

# Modern Methods of Payment

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**Abstract:** *This work analyses the citizens' knowledge concerning payment tools in comparison of the Czech Republic with a similar research in the USA. The data were acquired through a questionnaire in a sample of 947 respondents. On the basis of the comparison of the obtained data we may say that in most parameters and indices the Czech respondents have a lot in common with their counterparts abroad. They use the same (and in some cases of higher quality) technologies and their interest in this field is of the same direction. Based on these findings we can say that in the contemporary globalized society the differences in people's behaviour in various territorial milieus are diminishing and the world is divided not according to the territory, but to the access to the Internet and technologies in general. It is possible to confirm the speculation that the milieu of new technologies and methods in the field of payment the Czech Republic is at the front of the development and its citizens can use most of the comforts offered at present.*

**Key words:** Payments Methods · Debit Cards · Credit Cards · Mobile Payments

**JEL Classification:** G21 · G23

## 1 Introduction

Since the beginning of human civilization people have been trying to develop payment methods together with the development of trade. With the start of electronic era when material money became a history, electronization in the field of payments is reaching quite a high speed. This is nowadays, together with the origin of a new sort of money – electronic money, a symbol of modern payment method. The trend offered by the providers of these services positively aims at the speed, simplicity and easy accessibility of services related to using money, with the stress laid upon the security and protection of financial means. The year 1987 is indicated as the origin of the network Internet. By the time computer networks were used only for scientific or military purposes and their range was as to the number of users limited. (Kantnerová, 2016).

Right at the end of the 80s and at the beginning of the 90s worldwide standards for the Internet run were established including the origin of www system for browsing, storing and referring to documents. At the beginning of the 90s other technologies started to expand: mobile networks. The first and still most used methods are payments by cards and via the Internet, which nowadays can hardly be ranked among modern payment methods. There are lots of novelties on financial markets at present, for example in the field of payment terminals. Apparently the best known and developed is the project of mobile readers named Square, belonging among the so called start-ups. One of several definitions describing the milieu of start-ups was created by an American entrepreneur and author Eric Ries: "Start-up is an organization aimed at creating a new product or service in an extremely uncertain conditions" (Ries, 2015). At present it is possible to carry out payments also via NFC, Apple Pay, Android Pay and Samsung Pay.

Phones have also reached their climax, nevertheless according to Maurer "their number in the world standard is still enormous" (Maurer, 2015). For payments SMS, SIM and USSD services can be used. There are several operating systems on the market for smartphones, well known is Android, iOS, Windows, Blackberry or Symbian. The first two – Android from Google and iOS from Apple prevail on the market. Payments then can be divided into payments by mobile phone substituting a card and by smartphone substituting a computer with electronic banking. In the world the mass expansion of technology of direct payments by mobile phones started approximately in 2015. The development of these payments is connected with the expansion of hardware equipment of smartphones, when most of these devices is equipped with a chip supporting NFC payments. Devices equipped in this way with the help of chips simulate a payment card, and at the same time enable banks to eliminate the impact of mobile operator and thus to increase the profit from the payments; therefore banks fully support this method of payment.

Significantly more widespread is the usage of mobile applications for conducting Internet banking. In this field applications substituted mere usage of Internet banking via the Internet browser installed in a cellular phone. These applications are issued directly by particular banks and they are practically a simplified version of Internet banking adapted with a display format to a smartphone. Securing payments carried out from these applications works on the

principle of uniquely generated access codes in an application, in the CR e.g. Unicredit Bank or sending SMS with a code e.g. MONETA Money Bank, a.s.

Among the best known applications for direct payments we can name MasterCard Mobile or mobilPay Wallet, both working on the basis of an electronic purse. This type of payments is expected to be flourishing in the future, especially when the first implementations of technology HCE (Host card emulation) are coming into existence. In the CR the Bank of Commerce, a.s. is the first to introduce this technology as it announced establishing HCE by 2017. The substance of this technology is an emulation of a payment card on the software basis when the card data are stored in cloud in servers of a mother bank (contrary to NFC chips) and a mobile device access these data from the distance only at the moment of payment. The main contribution of this technology is a bigger safety, payments are verified by *token*, i.e. software key unique for each device, each tradesman and each particular payment, together with simplified implementation of payment cards for mobile devices.

MasterCard announced early October 2017 the launch of its new innovative payment solution in 12 European countries. This service is provided by a mobile app called “Identity Check Mobile” and was initially launched in the United States last February. France is not part of those pilot countries in Europe and will have the service deployed progressively in 2017. The principle is simple: people can pay with their fingerprints or with a selfie. In order to make sure that the selfie is not a previously taken photo, the app asks the user to blink while taking the photo and processing the facial recognition (Castellani, S., 2017). On the other side can be using of payment card disappointing, as stated Soukal and Hedvicakova (2013). This new noncommercial-banking product was meant to be a new tool of effectiveness in the social benefit system in the Czech Republic. The goal was effectiveness in costs, transaction time reduction and directness. However the implementation scheme turned out to be defective from design.

When mapping modern methods of payment at present, we have to mention also using the so called QR (quick response) code. There is certain similarity in usage with a linear code, marking huge amount of goods all over the world. The origin of code can be set to the beginning of the 90s.

While a linear code can be loaded with a relatively small number of figures and letters, with the construction of QR code these problems were removed. The code was at first used only in logistics.

Its wider usage came with smartphones, it was possible to download applications for reading the QR codes free of charge, for example. *QR droid* – a well known browser of codes primarily designed for an operation system Android, - *Scan for iPhone* a browser for iOS, *Quickmark* – a universal browser for most operating systems, *ScanLife* – another universal browser supporting reading not only QR codes, but also linear codes.

QR codes are at present divided into several types and also from 2005 are subject to a unified standardization ISO/IEC18004:2015.<sup>29</sup>

In the CR using QR code is standardized within domestic payment system in Czech Crowns via the standard of the Czech Bank Association in its latest version from August 2015.

A comparatively essential event in the world of new systems of payment became the origin of new platforms for money transfer between accounts, e.g. PayPal, Google Wallet, Android Pay, ApplePay, Alipay or SamsungPay which work on the basis of electronic purses, the so called e-wallets.

It is interesting that these payment systems did not origin from the impulse of banks, but outside the banking world. All these systems emerged primarily as services for money transfers for a particular tradesman. As we can see from the service names, most of them work in this way also nowadays, with the exception of PayPal (a dominant payment system) which emerged as one of the first systems on the Internet.

## 2 Methods

The aim of his presented paper is to confirm or not the idea, that in the environment of new technologies and methods in the field of payment the CR is at the front of the development and its citizens can use most facilities offered at present.

For the practical part of this paper we have chosen a questionnaire method to obtain the biggest possible sample of respondents in a relatively short time period. The questionnaire was created in Microsoft Office Word (2010) programme and then implemented into [www.vyplnto.cz](http://www.vyplnto.cz) designed for questionnaires; 947 respondents took part in it and the return was 82.5%. It included 17 questions, for a greater simplicity and clearness there were closed and semi-

<sup>29</sup> [http://www.iso.org/iso/home/store/catalogue\\_ics/catalogue\\_detail\\_ics.htm?csnumber=62021](http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=62021)

closed questions. The content consisted of two main areas: the first included information about the structure of the respondents' sample (questions 1- 4). The following questions tried to uncover the respondents' knowledge concerning payment methods. Some of the questions were chosen with the intention to enable comparing the answers with the data from the questionnaire of the TSYS company. From the questionnaire a sample of questions applicable on respondents in the CR was chosen. The collection of data in the Czech Republic was done during 2016.

**3 Research results**

More women than men participated in the questionnaire – 613, which is 64.75% of the total number of respondents, the most numerous group being respondents aged 25 – 34 (37.59%) with a university education (46.15%, see the attachment). The questions were directed at financial literacy concerning new methods of payment and at safety in paying.. Another question concerned frequency of various methods of payments. Question deals with the most frequent activity of the respondents in the field of new payment methods too. Answers to questions are then compared with similarly formulated questions in the TSYS questionnaire.

880 respondents know the difference between a debit and a credit card (92.92%). 475 respondents use a debit card (50.16 %) .75.18 % respondents consider the safety of cards satisfactory. 474 respondents know chip or EMV cards, 473 respondents do not. 803 respondents are not familiar with the term tokenization, only 144 are. From the total number of respondents 564 (59.56 %) declared they have a chip card, 383 do not. Payments by cards are implemented several times a week (426 respondents , 44.98 %). The total expense by card was 1,000 – 5,000 a month (39.98%). As the biggest advantage of the debit card the respondents see the possibility of simple remittance from the client's account (645 respondents – 69.96%). With credit cards they appreciate their flexibility of settlements (177 respondents – 19.2%). 62.8% respondents do not own a credit card.

37.8 % respondents declared they would not use the card more often, the second most frequent answer was discounts (16.16%). 622 respondents (65.68 %) answered they do not want to use cellar phones for payments.

**Table 1** The comparison of payments methods in the Czech Republic and USA

PREFERENCE TO PAYMENTS METHODS IN % OF RESPONDENTS								
	Debit cards	Cash	Credit cards	Alternative payments	Some other	Branded credit cards	Prepaid credit cards	Money order, cheque
Preferred Payment Type (Czech Republic)	50.16	28.41	18.16	1.16	0.84	0.84	0.21	0.21
Preferred Payment Type (USA)	43.00	9.00	35.00	3.00	5.00	1.00	2.00	2.00

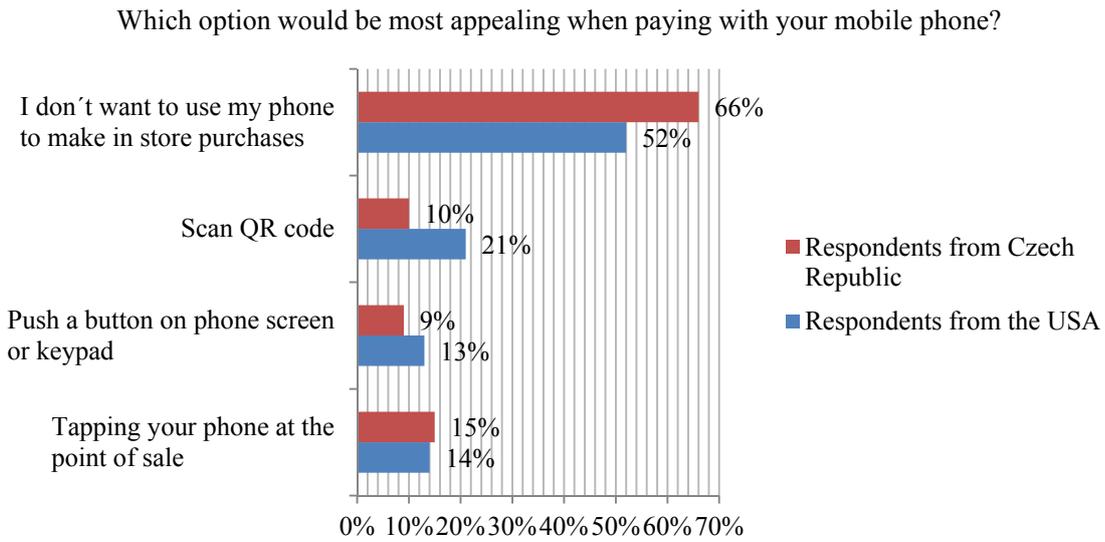
Source: Own processing, Payments Study (2016)

**Table 2** Knowledge of payment card concepts

	Knowledge of EMV or chip card	Knowledge of Tokenization	Ownership of chip card
Preferred Payment Type (Czech Republic))	50.05	15.21	59.56
Preferred Payment Type (USA)	48.00	8.00	22.00

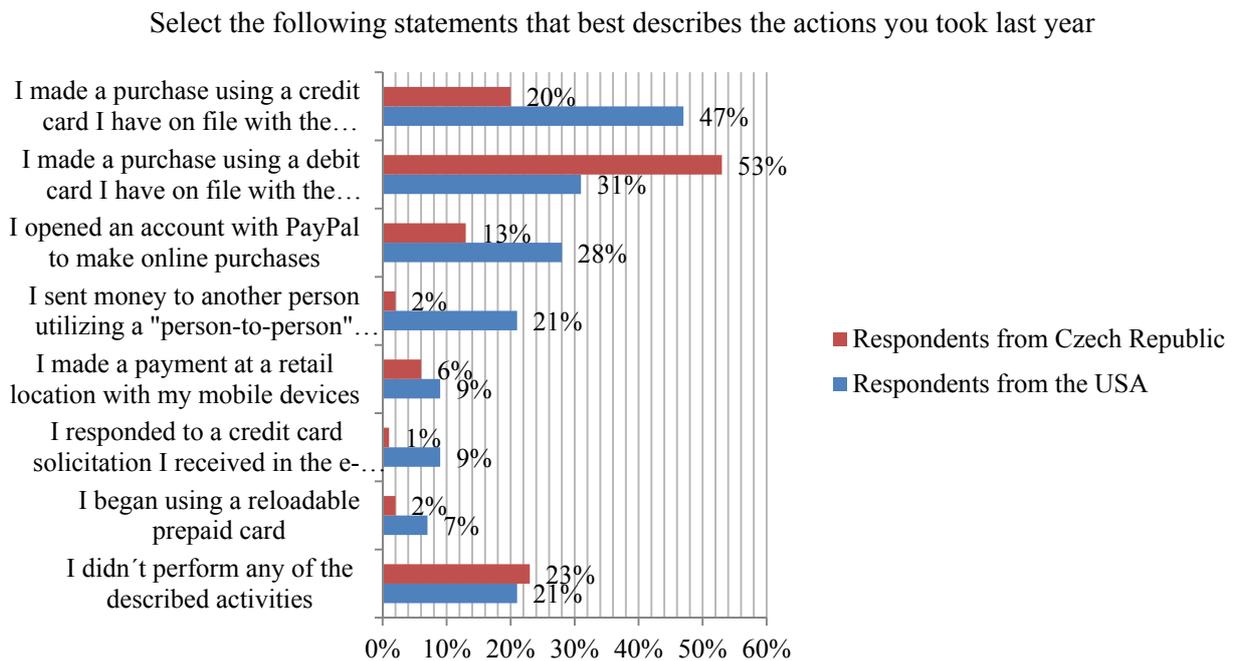
Source: Own processing, Consumer Payments Study (2016)

**Figure 1** The comparison of the situation in the Czech Republic and USA



Source: data from the research, Consumer Payments Study (2016)

**Figure 2** The comparison of the situation in the Czech Republic and USA



Source: Own processing, Consumer Payments Study (2016)

#### 4 Conclusions

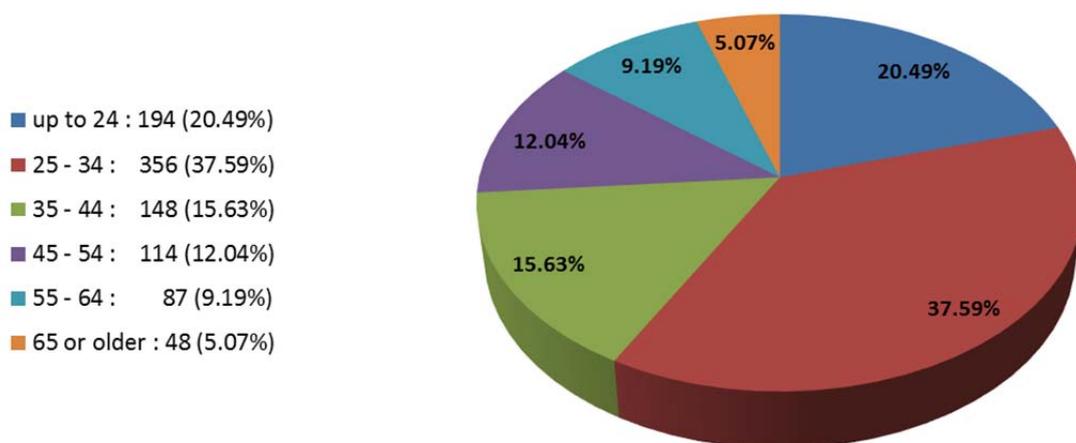
In this work practical usage of modern payment methods was investigated by questionnaires among respondents in the Czech Republic. We gathered and assessed their answers to 17 questions concerning the level of knowledge and experience with new technologies in the field of paying. Based on the results it was possible to set up a profile of a Czech user of these technologies. It was certified that most our citizens are in contact with most of above mentioned methods of payment. Most respondents not only confirmed knowledge of these technologies but also their active usage as well as their safety. At the same time we found out that technological level of the means used by our respondents can be compared to world's top. In this work data from the research "2014 Consumer Payments Study" (2016) aimed at comparing the level of knowledge and technological facilities in the Czech Republic and advanced western economy (here the U.S.A.) were used. Based on the obtained data we can say that in most parametres and indices Czech respondents have a lot in common with their counterparts abroad. They use the same (in some cases even of a better quality) technologies and also their interest has the same direction. Further we can state that in a contemporary globalized society differences in people's behaviour resulting from different citizenship diminish and the world is not divided according to the territory, but access to the Internet and technologies in general.

Therefore we can confirm the idea that in the environment of new technologies and methods in the field of payment the Czech Republic is at the front of the development and its citizens can use most facilities offered at present.

#### References

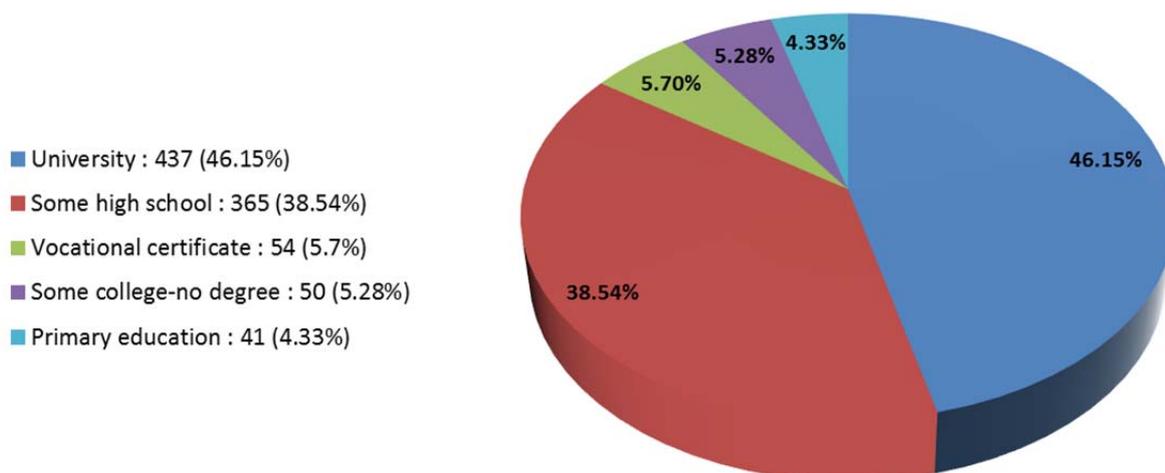
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**Enclosures:** 1. charts to the description of respondents in this research (age)



Source: Own processing

**Enclosures:** 1. charts to the description of respondents in this research (education)



## 2. The questionnaire

1. Are you woman or rman? (2 groups of answers)
2. Which age (6 groups) of answers)
3. Your education (5 groups of answers)
4. Your job (6 groups of answers)
5. Do you know the diference between debit and credit payment card? (2 groups of answers)
6. Which payment method do you use often? (8 groups of answers)
7. Do you think the safety of electronic payment methods is sufficient? (2 groups of answers)
8. Do you know the term of EMV or cards with chip? (2 groups of answers)
9. Do you know the term „tokenizace“?? (2 groups of answers)
10. Do you have a chip card? (2 groups of answers)
11. How often do you pay by your payment card? (6 groups of answers)
12. How much do you pay by your payment card a month? 6 groups of answers)
13. What is the best on the debit payment card? ( 10 groups of answers)
14. What is the best on the credit payment card? (8 groups of answers)
15. What will do more attractive to you the using of your payment card more often? (13 groups of answers)
16. Describe please your new activity in the last year, which was new for you in the using of modern methods of payments? (10 groups of answers)
17. Which method do you prefer for the mobile payments? (4 groups of answers)

