

Digital Trends and New Payment Models in B2C E-Commerce Context

Petra Jílková

Masaryk Institute of Advanced Studies
Czech Technical University in Prague
Prague, Czech Republic
petra.jilkova@cvut.cz

Petra Králová

Masaryk Institute of Advanced Studies
Czech Technical University in Prague
Prague, Czech Republic
petra.kralova@cvut.cz

Abstract—Digitalization and the development of e-commerce in recent years have led to revolutionary changes in customer behavior. Online marketing is based on effective communication, and the communication specialist provides online products and services efficiently. E-commerce is a dynamic, rapidly changing market. The number of online transactions grows, and the payment card is the most widely used payment instrument. This paper aims to analyze digital trends and new payment methods and latest trends caused by new digital platforms development. Firstly, the paper presents digital trends and new payment models in the B2C e-commerce context. Secondly, the paper analyses various types of payments in the Czech Republic. Besides, a literature review and analysis of secondary data are based on data published on or before 1. February 2019. Analyzing the main determinants of the payment system in the selected period, we conclude that the empirical findings are consistent with the expectations. The analysis supports the hypothesis that the cash on delivery or online payment with customer's payment card are still the most frequently used payment methods. The paper investigates online shopping in the period 2013–2018. Finally, the authors discuss the theoretical and practical implications of these results.

Keywords: B2C, customer behavior, digital payments, e-commerce

I. INTRODUCTION

E-commerce is the buying and selling of goods and services through an electronic medium without using any paper documents. Digitalisation as a term becomes well known at the turn of a millennium. All of us commonly use the benefits of digitalisation in some way. The novelty and complexity of the digital age has led to an increased academic interest in the area of digitalization [1]. According to [2], the current growth of the Czech economy means a significant increase in demand. Based on [3], the retail e-Commerce market sales has tripled globally, going from USD 1.336 billion in 2014 to USD 3.453 billion in 2019. There are 1.92 billion, digital buyers, worldwide, and they usually purchase physical goods online at least once in the last three months. They made at least one cross-border online purchase in the last twelve months (October 2018) The most significant number of internet users (97%) in Europe are young individuals from 16 to 24-year-olds and people who have a high level of formal education. In 2018, 83% of Europeans used the internet at least weekly, and 76% almost daily or daily in comparison with 81% and 72% respectively a year earlier [4].

This paper is divided into 4 main parts: after a first introductory part, a brief overview of the different conceptual approaches is described in order to explain the purchasing behavior on the Internet; therefore, it is a description of the methodology, including the types of questions, the sample, and the statistical procedures that are proposed for the analysis. In the last part, the results are summarized and discussed, with main conclusions from the marketing perspective. The theoretical part first introduces a general description of the online and offline payment methods. The primary source of information for the preparation of this study was a questionnaire and secondary data. The chart finishes the theoretical part with the payment methods development for the last four years. All results are presented in graphical form, in selected cases, comparing this year's results with those of 2013.

The turnover of Czech e-commerce is almost 160 billion in 2019, and it is a 10% share of the whole Czech retail market. Forty-four thousand operate in the Czech Republic in 2019 [5]. The number of individuals purchasing online is constantly increasing. The data between 2014 and 2018 presented by the Czech Statistical Office, [6] show the increasing trend of purchases of individuals older than 16 years. 34,4% of individuals older than 16 years purchased online in 2014. In 2018 53,9% of individuals older than 16 years purchased online.

The most active purchaser are individuals between 25 and 34 years. Nevertheless, the share of all age groups is growing. The proportion between men and women is changing. 40,5% men and 38,1% women purchased online in 2014 in comparison to 2018 when 53,6% men and 54,2% women purchased online. The segments of mothers on maternity leave and older people have an enormous potential for the future. Mothers on maternity leave purchase not only for their kids, but they are purchase managers for their whole families. Individuals with university education create 76% of all online purchases in 2018 in contrast with 16,5% of individuals with primary education.

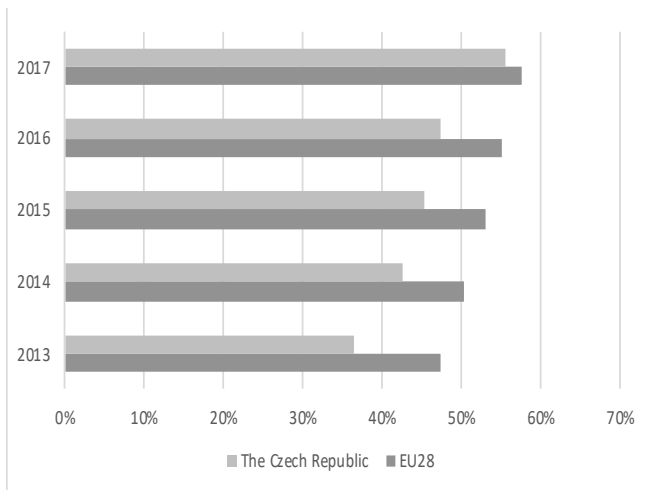


Fig. 1. Online shoppers of the Czech Republic and the EU [6]

The share of online buyers is lower in the Czech Republic in comparison to EU countries, but the trend of online shopping is increasing in the Czech Republic and the EU. The gap between online shopper in the Czech Republic and in the EU is getting lower.

II. LITERATURE REVIEW AND RESEARCH METHODS

A. Literature review

This paper is focused on understanding main payment methods and latest trends caused by new digital platforms development in terms of online shopping consumers' behaviour. For this reason, the main contributions of the marketing theory in terms of purchasing behaviour are presented below, previously making some basic definitions. Internet is not only media for networking but also a place where customers could shop or buy goods and services. Digitisation and modern trends are forcing businesses to offer goods and services to the digital market and sell there goods or services to consumers. Internet shop, in other words also e-store, e-shop, webshop, internet shop or online store, gives businesses a much wider reach to potential customers. Online shopping has evolved and gained more market share and rapidly approached the customer. E-commerce is a concept used for buying, selling, or exchanging products, services and information via the Internet. Widespread use of digital technologies and technological changes are transforming retailing [7] and changing customers expectations. Many customers also consider the web as an adequate substitute for traditional in-store customer support due to the presence of extensive online customer reviews, product-based videos, social media sites, and blogs [8]. Retailing is considered one of the sectors with the most significant possibilities to implement Augmented Reality (AR), [9]. According to [10], AR can provide retailers with several opportunities to improve the business experience for consumers and potential users so that they can interact with and touch products in an expanded display and increase their willingness to shop. St. Elmo Lewis (1898, 1900) introduced the AIDA (Attention, Interest, Desire, Action) model, which is one of the most popular response hierarchy models for the marketers. To this previous formula, [11] added the T and created AIDAT model (T – Tell); and [12] added the S and created AIDAS model (S - Customer Satisfaction). However, the development of digital technologies and the internet has radically changed the way of how people communicate and

where is convenient to buy products or services. According to [13], concept 4C's model, each of 4P'c variables should also be seen from a consumer's perspective. This transformation is associated with converting the product into customer solution, price into the cost to the customer, place into convenience, and promotion into communication. 4C's model can easily be used for digital and e-commerce projects.

The simplest way how to divide the individual payment methods can be according to the speed of system response. Online system should provide information about the success payments up to tens of seconds, while the offline methods provide this information in a matter of days. Online payment methods include the following forms of payment for goods or services: Payment cards, Payment buttons, Electronic wallet, Deferred payment, Benefit payments, Mobile application, M-payment or payment via Premium SMS. Offline methods are: Cash on delivery, Payment for personal collection, Transfer to account, Purchase in instalments. Another possibility of dividing payment methods is according to the assortment offered by the trader (digital content and services or tangible goods). Payment methods can also be divided according to which entity technically provides and mediates the payment methods offered by the e-shop.

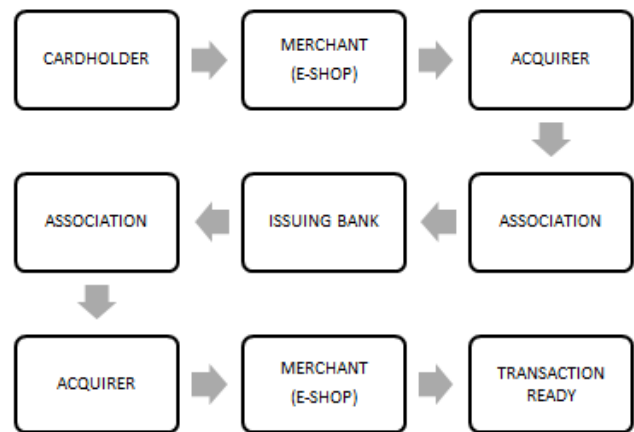


Fig. 2. Online payment transaction via payment card or m-payment [14]

Changing the global environment, rapid speed of innovations, internationalisation and the growth of investment in financial technologies (FinTech) promises to improve the quality of financial services, cutting time spent by product development and faster transaction processing. Internet and wireless technologies are creating new payment method opportunities. According to [15], FinTech as industry-oriented financial services for private individuals and industries to provide customer-oriented solutions in the most efficient way and at the lowest cost possible, ensuring this via innovation and technology. There were found four main segments: payment-related services, wealth management, peer-to-peer lending (P2P lending), and crowdfunding. According to estimates, 2018 revenues in the FinTech sector were between CZK 400 and 800 million. Fintech is an emerging financial services sector, which includes payments to third parties, innovative financial services or products provided through new technologies. Global companies, [16] are interested in developing new technologies for profitable settlement systems and payment and expand its services internationally.

Current payment methods based on mobile payments realising purchases with wireless and other communication technologies using mobile or other devices. Communication technologies such as Bluetooth, WiFi, Near-Field Communication (NFC), and RFI are used for these operations. A new promising technology of mobile payment is the NFC technology which enabled the customer to turn smartphones into a mobile credit card. NFC enabled mobile phones to provide secure information transfer, and these payment systems will become a competition for conventional payment system. According to [17], researchers have utilised several different models on the adoption of mobile payment systems by the consumers. Later, [18] pointed out the relation between demographic features and the use of mobile payment systems.

B. Research methods

The methodology used in this paper is the analysis, synthesis, comparison in time. This study develops part of the quantitative analysis of online shopping habits among customers. The main aim of this paper is to answer fundamental questions regarding digital trends and new payment methods and latest trends caused by new digital platforms development. In particular, we want to find out what customers are buying and how they usually pay for goods and services on the B2C e-commerce market. The following hypotheses were defined. Hypothesis 1: The favourite payment method is the payment by card; Hypothesis 2: The riskiest aspect of online shopping is the misuse of payment data. The quantitative marketing research was selected as a research method to verify the above hypothesis. Based on the purpose of this paper, there were 50 respondents. In order to collect primary data, we designed a structured survey, with closed-ended, as well as multichotomous questions. The questionnaire included 15 questions divided into six sections. The research is unrepresentative, and it is only the first step for the more extensive research of online shoppers.

III. FINDINGS AND RESULTS

The finding and results summarise conclusions of the realised survey and secondary data presented by the Czech Statistical Office and APEK. The online shopping trend is increasing. The data published by the Czech Statistical Office present that there is continuously growing the number of shoppers within all age groups and all socioeconomic groups. The number of transactions (the amount of realised online purchases) in the Czech Republic increased from 2,017 million transactions in 2015 to 3,006 million transactions in 2018. These transactions are provided by people older than 16 years in the first quarter of the selected years. Women realise most transactions. The most active in purchasing are people who are employed, students or mothers on maternity leave, they are middle educated and between 25 – 44 years old [6].

The most frequent are purchases of a total amount between 2500 and 10000 CZK. These purchases are realized during last three months [6]. The most frequent shoppers are individuals between 25 and 44 years, with finished secondary education, employed and women.

The main reasons for online shopping differ according to the demographic characteristics of the shopper, type of purchased goods or services. In conformity with the secondary data from the Czech statistical office, Czech e-

commerce portal and realised research, can be summarised following the main advantages of the online purchasing. Respondents appreciate optimal prices of online purchased goods and services, time-saving during the whole purchase process and flexibility of the order. Significant advantage of the online purchase is the possibility of the fast comparison of the products' attributes and prices. The possibility of the comparison wide range of products and services worldwide enables us to find the optimal product or service for the optimal price. Thanks to the Respondent mentioned quality of the purchase from the conformity of their home or office.

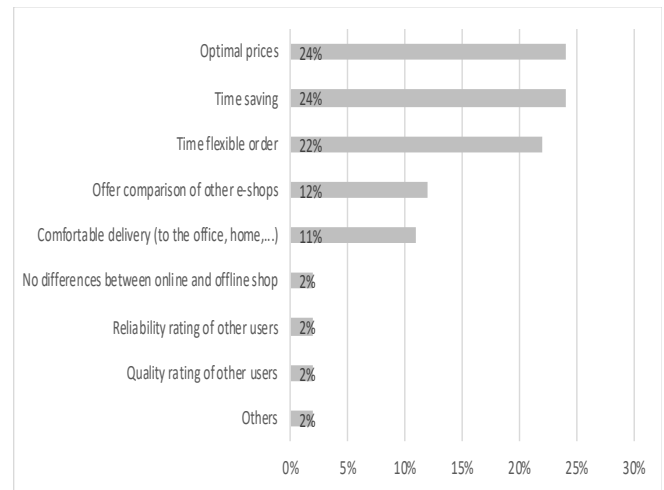


Fig. 3. Online payment transaction via payment card or m-payment [14]

On the other hand, it is necessary to highlight the disadvantages declared by the respondents of the researches. The main reasons for customer dissatisfaction were: long delivery time, dissatisfaction with the delivered product, poor communication of the e-shop and wrong information on e-shops web sites, complications with the claim solution and other problems related to delivery and payments. Interestingly, women expressed their dissatisfaction with the delivered product more often than men. Men were more frequently dissatisfied with poor customer service.

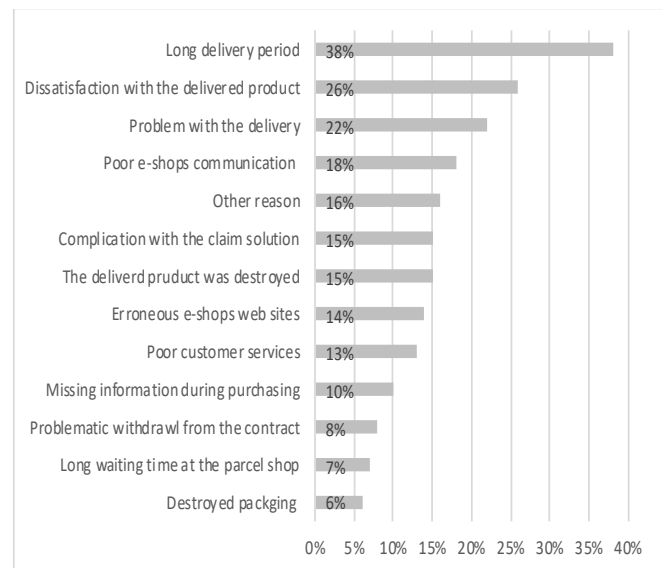


Fig. 4. Disadvantages of online shopping [19]

The dissatisfaction and bad experience connected with realised purchase initiate the future worry that is connected

with the online environment. The main worries are connected with no possibility to touch the product and with the solution of eventual complaints. The Considerable worries regard the misuse of payment and personal data during the payment process. The missing of active dialogue with a shop assistant is considered as a residuum of the online purchasing.

The research did not confirm our second hypothesis - The riskiest aspect of online shopping is the misuse of payment data. Firstly, the interviewed individuals are concerned with no possibility to touch the goods, secondly with eventual complication during complaints solution.

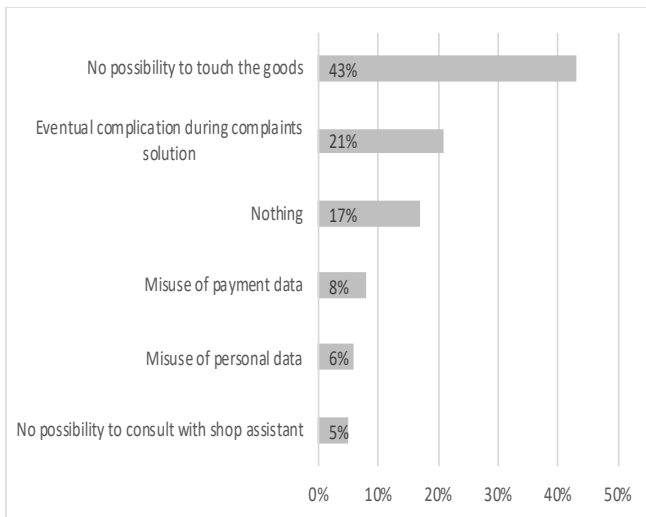


Fig. 5. Worry regarding the purchase [5]

The used devices influence the satisfaction or dissatisfaction with the online purchasing process. The comfort of online shopping ensures not only the technical features of the used devices but also the way how the devices are used. E.g. smartphone that is almost the whole day connected with the customer is used in a different way than notebooks or tablet. The role of smartphones is defined as a personal assistant with very personalized applications, regarding contacts, emails, banking, family, job, hobbies, and many others. The followed figure presents the development of the used devices during online shopping.

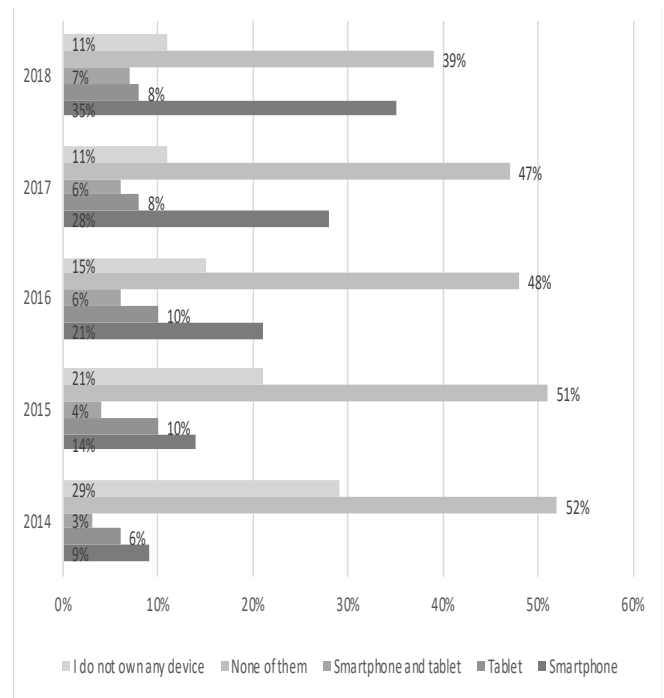


Fig. 6. The used devices during the online shopping [19]

The figure presents the most popular goods purchased online in the Czech Republic. The figure presents purchases realised in the last 12 months. (Czech Statistical Office). The biggest group of purchases are clothes and shoes on the second place in the group of health, beauty, and cosmetics. The smallest group is a category of sports clothes and sports equipment.

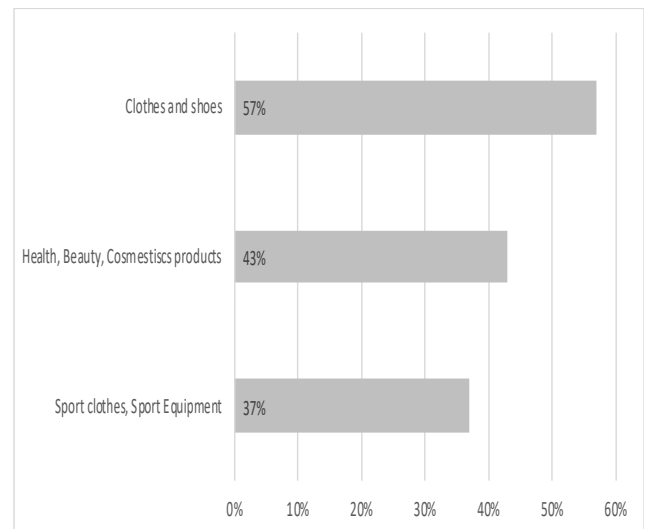


Fig. 7. The most popular goods purchased online [6]

The next figure presents the most popular services purchased in the last 12 months. One of the most purchased services is accommodation. The low online purchased service is transportation. The share of tickets for cultural and sport events represents around 34%.

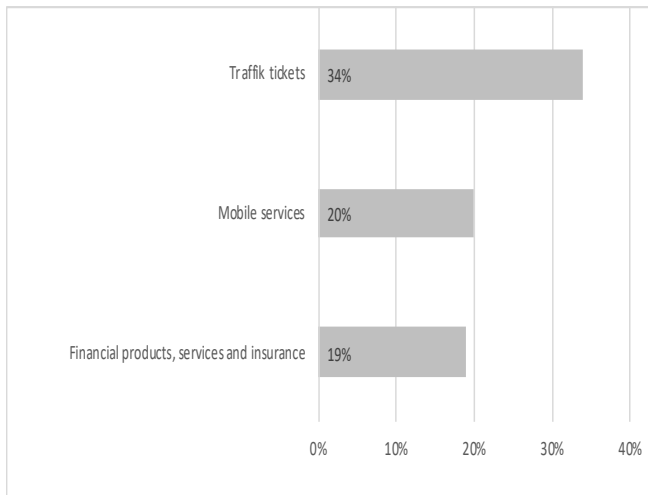


Fig. 8. The most popular services bought online [6]

Payment methods and their development are influencing online shopping. The payment methods are closely connected with the development of the digitalization. The trend of payment methods is to focus on authorisation of the customer, and the priority is to automatize the realized payments. New payment methods are fast, and the customer does not spend time with the processing. Many factors influence payment development. These factors are knowledge of the customers regarding the payment advantages and risks, technological development of the country – online connection, quality and development of the financial sector, cooperation among banks and other related business partners and state regulatory, technological maturity.

The statistical data provided by the Czech Statistical Office proves this fact. Meanwhile, the payment method “payment on delivery” was the most popular method until 2016. The most popular method in the Czech Republic in 2018 is online payment by card. The figure presents the most frequent type of payment methods in the last 12 months.

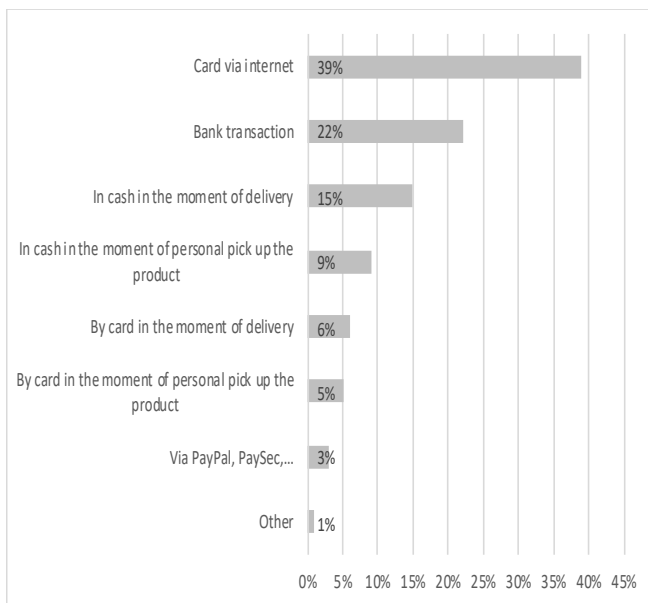


Fig. 9. The most frequently used type of payment method [19]

The respondents of our realized survey were asked about their affinity for the available payment methods. For almost

40% of respondents is the best option of the online payment the use of the card. The second-best possibility is the bank transaction and on the third and the fourth place are payments in cash or by card realized in the moment of the goods delivery. These findings comply with the mentioned worries regarding the potential risk of misuse of personal and payment data during the online purchasing. The payment in cash or the payment by card is more frequently used by individuals who are not so active online shoppers and people with lower education. In contrast, the payment by card is most used by individuals with higher education, who live in the most significant cities and who buy online more frequently. Interestingly, the payments via PayPal or PaySec services are at the end of the mentioned possibilities.

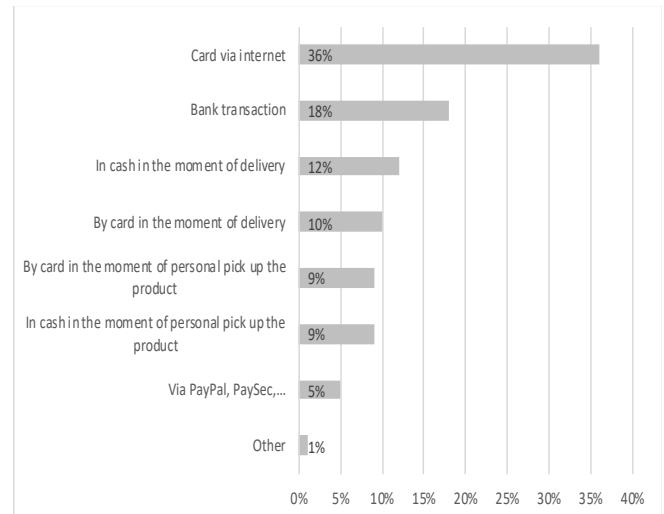


Fig. 10. Affinity of the available payment methods [19]

IV. CONCLUSION

Digitalisation and the development of e-commerce in recent years have led to revolutionary changes in customer behavior. E-commerce is a dynamic, rapidly changing market. Individuals are more familiar with the online world. All demographics groups are influenced with the online shopping and the share of online shoppers is growing in every focused group. The groups with significant purchasing potential are women, mother on maternity leave and older people. Individuals appreciate optimal prices, comfortable way of purchasing and possibility to compare the goods and services worldwide. On the other hand, the online shopping does not provide the possibility to touch the selected goods. The eventual claims solution and eventual misuse of personal payment data present the main worries connected with online purchasing present.

The realized research confirmed our first hypothesis. The favorite payment method is payment by card. The second hypothesis: The riskiest aspect of online shopping is the misuse of payment data, was not confirmed despite the potential risk of misuse of personal and payment data. The online payment by card is getting more frequent. On the other hand, the transparency which is enabled by the online purchasing mitigates this risk for the customer. Other methods that mitigate this risk are sophisticated methods securing the bank systems, and approach of the banks, that means – the bank are advocates of their clients. All these factors contribute to the development of online paying by card. The whole process of the payment is getting more automatized and trustworthy for the customer.

REFERENCES

- [1] L. Švecová, J. Veber, "Novelty Digitalization, Revolution, Transformation Rr Innovation?" *Schriftenreihe Informatik*, 2018, vol. 47, pp. 435-445.
- [2] Z. Dvořáková, "Demographic trends and diversity management: the case of the CR," In: LÖSTER, Tomáš, PAVELKA, Tomáš (ed.). *The 10th International Days of Statistics and Economics* [online], Praha, 08.09.2016 – 10.09.2016, Slaný : Melandrium, 2016, s. 408–417. ISBN 978-80-87990-10-0. Available at: <https://msed.vse.cz/msed_2016/article/14-Dvorakova-Zuzana-paper.pdf>.
- [3] Statista, 2019. E-commerce Development. Available at: <https://www.statista.com/>.
- [4] European Commission, "Digital Economy and Society Index (DESI)," 2019, Available at: <https://ec.europa.eu/digital-single-market/en/desi>.
- [5] Česká e-commerce, "Velikost e-commerce trhu," 2018, Available at: <https://www.ceska-ecommerce.cz/>
- [6] Czech Statistical Office, "Využívání informačních a komunikačních technologií v domácnostech a mezi jednotlivci – 2018," 2018, Available at: <https://www.czso.cz/csu/czso/vyuzivani-informacnich-a-komunikacnich-technologie-v-domacnostech-a-mezii-jednotlivci>
- [7] J. Hagberg, M. Sundstrom, N. and Egels-Zandén, "The digitalisation of retailing: an exploratory framework," *International Journal of Retail and Distribution Management*, 2016, Vol. 44 No. 7, pp. 694-712.
- [8] B. Berman, "Flatlined: combatting the death of retail stores," *Business Horizons*, 2019, Vol. 62 No. 1, pp. 75-82.
- [9] E. Cruz, S. Orts-Escolano, F. Gomez-Donoso, C. Rizo, J.C. Rangel, H. Mora, and M. Cazorla, "An augmented reality application for improving shopping experience in large retail stores," *Virtual Reality*, 2019, 23.3: 281-291.
- [10] F. Caboni, J. Hagberg, "Augmented Reality in Retailing: a Review of Features, Applications and Value," *International Journal of Retail & Distribution Management*, 2019.
- [11] A. Charlesworth, "Internet Marketing: a practical approach," 2011.
- [12] P. Kotler, G. Armstrong, J. Saunders, and V. Wong, "Principles of Marketing", Harlow, United Kingdom: Pearson Education Limited. ISBN13 9781292220178, 2003.
- [13] L. Robert, "New Marketing Litany: Four P's Passe: C-Words Take Over," *Advertising Age*, 1990, 61(41):26.
- [14] Online payment, 2018, "Online payment transaction via payment card or m-payment," Available at: <https://www.kb.cz/en/faq-and-support/payment-cards>.
- [15] T. Vasiljeva, and K. Lukanova, "Commercial Banks And Fintech Companies In The Digital Transformation: Challenges For The Future," *Journal of Business Management*, 2016, (11).
- [16] JPMorgan, "Payments and commerce in digital word," 2018, Available at: <https://www.jpmorgan.com/jmpdf/1320725121878.pdf>
- [17] F.B. Kurtuluşoğlu, A. Algüner, and K. D. Atalay, "What Are the Most Influential Factors of Consumers' Intention to Use NFC-Enabled Credit Cards?," *Soft Computing* 23.21, 2018, 10821–10836. Crossref. Web.
- [18] G. W. H. Tan, K.B. Ooi, J.J. Sim, and K. Phusavat, "Determinants of mobile learning adoption: an empirical analysis," *J Comput Inf Syst*, 2012, 52(3):82–91.
- [19] Asociace pro elektronickou komerci, "Turnover growth in e-commerce," 2018, Available at: <https://www.apek.cz/en>.