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## **PAYMENT HABITS AND THE DEVELOPMENT OF INNOVATIVE PAYMENT INSTRUMENTS IN POLAND**

**Summary:** The rapid technology development has caused huge changes in retail payments all over the world. and Innovative payment methods are emerging globally. Their development is mostly influenced by local social drivers.

The purpose of the paper is to present the Polish retail payment market's prospects from the perspective of customers' preferences and habits. The analysis is based on a customer survey held in 2013. Research results show that a small percentage of Polish customers use payment innovations. Contactless cards are the only one exception. Thus, the decrease of cash payments should not be assumed in the nearest future.

**Keywords:** retail payments' development, innovative payment instruments, payment habits.

### **Introduction**

During the last decades, retail payment market has been developing rapidly. Undoubtedly it is a result of technological advances that allowed to migrate from paper-based to electronic instruments. Many different innovations were implemented in that market. Among them, there is a large group of new and innovative methods for electronic funds transfers that are substantially different from traditional ones. The most important are contactless cards, online payments and mobile payments.

The implementation of innovative payment instruments was the response to customers' needs connected with the development of e-commerce. It was also supported by monetary institutions that are very interested in finding substitutes for cash.

Despite the rapid growth of payment innovations, there is still a lack of scientific research focusing on them. This paper is an attempt to fulfil this gap. The main research questions relate to:

- the categorization of retail payment innovations,
- the Polish customers' knowledge about innovative payment instruments/methods and their usage,
- determinants of innovative payments' diffusion (barriers to- and drivers for payment innovations),
- the role of payments' habits in the process of innovative payment instruments/methods' adoption,
- Polish customers' expectations concerning payment methods.

The purpose of the paper is to present, from customers' perspective, the Polish retail payment market's prospects. It examines the fundamental relationship between consumers' habits and the diffusion of retail payments' innovations. The research was prepared combining descriptive theoretical and empirical methods. Two-step methodology was designed for the research. First step involved an investigation of the current professional literature, including books and journals, reports, conference proceedings, dissertations and thesis, social media and portals. This study was the foundation for preparing the questionnaire for the second step – empirical research that has been conducted in the first half of 2013. Data from desk and field research were used to confirm that payment habits are probably the most important drivers for payment innovations' adoption. Thus, consumer propensity to use innovative payment instruments/methods might be considered as one of a barrier to – or a driver for – retail payment innovation diffusion.

## 1. Retail payment innovations

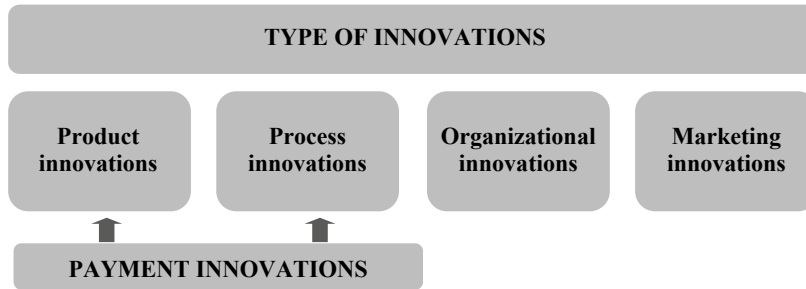
Despite the large number of papers that focus on innovations and the factors of their diffusion [Manning, Bearden & Madden, 1995; pp. 329-345; Ram & Sheth, 1989, pp. 5-14; Citrin et al., 2000, pp. 294-300; Kolodinsky, Hogarth, & Hilgert, 2004, pp. 238-259; Sathye, 1999, pp. 324-334] there is still the lack of innovative payment instruments' taxonomy and categorization.

Concurrently precise classification of all payment innovations is quite difficult because of their large variety and number. Taking into account the organization perspective and a range of changes in firms' activities payment innovations can be divided into four categories: product innovations, process innovations, organizational innovations and marketing innovations [*Oslo Manual...*, 2005, pp. 16-17].

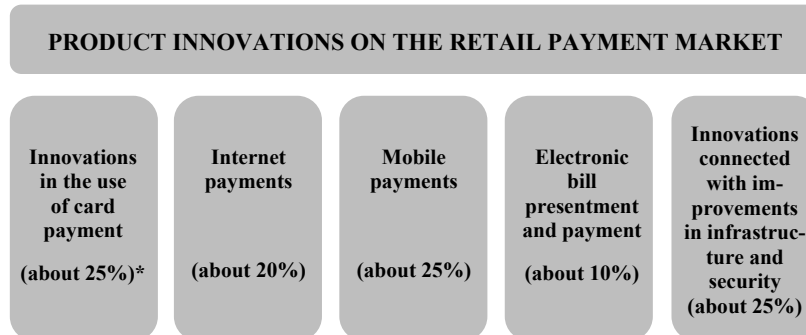
According to Committee on Payment and Settlement Systems (CPSS) [*Bank for International Settlements*, 2012, pp. 12-15] on a retail payment market the most common are product and process innovations (see Fig. 1). Product innovations include new payment instruments. Process-oriented innovations focuses on the back office of the payment process and entails payments initiation, overall payment process (including clearing and settlement) and receipt of a payment.

Another way to classify retail payment innovations takes into account customers' experience and based on the user's point of view [*Bank for International Settlements*, 2012, pp. 12-15]. That categorization focuses on product innovations and include (see Fig. 2):

- innovations in the use of card payments,
- internet payments,
- mobile payments,
- electronic bill presentment payment (EBBP)
- improvements in infrastructure and security.



**Fig. 1.** The classification of retail payment product innovations – organizations' perspective



\* Approximate share in a number of all reported innovations. The precise classification is difficult because of different criteria' decussion, e.g. contactless cards could be included into first and third category.

**Fig. 2.** The classification of retail payment product innovations – consumers' perspective

Source: Based on: [Harasim, 2013, pp. 165-247].

The first category of product innovations relates to cards as access devices for payments. It refers to payments on Internet (innovations in card-not-present transactions for online shopping, e.g. virtual card numbers) and payments at the POS (e.g. contactless card payments using RFID technology, devices connected to mobile equipment that allow accepting payments).

The second group of innovations are internet payments and focus on the access channel. In this case, payments are initiated by devices connected to the internet (e.g. desktop PCs, laptops, tablets and mobile phones). Payment instructions are transmitted and confirmed between consumers and merchants and their respective PSP's in the course of an online purchase of goods or services (e.g. related to e-commerce transactions). There are three main group of innovations in this category:

- online payments – a banking-based solutions that forward consumers from e-merchant's website to their online banking applications,
- escrow services where a third party is interposed between the payer (buyer) and the payee (seller) in a e-commerce transaction and ensures the delivery versus payment of goods or services,
- electronic money payments via the internet.

The mobile payments, the third category of innovations, are not defined as a device but an access channel. It means payments initiated and transmitted by access devices that are connected to the mobile communication network using voice technology, text messaging (via either SMS or USSD technology) or near field communication technology (NFC). Among these devices are mobile phones and tablet computers. Mobile payments include:

- mobile payments using traditional bank account,
- mobile payments using the mobile phone bill collection process (payer pays the invoiced mobile payment account as a part of their mobile phone bill and the payee receives the amount from the mobile phone operator),
- mobile payments using prepaid accounts (sometimes called "mobile money").

The next group is electronic bill presentment and payment. This category includes the payee and payer initiates the payment using the electronically presented bill. Furthermore, the payer can store the bill and the related payment documentation electronically.

The last category of payment innovations is connected with improvements of infrastructure and security. They are especially important because they influence payments efficiency and security. This category includes cheque truncation or cheque imaging systems, shortening the time for clearing and settlement, providing payment services to the unbanked or underbanked and security improvements.

The Payment Service Directive (PSD) has defined payment instrument as any personalized device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used by the payment service user in order to initiate a payment order [Directive 2007/64/EC]. Payment instruments can be divided into traditional and innovative ones. Among the traditional payment instruments are: cash and non-cash instruments as cheques, direct debits, credit transfers, debit and credit cards. Innovative payment instruments include mostly new payment methods which reduce costs, risks, or provides an improved product/service/instrument that better satisfies users demands and could be classified as financial innovation [Harasim & Klimontowicz, 2013, pp. 86-102]. The rapid development of new payment methods has caused some difficulties in identifying payment innovations. Undoubtedly innovative payment instruments include:

- e-transfers,
- contactless cards,
- mobile payments (contactless and others),
- online payments,
- electronic money.

Table 1 presents innovative payment instruments' classification based on current and possible field of application.

**Table 1.** Innovative payment instruments' classification and field of their application

Innovative payment methods	Innovations		Fields of applications	
	incremental	radical	traditional transactions	Internet transactions
e-transfers	X			X
contactless cards	X		X	
mobile payments		X	X	X
online payments		X		X
electronic money		X	X	
virtual currencies		X		X

The greater part of payment innovations is related to the use and the founding of card payments, including contactless cards and are incremental<sup>1</sup>. These innovations have focused on the way of payments and improvement of their

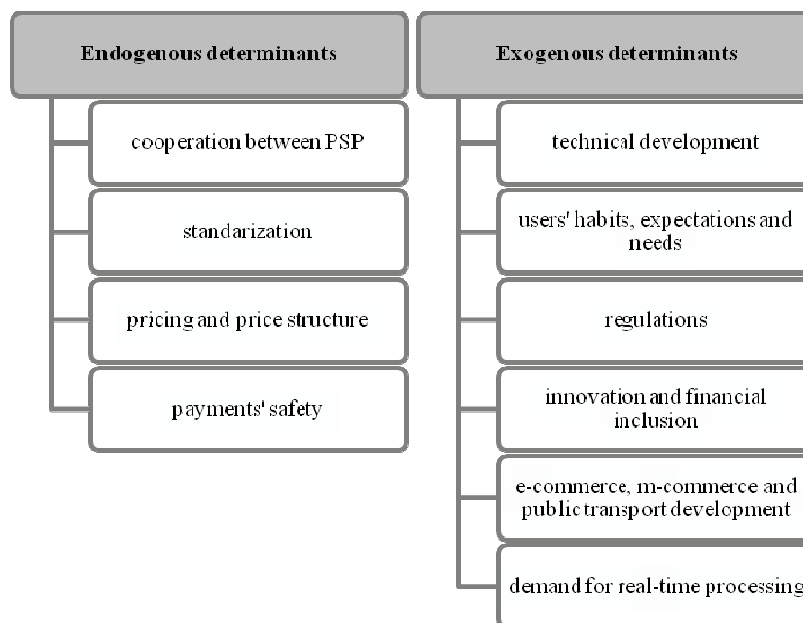
<sup>1</sup> Considering the degree of novelty, there are two kind of innovations: incremental and radical. Incremental innovations are a series of small improvements to an existing products or services that usually help maintain or improve their competitive position over time. Incremental innovation is regularly used within the high technology industry by companies that need to continue to improve their products to include new features increasingly desired by consumers. Radical innovations are rather implemented by new players on the market [Hill & Rothaermel, 2003, pp. 257-274; Furst & Nolle, 2004; Sullivan & Wang, 2007, pp. 83-87].

safety. On the retail payment market the radical innovations, which provide new solutions and change consumers behaviour, are rather rare.

It is worth to mentioning that a large number of payment innovations implemented during the last decade<sup>2</sup> do not always means their success on the market. Thus, it is crucial to determine the condition of successful payment innovations' implementation and to find what are the main factors which help customers to adopt innovations and main barriers of payment innovations' diffusion.

## 2. Payment habits as a determinant of innovative payment instruments' adoption

The process of payment innovations' diffusion is very complex and depends not only on retail payment market's characteristic but also on some factors connected with retail payments suppliers and their users. Generally retail innovations' development depends on endogenous and exogenous determinants which could be both drivers or barriers. Endogenous factors are determined inside the payment's ecosystem whereas the endogenous factors relate to those that are determined outside (see Fig. 3).



**Fig. 3.** The determinants of retail payment innovations' development

<sup>2</sup> As one of the survey results conducted by World Bank 173 payment innovations were identified [The World Bank, 2011, pp. 44-45].

The endogenous retail payment innovations' factors are cooperation, standardization, price structure and payment security.

The cooperation is very important because of substantial fixed investments costs which are required for payment innovations although there is no guarantee that the new product or process will attract sufficient demand. Cooperation could help to overcome this obstacle by helping to reduce costs (e.g. through shared investment or economies of scale and scope) or by ensuring sufficient demand (e.g. by increasing the pool of potential customers or through integration of additional services).

The second factor that is considered to be an essential endogenous driver to innovation is standardization. It plays a crucial role in developing the agreements needed for technically efficient communication and increases the business case by exploiting economies of scale and scope. Standardization affects innovation in a number of ways:

- it facilitates the achievement of critical mass,
- it can create stable ground for new players to come into the market, allowing them to keep upfront investment low – in this way, standardization encourages competition on the basis of common standards, rather than on competing standards,
- a lack of common standards could impede innovation because of the uncertainty and risks attached to an early market entry or to the costs involved in overcoming the lack of standards,
- players operating in many countries are likely to benefit from broader and more open standardization [The World Bank, 2012, pp. 12-15].

Pricing strategy may play a role in the success of an innovation since prices set by the payment service providers (PSPs) must be both competitive and raise sufficient revenue in order to support the business case. Therefore, prices may play a twofold role in innovation: if PSPs can set the right incentives, they are a driver for innovation. In the opposite case, however, prices can turn out to be a barrier.

The last but not least endogenous factor is payments' safety. Insufficient security and safety, whether real or perceived, could erode public confidence in a new payment solution and hence its business case.

Among the exogenous determinants of retail payment innovations' development, the most important are: technical development, the development of e-commerce, m-commerce and public transport, regulations and users' habits and behavior.

The first fundamental catalyst for new and improved payment services and, consequently, a new business models that allow an innovation to be brought to the market, is technology. The rapid growth of e-commerce and m-commerce together with higher penetration of mobile phones and smartphones will surely influence the retail payment markets in the nearest future.

The next exogenous retail payment innovations' factor is regulation. Regulation may affect the potential demand for payment innovations or their expected production cost. It might be considered either as a driver for- or a barrier to innovation development. There are two prominent rationales for regulating the payment market. First, regulators wish to ensure that the market is secure, since payment services need to be trustworthy in order to be accepted. The second is to increase market efficiency.

The last crucial, exogenous factors are users' expectations and needs, concerning payments' security (risk), convenience (speed and easiness) and price (cost).

The key role of consumers' habits and expectations is related to retail payment market's characteristics. It should be stressed that the retail payment market is an example of two-sided markets<sup>3</sup>. According to two-side market theory payment innovations, even if suppliers<sup>4</sup> intensively promote them, cannot be profitable without acceptance of final users – merchants and customers. On the payment market it means that the more widely a payment instrument is accepted, the more benefits it brings to the consumer using it (demand side externality). From the acquirers' perspective, network effects are just economies of scale that foster the industry's willingness for cooperation – supply side externality [Kemppainen, 2003; Farrel & Klemperer, 2007, pp. 1970-2056]. As a result of two-sides markets' specific character, the crucial factors influencing the spread of payment innovations are: consumers' ability to use them and sufficiently developed merchants' network.

The market success of innovative payment instrument relies mostly on customers [Abrazhevich, 2001, pp. 81-90] as they choose the instrument used to initiate a payment. The results of many research confirm that the most important factors which are taken into account in the process of choosing payment instruments are:

- low costs – including direct and indirect costs of instruments' usage and the initial costs of devices needed for initiating and making payments,

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<sup>3</sup> Two-side market is defined as a market on which goods and service are supplied to two different group of final users. The way of pricing them makes some incentives for both groups because advantages for one group are increasing together with increasing the number of customers in a second group [Chakravortii & Roson, 2004, p. 1].

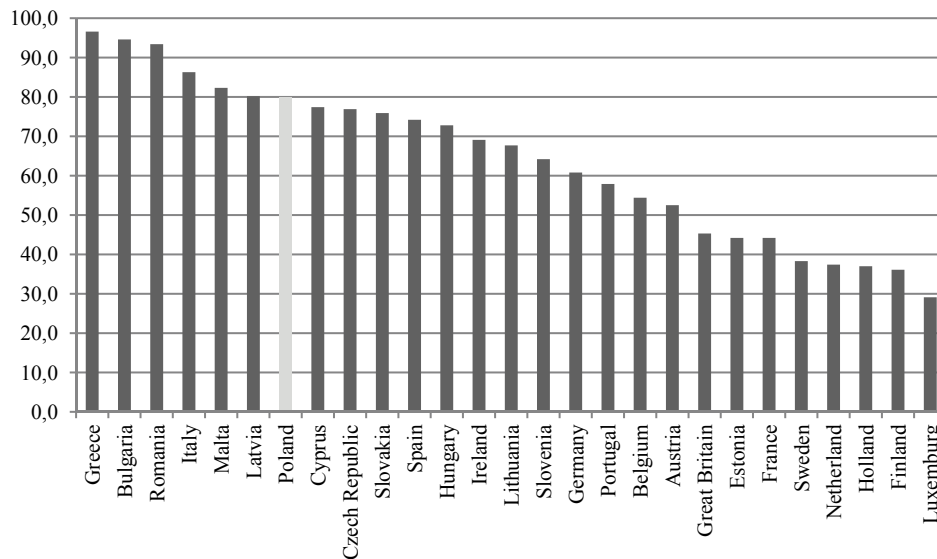
<sup>4</sup> Traditionally the main suppliers of retail payments instruments were banks but taking into account innovative payment instruments the main suppliers are non-bank institutions.



- safety (risk) – depending above all on subjective customers’ opinions concerning the level of transactions’ safety,
- convenience (utility) – connected with easiness and speed of making payments.

The potential success of new payment instrument depends strictly on all mentioned above factors and is closely correlated with customers’ habits and expectations [Tumin, 2001, pp. 73-86]. In the nearest future, customers will continue to be a catalyst for innovations’ diffusion among both non-banks and banks. The customer imperative will reflect both increased urgency around existing needs and new demands. The most important existing customers’ needs are real-time payments, easiness and predictability, invoicing and open account payments and e-payments. Among emerging customer needs are [Capgemini, RBS, EFMA, 2012, pp. 39-42]: more personalized services, corporate support for new payment instruments, payments on mobile and social platforms and payment options based on location and context.

The results of many research show that payment habits are changing quite slowly despite many new, innovative payment methods which have recently been implemented and are fast, cheap and convenient. In general the usage of retail payment instruments differs quite substantially across countries, but on average cash is still the most frequently used retail payment instrument (see Fig. 4).



**Fig. 4.** The share of cash payments in all payments in selected countries in 2012 (in %)

Source: Based on: [Schmiedel, Kostova, Ruttenberg, 2012, s. 22].

Taking into account noncash payments the use of traditional payment instruments, like credit transfers, direct debit, credit cards and debit cards, is still dominant [Harasim & Klimontowicz, 2013, pp. 96-97].

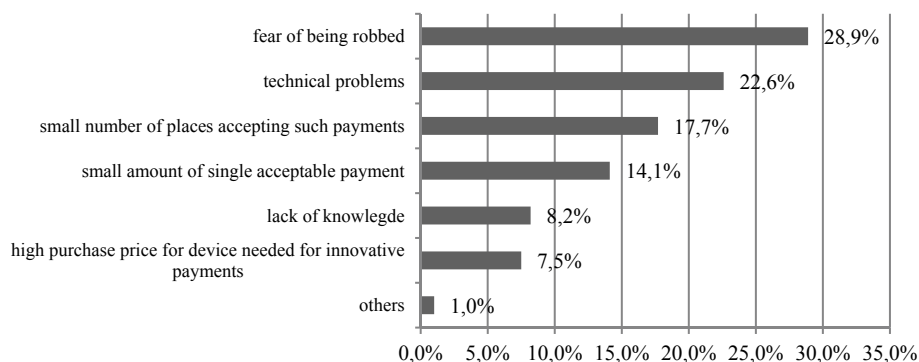
### **3. Polish customers' propensity to use innovative payment instruments**

An analysis of the evolution of retail payments over the last decades shows that successful adoption of advances in technology has played a crucial role in the development of new channels for payment initiation, improved authentication and efficient processing [*The World Bank*, 2012, p. 12]. The key challenge for further innovations' development is to examine and understand customers' behavior and expectations concerning retail payments as they are the main factors that influence innovations' adoption on retail payment market. That is the reason for focusing on that problem in the field research.

One of the pioneer questionnaire survey on innovative payment instruments was held in Poland in the middle of 2013 by group of scientists working in Department of Banking and Financial Markets in University of Economics in Katowice. The responders were the representative group of Silesian citizens. The questionnaire consisted of 23 questions (10 open questions and 13 closed-end questions). The subject of the research focused on the assessment of innovative payment instruments in the comparison with traditional ones (including cash payments).

According to responders, the most innovative ones are: contactless payments made by mobile phone, mobile payments, payments made via contactless cards, debit cards with the possibility of making contactless payment and online payments. The survey results show that the innovative payment methods are especially a competition for cash payments for 72% Polish customers. Among them, 42% stated that they are competitive for all cash payments and for 30% of responders they are competitive only for micropayments. Only 19% responders declare that they are ready to start using innovative instruments against cash immediately, 34% – under some conditions (especially safety improvement) and 29% – in the nearest future. 22% of responders are not interested in using innovative payment methods at all.

The main threats connected with using innovative payment instruments are: the fear of being robbed and technical problems (see Fig. 5).



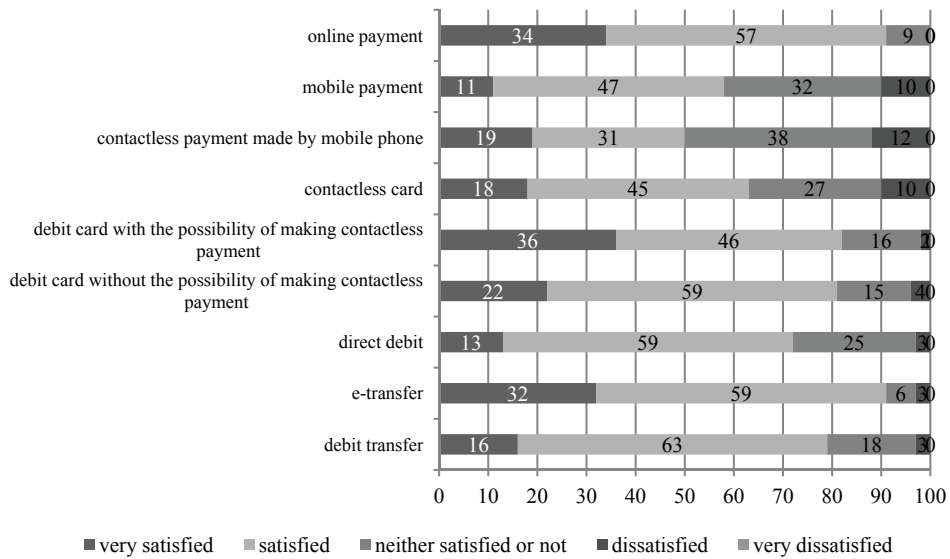
**Fig. 5.** The main threats of using innovative payment instruments

Source: Based on research held in 2013.

These threats are not the main reason of low interest in payment innovations' usage. Polish consumers do not use them because they are satisfied from traditional payment instruments.

During the survey all payment methods were divided into three groups: cash, traditional payments (as debit transfer, direct debit, payment cards) and innovative payments (as e-transfers, contactless cards, contactless payment made by mobile phone, mobile payments and online payments). A five-point Likert's scale from 1 to 5 was used in the research. The huge satisfaction was graded as five whereas zero meant the lack of satisfaction. Generally retail payment instruments meet Polish customers' expectations. The level of satisfaction was the highest one for online payments used in e-commerce. Very high grades were also granted to contactless cards and traditional payment cards (see Fig. 6).

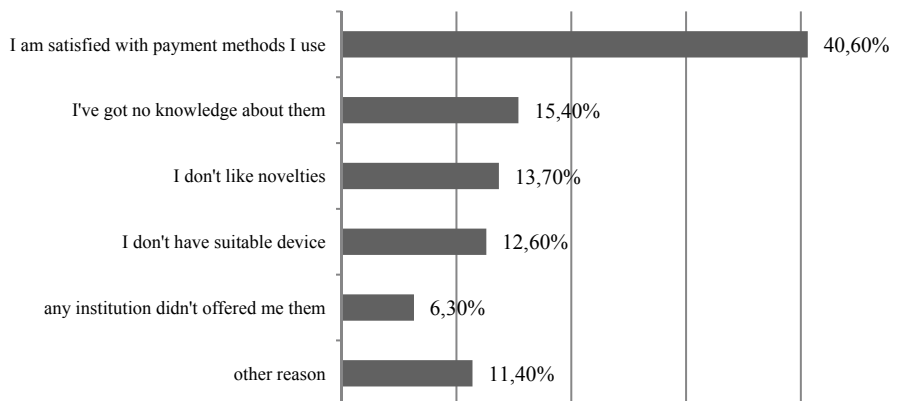
Assessing retail payment instruments Polish consumers took also into account factors that were thought to be the most important ones in researchers' opinion as costs, safety and convenience. Polish consumers do not agree with the opinion that innovative payments instruments are cheaper than traditional ones. According to them cash (85% responders) and traditional non-cash instrument (75% responders) are cheap or very cheap payment methods. Surprisingly the innovative payment instruments are thought to be the most expensive ones. They also thought to be less safe than traditional ones. The level of safety is similar for cash payments what is probably connected with the same fear of being robbed. Additionally, in case of innovative payment instruments, responders are afraid of technological risks. All instruments used by responders are assessed as very convenient and simple for them. The most convenient and simple is still cash but innovative payment instruments were graded higher in term of speed of transfer.



**Fig. 6.** The customers’ satisfaction of using payment instruments

Source: Based on research held in 2013.

Responders were also asked why they do not use innovative payment methods. The main reason is a satisfaction from methods used so far. The next reasons are the lack of knowledge on innovative payment instruments and consumers’ attitude to novelties (see Fig. 7). All of them are connected with consumers’ customs and habits. Changing them will be a huge challenge for banks and non-bank institutions in the nearest future.



**Fig. 7.** The reasons of not using innovative payment instruments

Source: Based on research held in 2013.

The survey results show that the innovative payment methods are not a major competition for cash and traditional payments by now. As far as traditional instruments will meet Polish consumers' expectations it will be very difficult to change their payment habits.

## **Conclusions**

In the recent years many innovative payment methods/instruments have occurred on the retail payment market but only few of them could get international or global range.

Poland is among countries experiencing fast development of payment innovations, especially contactless cards. Despite that, the research findings show that Polish consumers still prefer traditional payment instruments as credit transfer, debit and credit cards or cash, which meet in large extent their expectations in terms of speed, cost and convenience. Generally the results of research confirm that Polish consumers can identify innovative payment instruments and declare the willingness to use them, but only a small part of them really makes it. The main reason of that is the high level of satisfaction from payments instrument/methods that have been used so far. Basing on the results of research it can be assumed that innovative payment instruments/methods could not reduce significantly cash usage in Poland in the nearest years.

As the results of desk research show innovations in the field of retail payments are strongly driven by existing payment habits and consumers' need for payment instruments that are more secure, efficient and convenient. If consumers are satisfied with existing payment instruments, their propensity to use new ones is low. Taking into account that and the results of field survey in the nearest future the huge change on Polish retail payment market cannot be foreseen. Customers are changing their payment habits slowly and need several clear incentives in order to do so. The financial education and the involvement in the development of payment services will be significant to further payment innovations' development. Results also imply that before the launch of new retail payment instrument/method payment services providers should take into account not only the willingness of consumers to use them, but also the level of their satisfaction from existing payment instruments.

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#### PERSPEKTYWY ROZWOJU INNOWACYJNYCH INSTRUMENTÓW PŁATNICZYCH W POLSCE

**Streszczenie:** Gwałtowny rozwój technologii zaowocował istotnymi zmianami w obszarze płatności detalicznych na całym świecie, w tym pojawieniem się innowacyjnych instrumentów płatniczych. Ich rozwój w znacznej mierze zależy od lokalnych uwarunkowań i zwyczajów płatniczych.

Celem artykułu jest przedstawienie perspektyw rozwoju innowacyjnych instrumentów płatniczych, biorąc pod uwagę dotychczasowe zwyczaje i preferencje płatnicze Polaków. Analiza opiera się na wynikach badań empirycznych przeprowadzonych w 2013 r. W wyniku badań ustalono, że tylko niewielki odsetek konsumentów używa innowacyjnych instrumentów płatniczych (za wyjątkiem kart zbliżeniowych). Ponieważ innowacyjne instrumenty płatnicze stanowią przede wszystkim konkurencję dla gotówki, nie należy w najbliższym czasie przewidywać znaczącego spadku jej udziału w realizowanych płatnościach.

**Słowa kluczowe:** rozwój płatności detalicznych, innowacyjne instrumenty płatnicze.