

CHANGES IN MARKETING MANAGEMENT OF COMPANIES DUE TO THE DEVELOPMENT OF THE INTERNET

Radka Bauerová

*Silesian University in Opava, School of Business Administration in Karvina,
Department of Business Economics and Management
bauerova@opf.slu.cz*

Abstract:

This paper provides an empirical test of whether the development of the internet links to implementing a new technology which increasing competition required changes in the marketing management. The aim of the paper is to determine the impact of internet development on marketing management and to determine whether attributes such as the type of industry, year of establishment and ownership structure can be related to the level of marketing management adaptation to a changing environment. Two interrelated questions are considered. The first question is how much companies are affected by the development of the Internet in their marketing management settings. The second is whether there are differences in business activities related to the development of the Internet in terms of attributes mentioned. Using the self-completed questionnaires, delivered by hand to each respondent and collected later, data were collected from managers in 130 organizations. The findings highlight how companies react to the development of the internet in marketing management area. Despite the fact that in the last years increasing emphasis on industry 4.0 and the associated internet of things it was found, that the companies belonging to the industries that focus more on production than on services are less affected by the internet development in the settings of marketing management.

Key words:

Vision, channel distribution, marketing management changes, internet, Internet of things

JEL: M10

1 Introduction

Marketing management process consists of investigating market opportunities, identifying marketing objectives and setting a marketing strategy (Kotler and Keller, 2017). Marketing management is a management of an organization's marketing activities but involves the management of all activities whose focus is on customer satisfaction, competitor analysis and the use of market opportunities for adequate marketing mix decisions, implementing a marketing plans and monitoring and control of marketing activities (Lancaster and Massingham, 2018). In this context, can be mentioned the internet, because it can be perceived as an evolving technology, which has facilitated the development of new business relationships and has opened up cross-border market opportunities for organizations (Hinson and Adjasi, 2009).

The development of the Internet caused various changes in consumer behaviour. Consumers have an ability to connect to the Internet through a variety of inexpensive and mobile devices anytime and anywhere (Smith and McKeen, 2008). Consumers know what is available to them in the marketplace, with an accurate and precise understanding of price and of the exact set of attributes that each good or service offers them, which causes a change in consumer behaviour (Lucas et al., 2013). Marketing managers could take into account the development of the internet because the internet has the potential to disrupt established ways of conducting business while creating new ones and new

businesses (Afuah and Tucci, 2003). If we focus on management area, there are significant changes in new styles of management. Some managerial changes are apparent in many working lives as more attention to improving work/life balance, which changed management style and metrics (Smith and McKeen, 2008). The effect of these changes is more emphasis on marketing management area in a new digital way. The core of today's marketing management is in using many platforms useful in e-commerce, customer relationship management or inventory management (Huang et al., 2015).

Changes can also be observed in the development of new technologies based on internet protocols and network technology such as the Internet of Things, which is useful in the manufacturing process or in other business processes as a part of "smart industry" (Wortmann a Flüchter 2015). The smart industry is producing or will be in the position to soon not only their traditional products in a more efficient way, but will also be capable of producing new types of products and services, with embedded intelligence that's always connected (Haverkort a Zimmermann 2017). The internet of things is known in the business area as Industrial internet of things, which belongs to the term Industry 4.0. The Industrial internet can be characterized as a way to get better visibility and insight into the company's operations and assets through the integration of machine sensors, middleware, software, and backend cloud compute and storage systems (Gilchrist 2016). Some scholars examined the Internet of Things (3D printing) from a managerial perspective and found that 3D printing will change the approach to production in the years to come (Caputo, Marzi, and Pellegrini, 2016). The emerging of Industrial internet was caused by the decline in the cost of computing, storage, and networks which resulting into the cloud-computing model, which allows companies to gather and analyse much larger amounts of data than ever before (Gilchrist 2016). However, the previous studies found that small and medium enterprises are not using the full potential of the new digital tools, and are not deriving benefit to their opportunities (Järvinen et al., 2012; Sayre et al., 2012; Taiminen and Karjaluoto, 2015). This may be due to the complexity of adopting new technologies and practices to established structures in the organization.

The internet plays a critical role in the way how firm activities are coordinated, how commerce is conducted, how people and machines communicate, how communities are defined and how they interact, and how and when goods are made and delivered (Afuah and Tucci, 2003). This paper is intended for managers to understand how it is important to reformulating settings of marketing management and to show what changes in marketing management are common with the development of the Internet in organizations. The author answers the following questions in undertaking this research:

RQ1: How much were companies influenced by marketing management by the internet development?

RQ2: Are there differences in business activities related to the internet development in terms of industry, year of founding and ownership structure?

The aim of the paper is to determine the impact of internet development on marketing management and to determine whether attributes such as the type of industry, year of establishment and ownership structure can be related to the level of marketing management adaptation to a changing environment. The literature review analyses the changes in marketing management in the last years in relation to the internet development. The following part introduces the chosen research method to find out the relations between companies characteristics and marketing management changes. The next part describes and comments the results of tests provided. The last part summarises and discusses confirmed relationships between some companies' characteristics and marketing management changes.

2 Hypotheses formulation

This paper focused on marketing management changes especially on a strategy, goals, mission, budget and marketing mix, type of channel distribution, an impact on vision and selected element of

internal marketing. Technology has become a fundamental driver of the business strategy and 97% of the CEOs surveyed by Kearney (2000) felt that technology would have an extreme of a moderately important role in the future success of their companies. He also found that 78% of the North American executives surveyed stated that the internet has already changed how they do business. The internet was adopted faster than any previous technology and therefore it dramatically changed the role of technology in business (Cassidy, 2001). Due to this fact, it could be assumed that companies that have been established around recent years will not have to recruit new employees due to the development of the Internet because their employees should have long-term internet experience. However, given that the Internet has given rise to new technologies that are constantly coming at a faster pace, it can be assumed that the employees of the mentioned companies due to the established structures were not able to take this progression. For the reasons described above, the following hypothesis was formulated:

Hypothesis 1: Companies established around 1900 need to recruit new staff oriented on new technologies (linked to internet development) more than current companies did.

Internal marketing is one of marketing management part examined in this research and represents a very useful tool to induce positive EWA (To et al., 2015). In this area will examine if internet development has an impact on creating a new job position. The countries' historical aspects can also influence the emergence of modern technologies. The history of entrepreneurship in the post-communist Czech Republic was influenced by the communist system and the development of new technologies was gradual and slow. The Czech economy has undergone the transformation since 1989. The Czech economic system has gradually changed from CPE to the market economy. Given these facts, it can be assumed that companies with Czech ownership had to create more new job positions associated with the internet development than foreign ownership companies. Therefore following hypothesis was formulated:

Hypothesis 2: Companies with Czech ownership create more new job positions associated with the internet development than companies with foreign ownership.

The internet development can also have an impact on settings of marketing management toward the type of industry. The internet is perceived as a technology with many properties that have the potential to transform the competitive landscape in many industries while at the same time creating completely new industries (Afuah and Tucci, 2003). If we focus on industries where services predominate more than production, we can assume that the impact of Internet development will be greater due to increasingly demanding needs and wishes of end-users. Based on that the following hypothesis was formulated:

Hypothesis 3: Companies belonging to the industries that focus more on production than on services are less affected by the internet development in the settings of marketing management.

3 Methods

The subject of the research is to find out if there are any changes in marketing management of companies due to the development of the Internet. This paper focus on specified parts in marketing management which are creating a new job position as a part of internal marketing management, the changes in vision state, the choosing of the distribution channel and in terms of strategy, goals, mission, budget and marketing mix. One-sided chi-squared test, two-sided chi-squared test and the Frequencies analysis was chosen as analyses techniques for this research. The analyses were done by IBM SPSS statistic software. The findings of mentioned analysis will have practical implications for managers to

show what changes in marketing management are common with the development of the Internet in organizations.

Sample

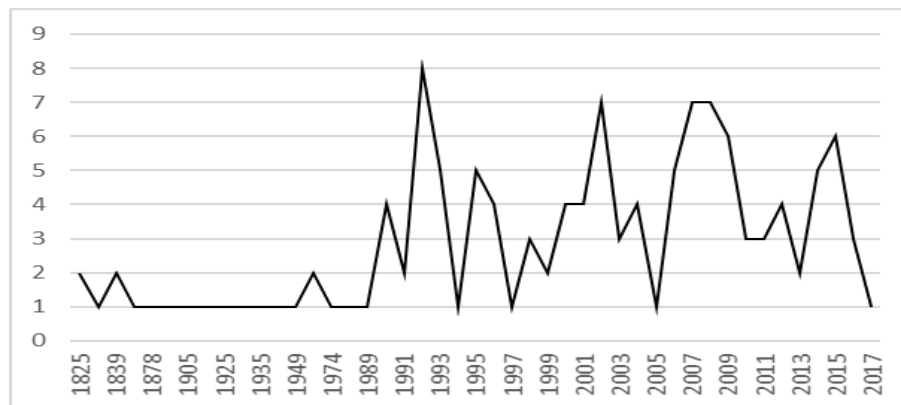
The primary data from managers was used to carry out the research. The size of the sample is 130 of companies in the Czech market. Self-completed questionnaires, delivered by hand to each respondent and collected later, was chosen as the type of questionnaire. This type of questionnaire is known as delivery and collection questionnaires and this type has a benefit as a confidence that right person has responded (Saunders et al., 2016). The primary data used to research were collected in the 2018 year. The following table shows CZ-NACE classification and ownership as two attributes chosen to examine in the context of marketing management changes.

Table 1: Ownership structure of the companies examined toward CZ-NACE classification

CZ-NACE	Industry	Ownership structure			Total
		Czech	Foreign	Both	
A	Agriculture, forestry and fishing	1	0	0	1
C	Manufacturing	7	9	2	18
D	Electricity, gas, steam and air conditioning supply	3	1	0	4
E	Water supply, sewerage, waste management and remediation activities	1	0	0	1
F	Construction	9	4	0	13
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	17	2	2	21
H	Transportation and storage	2	1	0	3
I	Accommodation and food service activities	7	4	2	13
J	Information and communication	6	1	0	7
K	Financial and insurance activities	6	3	3	12
M	Professional, scientific and technical activities	4	1	0	5
N	Administrative and support service activities	4	0	0	4
O	Public administration and defence; compulsory social security	4	0	0	4
P	Education	2	0	0	2
Q	Human health and social work activities	4	1	0	5
S	Other service activities	11	3	3	17
	Total	88	30	12	130

The following figure shows the year of the company established as the last attribute chosen to examine in this paper in the context of marketing management changes.

Figure 1: Number of companies surveyed founded between 1825 and 2017.



Hypothesis testing techniques selected

The Frequencies analysis was used to find how much was companies influenced by marketing management by the internet development. The next step in this research was to testing if the data variables (year of the company established, CZ-NACE classification and ownership) are useful for testing. The one-sided chi-squared test was used for analysing the usefulness of the data. The second step was to provide a two-sided chi-squared test. In the test was examined if criteria tested before has any relation to changes in marketing management. Then the graphic visualization of the links proved by the two-sided chi-squared test was created.

4 Paper results

The author of the paper identified two research questions and three hypothesis to investigate the impacts of the internet development on marketing management. The following paragraphs show the results of the Frequencies analysis, the one-sided chi-squared test and two-sided chi-squared test together with the graphical representation of established relationships.

4.1 The consequences of the internet development toward marketing management

The results of the Frequencies analysis show that the most frequent consequence links with the internet development are settings of strategy, goals, mission, budget and marketing mix. Almost half of the companies surveyed have modified them to fit the changing environment. The impact of Internet development on the company's vision is also interesting because some companies (6.2%) are also planning to reformulate it. Less noticeable changes are in the distribution channel settings area (27.7%) and creating a new job position area (25.4%). Interestingly, a few companies (3.1%) have opted to move from traditional business form to e-tail form to providing their products and services only through the internet. This analysis answered the question how much was companies influenced by marketing management by the internet development. It can be said that Internet has a significant impact on marketing management of companies because every fourth company changed strategy, goals, mission, budget, marketing mix, vision state, distribution channel and created a new job position as result of the development of the internet to remain competitive in a changing environment.

Table 1: The consequences of the development of the internet for marketing management

Type of changes in marketing management	Ratio of changes		
	Strategy, goals, mission, budget and marketing mix	No 53.1%	Yes 46.9%
Vision state	No 61.5%	Yes 32.3%	It is planned 6.2%
	Distribution channel	Without changes 69.2%	Changed to hybrid companies 27.7%
Creating a new job position	No 74.6%	Yes 25.4%	

4.2 Usefulness of the data for testing variables characterizing companies

The one-sided chi-squared test was used to determine if the variables are statistically significant for further testing. The examined variables were industry, year of founding and ownership structure. In the following table is shown that significance is less than 0.5 in case of all variables examined. Therefore, all of these variables affect the questionnaire, meaning they are statistically significant and suitable for another testing.

Table 2: The result of the One-sided chi-squared test

	Industry	Year of founding	Ownership structure
Chi-Square	78.985 ^a	65.923 ^b	72.800 ^c
Df	15	44	2
Significance	0.000	0.018	0.000

^a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8.1.

^b. 45 cells (100.0%) have expected frequencies less than 5. The minimum expected cell frequency is 2.9.

^c. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 43.3.

4.3 The relation between terms of industry, year of founding and ownership structure with changes in marketing management

The second test examined whether industry, year of founding and ownership structure has any impact on changes in selected parts of marketing management. The creating a new job position as a part of internal marketing management, the changes in vision state, the choice of the distribution channel and terms of strategy, goals, mission, budget and marketing mix were included in parts examined. The test found following relation between variables and parts of marketing management. The type of industry affects the setting of marketing management in the company because H₀ was rejected (Sig. = 0.032 < α = 0.05). The year of founding (Sig. = 0.009 < α = 0.05 -> H₀ rejected) and the ownership structure (Sig. = 0.002 < α = 0.05 -> H₀ rejected) has an impact on creating the new job position associated with the development of the internet.

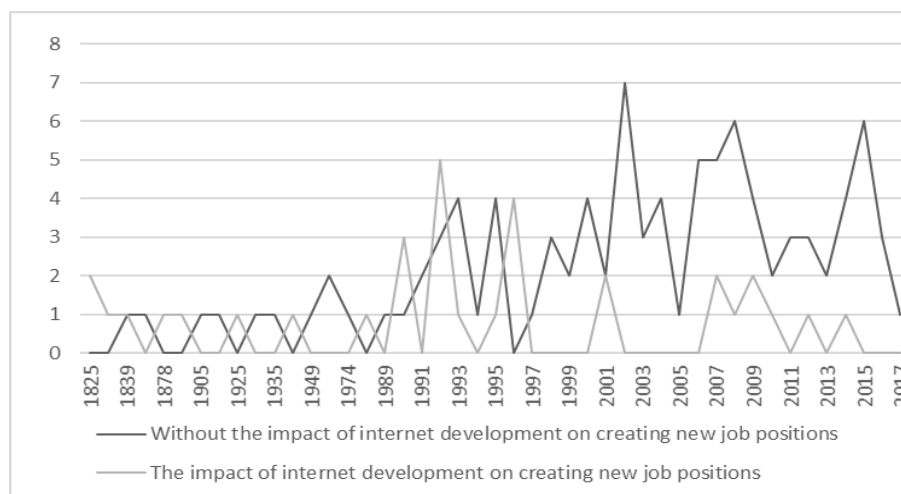
Table 3: The result of the Two-sided chi-squared test

Type of changes in marketing management	Industry	Year of founding	Ownership structure
	Significance	Significance	Significance
Strategy, goals, mission, budget and marketing mix	0.032	0.272	0.348
Vision state	0.080	0.286	0.251
Distribution channel	0.059	0.873	0.231
Creating a new job position	0.514	0.009	0.002

4.4 The graphical representation of established relationships for testing hypotheses

The result of the Two-sided chi-squared test indicated some relations between variables and parts of marketing management. The graphical representation was created to better visualization of established relationships. The first hypothesis was formulated as follows: companies established around 1900 need to recruit new staff oriented on new technologies (linked to internet development) more than current companies did. The result of the test confirmed a relationship between year of founding and the impact of internet development on creating new jobs position. To confirm the first hypothesis the graphical representation of established relationships was created. There is a visible relationship between the year of founding and the impact of internet development on creating new jobs position in figure 2. It can be said, that there is a significant difference in pressure to create new jobs between the companies established from 1900 to 1997 and companies established later. Therefore, the first hypothesis is not rejected.

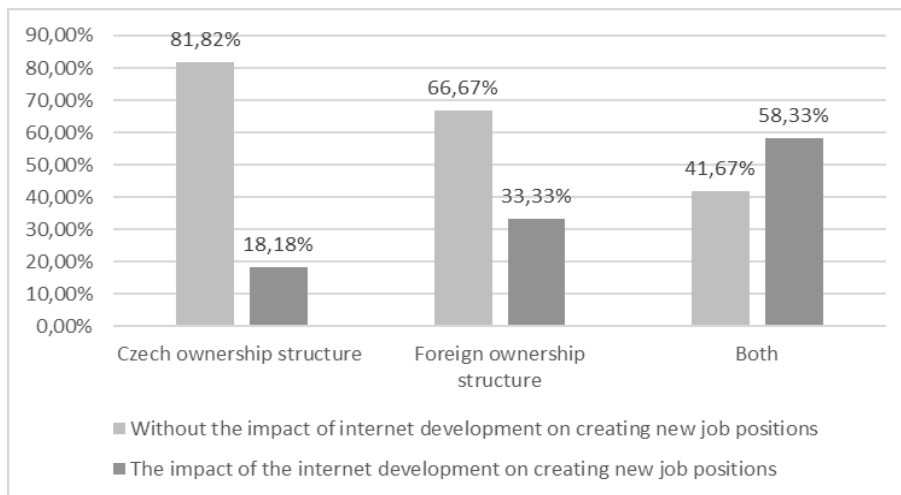
Figure 2: The impact of internet development on creating new jobs toward the year of founding



Whether companies with Czech ownership created more new job positions associated with the internet development than companies with foreign ownership was formulated in the second hypothesis. The relationship between the type of ownership and creating new job positions in relation to the internet development was also confirmed by a Two-sided chi-squared test. It can be said, by analysing the following figure, that there is a visible difference between Czech ownership structure and foreign ownership structure in the impact of internet development on creating new jobs, but in a different way, as was expected. The second hypothesis is rejected, because it is visible that the companies with Foreign ownership structure created more new job positions (33.3% of them) in relation with the internet

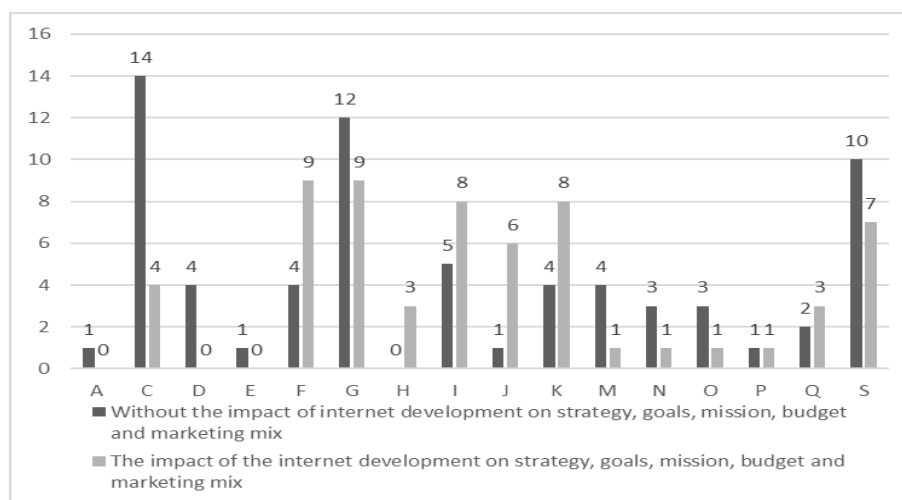
development than Czech ownership structure companies (18.18% of them). It can be assumed that foreign ownership structure gives more emphasis to the creating of new positions due to the development of the internet than Czech ownership companies.

Figure 3: The impact of internet development on creating new jobs toward a type of ownership



It is visible from following figure that not all type of industry was influenced by the internet development in the same way. There were more companies that did not change the attributes examine, for example the companies from the following industry: manufacturing (C), electricity, gas, stern and air conditioning supply (D), wholesale and retail trade, repair of motor vehicles and motorcycles (G), professional, scientific and technical activities (M) and other service activities (S). However, there are some industries (transportation and food service activities, information and communication, financial and insurance activities and human health and social work activities) where companies dominate in changed attributes mentioned. The most affected industries are construction industry and information and communication industry. Most of these industries belong to the service sector. Therefore, the third hypothesis was not rejected, so companies belonging to the industries that focus more on production than on services are less affected by the internet development in the settings of marketing management. This may indicate that these differences can also be caused by whether a company is the manufacturing of a service provider.

Figure 4: The impact of internet development on creating new jobs toward a type of industry



5 Discussion

The paper focused on changes in marketing management in relation to the internet development. These changes were examined on the Czech market. The internet development has a relationship with the development of technology caused a huge pressure on companies competitiveness. The aim of the paper was to determine the impact of internet development on marketing management and to determine whether attributes such as the type of industry, year of establishment and ownership structure can be related to the level of marketing management adaptation to a changing environment.

Two research questions were formulated in the introduction part of this paper. The first question was to specify how much was companies influenced by marketing management by the internet development. Almost half of the companies surveyed have modified strategy, goals, mission, budget and marketing mix to fit the changing environment. There was found changes in vision settings, distribution channel and new job position as well. It can be concluded that the internet development and its associated technologies are one of the most viewed factors in assessing the external environment of companies.

The second question was focused on differences in business activities related to the development of the internet in terms of industry, year of founding and ownership structure. The relationships between the criteria and changes in marketing management were found. It was found that industry links with settings of strategy, goals, mission, budget and marketing mix. Other findings are that year of founding and ownership structure links with creating a new job position in relation to the internet development. Companies established from 1990 to 1997 created more new jobs positions in relation to the internet development than companies established later. This can be caused by the fact, that companies established later have already planned in their organizational structure the job positions with the internet and new technology context. It can be said that companies with foreign ownership structure pay more attention to this theme because 33.3% of them created new job positions, meanwhile, only 18.18% of Czech ownership companies created new job position in relation with the internet development.

Despite that there was found a difference between companies belonging to the production industries and companies belonging to the services industries, there is a possibility of changes in the near future due to the emergence of industry 4.0. Therefore, the companies belonging to the production industries could take attention in the Industrial internet of things and calculate with this in reformulating their parts of marketing management to maintain competitiveness.

This research was financially supported by the Science and Research Support Program in the Moravian-Silesian Region 2017 project: "Support for talented PhD students at the Silesian University in Opava."

6 Bibliography

- [1] Afuah, A. – Tucci, Ch. (2003). *Internet Business Models and Strategies*. Boston: McGraw - Hill. ISBN 978-0-07-239724-6.
- [2] Caputo, A. – Marzi, G. – Pellegrini, M. M. (2016). „The Internet of Things in Manufacturing Innovation Processes: Development and Application of a Conceptual Framework. *Business Process Management Journal*, vol. 22 (2), pages 383–402, May.
- [3] Cassidy, A. (2001). *A Practical Guide to Planning for E-Business Success: How to E-Enable Your Enterprise*. CRC Press. ISBN 978-1-57444-304-2
- [4] Gilchrist, A. (2016). *Industry 4.0: The Industrial Internet of Things*. 1st vyd. Berkely, CA, USA: Apress. ISBN 978-1-4842-2046-7
- [5] Haverkort, B. R. – Zimmermann, A. (2017). „Smart Industry: How ICT Will Change the Game!“ *IEEE Internet Computing*, vol. 21 (1), pages 8 – 10, January.
- [6] Hinson, R. - Adjasi, C. (2009): The Internet and export: Some cross-country evidence from selected African countries. *Journal of Internet Commerce*, vol. 8(3), pages 309–324, December.
- [7] Huang, J. – Guo, P. – Xie, Q. – Meng, X. (2015): *Cloud Services Platform based on Big Data Analytics and its Application in Livestock Management and Marketing*. Proceedings of The fourth International Conference on Information Science and Cloud Computing, 18-19. December.
- [8] Järvinen, J. - Töllinen, A. - Karjaluoto, H. - Jayawardhena, C. (2012): „Digital and social media marketing usage in B2B industrial sector“, *Marketing Management Journal*, Vol. 22(2), pp.102-117, Fall.
- [9] Kearney, A.T. (2000). „Strategic Information Technology and the CEO Agenda.“ Available at: http://www.atkearney/pdf/eng/ceo_it_study2000_s.pdf.
- [10] Kotler, P. – Keller K. (2017): *Marketing management*. 14 ed. Praha: Grada Publishing, a.s. ISBN 978-80-247-4350-5.
- [11] Lancaster, G. – Massingham, L. (2018). *Essentials of Marketing Management*. New York: Routledge. ISBN 978-1-138-03896-7.
- [12] Lucas, H.C. – Agarwal, R. – Clemons, E.K. – El Sawy, O.A. – Weber, B., (2013): Impactful Research on Transformational Information Technology: an Opportunity to Inform New Audiences. *MIS Quarterly*, vol. 37(2), pages 371 – 382, June.
- [13] Saunders, M. – Lewis, P. – Thornhill, A. (2016). Revised edition of *Research methods for business students*. New York: Pearson. ISBN: 978-1-29201662-7.
- [14] Sayre, K. - Rastogi, V. - Zwillenberg, P. - Visser, J. - Sheerin, A. (2012): „Marketing capabilities for the digital age“, Boston Consulting Group, available at: <http://jcirera.files.wordpress.com/2012/02/bcg.pdf>
- [15] Smith, H.A. – McKeen, J.D., (2008): Developments in Practice XXXI: Social Computing: How Should It Be Managed? *Communications of the Association for Information Systems*, vol. 23(1), pages 409 – 418. October.
- [16] Taiminen, H.M., - Karjaluoto, H., (2015): The usage of digital marketing channels in SMEs. *Journal of Small Business and Enterprise Development*, vol. 22(4), pages 633–651, November.
- [17] To, W.M. - Martin, E.F. - Yu, B.T.W., (2015): Effect of management commitment to internal marketing on employee work attitude. *International Journal of Hospitality Management*, vol. 45, pages 14–21. February.
- [18] Wortmann, F – Flüchter, K. (2015). „Internet of Things“. *Business & Information Systems Engineering*, vol. 57(3), pages 221–24, March.