the selected topic.

The goal of the paper is to evaluate the main and also expected benefits and effects of the Electronic records of sales.

4. Results

This chapter will present the results of the research on EET.

2.1 The situation in other EU countries

Various forms of records of sales exist in 17 countries in the European Union. These countries include Italy, Hungary, Slovakia, Poland, Belgium, Lithuania, Latvia, Malta, Sweden, Romania, Bulgaria, Greece, Cyprus and finally Croatia. Since 2016, besides in Czech Republic, the EET was established in Austria and Slovenia as well. (Etržby, 2016), (Kamal et al., 2015) Most of these countries, however, has only used offline cash registers and receipts obligations somewhere apply only to certain sectors of business. Offline model is therefore more frequently used alternative

records of sales. The basis of the cash register with fiscal memory, which is certified in financial management, there are stored data that can be controlled. In certain countries, the cash register sends information itself to the tax office at a specific time interval. Online cash registers are used abroad only in Croatia, Bulgaria and Slovakia. According to information it's not proved that cash registers helped to improve tax collection. (Web4Trader, 2016)

2.2 Croatia

One of the first European country to introduce the EET is Croatia and that happened in 2013. In Czech Republic was introduced the same model of cash registers – online one, connected to the tax office. That became then the inspiration for our Finance Minister Andrej Babiš. The main indicator of the introduction of EET in Czech Republic were mainly large tax leaks in the catering industry and tourism. The introduction of EET also accompanied the tax reductions in the hospitality industry by 15%, i.e. from 25% to 10%. In Croatia EET was implemented in three stages. The first stage concerned large businesses, hotels and restaurants. The second stage affected wholesalers, retailers and self-employed in services. The last stage has already concerned all the. (Elektronická evidence tržeb od A do Z, 2016)

How useful was the establishment of EET for Croatia? If we compare the declared income of entrepreneurs in 2012 (the year before the introduction of EET) and in 2013 (the first year of EET use), we find that the annual income of hospitality vary by 5200 €, which is the highest amount of annual income from retail then differ by 600 € and minor services of 700 €. Thus, while revenues from individual entrepreneurs are higher, according to Czech Television the collection of VAT remained almost the same - moving constantly around 40 billion HRK, roughly 144 billion CZK. (Elektronická evidence tržeb od A do Z, 2016)

Therefore EET really did not bring considerable income. The unemployment rate was recorded a 2% increase and the number of self-employed persons declined between 2013 and 2014 about 32,000. Even reported is that the introduction of EET caused that up to 50,000 Croatian businessmen and tradesmen ended their business. So what we fear also in Czech Republic happened - small businesses and entrepreneurs ends with their business. (Etržby, 2015) On the other hand the introduction of EET helped the company named Agrokor, the largest retail chain in Croatia. Total benefit of EET really amounts to a very few people and companies, and only the big ones, such as software companies, mobile operators and connection providers.

All compulsory business entities were involved into EET from July 1st 2013 in Croatia. Tab. 1 shows that in 2013 was the total amount of VAT receivable even lower

than in the previous year by about 1%. However the amount of tax collection is also involved in household consumption overall economic situation.

Table 1: VAT collection in Republic of Croatia in 2011 - 2015

Year	VAT collection (in thousand HRK)	Annual change
2011	37 718 154	0,08 %
2012	40 652 023	7,78 %
2013	40 253 061	-0,98 %
2014	40 923 499	1,67 %
2015	43 513 529	6,33 %

Source: Ministry of Finance, Republic of Croatia, own processing (Republika Hrvatska, 2015)

2.3 Differences in EET between Czech Republic and Croatia

One of the most interesting differences is for example a penalty for non-compliance related to the EET. It is approximately 1.3 million higher in Croatia. In Czech Republic would the penalty count a maximum of half a million.

About takeover receipts is heard from all sides, but in the Czech Republic, fortunately, this is not a regulation. However in Croatia, even customers leaving the store, can be grabbed by controllers, which require their receipt to check. If you don't have one, they can fine you.

Evidence of state of cash register is another point that is different in Czech Republic. Croatia has an obligation to send the tax office even information on how much money in the cash register is. (Elektronická evidence tržeb od A do Z, 2016)

2.4 Expected benefits of the introduction of EET for the state

EET has basically two main objectives to help our country:

- „restrictions of the shadow economy and more efficient collection of taxes, particularly income tax and VAT”,
- „settlement of market environment in the Czech economy, where honest entrepreneurs in various sectors of the economy are not able to compete with those who do not pay taxes properly”. (Etržby, 2015)

Below will be dealt with both goals more closely. Attention will be given to the arguments of both parties, and given the related facts.

- EET will limit the shadow economy and bring more efficient collection of taxes?

According to Andrej Babiš, the introduction of EET in the near future should bring 18 billion to the state budget. This information could be seen in information campaigns in many media even before the introduction of EET. If we look at his earlier statements, a number he spoke about was 8 billion less, so just 10 billion. By trade licenses it happened after someone calculated that due to the costs it will be the least profitable tax in our country, the number of expected selection jumps suddenly increased. (*Živnostenské listy*, 2016) How suddenly reached such a number? According to the spokesman of Babiš's Office it's an estimate based on experience from abroad.

Let's take a look at the facts from abroad, specifically Croatia, because that's country which Andrej Babiš gave all the time as an example. Babiš says that thanks to the introduction of EET the total tax collection increased. His statement can be argued in two ways. (*Živnostenské listy*, 2016)

From Eurostat data, we can conclude that immediately after the introduction of EET in Croatia, tax collection has increased. However, in the following year it decreased to approximately its original level, and since then continue decreasing. In parallel with this, in Croatia the number of tradesmen was reduced and unemployment is rising.

- Even if EET really reduce the proportion of shadow economy in Croatia and thus bring more taxes, proportion of the shadow economy to GDP in Croatia is almost twice higher than in the Czech Republic.

According to the data from the years 2003 - 2013 is the extent of shadow economy in Croatia 28,4%, while in the Czech Republic only 15.5% of GDP. This logically means that the potential increase in revenues in the Czech Republic is far smaller than it was in Croatia.

2.5 Impacts of EET on the business environment in the Czech Republic

Sales excluding VAT in accommodation and food service in December at current prices grew by 15.7% at constant prices by 7.6%. The hospitality and catering sales increased at current prices in December 2016 by 18.3% at constant prices by 8.2%. Effect of introduction of EET cannot be directly inferred. (*Český statistický úřad*, 2017)

2.6 Converts the state its responsibility?

One of the many criticisms of the entire system is an argument which says that the state converts its responsibility simultaneously with the introduction of EET. Association of entrepreneurs and managers in the *Report on the shortcomings and negative impacts of EET* states: „The State has an obligation to prosecute dishonest,

without limiting or bothering honest. However, the introduction of EET will breached this principle. The state does not seek a specific offenders, is not looking after tax non-payers, does not work with possible information. Conversely, the state wants to monitor all who accept the cash payments, regardless of their honesty and fulfil of obligations to the state. The state thereby simplify its work and transferred its obligations to entrepreneurs. And argues that the honest have no reason to fear.” (Asociace podnikatelů a manažerů, 2015)

The proposal is very poorly designed, because the state should choose methods and tools which are unobtrusive, not the most annoying and toughest. The proportion of small business owners to the uncollected VAT is only 7% and the remaining 93% are mainly due by large and medium-sized organizations. EET is therefore very inappropriate, inadequate and inefficient way to fight against this problem. Resources, time and money spent on commissioning and maintenance of EET are inadequate to the expected benefits, refer findings of the Supreme Audit Office. „According to the findings of the Supreme Audit Office, the level of tax evasion in the Czech Republic in 2013 measured by the VAT gap was 25.7% and reached 105 billion Czech crowns. SAO calculated the proportion the various factors involved in tax evasion in collecting VAT: 40% of VAT gap are entrepreneurs deliberately distorting information (large and medium-sized enterprises), 28% of VAT gap consists of other tax evasion or errors in tax declarations, 25% of VAT gap consists of increment outstanding arrears and 7% of VAT gap consists of illegal and shadow economy (small entrepreneurs, traders, building industry etc.)” (Nejvyšší kontrolní úřad ČR, 2015)

Discussion, limitations and conclusions

Finally, remember that the VAT collection data should also reflect the effects of other measures that Ministry of Finance implemented in 2016, namely the VAT control statements and expansion of reverse charge regime for other activities (telecommunications, wholesale natural gas and electricity delivery).

Hence, to conclude: Although it is for a variety of reasons still very early to be definitive about the efficacy of the electronic-records-of-sales law, the claims of the Ministry of Finance about doubling the sales in restaurants so far do not appear to have much support in other data. Beware, that is not to say the EET did not have any effect! If we assume that the 4.3% y/y VAT collection increase was 2 pp due to retail sales ins sectors other than hospitality, 1.75 pp due to household spending not included in the retail sales and, say, 0.25 pp due to other effects (control statements, reverse charge), then to get to 4.3% y/y we need additional 0.3 pp. If this were to come from hospitality segment, then the increase of retail sales must have been about 34%, not 100%. (Market Research, 2017)

The introduction of EET expected VAT reduction to fifteen percent and price reduction. Conversely, prices have increased. Small entrepreneurs, especially in rural areas and small towns, ended their business. Breweries across the Czech Republic reported losses of its customers, for example Brewery Hols Vratislavice with the onset of EET may lose up to fifteen percent of their customers. Small entrepreneurs who employ their family or another three to five people also ending their business and it cause increase unemployment and state labor offices costs for its citizens. Czech citizens also lose the motivation to do business. Loss of enterprises to meet the needs of its customers in the food and eating sector can also lead to higher costs. E.g. the village Bílek u Chotěboře - termination of the last food retail means for its residents necessity to travel to Chotěboř to wholesale Tesco. Questions arise on transport costs in financial terms and also in terms of time. Our population is also made up of older people who are dependent on small entrepreneurs in villages.

In connection with the EET can be heard many votes with a negative impact on our Czech society. Politicians reassuring their fellow citizens, it would be better for the state economy. Finance Minister reassures citizens that entrepreneurs terminating their (micro) businesses are thieves. EET encourage traders and businessmen, for which that has better benefits. In contrast to the small businesses, for which that has more liquidating consequences. (The size of a company is essential for positive or negative benefits.). The question in the debate is whether EET will fulfil the expectations and whether using the EET will cause increasing tax collection.

This study is supported by internal research project No. 2103/2017 Investment evaluation within concept Industry 4.0 at Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic.

References

Asociace podnikatelů a manažerů - *Zpráva o nedostacích a negativních dopadech EET.* (2015, retrieved 2017, January 10). Retrieved from <http://www.asociacepm.cz/files/uploads/%C4%8C%3%A1nky/Zpr%C3%A1va%20o%20EET%20%E2%80%93%20d%C5%AFvody%20pro%20odm%C3%ADtnut%C3%AD%20n%C3%A1vrhu%20z%C3%A1kona.pdf>

Český statistický úřad - *Ze statistik ČSÚ nelze určit vliv zavedení EET.* (2017, retrieved 2017, January 10). Retrieved from <https://www.czso.cz/csu/czso/ze-statistik-csu-nelze-urcit-vliv-zavedeni-eet>

Elektronická evidence tržeb od A do Z - *Miliardy navíc do státní kasy díky EET? V Chorvatsku se to nepotvrdilo.* (2016, retrieved 2016, December 28). Retrieved from <http://eet.money.cz/blog/miliardy-navic-do-statni-kasy-diky-eet-v-chorvatsku-se-to-nepotvrdilo>

Elektronickaevideencetrzeb.net - *Ministr Babiš: EET je osvědčené řešení, jak zajistit spravedlivý a efektivní výběr daní.* (2015, retrieved 2016, December 28). Retrieved from <http://www.elektronickaevideencetrzeb.net/news/ministr-babis-eet-je-osvedcene-reseni-jak-zajistit-spravedlivy-a-efektivni-vyber-dani/>

Eltrzby.cz - *O co jde.* (2016, retrieved 2016, December 21). Retrieved from <http://www.eltrzby.cz/cz/o-co-jde>

Etržby - elektronická evidence tržeb - *Závěrečná zpráva hodnocení dopadů regulace (RIA).* (2015, retrieved 2017, January 10). Retrieved from <http://www.etrzby.cz/assets/cs/prilohy/RIA.pdf>

Etržby - elektronická evidence tržeb - *Zkušenosti ze zahraničí.* (2016, retrieved 2016, December 26). Retrieved from http://www.etrzby.cz/cs/zajimavosti_zkusenosti-ze-zahranici

Finanční správa České republiky - *Etržby (EET).* (2016, retrieved 2016, December 22). Retrieved from <http://www.financnisprava.cz/cs/financni-sprava/eet>

Kamal, S.N.M., Yatim, N.H.M., Osman, S., Ali, N.M., Ali, M.N. & Jali, J.M. (2015). Developing the Authenticity Framework of Electronic Business Records in SMEs Companies. *Procedia - Economics and Finance*, 31, 834-838. doi.org/10.1016/S2212-5671(15)01175-2.

Market Research, Eurozone & Czech Republic - *Is Electronic-Records-of-Sales ("EET") working? A Preliminary look.* (2017, retrieved 2017, April 1). Retrieved from http://www.42financialservices.org/files/42FS_Special_0317.pdf

Nejvyšší kontrolní úřad ČR - *Nové instituty v boji proti daňovým únikům lepší výběr DPH nepřinesly, ročně stále uniká víc než 100 miliard korun. Tisková zpráva ke KA č. 14/17 - 27. 4. 2015.* (2015, retrieved 2017, January 16). Retrieved from <https://www.nku.cz/cz/pro-media/tiskove-zpravy/nove-instituty-v-boji-proti-danovym-unikum-lepsi-vyber-dph-neprinesly--rocne-stale-unika-vic-nez-100-miliard-korun-id5385/>

Republika Hrvatska - Ministarstvo financija - *ANNUAL REPORT OF THE MINISTRY OF FINANCE FOR 2014.* (2015, retrieved 2017, January 10). Retrieved from <http://www.mfin.hr/adminmax/docs/Annual%20report%20of%20the%20Ministry%20of%20Finance%202014.pdf>

Web4Trader - *Elektronická evidence tržeb (EET) není v Evropě nic neobvyklého.* (2016, retrieved 2016, December 26). Retrieved from <https://www.web4trader.cz/elektronicka-evidence-trzeb-eet-neni-v-evrope-nic-neobvykleho/>

Živnostenské listy - Čtyři největší lži o EET. (2016, retrieved 2017, January 10). Retrieved from <http://www.zivnostenskelisty.cz/clanky/6697-ctyri-nejvetsi-lzi-o-eet>

IMPROVING SUSTAINABILITY OF HUMAN RESOURCES THROUGH PENSION SYSTEM EXTENSION

Jan Mertl, Radim Valenčík

VŠFS
Estonská 500
101 00 Praha 10
jan.mertl@outlook.com
valencik@seznam.cz

Abstract

Recent development has been characterized by low fertility, prolonging human life and possibly flexible working career. In addition, intergenerational issues and teamwork are crucial for business performance. This creates new issues for human resource management, since the people should work longer and social systems including pension one have to be set in such a way that they support this behaviour. Because recent efforts to innovate pension systems empirically failed, we suggest new motivation strategies to cope with the described development within social systems. Therefore, we present in this paper the postgraduate pension system extension as a new component of pension system. We construct a model of this extension and then discuss its impact for current socioeconomic environment and sustainability of human resources throughout lifelong career.

Keywords

pension systems, statutory retirement age, merit-based pension system, productive employment

Introduction

Urgent calls to prepare changes and conditions for full exploration of possibilities, which Industry 4.0 offers, raise the question, which broader socio-economic sense technological changes connected with Industry 4.0 have. We think that the common denominator of those changes is the movement of the economy's core to area of those services that help to develop, preserve and utilize human abilities and human capital (Valenčík, 2014). Utilizing of Industry 4.0 possibilities in our approach we take as a part of process that creates society based on productive services.

This general framework applies significantly also to businesses. The competitiveness of businesses is based mainly on the innovation potential they have. One of the most significant prerequisites for increasing the innovation potential is utilizing the teamwork approach. The core axis of teamwork is intergenerational cooperation across three or four generations. In addition, because we do not utilize teamwork and cooperation well, it threatens the stability of teams, does not allow the

intergenerational cooperation and in many cases it even leads to their end. For intergenerational cooperation in businesses, it is necessary to create friendly economic conditions, better say conditions that will provide adequate motivation for this cooperation.

In this paper, we aim to respond to the key question affecting those conditions – creating economic environment, which would stimulate the people who preserve their innovation and organizational abilities to prolong their time of productive employment. Alternatively, to be more exact, which would lead citizens during their whole life to choose such strategy and trajectory of their career life, where they would maximize the length of utilizing their innovation potential with the team framework.

In Czech conditions, it is possible to do it by introducing the fully merit and fully closed postgraduate extension of pay-as-you-go pension system. We can show that we can establish it fluently and gradually, in the relationship to current system of pension insurance, without risks of negative social consequences. Thanks to this extension, in first years of its existence significant economic surpluses will emerge which can be used for stabilization of social pension insurance system. Gradually and based on free decision of every individual it is then possible, by extending the system to younger age cohorts, to transform the system further towards fully closed and merit-based system of pension insurance with unified basic pension benefit.

The changes that we will focus on are financed from continuous effects, that emerge in suggested system thanks to prolonging the time of active participation and their significant part is the support of intergenerational aspect of teamwork and the innovation potential of businesses. We also mention the role of universities regarding the preparation students for exploring teamwork possibilities.

To achieve this it is necessary to have a complex of reforms in systems of social investment and social insurance. It means investment in education and health, pension and health insurance and other human capital financing schemes. The more the pension system will be equivalent and closed (self-sufficient), the more effective will be its basis function and strengthening the role of productive services that can prolong both horizon and zenith of citizens' productive employment.

1. Theoretical background and methodology

The topic of this paper is highly relevant. It is related to the National Initiative Industry 4.0 concept (Česko, 2015). To manage the technological change towards Industry 4.0 is essential for existence of every current developed economy (EESC, 2016). Industry 4.0 will place significant demands on quality of human capital and

can free up a lot of working time, which can lead either to social schism (unmanageable social segregation) and the following collapse, or to change in character of economic development and growth (Mertl & Valenčík, 2016). It depends if we can manage the socio-economic context of transformation towards Industry 4.0, i.e. if we can start the branches of productive services, which contribute to acquisition, preservation and utilization of human capital (Valenčík, 2015), mainly on the education-health axis (Mertl & Vychová, 2009).

The basic recent theoretical resource for pension systems analysis describes recent trends in this area and shows the shortcomings of previous pension system's reforms in Czechia (Vostatek, 2016). Therefore considering the pension theory and policy, a lot of knowledge is already available including the possible configuration of basic pension system's pillars. From the comparative analysis, the NDC approach emerges as the most suitable for general use.

The concept used in this paper is generally compatible with NDC approach since it excludes reliance on capital profits or other techniques that significantly increase (make explicit) the pension debt or even decrease the stability of pension system as a whole. It adds up more emphasis on motivation function of pension system for prolonging productive employment, changing the framework of solidarity more to redistribution between those who can participate on labour market longer and those who cannot. In addition, we work with a paradigm of prolonging productive employment instead of concept of early retirement and "freeing jobs for younger generation". This is compatible with the approach seen in recent literature, which focuses on the internal motivation to prolong active participation and its effects on lifetime costs from the "impatience" point of view (Cadena & Kays, 2015).

Further review of theoretical background includes the possibilities how to secure for old age (Loužek, 2014) and economy of productive services transformation (Valenčík, 2015). Demographic studies show the sceptical trends of population development and see the risk in decreasing the economically active population share (Šimková, et al., 2016).

The topic of this paper has also a significant social policy dimension (Krebs, 2015). The problem is, that the socioeconomic changes that are currently going on require adequate policy measures in time so that they are handled well. We should not solely talk about Industry 4.0; we should also talk about demographic and socioeconomic changes (Fiala & Langhamrová, 2014) that are going on and about the balance and performance of social systems. In this paper we can focus on pension one as the basic system, which provides resources for the ageing population and maintains its consumption function as the component of GDP. Given the current society's status and the functions we need from social systems, it is required to create schemes that

will systematically support the human capital adaptive processes to the new conditions, which will not happen miraculously itself.

While in the first years the effect of currently available Czech pension scheme is not that different from the postgraduate extension, the longer the person can work (voluntarily), the better the results of the proposed system are. Simultaneously, the proposed system does not force the statutory retirement age to increase (actually it prefers the fixation of statutory retirement age so that the room for voluntary/individual approach is created) and makes it possible to abandon the recent "endless" mechanism of statutory pension age increase. It lets the individual to decide when to leave/how long continue his working career and to what extent.

2. Results (mathematical model of postgraduate pension system extension's behaviour)

We present a simplified theoretical model of postgraduate pension extension based on stable price level and zero profits from contributions paid onto the system.

Symbols for basic variables:

E_{f66t} - life expectancy of women that retire after first year of participation in the system, i.e. at age 66 in year t

E_{m66t} - life expectancy of men that retire after first year of participation in the system, i.e. at age 66 in year t

E_{66t} - life expectancy of people that retire after first year of participation in the system, i.e. at age 66 in year t

B_{i65} - pension benefit of i -th person for current pay-as-you-go system (we assume it does not change)

R_{i65t} - monthly income of i -th person during first year of participation in postgraduate extension of pay-as-you-go pension system (for simplicity we assume that every month this income is the same)

p - insurance rate for old-age pension (given percentage including the payment of employer) - we assume it does not change

q - percentage of pensions' taxation

$\Delta B'_{i66t}$ - nominal monthly pension benefit of i -th person from postgraduate system after first year of participation in the system

If we use the annotation that is compatible with the formalization used in article (Šimková, et al., 2016), we get the following equations.

$$\sum_{i=1}^n Bi_{65} + (p \times Ri_{65t}) \quad (1)$$

$$(1 - q) \sum_{i=1}^n Bi_{65} + (p \times Ri_{65t}) \quad (2)$$

$$\Delta B'i_{66t} = (Bi_{65} + (p \times Ri_{65t})) : E_{66t} \quad (3)$$

$$\sum_{i=1}^n \Delta B'i_{66t} \quad (4)$$

$$\varphi = \frac{(1-q) \sum_{i=1}^n Bi_{65} + (p \times Ri_{65t})}{\sum_{i=1}^n \Delta B'i_{66t}} \quad (5)$$

$$\Delta B'i_{67t} = (Bi_{65} + \Delta Bi_{66t} + (p \times Ri_{67t})) : E_{67t} \quad (6)$$

Ad (1): Sum of all payments to postgraduate extension from all the persons that participate in this extension. That consists of insurance payment from income and from pension benefit that is put into the system.

Ad (2): Collected amount after taxation to be divided between the participants of the system (real total payoff).

Ad (3): Nominal benefit of participant after first year. I.e. a person has paid to the system 12 monthly pension benefits from pay-as-you-go system and 12 monthly insurance payments from their income, which he/she will consume monthly on average during his/her life expectancy, i.e. E_{66t} . We assume stable prices and let aside the returns (interests) from paid amount. Those corrections can be easily performed later. The interest rates of investment returns we recommend to ignore, because the effect of increasing the utility in the insurance system lies in transferring the amount from period when the utility is low to another period where the same amount brings higher utility. In times, when there is zero or low inflation, common savings get zero or very low interest. In case of higher inflation, it is necessary to make appropriate corrections.

Ad (4): Sum of nominal benefits of postgraduate extension's participants after the first year in the system.

Ad (5): The system is fully closed, therefore only money that has been collected in given month can then be (re)distributed, moreover after the taxation of pensions. Nominal benefits therefore we have to recompute with coefficient φ .

Real increment of i-th person's pension after the first year participation therefore shall be

$$\varphi \times \Delta B'i_{66t} = \Delta Bi_{66t}$$

Total monthly pension of this person will be

$$Bi_{65t} + \Delta Bi_{66t}$$

Part of the persons will start to get this pension after first year; part of them will invest them together with their insurance payment to increase their pension in the next periods. Therefore, those persons then pay into the system:

$$(Bi_{65t} + \Delta Bi_{66t}) + (p \times Ri_{65t})$$

Ad (6): The pension amount after two years. The process can then continue in additional years.

Table 1: Stimulating postgraduate extension benefits and total pensions estimation age lif.exp. accumulated amount postg.ext. benefit $d_m(n)$ old-age pension benefit (d_s)

věk	t(n)	5	10	15	20	5	10	15	20	star. d_s	5	10	15	20
65	17,63	0	0	0	0	0,0	0,0	0,0	0,0	15	15,0	15,0	15,0	15,0
66	16,91	240	300	360	420	1,2	1,5	1,8	2,1	15	16,2	16,5	16,8	17,1
67	16,19	494	618	741	865	2,5	3,2	3,8	4,5	15	17,5	18,2	18,8	19,5
68	15,47	751	938	1126	1313	4,0	5,1	6,1	7,1	15	19,0	20,1	21,1	22,1
69	14,75	1009	1261	1513	1765	5,7	7,1	8,5	10,0	15	20,7	22,1	23,5	25,0
70	14,04	1268	1585	1903	2220	7,5	9,4	11,3	13,2	15	22,5	24,4	26,3	28,2
71	13,32	1530	1913	2296	2678	9,6	12,0	14,4	16,8	15	24,6	27,0	29,4	31,8
72	12,60	1795	2244	2692	3141	11,9	14,8	17,8	20,8	15	26,9	29,8	32,8	35,8
73	11,88	2062	2578	3094	3609	14,5	18,1	21,7	25,3	15	29,5	33,1	36,7	40,3
74	11,16	2334	2917	3500	4084	17,4	21,8	26,1	30,5	15	32,4	36,8	41,1	45,5
75	10,77	2609	3261	3914	4566	20,2	25,2	30,3	35,3	15	35,2	40,2	45,3	50,3
76	10,05	2882	3603	4323	5044	23,9	29,9	35,8	41,8	15	38,9	44,9	50,8	56,8
77	9,33	3167	3958	4750	5542	28,3	35,3	42,4	49,5	15	43,3	50,3	57,4	64,5
78	8,62	3459	4324	5189	6054	33,5	41,8	50,2	58,6	15	48,5	56,8	65,2	73,6
79	7,90	3762	4702	5642	6583	39,7	49,6	59,5	69,5	15	54,7	64,6	74,5	84,5
80	7,86	4076	5095	6115	7134	43,2	54,0	64,8	75,6	15	58,2	69,0	79,8	90,6

Source: adapted from (Mertl, et al., 2016) , translated the headers of table, life expectancy ČSÚ (2017)
https://www.czso.cz/csu/czso/umrtnostni_tabulky

Table 1 is based on the following relationships.

When retiring at the statutory pension age (65) will a person get just old-age pension benefit from pay-as-you go system $d_s = 15\ 000$ CZK.

If he stays in the system the unpaid old-age pension will remain to him and he will pay additional payment into the system (in basic variant corresponding with his social old-age pension contribution) which can be set to $p_m = 5/10/15/20\ 000$ CZK per month.

Stimulating increase with retiring at age 66 we can compute as the sum of those values divided by life expectancy $t(66)$, e.g. $d_m(66) = (d_s + p_m) / t(66)$.

If he retires next year at age 67 his increase will be computed similarly but higher by the unpaid increase from previous year, e.g. $dm(n) = [ds + pm + dm(n-1)]/ t(n)$, where $n = 67, 68...$

Into presented model, those values have been entered:

- 15 000 CZK amount of pension benefit
- Life expectancy from Czech statistical office demographic data (average men-women)
- Four variants of additional payment to post graduate extension according to current rules of pension insurance (from employer and employee), in amounts of 5/10/15/20 000 CZK. Emphasized is the amount 15 000 CZK, which corresponds the most to the reality in professions where the prolonging of productive employment is expected. For example amount 5 000 CZK complies with situation of significant workload decrease after age 65-70 (depends on individual situation and decision). Of course, the additional amount can vary in time depending on the income and intensity of work time of the ageing person.
- Four applicable variants of pension benefit amounts. With red line it is shown where the pension nearly doubles in the postgraduate system.

3 Discussion and limitations

We can add these remarks to the interpretation of results:

- The pension benefit amount grow in such a way, that e.g. after age 65-70 a person can easily allow significant slowdown of his workload activities, and the system provides enough resources for advanced health care plans that can be financed from effects of prolonging his productive employment period. Thus this model does not force people to continue working, actually the opposite is true (voluntary approach with financial security).
- Slight (e.g. 3 %) taxation of pensions from postgraduate extension (which during the extending of the system towards younger cohorts could become a basis for unified basic pension benefit) does not change anything significant on big increase of pensions because of the postgraduate system extension.

Of course, it is important what will be the amount of contribution to the postgraduate extension. The basic equations work with the assumption that the pay-as-you-go pension benefit and the current contribution to social pension insurance will be the collected amount in the postgraduate pension extension, which is a

maximum variant and therefore the results are very optimistic. The model can however accommodate to nearly any amount, but the pension benefit will then change accordingly. Therefore, we can theoretically imagine also:

- a) That only (major) part of current social insurance contribution will be collected in postgraduate extension. This could also “naturally” take place since today the 28 (6,5+21,5) per cent of wage total contribution consists of old-age, disability and orphan’s pension and primarily the old-age pension contribution is significant for the post graduate extension and overall stability of social pension insurance as a whole.
- b) That the pension benefit that a person receives from pay-as-you-go system (Bi₆₅) can partially or as a whole let aside (at the disposal of the person), leaving only the money paid from social pension insurance after 65 years of age as the postgraduate extension source. Of course, then the benefits can be smaller since they will come just from the additional monthly paid contribution. Still with age and continuing productive employment, they will rise quite rapidly (middle part of the table).
- c) A person will purely voluntarily decide how much he/she will pay into the system, in addition to decision when he retires or how he will decrease gradually his/her workload during ageing. This sounds good on paper, but in reality, we should then discuss how it would affect the behaviour of labour market, wages formation, labour contracts, and position of workers in different social groups. Because here we enter the territory of social insurance contribution, their compulsory character, which is crucial, and any changes in this area, (e.g. allowing decreasing them voluntarily) has to be thoroughly analysed from the point of view of all stakeholders.

Those additional calculations are out of the scope of this paper (although the model can “handle” them) and can be elaborated in further research phases.

By introducing such scheme, we will create motivation to extend the productive participation of many people. However, at the same time, we have to analyse what possibilities emerge in modern economy for those people, since of course the opposite alternative is to keep the older people retired as soon as possible so that they free up precious jobs. This is not the approach suitable for current socioeconomic conditions, but we have to provide some more arguments that will support the active ageing approach (WHO, 2002) we have described in this paper as desirable.

The actual possibilities include the following areas that we will briefly characterize.

a) Increasing the competences in projecting of lifelong work participation

It is desirable to teach the people to have and keep awareness about his lifelong participation. To achieve this that approach has to be supported by good education, updating as necessary, and the existence of good support and advisory services that help in situation where the risk of losing ability to participate exists. In addition, that macroeconomic prognosis of labour market exists and critical situations influencing its performance and increasing the risk of structural unemployment are identified on society's level. Finally that the possibility of gradual reduction of working time especially at higher age exists.

b) Changing the role of the universities

There shall be a new "product" of universities – connecting the graduates with the alumni network. This practice improves teamwork and helps their participation using those people that have already obtained good position on labour market. In addition, it will connect the graduates to flow of information and knowledge from the branch he studied. They then shall have the most updated information (including those created primarily at the universities) that will continually upgrade their abilities. This process can further accelerate the extending of his productive employment.

c) Education to teamwork and teamwork cooperation

The biggest leaks and reserves we have in education system we probably have in preparation for teamwork. Without teamwork and cooperation, even highly capable individual can be a victim of rivalry and unfair competition. One of the causes is also weak motivation of universities for better applicability of taught knowledge and graduates on the labour market.

During solving the topics of their essays and diploma thesis, the students can much more cooperate than they do today. The topics can be partial problems that together can make solutions to large issues in practice or even theory. The problems that are solved can outcome also from the cooperation between university and businesses. If the students see the sense of solved problems, they become much more motivated to work on it.

If we support teamwork and cooperation during education process, we also recognize that the innovation potential of people can extend to high age, even the eighties. In this age, the abilities to share the experience and knowledge can culminate. Nevertheless, this wealth is often not explored and used. When we recognize this, it can help the businesses to build cooperative multigenerational teams.

d) Training of individual abilities

Human abilities significant to productive employment compatible with Industry 4.0 approach we can classify into the following categories.

- Innovative (ability to come up with innovation)
- Systemic (ability to sum up and connect things into a certain system)
- Communicative (ability to tell the others and share the knowledge and to understand the others)
- Realisation (ability to use the knowledge in practice, overcome the obstacles between theoretical and practical dimension of a problem)

Those abilities can if being developed improve with age and cooperative approach.

e) Gradual decrease of working time and workload

If we set postgraduate pension extension adequately, the people at higher age will have the possibility according to their personal situation gradually decrease their working activities. The postgraduate extension will allow it by providing financial security for this process.

This enables enough necessary relaxation, protection against distress, enough time for hobbies, but also protection of social contacts, real basis for feeling of being useful – to sum up, productive and full-value life. By “gradual decrease”, we mean that a person starts to change the ratio between the amount he contributes to the system and the amount he gets from the system. From this, he can then finance the decrease of working time and workload (the volume of his work duties in general). He can keep a small amount of work participation up to high age this way.

Conclusions

As scientific contribution of this paper, we consider that the model shows the possibility of gradual decrease of work duties and keeping financial security at the old age. There is also the possibility of an increase the number of days off work at older ages, without leading to a significant income drop. Moreover, from the additional resources that the model provides other services can be financed that can be consumed by the elderly, such as advanced health and spa services, culture and travelling, social services, better living standard in general etc.

For businesses, this will bring new possibilities to build intergenerational teams, since the people can better than today plan their working career under current demographic conditions. It can also partially help with non-standard employment issues (EESC, 2016), since older people are then more flexible (but not without social

protection). Very important is the role of social dialogue and collective bargaining, since the working conditions and the design of career paths can be prepared in advance in cooperation of social partners.

The changes that are going on are rapid and have complex nature. However, we can prepare for them and create socioeconomic schemes that will help their manageability (similarly to social insurance started to do it in 19th century). We have shown one significant way and discussed the possibilities it opens. In this sense, the aim of this paper has been achieved.

The paper has been prepared within the project "Current trends in development of financial markets", supported by the Institutional support for long-term strategic development of research organization at University of Finance and Administration in year 2017.

References

- Cadena, B., & Kays, N. (2015). Human Capital and the Lifetime Costs of Impatience. *American Economic Journal*, 7(3), 126-153.
- Česko, (2015, retrieved 2017, March 24). Národní iniciativa Průmysl 4.0. *Oficiální portál pro podnikání a export BusinessInfo*. Retrieved from <http://www.businessinfo.cz/cs/clanky/narodni-iniciativa-prumysl-40-71386.html>
- EESC, (2016, retrieved 2017, March 25). The changing nature of employment relationships and its impact on maintaining a living wage and the impact of technological developments on the social security system and labour law. *European Economic and Social Committee Web*. Retrieved from <http://www.eesc.europa.eu/?i=portal.en.soc-opinions.37881>
- Fiala, T., & Langhamrová, J. (2014). Modelování budoucího vývoje úhrnu pojistného a úhrnu vyplacených starobních důchodů v ČR. *Politická ekonomie*, (2), 232-248.
- Krebs, V. (2015). *Sociální politika*. 6th edition. Praha: Wolters Kluwer.
- Loužek, M. (2014). *Důchodová reforma*. Praha: Karolinum.
- Mertl, J., Mihola, J., Valenčík, R. & Wawrosz, R. (2016). *Postgraduální nadstavba současného systému penzijního pojištění*. Praha: Odborná komise pro důchodovou reformu, 19-31.
- Mertl, J. & Valenčík, R. (2016). The socioeconomic consequences of industrial development. *Central European Journal of Management*, 3(1), 37-45.
- Mertl, J. & Vychová, H. (2009). Vazby vzdělání a zdraví v kontextu ekonomického rozvoje. *Politická ekonomie*, (1), 58-77.

Šimková, M., Sixta, J., & Langhamrová, J. (2016). Penzijní závazky stárnoucí populace České republiky. *Politická ekonomie*, 64(5), 591-607.

Valenčík, R., et al. (2014). *Perspektivy a financování odvětví produktivních služeb*. Praha: VŠFS EUPRESS.

Valenčík, R., et al. (2015). *Čtvrtá průmyslová revoluce, nebo ekonomika produktivních služeb?*. Praha: VŠFS EUPRESS.

Vostatek, J. (2016). *Penzijní teorie a politika*. Praha: C.H.Beck.

WHO. (2002). *Active ageing: a policy framework*. Geneve: WHO.

BUSINESS INTELLIGENCE SYSTEM IMPLEMENTATION AND ITS APPLICATION IN MANAGEMENT OF MEDIUM-SIZED ENTERPRISE

Marta Nosková

University of West Bohemia
Department of Business Administration and Management
mnosk@kpm.zcu.cz

Abstract

Information technology helps enterprises to exchange loads of information, although often without the distinguishing their importance for decision-making. Business Intelligence (BI) systems are usually implemented in order to support decision-making process in enterprises. BI provides tools and techniques that are able to transform business data into useful information and knowledge. Nowadays BI is not only domain of large companies, but also domain of many small and medium-sized enterprises. This article summarizes theoretical background of BI, its relation to knowledge management, its tools; and discusses the possibilities of its use. In addition, the example of BI implementation in particular medium-sized enterprise is presented. The implementation is described by objectives of BI, monitored areas of organisational performance and future possible development. Overall, it shows how individual managerial processes in the enterprise can be supported by BI system.

Keywords

business intelligence, BI, small and medium-sized enterprises (SME)

Introduction

Nowadays, companies must deal with vast amounts of data and information. Tools that help to obtain these data, to process and to analyse them are not only recommended, but also essential. Timely and correct information is necessary for management's decision-making. Its delivery is usually the task of the information system (IS).

Traditional IS mostly produces generalized reports (Vinekar et al., 2009) and not all system modules are connected together. This problem can be solved by implementation of Business Intelligence (BI) System. BI draws data from all components of IS (and other sources) thus it is able to analyse data more effectively.

The aim of this paper is to show how BI systems support managerial processes and to prove that they can be successfully applied in the medium-sized enterprises. Thus, the paper has rather descriptive character. At first, the nature and purpose of BI is described, together with its tools and possibilities of its use. Then BI is also compared

with knowledge management. The implementation of BI system is described in the second part of the paper. It presents objectives of BI implementation, monitored areas of organisational performance and future possible development of BI. Discussion of overall BI possibilities follows at the end of the paper.

This paper uses methods such as literature review, description, comparison, synthesis, and recommendations for enterprises.

1. Business Intelligence Systems

BI systems can be defined in different ways, mainly in terms of its nature, purpose, and tools. General definition offer Olszak & Ziemba (2007, p. 138) who define BI as “an integrated set of tools, technologies and software products that are used to collect heterogenic data from dispersed sources in order to integrate and analyse data to make it commonly available.” McHenry (2016) states, that BI draws data from transaction system (data warehouse) and combines them with some functions (graphics, dashboards, etc.). Similarly, Weidong et al. (2010) stated that BI systems extract knowledge from operational data (structured, numerical), that are usually stored in a data warehouse. Surbakti (2015, p. 36) explains that “major objective of Business Intelligence is to extract the information and find the hidden knowledge from all sources of data” and that BI is “the combination of data analytical tools for gathering and effective use of organization information to improve business management” (Surbakti, 2015, p. 40). Vinekar et al. (2009, p. 147) define “BI systems as those that provide intelligence, i.e., information that is focused on identifying specific problems and opportunities”.

The example of BI application in Continental Airline is described by Watson et al. (2006). In their case, BI allows staff to know where the valuable customers are, which can help to assist them in the case of delay. The banks and their automatic evaluation of valuable customers or the transport companies with the real-time monitoring of their deliveries may serve as other examples.

2. BI Tools

As mentioned, BI consists of some tools. Mostly (depending on the budget and demands of the enterprise) it consists of data warehouses, ETL (Extract, Transfer and Load) tools, online analytical processing tools (OLAP), data mining tools, tools for reporting and a presentation layer.

A data warehouse can be defined by W. H. Inmon as “subject oriented, integrated, time variant, non-volatile collection of data in support of management's decision making process” (Inmon, 2005, p. 29). We can also say that data warehouses are those “where operational data is specifically structured for query and analysis performance

and ease-of-use” (Kimball & Ross, 2011, p. 397). Before actual uploading of the data into a data warehouse, it is necessary to extract and transform them, because usually they come from several sources (internal or external) and do not have the same structure. This can be done by ETL (Extract, Transfer and Load) applications. OLAP tools allow users to access and analyse the data in data warehouses. Also due to the huge amount of data in data warehouses, process of data mining is very useful. It is the process, when hidden patterns, correlations or regularities in data resources are discovered. Moreover, thanks to the presentation layer and the tools for reporting, BI enables to create reports and graphs or enables working with multimedia interfaces (Olszak & Ziemia, 2007, Surbakti, 2015, Gadu & El-Khameesy, 2014).

3. The Relationship of KM and BI

BI is very often compared to knowledge management (KM). Both of them deals with knowledge and help organizations in decision-making process and thus with its performance. KM is a process that consists of creating, sharing, capturing, synthesizing and reusing knowledge (Hutchinson & Quintas, 2008).

Mostly, authors see BI as a part of KM (Vinekar et al., 2009, Herschel & Jones, 2005) or as two independent concepts (Surbakti, 2015). The main difference lies in the nature of knowledge that is extracted. BI deals with the explicit knowledge, while KM deals both with the explicit and the tacit knowledge (Herschel, R. T., & Jones, 2005). Moreover, BI is able to extract hidden knowledge in the internal and the external data, KM is able to use this knowledge to enhance the organizational performance (Gadu & El-Khameesy, 2014). Seeing BI as a part of KM seems logical: the goal of BI is to convert data into information and into knowledge and present them, but tools to learn, use and share the knowledge are provided by KM. Thus “When BI and KM are combined together, they increase the efficiency and productivity of the concerned organization” (Gadu & El-Khameesy, 2014, p. 106).

4. BI Possibilities

When company decides to implement BI, the difficult task of choosing the right one lies ahead. It is possible to purchase complete BI solution from one company or the best products (tools) in a given category (ETL tools, OLAP tools, reporting tools etc.) from various providers (Olszak & Ziemia, 2007). Many vendors offer whole BI solutions, for example, the biggest are Oracle, IBM, Microsoft or SAP.

At this point, organization should also consider the purpose of BI systems. Mostly BI systems are used for making analysis in areas such as: finances, marketing, production, logistic, human resources or relationships with suppliers. In terms of financial analysis, BI allows organisation to analyse its financial statements by

quantifying values of financial performance indicators for whole organisation, its divisions, and its individual products and compare them with historical or planned values. Marketing analysis are used to analyse profitability of individual customers or products, or to evaluate marketing campaign (e.g. meeting sales targets). Analysis of production can provide information about the number of products that has been produced (historically) or about those that are currently stored, it also enables its users to find out who produced them, how long it took, what activities were done, which material was consumed etc. Logistic analysis deals with a delivery of products/services in terms of its quantity, time, costs or problems, for example it is possible to compare the real times of delivery with the planned times. Human resources analysis can provide useful information about employees' fluctuation, days of leave, wages, personal data etc. Analysis of relationship with suppliers can help to evaluate individual suppliers or a performance of purchasing department. This information implies that BI can be used for managing the tangible assets as well as the intellectual capital, which also helps to increase entrepreneurial performance (Procházková & Jelinková, 2014).

5. BI Application in a Medium-sized Enterprise

5.1. Introduction of the Medium-sized Enterprise and Goals of BI Implementation

The enterprise that implemented BI has more than fifty years of history. The legal form of the enterprise is a cooperative and the main area of its business is manufacturing of small mechanics for automotive. The company employs ca. two hundred employees in its three branches in the Czech Republic. Customers are mainly automotive companies, both small and bigger enterprises, which are located in the Czech Republic, the EU and other countries.

The enterprise has very well defined main, support and managerial processes according to quality management system ISO / TS 16949. Also, primary data collection is performed at a high level. The problem was seen in the evaluation of the data, because the enterprise could not satisfactorily assess the performance and efficiency of its processes (analysis were usually made manually, by few responsible workers using MS Excel).

Thus, the main goal of the BI implementation was to select key performance indicators for performance evaluation of individual processes, propose content of outputs (reports), test them and evaluate their ability to evaluate and improve the processes in the enterprise. The targeted result of implementation was the creation of certain amount of reports covering some areas of enterprise performance that would be automatically sent to the responsible staff, containing the actual data. In addition,

in order to be able to create ad-hoc analysis, access was granted for few workers. All these activities aimed to improve the main, supporting and managerial processes in the enterprise.

The management of the cooperative decided to implement IBM Cognos BI. All the data that their IS gathered during the years, were divided into four data cubes: Controlling, Sales, Store, and Payroll and Human Resources. In addition, the data regarding the production were drawn directly from data warehouse. The implementation of BI is still in process, but main areas and key indicators had already been defined and main reports were created.

Controlling contains all accounting items, thus all the items that can be used for compilation of balance sheet, profit and loss statement and consequent financial analysis. It is possible to quantify the states and growth of individual items. Sales data cube allows analysing sales in terms of individual products, groups of products and customers. The value of sales can be quantified using CZK, units of measure, the gross margin and the cost of the products. Using the Store data cube, analysis of data regarding individual products can be made, but in this case from the perspective of their movement in the store. It is possible to monitor the receipt and the release of the products as well as to monitor their current value (quantified by the stock prices and units of measure). In addition, it is possible to distinguish the movements inside the cooperative and outside the cooperative. Data cube Payroll and Human Resources contains information relating to individual employees: gender, age, employment status, education, profession, health status and salary. It also allows analysing increases and decreases in a number of employees. In addition, all data in these cubes can be sorted by economic centres or by time. The data related to production can provide information about individual contracts, its products, their planned states and real states (in terms of quantity, of the paid wages, of the value of the materials), its pricing, delivery dates, etc.

5.2. The Monitored Areas of Enterprise Performance

After implementing the BI system, the indicators for each area of enterprise performance had to be selected and the reports monitoring these indicators had to be created. Reports had to be created in such a way that BI system generates them automatically and sends them via email to the responsible staff. Selection of the areas that should be monitored was done by taking into account the possibilities offered by BI system (data cubes) and the requirements of the management of the cooperative (BI should monitor the performance of the managerial, main and supporting processes that the company has defined according to ISO/TS 16949). Eventually it was decided that the following areas would be regularly monitored and evaluated: financial situation, sales, purchases, production and employees.

In the area of finances, several indicators are monitored: the most of them are in absolute terms and some of them are in relative terms. Regarding income, revenues of own production divided into categories by its origin (from the Czech Republic, the EU and other countries) are monitored. Material consumption costs, labour costs and social security costs are also monitored. Other monitored indicators in the area of finance are: Profit, Creditors Payment Period, Average Collection Period, Trade Gap and basic financial analysis indicators (Return on Sales, Cost Efficiency, Total Debt, Coefficient of Self-financing, and Liquidity). All these indicators are monitored monthly and those whose annual values are planned in the business plan are as well compared with their monthly-calculated planned values.

Sales value of stock (sorted by type and by customers) is monitored in the area of sales. Also sales values of individual types of products are planned annually, so the real values are also compared with the monthly-planned values. Timeless of individual orders (comparison of the planned and the actual dates of delivery) is also monitored.

In the area of purchasing, the indicators related to the purchase of material are monitored, i.e. its current value and amount of purchases, turnover and turnover time and fulfilment of minimum reserves (the planned vs. the actual). In the area of production, the indicators related to semi-finished products and products are monitored, i.e. their status, turnover, turnover time, fulfilment of the minimum value, the value of stocks without a movement on the stock. In terms of the employees, their physical movement, recalculated status, days of leave and wage costs are monitored.

The number of monitored areas or indicators is definitely not final and, if necessary, it is very easy to create new indicators or reports. The enterprise is currently testing BI functionality and accuracy of the generated reports. In the future, the enterprise management plan to evaluate the managers of the individual sections based on the successful fulfilment of the individual indicators. In addition, the management of the enterprise will have available all the important reports, thus they will be able to make decisions based on the current and accurate information.

Discussion and Conclusions

Use of BI software today is not only the domain of financial institutions, large manufacturing companies or telecommunication companies. Currently, small and medium-sized enterprises need as well enough various information for their management to endure in a world competition. Timely and accurate information is the basis for successful management of the enterprise, regardless of its size.

BI system represents great help. SME can gain insight on the sales of its products, their amount, or on the planned amount, on its employees, on the material that is needed to buy, or on the material that is out of stock, on the main economic indicators, on the smallest details of production and many other things. Out of many of these data, a historical analysis may be made or the comparison of the current data with the planned data can be done. Data can be monitored for individual business units or for the whole enterprise. All data can be displayed in different ways (their increase, state, different measurement units, etc.).

This information can obviously be obtained otherwise, but usually for the cost of several employees' time who will seek them out. Moreover, due to the processing time, this information would be already outdated, when provided. On the other hand, BI software delivers it instantly and without major operations.

To conclude, BI system is invaluable aid in the decision-making process of medium (and small) sized enterprises. BI ensures timely delivery of necessary data and information to enterprise's management, who uses it in its decisions. Article aimed to prove these facts. It has been demonstrated not only by performing scientific assessment of the issue, but also by showing the example from practice.

Acknowledgement

This work was supported by the research project SGS-2017-013, Faculty of Economics, University of West Bohemia.

References

Gadu, M., & El-Khameesy, N. (2014). A knowledge management framework using business intelligence solutions. *International Journal of Computer Science Issues*, 11(5), 102-107.

Herschel, R. T., & Jones, N. E. (2005). Knowledge management and business intelligence: The importance of integration. *Journal of Knowledge Management*, 9(4), 45-55.

Hutchinson, V., & Quintas, P. (2008). Do SMEs do Knowledge Management? Or Simply Manage what they Know? *International Small Business Journal*. 26(2), 131-154. doi:10.1177/0266242607086571.

Inmon, W. H. (2005). *Building the data warehouse* (4th ed.). Indianapolis: Wiley Publishing, Inc. ISBN 978-0-7645-9944-6.

Kimball, R., & Ross, M. (2011). *The data warehouse toolkit: complete guide to dimensional modelling* (2nd ed.). New York: John Wiley & Sons.

- McHenry, W. (2016). Linking decision artifacts: A means for integrating business intelligence and knowledge management. *Electronic Journal of Knowledge Management*, 14(2), 91–102.
- Olszak, C. M., & Ziemba, E. (2007). Approach to building and implementing business intelligence systems. *Interdisciplinary Journal of Information, Knowledge, and Management*, 2, 135–148.
- Procházková, P. T. & Jelínková, E. (2014). The Importance of Intellectual Capital in Entrepreneurial Companies. In: *6th European Conference on Intellectual Capital (ECIC)*. Bratislava. 249–254.
- Surbakti, H. (2015). Integrating knowledge management and business intelligence processes for empowering government business organizations. *International Journal of Computer Applications*, 114(5), 36–43. doi:10.5120/19976-1874
- Vinekar, V., Teng, J. T. C., & Chennamaneni, A. (2009). The interaction of business intelligence and knowledge management in organizational decision-making. *Journal of International Technology and Information Management*, 18(2), 143–159.
- Watson, H. J., Wixom, B. H., Hoffer, J. A., Anderson-Lehman, R., & Reynolds, A. M. (2006). Real-time business intelligence: Best practices at continental airlines. *Information Systems Management*, 23(1), 7–18. doi:10.1201/1078.10580530/45769.23.1.20061201/91768.2
- Weidong, Z., Weihui, D., & Kunlong, Y. (2010). The relationship of business intelligence and knowledge management. In: *2nd IEEE International Conference on Information Management and Engineering*, Chengdu, 26–29. doi:10.1109/ICIME.2010.5477464

TECHNOLOGY TRANSFER INDUSTRY UNIVERSITY COOPERATION - EVIDENCE IN PRACTICE

Pavla Odehnalová

Department of Business Economics and Management
Faculty of economics and Administration
Masaryk University
odehnalova@mail.muni.cz

Abstract

Successful technology transfer requires very good cooperation between firm practice and researchers. Presented paper is dedicated to the transfer of technology and interdisciplinary cooperation between industry and university. Mentioned example of small firm that have successfully been financed from the SME Instrument Horizon 2020 displays the main opportunities which can interdisciplinary cooperation offer to the involved parties. These are the using of electronic information resources and databases that leads to increasing quality of delivered handouts. The main problem of the technology transfer such as high price of processed plans and low quality of information generated by the private companies are mentioned.

Keywords

technology transfer, interdisciplinary cooperation, opportunities, SME

Introduction

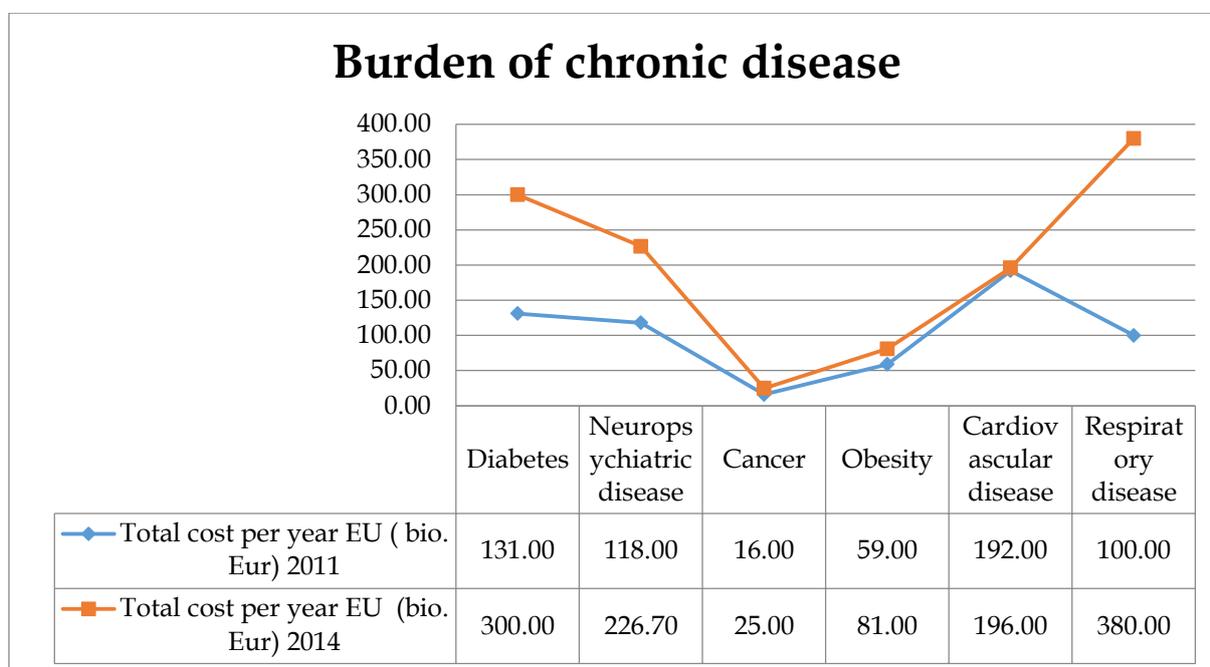
According the Czech Academy for Science more than 50 thousands of scientists in the research and development area try to get their inventions into the practice. Czech statistical office recognizes first indication that something is changing in the year 2005 when the universities became more interested in the patent application. It was caused mainly by the fact that the evaluating and public financing of research and development financing has changed. In the year 2012 Universities own more than 400 patents that presents 18 %6 of all applicants from the Czech Republic. According the Czech Academy for Science unfortunately only 10% of patented inventions are put into the practice. Main problem is to find out the investor who will finance the commercialization of the invention. This problem escalates mainly in the Czech Republic where the multinational corporations' primary use the foreign research

⁶ Source: <https://www.czso.cz/csu/czso/870031727c>

centres. This is the reason why the universities establish the spin-off firms, which have big task to put the invention made by the research centre of the university into the practice and to ensure the commercialization of the product.

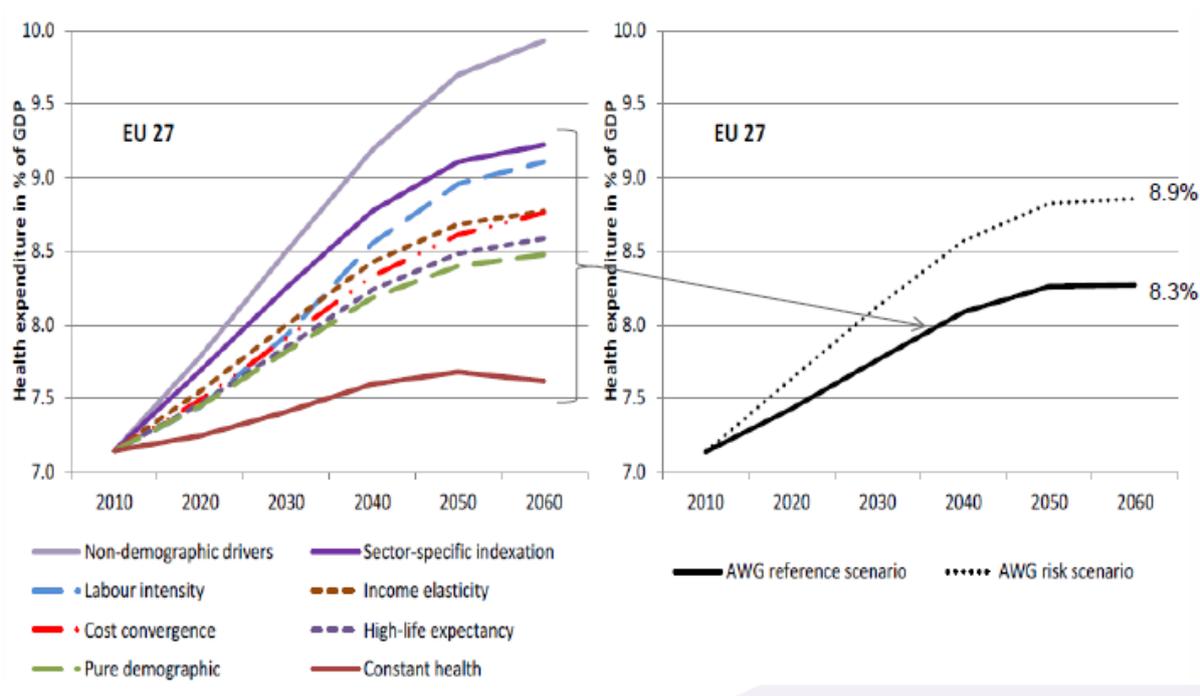
In the year 2005 research group of faculty of science published the article concerning the protein stabilization (Bednář, et al. 2015). Stability of protein is the main limitation of its usage in the protein engineering so the suggested process of stabilization is good platform for the development of protein products which will be attractive for the business partners and end users. This was proved by the stabilization of FGF2 protein. In the year 2016 the research group from faculty of science demanded patent application for the Stable FGF with the prolonged lifetime. Another protein from the FGF family which will be stabilized in the next year is the FGF21, which is dedicated to the diabetes and obesity treatment (Kharitonov, Adams, 2014, Beenken, 2009, Teven, 2014). The obesity and diabetes is solved on the European level within the Health 2020 conception. Diabetes and obesity are the main originator of chronic disease within the population and have the fundamental negative impact on European economics and profitability. The treatment potential of stable fibroblast growth factor in the diabetes and obesity therapy was proved by the lot of academic papers and expert studies (Kharitonov, Adams, 2014, Beenken, 2009, Teven, 2014). The following chart describes the actual situation.

Chart 1: Burden of chronic disease - cost expenditure estimation.



Source: HEAL. (2014). *cardiachealth.ca 2014, EU Health policy forum, 2012, European Lung white book.*

Chart 2: The forecast development of health expenditure in % of GDP in EU



Source: European Commission, *The 2012 Ageing Report Economic and Budgetary Projection EU27 (2010-2066)*

The main problem is the way places the innovative stable proteins to the market of end users. This process is quite expensive and takes a long time, caused by the lack of business experiences in the new spin-off firms. Advisory companies focused on providing the feasibility studies and business plan proposals offer these services very expensively, what is unavailable for the small spin off firms. Gorschek et al. (2006) displays that the financial unavailability of placing the innovative products on markets is caused by the market dynamics and related demands on involvement of more expert resources at once. These resources can be not only in the research and development area but also in the area of the marketing, human resources, accounting, controlling and so on which the spin off firm. For the small spin - off firm it is quite challenging to engage and control all these internal factors but also the external factors such as end users, customers, competitors. The picture of all of these can be formed by the market analysis and stakeholder analysis. (Lehmann, Winer, 2002). To be successful transfer of technologies from the development of product to placing the product on markets demands the involvement of experts from different areas and risk of overloading in the evaluation and realization process was minimalized. (Weber, Weisbrod, 2003).

1. Theoretical background

The increasing influence of universities as the originator of innovations is more noticeable within the globalization environment. (Siegel kol., 2003). Nevertheless we

speak not only about the innovation of products but also about the innovation of processes. According to Audrestche et al., 2012 and Necochea-Monragón et al., 2013 the cooperation of private sector and universities within transfer of technology is key factor of successful placing the product on markets. The universities have the access to supporting tools, such as electronic information and databases, which are too expensive for the advisory firms. All these expenditures on the access to electronic databases are transferred to the final price of the business proposal and feasibility studies. The researchers on universities have an advantage that they have regular onsite presence in the field of interest and they can effectively mutually share the knowledges that leads to more effective usage of gained information. This is what the private firms cannot afford due to the lack of time and finances (Basili et al. 2002).

Gorschek et al. (2006) says that successful transfer of technology is determined by the very close cooperation between expert from the academic and practice area.

1.1. Funding possibilities

To commerce invented products firms very often take advantage to finance the process of commercialization from the funds, such SME Instrument Horizon 2020. In the year 2016 76 mil of Euro was invested on SME's support. (European Commission, 2016). Despite the fact that the funding from the SME Instrument is very popular between SMEs, the success rate is very low. According to Malo (2014) the success rate is between 6 to 10 in both phases. Within the first phase is evaluated, proof of concept, assess the technical feasibility and commercial potential of the project Malo (2014).

In the second phase, funding is available for projects which already have a perfect business plan. The activities funded at this stage are preparing the project for market and can range from prototyping to design, and from performance verification to the development of pilot lines. (Malo, 2014)

Low success rate is caused mainly by the insufficient quality of delivered demands, which very often fail in practice application. The excellent business plan is condition sine qua non for the success demand for the Phase 2.

2. Methodology

Based on above information we can formulate the research question: RQ: What are the main contribution of interdisciplinary cooperation within technology transfer between academic area and practice?

Research question will be answered by the example of good practice. The cooperation between small firm established as the spin-off firm of faculty of science and academic area is presented.

Both observed subjects fulfil the condition presented in theoretical background, that is small firm demanding the funding from SME Instrument Horizon 2020 and cooperating academic department, which serves like advisory facility in very specific research area.

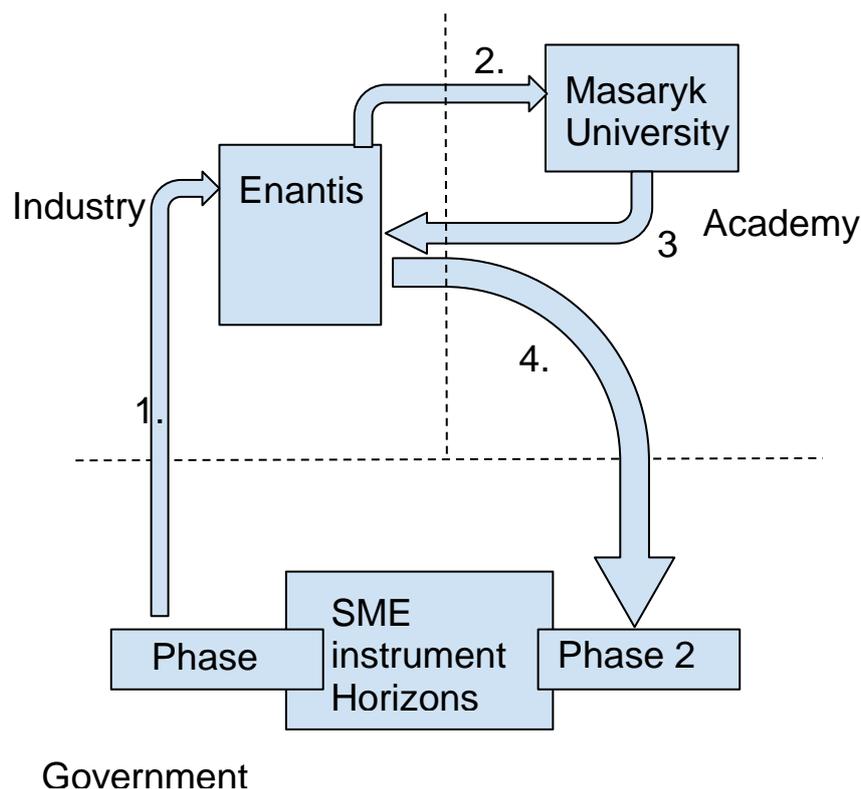
5. Results – evidence from practice

As many other SME, the small firm specializing in protein engineering from Brno called Enantis demanded the funding from the SME Instrument. The firm was established as the spin – off firm of faculty of science. First prototypes of stable fibroblast growth factors have the origin precisely in Enantis. In the year 2013 Enantis demands the funding support from Phase 1 for the further research and development of FGF. Success demand gained 50 thousand of Euros for preparing the proposal and plans for the Phase 2.

In this time the company faced to the decision how should they invest gained money in most effective way to be successful even in the Phase 2 of SME Instrument Horizon 2020. According to CEO of the Enantis, they had very negative experiences with the quality of proposals and plans made by private advisory companies.

Whatever the expenditures on the all demanded backgrounds highly exceeded the gained amount of money from SME Instrument. CEO of the company decided to call for cooperation within the university, concretely the expert on faculty of economic and administration, department of business economic. The cooperation was held in the years 2014 and 2015, focused on the creation of feasibility study that should find the most effective way how to place the innovative products on relevant markets and to identify all the possible markets for usage. Within the cooperation a lot of interested information was observed that determined the final feasibility study. This information was get through the electronic databases Global Data Pharmaceutical, Global Data Medical Devices, and others electronic information of Masaryk University in the business, management and economics area. Besides the data mining from the databases it was also necessary to visit and consult personally the relevant partners and find out all the necessary contacts on stakeholders on identified markets. These were the producers of substitutes and complements, research laboratories and centres. Based on very close and intensive cooperation we could identify all the opportunities and threatens on relevant markets, which allows us to avoid the risk and prevent the danger from bad manner of commercialization.

Scheme 1: Following picture displays the conceptual model of technology transfer within the cooperation between university and practice



Source: own processing

The result of intensive interdisciplinary cooperation between spin - off firm and faculty of economic and administration was sophisticated business plan, which was used as one of the delivered background for funding from SME Instrument Horizon 2020 Phase2.

The success of interdisciplinary cooperation can be proved by the fact that the European Commission accepts the demand without any other recommendation and the project was funded in 100% rate in the first round of choice.

Conclusion

According the CEO of Enantis the main contribution of interdisciplinary cooperation in transfer of knowledge is the fundamental reducing of costs on making the feasibility study and the high quality of offered services which was gathered by the usage of electronic sources offered by the university and also by the personal involvement of the researchers participated on the feasibility study. Very close and intensive cooperation allowed to make business plan in good quality based on objective information with all the opportunities and threatens which exist on the identified markets which could enhance or decrease the commercialization of innovative products. Presented example confirms the theoretical approaches mentioned within the paper. Nevertheless it is not possible to generalize this case. Main limitation of interdisciplinary cooperation in transfer of knowledge can be the

time and personal severity which is caused by the lack of knowledge of specific environment, the need of further education and very intensive cooperation between involved subjects.

References

Audretsch, D. B., Lehmann, E. E., & Wright, M. (2014). Technology transfer in a global economy. *The Journal of Technology Transfer*, 39(3), 301-312.

Basili, V. R., McGarry, F. E., Pajerski, R., & Zelkowitz, M. V. (2002). Lessons learned from 25 years of process improvement: the rise and fall of the NASA software engineering laboratory. In *Proceedings of the 24th International Conference on Software Engineering*. ACM. 69-79.

European Commission. (2012). The 2012 Ageing Report Economic and Budgetary Projection EU27 (2010-2066).

European Commission. (2016, retrieved 2017, May 2). SME Instrument invests € 73 million in 50 innovative SMEs under Phase 2. Retrieved from: <https://ec.europa.eu/easme/en/news/sme-instrument-invests-73-million-50-innovative-smes-under-phase-2>

Gorschek, T., Garre, P., Larsson, S., & Wohlin, C. (2006). A model for technology transfer in practice. *IEEE software*, 23(6), 88-95.

HEAL (2014, retrieved 2014, April). ca European Lung white book. Retrived from: cardiachealth.org.

Lehmann, D. R., & Winer, R. S. (1997). *Product management*. Chicago, IL: Irwin.

Malo, J.D. (2015, retrieved 2017, May 12). SME instrument is popular but 90 per cent of projects do not make the grade. Retrieved from: <http://sciencebusiness.net/news/76981/SME-instrument-is-popular-but-90-per-cent-of-projects-do-not-make-the-grade>

Necoechea-Mondragón, H., Pineda-Domínguez, D., & Soto-Flores, R. (2013). A conceptual model of technology transfer for public universities in Mexico. *Journal of technology management & innovation*, 8(4), 24-35.

Siegel, D. S., Waldman, D., & Link, A. (2003). Assessing the impact of organizational practices on the relative productivity of university technology transfer offices: an exploratory study. *Research policy*, 32(1), 27-48.

Vysoké školy už také „objevily“ patenty (2013, retrieved 2017). Retrived from: <https://www.czso.cz/csu/czso/870031727c>

Weber, M., & Weisbrod, J. (2002). Requirements engineering in automotive development-experiences and challenges. In *Requirements Engineering, 2002. Proceedings. IEEE Joint International Conference on*. IEEE. 331-340.

GENDER AND PERSONALITY TRAITS' (BFI-10) EFFECT ON TRUST

Cecília Olexová, František Sudzina

University of Economics in Bratislava
Faculty for Business Economics
Department of Management
Tajovského 13, 041 30 Košice, Slovakia
cecilia.olexova@euke.sk

Aalborg University
Faculty of Social Sciences
Department of Business and Management
2450 København SV, Denmark
sudzina@business.aau.dk

Abstract

The concept of trust found its way from sociological and psychological research to business and economic research. Societal trust was measured using a dichotomous question. Later research used the two statements as separate items because answers to them are not truly opposite. The aim of this paper is to investigate if gender and personality traits influence rating of these two statements. Big Five Inventory-10 is used to measure personality traits. The research was conducted in Slovakia using a paper-based questionnaire. This paper is a replication of two previous studies conducted in Denmark. The research aims to contribute to the replication efforts initiated because of the co-called replication crisis. With regards to the results, agreeableness significantly and positively influenced the first measure of trust; extraversion and openness to experience significantly and negatively influenced the second measure of trust - mistrust. The latter differs from previous findings, so conducting of the replication was justified.

Keywords

trust, personality traits, gender, empirical research, quantitative methods

Introduction

Trust is arguably one of the most heavily studied constructs across all social and economic sciences (e.g., psychology, economics, political science, sociology, law) and beyond (Mooradian *et al.*, 2006; Schlenker *et al.*, 1973; Thielmann and Hilbig, 2015). In the age of uncertainty, the concept of trust gains its importance also in business. It has an impact on behaviour when it comes to barter exchanges (Ostroy and Starr, 1990), off-line (Calvo Porral and Levy-Mangin, 2016) and on-line purchases (Delina and Drab, 2010). It influences organization behaviour as well, e.g. the relationship

between a superior and subordinated (Krasman, 2014), the relationships among people (Both and Best, 2017) or knowledge-sharing (Mooradian *et al.*, 2006; Peralta and Saldanha, 2014). The results of the examination of the relation between personality traits and the propensity to trust friends and strangers (Freitag and Bauer, 2016) can be used to determine the trust to colleagues, business partners and customers.

Personality traits from the Big Five Model include five factors as the basic dimensions of individual differences: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience (Costa and McCrae, 1992). These five factors are supposed to be independent, i.e. uncorrelated between each other. Thielmann and Hilbig (2015) emphasise two factors, neuroticism and agreeableness that should be primarily responsible for individual differences in trust behaviour and they stress that future research is needed to critically test the proposed associations between trust behaviour and neuroticism as well as agreeableness. According to Mooradian *et al.* (2006) there is no research on agreeableness as high-level domain of personality in connection to interpersonal trust or knowledge sharing behaviour.

The most standard question to measure trust is "Generally speaking, do you believe that most people can be trusted, or can't you be too careful in dealing with people?" which was used by Rosenberg (1956) for the first time in the United States. Almond and Verba (1963) used it for the first time on a larger scales in 1960. The study was conducted in five countries. Then, this question had been included in many surveys performed by American National Election Studies. The order, in which questions are asked, influences answers to the standard question (Smith, 1997). Respondents tend to opt for the positive answer with a high probability when the standard question is located after several pro-social questions involving e.g. working on community projects or volunteering. As the importance of the order of questions was confirmed from the aspect of influencing the answers, it is needed to find a more suitable place for the standard question where it is not influenced by previous questions. Alternatively, it is possible to use an on-line questionnaire tool and randomize order of the questions.

A more serious problem is that, according to Miller and Mitamura (2003) and Wuthnow (1998), two parts of the standard question, i.e. "most people can be trusted" and "you can't be too careful in dealing with people" are not true opposites but rather two separate questions. When Wuthnow (1998) asked the two questions separately, about one half to two thirds of respondents gave inconsistent answers.

Therefore, the two parts of the standard question are used as two questions in the research presented in this paper. The aim of the research is to investigate if gender and personality traits influence answers to two questions. The investigation does not

involve only neuroticism and agreeableness identified by Thielmann and Hilbig (2015) but all Big Five Inventory personality traits; so it is possible to identify impact of other personality traits in case it is not personality trait identified by Thielmann and Hilbig (2015) but different ones are significant.

This study is a replication of previous studies conducted in Denmark (Sudzina, 2016a; Sudzina, 2016b). Agreeableness significantly influenced the first measure in both of these previous studies. In one study, agreeableness influenced also the second measure, while impact of neuroticism on the first measure was significant at the .1 level. In the other study, impact of neuroticism on the second measure was significant at the .1 level.

Begley and Ellis (2012) discovered that only six of selected 53 high-profile papers could be reproduced in the field of cancer biology. In the field of psychology, Open Science Collaboration (2012) project replicated 100 investigations of which 39 matched the original results and another 24 were at least “moderately similar” to findings of the original experiments. Therefore, replications are necessary in order to figure out whether findings hold under any conditions.

The paper is organised in the following way: after the introduction, there is a description of data, their collection, and how they were analysed. In the following section, results of the analysis are presented. Conclusions are offered in the last section.

1. Data and methodology

Data were collected in February 2017. Respondents were students of the University of Economics in Bratislava, Slovakia. In total, 136 students (of whom 44 were male and 92 female) answered all relevant questions. Moreover, there was one respondent who did not provide information on gender but filled in all other answers. This additional, 137th respondent will be used in streamlined models, which do not contain gender.

Students were asked to fill the paper-based questionnaires with the motivation to examine their personality traits at the seminars aimed at the topic of personality. All the students showed an interest to find out their results and agreed to use their questionnaires for the research.

The data were collected using a broader questionnaire dealing with personality traits.

Trust was measured by two statements:

- most people can be trusted,
- you can't be too careful in dealing with people.

For convenience, the former will be addressed in the paper as *trust* and the latter as *mistrust* (both in italics). Respondents answered the question "To what extent do you agree with the following statements?" using a 1-5 Likert scale (1 means strongly disagree and 5 stands for strongly agree).

Personality traits were measured using the Big Five Inventory-10, i.e. a 10-item version of the questionnaire for the Big Five Inventory, developed by Rammstedt and John (2007). The instruction was to rate "How well do the following statements describe your personality" with statements "I see myself as someone who..."

... is reserved,

... is generally trusting,

... tends to be lazy,

... is relaxed, handles stress well,

... has few artistic interests,

... is outgoing, sociable,

... tends to find fault with others,

... does a thorough job,

... gets nervous easily,

... has an active imagination

on a 1-5 Likert scale (1 means strongly disagree and 5 means strongly agree). *Extraversion* was calculated as an average of the 1st (reversed-scored) and the 6th answer, *agreeableness* as an average of the 2nd and the 7th (reversed-scored) answer, *conscientiousness* as an average of the 3rd (reversed-scored) and the 8th answer, *neuroticism* as an average of the 4th (reversed-scored) and the 9th answer, and *openness to experience* as an average of the 5th (reversed-scored) and the 10th answer. Cronbach alphas for personality traits will not be reported since the Big Five Inventory-10 (Rammstedt and John, 2007) was not constructed with this statistics in mind.

The Slovak translation of the questions was used following the Slovak translation of BFI-2 items by Halama and Kohút (John and Soto, 2015), as it was published on official web site of the authors of BFI-2.

The questionnaire contained additional questions which were not used in the analysis presented in this paper.

General linear model was used to analyse impact of *gender* and five personality traits (*extraversion, agreeableness, conscientiousness, neuroticism, openness to experience*) on trust. Parameter estimates are provided in tables in order to communicate the direction of relationships. A multivariate approach was used. The method is equivalent with linear regression. The assumption of linear regression is normal distribution of standardized residuals. (No interval estimates of dependent variables are provided, therefore, normal distribution of dependent variables is of no concern.) In order for a reader to be able to evaluate this assumption, histograms of standardized residuals will be provided. Even in case data do not ideally follow normal distribution, parameter estimates are consistent and asymptotically normal. Since normality is of a higher concern when there are fewer independent variables, in order to save space, histograms of standardized residuals will be provided only for streamlined model. In order to better grasp the explanatory power of the models, R^2 , R^2_{adj} , and effect sizes will be provided in following section. Pearson product-moment correlation coefficient was used to measure correlation. SPSS software was used for the analysis.

2. Results

Descriptive statistics of relevant data obtained from the questionnaire is provided in Table 1.

Table 1: Descriptive statistics

Variable	Mean	Standard deviation	Skewness	Kurtosis
Extraversion	3.4635	.75155	-.124	-.421
Agreeableness	3.3540	.77213	-.277	-.038
Conscientiousness	3.4964	.86069	-.331	-.399
Neuroticism	2.9015	.93116	.050	-.504
Openness to experience	3.4818	.88577	-.186	-.262
<i>Trust</i>	2.4380	.85630	.659	.263
<i>Mistrust</i>	3.9416	.85549	-.960	1.339

Source: own processing

Correlations between the variables from Table 1 are provide in Table 2.

Table 2: Correlation matrix

Variable		1	2	3	4	5	6	7
Extraversion	1	1	.261	.077	-.176	.037	.151	-.255
Agreeableness	2	.261	1	.150	-.048	.030	.309	-.180
Conscientiousness	3	.077	.150	1	-.151	.038	.062	.035
Neuroticism	4	-.176	-.048	-.151	1	-.078	-.061	.007

Openness to experience	5	.037	.030	.038	-.078	1	.078	-.176
<i>Trust</i>	6	.151	.309	.062	-.061	.078	1	-.367
<i>Mistrust</i>	7	-.255	-.180	.035	.007	-.176	-.367	1

Source: own processing

The correlation coefficient between *trust* and *mistrust* in the sample at hand is $-.367$ (p -value $< .001$). In (Sudzina, 2016a), the correlation coefficient was $-.339$ (p -value $< .001$), and in (Sudzina, 2016b), it was $-.226$ (p -value = $.003$). It confirms what Miller and Mitamura (2003), and Wuthnow (1998) discovered, i.e. that two statements in the standard question for measuring trust are not opposite. If they were opposite, the correlation coefficient would be (close to) -1 .

Parameter estimates of general linear model explaining *trust* are provided in Table 3. With regards to the explanatory power, $R^2 = .114$, $R^2_{adj} = .073$, p -value = $.014$. It is between $R^2 = .066$, $R^2_{adj} = .032$, p -value = $.078$ (Sudzina, 2016b) and $R^2 = .157$, $R^2_{adj} = .138$, p -value $< .001$ (Sudzina, 2016a).

Table 3: Parameter estimates of impact of gender and personality traits on *trust*

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
Intercept	.904	.644	1.404	.163	.015
Extraversion	.101	.100	1.012	.313	.008
Agreeableness	.301	.097	3.118	.002	.070
Conscientiousness	-.016	.087	-.183	.855	.000
Neuroticism	-.047	.083	-.558	.578	.002
Openness to experience	.069	.081	.856	.394	.006
Gender	.187	.166	1.124	.263	.010

Source: own processing

The impact of agreeableness is the only significant at the $.05$ level. It is consistent with (Sudzina, 2016a; Sudzina, 2016b). The remaining independent variables are not significant even at the $.1$ level.

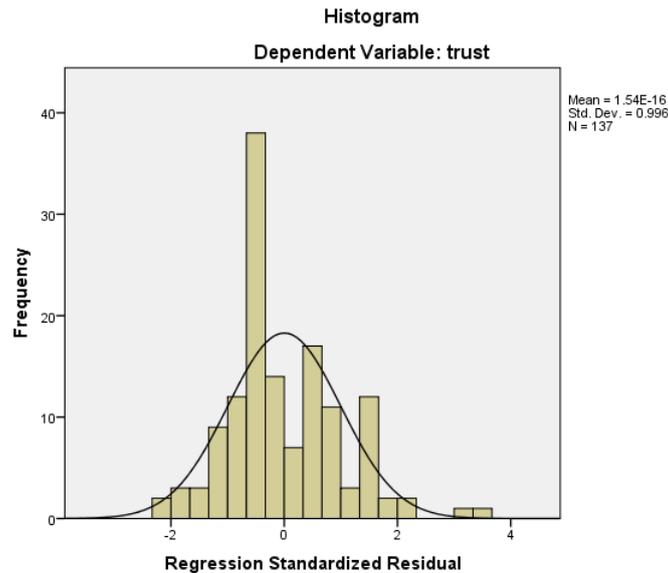
Parameter estimates for the best streamlined model are provided in Table 4 (distribution of partial residuals is provided in Figure 1; their skewness is $.687$, and their kurtosis is $.678$). With regards to the explanatory power, $R^2 = .095$, $R^2_{adj} = .089$, p -value $< .001$. It is between $R^2 = .045$, $R^2_{adj} = .039$, p -value = $.005$ (Sudzina, 2016b) and $R^2 = .133$, $R^2_{adj} = .130$, p -value $< .001$ (Sudzina, 2016a).

Table 4: Parameter estimates of impact of agreeableness on *trust*

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
Intercept	1.290	.312	4.128	.000	.112
Agreeableness	.342	.091	3.771	.000	.095

Source: own processing

Figure 1: Distribution of partial residuals for *trust*



Source: own processing

Parameter estimates of general linear model explaining *mistrust* are provided in Table 5. With regards to the explanatory power, $R^2 = .123$, $R^2_{adj} = .082$, p -value = .009. It is between $R^2 = .047$, $R^2_{adj} = .012$, p -value = .234 (Sudzina, 2016b) and $R^2 = .075$, $R^2_{adj} = .055$, p -value = .001 (Sudzina, 2016a).

Table 5: Parameter estimates of impact of gender and personality traits on *mistrust*

Parameter	B	Std. Error	T	Sig.	Partial Eta Squared
Intercept	5.752	.638	9.016	.000	.387
Extraversion	-.263	.099	-2.665	.009	.052
Agreeableness	-.152	.096	-1.585	.115	.019
Conscientiousness	.099	.087	1.148	.253	.010
Neuroticism	-.016	.083	-.198	.843	.000
Openness to experience	-.162	.080	-2.035	.044	.031
Gender	-.176	.165	-1.065	.289	.009

Source: own processing

In (Sudzina, 2016a), the impact of agreeableness was significant at the .05 level, and the impact of neuroticism was significant at the .1 level (p -value = .098). There were no significant variables even at the .1 level in (Sudzina, 2016b), neuroticism had a p -value = 0.107. So, extraversion and openness to experience being significant is an unexpected finding. On the other hand, Pattinson *et al.* (2012), who discovered that (from Big Five Inventory personality traits) higher extraversion and higher openness to experience led to better dealing with phishing e-mails, stated that the findings are interesting because they appear to be counter-intuitive since both of these personality traits should lead people to be more trusting of others (they do not provide any citation for this relationship) which would mean treating some phishing e-mails as genuine. It can be questioned whether they really meant more trustful or less mistrustful; but it shows that the relationship between trust or mistrust on one hand and extraversion and openness to experience on the other hand was intuitively expected at least by Pattinson *et al.* (2012).

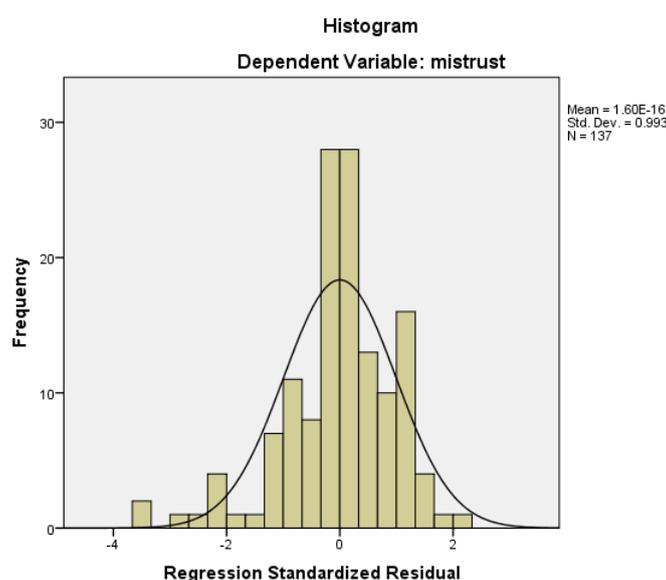
Parameter estimates for a streamlined model are provided in Table 6 (distribution of partial residuals is provided in Figure 2; their skewness is 1.040, and their kurtosis is 2.077). With regards to the explanatory power, $R^2 = .092$, $R^2_{adj} = .078$, p -value = .002.

Table 6: Parameter estimates of impact of extraversion and openness to experience on *mistrust*

Parameter	B	Std. Error	T	Sig.	Partial Eta Squared
Intercept	5.467	.423	12.937	.000	.555
Extraversion	-.281	.094	-2.996	.003	.063
Openness to experience	-.158	.080	-1.990	.049	.029

Source: own processing

Figure 2: Distribution of partial residuals for *mistrust*



Source: own processing

Trust and *mistrust* are influenced by disjunctive personality traits (agreeableness has a significant impact on *trust*, extraversion and openness to experience have a significant impact on *mistrust*) although they were once assumed to be “two sides of the same coin” based upon their definitions. Finally, taking into consideration the low correlation between them, the result is not so surprising.

Conclusions

The impact of gender and personality traits on trust, namely on two measures of trust stemming from the standard trust question used for the last 60 years, was examined in the research presented in the paper. Two measures of trust (*trust* and *mistrust*), though correlated, are not fully opposite to each other, as it was confirmed also here (the correlation coefficient estimated from data at hand is -.367, not -1).

Trust is significantly influenced by agreeableness, and the relationship is positive. *Mistrust* is significantly influenced by extraversion and openness to experience, and the relationships were negative, i.e. extravert and people open to experience are less mistrustful (though it may sound as a double negation, it is not possible to rephrase it as more trustful). Remaining personality traits and gender were not found to be significant.

With regards to findings of Thielmann and Hilbig (2015), results of this research provide evidence for the relationship between trust and agreeableness, but not for the relationship between trust and neuroticism. The anxiety facet of neuroticism should be investigated in relation to trust, thus BFI-2, i. e. 60-item version of the questionnaire for the Big Five Inventory (Soto and John, 2016) should be used in future research (facet scales).

The other limits are connected to using the sample of students from one university, therefore, the research should be extended to a larger sample of students. On the other hand, the findings demonstrate that there is a completely different set of factors influencing *mistrust* in at least one sample, so it may possibly be different for certain groups of respondents. The research of impacts of personality on trust in the terms of other work factors is needed to understand the relationships in broader context and to show the practical implications, mostly the decision on job positions, career planning, team work, and knowledge sharing.

References

- Almond, G. & Verba, S. (1963). *The Civic Culture*. Princeton: Princeton University Press.
- Begley, C. G. & Ellis, L. M. (2012). Drug development: Raise standards for preclinical cancer research. *Nature*, 483, 531-533.
- Both, L.E. & Best, L.A. (2017). A comparison of two attachment measures in relation to personality factors and facets. *Personality and Individual Differences*, 112, 1-5.
- Calvo Porral, C. & Levy-Mangin, J. P. (2016). Food private label brands: the role of consumer trust on loyalty and purchase intention. *British Food Journal*, 118(3), 679-696.
- Costa, P. T. & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Delina, R. & Drab, R. (2010). Socio-Economic Aspects of Trust Building for the Electronic Business Platforms. *E&M Ekonomie a Management*, 13(4), 110-122.

Freitag, M. & Bauer, P. C. (2016). Personality traits and the propensity to trust friends and strangers. *The Social Science Journal*. (Article in Press)

John, O. P. & Soto, Ch. J. (2015). BFI-2 Slovak self-report form and scoring key. <<http://www.colby.edu/psych/wp-content/uploads/sites/50/2013/08/bfi2-form-slovak.pdf>>

Krasman, J. (2014). Do my staff trust me? The influence of organizational structure on subordinate perceptions of supervisor trustworthiness. *Leadership & Organization Development Journal*, 35(5), 470-488.

Miller, A. & Mitamura, T. (2003). Are Surveys on Trust Untrustworthy? *Social Psychology Quarterly*, 66(1), 62-70.

Mooradian, T., Renzl, B. & Matzler, K. (2006). Who trusts? Personality, trust and knowledge sharing. *Management Learning*, 37(4), 523-540.

Nunnally, J. C. (1978). *Psychometric theory*. New York, NY: McGraw-Hill.

Open Science Collaboration, (2012). An open, large-scale, collaborative effort to estimate the reproducibility of psychological science. *Perspectives on Psychological Science*, 7(6), 657-660.

Ostroy, J. M. & Starr, R. (1990). The Transaction Role of Money. In Friedman, B., Hahn, F. H. (eds.) *Handbook of Monetary Economics*. Amsterdam: North-Holland, 1, 3-62.

Peralta, C. F. & Saldanha, M. F. (2014). Knowledge-centered culture and knowledge sharing: the moderator role of trust propensity. *Journal of Knowledge Management*, 18(3), 538-550.

Pattinson, M., Jerram, C., Parsons, K., McCormac, A. & Butavicius, M. (2012). Why do some people manage phishing e-mails better than others? *Information Management & Computer Security*, 20(1), 18-28.

Rammstedt, B. & John, O. P. (2007). Measuring Personality in One Minute or Less: A 10-Item Short Version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.

Rosenberg, M. (1956). Misanthropy and Political Ideology. *American Sociological Review*, 21(6), 690-695.

Schlenker, B. R., Helm, B. & Tedeschi, J. T. (1973). The effects of personality and situational variables on behavioral trust. *Journal of Personality and Social Psychology*, 25(3), 419-427.

- Smith, T. W. (1997). Factors Relating to Misanthropy in Contemporary American Society. *Social Science Research*, 26(2), 170-196.
- Soto, C. J. & John, O. P. (2016). The Next Big Five Inventory (BFI-2): Developing and Assessing a Hierarchical Model With 15 Facets to Enhance Bandwidth, Fidelity, and Predictive Power. *Journal of Personality and Social Psychology*. (Accepted)
- Sudzina, F. (2016a). Do gender and personality traits (BFI-10) influence trust? In: *Proceedings of the International Scientific Conference of Business Economics Management and Marketing (ISCOBEMM) 2016*. Brno: Masaryk University, 31-37.
- Sudzina, F. (2016b). Do gender and personality traits (BFI-10) influence trust? A replication. *Central European Journal of Management*, 3(1), 47-53.
- Thielmann, I. & Hilbig, B. E. (2015). Trust: An Integrative Review From a Person-Situation Perspective. *Review of General Psychology*, 19(3), 249-277.
- Wuthnow, R. (1998). *Loose Connections: Joining Together in America's Fragmented Communities*. Cambridge: Harvard University Press.

IMPACT OF GENDER AND PERSONALITY TRAITS ON PREFERRED PRICING OF PUBLIC TRANSPORT IN RUSH HOURS

Antonín Pavlíček, František Sudzina

University of Economics in Prague
Faculty of Informatics and Statistics, Department of System Analysis
W. Churchill Sq. 1938/4, 130 67 Prague, Czech Republic
antonin.pavlicek@vse.cz

Aalborg University
Faculty of Social Sciences, Department of Business and Management
A. C. Meyers Vænge 15, 2450 København, Denmark
sudzina@business.aau.dk

Abstract

Price is an inherent part of marketing mix. It is used for multiple reasons, from skimming consumer's surplus to antimarketing. In public transport, higher prices are often used in rush hours. The logic is to give an incentive to customers to travel outside rush hours, thus more evenly distribute the load. But it is possible to argue that prices should be lower in rush hours because means of public transportation tend to be full, i.e. there is a lower comfort of travelling, possibly even taking longer to travel the same distance. It is also possible to argue that the prices should be the same all the time because the distance of travel stays the same. The paper analyzes if gender and personality traits influence for which pricing a person would decide. The logic for the three ways of pricing were not provided in the questionnaire. Big Five Inventory-10 was used to measure personality traits. Moreover, narcissism, and trust were included. The research was conducted in the Czech Republic using an on-line questionnaire.

Keywords

personality traits, public transport, pricing

Introduction

There is a variety of approaches to pricing in the public transport segment. The view of pricing may vary according to the respondent's political opinion, socio-economic status or other factors. In this paper, we focus on the personality traits and the perception of what is fair and what is not right. However, the definition of fairness itself can depend on a whole range of other categories - from empathy, motivation to money-spending habits. The impact of Big Five on the above mentioned aspects has already been explored. Song and Shi (2017) has found association between that personality traits and empathy - they revealed that Big Five personality traits were

important predictors of self-reported measures of both cognitive and affective empathy. Zeigler-Hill and Hobbs (2017) have focused on the darker aspects of motivation: examined the pathological personality traits and the fundamental social motives. Basic personality traits (e.g., agreeableness) have been found to be associated with various social motives (self-protection, disease avoidance, status seeking,...).

The team led by Shapiro (2016) examined the role of perceptions of fairness, familiarity, and intentions in ticket purchase decisions. Their results suggest, that ticket pricing (in professional sports) is transitioning from a cost-based to demand-based approach. Consumer perceptions of fairness regarding demand-based ticket pricing could influence purchase decisions. Perceptions of unfair pricing practices can lead to dissatisfaction and negatively affect purchase behavior. However, familiarity with demand-based pricing strategies could mitigate perceptions that real-time price fluctuations are unfair to the consumer. Perceptions of fairness and purchase intentions differ in specific transaction conditions, such as source of the ticket, reference price, and familiarity. Similar results have been reported by Drea and Nahlik (2016) in dynamic pricing by Major league baseball tickets.

Economic point of view takes into account demand elasticity. Tsai and Mulley (2014) identified both short- and long-run public transport demand elasticities by applying a pseudo panel approach to analyze public transport demand and estimated short-run and long-run demand elasticities in Sydney. Their model incorporated different drivers of demand determinants, including public transport price, the socio-economics of travelers, land use characteristics, and the level of public transport service. Another paper - (de Grange et al., 2013) - which also takes into account price elasticity was "Aggregate estimation of the price elasticity of demand for public transport in integrated fare systems"; according to them, price elasticities of demand for public transport are a key determinant in evaluating the impact of changes in fares on user flows, yet these indicators are often hampered by two realities: the fare changes for different modes are implemented simultaneously and their magnitudes are highly correlated.

Fair ticket pricing in public transport can be also viewed as a constrained cost allocation game, since ticket pricing in public transport usually takes a welfare maximization point of view. Such approach, however, does not consider fairness in the sense that users of a shared infrastructure should pay for the costs that they generate. Borndörfer and Hoang (2015) propose an ansatz to determine fair ticket prices that combines concepts from cooperative game theory and linear and integer programming. The fairness of prices can be improved substantially, when the ticket

pricing problem is considered to be a generalization of cost allocation games that allows to deal with constraints on output prices and on the formation of coalitions.

Next to market elements, transport policy is a major factor for determining prices for transport services – as pointed out in (Puwein, 2009). It is the government which controls investments in infrastructure, subsidizes transport services, approves tariffs, regulates competition, and increases the cost of transport services by levying taxes and public charges. Long-term price trends are shaped by developments in transport technology. The tariffs for public passenger transport services, which are formed primarily on the basis of transport policy considerations, showed little response to the cost increases experienced in the private transport sector.

The question of fair fares have been studied since 1970's. Cervero (1981) have noticed, that virtually every U.S. bus system charged its customers flat fares even though passengers were traveling farther and proportionally more during peak hours, factors which have contributed toward transit's cost spiral. As deficits soared and available funding tightened, academics started to question existing pricing rationales and assessed the efficiency and equity impacts of fare structures. Short-distance, off-peak patrons were found to heavily cross-subsidize long-haul commuters. They have suggested, that fares differentiated by distance and time-of-day, in contrast, could improve the transit industry's fiscal posture while eliminating differences in payment rates.

Several decades of research on transit pricing have provided clear insights into how riders respond to price changes. According to (Cervero, 1990), it turns out that, for the most part, riders are insensitive to changes in either fare levels, structures, or forms of payments. Since riders are approximately twice as sensitive to changes in travel time as they are to changes in fares, a compelling argument can be made for operating more premium quality transit services at higher prices. Also, cross-elasticity research suggests that higher automobile prices would have a significantly greater effect on ridership than lower fares. Most research on transit fare structures shows that the common practice of flat fares is highly inequitable, penalizing short-distance and off-peak users.

In accordance with above mentioned theories, public transportation authorities across the world are recently implementing various peak and off-peak pricing strategies to manage travel demand and improve the overall system performance. Lovric et al., (2016) have used an activity-based demand framework to evaluate two off-peak pricing strategies from Singapore: a free prepeak travel on mass rapid transit (MRT) and an off-peak discount for an integrated transit (public buses and MRT). The results indicate that off-peak discount pricing strategies are a viable policy option for spreading demand peaks and that they are more effective during

the afternoon peak period. Similar results have been observed by (Lan et al., 2010), when analyzing temporally differential fares in Taipei Metro system – when introduction of temporally differential fares prompted a portion of peak-hour Metro riders to shift to off-peak periods. Kilani et al. (2014) observed similar results in Europe (Paris) as well.

So, as literature research have shown, the topic of rush hour and off-peak pricing strategies is quite well covered and understood. However, there is a gap in literature when it comes to the link between the perception of the fairness of such policies and personality traits and gender – which is the core of our research.

The rest of the paper is organized in the following way: In the next section, there is a description what data were collected and how, and how they were analyzed. In the following section, results of the analysis are presented. The last section offers conclusions.

1. Data and methodology

Data were collected in the December 2016-January 2017 using an on-line questionnaire. Respondents were 264 university students from the Czech Republic on average 20 years old, of which 117 were male and 147 female. SurveyXact was used for the questionnaire. The questionnaire was split into two pages, independent variables were on the first page, and the dependent variable was measured with a questions on the second page. Seven respondents stopped after the first page and one respondent provided random high numbers as answers for multiple open-ended questions - this row was excluded from the analysis. So, the effective sample size is 256.

Additional variables, such as income of the respondents, and income of parents of respondents, were considered. But they were not, eventually, used as they tend to be considered sensitive. Moreover, even if the numbers were available, it would be problematic to create an index that would merge incomes for students who live with their parents, who live in a dormitory, and who live alone or with a partner or with friends in a rented apartment. Last but not least, income of a student may fluctuate a lot depending on available jobs and amount of time one can devote to working as opposed e.g. to studying.

It can be assumed that virtually all our respondents use public transport when travelling to their respective universities. This can be inferred from an observation of virtually no bicycles parked in from universities, rarely any taxis stopping there, and from a fact that in front of universities where data were collected, there are limited parking possibilities, mostly meant to used by teachers; so majority of students who

own cars or whose parents own cars, do not use cars because of practical reasons. Moreover, there are no dormitories in a walking distance.

Personality traits were measured using Rammstedt and John's (2007) Big Five Inventory-10, i.e. a 10-item version of the Big Five Inventory questionnaire developed by John and Srivastava (1999), and translated to Czech by Hřebíčková et al. (2016). The instruction was to rate "How well do the following statements describe your personality" with statements "I see myself as someone who..."

... is reserved,

... is generally trusting,

... tends to be lazy,

... is relaxed, handles stress well,

... has few artistic interests,

... is outgoing, sociable,

... tends to find fault with others,

... does a thorough job,

... gets nervous easily,

... has an active imagination

on a 1-5 Likert scale where 1 meant strongly disagree and 5 stood for strongly agree. Extraversion was calculated as an average of the 1st (reversed-scored) and the 6th answer, agreeableness as an average of the 2nd and the 7th (reversed-scored) answer, conscientiousness as an average of the 3rd (reversed-scored) and the 8th answer, neuroticism as an average of the 4th (reversed-scored) and the 9th answer, and openness to experience as an average of the 5th (reversed-scored) and the 10th answer.

Narcissism was measured right after Big Five Inventory-10 using the same instruction, with the statement

- ... is of narcissistic nature (note: narcissistic means egotistical, self-focused, vain)

The statement was adapted from The Single Item Narcissism Scale (SINS) developed and validated by Konrath, Meier & Bushman (2014). They recommend SINS for online studies.

Trust was measured using the following two statements preceded by question "To what extent do you agree with the following statements?":

- most people can be trusted,
- you can't be too careful in dealing with people

on a 1-5 Likert scale where 1 meant strongly disagrees and 5 stood for strongly agree. For convenience, the former will be addressed in the paper as trust and the latter as mistrust (both in italics). The statements were adopted from (Rosenberg, 1956); originally, these statements were used as two possible answers for a dichotomous question about trust but Miller and Mitamura (2003) and Wuthnow (1998) realized that the statements are not true opposites but rather two separate questions.

The dependent variable was measured using the question "What is your relation towards discounts?" followed by these three possible answers:

- travel fares during rush hours should be lower,
- travel fares during rush hours and outside rush hours should be the same,
- travel fares during rush hours should be higher.

The distribution of answers was 77, 150, and 29. The distribution of this variable will be tested for normality using Shapiro-Wilks test. In case of normal distribution, linear regression will be used; otherwise, logistic regression will be used. A multivariate approach will be used in any case. SPSS software will be used for the analysis.

2. Results

First, normality of distribution of preferred pricing of public transport in rush hours. Statistic of Shapiro-Wilk's test is .770, p-value < .001, so it is possible to reject a hypothesis that the distribution is normal. Therefore, non-parametric testing needs to be used.

Since there is no theory on whether the same variables, just with a different sign, influence people to prefer decreased or increased pricing of public transport in rush hours, ordinal and multinomial logistic regression models will be compared.

The research question is if extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, narcissism, *trust*, *mistrust*, and gender influence type of preferred pricing of public transport in rush hours (lower (1), the same (2), or higher(3)).

Parameter estimates for ordinal logistic regression model are provided in Table 1. Cox&Snell pseudo-R² is .063, Nagelkerke pseudo-R² is .075, McFadden pseudo-R² is .035, and p-value is .056.

Table 1: Ordinal logistic regression model

	Estimate	Std. Error	Wald	Df	Sig.
[pricing = 1]	.848	1.426	.354	1	.552
[pricing = 2]	3.904	1.450	7.254	1	.007
Extraversion	-.124	.139	.791	1	.374
Agreeableness	.186	.172	1.177	1	.278
Conscientiousness	.123	.157	.607	1	.436
Neuroticism	.116	.132	.777	1	.378
Openness to experience	-.138	.145	.902	1	.342
Narcissism	.276	.131	4.418	1	.036
<i>Trust</i>	.062	.136	.207	1	.649
<i>Mistrust</i>	.035	.139	.065	1	.799
Gender=male	.736	.292	6.364	1	.012

Source: own processing

It is unclear why the threshold between unchanged prices (coded as 2) and higher prices (coded as 3) is significant in the model, while there are no correctly predicted responses for higher (coded as 3) prices, as it can be seen in Table 2. (Predicted category was calculated by SPSS, so it cannot be attributed to rounding or other errors in Excel or alike.)

Table 2: Classification table for ordinal logistic regression model

Observed\Predicted		1	2	3	Percent Correct
Lower	1	5	72	0	6.5%
The same	2	9	141	0	94.0%
Higher	3	0	29	0	0.0%
Overall Percentage		5.5%	94.5%	0.0%	57.0%

Source: own processing

Parameter estimates for multinomial logistic regression model are provided in Table 3. Regarding the dependent variable, reference category was set to 2 because the same price of travel fares during rush hours and outside rush hours is kind of implicit, moreover, the majority of respondents chose it as preferred pricing. Cox&Snell pseudo-R² is .111, Nagelkerke pseudo-R² is .132, McFadden pseudo-R² is .064, and p-value is .037. Considering these values, the multinomial logistic regression model is better than the ordinal logistic regression model.

Table 3: Multinomial logistic regression model

	Estimate	Std. Error	Wald	df	Sig.
Lower price during rush hours					
Intercept	-.460	1.633	.079	1	.778
Extraversion	.164	.163	1.013	1	.314
Agreeableness	-.354	.201	3.108	1	.078
Conscientiousness	.030	.181	.028	1	.868
Neuroticism	-.117	.151	.601	1	.438
Openness to experience	.310	.171	3.282	1	.070
Narcissism	-.326	.156	4.377	1	.036
Trust	.162	.159	1.030	1	.310
Mistrust	-.006	.160	.001	1	.970
Gender=male	-.253	.337	.563	1	.453
Higher price during rush hours					
Intercept	-6.135	2.588	5.618	1	.018
Extraversion	-.033	.238	.019	1	.891
Agreeableness	-.258	.300	.740	1	.390
Conscientiousness	.449	.274	2.694	1	.101
Neuroticism	.089	.233	.144	1	.704
Openness to experience	.224	.239	.883	1	.347
Narcissism	.089	.226	.155	1	.694
Trust	.490	.229	4.588	1	.032
Mistrust	.134	.245	.299	1	.584
Gender=male	1.399	.514	7.410	1	.006

Source: own processing

It is people with lower agreeableness, higher openness to experience, and lower narcissism that prefer lower prices of public transport in rush hours. It is people higher in conscientiousness, higher in trust, and men who prefer higher prices of public transport in rush hours. There is not even one independent variable that would predict both preferences (just with an opposite sign). Classification table for multinomial regression model is provided in Table 4.

Table 4: Classification table for multinomial logistic regression model

Observed\Predicted		1	2	3	Percent Correct
Lower	1	7	70	0	9.1%
The same	2	8	141	1	94.0%
Higher	3	4	24	1	3.4%
Overall Percentage		7.4%	91.8%	0.8%	58.2%

Source: own processing

Although multinomial logistic regression model correctly predicted the same percentage of respondents preferring the same price of travel fares all the time, it was better in predicted the remaining two categories. The prediction of respondents preferring lower prices during rush hours increased from 6.5% to 9.1%, and the prediction of respondents preferring higher prices during rush hours increased from 0.0% to 3.4%.

Conclusions

The aim of the paper was to investigate impact of personality traits (Big Five Inventory, narcissism, trust, and mistrust) and gender on preferred pricing of public transport in rush hours. Ordinal logistic regression and multinomial logistic regression models were tested. The multinomial logistic regression model was better in predicting preferred pricing policy of public transport. In other words, it means that it is different independent variables influencing people in one direction than independent variables influencing people in other direction - in a similar way as a lot of money do not motivate people but lack of money demotivates them.

Respondents were university students. It may be assumed that most of them travel by public transport, so there are aware of the concept. It may be also assumed that most of them use a monthly card, so they are not directly influenced by different pricing in rush hours.

With regards to the results, respondents lower in agreeableness, higher in openness to experience, and lower in narcissism prefer lower prices of public transport in rush hours. While respondents higher in conscientiousness, higher in trust, and men prefer higher prices of public transport in rush hours. The implication for policy makers, managers in public transport companies, and marketers in consulting companies may be to appeal to conscientiousness (and trust) of public when explaining introduction of higher prices in rush hours.

Some of the commented traits had a borderline significance but it can be due to usage of Big Five Inventory-10. In the future research, a full version of Big Five Inventory should be used, preferably Big Five Inventory-2 (Soto and John, 2017) which includes 12 statements for each trait, i.e. 6 times more than was used in this research. Our interpretation is that a borderline significance can mean that preference of public transport pricing policy depends only on a certain aspect of a personality trait. When more questions are used for each trait, it should be possible to find a subset of statements that have significant, not only borderline-significant, impact. To counteract the increased number of statements, it may be advisable to cover only agreeableness, conscientiousness, and openness to experience with 12 statement each, and to exclude extraversion, and neuroticism. Personality traits measured only

with one statement, such as narcissism, and trust, were significant, so they do not necessarily need to be measured by more statements in future research.

Acknowledgment

Paper was processed with contribution of long term support of scientific work on Faculty of Informatics and Statistics, University of Economics, Prague.

References

- Borndörfer, R. & Hoang, N.-D. (2015). Fair ticket pricing in public transport as a constrained cost allocation game. *Annals of Operations Research*, 226(1), 51-68.
- Cervero, R. (1981). Flat versus differentiated transit pricing: What's a fair fare? *Transportation*, 10(3), 211-232.
- Cervero, R. (1990). Transit Pricing Research - a Review and Synthesis. *Transportation*, 17(2), 117-139.
- De Grange, L., González, F., Muñoz, J. C. & Troncoso, R. (2013). Aggregate estimation of the price elasticity of demand for public transport in integrated fare systems: The case of Transantiago. *Transport Policy*, 29, 178-185.
- Drea, J. T. & Nahlik, A. (2016). Dynamic Pricing in Major League Baseball Tickets: Issues and Challenges. *Atlantic Marketing Journal*, 5(3), 59-70.
- Fearnley, N. (2003, retrieved 2017, April 26). Kreativ prising av kollektivtransport. Retrieved from: <https://trid.trb.org/view.aspx?id=696609>
- Hřebíčková, M., Jelínek, M., Blatný, M., Brom, C., Burešová, I., Graf, S., Mejzlíková, T., Vazsonyi, A. T. & Zábrodská, K. (2016). Big Five Inventory: Základní psychometrické charakteristiky české verze BFI-44 a BFI-10. *Československá Psychologie*, 60(6), 567-583.
- John, O. P. & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In Pervin, L. A. & John, O. P. (Eds.), *Handbook of personality: Theory and research*, New York, NY: Guilford Press, 102-138.
- Kilani, M., Proost, S. & van der Loo, S. (2014). Road Pricing and Public Transport Pricing Reform in Paris: Complements or Substitutes? *Economics of Transportation*, 3(2), 175-187.
- Konrath, S., Meier, B. P. & Bushman, B. J. (2014). Development and Validation of the Single Item Narcissism Scale (SINS). *Plos One*, 9(8).

- Lan, L.W., Lee, H.-Y. & Wen, C.-H. (2010). Effects of Temporally Differential Fares on Taipei Metro Riders' Mode and Time-of-Day Choices. *International Journal of Transport Economics*, 37(1), 97-118.
- Lovric, M., Raveau, S., Adnan, M., Pereira, F. C., Basak, K., Loganathan, H. & Ben-Akiva, M. (2016). Evaluating Off-Peak Pricing Strategies in Public Transportation with an Activity-Based Approach. *Transportation Research Record*, 2544, 10-19.
- Marbach, J., Lages, C. R. & Nunan, D. (2016). Who are you and what do you value? Investigating the role of personality traits and customer-perceived value in online customer engagement. *Journal of Marketing Management*, 32(5-6), 502-525.
- Miller, A. & Mitamura, T. (2003). Are Surveys on Trust Untrustworthy? *Social Psychology Quarterly*, 66(1), 62-70.
- Puwein, W. (2009). Preisbildung im Verkehr. (Pricing in the Transport Sector). *Wirtschaftspolitische Blätter*, 56(1), 85-100.
- Rammstedt, B. & John, O. P., 2007. Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.
- Rosenberg, M. (1956). Misanthropy and Political Ideology. *American Sociological Review*, 21(6), 690-695.
- Shapiro, S. L., Dwyer, B. & Drayer, J. (2016). Examining the Role of Price Fairness in Sport Consumer Ticket Purchase Decisions. *Sport Marketing Quarterly*, 25(4), 227-240.
- Song, Y. & Shi, M. (2017). Associations between empathy and big five personality traits among Chinese undergraduate medical students, *Plos One*, 12(2).
- Soto, C. J. & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113(1), 117-143.
- Tsai, C.-H. & Mulley, C. (2014). Identifying Short-Run and Long-Run Public Transport Demand Elasticities in Sydney: A Pseudo Panel Approach. *Journal of Transport Economics and Policy*, 48(2), 241-259.
- Wuthnow, R. (1998). *Loose Connections: Joining Together in America's Fragmented Communities*. Cambridge: Harvard University Press.
- Zeigler-Hill, V. & Hobbs, K. A. (2017). The Darker Aspects of Motivation: Pathological Personality Traits and the Fundamental Social Motives. *Journal of Social & Clinical Psychology*, 36(2), 87-107.

THE EFFECT OF CZECH CONSUMERS' SOCIODEMOGRAPHIC CHARACTERISTICS ON FAIRTRADE GOODS BUYING

Linda Plaváková, Ondřej Částek

Department of Business Economics and Management
Faculty of Economics and Administration
Masaryk University
castek@econ.muni.cz

Abstract

Ethical consumerism is a growing field. It attracts increasingly more attention not only from the supply and demand sides, but also from researchers. Numerous surveys are trying to describe consumers' behavior, many studies are trying to identify and analyze what contributes to the higher ethical consumption. Yet, we can claim that in the case of the Czech Republic, though ethical consumerism is not really a terra incognita here, the evidence is still not comprehensive. This paper therefore aims to fill a gap in the understanding of Czech Fairtrade goods consumers. Namely, the sociodemographic characteristics and their effect on Fairtrade goods consumption will be examined. The results show that women tend to buy Fairtrade goods more often. University educated and younger consumers more often decide to buy Fairtrade goods, but once they decide so, the effect on the frequency of their purchases is not very clear. It is also possible that the effect of age is only spurious.

Keywords

fair trade, sociodemographic characteristics, buying behavior, empirical research, Czech Republic

Introduction

The Encyclopedia Britannica defines ethical shopping as a form of political activism that is based on the assumption that shoppers consume not only goods on the market, but implicitly also the processes used in their production (Kirchhoff, 2013). Consumers can make a choice between individual products and producers, while having the choice between buying and deciding not to buy any good. This choice gives them the opportunity to support or reject certain practices associated with the impact of producing goods on the environment and working conditions. This support or rejection takes place on the basis of ethical and moral values of shoppers.

Ethical consumers are becoming an incentive for producers to adapt their manufacturing process to their values. Harrison et al. (2005) describe the emergence of a new significant wave of consumer organizations in the 1970s. This trend was accelerated in the 1980s, and in 1995, the concept of "alternative consumers" was

created. The number of consumers who are described as green, ethical, sympathetic with the Third World and fair trade has increased.

Ethical shopping can be perceived as a very broad concept, which includes the spectrum of activities ranging from ethical investment, Fairtrade product purchasing, consumers' boycott of products, to environmental policies applied to purchases of raw materials in companies.

When identifying and marking a consumer as ethical, it is necessary to take into account the motives that lead them to the purchase of a particular product; an example is organic food. Surveys show that most people buy them because of concerns regarding their health. By buying organic food they want to avoid the consumption of pesticides and other chemicals. Hence, they buy them for their own benefit. On the other hand, there is a group of consumers who buy organic products because they care about the impact of conventional agriculture and the use of pesticides on the planet and the environment, and they do not want to support it. This latter group of consumers is the one that makes ethical purchases (Harrison et al., 2005).

In the Czech Republic, Fairtrade products began to be sold in 1994. They are sold through specialized Fairtrade-oriented shops (similar to the British so-called Worldshops), but their sale is already part of regular retail networks (Tesco, DM drugstore, Marks & Spencer, Globus, Starbucks) (Kuldová 2010, p. 49).

According to data from the Association for Fair Trade, the turnover of Fairtrade products was CZK 203 million in the Czech Republic in 2014. In 2005 this turnover was only CZK 3 million; therefore, it is a considerable increase. According to a survey conducted in 2014 (Institute for Evaluation and Social Analyses (INESAN), a sample of 1327 inhabitants of the Czech Republic), 52% of people in the Czech Republic met the concept of fair trade, an increase of 13 percentage points over 2011. Awareness of fair trade among local inhabitants is rapidly increasing; 26% of respondents know the Fairtrade brand itself (Bačová, 2014). Consumers of Fairtrade products and ethical shopping are the subject of more research abroad and in the Czech Republic. However, the findings of Czech Fairtrade consumers are limited to market research and a small number of surveys on ethical purchasing determinants (e.g., Ambrožová and Částek, 2013, and Macák et al., 2014).

1. Literature review

A 2010 survey conducted by the Company for Fair Trade in cooperation with the Ipsos Tambor CR agency showed that there is an increasing interest among Czechs in the conditions under which the products of everyday use were manufactured (Kouřil, 2010). The survey focused on the area of responsible consumption and, in

particular, the knowledge, perception and purchase of Fairtrade products. According to the research, 5% of the surveyed respondents buy Fairtrade products.

Respondents who had the highest knowledge of the Fairtrade brand had most often the following characteristics: university education (38%), residents of Prague or other cities with more than 100,000 inhabitants (25%), respondents under 25 years of age (23%), members of families with income exceeding CZK 30,000 (22%), and respondents who buy BIO products (21%) (Kouřil, 2010).

A survey of consumers of Fairtrade products in Brno was conducted by Ambrožová and Částek on a sample of 120 respondents who shop in 3 different Fairtrade shops in Brno. The survey was supposed to verify/refute, among others, these hypotheses (Ambrožová and Částek, 2013): *“The interest of customers to buy Fairtrade products will be influenced by the level of their education.”* and *“The interest of customers to buy Fairtrade products will be influenced by their age.”*

The research focused on buyers of fair trade food, which are the most widely sold Fairtrade-certified product category in our country (Green Marketing, 2009). . Both the first and the second hypotheses were verified. Therefore, Ambrožová and Částek (2013) came to the conclusion that younger people with a higher education, regardless of their financial income, buy Fairtrade products more often.

Further research on this topic was conducted in the Czech Republic by, for example, Tomáš Macák et al. (2014), who agreed with Kouřil (2010) in his conclusions about the higher frequency of Fairtrade products shopping by the consumers of BIO products. Hejkrlík et al. (2013) then focused on exploring the perception of the price surcharge on Fairtrade products by their consumers.

2. Research question and hypotheses

Based on the theory and the existing research, and taking into account the rapid development of the examined issue, we have come to the conclusion that the question of what factors have the greatest impact on ethical buying behavior is still imperfectly answered in the Czech context. That is why we have set the following goal: *to fill a gap in the understanding of Czech Fairtrade goods consumers, specifically, to examine their sociodemographic characteristics and their effect on Fairtrade goods consumption.* For this goal we state the following research question: *What are the determinants of Fairtrade shopping among consumers in the Czech Republic?*

The answer to this question will help to better understand what makes the Czech consumer buy Fairtrade-certified ethical products. Understanding of what a typical profile of a buyer is and the values that determine their purchasing behavior is useful for companies distributing/selling Fairtrade products as well as organizations that

try to bring fair trade to public awareness. The research results lead to findings useful in creating a marketing and communication strategy for these organizations. Taking into account the scope of the article, we focus only on the socio-demographic characteristics: gender, education and age.

Hypotheses that follow the research question are formulated as follows:

H1: Women buy fair trade products more often than men.

The first hypothesis H1, or its direction, is supported by the fact that several domestic and foreign statistics and surveys suggest that women buy fair trade products more often than men. For instance, in the United Kingdom, a survey conducted in 2006 showed that 57% of women are aware of the Fairtrade concept compared to 48% of men (Wright and McCrea et al., 2007). However, it needs to be taken into account that the fact that according to surveys, women are becoming fair trade consumers more frequently is also due to the fact that household purchases are made mainly by women, and that they are generally more interested in shopping (Wright et al., 2007).

However, Wright et al. (2007) also point to the growing importance of the consumer segment made up of young women buying ethically produced food in an increasing number. Leeuw et al. (2014) investigated the difference in the intentions to buy Fair Trade products among female and male university students in Luxembourg. They used the Theory of Planned Behavior, similarly to, for example, Shaw et al. (2000). They found that, compared to men, women generally have a more favorable approach, feel a stronger moral obligation, and have a stronger intention to buy Fairtrade products. Yet, Leeuw et al. (2014) also find that men have a stronger relationship between their attitude and intent, while women have a stronger relationship between the perceived behavioral control and intent. (Leeuw et al., 2014)

In France, De Ferran and Grunert (2007) pointed out that women buy Fairtrade coffee more often than men, and this difference is even more significant in specialized stores (compared to supermarket buyers). Coppola et al. (2015) also found a statistically significant relationship between gender and the amount spent on fair trade products.

H2: Higher educated people buy fair trade products more often than people with lower education.

Several authors have shown or suggested that the level of education may be a determinant of the intention to buy ethical products. They include, for example, De Pelsmacker et al. (2005) or Ambrožová and Částek (2013). Even the survey by Kouřil (2010) suggests that university-educated people belong to the respondents with the highest level of knowledge of the Fairtrade brand (although knowledge of the Fairtrade brand does not necessarily lead to the intention to buy this brand).

H3: There is a negative relationship between age and frequency of fair trade purchases.

Age is a common criterion for Fairtrade-consumer market segmentation (Bezençon and Blili, 2011). Ambrožová and Částek came to the conclusion that younger people buy Fairtrade products in the city of Brno more often. (Ambrožová and Částek, 2013). According to the survey by Kouřil (2010), the age under 25 is one of the most common characteristics of respondents with the highest knowledge of the Fairtrade brand. According to Macák et al. (2014), the knowledge of Fairtrade products is a “prerequisite” for ethical shopping. Jayawardhena et al. (2016) found a nonlinear relationship between age and purchasing Fairtrade products. Older and younger respondents, according to their research, buy Fairtrade products less likely than middle-aged respondents.

3. Methodology

The measurement was conducted using an online questionnaire. The questionnaire link was placed on the website of the e-shop Fairtrademarket.cz. In order to increase the motivation and willingness of the people to fill in the questionnaire, its completion was a prerequisite for participating in a contest for 7 vouchers that could be used for purchases at the Fairtrademarket.cz e-shop, which agreed to collaborate on the research. Each voucher is worth CZK 1,000 and could be used to buy fair trade products at this online store. Hence, it is a purpose-built choice based on the judgment of the researcher about what we want and what we are able to observe (Disman, 1993). Placement of the questionnaire on the above-mentioned websites is targeted to make the respondents people who are likely to be interested in fair trade. Data collection took place over a period of more than 1 month, between 9 February, 2017 and 13 March, 2017. The questionnaire was completed by 197 respondents in total. Six of them said that they never buy fair trade products, so their answers were not included in the final analysis. Thus, 191 observations were used in the analyses.

4. Results

H1: Women buy fair trade products more often than men.

The null hypothesis for H1 is H1₀: gender is not related to the frequency of buying Fair Trade products. To evaluate the hypothesis, the independent-samples t-test was used first. The P-value of the t-statistics is 0.001 in this case, thus very low. There is a statistically significant but rather small ($\eta=0.23$) difference between men and women in how often they buy fair trade products (henceforth as FT). Therefore, we can reject the null hypothesis that men and women buy FT equally often and we can accept the H1 that women buy FT more often than men.

The statistically significant difference remains even after the division of the sample based on age to 2 groups (lower and upper age than the median in the sample) with the older half of the sample at the level of $\alpha=0.05$ ($p=0.003$, $df=88$, $t=3.023$). In the younger half of the sample, the relationship is not so clear, but acceptable at the level of $\alpha=0.10$ ($p=0.084$, $df=99$, $t=1.745$). When divided into groups by achieved level of education, the statistical significance of the men/women difference remains at the level of $\alpha=0.05$ in the categories of secondary education, higher vocational school and university education. There is not enough observation for basic education and secondary vocational education without the secondary school-leaving examination.

Table 1: T-test output for 2 independent selections in SPSS for gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
FT purchase frequency	female	152	3.9079	1.11792	0.09068
	male	39	3.2308	1.20222	0.19251

FT purchase frequency	Levene		t-test for Equality of Means						
	F	Sig.	t	df	p (2-tailed)	Mean Difference	Std. Error Difference	95% C.I.	
								Lower	Upper
Equal variances assumed	0.042	0.838	3.323	189	0.001	0.67713	0.20380	0.27511	1.07914
Equal variances not assumed			3.182	56.037	0.002	0.67713	0.21280	0.25085	1.10340

Source: own processing

The chi-square test result (Table 2) also rejects the null hypothesis on the independence of the relationship between gender and frequency of FT purchases. The probability of the Type I error is 0.001. To verify the relationship of sociodemographic characteristics to the purchases of FT, chi-square is used, for example, by Doran (2008). The association between gender and frequency of FT purchases in our sample is moderate (Cramer's $V = 0.3$).

Table 2: The chi-square test result rejecting the independence of the relationship between gender and FT purchases and effect size (Cramer's V)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.124 ^a	4	0.001
Likelihood Ratio	16.385	4	0.003
Linear-by-Linear Association	10.485	1	0.001
N of Valid Cases	191		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.68.

	Value	Approximate Significance
Nominal by Nominal	Phi	0.308
	Cramer's V	0.308
N of Valid Cases	191	

Source: own processing

The second option to approach verifying this hypothesis is to compare the gender distribution in the sample and in the population of online shoppers over 16 years of age in the Czech Republic. The share of women and men in the sample is at first glance significantly different from the distribution among Czech online shoppers where 53% are women and 47% are men. Based on the p-value of the chi-square test ($p < 0.001$), the difference between gender distribution in the sample and in the population of Czech online shoppers is confirmed. The sample intentionally includes only respondents who know and buy FT products. This test therefore also rejects the null hypothesis that gender is not related to the frequency of FT purchases.

Table 3: Chi-square test results of goodness of fit in SPSS to determine the statistical significance of the difference in gender distribution in the sample and in population

	Observed N	Expected N	Residual		Gender
female	152	101.2	50.8	Chi-Square	54.176 ^a
male	39	89.8	-50.8	df	1
Total	191			Asymp. Sig.	0.000

Source: own processing

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 89.8.

H2: Higher educated people buy fair trade products more often than people with lower education.

The null hypothesis for the second working hypothesis H₂₀ reads: "The education achieved is not related to the frequency of FT purchases."

To measure FT purchasing frequency dependence on the highest education achieved, the Kendall's tau-c and Somers' d coefficients were used (Table 4). Both Kendall's tau-c and Somers's d are useful because both variables whose possible relationship we are examining are ordinal, and we assume a linear relationship, which was verified using a graph. Both the coefficients confirm the null hypothesis that education does not have an impact on the FT purchasing frequency.

Table 4: Coefficients of Somers' d and Kendall's tau-c in SPSS for the relationship of FT purchasing frequency and education

Ordinal by Ordinal	Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Somers' d FT purchase frequency Dependent	-0.108	0.070	-1.550	0.121
Kendall's tau-c	-0.075	0.048	-1.550	0.121

Source: own processing

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Using chi-square test results in this case would not be correct because the underlying assumption is not met. More than 20% of cells have an expected frequency of less than 5, and the minimum expected frequency is less than one.

Neither of the above-mentioned coefficients (Kendall's tau-c and Sommer's d) will gain statistical significance at least at the level of $\alpha=0.05$, even in the case of division of the population by gender; this means that the null hypothesis to hypothesis no. 2 was not rejected either for women or men alone.

However, if we divide the sample by the education of respondents into only two groups - specifically those with university education and those who do not have university education, the chi-square test meets the assumptions because the frequency of cells is higher than 5 after joining the groups. Such test shows that there is a relationship between whether the consumer is university-educated or not and how often they buy FT. Cramer's V shows the strength of this relationship, which is relatively low ($V=0.229$, $p=0.04$). Gender breakdown of the sample shows that the relationship is stronger among men than women (men $V=0.48$ and women $V=0.27$), but among men the probability of Type I error is higher ($p=0.03$ vs. $p=0.062$), which may can be ascribed to the small total number of men in the sample.

However, the breakdown by age into two groups shows that there might not be a relationship ($p=0.376$) in the group with a lower age than the median (28 years of age), whereas in the group of respondents over 28 years of age, the p -value is low enough not to rule out a relationship ($p=0.04$); its strength is then medium ($V=0.33$). This result may be a logical consequence of the fact that many respondents under the age of 28 who reported that their highest education achieved is “secondary” are university students and will finish this level of education soon. Nevertheless, in the group of respondents who are older than 28 the reported highest level of education achieved, i.e. either “university” or “secondary”, already represents a real difference in the level of education.

Table 5: Results of the chi-square test and Cramer’s V for the relationship between FT purchasing and education divided into two groups – with and without university.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.035 ^a	4	0.040
Likelihood Ratio	9.970	4	0.041
Linear-by-Linear Association	1.508	1	0.219
N of Valid Cases	191		

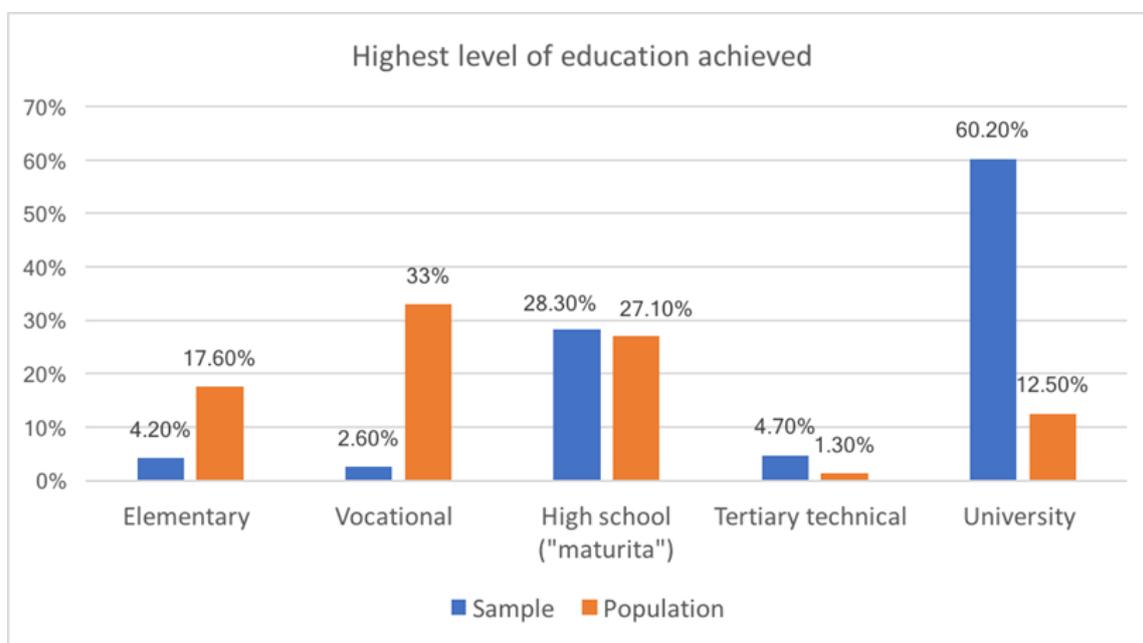
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.31.

	Value	Approximate Significance
Nominal by Nominal Phi	0.229	0.040
Cramer's V	0.229	0.040
N of Valid Cases	191	

Source: own processing

The second approach to hypothesis verification is to again compare the distribution of the achieved level of education in the research sample and in the population using the chi-square test of goodness of fit. The sample did not include three categories used by the Czech Statistical Office, i.e. without education, post-secondary non-tertiary education, and “not identified”. Calculations of the expected frequencies account for this fact. The population in this test is represented by all inhabitants of the Czech Republic because education of Czech online shoppers is provided by the Czech Statistical Office only for people over 25 years of age.

Chart 1: Comparison of the distribution of the highest education achieved in the sample and in the population of the Czech Republic. Source: author and the Czech Statistical Office (2011)



Source: own processing

P-value <0.001 and thus the statistically significant difference between the distribution of educational levels in the sample and the population is confirmed. The sample includes relatively low representation of lower levels of education compared to the population, while higher levels of education, especially the university level, are represented much more. Only the group with the secondary education with the secondary school-leaving examination has a frequency close to expected.

Table 6: Comparison of observed and expected frequencies of education and the chi-square test of goodness of fit

	Observed N	Expected N	Residual
Elementary School	8	37.0	-29.0
Vocational education	5	69.0	-64.0
High school graduate ("maturita")	54	56.0	-2.0
Tertiary technical education ("VOŠ")	9	3.0	6.0
University	115	26.0	89.0
Total	191		

	Level of Education
Chi-Square	398.817 ^a
df	4
Asymp. Sig.	0.000

Source: own processing

a. 1 cells (20.0%) have expected frequencies less than 5. The minimum expected cell frequency is 3.0.

Therefore, hypothesis no. 2 is not rejected. The data indicate that people with higher, or university, education buy FT products more often. It is also possible that this relationship is stronger for men and that it only applies to people older than the median age of our sample (28 years of age).

H3: There is a negative relationship between age and frequency of fair trade purchases.

The null hypothesis for the third working hypothesis H_{30} reads: "Age is not related to the frequency of FT purchases." For testing this hypothesis, observations were divided into 6 age categories. Correlations (Somers' d and Kendall's tau-c) between the categorized age and FT purchases are not statistically significant ($p=0.754$). Therefore, the p-value does not indicate a statistically significant relationship between age and frequency of FT purchases. The basic assumption is not met for the chi-square test due to the low number of observations in some of the categories. The p-value of Somers' d and Kendall's tau-c remains high even when dividing the sample by gender and education, so we do not confirm the relationship between age and frequency of FT purchases for women or men alone or for a certain category of education. The null hypothesis has to be accepted.

Table 7: Somers' d and Kendall's tau-c measuring the association between age and frequency of FT purchases

Ordinal by Ordinal	Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Somers' d FT purchase frequency Dependent	-0.018	0.067	-0.265	0.791
Kendall's tau-c	-0.015	0.055	-0.265	0.791

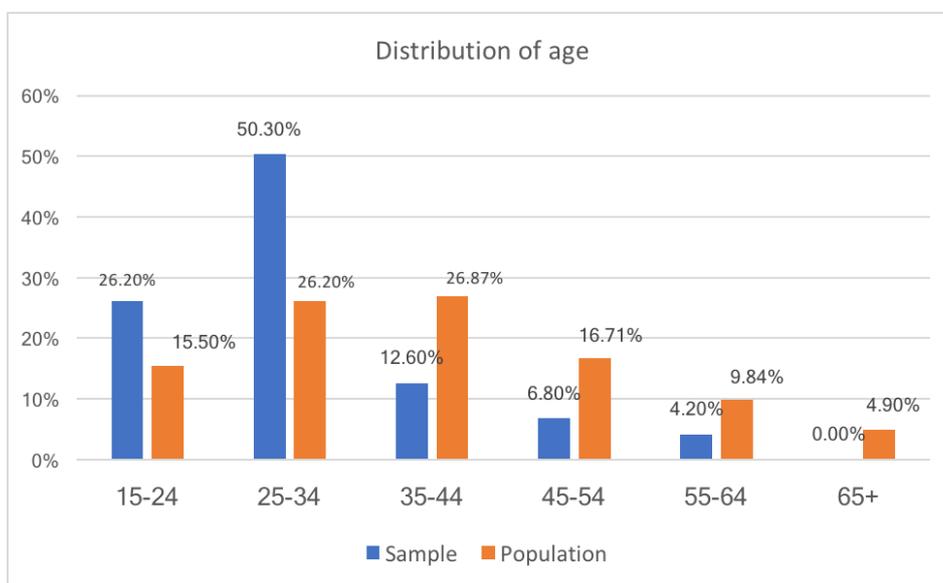
Source: own processing

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Another way to verify H3 is to compare the age distribution again with the population using the chi-square test of the goodness of fit and the t-test.

Chart 2: Comparison of the representation of age categories in the sample and the population of Czech citizens aged over 15 who shop online.



Source: own processing based on the Czech Statistical Office (2016)

The chi-square test of the goodness of fit showed that there is a statistically significant difference ($p < 0.001$) between the distribution of age categories in the sample and the population of Czech online shoppers.

Table 8: Comparison of observed and expected frequencies in the age categories and the chi-square test of the goodness of fit

	Observed N	Expected N	Residual
16-24	50	30.0	20.0
25-34	96	50.0	46.0
35-44	24	51.0	-27.0
45-54	13	32.0	-19.0
55-64	8	28.0	-20.0
Total	191		

	Age Groups
Chi-Square	95.514 ^a
df	4
Asymp. Sig.	0.000

Source: own processing

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 28.0.

The average age of the population of the Czech Republic aged 15 and older is 47.76. Information on the average age of citizens over 15 years of age who shop online is not available; therefore, the age of the total population of the Czech Republic was used for the one sample t-test in this case. The one sample t-test also shows the difference between the average age of the sample and the total population of the Czech Republic over 15 years of age ($p < 0.001$).

The correlation analysis therefore suggests that age is not related to how often a FT consumer buys FT products. However, comparisons with the total population of the Czech Republic and Czech online shoppers via t-test and goodness-of-fit test show that age can be related to whether a person buys FT at all – the sample includes only people who have experience with FT purchasing, and the evidence suggests that FT consumers are mainly people in lower age categories (under 34). Examining charts and the specific age groups suggests that while for younger consumers (up to 34 years of age) the correlation is none, for older consumers (35 and older) it is negative. However, small numbers of consumers over 35 years of age in our sample do not produce statistically significant results.

5. Discussion

Our data have repeatedly confirmed the relationship between the frequency of FT product purchases and gender. In the first place, the proportion of women in the sample is significantly different from the expected proportion of women among online shoppers (80% vs. 53%). In addition, women in our sample bought Fairtrade products more often (mean=3.9) than men (m=3.2). Both these differences are statistically significant and their effect of gender can be considered moderate ($V=0.31$, $p < 0.01$). This finding is in contrast to the results by Pelsmacker et al. (2006), who did not find the influence of gender on the frequency of FT products consumption. Even Doran (2009) tested the influence of gender and did not find it. On the other hand, for example, a survey conducted in the UK in 2006 showed that women are more aware of the FT concept (57%) than men (48%), and Pelsmacker et al. (2006), mentioned above, confirm the impact of awareness on FT products consumption. Leeuw et al. (2014) confirmed different ways of purchase thinking between men and women:

women feel a stronger moral obligation, and therefore, they have a stronger intention to buy FT products, while men have a stronger relationship between attitude and intent. De Ferran and Grunert (2007) or Coppola et al. (2015) unambiguously proved the influence of gender on the frequency of FT products purchases or spent money. Therefore, it cannot be said that our results would be in stark contrast to other evidence. However, we must not forget that the observed relationship may be more applicable to older consumers, as the relationship was weaker and more difficult to generalize in the part of the sample including respondents up to 28 years of age than in the other part of the sample.

As far as education is concerned, the results are not entirely clear. First of all, it is worth mentioning that there is a very significant difference between the population and the sample in the sense that the sample includes a significantly higher number of more educated people (e.g. 60% of the respondents completed their university education, contrary to only 12.5% of people in the population). On the other hand, there is no relationship shown between the education of respondents and the frequency of their consumption of FT products; it can only be observed when dividing the sample into university graduates and others. The influence of education is stronger in the older part of the sample and among men regardless of their age ($V=0.48$, $p=0.06$, $N=39$) whereas this influence is weak to moderate among women regardless of their age ($V=0.27$, $p=0.03$, $N=152$). In this case, however, we are reporting value of nominal measure of relationship (association coefficient) and closer examination of frequencies does not evidence a clear positive or negative trend as the comparison of the sample structure and population, which is in line with the expected direction of effect of education. If we once again refer to awareness, it is logical to expect it higher in the group of more educated consumers; this is confirmed even by Kouřil (2010). This results in higher expected consumption of FT products among people with higher education. The same result was obtained e.g. by Vitell et al. (2001), Littrell and Dickson (1999) or Pelsmacker et al. (2006), and Ambrožová and Částek in the Czech context. However, it seems that once consumers have decided to consume Fairtrade products, which is influenced by their level of education (the difference between the sample and population), education then does not affect the frequency of consumption of Fairtrade products, or at least not unambiguously.

The influence of age on consumption of FT products is mainly reflected in the composition of the sample compared to the population. In the sample, the younger categories are significantly overrepresented, i.e. the younger the consumer is, the more likely they buy FT products. This confirms the direction of the impact, expected among Czech consumers on the basis of previous research: the same conclusion is reached by Ambrožová and Částek (2013) or Kouřil (2010); however, foreign results are not so clear. Doran (2009) finds no relationship between age and consumption of

FT products and claims that the age of consumers has ceased to be an important factor over time. Her result in fact denies the results of previous research on the same topic (Anderson and Cunningham, 1972, Berkowitz and Lutterman, 1968, cited from Doran, 2009), which Doran explains through market changes and better availability of FT products. On the other hand, if FT products were popular with younger consumers decades ago, it is possible that these consumers kept their preferences even in a more advanced age, and thus the effect of age faded away. It would mean that age is more a confounding variable and, for example, awareness of FT products that could then be better among young people played an important role. However, research design may also play a role. Jayawardhena et al. (2016) found a non-linear relationship between age and purchase of FT products, when younger and older people bought FT products less often than middle-aged respondents. Similarly, Pelsmacker et al. (2006) divided the respondents into three age categories and found the relationship with the frequency of purchases and the amount of money spent on FT products; in their case this relationship had a positive direction. However, even here the age may only be a confounding variable, while the real variable affecting the frequency of purchases of FT products or money spent may be disposable income, which is typically higher at a middle age than among pensioners or students. In our sample, the effect of age on the frequency of purchases of FT products does not appear, so it remains only at the level of whether or not a consumer consumes FT products at all.

Conclusion

The influence of the gender was clearly demonstrated both on the decision whether to consume FT products or not, and on the frequency of purchasing FT products. As for education, empirical evidence points to a conclusion that the higher the level of education is, the more likely it is to expect consumers to buy FT products. In case of age, it is questionable to what extent the age of the consumer is a real predictor of their willingness to consume FT products, or even the frequency of their purchase. Although it turns out that younger consumers are more likely to decide to purchase FT products, the question is to what extent the effect of age is genuine and to what extent other influences (awareness, disposable income, value orientation, etc.) can be relevant here. Thus, the article is not only a new piece of knowledge of buying behavior of Czech consumers who purchase fair trade products, but it also shows the need to involve a multidimensional and nonlinear data analysis in this field. The limitation of our results is the number of answers received, which is, however, quite standard for our country.

Acknowledgment

This work has been supported by the Research Institute for Sustainable Business (<http://risb.econ.muni.cz/en>).

References

- Ambrožová, M. & Částek, O. (2013). Purchasing behavior of Fairtrade customers. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 61(7), 1957-1967.
- Anderson, W. & Cunningham, W. (1972). The Socially Conscious Consumer. *Journal of Marketing*, 36(3), 23-31.
- Báčová, V. (2014, retrieved 2016, December 11). Fairtrade slaví v Česku 10 let, podle nejnovějšího výzkumu o něm slyšelo 52 procent lidí: Tisková zpráva Fairtrade Česko a Slovensko. In: Fairtrade Česko a Slovensko. Retrieved from: http://www.fairtrade-cesko.cz/media/tz_26_8_10letsfairtrade_final.d1d7.doc
- Berkowitz, L. & Lutterman, K. (1968). The Traditional Socially Responsible Personality. *Public Opinion Quarterly*, 32(2), 169-185.
- Bezençon, V. & Sam B. (2011). Segmenting the market through the determinants of involvement: The case of fair trade. *Psychology and Marketing*, 28(7), 682-708. doi: 10.1002/mar.20407
- Coppola, A., La Barbera, F. & Verneau, F. (2015). Fair trade products' consumption: a market segmentation by personal values. *Quality - Access to Success*, 16, 23-31.
- De Ferran, F. & Klaus G. (2007). French fair trade coffee buyers' purchasing motives: An exploratory study using means-end chains analysis. *Food Quality and Preference*, 18(2), 218-229. doi: 10.1016/j.foodqual.2005.11.001
- De Leeuw, A., Pierre Valois, Alexandre J. S. Morin & Schmidt, P. (2014). Gender Differences in Psychosocial Determinants of University Students' Intentions to Buy Fair Trade Products. *Journal of Consumer Policy*, 37(4), 485-505. doi: 10.1007/s10603-014-9262-4
- De Pelsmacker, P. & Janssens, W. (2007). A Model for Fair Trade Buying Behaviour: The Role of Perceived Quantity and Quality of Information and of Product-specific Attitudes. *Journal of Business Ethics*, 75(4), 361-380. doi: 10.1007/s10551-006-9259-2
- De Pelsmacker, P., Driesen, L. & Rayp, G. (2005). Do Consumers Care about Ethics? Willingness to Pay for Fair-Trade Coffee. *Journal of Consumer Affairs*, 39(2), 363-385. doi: 10.1111/j.1745-6606.2005.00019.x

Disman, M. (1993). *Jak se vyrábí sociologická znalost: příručka pro uživatele*. Prague: Karolinum.

Doran, C. (2009). The Role of Personal Values in Fair Trade Consumption. *Journal of Business Ethics*, 4, 549.

Green Marketing (2009, retrieved 2016, December 16). *V České republice se vloni prodalo produktů Fair Trade za 41 milionů korun*. Retrieved from: <http://ekolist.cz/cz/zpravodajstvi/tiskove-zpravy/vceske-republice-se-vloni-prodalo-produktu-fair-trade-za-41-milionu-korun>

Harrison, R., Newholm, T. & Shaw, D. (2005). *The ethical consumer*. Thousand Oaks: SAGE.

Hejkrlik, J., Jana M. & Karolína F. (2013). How effective is Fair Trade as a tool for the stabilization of agricultural commodity markets? Case of coffee in the Czech Republic. *Agricultural Economics (Zemědělská ekonomika)*, 59(1), 8-18.

Jayawardhena, Ch., Kevin M. & Stride, Ch. (2016). Ethical consumption behaviours in supermarket shoppers: determinants and marketing implications. *Journal of Marketing Management*, 32(7-8), 777-805. doi: 10.1080/0267257X.2015.1134627.

Kirchhoff, C. (2013, retrieved 2017, May 1). Ethical consumerism. In: *Encyclopædia Britannica*. Encyclopædia Britannica, inc. Retrieved from: <https://www.britannica.com/topic/ethical-consumerism>

Kouřil, P. (2010, retrieved 2016, November 1). *Výsledky našeho průzkumu: Klasa, Bio a Fairtrade jsou mezi Čechy nejznámějšími certifikáty původu zboží*. *Fairtrade.cz*. Retrieved from: <http://stary.fairtrade.cz/5-o-fair-trade/196-vysledky-naseho-pruzkumu-klasa-bio-a-fairtrade-jsou-mezi-cechy-nejznamejsimi-certifikaty-puvodu-zbozi/>

Kuldová, L. (2010). *Společenská odpovědnost firem: [etické podnikání a sociální odpovědnost v praxi]*. Kanina: OPS.

Littrell M. A. & Dickson, M.A. (1999). *Social Responsibility in the Global Market: Fair Trade of Cultural Products*. Thousand Oaks: Sage.

Macak, T., Regnerova, O. & Toth, S. (2014). Design of Experiments for Analysis Factors Influencing Consumer Behaviour. *Procedia Economics and Finance*, 12, 371-378. doi: 10.1016/S2212-5671(14)00357-8.

Pelsmacker, P., Janssens, W., Streckx, E. & Mielants, C. (2006). Fair-trade beliefs, attitudes and buying behaviour of Belgian consumers. *International Journal of Nonprofit and Voluntary Sector Marketing*, 11(2), 125-138. doi: 10.1002/nvsm.47

Shaw, D., Shiu, E. & Clarke, I. (2000). The Contribution of Ethical Obligation and Self-identity to the Theory of Planned Behaviour: An Exploration of Ethical Consumers. *Journal of Marketing Management*, 16(8), 879-894. doi: 10.1362/026725700784683672

Vittell, S., Singhapakdi, A. & Thomas, J. (2001). Consumer ethics: an application and empirical testing of the Hunt-Vitell theory of Ethics. *Journal of Consumer Marketing*, 18(2), 153-178. doi: 10.1108/07363760110386018

Wright, S. & Mccrea, D. (2007). *The handbook of organic and fair trade food marketing*. Ames, Iowa: Blackwell Pub.

IMPORTANCE OF INCORPORATING PROFESSIONAL EDUCATION INTO ORGANISATIONS' LONG-TERM STRATEGIES

Pavel Pudil, Lenka Komárková, Irena Míková

Faculty of Management,
University of Economics, Prague
pudil@fm.vse.cz
komarkol@fm.vse.cz
mikovair@fm.vse.cz

Abstract

The paper concerns the investigation how important is for organisations to have further professional education incorporated into the organisation's long-time strategy plan. A questionnaire containing questions related to the subject of research was distributed to a number of organizations. The analysed sample consisted of 115 organizations, both profit and non-profit ones. Statistical methods for categorical data, particularly Pearson's chi-squared test of independence and two-sample proportion test, were used to fulfil the objective of research. The results of this paper show that incorporating education into the long-term strategy is clearly connected with a higher rate of measuring and evaluating impacts of education. As shown in our previous research, this leads to using more effective methods of further education and thus to more effective use of financial means that organisations devote to education and training of their employees. The recommendation following from the results is that organisations should incorporate further education into their long-term strategies and HRM plans as this is clearly connected with higher investments of organisations into further education, thus also with the increased organisations' performance.

Keywords

human resource management, professional education, long-term strategy plans, evaluating impact of education

Introduction, theoretical basis and hypotheses

The prosperity and successfulness of any organisation is influenced by a large number of factors. The fact whether further professional education is or is not incorporated into the organisation's long-term strategy is certainly one of those factors. According to Armstrong (2006), professional education should be an integral part of the management process in any organisation. Human resources management (HRM) is defined as a strategic and logically thought-out approach to managing the most valuable asset that organisations have – people working in the organisation and contributing to achievement of the organisation objectives.

Human resources development as a part of HRM represents a new concept of education and organisation development (e.g. Koubek, 2008, Folwarczná, 2010). While educational and development activities were aimed mainly at development of an individual employee in the traditional concept of personal agenda, in the framework of development activities they are oriented towards the development of capabilities of the organisation as a whole. They are linked to the effectiveness of activities and performance of the whole organisation or the learning organisation. Hroník (2007) defines the concept of development by means of the concept of learning as “achieving a desired change by learning”.

A system of professional education realised in the framework of HRM combined with properly specified outcomes in the form of required abilities, skills and competences of employees has certainly a non-negligible impact on the success and prosperity of organisations. Lifelong learning represents a conceptual approach to education. Learning is regarded as an interconnected activity facilitating the transmittance in both directions between education and employment. In this way it enables one to gain the same qualification and competences by various methods and whenever throughout life.

The professional education and lifelong learning are usually contained in HRM plans that are an integral part of long-term strategy plans (Wang et al. 2016, Amouri and Boudabbos, 2016). The role of incorporating professional education into the corporate strategy is explicitly discussed by Mascarenha (2011) as a part of duties of any strategic manager in order to become also the innovation manager. Petrini and Pozzebon (2010) in their study of Brazilian firms emphasize the necessity of having the education in the strategic plans, however they consider it from the viewpoint of integrating sustainability into business practices. Wartenberg (2016) discusses the importance of including the education into the corporate strategy, though his findings concern the education of company's employees in digitization.

None of these studies concerns the investigation whether the inclusion of professional education into organisation's strategic plans has any relation to other important characteristics generally influencing the success of organisations and therefore their competitiveness. Such characteristics certainly include the relative amount of financial means invested by the organisations to the professional education and also the fact whether the organisations evaluate its impact on the success and competitiveness of the organisation. This could be a very important factor as our recent study (Míková et al., 2017) yielded the evidence that the organisations that evaluate the impacts of the professional education results are using more effective methods of educating. In the opposite case, when the organisations do not evaluate the impacts of education, they tend not to use the most

effective methods of learning and, therefore, are actually not making the most of the financial means they invest to the continuing education and training of their employees.

It can be reasonably assumed that organizations incorporating the professional education into the organisation's long-term strategy plan invest relatively higher financial means to the professional education of their employees and also that they more often evaluate the impacts of this education. These assumptions can be formulated as two research hypotheses:

H1: *"Organizations incorporating the professional education into the organisation's long-term strategy plan invest relatively higher financial means to the professional education in comparison with the organizations not having the education in their strategy-plans."*

H2: *"Organizations incorporating the professional education into the organisation's long-term strategy evaluate more often its impacts in comparison with the organizations not having the education in their strategy-plans."*

Based on the above mentioned studies and assumptions, the objective of our research was to investigate whether there are differences between these two groups of organisations in the following characteristics:

- Investments into education of employees, employees' benefits, evaluating impacts of education and CEO's achieved education
- Ways of assessing needs of further professional education in organisation.

1. Methodology

The quantitative approach based on the statistical analysis of the research sample has been used to prove the research hypotheses specified above. A questionnaire containing questions concerning the fact whether a further professional education is included in the organisation's long-time strategy plan; and further questions concerning the level of investments into education of employees, employees benefits, evaluating impacts of education, the highest CEO's education and the ways of acquiring information about needs of further education and training was distributed to a number of organizations. The analysed sample consisted of 115 organizations, both profit and non-profit ones. Statistical methods for categorical data, particularly Pearson's chi-squared test of independence and two-sample proportion test, were used to fulfil the above specified objectives of research.

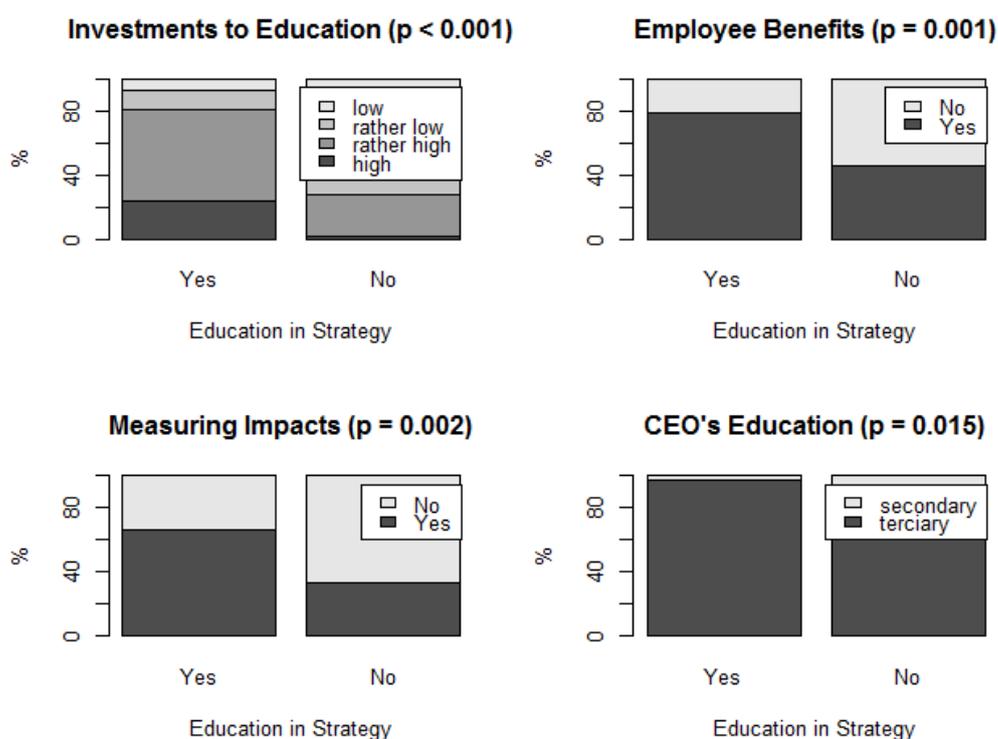
2. Results

The statistical analysis has been carried out for the sample of 115 organisations. 43 (37.4%) out of them has the professional education included in the organisation's long-term strategy plan as opposed to 72 (62.6%) organisations not having it in their long-term strategy plans. Pearson's chi-squared test of independence proved significant differences between these two groups of organisations, particularly that incorporating the professional education is at the 1% significance level related to:

- the level of investments into the professional education of employees,
- the fact whether employees have the professional education as a part of their benefits,
- to evaluating (measuring) the impacts of education,

and at the 5% significance level to the CEO's highest education (see Figure 1).

Figure 1: Relation between analysed characteristics (features) and incorporating professional education into long-term strategy: stacked bar charts and p-values of Pearson chi-squared test of independence.



Source: own processing

As stated before, we have also investigated the ways of acquiring information about the needs of further education and training. The most frequent ways are on the basis

of self-assessment or the individual need (64.3%) and on the basis of superior-assessment (55.7%). When comparing organisations that do or do not have the professional education in their long-term strategy plans, two-sample proportion test has revealed differences in the ways of acquiring information concerning the needs of professional education. Particularly, statistically significant differences of proportions have been found for the superior-assessment and for the personal audit (Table 1).

Table 1: Comparison of ways of acquiring information about the needs of further education with respect to inclusion (or non-inclusion) of professional education into the long-term strategy: sample proportions, their difference, 95% corresponding confidence interval and p-value of two-sample proportion test (Y = Yes, included; N = No, not included)

Way	p(Y)	p(N)	p(Y)-p(N)	95% CI	p-value
Self-Assessment	0.651	0.639	0.012	(-0.181, 0.205)	1.000
Superior-Assessment	0.791	0.417	0.374	(0.189, 0.559)	< 0.001
Personal Audit	0.209	0.056	0.154	(0.003, 0.305)	0.027
Assessment Centre	0.093	0.042	0.051	(-0.066, 0.168)	0.477

Source: own processing

These results can be perhaps easily explained. Whether an employee himself feels any need of further education has hardly any relation to the fact whether the organisation has or has not the further education in the long-term strategy plan. On the other hand, the situation is certainly different in the case of superior-assessment or personal audit. In the case of the organisation with education in its long-term strategy plan, the managers at all levels are somewhat motivated or pressed to recommend some further education to their subordinates (either directly or as a result of personal audit). Finally, the results also suggest that the assessments centres are not yet much utilized in organisations operating in the Czech Republic.

To conclude, we can state that the results confirmed the validity of both the research hypotheses H1 and H2. Furthermore, it has been confirmed that to have professional education as a part of employees benefit is significantly more frequent at organisations having the education in their strategy. All these three findings have been confirmed by Pearson's chi-squared test of independence at the 1% level of significance. Also, the results confirm that inclusion of the education into the long-term strategy plans is at 5% level of significance related to the CEO's achieved level of education.

Discussion, limitations and conclusions

The results of this paper show that the organisations should incorporate further education into their long-term strategies and HRM plans as this is clearly connected

with higher investments of organisations into further education, thus also with increased organisations' performance as confirmed by a number of foreign research studies, e.g. Khalif et al. (2017), Chen et al. 2008), Beynon et al. (2015), Kaur (2016), Van de Wiele (2010), Collier et al. (2011).

Furthermore, incorporating education into the long-term strategy is also clearly connected with a higher rate of measuring and evaluating impacts of education. As we have shown in our previous research (Míková et al. 2017), this leads to using more effective methods of further education and thus to more effective use of financial means that organisations devote to education and training of their employees.

The limitations of our conclusions are in the heterogeneous character of the research sample which consists of organisations from both profit and non-profit sector and also from rather diverse industries.

In continuation of our research we would like to increase the sample size in order to increase the validity of results. Furthermore, with the help of publicly available financial data from the Albertina database we would also like to demonstrate more directly that investing in further education of employees brings a competitive advantage to organisations.

Acknowledgements

The work was supported by the grant of the University of Economics, Prague IG F6/16/2016. Furthermore, the authors thank the Joint Laboratory SALOME 2 for valuable non-financial support.

References

Amouri, A. & Boudabbous, S. (2016). Organisational Performance and HRM Practices. *International Journal of Humanities and Social Science Invention*, 5(7), 43-50.

Armstrong, M. (2006). *A Handbook of Human Resource Management Practice*. London: Kogan Page Ltd.

Beynon, M. J., Jones, P., Pickernell, D., & Packham, G. (2015). Investigating the impact of training influence on employee retention in small and medium enterprises: a regression-type classification and ranking believe simplex analysis on sparse data. *Expert Systems*, 32(1), 141-154.

Chen, Y. S., Chang, B. G., & Lee, C. C. (2008). The association between continuing professional education and financial performance of public accounting firms. *The International Journal of Human Resource Management*, 19(9), 1720-1737.

- Collier, W., Green, F., Kim, Y. B., & Peirson, J. (2011). Education, training and economic performance: evidence from establishment survival data. *Journal of Labor Research*, 32(4), 336–361.
- Folwarczná, I. (2010). *Rozvoj a vzdělávání manažerů*. Praha: Grada Publishing.
- Hroník, F. (2007). *Rozvoj a vzdělávání pracovníků*. Praha: Grada Publishing.
- Kaur, J. (2016). Impact of training and development programmes on the productivity of employees in the banks. *Journal of Strategic Human Resource Management*, 5(1), 47–53.
- Khalif, A.A., Ibrahim, M.I., & Szabó, Z.S. (2017). Links between HRM and organizational performance. In: Daróczy, M., Robak, A., Vinogradov, S., eds. *Management, organizations and society*, Budapest, Agroinform Publishing House, 69-82.
- Koubek, J. (2008). *Řízení lidských zdrojů: základy moderní personalistiky*. Praha: Management Press.
- Mascarenha. O., A., J. (2011). *Business Transformation Strategies: The Strategic Leader as Innovation Manager*. New Delhi: SAGE Publications.
- Míková, I., Komárková, L. & Pudil, P. (2017). Relation between Usage of More Effective Methods of Lifelong Learning and Evaluating Its Impacts. In: *Conference Proceedings: 11th International Technology, Education and Development Conference (INTED)*, Valencia, 963–970.
- Petrini, M. & Pozzebon, M. (2010). Inegrating sustainability into business practices: learning from Brazilian firms. *Brazilian Administration Review*, 4(3), 362–378.
- Van de Wiele, P. (2010). The impact of training participation and training costs on firm productivity in Belgium. *The International Journal of Human Resource Management*, 21(4), 582–599.
- Wang, S., Guidice, R., & Zhou, Y. (2016). It's more complicated than we think: The implications of social capital on innovation. *Asia Pacific Journal of Management*, 1–26.
- Wartenberg, A. (2016, retrieved 2017). *Realignment of corporate strategy to include digitization*. Horton Internatl. Retrieved from: <http://www.hortoninternational.com/news/realignment-of-corporate-strategy-to-include-digitization>

EMPLOYEES' COMPETENCIES DEVELOPMENT DEPENDING ON THE IMPLEMENTATION OF NEW FORMS OF MARKETING COMMUNICATION

Lukáš Smerek

Matej Bel University in Banská Bystrica
Faculty of Economics
Department of Corporate Economics and Management
Tajovského 10, 975 90 Banská Bystrica, Slovakia
lukas.smerek@umb.sk

Abstract

Marketing, just like other enterprise processes, evolve over time. We have witnessed the establishment of new marketing tools and approaches in all aspects of the marketing mix in recent years, including marketing communication. The article examines the need for the employees' competencies development in case the enterprise decides to implement new forms of marketing communication. The employees' competencies development is the subject of research, while selected Slovak enterprises are the object of research. The research is based on a questionnaire survey divided into two sections. The first one identifies enterprises that use some of the new forms of marketing communication. Only those enterprises then answer the questions about the needs for employees' competencies development. The main contribution of this paper is to highlight the need for human resources development in the implementation of new marketing approaches and identification of specific areas where human resources need to keep up with modern trends.

Keywords

marketing communication, human resources, competencies, development, Slovak enterprises

Introduction

It is beyond doubt that human resources are one of the most important success factors in enterprises. The quality of human resources determines routing of the enterprise in all the areas. It is therefore essential that the managers ensure not only the necessary amount of people at the right time, but primarily the needed quality with the necessary abilities, skills and knowledge. Marketing communication is not an exception. Vice versa, the whole broad area of marketing is considered to be one of the areas in which the increased emphasis on the quality of the human factor is needed, because it is a dynamically changing area with the ever growing demands. The article examines the need for the employees' competencies development in case the enterprise decides to implement some new forms of marketing communication. The employees' competencies development is the subject of research, while selected

Slovak enterprises are the object of research. The research is based on a questionnaire survey divided into two sections. The first one identifies enterprises that use some of the new forms of marketing communication. Only those enterprises then answer the questions about the needs for employees' competencies development.

1. New forms of marketing communication

There are evident departures from mass forms to the specialized individual forms in marketing communications. The innovative and more responsible procedures and methods come to the fore. Enterprises carefully review their existing marketing practice and positively respond to the new challenges with a more thorough preparation of future marketing strategies and their responsible implementation (Musová et al, 2016). It is caused by increasingly higher demands of customers. Attempt to reach the most specific circle of potential customers is thus a logical consequence. Another factor is still reverberant effect of the global economic crisis. It, on one hand, cleared space on the market, on the other hand, left customer with a feeling of insecurity. That's why enterprises need to find effective and also cost friendly ways to communicate with their customers and to assess their responses to the chosen methods of communication much more sensitively.

Event marketing is a form of marketing communication that focuses mainly on experience that is perceived by all senses of a person and used to communicate with customers. It is based especially on the use of human emotions, which are generally based on the assumption that person remembers what he has already experienced. Event marketing includes various social events such as Christmas parties, galas, concerts, conferences, seminars, fashion shows and much more (Koprla, 2010). Guerilla marketing is a tool that allows enterprises to demoralize their rivals with small, periodical and surprising attacks, requires swift action and utilizes creativity and imagination (Tek, 1999, In Ay et al., 2010). What matters in guerilla marketing is, rather than what the enterprise does to be successful but what it does to differentiate itself from its rivals and its success in reaching a broader customer potential (Gallagher, 2004, In Ay et al., 2010). Social media marketing has become the method of statement in the 21st century. The meteoric growth of community websites, such as Twitter, Facebook and LinkedIn, have usher the world into a new era of social media. It allows companies to talk to their clientele and, at the same time, it allows regulars to talk to one another (Saravanakumar, SuganthaLakshmi, 2012). Buzz marketing is a type of advertising spreading via verbal communication among people. The core of buzz marketing is conversations between people which are based on advertising or commercial information in the communication. This type of communication has added value to credibility of information (Černá, Váňa, 2011). Ambient media marketing explicitly intend to surprise consumers by placing

advertisements at unusual locations in the direct social environment of the target group, where consumers do not expect them (Luxton, Drummond, 2000). It evokes surprise with the aim of gaining the attention of consumers who are overexposed to traditional types of advertising (Hutter, Hoffman, 2014). Ambush marketing describes the purposeful and false association by an enterprise not sponsoring an event toward the end of deriving benefits similar to those afforded official sponsors (Pitt et al., 2010). In the narrow sense, Schmitz (2005) defines ambush marketing as the direct efforts of one party to weaken or attack a competitor's official association with a sports organization acquired through the payment of sponsorship fees. Mobile marketing is one of the tools of direct marketing, but in most of the publications and research articles is considered to be a new trend in marketing communication. Nowadays, mobile marketing offers the possibility of marketing communications through QR codes, Bluetooth, infrared and wireless devices, geo-location and others. Moreover, concepts such as Mobile Banking, mCommerce, mBroadcasting, mobile internet, etc. are well established (Poliačiková, 2013). Viral marketing is a modern form of marketing communication that needs some hardware and technical skills that have become a sort of mandatory equipment for the current generation of people. It is basically a slogan that has become very popular and is spread verbally afterwards. However, to call it a viral marketing, the information should be provocative, and therefore should be interesting, funny or shocking. Otherwise it won't be spread among other potential customers (Koprla, 2010).

2. Employees' competencies

The quality of human capital is one of the decisive factors in the functioning of an enterprise. It's employees who activate and set in motion all other sources. Marketing area is not an exception. For identifying the content of human capital is necessary to analyze the diverse competencies as part of the content of human capital. The word "competency" defines the ability to conduct or complete person's ability to work, encompassing professional competence, behavior and innate abilities (Teodorescu, 2006; Armstrong & Taylor, 2014). Competencies become the main indicator of quality of human resources, and should therefore be included in skills development activities of each enterprise. Competency is the behavior (action or set of actions), characterized by excellent performance in any field of activity. In order to implement some system into personnel work, many domestic and foreign enterprises began to apply the competency approach with the use of creation of competency models (Seková et al., 2016).

We can define different basic skills needed in marketing communication. These include capabilities such as analyzing the behavior of stakeholders, market segmentation, identifying and analyzing organizational marketing problems,

developing measurable/appropriate research questions and methods, designing & evaluating questionnaires and surveys, evaluating and analyzing market research data, using a range of modeling techniques to analyze marketing information, constructing a marketing communication strategy, constructing measurable objectives for marketing communication, identifying the marketing channel members linked to the organization, monitoring customer satisfaction, analyzing the organization's marketing environment, identifying opportunities, threats and sales issues, constructing a strategic marketing plan, evaluating the performance of an implemented marketing plan /strategy, analyzing the organizational environment to identify sales issues and opportunities, managing marketing programs and managing marketing's role within the organization (Walker, Wagstaff, 2008, In Cătoiu, Vegheș, 2009). Moreover, development of emotional intelligence of employees is also important in entrepreneurial practice, not only in terms of knowledge management, building a learning organization, development of corporate culture, morale, creativity, but also in terms of implementing new forms of marketing communication, what result in better measurable results (Minářová, 2014).

Based on these capabilities template of basic marketing competencies was created: 1. Intellectual skills including observation skills, analytical skills, synthetic skills, abstract thinking, concrete thinking, perspective, intuition, common sense, taste and creative imagination. 2. Memory including visual and sound memory. 3. Efficiency skills including method, focus, tenacity/commitment, patience, precision, mobility, initiative, self-confidence, prudence and cooperation (Cătoiu, Vegheș, 2009). These competencies were used as a basis for our investigation.

3. Methodology and results

The basis of the investigation was the hypothesis H_0 : We assume that there is a statistically significant difference between median values, assigned to the competencies by enterprises, according to the importance of the competency depending on the application of new forms of marketing communication.

To verify the hypothesis, we used the questionnaire survey which was divided into two parts. In the first part, we asked the enterprises if they use any of the new forms of marketing communication. A total of 278 enterprises answered the question, while 124 of them have used at least one of these forms of marketing communication. These companies form the research sample for the needs of our investigation, consisting of 7 large, 31 medium and 86 small enterprises. Afterwards, we asked which competencies are the most important ones on a scale of 1 to 10, where 10 represents the highest importance and the need for development. The average values are shown in Table 1.

Table 1: The average values of importance of competencies

Rank	Competency	Mean	Rank	Competency	Mean
1.	Taste	8.62096	12.	Visual memory	7.02419
2.	Perspective	8.16129	13.	Analytical skills	7.01612
3.	Observation skills	7.83871	14.	Synthetic skills	6.75806
4.	Initiative	7.74193	15.	Self-confidence	6.74193
5.	Method	7.67741	16.	Focus	6.27419
6.	Common sense	7.36290	17.	Intuition	5.86290
7.	Cooperation	7.34677	18.	Patience	5.83871
8.	Creative imagination	7.32258	19.	Abstract thinking	5.82258
9.	Tenacity/commitment	7.29838	20.	Precision	5.35483
10.	Mobility	7.17741	21.	Sound memory	4.49193
11.	Concrete thinking	7.08871	22.	Prudence	3.63709

Source: own processing

To identify statistically significant differences between competencies, Mann-Whitney U-test between each pair of competencies was used. The test answers the question whether the difference in medians of the two groups is statistically significant or just random (Rimarčík, 2007). Based on the test results we state that there is no statistically significant difference between the median of all compared variables, but there is a significant difference between the importance of taste and importance of other competencies in relation to the implementation of new forms of marketing communication. At the same time, there is a statistically significant difference between the importance of the last two competencies (sound memory, prudence) compared to the other competencies. The outputs of the SPSS program are presented in Table 2.

Table 2: Statistically significant differences between the selected competencies

Ranks					Test Statistics	
	Competency	N	Mean Rank	Sum of Ranks		Points
Points	Perspective	124	111.08	13774.50	Mann-Whitney U Z Asymp. Sig. (2-tailed)	6024.500
	Taste	124	137.92	17101.50		-3.026
	Total	248				0.002
Ranks					Test Statistics	
	Competency	N	Mean Rank	Sum of Ranks		Points
Points	Sound memory	124	107.95	13386.00	Mann-Whitney U Z Asymp. Sig. (2-tailed)	5636.000
	Precision	124	141.05	17490.00		-3.682
	Total	248				0.000
Ranks					Test Statistics	
	Competency	N	Mean Rank	Sum of Ranks		Points
Points	Sound memory	124	135.14	16757.00	Mann-Whitney U Z Asymp. Sig. (2-tailed)	6369.000
	Prudence	124	113.86	14119.00		-2.379
	Total	248				0.017

Grouping Variable: Competency

Source: own processing

The results show that we have to reject H_0 in general, because there is no significant difference in median values between all the observed competencies. At the same time, however, we discovered that the most important competency in relation to the implementation of new forms of marketing communication is taste. On the other hand, competencies, which should be given the lowest priority, are prudence and sound memory. It means that taste should be given the highest priority in the development of human resources. There is no difference in the perception of the importance among other competencies, except sound memory and prudence. The last two mentioned competencies thus shouldn't be given so much space in the process of human resources development.

Conclusion

We examined the competency that is considered to be crucial and therefore there is the greatest need for its development on a sample of 124 Slovak enterprises. Only enterprises that have applied any of the new forms of marketing communication were included in the investigation. We assumed that there is a statistically significant difference in the frequency of competencies to be developed. We rejected this hypothesis using Mann-Whitney U-test repetitively. Nevertheless, the results show

that most Slovak enterprises consider taste to be the most important competency regarding application of new forms of marketing communication. Moreover, there is a statistically significant difference in median values between taste and all the other competencies. The results of our research will serve as a basis for determining the specific activities that need to be done for development of the competencies. Knowing the development needs of employees is in fact the first step to set up the working system of education and the overall progress of human resources in an enterprise. It is not possible to ensure optimal conditions for proper managerial decisions without a thorough analysis of core areas.

The paper is a result of and it has been supported by the Scientific Grant Agency of the Ministry of Education of the Slovak Republic, grant VEGA No 1/0802/16 The impact of innovative marketing concepts on the behavior of selected market entities in Slovakia.

References

- Armstrong, M. & Taylor, S. (2014). *Armstrong's Handbook of Human Resource Management Practice*. London, UK.: Kogan Page Limited.
- Ay, C., Aytakin, P. & Nardali, S. (2010). Guerrilla Marketing Communication Tools and Ethical Problems in Guerilla Advertising. *American Journal of Economics and Business Administration*, 2(3), 280-286.
- Cătoiu, I. & Vegheș, C. (2009). Marketing competencies of the trade personnel. *Amfiteatru economic: periodic al cercetării economice*, 11(25), 29-40.
- Černá, L. & Váňa, K. (2011). New ways in the marketing communication. In *Annals of DAAAM for 2011 & Proceedings of the 22nd International DAAAM Symposium*, 22(1), 1669-1670.
- Hutter, K. & Hoffman, S. (2014). Surprise, Surprise. Ambient Media as Promotion Tool for Retailers. *Journal of Retailing*, 90(1), 93-110. doi: dx.doi.org/10.1016/j.jretai.2013.08.001
- Koprla, M. (2010). Možné spôsoby empirického skúmania nových foriem marketingovej komunikácie – poznatky z prieskumu. In *Nové trendy v marketingovej komunikácii, Zborník medzinárodnej vedeckej konferencie*. Trnava: Fakulta masmediálnej komunikácie UCM v Trnave. 238-264.
- Minárová, M. (2014). *Emocionálna inteligencia ako súčasť kompetentnosti manažér*. Banská Bystrica: Vydavateľstvo Univerzity Mateja Bela – Belianum.
- Musová, Z., Musa, H. & Huliaková, Z. (2016). Innovative approaches in a socially responsible marketing in a global environment. In *Globalization and its socio-economic*

consequences (proceedings of 16th international scientific conference, Rajecké Teplice, 5th - 6th October 2016), Part III. Žilina: University of Žilina. 1466-1475.

Pitt, L., Parent, M., Berthon, P. & Steyn, P. (2010). Event sponsorship and ambush marketing: Lessons from the Beijing Olympics. *Business Horizons*, 53(3), 281-290. doi: dx.doi.org/10.1016/j.bushor.2010.01.002

Poliačiková, E. (2013). Moderné nástroje marketingovej komunikácie In *Marketing Trends in Theory and Practice: scientific papers*. Žilina: EDIS - vydavateľstvo Žilinskej univerzity, 84-87.

Rimarčík, M. (2007). *Štatistika pre prax*. Košice: Marián Rimarčík.

Saravanakumar, M. & SuganthaLakshmi, T. (2012). Social Media Marketing. In *Life science journal – Acta Zhengzhou university overseas edition*, 9(4), 4444-4451.

Schmitz, J. K. (2005). Ambush marketing: The off-field competition at the Olympic games. *Northwestern Journal of Technology and Intellectual Property*, 3(2), 203-208.

Seková, M., Vetráková, M. & Ďurian, J. (2016). The proposal of intercultural competency model of managers in multinational companies. In *Globalization and Its Socio-Economic Consequences, Proceedings from 16th International Scientific Conference, 5th – 6th October 2016, Rajecké Teplice, Slovak Republic, 1972-1979*.

Teodorescu, T. (2006). Competence versus competency: What is the difference? In *Performance Improvement*, 45(10), 27-30.

ORGANIZATIONAL ROUTINES, LEVELS, TYPES AND ASPECTS

Sylwia Stanczyk

Wroclaw University of Economics
Poland
sylwia.stanczyk@ue.wroc.pl

Abstract

A lot of researchers have done a lot of research concerning on definition of routines. They also have been proposed quite dissimilar approaches representing the levels, types, and aspects of organizational routines. This review paper concerns on salient area of research exposing the importance of organizational routines. The main aim of the presented review is to collect and synthesize research results uncovering specific levels, types, and aspects in the routines' domain. On the basis of extensive studies concerning routines research in this paper it has been proposed a systematization of routines. The stream of research regarding routines is rich in different groupings of the construct. Hence the main concern of the paper is to systematize diverse approaches in this context as to provide epistemological and methodological outcomes differentiating routines' levels, types, and aspects. The paper is a review one. The results presented here are of value for future research in this stream of studies and can be treated as a starting point in researching routines in any field.

Keywords

routines levels, routine types, routine aspects

Introduction

During the past decades concept of routines consistently attracts the attention of researchers. Organizational routines are a key mechanism by which organizations can change, adapt, and maintain stability over time.

Primarily, the idea of habits was adapted by Nelson and Winter (1982), in their development of new evolutionary economics, in the form of organizational routines. And it is in the spotlight since Nelson and Winter introduced their work in 1982. A lot of researchers have done a lot research on definition of routines, structure of routines and the process of routines change and emergence. Still abundant research has focused on routines dynamics and on dual nature of routines and why routines are source of stability and change. Routines are traditionally characterized as stable and reproducible constructs crucial for the reproduction of an organization (e.g. Nelson & Winter, 1982; Miner, 1991; Becker, 2004). Stability is used as substantial characteristic of routines (e.g. Cyert & March, 1963; Nelson & Winter, 1982). Routines are structured from past experiences but are improved and refined over time by new

experiences. However, the possibility of change has already been acknowledged in early routine research (e.g. Cyert & March, 1963; Nelson & Winter, 1982; Miner, 1991). Routine change from this perspective is variation as response to a modification in conditions within the organization and/or its operating environment. Recently, there are some researches exposing the role of routines in interfirm dynamics.

Debate oscillating around routines construct envisions their complex and ambiguous roles. Change and stabilization of routines have dominated routine's researchers in the past. Routines exist at various levels in organizations and combine into a configuration of the performance of all the discrete members, which constitutes the performance as well as the inertia of the organization. Nevertheless, conceptualizations of routines from the perspective of levels, types and aspects is an integral aspect of routine construct providing epistemological insight into theory. Hence, the purpose of this paper is to systematize the concept of organizational routines as to provide the insights into levels, types, and aspects of these routines as epistemological concern on the development of the existing theory.

This paper starts with a confrontation of the traditional stability oriented routine perspective. After establishing the concept of routines and its levels, it is presented the associations of the construct and capabilities, especially dynamic one. Subsequently, the overview of the types of routines has been presented. Finally, the concern is turned to routines aspects with the ostensive and performative routine model and internal change dynamics of routines. Based on the OPA model, it has been defined the role artifacts play as well as so called degree of freedom of aspects of routine. The paper is a result of wide-ranging studies of relevant literature.

1. Levels

Routines constitute a fundamental concept within evolutionary models of economic development. The primary goal of routinization from an evolutionary perspective is to create efficiency within an organization. Nelson, Winter reintroduced the routines in 1982. They indicated three routines levels and its sense regarding appropriate level. Following Nelson and Winter's conceptualization there are correspondingly operational routines, generic routines, and search routines. Nelson and Winter argued that even the way in which a firm analyses and changes existing routines is guided by rules. Routines are therefore hierarchical, with higher-level strategic procedures acting to modify lower-level operating procedures. They also argued that top-level routines, which assist to modify other routines, define the prospect distribution of what routine modifications or new routines will be found through search. According to this approach firms evaluate potential routine amendments by the criterion of predicted profit.

Going back to routines levels, the first level routines, namely operational one, have been associated with the short-run procedures determining the way firm uses its current resources. As a result routines direct a firm's behavior in a particular time period. The second level related to routines is associated with the subsequent level, and it has been addressed to generic routines. Such routines, namely generic one, determine how the firm adjusts its resources across times in response to environmental inducement. Generic routines determine how the firm selects to expand or withdraw its resources. Hence, the routines determine firm's uniqueness, and profitability. The third level of routines is connected to search routines which over time modify certain attributes of operating characteristics. As Nelson and Winter define them, these routines encompass market analysis departments, operations research shops, and research and development laboratories. They outline how the firm critically analyzes the current operating routines and decides whether or not to modify them.

Nelson and Winter approach has been influential, however there are further approaches concerning routines levels. Other conceptualizations provide a bit different approach to identify routines levels. Considering zero-level, zero-order, basic or low-level (Teece & Pisano, 1994) routine could be associated with operational routines. Subsequently, first or higher-order, the high-level routine (Zollo & Winter, 2002), in contrary, are related to dynamic capabilities, and are called as meta-routines generating dynamic capabilities. Adopting level perspective there are also specific routines and strategic routines conceptualization (Brown & Eisenhardt, 1998) as well as operational routines and dynamic routines (Helfat & Karim, 2014).

As a result, discourse concerning on routines levels has to include dynamic capabilities approach. Dynamic capabilities in fact consist of identifiable and specific routines, as indicated in this stream of research (Eisenhardt & Martin, 2000). Dynamic capabilities have been usually described as the firm's processes that use resources to match and even create market change and specifically the processes to integrate, reconfigure, gain and release resources (Teece, Pisano & Shuen, 1997). Thus, dynamic capabilities include the organizational and strategic routines by which firms get new resource configurations as markets change.

Pavlou and El Sawy (2011) have proposed the systematization of dynamic capabilities comprising sensing capabilities, learning capabilities, integrating capabilities and coordinating capabilities. Each group of dynamic capabilities comprises a set of specific routines. They called them basic routines. The basic routines of capability also draw upon the dynamic capabilities literature. The result of that research is that many of the routines discussed in the dynamic capabilities

literature can be categorized under specific capability. All this resulted in seeing the routine approach as indisputably important in explaining dynamic capabilities.

There is also a proposition to distinguish improvisational capabilities, not just dynamic capabilities (Beltran, 2015) as the extension of existing research and theory. Whereas dynamic capabilities refer to the ability to respond to change through planned reconfiguration in moderately turbulent surroundings, improvisational capabilities refer to the ability to respond to change through spontaneous even unstructured and unplanned reconfiguration in highly turbulent context.

So, as mentioned earlier routine construct has been often associated with capabilities. For instance, Murmann (2003) has used the term operational routines to denote routines that support operational capabilities. These routines and the capabilities that they support are directed toward ongoing activities that are conducted in more or less the same way each time (Helfat & Winter, 2011). Additionally, routines that underpin dynamic capabilities can be thought of as dynamic routines. Such routines include those involved in planning, initiating, and implementing change, ranging from investments in plant and equipment and new product development to strategic assessments and planning for strategic initiatives such as market entry. As Helfat and Winter (2011) have noted, the line between operational and dynamic capabilities – and, by implication, between operational and dynamic routines – is inevitably blurry, unclear, and non-precise.

2. Types

Taking into consideration Nelson and Winter (1982) assumptions again we can indicate the static and dynamic routines. Static routines allow the firm to replicate certain previously performed tasks, and although they are generally stable, improvements and mutations will always occur with recurrence. Dynamic routines, on the other way, seek new product and process innovations and are generally intended by learning. These routines are heavily embedded in the area of research and development a firm pursues.

The routines approach regarding their types includes also dead and live routine, being another intellectually stimulating one. This approach has been developed by D'Adderio (2011). He has been made the distinction between live and dead routines to deliver an influential message explicating the nature of routines and the role of agency in routines. This element has been inattentive in earlier routines literature but requiring. While this analytical distinction is clearly useful, however, it requires further stipulation when it comes to characterizing the role of artifacts (pp. 197-230). Dead routines tend to be rigid, mindless and are typically codified in artifacts, tools

and technologies. Live routines, in contrary, are flexible, mindful and involve the contribution of actors, their experience and learning.

The routine view is also based on the context dynamism. Howard-Grenville (2005) has proposed types of organizational routines concerning context. Consequently, considering dynamism of the context and rate of changes in routines there are six types of routine namely sticky routines, accommodative routines, pervasive routines, arbitrary routines, pragmatic routines, and adaptive routines. This framework exposes two key factors, i.e. embeddedness and agency as those that may figure out the flexible exploitation of routines. It also portrays change or persistence of routines over time in new context.

3. Aspects of organizational routines

The notion of routines as a dominant metaphor for elucidation organizational capabilities and the evolution of organizations have been widely accepted as a fundamental issue in evolutionary economics (e.g., Dosi, Nelson & Winter, 2000) as well as in the management literature (e.g., Teppo & Foss, 2009). The central issue, however, is the process of change. According to existing literature there are two promising approaches to describe organizational routine change. The first one is the OPA-approach developed by Feldman and Pentland (2003) and the second is the script approach developed by Nooteboom (e.g. 2005).

Building on practice theories, Feldman and Pentland (2003) enlightened these observations of routine variability and change by conceptualizing routine dynamics as a recursive relation between ostensive and performative aspects. Research has articulated a practice perspective on routines, theorizing how routines change. According to Pentland and Feldman (2008, p. 294) ostensive aspects of routines refer to the general pattern of a routine as it is enacted by participants. This perspective is sociological one, and it underlies routines live from their performance through a collectivity of actors. There actions are linked with one another and routines are collective regularities of behavior. Performative aspects refer to the routine as enacted in 'specific actions, by specific people, in specific places and times' (Feldman & Pentland 2003, p. 101) and capture the central role of agency in enacting routines. The performative aspect has been mainly associated with the work of Pentland and Rueter (1994).

Traditionally, routines have been studied as rather abstract constructs. Feldman (2000) breaks down that abstract explanation by distinguishing ostensive and performative aspects of routines. This distinction allows recognizing for the ostensive – performative aspects and it is in the center of up to date research (e.g. Safavi 2014; David & Rowe 2013).

Following other research we can distinguish a bit different approach concerning ostensive – artifacts aspects (Lazaric & Denis, 2005) as well as performative – artifacts aspects (Narduzzo et. al., 2000). There is also approach concerned on artifacts as routine aspects (Miner, 1991). The other approach, there is an ostensive – performative – artifacts – degree of freedom aspects of routines (Truijen, Hoeve & Nieuwenhuis, 2007).

As a result, we can notice the OPA approach has been extensively used in the research. However, the artifacts are not at the center of routines stream of research yet. Hence, the attention has been turn into artifact, exposing their critical aspects in the routine processes.

Primarily, artifacts have been treated as external organizational memory supporting the process of solving complex problems (Nelson & Winter, 1982). Then, artifacts have been considered as a stimuli of development, transfer, and replication of organizational routines (Cohen et al., 1996). Lately, artifacts are deliberated as a primary construct in the context of routines interpretation and as a construct influencing activation of knowledge, skills, and competencies (D'Adderio, 2011). Confronting it to dynamic capabilities approach as mechanisms determining organizational learning, the process of collecting new capabilities and competencies, and factors limiting the development process (Teece & Pisano, 1994), artifacts have become an element of great explanatory importance.

The extension of the OPA approach ascertains the degree of freedom as an area for individual interpretation of the routine. Truijen, Hoeve, & Nieuwenhuis, (2007) defined two important indicators for the degree of freedom of routines. The first one is the physical layout, the way the technology structures the work process. The stronger the physical layout structures the work process the lower the degrees of freedom allowed in the routines. The second one is the institutional layout. It refers to the extent a social entity puts pressure on the community to stick to a well-defined procedure.

Discussion, limitations and conclusions

This research presented here aims to systematize the concept of organizational routines and provide the insights into levels, types, and aspects of these routines as epistemological concern on the development of the existing theory. This paper has shown that one broad approach has been developed in evolutionary research when considering the unit of evolution. In the routine approach treated it as a unit of organizational evolution it is assumed that there are different conceptualization of the construct. Special attention researchers should pay on the practice-based view, where the focus shifts to the process in which ideas, knowledge and capabilities as

well as routines are continually enacted and modified through actions. Both approaches, the evolutionary and practice one, can be used as methodological and epistemological accounts, with associated conceptual and empirical consequences. In conclusion the approach taken in developing further research on routines should be dependent first on the philosophical commitment regarding the nature of change within organizations. Process perspective, so called the OPA approach to study routines, implies to consider the specific context of a routine in which takes place. Research on organizational routines has developed a rich body of grounded theorizing of contextually situated practices. But the practice perspective is based on detailed empirical observations of variability in routine performances.

Acknowledgement

The research is supported by the National Science Centre in Poland (grant number: DEC-2013/11/B/HS4/00647).

References

- Becker, M. C. (2004). Organizational routines: A review of the literature. *Industrial and corporate change*, 13(4), 643-677. doi:10.1093/icc/dth026.
- Beltran, G. (2015). *Dynamic and Improvisational Capabilities in Small Defense Contractor Firms: An Investigation into the Role of IT Enabled Business Processes*. (Doctoral dissertation). Georgia State University. Retrieved from: http://scholarworks.gsu.edu/bus_admin_diss/48
- Brown, S. L., & Eisenhardt, K. M. (1998). *Competing on the edge: strategy as structured chaos*. Boston: Harvard Business School Press.
- Cohen, M. D., Burkhart, R., Dosi, G., Egidi, M., Marengo, L., Warglien, M., & Winter, S. (1996). Routines and other recurring action patterns of organizations: contemporary research issues. *Industrial and Corporate Change*, 3(5), 653-698.
- Cyert, R. M., & March, J. G. (1963). *A Behavioral Theory of the Firm*. Englewood Cliffs, New York: Prentice-Hall.
- D'Adderio, L. (2011). Artifacts at the centre of routines: performing the material turn in routines theory. *Journal of Institutional Economics*, 7(2), 197-230.
- David, M., & Rowe, F. (2013). *The Evolutivity Of Organizational Routines: A New Conceptualization Of Their Performativity And Their Relation To Information Technologies*. AISeL. Proceedings of the 21st European Conference on Information Systems [ECIS], June 5-8, Utrecht, Dutch.

- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), 1105-1121.
- Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(2003), 94-118.
- Feldman, M. S. (2000). Organizational routines as a source of continuous change. *Organization Science*, 11(6), 611-629.
- Helfat, C. E., & Karim, S. (2014). Fit between Organization Design and Organizational Routines. *Journal of Organization Design*, 3(2), 18-29. doi:10.7146/jod.16738.
- Helfat, C. E., & Winter, S. G. (2011). Untangling Dynamic and Operational Capabilities: Strategy for the (N)ever-Changing World. *Strategic Management Journal*, 32(2011), 1243-1250.
- Howard-Grenville, J. A. (2005). The persistence of flexible organizational routines: The role of agency and organizational context. *Organization Science*, 16(6), 618-636.
- Lazaric, N., & Denis, B. (2005). Routinisation and memorisation of tasks inside a workshop: the case of the introduction of ISO norms. *Industrial and Corporate Change*, 14(5), 873-896.
- Miner, A. (1991). Organizational Evolution and the Social Ecology of Jobs. *American Sociological Review*, 56(6), 772-785.
- Murmann, J. P. (2003). *Knowledge Competitive Advantage: The Coevolution of Firms, Technology, and National Institutions*. Cambridge: Cambridge University Press.
- Narduzzo, A., Rocco, E., & Warglien, M. (2000). Talking About Routines in the Field. In: Dosi, G., Nelson, R. and Winter, S. (eds.). *The Nature and Dynamics of Organizational Capabilities*. New York: Oxford University Press, 27-50.
- Nelson, R. R., & Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge: Belknap Press.
- Nooteboom, B. (2005). A Logic of Multi-Level Change of Routines. *Center Discussion Paper*, 2005(42).
- Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the Elusive Black Box of Dynamic Capabilities. *Decision Sciences*, 42(1), 239-273.
- Pentland, B. T., & Feldman, M. S. (2008). Issues in empirical field studies of organizational routines. In: Becker, M. C. (ed.). *Handbook of Organizational Routines*. Cheltenham: Edward Elgar Publishing Ltd., 281-300.

Pentland, B. T., & Rueter, H. H. (1994). Organizational routines as grammars of action. *Administrative Science Quarterly*, 39(3), 484-510.

Safavi, M. (2014). *The role of multiple ostensive aspects in practicing change and stabilizing routines: A case study of an egogenous change*. Best Paper Proceedings of the 74th Annual Meeting of the Academy of Management, Barcelona, Spain. ISBN: 2151-6561, doi:10.5465/AMBPP.2014.265.

Teece, D., & Pisano, G. (1994). The Dynamic Capabilities of Firms: An Introduction. *Industrial and Corporate Change*, 3(3), 537-556. doi:10.1093/icc/3.3.537-a.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509-533.

Teppo, F., & Foss, N. J. (2009). Organizational Routines and Capabilities: Historical Drift and a Course-Correction Toward Microfoundations. *Scandinavian Journal of Management*, 25(2), 157-167.

Truijen, K. J. P., Hoeve, A., & Nieuwenhuis, A. F. M. (2007). *Measuring Organizational Routine change in Work Teams: Towards a theoretical framework for studying organizational routine change*. Third International Conference on Organizational Routines, Strasbourg, 25-26 May.

Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3), 339-353.

THE EFFICIENCY OF THE VALUE CREATION MODEL IN THE MANUFACTURING INDUSTRY IN THE CZECH REPUBLIC

Petr Suchánek, Martin Štěřba

Department of Business Economics nad Management
Faculty of Economics and Administration
Masaryk University
Lipová 41a, 602 00 Brno
suchycz@yahoo.com
martin.sterba@mail.muni.cz

Abstract

The subject of this article is determining the efficiency of the Value Creation Model (VCM) in the manufacturing industry in the Czech Republic. The aim of the article is to identify and compare the ability of VCM to distinguish companies creating value or destroying value in the manufacturing and food industries. VCM has been designed on the research basis of food enterprises, where its explanatory power is very good. The question then becomes: what explanatory power does it have in other sectors? To determine and compare predictive ability, VCM values will be calculated for selected companies from the manufacturing industry and on that basis enterprises will be classified as enterprises creating or destroying value or enterprises in the so-called grey zone. The EVA ratio will be also calculated for the same enterprises and used to divide them into enterprises creating and destroying value. Finally, the consensus of classification by the VCM index and EVA will be determined for enterprises within the sector and this will be compared with the level of agreement in food enterprises, which will serve as a control sample. So the efficiency of VCM within selected sectors will be determined and at the same time it will be possible to compare this efficiency between these sectors.

Keywords

value creation model, EVA ratio, financial analysis, performance, manufacturing industry

Introduction

The article focuses on identifying value creation in selected sectors of the manufacturing industry using the VCM aggregate index. This index was designed for the food industry, and the aim of the article is to test its ability to identify value creation in enterprises from other sectors of the manufacturing industry. Although indexes of a similar type to VCM (e.g. the Altman index) are conceived as universal, i.e. applicable to any enterprise, the influence of the sector on the explanatory power of these models has been proven (Chava, Jarrow, 2004). One possibility is therefore to

modify the index created (either the weighting of the individual indicators in the model or the boundary values of the model which assign enterprises to the relevant groups – in our case, creating value, grey zone and destroying value) with regard to different sectors.

In the context of research into the explanatory power of the VCM index, it can thus be assumed that it is appropriate to modify this index in such a way as to improve this ability, since the subject of research this time is not enterprises from the food industry. Based on this assumption, a hypothesis can be formulated that for the correct classification of enterprises into individual groups it is necessary to modify the VCM index (H1). In connection with this hypothesis, the question arises as to how it would be appropriate to adjust the VCM index. A hypothesis can be formulated that for the correct classification of enterprises it will be necessary to adjust the boundary values of the VCM index for classifying enterprises into the relevant groups (H2).

The central concept of the research is value and its creation, which is a widely discussed topic at present. Value is basically a subjective category as it is determined (its amount) by every person or company on the basis of what they consider (for themselves) to be the best (cf. Harrison, Wicks, 2013). More specifically, value can be defined as something which can have some worth for stakeholders (Harrison, Wicks, 2013). However, due to the fact that there are so many different stakeholders with different views, their views on value also differ. Although these stakeholders can be classified in many different ways, authors agree that they include shareholders, investors, employees, suppliers, the government, etc. (see also Hillman, Keim, 2001). It is possible to distinguish three main strands of value (Reichheld et al., 2000). The first of them focuses on shareholder value and is a financial/economic view. The second focuses on customer value and is a marketing view, and the third focuses on stakeholder value and is a stakeholder theory view.

Therefore, it is necessary to select one viewpoint from one stakeholder through whose prism value (in this case the value of the company) is perceived. Due to the fact that there would be no companies without shareholders, we consider stakeholders to be of prime importance and we decided to look at their view of value (of the company) in our research. “The rationale for using shareholder value approach in selecting corporate and business strategies is based on the belief that strategies that create the greatest shareholder value will develop the greatest sustainable competitive advantage” (Salem Khalifa, 2004). From an economic point of view, the shareholder value is the sum of a company's equity and liabilities (Tischer, Hildebrandt, 2014). More specifically, it can be defined as a satisfactory return on investment in the short, medium and long term, depending on the rate of return, the

type of return and the risk associated with this return (cf. Feurer, Chaharbaghi, 1994). The question is how to measure this value, or how to assess the company's equity and liabilities, how to determine and evaluate their return and risk.

Currently, enterprises concentrate on maximizing shareholder value, with the measuring of economic value and financial measuring being integrated together in order to help management achieve its goals (Esbouei et al., 2014). Therefore, to determine shareholder value, the indicator of economic value added (EVA) can be used, which can evaluate the resources used by a business and the level of their return and risk. However, EVA can be constructed in different ways (cf. Velez-Pareja, 2001). As our research is focused on shareholder value, the EVA indicator is constructed from the ROE ratio (EVA equity) (cf. Varaiya et al., 1987).

Due to the fact that the construction of the EVA ratio is relatively complicated, primarily because of the quantifying of equity costs, we constructed the VCM index, which makes it easy (compared to the EVA ratio) to determine whether an enterprise creates or destroys value (in accordance with the EVA ratio). In this respect the VCM index is thus similar to the IN05 index (see Neumaierová, Neumaier, 2005).

1. Methodology

Within the research the VCM index will be constructed for selected companies from selected sectors of the manufacturing industry. The companies (across the selected sectors) will then be divided into groups of enterprises creating value or destroying value, or the grey zone group about which an unequivocal decision cannot be made. The EVA ratio will then be calculated for the same companies and will be used to reclassify these enterprises as enterprises creating value or destroying value or grey zone enterprises. The consensus of classification provided by the two categorizations will then be determined. For the index to be universally applicable, the two categorizations must be in accordance.

The equation for the logistic regression model of the VCM index capable of distinguishing enterprises with regard to their ability to create or destroy value, constructed using logistic regression, has the following form:

$$VCM = \frac{1}{1 + e^{-(1.1064 - 0.0585 \cdot F_1 + 0.02787 \cdot F_2 + 1.1487 \cdot F_3 + 0.2086 \cdot F_4)}}$$

where: F_1 ... current liquidity,
 F_2 ... net profit margin,
 F_3 ... ROCE,
 F_4 ... debt ratio.

For an enterprise to be classified as creating value, it must achieve a VCM index of 0.758 or above, which is the value which came from the VCM model in the food sector. If the enterprise has a VCM index of 0.628 or below, it is classified as destroying value. In the interval of a VCM index between 0.758 and 0.628 the enterprise is classified as grey zone, where an unequivocal decision about the creation or destruction of value cannot be made.

The construction of the EVA ratio is based on the methodology of the Ministry of Industry and Trade of the Czech Republic (Department of Economic Analysis, 2014, pp. 158-161), which is used as standard for enterprises in the Czech Republic. The general construction of the indicator, which also features the ROE ratio, cost of equity (r_e) and amount of equity (VK), is as follows:

$$EVA = (ROE - r_e) \cdot VK$$

Cost of equity is calculated by the modular method and represents the sum of the risk-free rate of return, business risk, financial stability risk, enterprise size risk and financial structure risk.

In this case, too, the enterprise will be assigned to one of three groups of enterprises on the basis of the EVA ratio. The first group (enterprises creating value) will comprise companies with $EVA > 0$ and $ROE > 0$, while the second group (grey zone) will comprise companies with $EVA < 0$ and $ROE > 0$ and the third group (enterprises destroying value) will comprise companies with $EVA < 0$ and also $ROE < 0$.

2. Research sample

The enterprises in the research sample are Czech companies which have at least 20 employees and have been in existence for at least three years. For this research the authors selected a total of 1229 enterprises (the population) belonging to the manufacturing industry, specifically CZ NACE C12 - C25. Out of this total number, 357 enterprises had not published financial statements for the year 2014 or had incomplete financial statements, so they were excluded from the sample. The research set therefore comprised 872 enterprises. The distribution of the population

within the selected sectors of the manufacturing industry is set out in table 1. It is evident from the table that the representation of enterprises within individual sectors was not uniform and that companies from sectors C22 and C23 predominate, with companies from sectors C12 and C 19 being the least represented. The table shows the number of companies in the sample. This is from the overall population and only differs with those companies which did not release their financial data. The sectors are similar and all of them belong to the manufacturing industry.

Table 1: Number of enterprises in specific sectors of the manufacturing industry

CZ NACE code	Sector name	No. of enterprises
C12	Manufacture of tobacco products	1
C13	Manufacture of textiles	103
C14	Manufacture of wearing apparel	60
C15	Manufacture of leather and related products	23
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	96
C17	Manufacture of paper and paper products	95
C18	Printing and reproduction of recorded media	63
C19	Manufacture of coke and refined petroleum products	2
C20	Manufacture of chemicals and chemical products	112
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	28
C22	Manufacture of rubber and plastic products	354
C23	Manufacture of other non-metallic mineral products	176
C24	Manufacture of basic metals, production of metals; casting of metals	116

Source: own processing

3. Results

The first step was to calculate VCM values for individual enterprises from the sample across the manufacturing industry sectors surveyed. It was found that only 12 enterprises fell below the threshold of 0.628 value points in the VCM model, the boundary set for enterprises destroying value. 821 enterprises were included in the group of enterprises creating value, with a threshold of over 0.758 value points in the VCM model. The rest of the enterprises (39 in total) form the grey zone according to the VCM model.

In the second step, EVA ratio values were calculated for the same enterprises. As table 2 shows, there are 468 enterprises creating value, 330 “grey zone” enterprises and 74 enterprises destroying value. It is thus immediately apparent that the classification of enterprises according to the VCM model and the EVA ratio is different.

Table 2: Characterization of individual groups of enterprises by EVA ratio

Group of enterprises	No.	EVA mean	EVA max.	EVA min.	ROE mean	ROE max.	ROE min.
Creating value	468	104 708	6 338 824	29	26.92%	418.65%	0.09%
Grey zone (EVA>0;ROE<0); (ROE>0;EVA<0)	330	-61 791	2 229 042	-7 696 872	14.01%	374.81%	-312.3%
Destroying value	74	-225 383	-353	-5 897 189	-28.82%	-0.65%	-608.97%

Source: own processing

From the results it can be deduced that the VCM model does not classify the surveyed enterprises very efficiently, since only 1.38% of enterprises are classified as enterprises destroying value. It appears that the boundary values have been set too low for this group of enterprises, or that the evaluation threshold of the model favours enterprises creating value. This is confirmed by the comparison of the division of enterprises into the three relevant groups according to the VCM model and the EVA ratio set out in tables 2 and 3.

Table 3: Results of VCM testing with selected enterprises from the manufacturing industry

	VCM values	No. of enterprises	% of sample	No. EVA	Consensus
enterprises creating value	> 0.758	821	93.35%	468	60.01%
“grey zone” enterprises	between	39	4.47%	330	38.34%
enterprises destroying value	< 0.628	12	1.38%	74	58.40%

Source: own processing

As far as the consensus of classification by the two models is concerned, it is at the level of 60.01% for enterprises creating value (with food enterprises it was 97.13%), 58.4% for enterprises destroying value (with food enterprises it was 79.63%) and 38.4% for grey zone enterprises (with food enterprises it was not determined). The

results are shown in table 3. At first sight, the consensus between evaluation according to the VCM model and the EVA ratio is not bad; however, it is necessary to take into account the numbers of the relevant groups of enterprises with the different ratings. According to the VCM model there are 821 enterprises creating value, but according to the EVA ratio there are only 468, so the difference is 43%. According to the VCM model there are 39 enterprises in the grey zone, but according to the EVA ratio there are 330, so the difference is more than 88%. According to the VCM model there are 12 enterprises destroying value, but according to the EVA ratio there are 369, so the difference is more than 96%.

However, consensus of around 60% (in enterprises creating value) is relatively low (in comparison with food enterprises); in addition, the numbers of enterprises classified within the three relevant groups according to the VCM model and the EVA ratio are diametrically opposed and quite disproportionate, so it is appropriate to at least partially modify the model. In order to increase the classification ability, one option is to adjust the thresholds, which appear to have been set too low for this type of sector. The new boundaries for sectors CZ NACE C12–C24 are set out in table 4.

Table 4: Modified VCM boundaries for the classification of enterprises

	VCM values
area of enterprises which create value	> 0.876
area of "grey zone" enterprises	between
area of enterprises which destroy value	< 0.825

Source: own processing

Setting the boundaries in this way allowed for a change in the distribution of enterprises in the individual areas so that they now correspond better to the distribution provided by the EVA ratio. In this sector, the EVA ratio classifies roughly 58% of enterprises as value-creating. With the new boundaries, the VCM model came close to this proportion (62% of the sample now comprises value-creating enterprises). Conversely, the figure for enterprises rated as value-destroying or in the grey zone according to EVA is just under 42%. Within the adjusted VCM boundaries they total 38%, which again represents a significant alignment compared to the previous boundaries.

Table 5: Results of VCM testing with selected enterprises from the manufacturing industry

	VCM values	No. of	% of sample	No.	Consensus

		enterprises		EVA	
enterprises creating value	> 0.876	544	62.4%	468	62.36%
“grey zone” enterprises	between	143	16.3%	330	53.15%
enterprises destroying value	< 0.825	185	21.3%	74	51.63%

Source: own processing

After resetting the boundaries, the number of enterprises which create value is much lower (544) and comprises 62.4% of the total number. At the same time, the classification ability (consensus with evaluation by EVA ratio) increased from 60.01% to 62.4%. Conversely, the number of enterprises that destroy value rose sharply, from 12 to the current 185. They now comprise 21.3% of the sample. The classification ability fell to 51.63%. The number of grey zone enterprises is also higher, having risen from 39 to 143. They now comprise 16.3% of the sample. The classification ability rose from 38.34% to 53.15%.

4. Discussion

In the research the authors made use of two concepts to determine the value creation of enterprises on the basis of public data. The EVA concept, which has been known and used since the 1990s, serves to establish whether an enterprise creates value, or to what extent it creates it. The second concept is the use of the VCM model, which is similar to solvency models and was created in recent times on the basis of data from Czech food enterprises with the use of logistic regression analysis. This model is able to categorize enterprises not only in a binary way, into enterprises creating or destroying value, but also defines the grey zone for the closer examination of enterprises with ambiguous results (from the perspective of the model). The aim of the research was to determine whether the VCM model, which has achieved very good results in the food sector, is equally efficient in classifying enterprises from other sectors of the manufacturing industry (specifically CZ NACE C12-C24).

When the model was applied to the data, it was found that the classification ability of the VCM model is lower than it was with the food sector. The main problem is the low identification of enterprises destroying value and grey zone enterprises, i.e. the model greatly overestimates the value-creating ability of manufacturing industry enterprises. This was clear from a comparison with the results of evaluation by EVA ratio.

However, for models of this type it is essential that the classification ability corresponds to reality, because if they are to be used by owners (shareholders) or managers in decision-making, reporting distorted results would lead to incorrect decisions. There are several possible reasons for the inaccurate classification ability of

the VCM model. Different sectors undoubtedly have different structures of assets and liabilities, because each type of enterprise necessitates another type of property and another way of dealing with it. Other types of enterprises (sectors) also hold different amounts of liquidity, stock and receivables depending on the external environment, which means that they exhibit varying rates of turnover. Different sectors have differing prices and margins, but also differing indirect and direct costs (in relation to total costs), i.e. they exhibit varying profit rates and profitability. These facts are reflected in all kinds of indicators (including financial ratios) and subsequently also in complex models such as the EVA ratio or the VCM model. On the one hand, the results obtained and especially the differences between food enterprises and manufacturing industry enterprises are unsurprising. On the other hand, it is worth considering whether it is actually possible to have a universal model for diverse sectors which differ markedly from one another.

On the basis of the results obtained, hypothesis H1 can be confirmed, since the classification ability of the VCM model is lower than in the case of food industry enterprises. However, the second hypothesis, H2, was only partially confirmed, since adjusting the boundary values of the VCM model only partially eliminated the problem of its low classification ability. In its current form, the results of the VCM model in terms of the frequency distribution of enterprises within the three classification groups are more in line with the results of the EVA ratio; nevertheless, they are still quite far removed from them. At the same time, the classification ability of the model did not achieve the consensus values achieved with food enterprises. It appears that this consensus cannot even be achieved by adjusting the boundary values, since the level of agreement for the groups of enterprises creating value and grey zone enterprises increased, but the level of agreement for the group of enterprises destroying value decreased. Only the consensus between the groups of grey zone enterprises was high (14.81%), while the remaining two changes were relatively small (2.35% and 6.77% respectively).

It therefore seems that this (least invasive) change which preserves all the elements of the model, enabling easy comparison across enterprises from various sectors, is insufficient. Of course, it is also possible to consider altering the weightings of the individual factors in the logistic regression analysis for each sector. This should result in an increase in classification ability, even if it simultaneously makes cross-sectoral comparisons more complicated. Furthermore, it is possible to consider including another financial ratio in the model to increase the accuracy of classification. However, this also raises the question of whether it would not be more appropriate to prepare an entirely different model for other sectors with other, more suitable indicators.

Conclusion

For future research it would be worth using the VCM model and comparing it with other sectors and other years (including food industry enterprises). At the same time, it would be appropriate to consider partial or comprehensive modifications which would increase the classification ability of the model and with that its explanatory power in terms of practical application.

However, one important question which needs to be answered in the near future is whether it is actually appropriate to create a universal multi-sectoral model, or whether it would be more appropriate to focus on different, specific models within different sectors. Based on the results obtained, it seems that it is not possible for a single universal model to capture all the disparities between business practice in different sectors, which subsequently leads to lower accuracy and explanatory power or classification ability. This in turn reduces the practical applicability of the model.

We consider the main limitation of this research to be the low predictive value of the unmodified VCM model in sectors of the manufacturing industry (as opposed to the food industry). There is no doubt that better results were achieved in the food industry sector. In sectors of the manufacturing industry the results are worse and it would be difficult to make use of the model, not only in this form but also in the modified form (adjusted boundary values). Another problem is the diversity of the manufacturing industry, where it is worth considering investigating individual sectors of the manufacturing industry separately and in this sense (in accordance with CZ NACE classification) working with a higher level of detail. Within future research it would therefore be appropriate to recalculate the model within the selected sectors (whether of the manufacturing industry or other sectors) and subject any differences to thorough analysis to allow for either the construction of an entirely new comprehensive model or a number of different specific models for individual sectors and sub-sectors.

Acknowledgement

This article is an output from the project “Přístup managementu k redukci zpětných toků ve vazbě na spokojenost zákazníků a neustálé zlepšování”, Czech Science Foundation no. GA 16-16260S.

References

Esbouei, S. K., Ghadikolaie, A. S. & Antucheviciene, J. (2014). Using FANP and fuzzy VIKOR for ranking manufacturing companies based on their financial performance. *Economic Computation and Economic Cybernetics Studies and Research*, 48(3), 141–162.

- Feurer, R. & Chaharbaghi, K. (1994). Defining competitiveness: a holistic approach. *Management Decision*, 32(2), 49-58.
- Hillman, A. J. & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: what's the bottom line? *Strategic management journal*, 22(2), 125-139.
- Harrison, J. S. & Wicks, A. C. (2013). Stakeholder theory, value, and firm performance. *Business ethics quarterly*, 23(1), 97-124.
- Chava, S. & Jarrow, R. A. (2004). Bankruptcy prediction with industry effects. *Review of Finance*, 8(4), 537-569.
- Neumaierová, I. & Neumaier, I. (2005). Index IN05. In *Evropské finanční systémy: Sborník příspěvků z mezinárodní vědecké konference*. 143-148.
- Odbor ekonomických analýz. Finanční analýza podnikové sféry za rok 2014. Ministerstvo průmyslu a obchodu (2015, retrieved 2016, April 12). Retrieved from: <http://www.mpo.cz/assets/dokumenty/52578/59848/631521/priloha002.pdf>
- Reichheld, F. F., Markey Jr, R. G. & Hopton, C. (2000). The loyalty effect - the relationship between loyalty and profits. *European Business Journal*, 12(3), 134-139.
- Salem Khalifa, A. (2004). Customer value: a review of recent literature and an integrative configuration. *Management Decision*, 42(5), 645-666.
- Tischer, S. & Hildebrandt, L. (2014). Linking corporate reputation and shareholder value using the publication of reputation rankings. *Journal of Business Research* 67(5), 1007-1017.
- Velez-Pareja, I. (2001). Value creation revisited: the economic profit. Universidad Javeriana, Bogota, Colombia.
- Varaiya, N., Kerin, R. A. & Weeks, D. (1987). The relationship between growth, profitability, and firm value. *Strategic Management Journal*, 8(5), 487-497.

ELECTRONIC RECORDS OF SALES AND IT'S COSTS FOR THE COMPANIES IN THE CZECH REPUBLIC

Libuše Svobodová, Martina Hedvičáková, Marta Martinová

University of Hradec Králové
Faculty of Informatics and Management
Rokitanského 62, 500 03 Hradec Králové
Czech Republic
libuse.svobodova@uhk.cz
martina.hedvicakova@uhk.cz
marta.martinova@uhk.cz

Abstract

This article aims to evaluate the main costs that are connected with implementation and use of the Electronic records of sales (hereinafter referred to as EET) in the Czech Republic. We will focus on the business environment of the small enterprises. The costs will be calculated for small traders. EET obligation was compulsory established for all legal entities doing business in the country. EET system is starting in four stages. The first stage (started 1.12.2016) covered the restaurants and hotels. The second stage (started 1.3.2017) covered approximately 250 thousand of traders. Especially for these companies will be an analysis done. Technical solutions can also be used for other business activities. Final third and fourth stage of the introduction of EET will cover the rest of legal entities in the Czech Republic (will start 1.3.2018 and 1.6.2018). During processing this paper were used professional resources but also the information from various providers of technical solutions EET. Even though the fact that the state contributes in the first year a one-off tax relief for EET in the amount of CZK 5,000, the cost of acquisition and use of technology are usually already in the first year higher than the one-off tax relief. In subsequent years of use, the operation of technologies the entrepreneurs already finance by themselves.

Keywords

electronic records of sales, costs, implementation, traders

Introduction

The law on electronic records of sales (Act no. 112 / 2016 Coll.) was approved by the President of the Czech Republic on 30 March 2016. As a contribution to the introduction of EET was negotiated one-off tax credit in the amount of CZK 5,000 for natural persons for the acquisition of the detection device. (Novinky.cz, 2016)

1. EET and the demands on its implementation

EET records each payment and customer receives from the merchant the receipt with a unique code. The procedure is such that at least, when registered revenues are recorded, merchant sends data message through an internet connection to the server of Financial Authority, where information will be saved and unique code will be generated and immediately sent back to the merchant's terminal which prints it on the receipt. It will be by around millions of operations every day. (Eltrzby.cz - *O co jde*, 2016) According to the Law on electronic records there is a responsibility for each merchant to have a data connection (internet or mobile internet), which allows to connect with the Financial Authority while receiving the payment. It generates and sends a fiscal identification code in 2 seconds that will be printed on the receipt. It is necessary to have a device including the software or application that allows to register the payment (revenue), to connect with the Financial Authority, to take identification code and send data and to print a receipt - that the merchant gives the customer. (Eltrzby.cz - *Co potřebuji*, 2016)

Why, then, the EET was implemented despite all the substantive arguments? Tax Office has enough information even without EET, many analysts expected no increase in tax collection, developed economies do not impose it, it will be very expensive, information and data will be cumulated, but even though EET was introduced. Indeed, EET is a great business opportunity, where billions Czech crowns will be distributed. In favour of the introduction of EET, the most engaged was Andrej Babiš, some business associations, but most connection providers and IT companies. Implementation and maintenance of the system constitutes the hundreds of millions Czech crowns. "Even the Ministry of Finance in its materials gives these resources as a priority of the entire process that will help the economy of these companies." (Temata: EET, 2017) This means that the money of small enterprises and traders will go into the pockets of big software companies or mobile operators.

Due the contemporary topic was not often solved this issue in the professional journals or conferences. There were solved impacts on the reduction of tax evasion focused Kolářová, Podolská (2016). Sádovský and Matějková (2016) focused at selected factors of the business environment in the Czech Republic. They wrote also about procedures connected with electronic income regulation. The only one note about costs connected with implementation and use of EET was mentioned. „Furthermore, there are costs incurring due to the technology acquisition and due to further training so that the CZK 5,000 discount is negligible. This duty cannot stop the system from a cheaper “paperless” operation.” Bensoussan et. al. (2016) focused on the managing inventory. Cimler (2015) focused in 2015 on some issues connected with implementation of electronic sales registration in the Czech Republic. It differs from the original intention to implement sales registration using so-called recording

cash registers. Paper presents less of a burden for small businesses, which this measure targets most of all. One of the issue was to point out the actual technical and administrative burden for businesses connected with electronic sales registration. In Slovak Republic with effect from the 1st of January 2012 entrepreneurs who sell goods or provide specified services and meet the statutory conditions are obliged to use electronic cash registers (hereinafter "ECR") with a fiscal memory. From April 1st 2015, the Financial Directorate has launched a free business application - virtual cash register ("VCR"). VCR is based on the system of electronic communication via the Internet, meaning that seller has to use electronic devices such as computers, laptops, tablets or smartphones. These terminal devices must be connected to a printer in order to print invoices. [13] Durisova et. al. [15] emphasises the important position of ICT in ECR, identifies difficult places in hardware and software and other issues connected with implementation and use. In Austria, companies that exceed a certain amount of sales have to use a cash register from the beginning of May, 2016. (Moore Stephens, 2016)

EET for entrepreneurs (EET pro živnostníky, 2016) presented in 2016 a cost structure for EET for entrepreneurs from 2016 to 4 years. Estimated cost structure for EET was as follows:

- 5 % JEP licence
- 21 % hardware
- 49 % Internet
- 25 % consumables

The cost structure estimate in 2016-2019 was as follows:

- 2016 - about CZK 5,000, of which the most hardware,
- 2017 - 2019 - about CZK 3,500, of which is CZK 2,000 internet and about CZK 1,500 consumables.

However, many solutions on the market are available at lower prices (such as the internet for CZK 49 per month) than the given estimate.

2. Methodology and goal

The article is based on primary and secondary sources. Secondary sources comprise information about Electronic records of sales in the Czech Republic and abroad, professional literature, information collected from professional press, discussions or previous participations in professional seminars and conferences relating to the chosen subject. Additional gained resources are based on the data from sellers of

devices and equipment required for the electronic records of sales. Due to the many types of devices and the wide scale of costs for each type of devices but also to the diversity of operations, it will be dealt with small shops in the Czech Republic in this paper. The selection was done due to the significant number of this businesses in the Czech Republic. Then it was necessary to select, classify and update accessible relevant information from the numerous published materials that would provide the basic knowledge of the selected topic.

The goal of the paper is to analyse the cost of individual technical solutions for the management of EET and subsequent costs that are associated with the operation of EET. As mentioned above, the cost will be analysed for small and alternatively medium traders in the Czech Republic. Primarily we will focus on the EET solutions from mobile network operators.

3. Results

For EET the businesses usually need internet connection, the cash register with an internet connection, special software and service facilities. Furthermore, they need rolls of paper, which are inserted into the device to print receipts. In case of larger enterprises it is generally necessary to have more devices. In comparing will be presented prices of devices and accessories that may be required to operate EET. The price for the rolls (paper) for printers is not solved because their price is similar to most providers.

a. Mobile network operator - O2

In case of this mobile network operator (hereinafter MNO) will be compared these two technical solutions, see table 1.

Table 1: Solutions of EET cash registers from O2

Mobile eKasa		eKasa	
portable printer included 		portable printer included 	
5" touchscreen		10" touchscreen	
		free payment terminal	
<i>acquisition price: CZK 2,995</i>		<i>acquisition price: CZK 4,995</i>	
Regular monthly costs: Customers monthly pay by card	100 ths. CZK and more	50 - 100 ths. CZK	0 - 50 ths. CZK
Price - mobile eKasa	free	CZK 200	CZK 399

Price - eKasa	free	CZK 250	CZK 499
Regular monthly costs with the application (application for mobile phones or for tablets)			
Customers monthly pay by card	100 ths.CZK - ...	50 - 100 ths. CZK	0 - 50 ths. CZK
O2 mobile eKasa Air - phone	free	CZK 175	CZK 349
O2 eKasa Air - tablet	free	CZK 225	CZK 449

Source: own processing based on (Sádovský, Matějková, 2016)

Both solutions offer free commissioning, 4G LTE internet and voucher for a free installation. O2 offers from all MNO providers the richest accessories. The question, however, might be, whether it is essential fact for small businesses. With O2 is still possible to save costs, so that the entrepreneur is loaded on his own phone or on a tablet, which meets the parameters, a special application that allows to record the transaction.

b. Mobile network operator - T-Mobile

In case of this mobile network operator will be compared four technical solutions, see table 2.

Table 2: Solutions of EET cash registers from T-Mobile

Cashbox	Tablet	Calculator	Printer
professional cash register with integrated printer	predefined secured tablet with a printer	simple portable push-button device	required own phone or tablet connected to a printer attached
familiar environment from tablets with a guaranteed safety 	fully fledged cash register with many functions for various industries 	intuitive operation that can handle anybody 	application ensure the EET and registration of items and their management 
favourable conditions for the acceptance of cards	acceptance of payment cards as accessory	central backup - easy recovery of data in the device failure	acceptance of payment cards as accessory
sharing of data between multiple	sharing of data between multiple	PLU codes as in case of conventional	

devices	devices	cash registers	
price: CZK 8,998	price: CZK 5,497	price: CZK 3,996	price: CZK 1,995
regular monthly costs: CZK 395	regular monthly costs: CZK 395	regular monthly costs: CZK 195	regular monthly costs: CZK 155

Source: own processing based on (T-Mobile, 2017)

All solutions can use internet connection specially designed for EET for CZK 49.

Cashbox and tablet have optional equipment - stand, cash drawer, scales, scanner etc. and statistics of sales across the entire sales network.

c. Mobile network operator – Vodafone

In case of MNO Vodafone will be compared three technical solutions (table 3). Vodafone has the connection set to either phone or tablet. On his website offers 7" phone or 7" tablet or other devices. The phone has a price of CZK 2,977 incl. VAT or tablet for CZK 5,177 incl. VAT. Price of printer RONGTA RPP 200 is CZK 3,360. ePokladna Standard and ePokladna Complet include bulk upload items from the computer. All solutions have automatic backup of sales and settings, support for English and Vietnamese, tablet Vodafone Smart tab speed 6 (black) and printer RONGTA RPP 200. All mentioned devices from Vodafone have calculator for quick calculation of the total entry to taxation. E-Cash register set also offers special prices and discounts, inventory management, vendor management and inventory.

Table 3: Solutions of EET cash registers from Vodafone

ePokladna Mini	ePokladna Standard	ePokladna Complet
8 favourite items for quick sale	1 000 favourite items for quick sale	5 000 favourite items for quick sale
regular monthly costs: CZK 149	regular monthly costs: CZK 248	regular monthly costs: CZK 347
		

Source: own processing based on (Vodafone.cz, 2017)

d. The technical solutions of EET cash registers and their costs - other operators

Markeeta offers four solutions for retailers. The price of solutions is from CZK 4,990 to CZK 9,990. Regular costs are from CZK 4,990 per year. Basic commissioning and certification costs are CZK 990. Markeeta offers free payment terminal to their cash registers with the lowest fee on the market - from 0.9%. Data SIM card with a

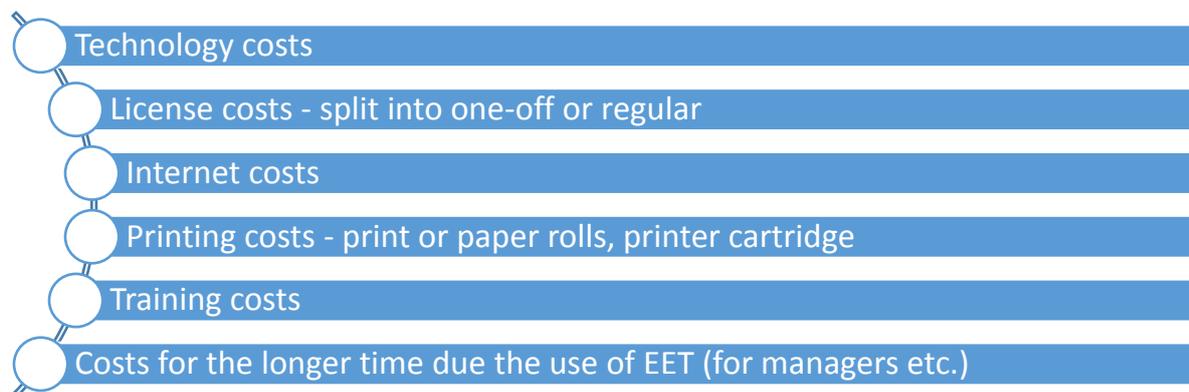
monthly capacity of data of 250 megabytes for the device Markeeta SMART, Markeeta Mini and Markeeta Compact costs CZK 555. With addition the monthly fee for all devices.

The last evaluated products are produced by **dotykacka**. All solutions cover free update and preparedness for EET and free internet for immediate commissioning and sales evidence. Price of the product is CZK 2,944. There are License FREE (CZK 0), licence EASY (CZK 289 per month) or licence AT FULL BLAST (CZK 590).

e. Design of EET costs

Due to the differences in the costs of individual providers, will be presented the model without concrete numbers (Fig. 1), which includes the costs associated with the introduction and subsequent use of the EET.

Figure 1: EET cost model



Source: own processing

Discussion, limitations and conclusions

In the process of implementing and using the EET, technologies for EET constitute additional costs. Despite the one-off tax credit in the first year in the amount of CZK 5,000, EET is still a cost burden for businesses. Currently Markeeta MINI is the cheapest EET solution without a fee in the market from the analysed solutions in the paper. Due the limitation of the article we have not presented all possible solutions on the Czech market. But Markeeta MINI may not meet all retailers. Some of them like to pay extra for more comfortable operation, a larger touchscreen, more features etc. As other costs that are reported by some providers might be perceived connection to the internet. For MNO providers, usually connection is included in fee. For other providers, charges must be further addressed. In many establishments connection was already available. Thanks to this fact, other new costs don't arise for them. As an additional cost may be perceived for example rolls of paper. For individual providers were not found significant differences in the cost of these items.

Comparisons could affect term of exploration. Some providers significantly reduce the price of their products from beginning of the project till now, for example Markeeta and T-Mobile. Some providers now offer cheaper monthly fee, for example Markeeta provides the first 3 months of service for free, Vodafone has discounted prices for the first year and more. These facts should not play a major role in the choice of technology, because they will be used in future years.

In conclusion we can add that the true consequences and impacts of EET only time will show us, more precisely the year 2018, in which EET will be into service for twelve months. The question may be whether the Czech Republic should start to be inspired rather west and north states, where we see that their systems work and produce results for several years, and not from the states to the east of us.

On the other hand, the EET may have the advantage for entrepreneurs that they will be forced to regularly track and monitor their tax records / accounts. Some systems will help them, for example, with better warehouse management, etc.

This study is supported by internal research project No. 2103 Investment evaluation within concept Industry 4.0 at Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic.

References

Bensoussan, A., Cakanyildirim, M., Li, M. & Sethi, S.P. (2016). Managing Inventory with Cash Register Information: Sales Recorded but Not Demands. *Production and Operations Management*, 25(1), 9-21.

Cimler, P. (2015). *Electronic Sales Registration - For Whom Is It an Opportunity, and For Whom a Threat?* Opportunities and Threats to Current Business Management in Cross-border Comparison 2015. Chemnitz: Verlag der GUC.

Dotykačka - pokladní systémy a registrační pokladny pro EET. (2017, retrived 2017, April 4). Retrieved from <https://www.dotykacka.cz/>

Ďurišová, M., Holková, B. & Lekýr, M. (2015). Tax evasion in sales cuts registered by electronic cash register. *Communications: scientific letters of the University of Žilina*. 17(2), 66-72.

EET pro živnostníky, řemeslníky, lékaře. Evidenční pokladna pro malé živnostníky. (2016, retrieved 2017, April 10). Retrieved from <http://www.eetprozivnostniky.cz/>

Eltrzby.cz - Co potřebuji. (2016, retrieved 2017, April 4). Retrieved from <http://www.eltrzby.cz/cz/co-potrebuji>

Eltrzyby.cz - *O co jde*. (2016, retrieved 2017, April 4). Retrieved from <http://www.eltrzyby.cz/cz/o-co-jde>

Kolářová, E. & Podolská, E. (2016). The Electronic Record of Sales and Impact on the Reduction of Tax Evasion. *European financial systems 2016: proceedings of the 13th international scientific conference*. Brno, 357-364.

MARKEETA - Elektronická pokladna pro vaše podnikání. (2017, retrieved 2017, April 4). Retrieved from <https://www.markeeta.cz/>

Moore Stephens - *Austria: The introduction of cash registers from May 2016*. (2016, retrieved 2017, May 3). Retrieved from <https://www.moorestephens.cz/en/austria-introduction-cash-registers-may-2016/>

Moore Stephens - *The electronic cash register in the Slovak Republic*. (2016, retrieved 2017, May 3). Retrieved from <https://www.moorestephens.cz/en/electronic-cash-register-slovak-republic/>

Novinky.cz - *Zeman podepsal vznik elektronické evidence tržeb*. (2016, retrieved 2017, April 4). Retrieved from <https://www.novinky.cz/domaci/398980-zeman-podepsal-vznik-elektronicke-evidence-trzeb.html>

O2 - *eKasa - jednoduché řešení pro EET*. (2017, retrieved 2017, April 4) Retrieved from <https://www.o2.cz/podnikatel/elektronicka-evidence-trzeb/>

Sádovský, Z. & Matějková, J. (2016). Selected Factors of the Business Environment in the Czech Republic. *Theoretical and practical aspects of public finance*. 85-89.

Temata: EET. *Svobodní*. (2017, retrieved 2017, April 4). Retrieved from <http://www.pajonk.cz/temata/eet/>

T-Mobile - *EET*. (2017, retrieved 2017, April 04). Retrieved from <https://www.t-mobile.cz/podnikatele-firmy/eet>

Vodafone.cz - *Elektronická evidence tržeb*. (2017, retrieved 2017, April 4) Retrieved from <https://www.vodafone.cz/podnikatele/specialni-sluzby/epokladna/>

IT CHALLENGES OF HUMAN RESOURCE MANAGEMENT FOR GENERATION Y

Jana Školudová

Department of Corporate Economics and Management
Faculty of Economics and Administration
University of Pardubice
Studentská 84
532 10 Pardubice
jana.skoludova@upce.cz

Abstract

In today's business world, the biggest trend in HR is the digitization work. This has a positive impact on efficiency and economic results of the company, as well as the entire HR and employee satisfaction. This trend is also related to use of internal social networks. IT solution enables connectivity and replacing time-consuming manual or administrative tasks efficient, automated processes, allowing workers to focus on key areas such as strategy, new ideas, and mutual cooperation. The aim of this paper is to determine whether Enterprise Social Network positively affects Human Resource Management for generation Y. The primary research was focused on finding the requirements of Generation Y on the workplace. Secondary research was focused on the influence of Enterprise Social Network for HRM in the company, predominantly in the area of cooperation between employees and employee satisfaction. The methodology of this paper is based on a comparative qualitative research, based on the questionnaire survey. The results of the research point to the trend of using modern information technologies in HRM.

Keywords

human resource management, information technology, enterprise social network

Introduction

Current economic and global conditions made a large number of enterprises to migrate to Internet-based systems for increased efficiencies, lower operating barriers costs and the ability to operate in real time across different platforms. That is why many firms are re-engineering their main business processes, by investing in key technologies - mobility, cloud computing, business intelligence and social networks. (Oprescu & Eleodor, 2014) It is widely accepted that new technologies are having major positive and negative impacts on economic and social relationship. (Ciocoiu, 2011) In this context, ICT and Internet are seen as opportunities to the development. Sustainable development can be based on expanding global communications and knowledge exchange (MacLean, Andjelkovich & Vetter, 2007). Information economy also requires highly skilled workers and the development of their intellectual skills,

which cause the potential of knowledge of a society (Ciobanu, Pană & Diaconu, 2015).

Information Technology is doubling every 2–3 years and mobile internet traffic every year. By 2015 there will be 25 billion wirelessly connected devices globally; doubling to 50 billion in 2020 (Duhăneanu, & Marin, 2014). The company PwC conducted international research that interviewed 1344 general directors from 68 countries. The research results reflect trends influencing business conduct not only right now but also in the next three years; this is due to the growth of the information technology. Main factors that influence business sector are the digital economy, social media, mobile devices and big data. (Přikryl, 2014) Therefore enterprise managers and HR managers address the selection and combination of information technology. Search sophisticated technologies are a key factor for efficient human resource management. One of the possible technologies for human resources management is internal social networks. Using this tool, users can quickly connect anywhere in the world (Kazdová, 2015). This paper's author agrees with the author Černý (2013), who defines the enterprise social network as the part of intracompany communication with the goal of cooperation, information sharing, the acquisition of feedback or mutual communication between individual people in the company. Furthermore, the enterprise social network offers an altogether separate and secure environment, which is one of its key parameters. This network mainly integrates the intranet with other collaborative tools. Providers of Enterprise Social Networks offer many benefits for the management (Přikryl, 2014; IBM 2016).

Generation Y present a challenge to managers who must motivate these employees, so that their strengths become a benefit to the company. To be successful in the future, it will be important for companies and managers to understand these new employees. (D'Netto & Ahmed, 2012) Many of the characteristics of Generation Y are significantly different from previous generations. Generation Y's attitude towards work is quite different from preceding generations. Generation Y need to feel that they are making a difference to the business and are part of the decision-making process. Generation Y do not perceive work as an investment in the future of the company and want immediate payoffs, such as independence, flexible hours, casual dress and an element of 'fun' at work (Loughlin, 2001). Generation Y want work which meets their personal goals, is interesting and provides the opportunity to work with committed individuals who share their values (Allen, 2004). They need to know how their work fits into the company, so involving them in decision-making and soliciting their ideas will be viewed as a positive aspect (Martin & Tulgan, 2006). It is obvious that HRM should react to such changes and align its strategies and activities to this new labour market cohort, and search for adequate ways to recruit, develop, compensate, etc. such "digital employees" and moreover to integrate them with

previous generations of employees. (Strohmeier & Stefan, 2014) The challenge for HRM therefore is to identify actual digitally induced changes in attitudes, qualifications, behaviours and expectation of younger employees.

1. Methodology

The aim of this paper is to determine whether Enterprise Social Network positively affects Human Resource Management for generation Y. The primary research was focused on finding the requirements of Generation Y on the workplace. Secondary research was focused on the influence of Enterprise Social Network for HRM in the company, predominantly in the area of cooperation between employees and employee satisfaction.

The methodology of primary research is based on questionnaire research. This research was attended by 69 students of the University of Pardubice. The methodology of secondary research is based on comparative qualitative research on the basis of a survey conducted in the Czech Republic across business sectors. The following criteria were established for selecting a sample of respondents:

- a corporation;
- all sectors according to CZ NACE categorization;
- all locations in the Czech Republic;
- actively engaged in business.

In order to increase the validity of the data and guarantee the general confirmation, the following were not specified: the number of employees, turnover, sector or location of the organization. Next, specific organizations were determined with the selected criteria listed above with the help of the MagnusWeb database information system. After exporting the file with the search results into an excel spreadsheet, the total number of firms amounted to 193,908 organizations. Multistage probability sampling was used (Kubanová, 2008). The basic sample is very extensive (193,908 organizations), which eliminates recording and studying all of its components. The final sample for questioning included 47,772 organizations. On the basis of the calculation of the formula presented below (1), the minimum number of respondents is set at 272 (Kozel, Mynářová & Svobodová, 2011). The calculation of the minimum number of respondents is as follows:

$$n \geq (z^2 \cdot p \cdot q) / \Delta^2 \quad (1)$$

where:

n is the minimum number of respondents

z is the reliability coefficient 2 (95.4% reliability)

p and q are the number of respondents aware and unaware of the problematic in percentages

Δ is the set maximum permissible error (6 %)

$$n = (2^2 \times 0.43 \times 0.57) / 0.06^2$$

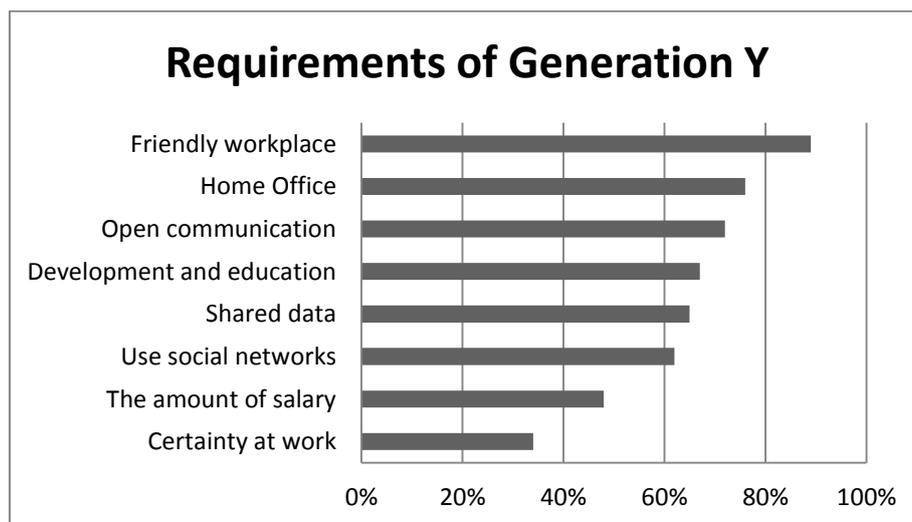
$$n = 272$$

The rate of return for the questionnaires reached an absolute representation of 842, which is sufficient with regards to the calculated minimum number of respondents. Of this number, a total of 114 respondents answered that an enterprise social network is used in their organization.

2. Results

The primary research was focused on finding the requirements of Generation Y on the workplace. Fig. 1 shows that Generation Y requires the most friendly workplace, possibility of Home Office, skills development and education, possibility of shared data (work anytime and anywhere), possibility of use social networks (online and internal networks). Low interest is about the amount of salary and certainty at work.

Figure 1: Requirements of generation Y



Source: own processing

Secondary research was focused on the influence of Enterprise Social Network for HRM in the company, predominantly in the area of cooperation between employees

and employee satisfaction. Research question is as follows: Implementation of ESN does not affect cooperation between employees (x_1) and employee satisfaction (x_2) in company. Empirical generalization and interpretation of the determined results was conducted on the basis of the research results.

For statistical evaluation was used program STATISTICA. The reference constant was determined 3 (no change). The level of significance of the test was determined $\alpha = 0.05$. Results were calculated by t-test, based on the composition of the data matrix, the selected test, defined variables and constants reference. The following Tab. 1 comprehensively represents the results of the test performed.

Table 1: T-test result in STATISTICA

Variable	Test averages against the reference constant (value)						
	Average	St.dev.	St.er.	Constant reference	T	SV	p
x_1	3,72	0,91	0,08	3,00	8,19	107	0,00
x_2	3,83	0,88	0,08	3,00	9,83	107	0,00

Source: own processing

Tab. 1 shows that p-value was less than the significance level α and the average value of the variable x_1 and x_2 is greater than the reference constant. We admit that the implementation of an ESN positively influences cooperation between employees and employee satisfaction in company.

Discussion and conclusion

The Internet Economy is characterized by digitalization and intensive use of information and communication technologies (ICT), codification of knowledge, change of information into commodities and new ways of organizing work and production. Enterprises with foreign divisions throughout the world need together to share information, planning, solve problems, realize new strategic decisions. The overall comparison of the research data presents current trends and research results encourage the use a potential management tool for effective human resource management.

The generation of younger employees grown up in a digital environment is both considerably more complex and considerably more heterogeneous, while there are, however, obvious differences that have to be considered (Helsper and Eynon, 2010; Bennett et al., 2008). The primary research was focused on finding the requirements of Generation Y on the workplace. Research results show that Generation Y requires the most friendly workplace, possibility Home Office, skills development and

education, possibility of shared data (work anytime and anywhere), possibility of use social networks (online and internal networks). Low interest is about the amount of salary and certainty at work.

The digital world allows for faster time and more effectively connection between businesses and their employees, customers and business partners. Managers also address what new sophisticated tools to implement to the business management. Managers can choose from a range of tools and software, based on the rapid development of information technology. Enterprise social networks are internal enterprise software and can offer a variety of benefits to modern business management (Leonardi, Huysman & Steinfield, 2013). The results of the research question and T-test show that managers can achieve better cooperation between employees and employee satisfaction using of ESN.

There are many factors influencing business success, competitiveness and stable sustainable development in the future. One of many factors is the ability of companies to use a modern information technology. The research results presented in this paper add another perspective to human resource management support. Future development of research would be focused on impact of other information technologies on businesses. It will be interesting to continue monitoring new IT trends in business management.

References

- Allen, P. (2004). Welcoming Y. *Benefits Canada*, 28(9), 51-53.
- Bennett, S., Maton, K., & Kervin, L. (2008). The digital natives debate: a critical review of the evidence. *British Journal of Educational Technology*, 39(5), 775-778.
- Černý M. (2013). Firemní sociální síť: výzva, nutnost nebo buzzword? Retrieved from: <http://www.dsl.cz/clanek/2823-firemni-socialni-site-vyzva-nutnost-nebo-buzzword>
- Ciobanu, G., Pană, A., & Diaconu, A. (2015), Digital Economy - Growth Factor in Job Creation in Romania. *Quality - Access To Success*, 16, 430-440.
- Ciocioiu, C. N. (2011), Integrating Digital Economy and Green Economy: Opportunities for Sustainable Development. *Theoretical and Empirical Researches in Urban Management*, 6(2), 33-43.
- D'Netto, B., & Ahmed, E. (2012). Generation Y: human resource management implications, *Journal of Business and Policy Research*, 1-11.
- Duhăneanu, M., & Marin, F. (2014). Digital Agenda for Europe - risks and Opportunities in a Digital Economy. *Quality - Access To Success*, 15, 57-65.

Helsper, E. J., & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal*, 36(3), 503-520.

IBM Connections Content Manager. (2016, June 22). Retrieved from: <http://www-03.ibm.com/software/products/cs/connections-content-mgr>

Kazdová, A. (2015). Síťování objevuje skryté talenty a inovace. *Moderní řízení*, L(6), 26.

Kozel, R., Mynářová, L., & Svobodová, H. (2011). *Moderní metody a techniky marketingového výzkumu*. 1th. ed. Praha: Grada.

Leonardi, P. M., Huysman, M., & Steinfield, CH. (2013). Enterprise Social Media: Definition, History, and Prospects for the Study of Social Technologies in Organizations, *Journal of Computer-Mediated Communication*, 19(1), 1-19. doi:10.1111/jcc4.12029.

Loughlin, C., & Barling, J. (2001). Young workers' work values, attitudes and behaviours, *Journal of Occupational and Organisational Psychology*, 74(4), 543-558.

Maclean, D., Andjelkovich, M., & Vetter, T. (2007, retrieved 2010, September). Internet Governance and Sustainable Development: Towards a Common Agenda. Retrieved from: http://www.iisd.org/pdf/2007/igsd_common_agenda.pdf

Martin, C., & Tulgan, B. (2006). *Managing the generation mix: from urgency to opportunity*. Second Edition, HRD Press.

Oprescu, G., & Eleodor, D. (2014). The Impact of the Digital Economy's Development on Competition. *Quality - Access To Success*, 15, 9-20.

Příkryl, J. (2014). Ředitelé firem jsou už optimističtější. *Moderní řízení*. XLIX(6), 30.

Strohmeier, E. P., & Professor S. (2014). HRM in the digital age – digital changes and challenges of the HR profession. *Employee Relations*, 36(4).

BENEFITS AND RISKS OF THE IMPLEMENTATION OF THE CONCEPT OF FREEDOM AT WORK

Daša Václavíková

University of Matej Bel
Faculty of Economics
Department of Corporate Economics and Management
Tajovského 10
975 90 Banská Bystrica, Slovakia
dasa.vaclavikova@umb.sk

Abstract

The essence of the concept of freedom at the work derives from the possibility for employees to work in an environment in which they can fulfill their potential and creativity, participate on the progress of the organization and through the achievement of their objectives to meet the organization's objectives. Freedom at work is an opportunity for employees to organize their working time and work tasks in their own discretion, while respecting the business rules and other employees. If employees understand the meaning of their work, they work responsibly, quickly and efficiently. The aim of this paper is to present the results of the analysis of the benefits and risks of the concept of freedom at work based on secondary and primary research. Paper focuses on the positive benefits of the application of the concept of freedom at work, such as employee satisfaction and employee engagement, but also on the risks of applying this concept, such as the possibility for abuse of the conferred powers and freedom and a reduction of employee productivity. The paper presents the results of a questionnaire survey in Slovak companies conducted on a representative sample of businesses.

Keywords

freedom, freedom at work, human resources, questionnaire

Introduction

Freedom at work does not mean go to work and do nothing. Freedom activates and motivates people to engagement, initiative and higher productivity (Rolková, 2013). Gallup institute dealing with employee engagement shows that when employees are involved in the management of the company, they are more creative and productive and their work contributes to business growth. In the institute, however, found out that up till 87% of employees are not engaged at their work (www.gallup.com, 2015).

Rynik (2011) points out that if employees have sufficient freedom to organize their working time and exercise at its own discretion, they know the meaning of their work, their approach to work is responsible, fast and efficient. Tomáš Hajzler says

that freedom at work means opportunity for employees to exercise their best strengths (Harkotová, 2013).

1. Theoretical basis and hypotheses

Freedom at work is associated mainly with responsibility. Responsibility of workers to accept this commitment. Geropp (2014) points out that if employees have commitment to behave responsibly, they have to know in what their responsibility is. They have to see the sense of their work, sense of the whole company in which they work. Just so they can contribute to fulfill the vision of the business. If the vision of the company is clear, employees are able to identify with it and they are more proactive in their work tasks.

A key precondition to enable enterprises to operate on the principles of freedom at work is the belief that employees are adults, who are able to make decisions about their work, as well as about the functioning of the company as a whole. People who know how at work responsibly deal with entrusted freedom (Kováčik, 2012).

Koloc (2014) points to the feeling of freedom at work, as the option to choose what kind of job a person will perform, as well as when and where he or she will perform it. He says the feeling of freedom, as a growing priority for talented employees across different sectors and industries, is one of the key elements of self-fulfillment. On the other hand, dissatisfaction of employees at work causes their low productivity, workplace conflicts, dissatisfied customers and financial losses. This mood is transferred to the private lives of employees, where affects their family relationships and health. The concept of freedom at work allows employees to choose what and how they do and then they will receive fair remuneration. Money should not be the most important reason why employees work. That reason is that their work is meaningful.

The aim of this paper is to identify the risks and benefits of the application of the concept of freedom at work. To achieve our goal we have set up two hypotheses. In the hypothesis H1 we expect that the most significant risk associated with the application of the concept of freedom at work is considered a wrong perception of freedom by employees. The risks associated with the concept of freedom at work resulting primarily from the possibility for abuse of the conferred powers by employees. If the employees have more space at work, within which they are free to decide and act, they may feel that their work performance is not controlled, so it can affect their performance, work effort and productivity.

The hypothesis H2 assumes that the main benefit of applying the freedom at work is considered higher employee satisfaction. The concept of freedom at work expected to provide employees greater job satisfaction, which, according to Lund (2003, p. 223)

consists of "degree of employee satisfaction with performed work, with colleagues, a way of management, satisfaction with the assessment and the possibility of growth and development". Job satisfaction affects job performance and employee loyalty. Freedom at work also leads to increased productivity, because employees feel responsible for their results, which contribute to the success of the company.

2. Methodology

The paper presents the results of primary research conducted on a representative sample of businesses. When identifying the risks and benefits of the freedom at work we work with the hypotheses H1 and H2, which are verified through the results of a questionnaire survey. The subject of our research are the benefits and risks associated with the concept of freedom at work. The object of investigation are selected Slovak enterprises. When examining the problem we primary use method of analysis, synthesis, generalization and description.

The realization the primary questionnaire investigation ran from 13 October 2016 to 12 November 2016. For the purpose of defining the basic set, we contacted the Statistical Office of the Slovak Republic, which provided us with the current database of business entities consisting of a profit-oriented businesses with the number of employees 10 and more. Basic set consisted of 15799 businesses.

In the questionnaire investigation we contacted by a random selection 4500 businesses. Questionnaires were distributed to the respondents electronically. The sample we have compiled through the use of functions in Microsoft Excel. 349 respondents were involved to the questionnaire survey, who returned correctly completed questionnaire, which represents 7.76 percent return.

3. Results

Representativeness of the sample we tested in the statistical program IBM SPSS 19 using a test called Chi-square test. The representativeness of the sample was tested by three quality characteristics: size of the company, legal form of the company and the region of action of the company. After testing the representativeness of the sample, we can conclude that the sample is representative by all the three selected quality characteristics, and thus it is possible to generalize the results of the questionnaire survey to the basic set.

H1 hypothesis, which assumes that the most significant risk associated with the application of the concept of freedom at work is considered a wrong perception of freedom by employees, we have verified in the statistical program IBM SPSS 19 using Friedman and Wilcoxon signed rank test. In the questionnaire, respondents were given 8 risks associated with the application of the concept of freedom at work. For

all risks, respondents had to mark the significance of the factor on a scale from 1 to 5 (1 is a very important factor, 5 represents an insignificant factor). After evaluating hypotheses in statistical program, we found that respondents placed on the first place just a wrong perception of freedom by employees. Output from the statistical program is presented in Table 1.

Table 1: Risks associated with the concept of freedom at work

	Z	Asymp. Sig. (2-tailed)
the lack of communication in the workplace - a wrong perception of freedom by employees	-2,459 ^a	,014
the unwillingness of employees to take responsibility - the lack of communication in the workplace	-1,154 ^a	,249
a wrong perception of freedom by employers - the unwillingness of employees to take responsibility	-,149 ^a	,882
the lack of trust in the ability of employees - a wrong perception of freedom by employers	-,754 ^a	,451
the risk of abuse of entrusted competences - the lack of trust in the ability of employees	-1,069 ^a	,285
high demands on employees - the risk of abuse of entrusted competences	-,384 ^b	,701
reduction in employee performance - high demands on employees	-4,740 ^a	,000

Source: own processing based on the results of the questionnaire survey

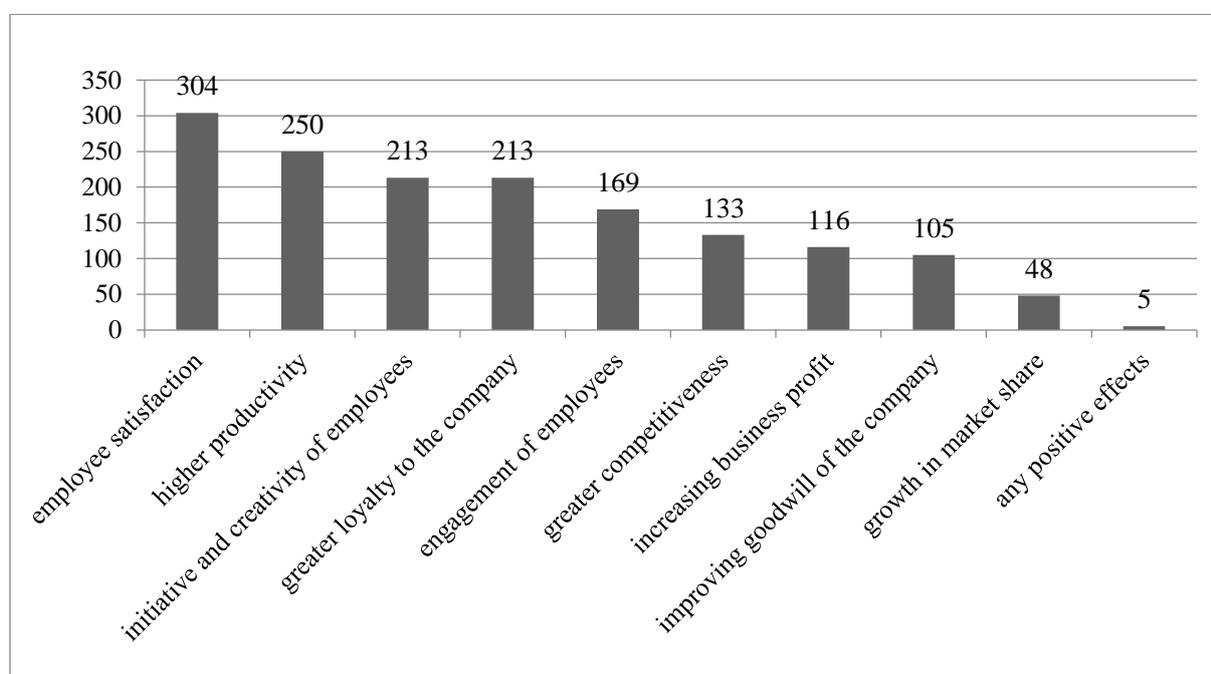
When evaluating hypothesis H1, we found out that respondents ranked on the second place 6 of all offered risks, because between them were not statistically significant differences. Respondents perceive these risks associated with the concept of freedom at work equally significant: high demands on employees in the form of their high responsibility, loyalty and trust, the risk of abuse of entrusted competences into the hands of employees, the lack of trust in the ability of employees, the unwillingness of employees to take responsibility, the lack of communication in the workplace and a wrong perception of freedom by employers. On the third place respondents placed reduction in employee performance.

After testing hypotheses H1 we conclude on the significance level of 5%, the hypothesis is confirmed, and managers as the most significant risk associated with the application of the concept of freedom at work consider a wrong perception of freedom by employees.

The second hypothesis H2 assumes that the main benefit of applying the freedom at work is considered higher employee satisfaction. Berry (2009) defines job satisfaction as a response of individuals to work experience. Kubáni (2011, p. 125) defines job satisfaction as "favorable or positive emotional state resulting from the evaluation work or work experience".

In the questionnaire we formulated the question in which respondents were asked to select any number of 10 options they consider as the positive effects of the application of the concept of freedom at work. As last option it was stated that the respondents are not aware of any positive effects. Answers of respondents expressed in absolute figures shows Chart 1.

Chart 1: The benefits of applying the concept of freedom at work



Source: own processing of the results of the questionnaire survey

Respondents placed on the first place employee satisfaction and on the second place higher productivity. Deutsch (2009) points out that the freedom of employees leads to economic effects in the form of profit through increasing employee productivity.

Two benefits were placed on the third place, namely increased initiative and creativity of employees and increased employee loyalty to the company. Marasová (2008, p. 67) says that "self-realization of employees leads naturally to higher performance and greater initiative of them". Jakuš (2008) states that for the loyalty and stability of employees is necessary to create for employees favorable working environment that will motivate them. For employee loyalty are important interpersonal relationships, job content and job security.

When statistical testing the hypothesis H2, we focused whether there are statistically significant differences between arrangement of respondents' answers, and thus if it is possible to confirm the hypothesis. The hypothesis was tested using Friedman and Wilcoxon signed rank test, where we found out that the employee satisfaction (placed on the first place) and higher employee productivity (on the second place), there is a statistically significant difference. For this reason at the significance level of 5% we can confirm the hypothesis H2 that managers consider higher employee satisfaction as the main benefit of applying the concept of freedom at work. Output of statistical testing shows Table 2.

Table 2: The benefits of applying the concept of freedom at work

	Z	Asymp. Sig. (2-tailed)
higher productivity- employee satisfaction	-5,245 ^a	,000
initiative and creativity of employees- higher productivity	-2,916 ^a	,004
greater loyalty to the company - initiative and creativity of employees	,000 ^b	1,000
engagement of employees - greater loyalty to the company	-3,523 ^a	,000
greater competitiveness of the company - engagement of employees	-2,864 ^a	,004
increasing business profit - greater competitiveness of the company	-1,509 ^a	,131
improving goodwill of the company - increasing business profit	-1,026 ^a	,305
growth in the market share - improving goodwill of the company	-6,042 ^a	,000
any positive effects - growth in the market share	-5,907 ^a	,000

Source: own processing of the results of the questionnaire survey

Conclusion

We perceive freedom at work as an opportunity for employees to organize their working hours and workloads at its own discretion, while respecting the business rules and other employees. Freedom at work is an opportunity for employees to work in an environment in which they can fulfill their potential (including creative potential), to participate in the progress of the company and thus achieve their own goals, which also contribute to the achievement of corporate objectives.

Higher employee satisfaction, as a positive consequence of the application of the concept of freedom at work, is automatically associated with higher labor productivity, engagement of employees and higher initiative of employees. At the same time, if the company treats with employees responsibly by demonstrating confidence in their abilities and skills, it is assumed that the employees will be responsible and committed. The positive effects of the application of the concept of freedom at work are related also with economic benefits in the form of rising profits, market share or goodwill of the employer. Freedom at work has many positive effects, but only in the company where are created suitable conditions for its implementation.

In practice, the company can also meet with negative consequences of the application of the concept of freedom at work. We perceive as the most significant risk associated with the concept of freedom at work a wrong perception of freedom by employees. We think that employees can mistakenly explain the essence of the concept of freedom at work. Although the supervisor will not strictly control their performances expected from them identification with the company's vision and work commitment. For this reason, in the company is necessary open two-way communication enabling clarify any ambiguities.

Another risk represents the possibility of abuse of entrusted competences by employees. There is a presumption that if we create for employees a working environment in which they can behave and act freely, we reduce control and provide them with all the necessary resources there exists a risk that they reduce their work performance, the pace of work, increase error and different time and financial losses. In order to avert the occurrence of such negative impacts, it is a very important process of selection of employees with emphasis on their responsibility, expertise and personal character.

In paper we focused on the risks and benefits of application of the concept of freedom at work. Our aim was to identify the most significant risks and benefits associated with the concept of freedom at work based on the results of a questionnaire survey conducted on a representative sample of businesses in Slovakia. In paper we worked with two hypotheses, which were confirmed and therefore the managers as the most significant risk associated with the application of the concept of freedom at work consider a wrong perception of freedom by employees and as the main benefit of applying the freedom at work is considered higher employee satisfaction.

This article is the outcome of scientific project no. 1/0905/16 titled "Possibilities of implementation of progressive trends in human resources management in the environment of the former planned economies".

References

- Berryová, L. M. (2009). *Psychológia v práci*. Bratislava: Ikar.
- Deutsch, L. (2009). Are you a trusted leader? *Industrial and Commercial Training*, 41(7), 377-381.
- Gallup. (2015, retrieved 2015, November 19). Daily Employee Engagement. Retrieved from: <http://www.gallup.com/poll/180404/gallup-daily-employee-engagement.aspx>
- Geropp, B. (2014). *Tajemství úspěšného vedení lidí*. Praha: Grada Publishing.
- Harkotová, S. (2013, retrieved 2015, October 23). Sloboda v práci začína byť trend. Môže byť darom aj bremenom. Retrieved from <http://aktualne.atlas.sk/sloboda-v-praci-zacina-byt-trend-moze-byt-darom-aj-bremenom/slovensko/spolocnost/>
- Jakuš, D. (2008, retrieved 2015, Dezember 6). Vyšší plat, viac benefitov, väčšia spokojnosť? Retrieved from <http://www.etrend.sk/podnikanie/vyssi-plat-viac-benefitov-vacsia-spokojnost.html>
- Koloc, N. (2014). Let employees choose when, where and how to work. *Business Harvard Review*. Retrieved from <https://hbr.org/2014/11/let-employees-choose-when-where-and-how-to-work>
- Kováčik, M. (2012, retrieved 2015, November 4). Čo je sloboda v práci? Retrieved from <http://slobodavpraci.sk/co-je-sloboda-v-praci>
- Kubáni, V. (2011). Pracovná spokojnosť. *Psychológia práce*. Prešov: Prešovská univerzita v Prešove, Elektronické skriptá.
- Lund, D. B. (2003). Organizational culture and job satisfaction. *Journal of Business & Industrial Marketing*, vol. 18, no. 3, 219-236. ISSN 0885-8624.
- Marasová, J. (2008). *Vnútrotná a vonkajšia dimenzia sociálnej funkcie podniku*. Banská Bystrica: Ekonomická fakulta Univerzity Mateja Bela v Banskej Bystrici.
- Ryník, J. (2011, retrieved 2016, January 8). Slobodní zamestnanci robia firmu úspešnou. Retrieved from <http://profit.etrend.sk/dennik/slobodni-zamestnanci-robia-firmu-uspesnou-2.html>
- Rolková, M. (2013). Vybrané aspekty implementácie participatívneho štýlu riadenia podniku. *Trendy v podnikaní – Business Trends*, 2013(2), 47-54.

PREFERRED METHOD OF ACQUIRING INFORMATION BY MASS EVENT PARTICIPANTS

Joanna Woźniak

Department of Management Systems and Logistics
Rzeszow University of Technology
j.wozniak@prz.edu.pl

Abstract

The principal objective of this publication is to determine the preferred method of acquiring information by mass events participants. The survey was conducted on the group of 1,520 individuals that participated in XXII Rzeszow Juwenalia, the largest student project implemented in the South-East of Poland. Rzeszow Juwenalia is the perfect example of a mass event, which, on average, is participated by 25,000 individuals present on the campus. For the analysis of data, the STATISTICA 12 program was applied. Conducting the survey made it possible to determine the marketing activities which will reach the target group most effectively. The following ones were included: social media, a web page of the event, acquiring information from acquaintances, and also visiting a web page of the event. In accordance with the opinion of the authoress, the results of the research may be applied in practice, and constitute a valuable guideline for the future organizers of mass events.

Keywords

mass events, promotional activities, survey

Introduction

Currently, sporting, cultural and artistic-entertainment events are enjoying an ever greater popularity amongst society. The organizers of mass event undertake a number of activities the objective of which is to attract prospective spectators, and also to ensure that the latter ones are satisfied with their participation in an event. Guaranteeing the highest standards of quality in every area of the project is, therefore, of an enormous significance for the success and prosperity of the undertaking being in progress.

It goes without saying that every mass event, even the largest one, requires an appropriate promotion. The purpose of the marketing activity of the organizers is to reach a broad group of future participants. In the case of mass events, an effective promotion can result in evoking interest, and also encouraging to participate in an event. Such a promotion includes, for instance, such aspects as: maintaining the web page of an event, and also profiles on social portals, advertising in public space and on the means of transport, and also presenting commercials on television and on the radio, as well as publishing advertisements in the press.

Attention ought to be paid to the fact that marketing activity is not only about conveying information, but, as well as about that, about creating the expectations of future customers, which, in turn, exert influence upon the ultimate assessment of the quality of an event. An organization promoting a certain event ought to pay attention to the fact that, should there occur a discrepancy between the service which was promised and the service which was provided, a customer will assess the event as representing a low quality. Therefore, it is important to constantly verify the capabilities and resources of an organization, and try to adjust them to the needs of the constantly changing market (Nijholt, J. J., Bezemer, P., Reinmoeller P., 2016; Sreedharan, V. R., Raju, R., Srinivas, S. S. 2017; Zimon, D., 2016).

1. Informational policy of the organizers of mass event

In the context of the organization of a mass event, promotion constitutes a set of means with the application of which an organization informs about the possibilities, proposals and services which it is capable of providing in the course of the event being planned. In this case, informational policy is relevant not only to the information provided prior to an event. It is important to make sure that the management of the flow of information take place as well in the course of the event, and also after the end of it. Thanks to such activities, it will become easier to control the crowd, which will also contribute to increasing the level of safety in the course of an event (Markowski, D., 2012; Szymonik, A., 2012). In this paper, due to research material, attention is concentrated upon the analysis of the forms of the promotion of an event prior to the beginning of the event in question.

The external communication of the organizers of mass event prior to the beginning of the event can, therefore, encompass such forms:

maintaining the web page of the event – in the epoch of informational society, this is one of the most important methods of reaching a wide group of recipients. It is very important that the information connected with, for instance, the venue of the event and the time of it, the layout of the venue, programme and regulations of the event, the prices of tickets, the arrangement of parking spaces, or the possibility of taking advantage of additional attractions, are made available by the organizers to public opinion in advance. On the web page of the event, answers to (the most) frequently asked questions (FAQ) ought to be provided as well. This way, a user can be assisted without the necessity of involving the representatives of organizers in responding to the questions which have been asked earlier. It is important that all the functions of the web page be available in mobile applications as well. This way, participants in the event will have the possibility to acquire indispensable information at any time and at any place which they find convenient (Parszowski, S., Kruczyński, A., 2015).

social media – the constant development of informatization exerts, to a significant degree, influence upon changes in social communication. Currently, a very big significance is that played by social portals, on which those who are interested can exchange their experiences relevant to particular services and events (Tiance, D., Chenxi, L., Xu, H., 2017). Expressing opinions and judgements, and also discussing conducted by Internet users, and relevant to an event makes it possible to achieve the rapid distribution of information, and also the possibility of communication in two directions. This is the more important that the most recent reports claim that 24% of teenagers have access to social portals virtually all the time. This fact is principally connected with an increased access to smartphones (Moll, R., Nielsen, W., 2016). It is possible, therefore, to formulate the conclusion that social media are currently one of the principal channels of communication with young customers.

media – from the point of view of an organizer, collaborating with the media may be found to be the most important element of informational policy. Television, radio, and also the press, to a significant degree create the image of the entire organization, and they are also the effective tool of the promotion of an event (Fill, K., 2016). Participants in events expect the media to present the current news, coverage on the course of an event, and also to fulfill the integrative or entertainment function.

information in public space – in spite of such a noticeable development, and also the significance of modern technologies, informational policy has to as well be conducted in public space (Parszowski, S., Kruczyński, A., 2015). The organizers of an event ought to ensure preparing and distribution of posters, leaflets, brochures, guides, billboards, or other promotional materials. The task of this materials is to encourage to participate in an event, to present the most important information connected with an event, and also to constantly remind a community about the project which is to be implemented soon.

2. Objective of the article, adopted hypothesis and methodology of research

The principal objective of this article is to determine the preferred method of acquiring information by mass event participants.

In this publication, an attempt to verify the following research hypothesis: it is being assumed that social media, and also the web page of an event, are the preferred methods of acquiring information by mass event participants was made as well.

One of the methods of acquiring information from customers is to conduct a survey (Zimon, D. 2017). Therefore, striving to meet the selected objective and to verify the assumed hypothesis, a survey questionnaire made available with the application of

the CAWI method was taken advantage of. With the application of a form placed in the Google questionnaire the respondents were requested to answer the following question: *Where do you most frequently obtain information about Rzeszow Juwenalia?* For the analysis of data, the STATISTICA 12 program was applied. In the statistical analysis, first and foremost, contingency tables, which presented both numerical collation, and the per cent one alike, of particular answers, were taken advantage of. The processed results were presented in the graphic form.

The survey was conducted in February, 2017, on the group of 1,520 individuals that participated in XXIII Rzeszow Juwenalia – the largest project implemented in the South-East of Poland. Rzeszow Juwenalia is the largest free-entry student event in Subcarpathia, and, simultaneously, included into the best ones in Poland. On average, it is participated by 25,000 individuals present on the campus of Rzeszow University of Technology. A proof of the recognition of the event was winning, in the year 2014, the title of ProJuvenes in the plebiscite of Gala of Students Awards organized by the Parliament of Students of the Republic of Poland (www.projuvenes.pl/laureaci/).

The organizers of an event, motivated by concern about the safety and satisfaction of service-recipients, strive to constantly increase the effectiveness of their activities. Intention to make themselves acquainted with the opinions and suggestions of participants relevant to acquiring information connected with the event has become, therefore, the principal inspiration to conduct the survey by the authoress. This knowledge can be applied for future the organizers of mass event in better planning promotional activities connected with their events.

3. Preferred method of acquiring information connected with the event – results of research

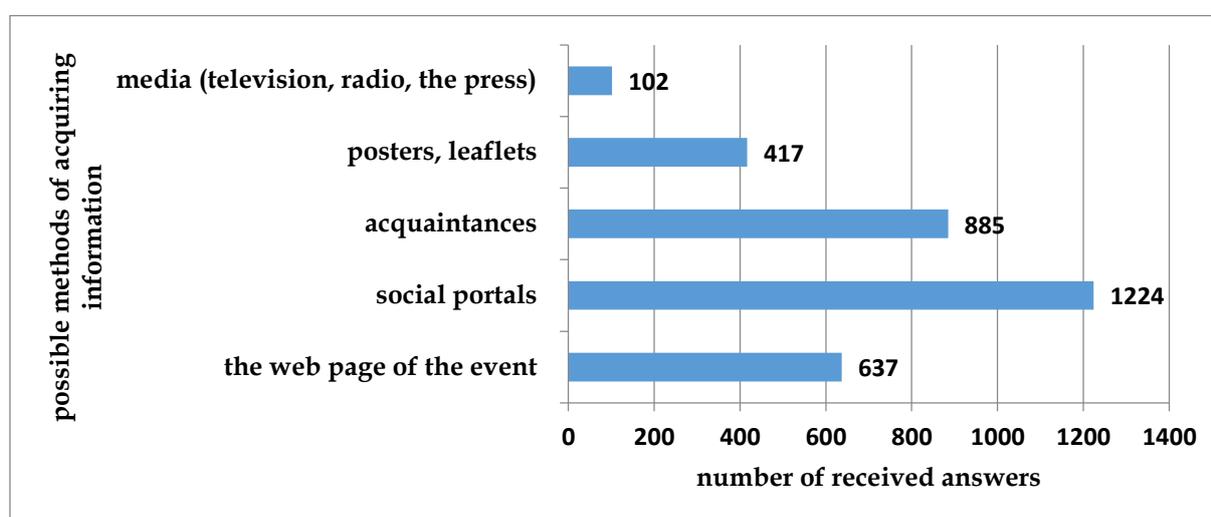
In this sub-chapter, the results of the research relevant to the preferred method of acquiring information by participants in XXIII Rzeszow Juwenalia are presented. the respondents could choose any number of the answers among which there were the following options:

- taking advantage of the web page of the event,
- taking advantage of social portals,
- acquiring information from acquaintances,
- obtaining information from posters and leaflets,
- acquiring information from the media (TV, radio and the press).

In the survey, a choice of the above-mentioned methods of acquiring information was made, because these are the principal methods of external communication applied by the organizers of Rzeszow Juwenalia. In addition to that, as it is commonly known, 'word of mouth marketing' constitutes a popular method of acquiring information in every aspect of social life. In connection with that, the authoress resolved to verify the degree to which acquiring information from acquaintances is respected by the participants in the event being studied.

The graphic presentation of the results is Chart 1.

Chart 1: Preferred method of acquiring information relevant to the event by the participants in the event



Source: own calculation upon the basis of research

The results of the research indicate that the participants in XXIII Rzeszow Juwenalia in order to acquire information about the event most frequently took advantage of social portals. Amongst 1,520 individuals, 1,224 (80,5%) indicated that they take advantage of this form of communication. It suggests that this form of the promotion of an event ought to be particularly well planned and analysed by organizers.

885 (58.2%) of the surveyed indicated as the method of acquiring information contacts with acquaintances. Upon that basis, it is possible to ascertain that in the population being researched interpersonal liaisons constitute a very important element of the exchange of information. Numerous individuals making a decision relevant to participation in the event acquire information from their acquaintances beforehand.

In turn, 637 (41.9%) individuals searching for indispensable information take advantage of the web page of the event. Taking advantage of the web pages and Internet applications provides the possibility of rapidly acquiring information

relevant to, for instance, the programme, or the map of the venue (facility) of the event. In the times of the development of new technologies, the choice of a web page as the source of knowledge to be acquired does not, therefore, seem to be surprising.

Little fewer than every third individual participating in the event in order to acquire information reached for posters and advertising leaflets. This kind of promotion was ascertained in the case of 417 individuals (27.4%).

In turn, the media (among others, radio, the press and television), in accordance with the opinion of the respondents, is the least demanded method of acquiring information. Amongst 1,520 individuals, as few as 102 individuals (6.7%) were taking advantage of this form of acquiring information.

Conclusions

The informational policy of mass events is an aspect of an enormous importance both for the organizers of mass event and its participants alike. Not only does it exert influence upon the promotion of an event and the process of acquiring sponsors, but also contributes as well to conducting the event smoothly, and ensuring the safety of all its participants (Wojciechowski, R., 2013; Zomer, L. B., Winnie, D., Meijer, S., Hoogendoorn, S. P., 2015).

The principal objective of this publication was to determine the preferred method of acquiring information by mass event participants. Upon the basis of the research, it was ascertained that participants in Rzeszow Juwenalia, while searching for information relevant to the event, most frequently take advantage of social portals, information obtained from acquaintances, and also of the web page of the event. In turn, the least preferred method of acquiring information, as it was revealed, was posters, leaflets, and also television, radio and the press.

The research process made it possible as well to verify the adopted research hypothesis. Most likely, social media, and also the web page of the event, are the preferred methods of acquiring information by mass event participants.

In accordance with the opinion of the authoress, in spite of the received results of the research, the organizers of mass event ought not to give up on the promotion of the event in television, radio or the press, and also with the application of posters and advertising leaflets. The reason for that fact is that collaboration with the media makes it possible to reach a broad group of recipients and convey information to them, and that group includes those that do not care if they obtain that information. The media exert influence upon the formation of the attitudes and behaviours of recipients. Presenting a mass event in a favourable light, they may awake willingness to participate in the event in a community. Here, one ought not to forget, as well,

about the economic dimensions of the matters. From the point of view of sponsors, this is the very media-connected aspect that is the condition determining involvement in the organization of an event (Parszowski, S., Kruczyński, A., 2015). Companies deciding to become involved in the organization of mass events may gain a lot. They increase the recognizability of the products or services offered by themselves, and also enhance their image, as well as raise the level of their own trust and credibility in the eyes of society.

In recapitulation, it may be found that all the forms of promotion referred to in this elaboration constitute an important element of marketing activity of the organizers of mass event. The organizers of an event ought to, however, establish the requirements of future event participants relevant to the method of communication with the organization. Those activities may enhance the flow of information between the involved, determine the direction of the development of marketing activity, and also optimize the form of the promotion of organization.

References

- Fill, K. (2016). *Faza przygotowania and realizacji imprezy masowej na przykładzie organizacji Juwenaliów Rzeszowskich*. The paper delivered at the Conference: Safety at Higher Education Establishments. Organization of Mass Events, Instytut PWN, Warszawa: Centrum Konferencyjne Zielna.
- Markowski, D. (2012). Tłum jako podmiot zachowań zbiorowych. In: E. Ury, S. Pieprzny. *Bezpieczeństwo imprez masowych*; Rzeszów: RS Druk, 199-206.
- Moll, R., & Nielsen, W. (2016). Development and validation of a social media and science learning survey. *International Journal of Science Education, Part B Communication and Public Engagement*, 7(1), 14-30.
- Nijholt, J. J., Bezemer, P., & Reinmoeller P. (2016). Following fashion: Visible progressiveness and the social construction of firm value. *Strategic Organization*, 14(3), 220-247.
- Parszowski, S., & Kruczyński, A. (2015). *Imprezy masowe. Organizacja, bezpieczeństwo, dobre praktyki*. Warszawa: Difin.
- Sreedharan, V. R., Raju, R., & Srinivas, S. S. (2017). A review of the quality evolution in various organisations. *Total Quality Management & Business Excellence*, 28(3-4), 351-365.
- Szymonik, A. (2012). Uwarunkowania logistyki imprez masowych. *Logistyka*, 3(7-11).
- Tiance, D., & Chenxi, L. X. H. (2017). Social media and internet public events, *Telematics and Informatics*, 34(3), 691- 820.

Wojciechowski, R. (2013). Bezpieczeństwo uczestników imprez masowych, *Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego in Siedlcach, Seria: Administracja and Zarządzanie*, 97, 177- 186.

Projuvenes. (2017, retrieved 2017, March 21). Retrieved from www.projuvenes.pl/laureaci/

Zimon, D. (2017). Quality Management Systems' Impact on the Functioning of Distribution Channels in the FMCG Market. *Quality – Access to Success*, 18(156), 52-56.

Zimon, D. (2016). An Attitude of Subcarpathian's Residents to Sustainable Solutions for Urban Transport. *International Letters of Natural Sciences*, 50(1), 41-52.

Zomer, L. B., Winnie, D., Meijer, S., & Hoogendoorn, S. P. (2015). Managing Crowds: The Possibilities and Limitations of Crowd Information During Urban Mass Events, In Geertman, S., et al. *Planning Support Systems and Smart Cities*, Switzerland: Springer International Publishing, 77-97.

SOCIAL HOUSING COSTS

Viliam Záhurecký

Department of Business Economics and Management
Faculty of Economics and Administration
Masaryk university
zathurecky@econ.muni.cz

Abstract

The paper discusses the growth of building activity of the residential housing and property prices on the example of City Brno following the abolition of regulated rents for rental housing in the Czech Republic. Thanks to the abolition of rent control by the state, real estate prices have increased several times over the past 25 years. The demand for high quality housing and its increase could be explained by several factors such as changing of socio-economic behaviour, rising incomes, competition, the banking sector, and low interest rates.

Methodologically attention has been stressed to analysed results from secondary data from our own research in the environment of housing with an emphasis on the City Brno. Results of the survey will be used also for municipal and government authorities to limit unnecessary regulation in the surveyed sector.

Keywords

residential housing, property prices; building activity, price regulation and deregulation

Introduction

Housing is clearly one of the basic human needs. Ensuring conditions for sufficient and adequate housing for its citizens are fundamental political and economic challenges and priorities for the management of every developed country. Good housing fulfills therefore not only utilitarian function, but also provides opportunities for improving the quality of life, social status or simply a good feeling from a nice and efficient housing in terms of the declared value for the customer (customer value).

State, communal area, although it often unaware enters the housing significantly and may affect the economic and social context of housing and relationships between life and overall economy, labor market and social policy of the state towards its citizens. Unfortunately, on the other hand, we register the abuse of market principles dictate prices depending on the environment, the price map, which reduces overall social value and culture obtain housing.

In the Czech Republic, real estate prices over the past 25 years have increased several times, and thanks to the abolition of rent control by the state, although this led to a

reduction in market rents, however, hundreds of thousands of households that pay regular rent, pay for housing much more. The situation is also influenced by sustained growth in new housing prices per 1 m² of housing space. As reported by Deloitte (HN, July 12, 2016)⁷, the average price per 1 m² of a new flat in the Czech Republic was around 1920, - Euro / 1 m² and is on-year increase in orders per cent.

Based on the results of its own institutional research that we conducted in the years 2012 - 2015 shows that between 1990 and 2015 soared property prices in the Czech Republic, especially in large cities (Prague, Brno, Plzen, Czech Budejovice, Olomouc) significantly pristine high degree of unemployment. Breakthrough in property prices occurred mainly between 1997 and 2005, when there was a gradual recovery of the real estate original owner based on several restitution laws of the Czech Republic, and thus an increase in property prices in the tens of percent. At the same time there has been an increase in the real rate of appreciation of the real estate subsequent sales by an average of 17% without any major structural alterations.

1. The situation in housing construction

Following the hypothesis defined, however, express the opinion when compared to the chart no. 1 and no. 2, the selling price of apartments in 2009 and 2014 in Brno that in that period there was no significant change in selling prices of apartments in the city of Brno, but that does not correspond to research carried out by Deloitte (HN, July 12, 2016), which indicates the average price per 1 m² new apartment in the **Czech Republic** at the level of 1920, - Euro / 1 m² (at a rate of 1 Euro = 27.50 CZK), **ie 52 800, - CZK / 1 m²** and is also inconsistent with the facts sales price evolution in 2016 and view 2017.

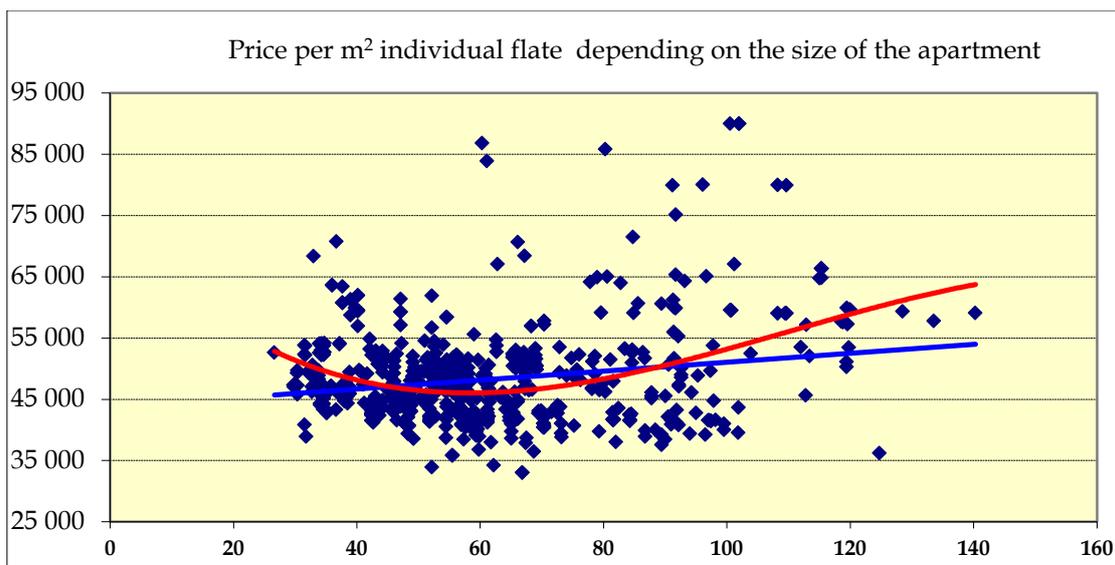
The median sales price level in the city of Brno (second largest city in the Czech Republic) was at the level of **45.000, - CZK / m²**. This has led to a significant development orientation operators to offer affordable housing to the average level of **45.000 CZK / m²**, which subsequently was mainly the effect of sales of apartments category 2 + kitchen, respectively. 3 bedrooms, or 1 bedroom apartment in the same price level. It is quite clearly allocated group of customers amounting to about 80% who prefer apartments to 50 m², which represents about 2.250.000, - CZK financial costs that are willing to pay a mortgage.

This phenomenon affects us almost perfectly **elastic**. In many places in the Czech Republic, especially in large cities Prague, Brno, Ostrava, Hradec Kralove rise in the

⁷ HN, Hospodářské noviny

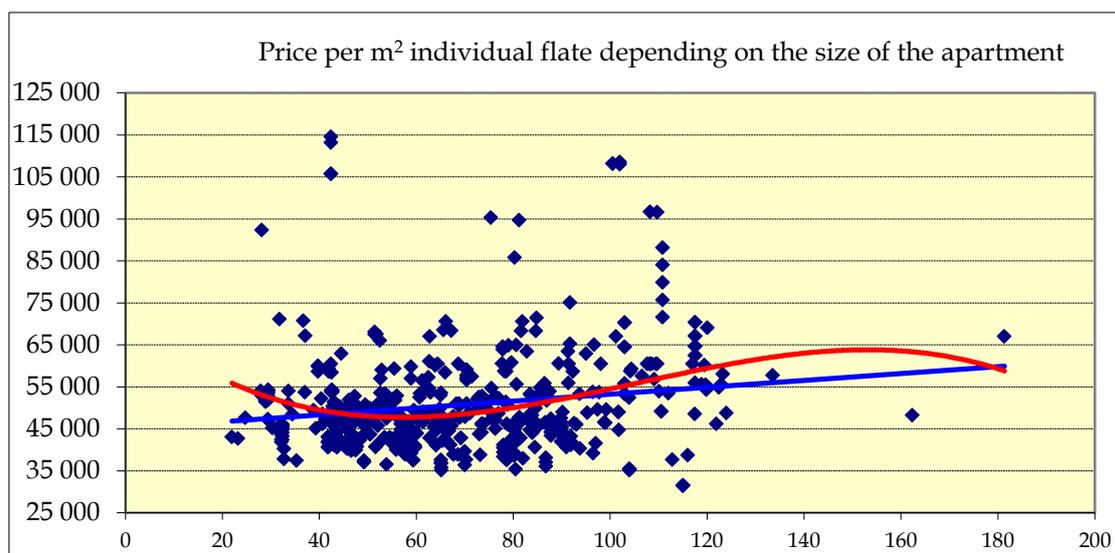
number of urban population, but the average price of housing has not changed much. In fact we have seen in some years the decline in real housing prices, especially in industrial areas in the Czech Republic and prefabricated housing. With the increased technological discipline, innovation, new labor-technological processes and increase investor awareness of the competition factor decreases as the actual construction costs.

Figure 1: Sales prices of apartments in 2009 in Brno (Kč/m²)



Source: own processing

Figure 2: Sales prices of apartments in 2015 in Brno (Kč/m²)



Source: own processing

Despite these aspects, we have to ask whether it do not register the crisis in housing affordability in terms of other, hidden factors that affect the cost of construction of

residential houses and their availability to customers. It is also interesting to watch the price of housing in different regions of the Czech Republic, whether housing prices are high across the country or places with extreme prices. It is also interesting to see why housing prices are high and where there is an endowment system.

In the centers of large cities we are routinely surplus more square rental flats vacated its tenants over rent deregulation⁸, which, however, young families in relation to their earnings reach. Conversely, on the outskirts of cities registering a wave of construction of residential houses with mostly small apartments. Due to this phenomenon in recent years to many exchanges rented municipal flats or de facto abandonment was due to the high rents. This situation can continue to stimulate the emergence of new or affiliated urban centers, leaving the classical center, transfer services to the outskirts of the city, which goes against the current typical for cities in developed European countries (Germany, France, Italy, but also in Poland), where pulsing life in the city center is the foundation of its prosperity.

In connection with the logical leaving city centers seems to specifically in connection with housing policy communal area that some concepts are not popular. I express the view that in the case of housing policy and the associated rent regulation is in principle possible to confuse or associate housing prices and poverty. The state has its responsibilities and tasks in the effort and making rational housing policy and the fight against poverty civil. I believe, however, that neither may be in the thrall of a second charge of housing is clearly on the side of the owner or tenant of a residential building or unit. Unlike eg. from Austria and especially Vienna, the Czech Republic to the removal of the rental housing fund its divestment to private ownership, most housing co-founding and its subsequent conversion into condominiums.

The state must clearly take into account that the construction of houses and units costs a lot of money as a private investor and municipal and possibly reckless and unreasonable housing support in the fight against poverty can lead to fatal dysfunction, respectively. differences in the fight against poverty and other costs of living. But what is essential, irrational state support, then clearly denies the function of a market economy. Another essential task of the state, or municipal area is to create conditions for building or modernizing building codes, regulations and zoning plans. E.g. in South Moravian Region approved the Principles of Territorial Development in October 2016 after more than 8 years of discussions, dealing with

⁸ owned by the city

various complaints and comments from the communities and various interest groups.

Another and very essential criterion for the philosophy of living is the question of the real cost of living. We assume - if the fact that housing costs represent a significant percentage of income individuals or families next successive amortization costs of housing in terms of mortgage, savings or other loans to purchase residential unit or house, then it is an extremely high amount of the family budget which may comprise up to 60% of income nuclear family. Given that the average salary in the Czech Republic stands at 26 287, - CZK⁹, so it is an extremely high amount, which may have socio - economic impact on the further development of the family.

When assessing the cost of housing we will get into a situation where, in our opinion, always compares the actual cost of the investor for the construction of housing and personal costs of providing housing, which we pronounce the main hypothesis that the restrictions by regulatory factors in their faith proper action leads to paradox much higher housing prices alone.

Following the main hypothesis we are pronounced following secondary hypotheses:

The first hypothesis, that is, the housing crisis in terms of cost of living raises social demand respectively the need to build new, more housing. The second hypothesis, that is, the social cost of new housing cannot be lower than the cost of construction itself.

2. The need for new construction

Edward L. Glaeser and Joseph Gyourko ¹⁰ expressed the fundamental view that the social gains from new residential units or houses may be only in the case if the housing itself is priced significantly higher than the cost of new construction. This argument in no way deny the contrary accepts the fact weaker social and income groups who cannot afford or do not want expensive housing. Despite the argument that the specificity of housing in the US and the Czech Republic are fundamentally different, it can clearly compare the cost of housing and the cost of building a unified ideological considerations. We believe that this idea is a profound economic laws and supports the market principle. At a time when investor, the future owner of a house or apartment has significant costs for housing, which in the final terms,

⁹ CSU - Czech Statistical office, 2016

¹⁰ Working Paper 8835, <http://www.nber.org/papers/w8835>, National bureau of economic research.

represent the cost of construction, seeks to evaluate their assets, acts in a market and is considering the possible sale so that it offered price included not only the investor's expense but also the costs incurred in housing and a reasonable profit margin, which is expected in the possible sale of their property.

Closer to us, however, compared with the housing situation especially in Austria, which practiced very distinctive and affordable housing policy for all. Austria is among the completely developed countries, where housing policy is of paramount importance for the whole society.

These impacts can be characterized as follows:

- Replacement irreplaceableness
- Limit construction site housing units (a direct influence on the social cost of housing due to spatial development and planning)
- Integration into social status
- heterogeneity (diversity in terms of appearance, the character of residential buildings or residential units within the meaning of the rules of building regulations or equity options investor)
- Durability, stability plan, project, in terms of long-term effect and purpose of the construction
- Respect and acceptance of a long construction period in terms of technological or legal implications (a major factor when during construction of a residential building or unit could lead to possible legal changes ... VAT guarantees, EIA etc.).
- The high cost of construction, which may change (additional work, change of construction before completion)
- indivisible construction (principle has begun construction terminated in technological regime, which is based on its own research, 60% of companies building production does not follow, however, as 75% of them report is due to pressure from investors to speed deliveries, respectively based on competitive terms and conditions of .

The issue of affordability of housing also depends on the cost of construction of residential buildings and individual residential units, which can however be different depending on the region of the Czech Republic and the purchasing power of the population. Despite the efforts of many developers to build and offer luxury homes or apartment units predominant trend in the Czech Republic "series of

housing", when apartment buildings or residential units deviate from the current trend of housing.

These figures are, of course, may vary, however, we noted that the average price of construction costs are currently (2012 - 2015) ranges from 20.000, - CZK / m² housing area to 25.000, - CZK / m² in compliance with standard construction and technological regulations the quality of the work carried out using standard building materials. On the other hand, and in terms of customer value theory we find the value of construction prices extremely high, but meet used high technology or construction materials. For the purpose of the article and the problem of housing affordability, however, we are considering the average cost of construction.

This price can enter the system of client changes the client in consultation with the investor very often changes proposed standards and thus leads, but already on his part to influence the price, or the completion date. However, the investor's own money does not come, because the client changes are governed by the principle of deducting the cost of the proposed standard and imputed changes to the client, which usually leads to an increase in the purchase price per housing unit in favor of the investor. We have the opinion that this process is becoming a significant competitive advantage for the investor and building contractor. We believe that even in the housing sector are getting into a situation where the investor in accordance with the supplier offers standard-winning product. Subsequently normality and niche market is looking for the extra work, supplies or deluxe products "tailored" to measure the customer.

From the perspective of the issues of housing affordability hear constantly vigilant and alert voices from the Czech National Bank, which warns of the possibility of a real estate bubble in the housing market, which are automatically associated with the real estate and mortgage market. Mortgages in the Czech Republic are at historically very low level and their large number, in our opinion leads to rising prices of houses and apartments, which to some extent corresponds with the pronounced main hypothesis. In our view, the banking and mortgage institutes creates this situation with the intent to conclude, as most mortgage transactions, regardless of the reality of the property market.

On the other hand, when defaults on mortgages, can cause real estate bubble, disposing of real estate and looking for another type of housing. This creates a risk for all stakeholders because of the possible emergence of a spiral between the growth in property prices and rapid growth in mortgage lending. In 2008, the initiator of the global financial recession right mortgage and the inability of their repayment.

We believe that despite the caution and warning on the real estate market by banks from clients and can cause major problems in the future. Many banks continue to

provide cheap loans and strong economic states or cities for example. Vienna vigorously promote investment in housing and at a very low inflation. Since inflation is not only a step towards deflation and the decline in prices and long-term stagnation of the economy. Of course leading economists think about solutions and avoid this situation.

One possibility is for example short-term interest rates downloaded into a negative that price growth has helped. This would have even more money cheaper, but it is extremely dangerous precedent, whose impact on inflation and the growth potential is still unknown. Maybe we experienced a period of wild just investing in real estate, so most real estate for a living, but this is the kind of investment we consider extremely risky given the consequences of such a decision. E.g. Owners of residential buildings and units would like to get rid of negative interest-bearing money, the banks would get into a negative economy and the cost of the negative variance would likely be transferred to clients or would have begun restricting access to credit for both physical and legal persons. At this extremely delicate economic situation also follows the thought or consideration about the role of government to support or not support housing.

So let us put the question of focus, or the role of housing in the community. How is it possible that in a civilized society such as socioeconomic Czech Republic are the places where the cost of living alone are much higher than construction costs alone. We believe that we must choose two basic viewpoints.

The first view is the economic approach. We start from the simple premise and the assumption that the residential houses, residential units are expensive because land is expensive. We must emphasize that the purpose of the article is not to argue about the price of land per square meter in the area, but about principle and influence land price for housing costs.

However, land is expensive only in some important areas (Prague, Brno and other large cities in the Czech Republic). In most other areas of the Czech Republic develops land prices relatively favorably and without major fluctuations. In large cities we follow the high demand for land, but you are limited in terms of land use plans and the legislative framework. Still suppliers of residential houses and apartments will try to meet the demand for new flats and will want to extend the offer. Unfortunately, as is our custom, they will collide in many cases for legislative and bureaucratic obstacles, which leads to a delay in commencement of the project and its strong rise, rising money developers and other vendors who logically want their investments to get as soon as possible back and even the construction itself. However, we believe that the demand for residential houses and residential units

will have an increasing course assuming current mortgage interest rates together with a stable and growing economy development.

For the lighting issue it is appropriate to provide some basic data for understanding. In 2015, construction began on 26,378 dwellings. Compared to 2014 there was an increase commencement of construction by 8.3% and the largest contribution to this growth had started flats in family houses, in contrast to 2014, when the largest number of dwellings started in multi-dwelling buildings. This fact testifies to the solvency of clients and effective policy banks in the mortgage. Completed were 25,094 new dwellings in most houses and apartment buildings.

The fewest dwellings were started in the form of adjustments to the existing office space as well as in homes and homes for the elderly.

With regional comparison of most dwellings were completed Prague, followed by the Central and the South Moravian region. Least dwellings were completed in the Karlovy Vary region, Liberec and Usti region. Similarly to the commencement of construction and of completed apartments is prevalent in all regions except for Prague completed dwellings in family houses. In all these regions, the share of dwellings in family houses more than 50% of all dwellings completed in eleven regions even more than 60%. This share was highest in the Central and the Usti region, where dwellings in family houses accounted for over 80% of all dwellings completed. Conversely, Prague is traditionally dominated by the construction of residential buildings, which were completed about 80% of all new dwellings completed in the capital. (CSU 2016)

From the above information we are seeing an upward trend in demand for new quality housing and a trend of independence from their parents. Generations of children born in the 70s (ie. Husak's children) have an interest and a desire to provide quality and affordable housing. Investors this demand can hear and respond to the strong range of construction projects in cooperation with banks and other funders.

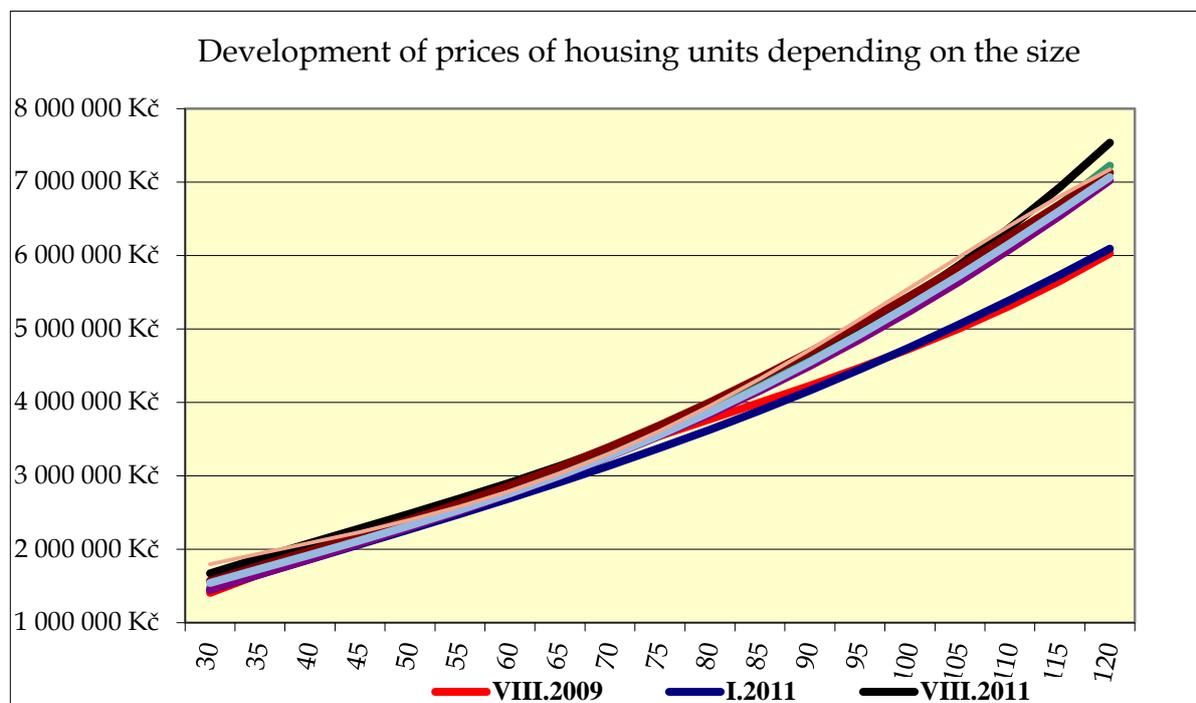
This creates a paradox mentioned at the beginning and in accordance with the first hypothesized, namely that the housing crisis in terms of cost of living raises social demand respectively the need to build new, more housing.

3. The social costs

In the context of the changes in housing construction and their tendencies described above, it is possible to analyze the status quo and hold the intentions of the so-called. Social cost of such construction. Particularly manifest changes in demand for housing caused among other financial factors that have a major impact on the purchasing

power of the population, which is then reflected in the procurement of new housing. As a consequence of the recession in the construction sector after 2008 occurs in housing demand, also due to the impact on the national economy, the various impacts.

Figure 3: Development of prices of housing units, depending on its size



Source: own research, custom processing 2016

On the one hand, we can mention the price movements in the years 2008 - 2012, which is related to the purchasing power of the population, at a time to stagnation and, in many cases, a fall in prices of older properties. On the other hand, construction costs do not reflect the full extent of these trends, how much the price of materials, building materials, used for the construction of new residential areas did not record or record significant decline along with the price of the works, which are tied to such construction.

Thus, the disparity between the prices of flats built in previous years, prices of new dwellings in relation to their floor area (see chart no. 3). The difference is in the quality of such housing. It is not possible to fully compare the present time with the new building construction prior to production. Therefore, we must market trends in the surveyed sectors also consider from another perspective.

Due to time distortions, competition, and the fact of continuous use housing, which the user provides a specific value (in many cases subjectively assessed far higher than the possibility of direct financial quantification) can thus be regarded as a total social cost of housing is higher than the direct costs of the construction of such

housing.

By including these areas in assessing the relationship between the cost of an exhibition of new housing and social awards, necessarily implies that the social costs of housing necessarily go beyond the direct cost of construction of housing. By this definition expresses an opinion confirming the second hypothesis.

Discussion and Conclusions

Problems comfort of living and housing prices is highly challenging topic for explicit analysis. Problem area surveyed the topic is caused by changes in society over time, which in turn cause changes in claims from users of housing, that is, those who cater to housing. Socio-economic shifts of the users, the customers are a definite driver of change in all areas. We believe that the area of quality, affordable housing for the various economic categories in society stands high on human needs. The overall status is not possible to capture a few pages, but it is necessary to address this issue due attention in its breadth and depth. Accordingly, this paper aims aim to provoke discussion on the issue of living in all its areas. In this paper, we tried to substantiate arguments, and also on the basis of historical development and šiších context, the importance of the construction sector in particular for the construction of new housing. The basic approach to the issue was the view of the impact of regulations on the building site itself, together with the effect on the cost of construction, cost of construction as such, in a broader context. We have presented arguments for trends in the construction of new housing construction, supported by research-construction market in the construction of housing units in the city of Brno, in relation to the development in the Czech Republic.

Attention was focused on the trends in demand for new housing and its determinants that significantly condition the construction industry as a whole. Housing and especially the question of costs associated with the construction of housing is an extremely important factor that affects mainly offer new housing. However, neither the demand side of the problem is not independent of this approach, and is affected by it. The correlation between the volume of new construction, new housing prices, whether under the influence of state regulation of, or other factors interact and shape the built environment and in terms of economic theory of supply and demand.

Finally, we focused on the concept of social and housing costs and their relationship to the cost of construction itself. In this context it should be mentioned that this is an entirely new approach that is currently being explored in practice, both at the level of the investors and at the level of suppliers. The managerial practice and the view of managers of construction companies is an obstacle than a possible competitive advantage.

The ambition of our paper is an attempt to inform the professional community to introduce the system described in practice and thus enhance the competitiveness of the company, on the other hand, to increase customer awareness of the fact evaluate the construction of private housing not only in terms of commercial value, but especially in terms of customer value.

References

ČSÚ. (2015, retrieved 2017) Vývoj počtu obyvatel měst. Retrieved from: <https://www.czso.cz/csu/czso/pocet-obyvatel-v-obcich-k-112015>

ČSÚ. (2017, retrieved 2017) Vývoj stavební produkce. Retrieved from: <https://www.czso.cz/csu/czso/stavebnictvi>

ČSÚ. (2013, retrieved 2017) Vývoj průměrných mezd. Retrieved from: <https://www.czso.cz/csu/czso/ceska-republika-v-cislech-od-roku-1989-wau52m1y38>

Glaeser, E.L. & Gyourko. (2003). The Impact Of Building Restrictions On Housing Affordability. *Economic Policy Review*, 9(2), 21-39.

Záthurecký, V. & Marinič, P. (2013). Rozvoj stavebních podniků v době ekonomické recese: Informace o sběru dat. In Štefan Majtán. *Aktuálne problémy podnikovej sféry 2013*. Bratislava: Vydavateľstvo Ekonóm.

GROWTH OF A NEW MARKET: INNOVATION IN SPACE INDUSTRY

Petr Zimčik

Masaryk University
Faculty of Economics and Administration
Department of Economics
Lipová 41a, 602 00 Brno-Pisárky
petr.zimcik@mail.muni.cz

Abstract

Most of the economists consider transportation services to be linked to trains, trucks, planes or freighters. They neglect an important mean of transportation, without which we cannot imagine present world, space industry. Aim of this paper is therefore to characterize a specific market, which is heavily regulated. Focus is set on Space Launch Industry, which use heavy rocketry to send satellites and other cargo to space. This paper contains a case study of a relatively new company in this industry, Space Exploration Technologies Corporation, better known as SpaceX, which substantially invested in reusability of their rockets. This innovation, when fully implemented, should drastically cut launch costs for their customers and be a game-changer of this market full of monopolistic government contractors.

Keywords

space industry, spaceX, innovation, reusability

Introduction

Space – the new frontier. Humankind first opened gateway to the universe almost 60 years ago, when Sputnik 1, first man-made object to orbit out planet, was launched by the Soviet Union. Period that followed after this historic event is called “the space race” between two superpowers – USA and the Soviet Union. This era, which started in 1957 and ended with Neil Armstrong’s first footsteps in July 1969, was full of engineering and scientific breakthroughs, discoveries and innovations. Many of them have found use in civil and everyday life.

After space race two rivals focused on satellite launches. Many of those had military or reconnaissance purposes while rest enabled improvement in global telecommunications, earth and space observatory and scientific research. USA heavily relied on Space Shuttle program (SSP) to delivery various spectrum of satellites and other payloads. This program had continued for three decades with over one hundred successful flights. Two disasters, financial burden of the entire program resulting in the end of the program together with some form of deregulations of space policy however enabled private companies to enter this

exquisite market at beginning of the 21st century. More of this can be seen in Solomon (2008).

This paper is not focused on whole space industry market but rather venture to a specific case of a successful, innovative company and its financial case of lowering cost and creating competitive environment in still highly regulated, oligopolistic sector. Structure of this paper is as follows. Chapter 1 distinguishes space industry sector and all of its components. Topic of chapter 2 is a narrow sector of launch vehicle capabilities. Chapter 3 contains case study of SpaceX and their financial cost before and after specific innovation.

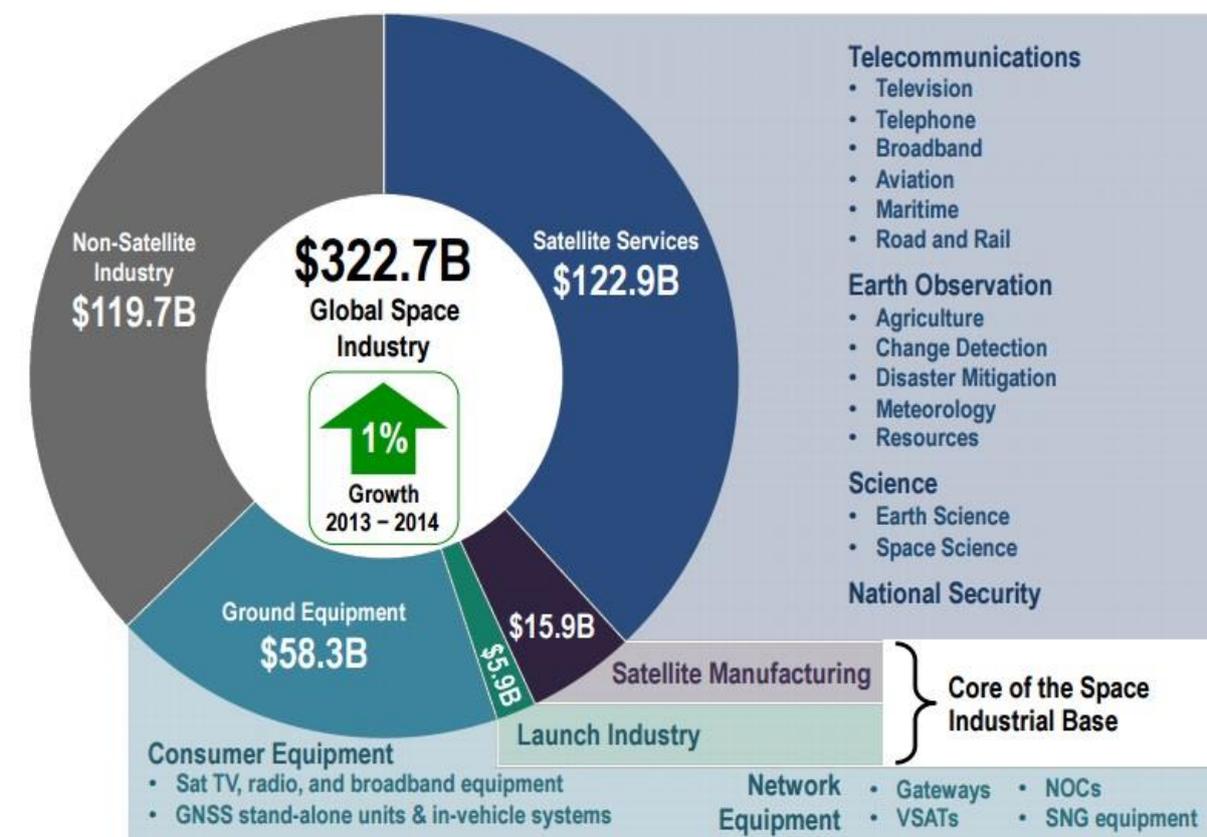
Aim of this paper is to characterize a specific high-tech market, perform a cost analysis of this market's private subject (SpaceX) and role of innovation and its repercussions.

1. Space Industry Market

Space industry sector consists mainly of satellite industry branch and non-satellite (human spaceflight and training) industry. This paper primary recognizes satellite industry sector (SIS) because human spaceflight has its own significant issues and problematics, which are difficult to economically quantify. Global space industry achieved revenues worth of 322.7 billion \$ in 2014 according to Satellite industry association (2015).

SIS forms 63% share of overall space industry revenues. Total revenue of SIS rose from 195 billion \$ in 2013 to 203 billion \$ which means 4% annual growth rate. Revenues of SIS were „only“ 89 billion \$ in 2005 indicating that in ten-year period there is 130% increase of this specific sector. As you can see from figure 1, SIS consists of four segments: Satellite services, satellite manufacturing, launch industry and ground equipment. For purpose of this paper only the launch capability segment is of an interest and is addressed in the next chapter.

Figure 1: Revenues of Space industry (2014)



Source: Satellite industry association (2015)

To put SIS into perspective according to UCS Satellite Database (online, 2017) there are currently 1419 satellites in earth orbit.¹¹ Most of these are communication satellites whether commercial, military or government. USA has prime in satellite ownership in orbit. They currently have 576 followed by China with 181 and Russia with 140 satellites.

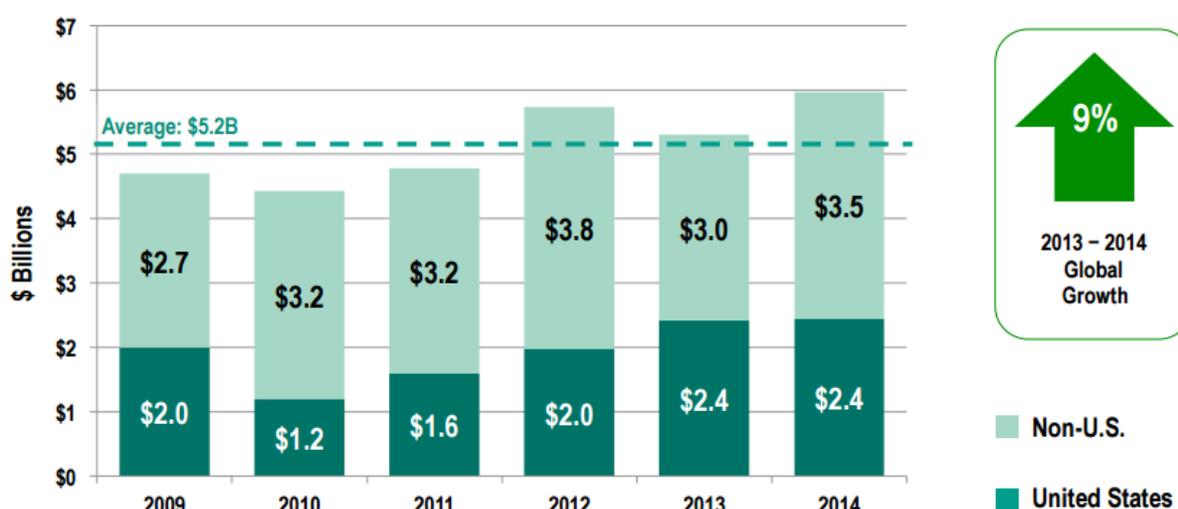
2. Launch Capabilities Industry

As seen from figure 1, the space launch industry is the smallest sector of global space industry. This entire industry is under heavy government control and international regulation, which means that companies besides government agencies need to obtain a permit to launch payloads to space. All necessary terms and conditions in order to get international license can be seen in Hudgins (2002).

¹¹ All satellites, their launch dates, characteristics and owner can be found in UCS Satellite Database at https://s3.amazonaws.com/ucs-documents/nuclear-weapons/sat-database/8-11-16+update/UCS_Satellite_Database_7-1-16.xls

Many private organizations have joined this market and provide space launches and other services¹², especially in 21st century. The main players in this industry branch are USA, Russia, China, India and many of EU countries with their space agencies NASA, Roscosmos, NSPO, ISRO and ESA respectively. Progression of global revenues from space launch industry can be seen in figure 2 with 6-year average of 5.2 billion \$ annual revenues. These agencies together with their contractors and private companies offer their services, which differ in payloads size and weight limitation and their targeted destinations.

Figure 2: Revenues of space launch industry (2009-2014)



Source: Satellite industry association (2015)

World leader in the space industry is traditionally USA. Many may oppose that since decommission of the Space Shuttle program (SSP) in 2011, the USA lost the prime in space launches services. Important remark is that SSP's primary mission was to build and maintain International Space Station (ISS) and transport crew and experiments both ways. Therefore in 2011 USA lost capability to send people to space but was still able to launch satellites to Earth's orbit. That is the reason, why there is no decline in US revenues since 2011.

Weight, size and destination are three characteristics, which determine type of rocket used to get satellites into orbit. Each rocket has its unique capabilities, which come with certain prize. Prize does not necessary reflect rocket performance. Satellites have two main targeted orbits. First is low Earth orbit (LEO), which is orbit under 2000 km above ground. In these altitudes satellites rapidly circle around Earth

¹² Many of these private services fall into non-satellite industry but are dependent on launch industry, for example space tourism and construction of space habitats and modules.

approximately once every 90 minutes. This specific orbit is for science and Earth observing satellites. The second is geosynchronous Earth orbit (GEO), which is above equator is altitude 35 786 km above sea level. This exact altitude is special because satellites circle around Earth in the same speed as the Earth rotates around its own axis. This is used mostly for communication and television satellites because user points his antenna on specific area in space and satellite stays in that position.

Performance of rockets can be measured in cost of 1 kg of material put in orbit, in our case LEO. You can see the most used rockets nowadays and their costs in Table 1.

Table 1: Cost of 1kg of material to LEO

Rocket designation	State of origin	Cost of flight	Weight capacity to LEO	Prize of 1kg to LEO
Ariane 5	Europe	165-220 million \$	16,000 kg	10,300-13,750\$
Atlas V (401)	USA	109 million \$	9,797 kg	11,125\$
Delta IV	USA	125 million \$	9,050 kg	13,812\$
Delta IV heavy	USA	375 million \$	28,370 kg	13,218\$
Falcon 9	USA	61 million \$	22,800 kg	2,675\$
Proton	Russia	85 million \$	21,600 kg	3,935\$
PSLV	India	14 million \$	3,800 kg	3,684\$

Source: Price list of provider companies, own calculations

This table shows prices per one kilogram in ideal case of full occupancy. Satellites can be lighter than stated limitation, so price for one kilogram rises. However this table offers insight in the international space launch market. It contains the most used rockets in present.¹³ A significant difference between European and American (with SpaceX as an exception) rockets and their world counterparts is visible at first glimpse.

High launch price in USA and Europe can be caused by state regulations and government contracts, which are highly cost ineffective. Another reason is

¹³ Antares from Orbital ATK, another US based company, was significant member of space launch market. However Antares used Russian made motors and after annexation of Crimea by the Russian Federation, the US banned imports of any Russian rocketry parts. For that reason Antares does not currently fly.

monopolistic position of United Launch Alliance (ULA), 50-50 joint venture of Boeing and Lockheed Martin corporations.¹⁴ Government contracts, which are highly overpriced, and lack of competitive pressure enabled ULA to maintain these high launch costs. They defend these costs by their reliability and strategic importance, especially for Department of defense. Enter of a new company, SpaceX, to this market may change whole situation because of their low costs and innovative system of reusability of first-stages. This is a subject of next chapter.

3. SpaceX, innovation through reusability

SpaceX, company founded by Elon Musk in 2002, enter the space launch market in 2008 when they successfully launch Falcon1 into orbit. According to Vance (2015), SpaceX evolved from an absolute dwarf to a full-featured space company, which delivered cargo to ISS in 2012, as a first private company to do so and much more. Their effective production process, which is concentrated mostly in one super-factory favor them over other companies, save transportation costs of individual components. Frequency of launch is another factor, which enables SpaceX to lower their costs, which can be seen in Table 1.

Many setbacks, hostile legal environment for privates space companies, all of that marked a difficult path for SpaceX and can be also seen in Solomon (2008). One of the biggest achievements was that SpaceX cleared for launching national security satellites in 2015.¹⁵ This meant that SpaceX entered the last market, where it can directly compete with ULA and push cost-cutting in US space industry even further.

SpaceX aims to reduce its own cost in most innovative way. So far all space rocketry (with exception of SSP) was fully expendable, meaning that all rockets were used only once and then splashed into ocean, disintegrated in earth's atmosphere or still orbit the Earth. SpaceX invested considerable resources to make space rocketry reusable according to Vance (2015). Idea of reusability is nothing new. Since invention of first liquid fuel rockets, many scientists were toying with the idea to get rockets back to ground and use them again. SSP was a large step in pursuing reusability. However the extreme costs of refurbishment and insufficient demand resulting in low launch frequency doomed SSP and many attempts to follow in reusability trend according to Hudgens (2002).

¹⁴ More about ULA can be found in their websites: <http://www.ulalaunch.com/history.aspx>

¹⁵ More about this agreement at url: <https://spaceflightnow.com/2015/05/27/spacex-cleared-to-launch-u-s-national-security-satellites/>

SpaceX achieved prime in their reusability efforts in December of 2015, when first stage of Falcon9 rocket successfully landed back on ground. Since then over eight successful landing of used first stage happened either on land or on a drone-ship in ocean. 31st March of this year marked long-awaited launch of already once flown rocket. The real question on many people's mind is how much money will this achievement save in the long-run.

Analysis of this innovation can be tricky because many factors are involved, which can alter sum of saved resources in reusability process. SpaceX is a private company and did not have initial public offering yet. Information about their accounting and gross margin is confidential and author of this paper does not have access to it. Only partial information in form of official statements can provide some insights into reusability cost model.

Elon Musk, owner and chief designer of SpaceX, stated that: "The first stage accounts for about 75 percent of the total vehicle cost."¹⁶ This is first piece of information, the second is the price of Falcon9 launch, which is 61.2 million dollars. Analysis of first stage reusability can be seen in table 2 and is built upon these two information, which are labelled green.

Because of uncertainty of many factors such as gross margin on each launch or number of re-flights, analysis is extended to several hypothetical scenarios on most likely outcomes. I was inspired by margin analysis of Jefferies International (online, 2017) but I have found many shortcomings of their calculations. They considered only one scenario with 40% gross margin and 15 re-flights of first stage. They have not considered any refurbishment costs. Hudgens (2002) often mentioned refurbishment costs as a key factor of economic unsustainability of SSP. Determination of refurbishment costs is problematic in case of SpaceX because there is only one precedence so far. Elon Musk said that he aims to re-use first stages "dozens of times".¹⁷ Inspection of motors and paintjob of rocket represent negligible cost. Propellant to fuel rocket is estimated to cost between 200-300 thousand \$ and it is not part of first-stage costs. Question remains, how many times can rocket be reused without any serious repair needed. I projected two scenarios in my analysis. One pessimistic with only 3 launches before heavy refurbishment is required and other optimistic with a dozen launches. These projections represent H and I variables respectively in table 2.

¹⁶ More at: <http://spacenews.com/spacexs-reusable-falcon-9-what-are-the-real-cost-savings-for-customers>

¹⁷ <https://www.theguardian.com/science/2017/mar/30/spacex-falcon-9-elon-musk-reusable-rocket>

I also have 7 different scenarios, which reflect estimated levels of current gross margin. Meaning, what proportion of launch price will gain SpaceX after direct launch cost deduction. Range of gross margin was established between 20 and 50%. Lesser would be uneconomical because gross margin should also cover research and development costs. More than 50% would be impossible to achieve with low launch cost of 61 million \$. In columns 3 to 9 are those seven scenarios. In the fourth and fifth row (variables C and D) are then calculations of gross margin and remaining direct launch costs for each scenario. Observe that gross margin can go from nearly 12 and quarter to over 30 million \$. In sixth row is our second confirmed information of first-stage proportional cost. Absolute first stage cost rise from 22.95 to 36.72 million \$ based on a chosen scenario.

Two models of reusability frequency were determined as stated. Pessimistic one with only three launches and optimistic with twelve. This division changes cost saving of reused first-stages. Variables J and K shows cost of first-stages in each individual re-flight. As you can see, number of re-flights can change these costs significantly. The direct cost of each re-flight is also changed by the reusability frequency and is described as variables L and M in table 2. Savings in absolute amounts are visible as variables N and O. They show savings on first-stage of each re-flight and therefore savings of overall direct cost altogether.

Distribution of these savings (N or O) between consumer and company itself is another blank area, where we cannot be sure. Elon Musk himself said that he cannot pass all savings because he invested over billion dollars on reusability technology and concept already (SpaceNews 2017, online).

Table 2: Cost and margin estimates of reusable Falcon9 launch

Scenario number		1	2	3	4	5	6	7
Price per launch (\$m)	A	61,20	61,20	61,20	61,20	61,20	61,20	61,20
Estimate of current gross margin	B	20%	25%	30%	35%	40%	45%	50%
Current gross margin (\$m)	A*B=C	12,24	15,30	18,36	21,42	24,48	27,54	30,60
Direct cost (\$m)	A-C=D	48,96	45,90	42,84	39,78	36,72	33,66	30,60
First stage as portion of total direct costs	E	75%	75%	75%	75%	75%	75%	75%
Cost of first stage (\$m)	D*E=F	36,72	34,43	32,13	29,84	27,54	25,25	22,95
Other costs (\$m)	D-F=G	12,24	11,48	10,71	9,95	9,18	8,42	7,65
Number of uses (pessimistic)	H	3	3	3	3	3	3	3
Number of uses (optimistic)	I	12	12	12	12	12	12	12
Pro-forma costs of first stage (\$m) - pessimistic	F/H=J	12,24	11,48	10,71	9,95	9,18	8,42	7,65
Pro-forma costs of first stage (\$m) - optimistic	F/I=K	3,06	2,87	2,68	2,49	2,30	2,10	1,91
Pro-forma direct costs (\$m) - pessimistic	G+J=L	24,48	22,95	21,42	19,89	18,36	16,83	15,30
Pro-forma direct costs (\$m) - optimistic	G+K=M	15,30	14,34	13,39	12,43	11,48	10,52	9,56
First stage savings (\$m) - pessimistic	D-L=N	24,48	22,95	21,42	19,89	18,36	16,83	15,30
First stage savings (\$m) - optimistic	D-M=O	33,66	31,56	29,45	27,35	25,25	23,14	21,04
Savings passed on costumers	P	50%	50%	50%	50%	50%	50%	50%
Pro-forma price (\$m) - pessimistic	A-(N*P)=Q	48,96	49,73	50,49	51,26	52,02	52,79	53,55
Pro-forma price (\$m) - optimistic	A-(O*P)=R	44,37	45,42	46,47	47,53	48,58	49,63	50,68
Savings on current price - pessimistic	(A-Q)/A=S	20,00%	18,75%	17,50%	16,25%	15,00%	13,75%	12,50%
Savings on current price - optimistic	(A-R)/A=T	27,50%	25,78%	24,06%	22,34%	20,63%	18,91%	17,19%
SpaceX: gross profit before	A*B=U	12,24	15,30	18,36	21,42	24,48	27,54	30,60
SpaceX: gross profit after - pessimistic	U+(N*P)=V	24,48	26,78	29,07	31,37	33,66	35,96	38,25
SpaceX: gross profit after - optimistic	U+(O*P)=W	29,07	31,08	33,09	35,09	37,10	39,11	41,12
SpaceX: gross margin before	B	20%	25%	30%	35%	40%	45%	50%
SpaceX: gross margin after - pessimistic	V/Q	50,00%	53,85%	57,58%	61,19%	64,71%	68,12%	71,43%
SpaceX: gross margin after - optimistic	W/R	65,52%	68,42%	71,19%	73,84%	76,38%	78,81%	81,13%

Source: own calculations and estimates

I set equal distribution between customer and SpaceX. This estimate can illustrate future overall price of Falcon9 launch. In most optimistic variant price is estimated to be 44.37 million \$ up to 53.55 million \$ for most pessimistic one. In other words, overall price of launch will fall between 12.50 and 27.50 %. Adding half of savings to gross margin of SpaceX is expressed as variables V and W. The last three rows show interesting results. They compare initial gross margin (B) with gross margin of reused first-stages.

The reusability concept adds the overall gross margin to final range from 50 to 81 %. This, of course, depends heavily on previous gross margin without reusability feature. Still, in first scenario (column 1) there is increase of gross margin by 30 to 45 percentage points. In last scenario (column 7) increase is still enormous – 21 up to 31 percentage points. The difference between scenarios results depends on overall cost of first stage, which differs significantly in scenarios.

SpaceX plans not to stop reusability just with first stages. The historical flight of reused rocket was also recovery test of payload fairings, which succeeded. The next

and final step towards complete reusability of launch vehicle is second stage reusability. This procedure is extremely challenging because second-stages put satellite or other payloads to final orbit. Getting them back requires heavy thermal protection and other ground and recovery facilities, which may not be economically reasonable.

SpaceX now face other challenge in near future, to transport astronauts from Earth to the ISS. End of SSP changed initiative for NASA towards deep space and ultimately to Mars. Only way to get human to space for last eleven years was inside Russian Soyuz rocket. NASA mandated two US-based private companies to help get their astronauts back to LEO according to Hester (2017). This opened doors for other private companies to compete in human spaceflight and space tourism like Blue Origin or Bigelow Aerospace.

Conclusion

Content of this article was about unusual or unconventional branch of economic industry. Global space industry, which revenues exceed 320 billion \$, is often omitted by economists, but its magnitude for human life is obvious in modern world. From telecommunication, internet, TV and radio broadcast to scientific observation, weather reports, navigation and human spaceflights. All of this is enabled by space industry.

Space market is characterized by numerous restrictions and regulations. However this fact does not discourage many private companies, which can see profitable future in space market. One of these companies is SpaceX, which provides space launch services. Their prices are unprecedented in US environment and this company even took further steps in research and innovation to deflate prices of each flight. Main innovation is the reusability concept of first-stage of their rocket. Price effect of reusability was estimated for SpaceX case study in analytic section of this paper.

SpaceX as a private company does not show their financial records to public. Most of my input data originated from public statements of either owner or CEO of SpaceX. I derived matrix of possible outcomes based on unknown current gross margin and number of re-flights before serious (costly) refurbishment is needed. The result showed possible drop in launch prize from 61.2 million \$ to 44.37 in most optimistic case. The whole cost-effective implementation of reusability will be mostly dependent on the economics of scale and number of space launch contracts. For SpaceX, as in many other cases, more is always better.

Acknowledgement

I would like to thank Mr. Zdeněk Hruška for his constructive comments and expertise in space industry.

References

Hester, Z. (2017). After the International Space Station: National Aeronautics and Space Administration, Industry, and the Future of Commercial Spaceflight in Low-Earth Orbit. *New Space*. 5(1), 33-44.

Hudgins, E. L. (2002). *Space: the free-market frontier*. Cato Institute.

Jefferies Internation (2016, retrieved 2017, March). *SpaceX launch price analysis*. Retrieved from: <http://spacenews.com/spacexs-reusable-falcon-9-what-are-the-real-cost-savings-for-customers/>

Solomon L. D. (2008). *The Privatization of Space Exploration: Business, Technology, Law and Policy*. Transaction Publishers: New Brunswick, New Jersey.

Satellite Industry Report (2015, retrieved 2017, March). State of the Satellite Industry Report. The Tauri Group. Retrieved from: <http://www.sia.org/wp-content/uploads/2015/06/Mktg15-SSIR-2015-FINAL-Compressed.pdf>

Spacenews (2017, retrieved 2017, April). SpaceX gaining substantial cost savings from reused Falcon 9. Retrieved from: <http://spacenews.com/spacex-gaining-substantial-cost-savings-from-reused-falcon-9/#sthash.yy5IzyfN.dpuf>

Vance, A. (2015). *Elon Musk: Tesla, SpaceX a hledání fantastické budoucnosti*. Brno: Jan Melvil Publishing.

Union of Concerned Scientists (2017, retrieved 2017, April). *UCS Satellite Database*. Retrieved from: <http://www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.WPecGvnyiUk>

IMPACT OF IMPLEMENTATION OF ISO 9001 REQUIREMENTS ON STREAMLINING OF PROCESSES INTEGRATION IN THE SUPPLY CHAIN FROM A PERSPECTIVE SMALL AND MEDIUM-SIZED ORGANIZATIONS

Dominik Zimon

Rzeszow University of Technology
Department of Management Systems and Logistics
Powstańców Warszawy 10 St
35-959 Rzeszow, Poland
zdomin@prz.edu.pl

Abstract

The main objective of this publication was to investigate the influence of standardized quality management system according to ISO 9001 on the improvement of cooperation in the supply chain from the point of view of small and medium-sized organizations. The study was conducted in April 2016 using a technique online survey. Surveys were sent to a group of 80 small and medium-sized organizations carrying out their activities in the southern Polish. For the analysis classified 18 correctly completed questionnaires survey. In the study group there were 7 small and 11 medium-sized organizations. Analysis of the results showed for positive relationships between the implementation of ISO 9001 and integration with suppliers.

Keywords

SMEs, supply chain, cooperation, quality management

Introduction

Strengthening supplier relationships in the supply chain is one of the most important aspects that affect its effectiveness and efficiency (Petersen et al., 2005; Sabet et al., 2016; Zimon et al., 2016). The foundation of supply chain integration is to develop a co-operation strategy and full co-operation of its links based on common goals and priorities, which are intended to manage core business processes so that they can maximize profits and achieve optimal customer service standards (Qi et al. 2017, Lisińska-Kuśnierz, Gajewska, 2014). This goal will not be achieved if the cells will operate independently, pursuing their own aspirations and focusing only on maximizing their benefits (García-Bernal, García-Casarejos, 2014). Therefore, the construction of an effective supply chain should begin with the integration efforts of its individual participants. According to the author the integration process should include the following stages:

- to isolate the central link (an enterprise that, due to its size, bargaining power or other characteristics, is capable of taking over a dominant role in the supply chain) that is responsible for developing and overseeing the strategy,
- determine the requirements of the final customer,
- develop an optimal method of inventory management.

The realization of the above steps can be regarded as a foundation leading to the initiation of the fundamental processes of integration in the supply chain. Further action should focus on obtaining reliable information on: thinking patterns, management techniques, behavioral schemas, staff qualifications, implemented instruments, systems, organizational culture, and the aspirations, needs and aspirations of the various supply chain actors. On the basis of the data obtained, you need to create a strategy and determine the scope of control and responsibility for each chain in the supply chain (Power, 2006, Filina-Dawidowicz, 2014). The final step in cementing a lasting partnership is undertaking joint business ventures. At this stage, the supplier is no longer considered as an external organization, but as a part of one multilevel corporation. There is therefore a wide transfer of knowledge, technology, staff exchange, technical consultancy, the opening up of channels for bilateral communication (Harland et al., 2007) joint development of strategic objectives and pursuit of their realization.

Integration should be understood as a close cooperation entities in the supply chain aimed at the realization of one overall strategy. In other words, it is a rejection of the ambition of individual cells to subordinate to top-down or jointly worked out ways of operation, which will lead to the improvement of the main processes taking place in the supply chain (Diaye et al., 2014) Implementing one common strategy is recommended because it improves the supply chain, which brings profit to all its participants, in line with the principle of "we are as perfect as the supply chain that we contribute to". In order to meke the integration process to begun, it is necessary to select a central coordinator for all the flows within the chain.

It is worth noting that from the point of view of small and medium-sized organizations strengthen relationships in the supply chain seems to be especially important because (Lenny Koh et al. 2007, Zimon, 2017, Arend & Wisner, 2005, Palomero & Chalmeta, 2014):

- Smaller organizations (which often serve as an auxiliary in the supply chain), in order to strengthen its position in the market should aspire to the title of stable links in the supply chain, which they're co-create. Road leading to this is a strong integration with other cells and active involvement in the implementation of the strategy outlined by the coordinating link.

- Cooperation and the pursuit of sustainable partnerships usually results in an increase in the potential of all links in the supply chain, which is extremely important for smaller organizations.
- Proper operation of the subsystem of supply is crucial for proper implementation of the activities assigned to another subsystems logistics and the same quality of finished products. The main reason for this state of affairs is the fact that supply subsystem is the first subsystem of logistics, closely linked to the subsequent (especially subsystem of production). In addition, as rightly observed by Tunjić and coauthors (2014) procurement process connects the supply chain and provides the desired quality created by suppliers in the chain. Quality of service and of property "incoming" to the system affects the quality of the "outgoing" with his products, and thus to customer satisfaction and income of the company.
- Proper management of relationships with suppliers can significantly result as a minimization of the supply costs, which depending on the specifics of the company and implemented strategy can be up to several tens of percent of total business spending.
- Suppliers are a source not only of supply products, but also innovation and should be treated as an integral part of the enterprise buyer.
- Durable integration in the supply chain leads to raising the technological suppliers. Manufacturing companies (acting in their own interest) relatively often decide to transfer knowledge and technology, which may be a significant boost with the development of smaller organizations, which have a limited budget for development.
- Integration over the long term leads to a blurring of the boundary between the individual links in the supply chain, which favors the implementation of the joint strategy and affects the growth of competitiveness of all its cells.

In addition, it is worth pointing out that small and medium-sized organizations, due to their limited capital and technological potential, should be highly flexible (Kafel & Sikora, 2014), which will allow them to adapt to the requirements of the coordinating links in the supply chain. (Vaaland & Heide 2007). This is a mandatory condition for establishing a stable position in the supply chain. In a similar tone, Tatoglu and coauthors (2016) emphasize that the basis for increasing the competitiveness of small and medium-sized organizations is to integrate their respective supply chain, which co-create.

As a result, small and medium-sized businesses are looking for solutions that can streamline the integration process within the supply chain. It seems that the implementation of standardized quality management systems may be helpful in this context (Sila et al. 2006). These systems are aimed at supporting and improving key processes in the enterprise and throughout the supply chain, and at the center of their interest are broadly based customer service (Attia, 2016). In addition, the implementation of standardized quality management system guidelines in the supply chain means that links to the same management principles are more open to collaboration. (Fernandes et al. 2014). In a similar vein speak Fura and Wang (2017) recognizing that the development of the science of supply chain management is increasingly accentuated its relationship with quality management and combine these concepts allows to achieve synergistic effects.

1. Methodology of the research

The main objective of this publication was to examine the impact of standardized quality management systems ISO 9001 on improving supply chain collaboration from the point of view of small and medium sized organizations. The choice of ISO 9001 was due to the fact that it is currently the most popular standard in the world, and it can be addressed to any type of organization regardless of its size or activity profile.

The study was conducted in April 2016 using a technique online survey. Surveys were sent to a group of 80 small and medium-sized organizations carrying out their activities in the southern Polish. For the analysis classified 18 correctly completed questionnaires survey. In the study group there were 7 small and 11 medium-sized organizations. The research tool was a questionnaire, which consisted of 8 questions, both open and closed and it is addressed to representatives of the board of the organizations. The paper assumes the following research hypothesis:

It is assumed that the implementation of a standardized quality management system requires the development of standards and procedures that facilitate the integration of suppliers into the supply chain,

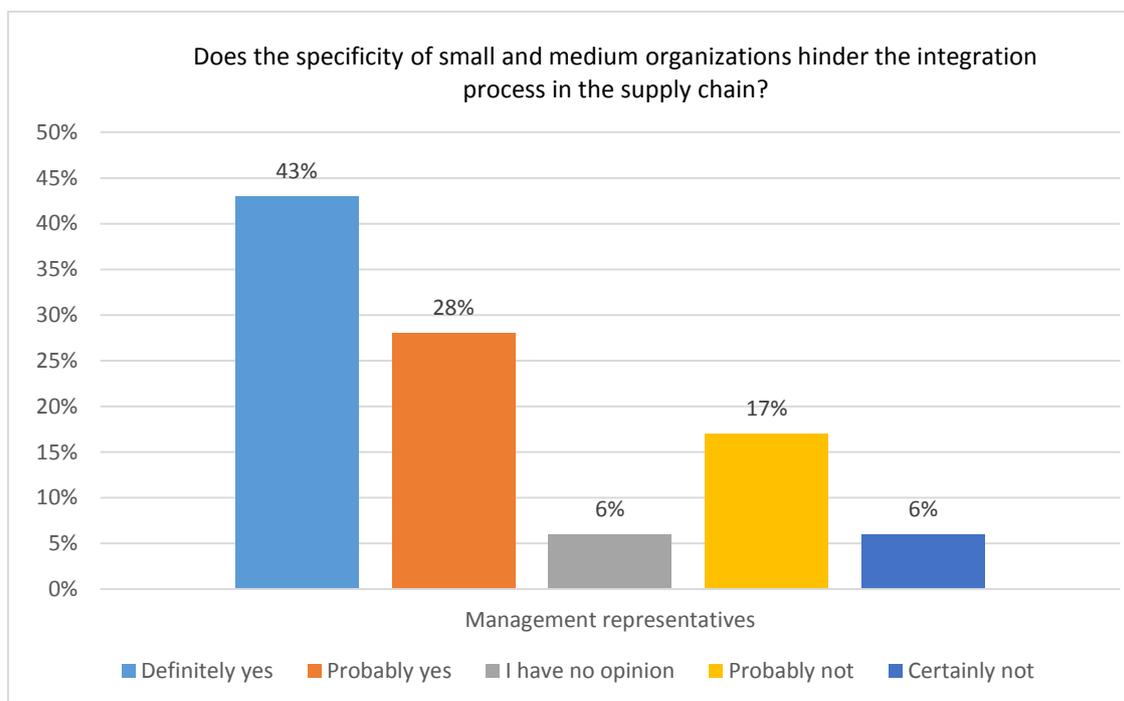
It is assumed that small and medium-sized organizations due to its specificity have significant problems with the full integration of the supply chain.

It should be noted, that due to the rather limited research sample, the research presented is of a pilot nature and should be treated only as a starting point for further in-depth research.

2. Analysis of the results of research

The purpose of the first question was an attempt to determine whether the specificity of small and medium-sized organizations hinders the process of integration in the supply chain. Distribution of respondents' answers is shown on Fig. 1.

Figure 1: Answers to the first question



Source: own processing

By analyzing the distribution of the responses presented in Figure 1, it is noted that, according to the majority of respondents (71%), small and medium-sized organizations face barriers to their integration processes. This leaves only 23% of respondents had a different opinion on this issue. The respondents were asked to elaborate their thoughts on an open question. By analyzing the responses, it was found that the respondents stated that the biggest obstacles to the integration process were the respondents:

- Lack of capacity to implement innovative information technologies, as rightly observed that Vanpoucke and colleagues (2017) are key to strengthening integration and improve supply chain efficiency,
- Limited availability and poorly trained staff. This is certainly a problematic situation because according to a study of Hooshangiego and co-authors (2017), a commitment and skills of employees directly influence the improvement of relations with direct suppliers and customers.

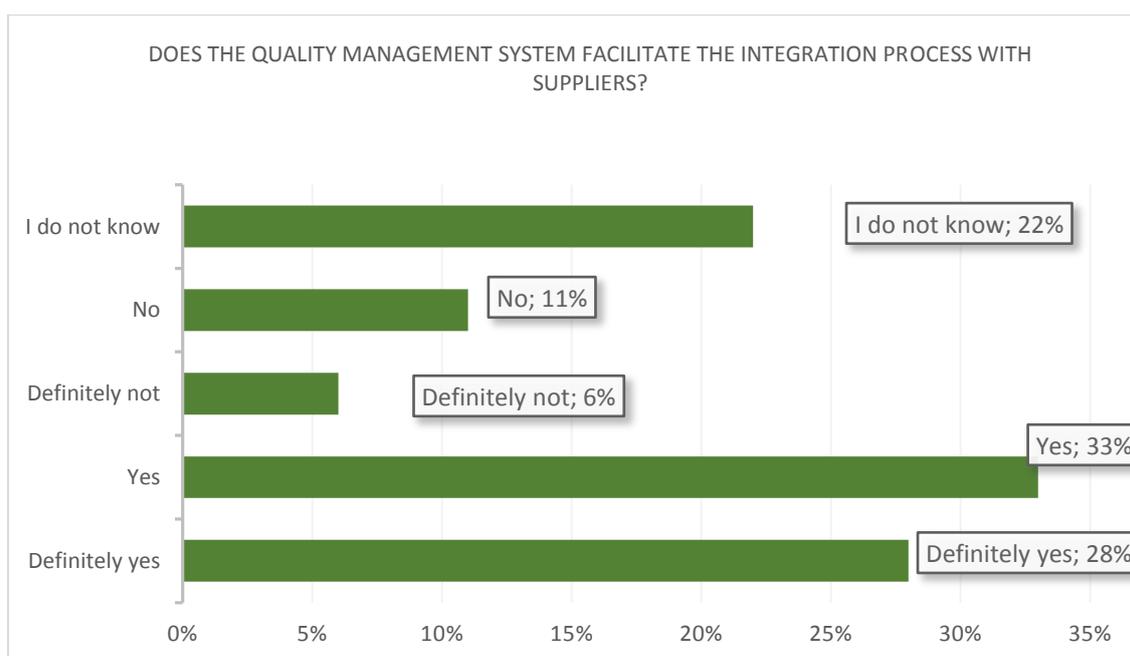
- Lack of funds for investment in infrastructure, which would enable to meet customer requirements at the intended level.

In turn, respondents who did not notice the problematic situation responded in the following way:

- smaller organizations are characterized by high flexibility and speed, which allows them to adapt to the strategy pursued in the supply chain,
- small and medium-sized organizations usually perform auxiliary functions, and in this respect are not so big problems with adjustment to the requirements of clients and customers.

The purpose of the next question was to determine whether the implementation of standardized quality management systems facilitates the process of integration with suppliers (Fig. 2).

Figure 2: Answers to the second question



Source: own processing

On the basis of the answers it can be concluded that the majority of respondents (61%) considered that the implementation of the requirements of standardized quality management systems facilitates integration processes with suppliers. Only 17% of organizations do not have noticed the positive impact of the implementation of ISO 9001 on strengthening relationships with suppliers. The positive image of the implementation of the system requirements in this aspect may be due to the fact that quality management systems present a number of requirements aimed at maintaining proper relationships with suppliers, which include, among others:

- development of reliable criteria for evaluation and classification of suppliers,
- defining the forms of control over the acquired components (Talib et al. 2010),
- determining the scope of supervision of providers (Wolniak, 2013),
- emphasis on mutual beneficial relationships with suppliers.

It should be indicate that 22% of organizations surveyed were unable to answer the question as formulated. It can be explained by the fact that the effects of the implementation of the quality management system are not immediately apparent and their impact is very broad and difficult to precisely define.

Conclusions

Supply chain integration and lasting partnership with suppliers bring many potential benefits to both suppliers and consumers. Broad-based collaboration brings benefits to customers, primarily by reducing their uncertainty related to the quality and cost of components purchased, delivery times, and response rates. The collaboration also minimizes vendors' doubts about market analysis, understanding customer needs, and product specifications.

Unfortunately, the integration process is quite complex and time-consuming and not always feasible for small and medium-sized organizations, because its effectiveness is determined by such factors as:

- the maturity of the management of individual organizations to put the good of the whole over the good of an individual enterprise (Janošová et al. 2016),
- the ability to formulate objectives that benefit all participants in the supply chain,
- having an appropriate infrastructure and resources by the different supply chain,
- develop an optimal strategy,
- willingness to share information and knowledge.

As a result, small and medium-sized organizations are looking for solutions that can support key management processes. The publication focuses on the impact of ISO 9001 on tightening relationships with suppliers in the supply chain. Based on the results of research and literature analysis of the subject matter, it can be stated that the implementation of the standardized quality management system has a positive influence on the cooperation with suppliers. Similar findings can be found in the

work of such authors as Fotopoulos et al. (2010) or Malindžák et al. (2017). The research process also allowed to validate accepted research hypotheses. Both accepted hypotheses proved true because:

- 71% of surveyed organizations indicate that smaller organizations have difficulty in establishing long-term relationships with their partners because of the limited resources they have. It should also be stressed that management of small and medium-sized organizations struggling every day with many challenges and obstacles to the smooth functioning of the organization. These barriers are rooted both in the same conditions of the system, as well as the specifics of small and medium-sized organizations. Generally speaking, to system conditions we can include the institutional constraints and regulations (Santos et al., 2013). Whereas technological limitations, lack of innovative solutions, low efficiency of internal processes within the organization and a lack of professional knowledge are the main shortcomings resulting from the nature of small and medium-sized organizations.
- 61% of respondents considered that the implementation of the quality management system emphasizes the ordering of basic procurement processes, which translates into improved cooperation with suppliers and initiates integration processes.

References

- Arend, R. J., & Wisner, J. D. (2005). Small business and supply chain management: is there a fit? *Journal of Business Venturing*, 20(3), 403-436
- Attia, A. M. (2016). Effect of quality management on supply chain and organisational performance in the Egyptian textile industry. *International Journal of Business Performance Management*, 17(2), 198-222.
- Diaye, M. A., Greenan, N., & Pekovic, S. (2014). Sharing the 'fame' of ISO standard adoption: quality supply chain effects evidence. *International Journal of Production Research*, 52(18), 5396-5414.
- Fernandes, A. C., Sampaio, P., & Carvalho, M. S. (2014). Quality management and supply chain management integration: a conceptual model. *IEOM*, 773-780.
- Filina-Dawidowicz, L. (2014). Rationalization of servicing reefer containers in sea port area with taking into account risk influence. *Polish Maritime Research*, 21(2), 76-85.

- Fotopoulos, C. V., Psomas, E. L., Vouzas, F. K. (2010). ISO 9001: 2000 implementation in the Greek food sector. *The TQM Journal*, 22(2), 129-142. DOI: 10.1108/17542731011024255
- Fura, B., & Wang, Q. (2017). The level of socioeconomic development of EU countries and the state of ISO 14001 certification. *Quality & Quantity*, 51(1), 103-119.
- García-Bernal, J., & García-Casarejos, N. (2014). Economic analysis of TQM adoption in the construction sector. *Total Quality Management & Business Excellence*, 25(3-4), 209-221.
- Harland, C. M., Caldwell, N. D., Powell, P., & Zheng, J. (2007). Barriers to supply chain information integration: SMEs adrift of eLands. *Journal of Operations Management*, 25(6), 1234-1254.
- Hooshangi, M., Sadaghiani, J. S., Astaneh, M. R., & Afshar, Z. A. (2017). The mediation role of supply chain integration in relationship between employee commitment with organisational performance. *International Journal of Business Information Systems*, 24(2), 210-226.
- Janošová, L., Jirásek, M., & Pirožek, P. (2016). Diversity of Czech and German Corporate Boards: Experience From MNCs. In *ECMLG 2016-Proceedings of the 12th European Conference on Management, Leadership and Governance*, 109-115.
- Kafel, P., & Sikora, T. (2014). The level of management maturity in the Polish food sector and its relation to financial performance. *Total Quality Management & Business Excellence*, 25(5-6), 650-663.
- Lenny Koh, S. C., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems*, 107(1), 103-124.
- Lisińska-Kuśnierz, M., & Gajewska, T. (2014). Customer satisfaction with the quality of the logistic services. *LogForum*, 10(1), 13-19.
- Malindžák, D., Kačmáry, P., Zatwarnicka-Madura, B., & Zimon, D. (2017). The continual chemical changing aspects in metallurgy production scheduling. *Metalurgija*, 56(1-2), 219-222.
- Palomero, S., & Chalmeta, R. (2014). A guide for supply chain integration in SMEs. *Production Planning & Control*, 25(5), 372-400.
- Petersen, K. J., Handfield, R. B., Ragatz, G. L. (2005). Supplier integration into new product development: coordinating product, process and supply chain design, *Journal of operations management*, 23(3), 371-388.

- Power, D. (2006). Adoption of supply chain management-enabling technologies in SMEs: the view from the top vs. the view from the middle. *International Journal of Value Chain Management*, 1(1), 64-93.
- Qi, Y., Huo, B., Wang, Z., & Yeung, H. Y. J. (2017). The impact of operations and supply chain strategies on integration and performance. *International Journal of Production Economics*, 185, 162-174.
- Sabet, E., Yazdani, B., & De Leeuw, S. (2016). Supply chain integration strategies in fast evolving industries. *International Journal of Logistics Management*, 28(1), 29-46.
- Santos, G., Barros, S., Mendes, F., Lopes, N. (2013), The main benefits associated with health and safety management systems certification in Portuguese small and medium enterprises post quality management system certification. *Safety science*, 51(1), 29-36. doi: 10.1016/j.ssci.2012.06.014
- Sila, I., Ebrahimpour, M., & Birkholz, C. (2006). Quality in supply chains: an empirical analysis. *Supply Chain Management: An International Journal*, 11(6), 491-502.
- Talib, F., & Rahman, Z. (2010). Critical success factors of TQM in service organizations: a proposed model. *Services Marketing Quarterly*, 31(3), 363-380.
- Tatoglu, E., Bayraktar, E., Golgeci, I., Koh, S. L., Demirbag, M., & Zaim, S. (2016). How do supply chain management and information systems practices influence operational performance? Evidence from emerging country SMEs. *International Journal of Logistics Research and Applications*, 19(3), 181-199.
- Tunjić, Đ. Kljajin, M. Kondić, V. (2014). Research and ranking of the factors of impact on efficiency and effectiveness of the quality management system certification process using the prior factor ranking method. *Tehnicki vjesnik/Technical Gazette*, 21(2), 383-388.
- Vaaland, T. I., & Heide, M. (2007). Can the SME survive the supply chain challenges? *Supply chain management: an International Journal*, 12(1), 20-31.
- Vanpoucke, E., Vereecke, A., & Muylle, S. (2017). Leveraging the impact of supply chain integration through information technology. *International Journal of Operations & Production Management*, 37(4), 510-530.
- Wolniak, R. (2013). The assessment of significance of benefits gained from the improvement of quality management systems in Polish organizations. *Quality & Quantity*, 1-14.
- Zimon D. (2017), Quality Management Systems' Impact on the Functioning of Distribution Channels in the FMCG Market, *Quality- Access to Success*, 18(156), 52-56.

Zimon, D., Gajewska, T., & Bednárová, L. (2016). An Influence of Quality Management System for Improvement of Logistics Distribution. *Quality - Access to Success*, 17(155), 68-70.

STRATEGIES FOR ASSETS FINANCING IN COMPANIES OPERATING IN BRANCH GROUP PURCHASING ORGANIZATIONS

Grzegorz Zimon

Rzeszów University of Technology
Al. Powstańców Warszawy 12
35-959 Rzeszów, Poland
gzimon@prz.edu.pl

Abstract

Companies that operate in the market and want to develop need to run an effective policy of assets financing. Managers can choose their own or foreign financial sources. A properly developed financial strategy has a big impact on liquidity and profitability. A big problem for managers is to create a strategy that is not expensive and guarantees the financial security. Operation in a group purchasing organization gives a possibility of creating such a strategy as the specificity of operations in the framework of branch purchasing groups modifies the classic strategies. The aim of this article is to present a strategy for the financing of assets in companies operating in the branch purchasing groups. Thirty-two commercial companies operating in two Polish purchasing groups were analyzed. The research was carried out on the basis of the financial statements for 2013-2015. The selected financial ratios were used for the analysis. The analysis showed that the strategies of financing the assets were used in companies forming branch group purchasing organizations.

Keywords

strategy, sources of financing, a group purchasing organization

Introduction

Every company needs to have proper sources of financing assets or liabilities. In case of the selection of asset financing, the entity can choose between an own equity or a foreign equity. Business executives, when deciding on what capital to rely on, must assess how their choice will affect the financial position of the company, especially their liquidity. They must also pay attention to the cost of capital that funds the assets in the enterprise. Group purchasing organizations have a significant impact on the operational safety of small and medium-sized enterprises. A GPO is an organization composed of enterprises and a group organizer called an integrator. The integrator is the central unit that manages the entire organization, most often it is a specially appointed company by the companies that make up the purchasing organization (Zimon, 2017, pp.675-682). A GPO is an entity that uses collective purchasing power to obtain a discount (Yang, Cheng, Ding, Li, 2106, pp. 581-589). A

purchasing group can be defined as a group of companies from the same or another branch that combine to make a joint purchase (Zimon, 2016, pp. 219-229). It is managed by a specially created central unit, which aims to carry out the tasks assigned by the purchasing group companies (Zimon, 2014, p. 319-327). Consolidation of members of a given group is the basis for negotiations with producers (Blair, Durrance, 2014, s.433-443). Its degree has a big impact on the success of the group. The purpose of group purchasing organizations is to defend individual companies against strong competition and to increase negotiating power. (Prakash, 2014, s.245). Typical defects are organizational costs and loss of flexibility (Schontanus, Telgen, 2007, pp.53-68). To be successful a GPO must be able to foster and maintain the commitment of its members. (Doucett, 1997, pp.183-189).

Group purchasing organizations can be divided into two types: branch and multi-branch. Industry units bring together only one branch and multi-branch units with companies from many different industries. Functioning within the group makes the most sense when it is a branch group. The scale effect is then strong so that one can get the following financial benefits: costs reduction, increase in sales, protection of own business from losing financial liquidity. All these elements are directly or indirectly influenced by a choice of asset financing strategies.

The purpose of this article is to show how a ranch group purchasing organization influences asset financing strategies and how managers choose sources of funding.

Choosing funding sources is not an easy process. Very often there are some barriers that do not allow the company to use the source that is the best for them at any given moment. Managers generally try to determine the appropriate structure of liabilities. They decide on the size of equity and foreign capital. The following criteria should be considered in choosing the right funding source:

- Availability,
- Costs,
- Flexibility,
- The effect of leverage,
- Risk of service.

The first criterion is accessibility, not every company can use e.g. bank loans. The financial situation can disqualify the business with the application procedure. A similar situation may arise in the case of merchant loans, certain suppliers may block sales to individuals who fail to meet their due payments. Profit financing is not possible in companies that do not have it. Therefore, the accessibility criterion is the most important and limits the possibilities of creating an optimal financing strategy.

The second criterion is really very often the first and only if the company has a choice of several sources of financing and these are costs. The amount of costs is very important, sometimes when choosing financing sources the managers pay attention to the liabilities maturity date. The division of interest and non interest payments is important in this case. The third category the attention is paid on is the possibility of a flexible increase in expenditure. A source of financing is good only when its service depends on the economic performance of the company. The effect of financial leverage is to determine the impact of additional loan capital on the company's financial effects on the effectiveness of the equity capital employed. The last criterion is the risk of service. Choosing the right sources of finance, maintaining the right structure or maturity is the building up of your own funding management strategy. Financing strategies should be built on the basis of classic strategies for financing current assets. There are three basic financing strategies (Czekaj, Dresler, 2008, p.159):

- A conservative strategy consists in the financing of current assets by means of equity and long-term liabilities. The level of short-term liabilities is low.
- Aggressive strategy is based on asset financing with short-term credit.
- A moderate strategy is a combination of the previous two strategies when rejecting extreme actions. The company is seeking to finance a portion of current assets with a long-term capital and current working capital needs cover sources with the same maturity (Sierpińska, Wędzki, 2005, p.106).

In the conservative strategy the fixed capital finances most fixed assets in addition to current assets. This strategy is characterized by: high share of long-term liabilities in total liabilities, high share of equity in financing total assets, low turnover ratio and low debt ratio. In the case of aggressive strategies, a high turnover ratio of short-term liabilities can be observed. The company is not in a position to meet its commitments. The debt ratio is high, the share of long-term liabilities at low, the company does not have long-term loans. The share of equity in asset financing is low. This strategy does not cover the costs of lost opportunities due to over-involvement of fixed capital in current financing (Sierpińska, Wędzki, 2005, p.192).

Companies that operate in multi-stakeholder organizations identified as group purchasing organizations have more opportunities than those operating independently in the market. Co-operation in a purchasing group supervised by a unit specifically created to manage it allows the creation and selection of appropriately modified classical management strategies for financing sources.

1. Methodology

The research was carried out on the basis of financial statements of 32 Polish trading companies operating in the construction industry. The period of study covered the years 2013-2015. In order to analyze the sources of financing the assets of enterprises, the selected financial indicators were used:

- Debt ratio = $\frac{\text{liabilities in total}}{\text{assets in total}}$
- Equity ratio in equity financing = $\frac{\text{equity}}{\text{total assets}}$
- Short-term liabilities turnover ratio in days = $\frac{\text{short term liabilities}}{\text{sales revenues}}$
- Long-term liabilities in liabilities, = $\frac{\text{long term liabilities}}{\text{total liabilities}}$

On the basis of the indicator analysis, the principles and benefits that businesses in group purchasing organizations have, the strategies for managing financing sources in purchasing groups were identified. Since the study only covers three years, the average for the period 2013-2015 has been set for each ratio. The results of individual ratios in the audited period in the audited entities were at a similar level.

2. Results

Joint purchases, economies of scale, and collective action within a GPO bring the following benefits to companies in the area of financing management:

- Extended payment deadline. It may cause an increase in the level of liabilities towards suppliers. However, this is a great opportunity for businesses that allows them to offer extended merchant loans to their contractors. Merchant credit is a weapon in the fight against competition, so this can increase sales and profits,
- Reduction in the level of bank credit. As a result of receiving favorable merchant credit, the company has to use a bank credit to a greater extent. Its level in a given period may fall. The decline in bank loans gives a positive result in the form of a reduction in financial costs.
- An increase in equity. Functionality in branch GPOs increases sales revenue and reduces costs in various areas of business. The result is the profits that the company achieves. When the owners do not collect dividends, the profits will be in the enterprise in the form of reserve or reserve capital. This increases the position of the company.

- Improvement of the financial situation as a result of the good outcomes that companies achieve, makes it easier to apply for higher credit limits in banks. The barrier to access to this source is therefore barred due to poor financial performance. If necessary, the company can take advantage of the offers of banks.
- Discount for early payment of liabilities for suppliers. The use of additional discounts shortens the repayment date. The level of liabilities for suppliers is declining. However, this may have a positive impact on equity. As a result of receiving an additional discount for an early payment, the unit buys the item for a low price. As a result of this transaction, the cost will fall in the value of the goods sold at the purchase price. This fall will have a positive impact on the company's financial performance, such as profits.
- Transactions in a GPO. An entity sells goods to another weaker company and credits it for a longer period. A weaker company does not have to meet obligations on time, their level is increasing. It may sell the goods to the customers and turn the money on without paying the company from which the goods were bought. This is a way to strengthen the financial liquidity of a weaker company. At the seller's liquidity falls, so that such transactions take place one of the companies must have high liquidity.

The table below shows the average results for selected ratios about debt levels for all the companies researched for the years 2013-2015.

Table 1: Selected ratios of debt level

Ratio	2015-2013
Share of equity in total assets	0,57
Share of liabilities in total assets	0,43
Debt turnover ratio in days	57
Share of long-term liabilities in total liabilities	0,06

Source: own processing

In companies operating in GPOs a high share of equity in asset financing was observed at around 60%. When analyzing operational safety, one should evaluate this result positively. The strength of purchasing groups increases the company's equity. It is influenced by good financial results the companies operating within the branch GPOs get.

The table 2 below shows the average results for debt turnover ratio and share of liabilities in total assets for every companies for the years 2013-2015.

Table 2: Average results for selected ratios of debt level

Company	Debt turnover ratio in days	Share of liabilities in total assets	Share of equity in total assets	Share of long-term liabilities in total liabilities
1	23	0,1	0,90	0
2	25	0,19	0,81	0,17
3	73	0,38	0,72	0
4	110	0,7	0,3	0,06
5	44	0,3	0,7	0
6	40	0,82	0,18	0,7
7	110	0,63	0,37	0,05
8	27	0,63	0,37	0,01
9	60	0,5	0,5	0,3
10	60	0,53	0,47	0,02
11	28	0,25	0,75	0
12	15	0,06	0,94	0,08
13	67	0,56	0,44	0
14	23	0,1	0,9	0
15	31	0,3	0,7	0,02
16	30	0,2	0,8	0
17	107	0,63	0,37	0,1
18	70	0,4	0,6	0
19	20	0,1	0,9	0,23
20	108	0,66	0,34	0

21	84	0,8	0,2	0
22	90	0,63	0,37	0
23	25	0,15	0,85	0
24	110	0,57	0,43	0,25
25	70	0,72	0,28	0
26	52	0,32	0,68	0,2
27	75	0,75	0,25	0
28	52	0,26	0,74	0
29	32	0,19	0,81	0
30	54	0,48	0,52	0,2
31	45	0,4	0,6	0,04
32	51	0,38	0,62	0

Source: own processing

The second ratio used for the analysis is the overall debt ratio. This is the most commonly used ratio of debt levels. It is defined as a ratio of the burden of assets liabilities (Nowak 2017, p.222). The optimum level of this ratio is the margin from 0,57 to 0,67. The high score of this ratio indicates the large financial dependence of the company on foreign capital. This is a disadvantage. The share of liabilities in assets is approximately 43%. This result should be evaluated negatively. Companies finance their activities too little by outsource financing. When analyzing the turnover ratio of liabilities in days, the average score should be assessed as very low. It only takes 57 days. In five companies this ratio achieved about 100 days. Other units will pay their suppliers on time and will use the discount for early payment. In this way, they reduce the costs of running a business which allows earning high profits. Another ratio concerned long-term liabilities. In 24 companies, it accounts for up to 6% of total liabilities. In 17 of them it does not appear at all. The low level of this ratio should be negatively assessed as it is considered a safe source of assets financing.

Conclusion

The analysis conducted shows that the tested entities in a conservative and safe way secure financially their own assets. This strategy should not be viewed as a typical conservative but as a moderate, which at any moment may turn into a classic-conservative. It will depend on the degree of use of the discounts offered. If they are systematically offered and are used, then it will be a moderate strategy. In situations where safe "non-interest" liabilities to suppliers grow, then it will be a conservative strategy.

The moderate-conservative strategy in the surveyed companies is characterized by high equity, low long-term liabilities, low short-term liabilities and low turnover results in days. Using long delays in payments, cross-selling, early-payment discounts increase sales revenue, reduce costs, and increase profits. The financial situation of enterprises improves, which increases the availability and attractiveness of the loans offered by banks. This strategy strengthens the competitive position of companies in the market. In the seven units analyzed, strategies for managing the sources of funding should be assessed as aggressive. This is illustrated by the high level of liabilities and the long-term debt turnover ratio exceeding 100 days in the audited period. The remaining 25 is a conservative-moderate strategy, which confirms the results of individual measures. The turnover ratios are low, the share of asset financing liabilities is also low. In turn, the share of equity in asset financing is high. This has a big impact on the benefits that businesses get through joint action. Grouping, intra-group support, exchange of experience, and joint purchasing arrangements allow a positive impact on the sources of financing for companies operating in the branch group purchasing organization.

References

- Czekaj, J. & Dresler Z. (2008). *Zarządzanie finansami przedsiębiorstw. Teoria i praktyka*, Warszawa: Wydawnictwo PWN.
- Blair, R.D. & Durrance, C.P. (2014). Group purchasing organizations, monopsony, and antitrust Policy. *Managerial and Decision Economics*, 35(7). DOI: 10.1002/mde.2633.
- Doucett, W. (1997). Influences on member commitment to group purchasing organizations. *Journal of Business Research*, 40(3). DOI: [https://doi.org/10.1016/S0148-2963\(96\)00234-2](https://doi.org/10.1016/S0148-2963(96)00234-2).
- Nowak, E. (2005). *Analiza sprawozdań finansowych*, Warszawa: Wydawnictwo PWN.
- Prakash, S. (2009). *Group purchasing organization - Undisclosed scandal in the U.S healthcare industry*. New York: Palgrave Macmillian.

Schontanus, F., Telegen. J. (2007). Developing a typology of organizational forms of cooperative purchasing, *Journal of Purchasing & Supply Management*, 13.

Sierpińska, M, Wędzki D. (2005). *Zarządzanie płynnością finansową w przedsiębiorstwie*, Warszawa: Wydawnictwo Naukowe PWN.

Yang, Y.C., Cheng, H.K., Ding, C., Li S. (2016). To join or not to join group purchasing organization: A vendor's decision, *European Journal of Operational Research*, 258(2). DOI: 10.1016/j.ejor.2016.08.069.

Zimon, G. (2017). Inventory management costs in enterprises working in purchasing group. In *Book 1 Modern Science – Volume I Political sciences, Law, Finance, International Relations*, Location: Vienne, Date: 28-31 march, 2017, SGEM 2017: 4th International Multidisciplinary Scientific Conference on Social Sciences & Arts - Conference proceedings, DOI: 10.5593/sgemsocial2017HB11

Zimon, G. (2014). Kapitał obrotowy brutto w przedsiębiorstwach handlowych tworzących grupy zakupowe, In: I.D. Czechowskiej, R.Pastusiaka (ed.). *Acta Universitatis Lodziensis, Folia Oeconomica*, 2(300) 319-327.

Zimon G. (2016), Wpływ grup zakupowych na konkurencyjność przedsiębiorstw, In: *Uwarunkowania rynkowe rozwoju mikro, małych i średnich przedsiębiorstw. Mikrofirma, Marketing i Zarządzanie* nr 2 (43) 2016, 219-229.



Organizing Committee Chairman:

Ing. Ladislava Kuchynková, Ph.D., contact: kuchynkova@mail.muni.cz

Organizing Committee Members:

Ing. Martin Cenek (venue), contact: martin.cenek@mail.muni.cz

Ing. et Ing. Lenka Janošová (editor), contact: lenkajanosova@mail.muni.cz

Ing. Michal Jirásek (registration), contact: mijirasek@mail.muni.cz

Ing. Martin Štěrbá (marketing), contact: martin.sterba@mail.muni.cz

Contact Address:

Masaryk University

Faculty of Economics and Administration

Department of Business Economics and Management

Lipová 41a

602 00 Brno

Czech Republic

Published by:

Masaryk University,

Žerotínovo nám. 6017/9

601 77 Brno, Czech Republic

1st edition, 2017

ISBN 978-80-210-8714-9