

Barriers and Drivers in the Adoption of mCommerce in Europe

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Abstract :

Since 2005 there has been a significant change in mobile technologies equipment in households within the EU. This fact is the basis for the development of mCommerce and digital commerce. It is also the impetus for the change of processes in companies and attracting new business opportunities and market channels. Support for technology development comes mainly from private activities of corporates. On national and transnational levels there are no significant activities related to R & D support of mobile devices, although the potential is great.

The aim of the paper is to analyse barriers and drivers in the adoption of mCommerce in Europe. The current existing ways of using mCommerce in relation with mobile technology equipment in Europe will be described. The contribution of mCommerce for business will be also characterised. Based on the earlier analysis of the external environment of the ICT sector in European countries [35], the strengths and weaknesses of this technology will be discussed from two perspectives. The first perspective is related to the macroeconomic development of countries, the second is related directly to the characteristics of the technology.

Keywords- *mCommerce, European countries, potential, business)*

I. INTRODUCTION

Mobile commerce (m-commerce) can be viewed as a subset of e-commerce [1,2] and refers to many transaction with monetary value that is conducted via a mobile network [3].

Mobile business and mobile commerce are relatively new application areas of informatics, which are linked to using mobile networks. Their radical development stated in the latter half of the 1990s. The Office for Public Information Systems offers another definition of m-commerce: "M-commerce is a series of processes linked to the course of business transactions realized by means of mobile technologies." According to Sadeh (2002) m-commerce is: "a set of applications and services that are accessible from mobile devices with access to the Internet"[4]. M-commerce represents any transaction of money value, which is done via mobile communication network. Using m-commerce in business activities of the company means changes in business processes as well as in company management. These process changes must be done with respect to data security. An authorized access to the sources of information and the uniformity of terminals are also necessary. The advantages are the simplicity of using the user channel and interactive data transmission. First areas where mcommerce was applied were the sales of games and melodies. M-commerce then spread to activities like: mobile payments, shopping, auctions, navigation, and an access to the company network.

In the past, these mobile devices or technologies were regarded as a kind of luxury for individuals. However, this situation has changed. The market for mobile technologies has seen significant growth in the past few years [5, 6, 7]. This is creating a new opportunity for the growth of m-commerce. Mcommerce is a technological frontier and is an attractive area for research because of its rapid growth and potential applications [8]. M-commerce applications have two major characteristics: mobility and broad reach. Mobility implies portability, e.g., users can conduct business real time via mobile devices. Pedersson and Heinonen [9] proposed that mobile commerce users have three roles: technology users, network members, and consumers. This may remind us not to discuss the adoption of mobile commerce from a solely technological perspective, just as with traditional IT adoption issues. More constructs that are critical to customers (e.g., perceived cost, perceived risk and perceived enjoyment) have to be considered in the adoption of mobile commerce. Perceived usefulness and behavioural intention was tested to have a very large correlation in many studies [10, 11, 12, 13], while some found the relationship non-significant [15, 16]. A lot of research concentrates on mobile commerce adoption in single country. Yang [17] explored this issue in Singapore, a country famous for its pro-technology policy and superior telecommunications infrastructure, while Wei, Marthandan, Chong, Ooi, and Arumugam [13] tested the Malaysian context. Chew [18] investigated the case of the United States in his honors thesis, and Kleijnen et al. [19] are among many researchers who conducted their studies in the Netherlands. Kurnia et al. [20] tested the situation in Australia. Through these investigations, mobile commerce adoption research has been conducted in more than 20 countries. There are several more studies taken across nations. Dai and Palvia [21] undertook their research in China and the United States, Frank [22] conducted his in Finland, Germany and Greece. But these studies still cannot draw comprehensive conclusions. The current situation shows that unlike electronic commerce, the development of mobile commerce in eastern countries (especially Korea, Japan, Singapore, etc.) is equal with western countries, or even faster.

The aim of the paper is to analyse barriers and drivers in the adoption of mCommerce in Europe. The current existing ways of use mCommerce in relation with mobile technology equipment in Europe will be described. The contribution of mCommerce for business will be also characterised. Based on the earlier analysis of the external environment of the ICT sector in European countries [35], the strengths and weaknesses of this technology will be discussed from two perspectives. The first perspective is related to the macroeconomic development of countries, the second is related directly to the characteristics of the technology.

II. METHODOLOGY

In this article the methods of an analysis of documents and accessible sources in the area of use, barriers and drivers of mobile technologies and mCommerce were used. The part barriers and is particularly based on own analysis of external technological environment in European countries. Owing to range of this paper, only the main results are described here. Data from official statistical office Eurostat were used and analysed too. This data were expressed in histograms.

III. MOBILE TECHNOLOGIES AND M-COMMERCE IN EUROPEAN COUNTRIES

Use of mCommerce is closely connected with mobile devices that allows the growth of this technology. The following text states the possible uses and benefits of this technology for business purposes in the context of how the trend of mobile technologies is developed at national and international level.

A. The Use of Mobile Technologies in European Countries

There are big differences among the EU countries in the utilization of individual mobile devices and types of mCommerce. In 2011, 89% of all EU households had an access to mobile phone. 62% of them also had a telephone line and 27% used solely the mobile phone. The utilization of telephone has not been changing much in the last 6 years, what changes, though, is the ratio of the used types of telephone. In March 2011 the occurrence of mobile phone in the EU was quite high, namely between 82% and 96%. The current use of mobile phone and fixed telephone line is most common in Sweden (94%) and Malta (90%). On the other hand, the sole use of mobile phone strongly predominates in Finland (78%) and the Czech Republic (81%). The most frequent users of mobile phone are young people and people in the productive age. Fixed telephone lines prevail in seniors' households (figure 1).

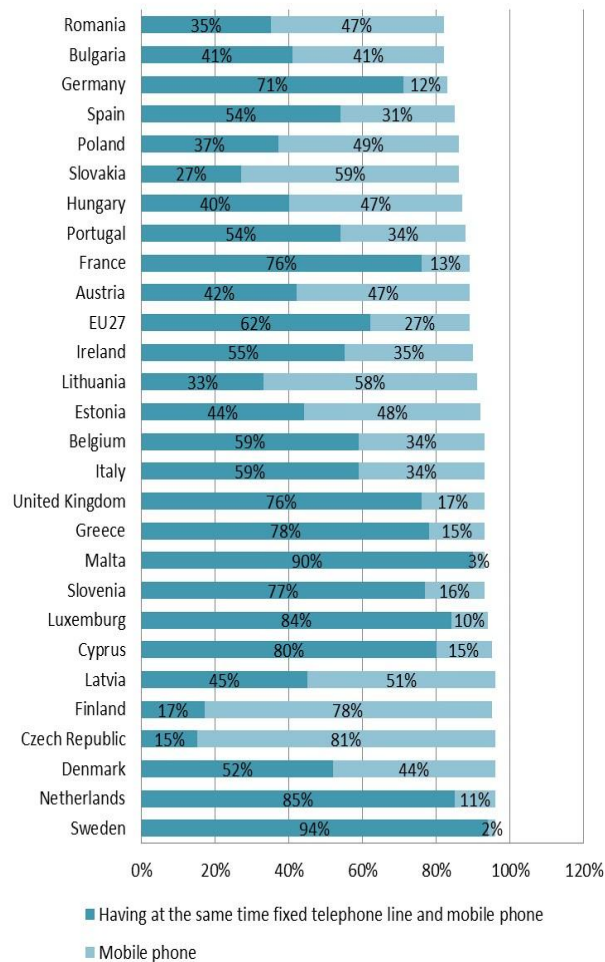


Figure 1. Percentage of the EU households with access to at least one mobile phone (March 2011), source: the author according to [23]

Concerning the utilization of mobile phone for accessing the Internet the EU average is 29% (figure 2).

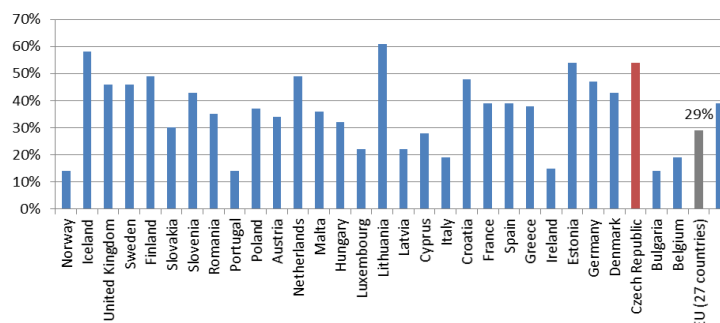


Figure 2. Use of mobile devices for accessing the Internet (telephone, PDA, laptop, etc.), source: the author according to [23]

1) The state of Mobile Devices

The growing demand for mobile devices occurs particularly in case of tablets and mobile phones. According to the up-to-date IDC statistics, 52.5 million tablets were sold worldwide in the 4th quarter of 2012. The market rose interannually by 75.3%. Apple, which finished first, sold 30 million iPads, i.e. by 48% more than in the same period of 2011. Samsung won second place with almost 8 million sold tablets with operational systems Android and Windows 8. The most significant growth recorded Asus, particularly thanks to Google Nexus 7 tablets (table 1). They sold 3.1 million of these tablets, which represented about 6% share of the market and 403% inter annual growth in comparison to the 4th quarter of 2011.

TABLE I. TOP 5 PRODUCERS, WORLDWIDE TABLET SALES IN THE 4TH QUARTER OF 2011 AND 2012 (IN MILLIONS OF PIECES), SOURCE: [24]

Producer	2012 sales	2012 market share	2011 sales	2011 market share	2012/2011 growth
1. Apple	22.9	43.6 %	15.5	51.7 %	48.1 %
2. Samsung	7.9	15.1 %	2.2	7.3 %	263.0 %
3. Amazon.com	6.0	11.5 %	4.7	15.9 %	26.8 %
4. Asus	3.1	5.8 %	0.6	2.0 %	402.3 %
5. Barnes & Noble	1.0	1.9 %	1.4	4.6 %	-27.7 %
Other	11.6	22.1 %	5.5	18.5 %	108.9 %
Total	52.5	100 %	29.9	100 %	75.3 %

According to Gartner and IDC estimates the future will witness an increase in utilization of mobile technologies. The anticipated sales of tablets for 2013 are 172.4 million pieces and by 2016 the demand will rise to 282.7 million pieces. In comparison with previous years, users start to prefer multipurpose tablets to electronic e-book readers. With the increasing number of sold tablets, the OS Android should strengthen. On the other hand, Apple will lose a bit. Analysts assume that the share of tablets with the OS Windows should reach 10.3% in 2016 (table 2).

TABLE II. DEVELOPMENT OF SHARES OF OPERATIONAL SYSTEMS IN TABLETS BETWEEN 2012 AND 2016, SOURCE: [24]

OS	Share 2012	Share 2016	CAGR 2012 – 2016
iOS	53.8 %	49.7 %	20.9 %
Android	42.7 %	39.7 %	21 %
Windows	2.9 %	10.3 %	69.2 %
Others	0.6 %	0.3 %	7.7 %
Total	100 %	100 %	23.3 %

Concerning mobile phones, Gartner estimates that by the end of 2015, 80% of mobile phones in developed markets will belong to the category of smart phones. In the Czech Republic mobile operators reported the sales of smart phones between 75–80% out of all mobile phones as early as in 2011 [25]. Their higher use closely relates to the development of market with applications. In the last three years, more than 300,000 mobile applications have been created worldwide, which have been downloaded more than 10.9 billion times. According to IDC, by 2014 the number of downloads should approximate 76.9 billion and the worth of the downloaded applications should reach EUR 26.6 billion [24].

The e-book reader is, on the other hand, a device which is expected to witness a drop in use. It is a mobile device for reading electronic books or electronic periodicals. The e-book reader is typical by a little power consumption, good source endurance and quality readability even in direct sunlight. It is expected that in 2016 the worldwide demand for e-book readers will fall by a third in comparison to 2011 (figure 3). This trend is explained in particular by the increase in the quality and functionality of other mobile devices, which may be used in this way, too.

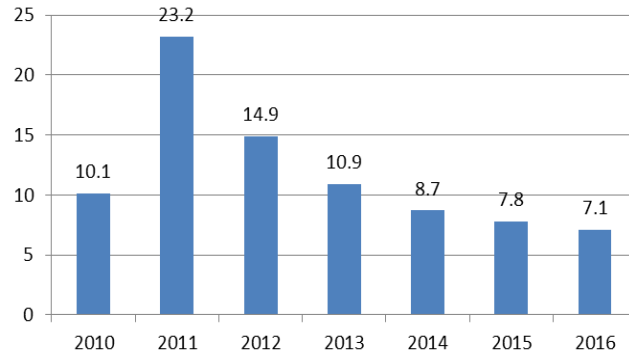


Figure 3. Development of worldwide e-book reader costs (in millions of units), source: [26]

The existence of these and other mobile devices enables development of mobile business, the so-called m-commerce.

B. State of of Internet banking and mCommerce potential in selected sectors

Figure no. 4 shows the direct comparison of EU countries in the use of internet banking. The EU average is 40%. The technology is mostly used in Norway, Iceland and Finland.

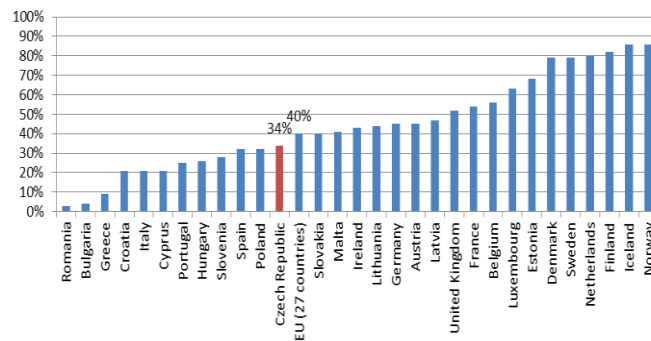


Figure 4. Individuals using the Internet to Internet Banking, source: the author according to [23]

Deloitte Advisory looked into the current state and development of in the EU at the end of 2012 [27]. The research focused on the field, where modern technologies are expected to be used more frequently: telecommunication, banking, insurance, lotteries and betting shops, postal and mail-order services, power industry and pharmaceuticals. Companies were evaluated in four areas: web solutions, social networks, mobile applications and blogging (figure 5).

Telecommunication market was the best. A relatively even group of areas, namely banking services, lotteries, insurance companies and postal services, lagged far behind. Pharmaceuticals shows the lowest level of new technology adoption. Although insurance and banking are similar to each other, insurance companies fall a bit behind. As far as the total numbers are concerned, insurance companies are behind lotteries, which are at the same level as there are only little differences among individual lottery companies. In this field, there are great opportunities for mobile applications, which would satisfy betters' needs.

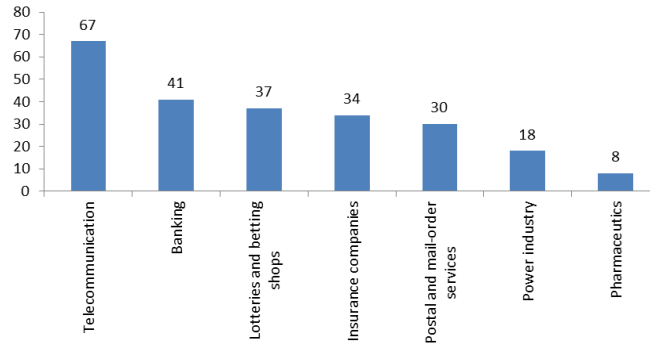


Figure 5. Evaluation of chosen industries in digital maturity on the 0–150 scale, source: [27]

The m-Commerce potential is huge in all the above mentioned areas. The gradual accession of these activities is going to become a must for these companies if they want to maintain their market share.

IV. BENEFITS AND BARRIERS OF MOBILE TECHNOLOGIES AND M-COMMERCE IN BUSINESS

The utilization of mobile technologies is really wide. At the same time, there exist some limitations, which make it necessary to always consider whether to employ mobile devices or not. Certain company activities might be limited by specific characteristics of mobile devices. Company applications for mobile devices can therefore be used in particular under the following circumstances:

- where it is necessary for the employee to be sufficiently independent of space,
- where the access is limited to the choice out of the predefined menu and the only thing to be done is either confirming short figures (or texts) or entering a nontextual information, e.g. a photograph, etc.,
- where internet connectivity at workplace is insufficient,
- where the application supports making and saving the transaction in the offline mode and its sending into the system as soon as the internet connectivity is recovered.

For their first mobile device applications the customers had tools containing the following functions created:

- news and innovation summary,
- catalogue of products and services,
- list of subsidiaries with maps,
- function supporting one-off marketing campaigns. With the accession of mobility, the trend of using one's own mobile devices for work purposes, the so-called BYOD (bring your own device) has been spreading. This, however, causes that ICT Departments lose their control of administration and maintenance of end devices, including managing installations, updates and the control of application use. It means certain drawbacks for companies, e.g. costs of developing software that would be functional in all types of devices and operational systems. On the other hand, there opens space for new opportunities, speeding up processes and improving services.

A. *Benefits of m Commerce*

Using mobile technologies and mCommerce as a part of company strategy is not an end in itself. A survey of possible benefits, which are realized or expected by companies, is in the following table 3.

TABLE III. BENEFITS OF MOBILE TECHNOLOGIES IN COMPANIES, SOURCE: THE AUTHOR

Benefits	Experts who mention the given benefits
Faster communication Higher flexibility Possibility to access data from anywhere, i.e. not only from workplace Lower travel costs Easier access to global markets	Hanz [28]
Lower distribution costs Reduced stocks Improved customer services Growing working capital	Coursaris & Hassanein, [29] Roberts [30]
Shorter production cycle Process optimization Lowering labour costs by time savings on chosen operations	Coursaris, Hassanein [29]
Direct yields of selling other services Distinction from competition, acquiring competitive edge New services provide added value for the user	Zelenski [31]
Better accessibility Lowering distortion caused by transmission Direct feedback	Oganesjan [32]
Possibility of customer involvement Transparency Higher quality of products and services Employee satisfaction Shorter period of source information accessibility Shorter period of settling claims and mistakes in company processes Higher productivity	Kadyte [33] Coursaris &Hassanein [29]

The table above does not contain the complete list of possible benefits. It depends above all on the company itself, what a concrete mobile technology will bring to it.

B. *Barriers of mCommerce*

The use of mCommerce is also associated with certain risks or limitations. Within the development of this technology, the economic indicators of the countries in the European Union are also crucial. From this viewpoint, these risks or limitations operate:

- limited domestic market,
- limited R&D expenditures,
- companies lack willingness to risk and invest in new technologies,
- low focus of research activities on this field,
- global market is occupied by large companies and well-known brands,
- creativity lags behind other countries (U.S.A.).

These factors are based on the analysis of the external environment of the ICT sector in the EU [34], [35], [36]. In terms of features of mobile technologies as tools for mCommerce, we can consider the following factors as the risks or limitations in the use:

- Limited size of display, need for internet connectivity, limited computing capacity of mobile devices, necessity of adjusting web interface for optimal displaying on mobile devices,
- costs of establishing mobile infrastructure,
- necessity to solve the problem of data security,
- lack of personal contact with the customer,
- some products cannot be seen and tested before purchase,
- insufficient knowledge of mobile device users about m-commerce,
- communication via mobile devices can be regarded as spam,
- dependence of business on web interface functionality,
- more difficult solution of non-standard and nondefined services, □ legal limitations.

V. DISCUSSION

The current situation in countries in the European Union in terms of use of mobile technologies and the level of economic development, helps the development possibilities of mCommerce. The European countries have these characteristics: high market penetration with mobile devices (above all phones), widening the scale of mobile phone utilization, relatively good ICT infrastructure, and educated and competitive labour force. The essential characteristics of the technology which contribute to wider use include: big functionality [37] easy installation and possibility of mobile device integration with other appliances, personalization – possibility to react to individual suggestions, possibility to flexibly adjust prices of products, access to distant shops, speed, efficiency, direct accessibility of data, and possibility to communicate with the customer at any place.

Currently, all application areas of mCommerce are not yet monitored using the Eurostat database. The most widely used and at the same monitored is the Internet banking. A study of one country within the European Union (Finland) confirms this assertion. In this study [39], it seems that the most popular mcommerce application is that supporting financial activities. Another support and collaboration in B2B m-commerce among the members of a supply chain can be facilitated by mobile devices. There is no need to call a partner company asking for someone to

find certain items in the supply chain. A crossindustry group can use such support from m-commerce devices to achieve better collaboration along the supply chain [38].

The factors that offer opportunities for further development of technology in EU countries include (as mentioned above, the factors are based on the analysis of the external environment of the EU [34]:

- the Internet and globalization facilitates entering new markets,
- wider use of mobile technologies everywhere in the world, anticipated increase of mobile device penetration,
- gradual reduction of rates for using mobile operators' services, competitiveness of small as well as large companies.
- Low input costs and scalability of software,
- possibility of attractive presentation of goods,
- use of predictive search for goods,
- it can provide interconnection with other forms of marketing and selling.

VI. CONCLUSION

Since 2005 households have become much better equipped with mobile technologies. Since then, fixed telephone lines have been replaced by mobile phones in more than 80% of households. This is a good foundation for the development of m-Commerce and digital commerce. It is at the same time an impulse for process changes in companies and for acquiring new business opportunities and market channels. Support to technology development comes particularly from private activities of companies. On the national and international levels, there are no significant activities linked to R&D support under way, even though there is a great potential in the field of e-Government. Indirect but significant support to the development of using mobile technologies comes from the government. It should provide quality legal regulations aimed at data security and data treatment. This area is vital for all modern technologies.

Changes that have lately been under way in the field of mCommerce and mobile technologies benefit companies by bringing new tools and business strategies how to address customers and provide them with the required product or service. Moreover, it is all done in much shorter time and independently of place.

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REFERECENCES

- [1] C. Coursaris, K. Hassanein, Understanding m-commerce, *Quarterly Journal of Electronic Commerce* 3 (3) (2002) 247– 271.

- [2] O.B. Kwon, N. Sadeh, Applying case-based reasoning and multi-agent intelligent system to context-aware comparative shopping, *Decision Support Systems* 37 (2) (2004) 199–213.
- [3] Clarke III, Emerging value propositions for m-commerce, *Journal of Business Strategies* 18 (2) (2001) 133– 148.
- [4] Sadeh, N. (2002) *M-commerce: technologies, services, and business models*. New York: John Wiley.
- [5] T. Kippenberger, Fasten your seatbelts, *The Antidote* 5 (1) (2000) 38– 39.
- [6] S. Kumar, J. Stokkeland, Evolution of GPS technology and its subsequent use in commercial markets, *International Journal of Mobile Communications* 1 (1/2) (2003) 180–193.
- [7] H. Vogt, F.C. Gartner, H. Pagnia, Supporting fair exchange in mobile environments, *Mobile Networks and Applications* 8 (2) (2003) 127– 136.
- [8] Ngai, E.W.T., Gunasekaran, A.: A review for mobile commerce research and applications, *Decision Support Systems* 43 (2007) 3 – 15
- [9] Pedersson_, P. E., & Heinonen, K. (2002). Acceptance of mobile services: Insights from the Swedish market for mobile telephony. *SSE/EFI working paper series in Business Administration (Vol. 16)*.
- [10] Kim_, D., Park, J., & Morrison, A. M. (2008). A model of traveller acceptance of mobile technology. *International Journal of Tourism Research*, 393–407.
- [11] Lu_, J., Yao, J. E., & Yu, C. S. (2005). Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *The Journal of Strategic Information Systems*, 14(3), 245– 268.
- [12] Turel_, O., Serenk, A., & Bontis, N. (2007). User acceptance of wireless short messaging services: *Deconstructing perceived value*. *Information and Management*, 63–73.
- [13] Wei_, T. T., Marthandan, G., Chong, L. Y., Ooi, K., & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management and Data Systems*, 370–388.
- [14] Cho_, D. Y., Kwon, H. J., & Lee, H. Y. (2007). Analysis of trust in internet and mobile commerce adoption. *In The 40th Hawaii international conference on systém science*.
- [15] Kurnia_, S., Smith, S., & Lee, H. (2007). Consumers' perception of mobile internet in Australia. *E-Business Review*, 7(2), 41–61.
- [16] Mallat_, N., & Rossi, M. (2009). The impact of use context on mobile services acceptance. The case of mobile ticketing. *Information and Management*, 46(3), 190–195.
- [17] Yang_, K. C. (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics*, 22(3), 257–277.
- [18] Kleijnen_, M., Wetzels, M., & Ruyter, K. (2003). Consumer acceptance of wireless finance. *Journal of Financial Services Marketing*, 8(3), 206– 217.

- [19] Chew, A. A. (2006). The adoption of M-commerce in the United States. Honors thesis of California State University.
- [20] Kurnia, S., Smith, S., & Lee, H. (2007). Consumers' perception of mobile internet in Australia. *E-Business Review*, 7(2), 41–61.
- [21] Dai, H., & Palvia, P. (2008). Factors affecting mobile commerce adoption: A crosscultural study in China and the United States. In Americas conference on, information systems.
- [22] Frank, L. (2001). Adoption of mobile services in Finland, Germany and Greece. Lappeenranta University of Technology, Finland.
- [23] IDC (2012). Worldwide Quarterly Tablet Tracker. Retrieved from:
http://www.idc.com/tracker/showproductinfo.jsp?prod_id=81
- [24] Čermák, T. (2013). 10 nejdůležitějších mobilních trendů pro rok 2013. In *eMan*. Retrieved from <http://www.eman.cz/blog/10-nejdulezitejsichmobilnich-trendu-pro-rok-2013>
- [25] Bruner, Š. (2013). Elektronické čtečky knih jsou z trhu vytlačovány levnými tablety. Retrieved from:
http://www.zive.cz/bleskovky/elektronicke-ctecky-knih-jsou-z-trhuvytlacovany-levnymi-tablety/sc-4-a-167007/default.aspx#utm_medium=selfpromo&utm_source=zive&utm_campaign=copylink
- [26] Deloitte (2013b). Jaké firmy umí nejlépe využít digitální technologie v Česku?. In *ICT zpravodaj*. Retrieved from:
http://www.deloitte.com/assets/DcomCzechRepublic/Local%20Assets/Documents/ICT%20News/2013/ICT_news_cz_1304.pdf
- [27] Hanz, W. (2012). Mobile Technology Benefits. In *eHow Tech*. Retrieved from:http://www.ehow.com/about_5779279_mobile-technology-benefits.html
- [28] Coursaris, C., & Hassanein, K. (2008). Mobile technology and the value chain: Participants, activities and value creation, *Journal of Business Science and Applied Management*. 3(3), 15-30.
- [29] Roberts, K. (2013). [Top 9 Disadvantages of Cloud Computing](http://www.superb.net/blog/2013/03/04/top-9-disadvantages-of-cloudcomputing/). In *Superb Internet*. Retrieved from: [<http://www.superb.net/blog/2013/03/04/top-9-disadvantages-of-cloudcomputing/>](http://www.superb.net/blog/2013/03/04/top-9-disadvantages-of-cloudcomputing/)
- [30] Zelenski, K. (2008). Business with mobile applications, Forum Nokia. Retrieved from: <http://www.mobilemonday.ru/Portals/0/presentations/0812zelenski.pdf>
- [31] Oganessian, N. (2013). Soudobé trendy v oblasti prostředků mobilních informačních a komunikačních technologií. In *Systémová integrace*. Retrieved from:<http://www.cssi.cz/cssi/soudobe-trendy-v-oblastiprostredku-mobilnich-informacnich-komunikacnich-technologiei>
- [32] Kadyte (2004). Uncovering the potential benefits of mobile technology in a business relationship context: a case study[online]. Retrieved from: <http://Is2.Lse.Ac.Uk/Asp/Aspecis/20040078.Pdf>

- [33] Bouwman, H., Carlsson, Ch., Molina-Castillo, F.J., Walden, P.: Barriers and drivers in the adoption of current and future mobile services in Finland, *Telematics and Informatics* 24 (2007) 145–160
- [34] Zhang, L., Jing, Z., Liu, Q.: A meta-analysis of mobile commerce adoption and the moderating effect of culture, *Computers in Human Behavior* 28 (2012) 1902–1911
- [35] Marešová, P. Potential of ICT for Business in the Czech Republic. 2013. Professional Publishing, Czech republic.
- [36] Felicitta, J., Gnana, J. J. (2009). The Impact of M-Commerce in Global Perspectives A SWOT Analysis. In *Proceedings of the 8th WSEAS Int. Conf. On Electronics, Hardware, Wireless And Optical Communications*.
- [37] Niranjanamurthy, M. et. al. (2013). Analysis of E-Commerce and MCommerce: Advantages, Limitations and Security issues. In *International Journal of Advanced Research in Computer and Communication Engineering*. 2 (6). Vækstfonden (2008). Mobile Technologies in Denmark – Perspectives for entrepreneurship and venture capital. Retrieved from: http://www.vf.dk/OmVaekstfonden/Portefolje/~/_/media/Files/1%20Analyse/PDF/Mobile%20technologies%20uk.ashx