ARCADA

THIS IS A SELF-ARCHIVED VERSION OF THE ORIGINAL PUBLICATION

The self-archived version is a publisher‘s pdf of the original publication. NB. The self-archived version may differ from the original in pagination, typographical details and illustrations.

To cite this, use the original publication:

Niklas Eriksson, Ates Gökhan, Minna Stenius. 2021. A qualitative study of consumer resistance to mobile payments for in-store purchases, Procedia Computer Science, 181, 634-641.

DOI: https://doi.org/10.1016/j.procs.2021.01.212

Permanent link to the self-archived copy:

All material supplied via Arcada’s self-archived publications collection in Theseus repository is protected by copyright laws. Use of all or part of any of the repository collections is permitted only for personal non-commercial, research or educational purposes in digital and print form. You must obtain permission for any other use.

JAN-MAGNUS JANSSONS PLATS 1, FIN-00550 HELSINGFORS, TEL: +358 (0)20 769 9699 FAX: +358 (0)20 769 9622 www.arcada.fi

Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 181 (2021) 634–641

Procedia Computer Science

www.elsevier.com/locate/procedia

CENTERIS - International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies 2020

A qualitative study of consumer resistance to mobile payments for in-store purchases

Niklas Eriksson*, Ates Gökhan, Minna Stenius

Arcada University of Applied Sciences, Jan-Magnus Janssonin aukio 1, 00560 Helsinki, Finland

Abstract

Consumers are increasingly adopting and using mobile payments for person to person payments, in-store purchases, in-app purchases and online commerce. Nevertheless, adoption of technological innovations like mobile payments often require effort and learning by the consumer. In this study the objective was to identify potential barriers to a wider adoption of mobile in-store payments and fulfilled by using innovation resistance literature as a lens for analyzing qualitative interview data with non-adopters of mobile payments. The empirical findings indicate that perceived security and privacy risks, along with perceived risks of reliance on a mobile phone and lack of perceived relative advantage to other payment options, are critical obstacles in the adoption process. Other potential obstacles are: fragmentation of mobile payment options, consumers' lack of knowledge on functionality, old habits, image of and potential risks relating to service providers and need of social approval.

© 2021 The Authors. Published by Elsevier B.V.
This is an open access article under the CC BY-NC-ND license (https://creativecommons.org/licenses/by-nc-nd/4.0)
Peer-review under responsibility of the scientific committee of the CENTERIS - International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies 2020

Keywords: Resistance; adoption; technology innovation; mobile payment; financial services

* Corresponding author. Tel.: +358 207 699 620
E-mail address: niklas.eriksson@arcada.fi

1877-0509 © 2021 The Authors. Published by Elsevier B.V.
This is an open access article under the CC BY-NC-ND license (https://creativecommons.org/licenses/by-nc-nd/4.0)
Peer-review under responsibility of the scientific committee of the CENTERIS - International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies 2020
10.1016/j.procs.2021.01.212

1. Introduction

Mobile payments on a mobile phone have the potential to reduce transaction costs, provide better customer experience and enhance payment security [24]. The consumer adoption of mobile payments in the Nordic region (Finland, Sweden, Norway and Denmark) is growing rapidly [18] implying an increasing use of services such as Mobile Pay, Siirto, Vipps, Swish, Pivo, Google Pay or Apple Pay for either mobile-based in-store payments, in-app purchases, eCommerce payments and/or Person to Person (P2P) payments. In 2019 58% of Nordic consumers responded that they have at some point used their mobile phone to pay for something in-store, a rise from 52% in 2018 and 43% in 2017 [18]. Nevertheless, Finnish consumers seem to slightly lag behind its Nordic counterparts regarding weekly use of mobile payments in-store, with 6% weekly users compared to Danes who top with 18%. Adoption of technological innovations like mobile payments often require effort and a learning process by the consumer. Innovations are always initially resisted, but resistance and adoption can also coexist during the life of an innovation and thus it is important to understand resistance better [1], especially in regard to new digital financial services [10, 16]. Also, the identified adopter categories (innovators, early adopters, early majority, late majority and laggards) in accordance with theories of diffusion of innovations show different levels of innovation resistance in a population [20]. Resistance towards innovations like new retail payment methods needs not to be regarded as something negative, rather it could be viewed as rational choices by consumers [14]. Earlier studies suggest several reasonable barriers to the adoption and use of mobile payments, such as complexity of payment procedures [11], a lack of widespread merchant acceptance [11, 18], perceived risks like security and privacy issues [6, 11, 12, 13, 15], lack of perceived usefulness [12, 18] and lack of consumer knowledge [18]. Further studies are, however, needed to better understand the reasons for resistance, and hence, what might stand in the way for wider adoption in commerce.

In this study the main objective is to, through qualitative interviews with consumers who have not yet adopted mobile payments, generate in-depth insights into the reasons for non-adoption despite the wide choice of such services available on the market. On the one hand, the study contributes theoretically to resistance to innovation theory in the context of technology innovation, here mobile payments. On the other, mobile service providers and merchants, who seek wider adoption of mobile payments, especially for in-store payments, benefit from the study.

The article is structured as follows. First consumer resistance to innovation literature is discussed, followed by a description of the methodology. Results are then presented and finally conclusions are drawn, along with some suggestions for further research and managerial implications.

2. Literature review

Innovations impose changes on consumers and it is normal for consumers to resist them [1]. Innovation resistance theory (IRT) explains consumer resistance to adoption according to two main dimensions, Functional barriers and Psychological barriers [16]. The Functional dimension includes three barriers, Usage, Value and Risk barriers, and they arise when a consumer expects substantial changes from adopting the innovation [16]. The Psychological resistance dimension includes two barriers, Tradition and Image barriers, and they emerge when the norms and traditions of consumers misalign with their perceptions of a service or product image [16]. Prior research suggests that these five barriers are highly relevant in the context of digital financial services [7, 8, 9, 10].

In technological innovations Usage barriers refer to how difficult an innovation is to understand and use, resembling the complexity dimension in the diffusion of innovation theory [10]. Complexity of mobile payment procedures and a lack of widespread merchant acceptance were highlighted by Mallat [11] as significant obstacles for adoption. Not knowing which stores accept mobile payments and awkwardness to use them avert consumers in the Nordics from making in-store payments [18]. Ease of use (or lack thereof) is the most important factor explaining consumers' likelihood to use mobile payments [4].

The Value barrier concept is related to the relative advantage concept in the diffusion of innovation theory and the perceived usefulness in the technology acceptance theory [10]. Consumers' performance expectancy (i.e. perceived usefulness) of mobile payments has been shown to significantly impact their adoption and intentions to recommend these services to others [12]. Perceived usefulness has also been found to substantially affect the intention to use near field communication (NFC) and quick response (QR) technology based mobile payment systems [13]. Deloitte [18] further found that the lack of perceived benefit was the most common reason for not making mobile in-store payments

among Nordic consumers. The more substantial the perceived advantage of mobile payments again is, the more likely they are adopted [4, 11].

Risk barrier is associated with uncertainty and possible non-anticipated side effects relating to innovations [16]. It is potentially the most studied subject in mobile payment research [5]. Tansakul et al. [2] recently found that perceived risk decreases the intention to use mobile payment technologies, aligning with several prior studies suggesting the same [4, 6, 11, 12, 13, 15]. Mallat [11] listed unauthorized use, transaction errors, lack of or vague transaction records and documentation, concerns on device and network reliability, and concerns on privacy as possible reasons to resist mobile payment adoption. De Kerviler et al. [6] found that privacy and financial risks had the highest mean ranking of factors prohibiting mobile in-store payments while Young et al. [15] showed that perceived performance, financial, and privacy risks reduced mobile payment acceptance intentions. Furthermore, perceived security risks were the second most important reason for not making mobile in-store payments among Nordic consumers [18].

Tradition barrier is generally linked to the extent an innovation may disrupt daily routines, and it is likely to be high if these routines are important to a consumer [8]. Most consumers have long experience with cash or credit cards, and thus taking on new payment options requires a learning effort [4]. Tradition has been found the most important barrier to adoption of mobile financial services [3]. Experience with other mobile shopping services/usages also affects adoption of in-store mobile payments [6]. Social norms and family values, when conflicting with adoption, may become a barrier for an individual [16]. Social influence overall impacts an individual's intentions to use mobile payments [12]. Mallat [11] further suggested that mobile payments are primarily suitable for low value monetary transactions.

Image barrier has to do with a negative attitude toward a service or product just because it belongs to a certain product class, industry or country of origin [16]. Laukkanen and Kiviniemi [10] suggest that it is an individual perceptual issue; the negative image of a technological innovation may arise from issues with new technology in general. Furthermore, trust in mobile payment service providers influences the consumer adoption process [4].

This section reviewed innovation resistance theory and previous research regarding consumer adoption of mobile payments. Next, we contribute to these prior studies with in-depth insights from a qualitative interview study with non-adopters. The aim was to deepen the understanding of reasons for non-adoption, and ultimately to shed light on potential obstacles that stand in the way for wider acceptance of mobile payments.

3. Methodology

3.1. Data collection

Ten participants from Finland were selected for the interviews based on their non-adoption of mobile payments, being young adults (age between 20 – 35) who have entered working life, and their willingness to participate. These young professional adults are ideal informants as they are in general heavy users of Internet and smartphones [17] and can be reasonably considered early adopters of new technology, and market movers paving way to wider adoption. The sampling can thus be described as purposive, which is typical in qualitative research [21]. The interviews were conducted by one researcher, each lasting from 30 to 45 minutes. All interviews were voice recorded and manually transcribed. A fair data saturation can be achieved with a limited number of participants if they belong to a reasonably homogenous group [21], here non-adopters of mobile payments and young adult professionals. This was evident in our analysis as the same themes began to repeat themselves.

3.2. Data analysis

Thematic analysis was conducted to interpret the results from the interviews using an iterative process and MS Word and Excel as tools to structure the data as suggested by Ose [23]. MS Word and Excel can be very efficient tools to code large amount of unstructured data, if used systematically [23]. First, we familiarized ourselves with the transcribed data documented in Word format. Then, the data was transferred into Excel and inductively coded by two researchers separately such that each quotation was analyzed and grouped according to common themes that began to emerge in the process. These themes and excerpts were then compared, discussed and reiterated by the two researchers. In total 19 item-codes were generated. When reassessing the content of each item, the researchers concluded that they

could be reasonably matched with 10 sub-themes within the five barriers of the resistance of innovation theory; Usage, Value, Risk, Tradition and Image barriers. Prior research was used to refine the 10 sub-themes according to accepted terminology. The final themes are summarized in Table 1 and presented in the next section.

4. Results

4.1. Usage barriers

The three themes identified as usage barriers were: "Merchant adoption", "Knowledge" and "Fragmentation". Respondents referred to "Merchant adoption" as lack of extensive enough acceptance by stores locally and world-wide. The limitations included perceptions of limited adoption of contactless technology in stores, especially abroad. Merchant adoption was, however, assumed to increase over time lessening the importance of this usage barrier.

"*The biggest disadvantage might be that every store might not have adopted that payment tool yet, so wide acceptance by stores both domestic and abroad is important.*" (R1)

"*I think there is a potential for it to be the widespread paying method but currently it doesn't seem so because you can't even use your credit card for contactless payments in many stores because their machines are not equipped with contactless payment technology*." (R10)

"Knowledge" was mainly referred to as respondents' general lack of knowledge regarding features of different mobile payment systems.

"*I am little bit aware of MobilePay`s functionality. For example, you can pay to your friend through text message or split money in the restaurant but I'm not so much aware of other functionality."* (R1)

"*My knowledge is limited about its functionality but as much as I see from the advertisement, you can easily slide right and pay which is convenient*." (R2)

The third theme "Fragmentation" captures the frustration with having to have many different means/tools for payment. The respondents perceived a need for a backup payment option to mobile payments (e.g. due to distrust in mobile app, limitations in adoption by merchants), complicating rather than simplifying payment. Also, multiple applications for different shopping situations were perceived troublesome.

"*This [mobile payment] makes each consumer to carry a backup payment method such as cash or credit next to mobile payment.*" (R7)

"*I would like to have only one app I can trust and that is secure to pay with.*" (R5)

4.2. Value barriers

The two themes derived and categorized under Value barriers are "Relative advantage" and "Incentives". "Relative advantage" refers to the lack of perceived benefits of mobile payments compared to other types of payments. Some respondents did not perceive any clear benefits with mobile payments over other payment options, such as using a credit card with contactless features. Some respondents stressed that service providers must communicate their value proposition better.

"*My simple credit card is also handy and easy to use; I do not see much advantage of mobile payments compared to credit card at the moment.*" (R2)

"*Service providers must be clearer about the advantages and why each person should use it*." (R4)

Some interviewees suggested incentives to prompt the use of mobile payments.

"*Some offer should be given to attract new comers*." (R4)

"*If there are cashback or bonus systems, I would use it for sure*." (R6)

4.3. Risk barriers

The two themes identified and categorized as Risk barriers were "Perceived security risks" and "Reliance on a mobile phone". Based on the number and character of comments, these appeared to be a critical concern. All respondents perceived some concerns related to security and privacy and many referred to security issues as their main concern regarding mobile payments. Trust and reliability in mobile phone, app and contactless technology, possible risks of losing money (e.g. fear of unauthorized transactions) and perceived risks of leaking and misused private information were all major concerns for the interviewees. Several respondents also regarded other payment options as more secure, especially for higher value payments.

"*For me the security is the biggest disadvantage and I do not see it [mobile phone] as a reliable tool; there might be some security gap*" (R3)

"*Since it is contactless, it is insecure; even though they say that it is secure, I still have doubt about it*." (R4)

"*Imagine your card info is stolen from your mobile and you find it out later that all your money has been stolen. Maybe technically it is not possible, but I am still worried."* (R6)

"*I prefer using normal credit card with bigger amounts because I feel it is more secure"* (R1)

"*In my opinion, there is always risk in any payment methods that are used but I think that if I use my card in shop, it feels that it is more secure because there is no danger of hacking. I am not sure how secure is the mobile payment, but I still feel that hacking information from those apps might be much easier compared to credit card"* (R5)

Reliance on a mobile phone with a limited battery life time and other technical dilemmas were also a concern. Also, unprotected mobile phones and the possibility of theft were mentioned by some as issues arising from mobile phone dependency.

"*Because it's entirely dependent on your mobile phone, it's useless if your phone is out of battery*." (R10)

"*If there is no battery or the phone is not working properly then there would be a huge problem*" (R7)

"*Some people like me do not use security function as pin code or finger print; the phone can be stolen*." (R2)

4.4. Tradition barrier

One theme "Old habits and switching costs" was identified and categorized as a Tradition barrier. Quite a few respondents mentioned old habits or being comfortable with no-change as a reason not to take on mobile payments. New technology or innovation concerns in general were also mentioned.

"*...being used to traditional ways of payment*" (R1)

"*It takes me quite a long time to adapt to new innovations; familiar things feel safer; Especially if you don't understand the new technologies...anything different or new might be too overwhelming*." (R10)

"*I try to live simpler... I adapt them to my life only after a significant amount of time.*" (R9)

Also switching costs such as the effort to install and learn new applications were mentioned as issues.

"*I wanted to try out but since I already have so many different applications; putting all the new apps and adopting them makes me feel it is too much work.*" (R5)

"*I would say that it always takes time for me to adopt new innovations. First, I must educate myself; Being used to pay with credit card is making difficult to adopt new ones."* (R7)

4.5. Image barrier

Two themes "Image of service providers" and "Need of others' approval" were identified and categorized as Image barriers. Distrust in global tech companies was mentioned by some respondents as a concern when sharing personal and financial information. The distrust originates from fears that they may use individuals' data unauthorized for e.g. commercial purposes. Trust in global tech companies' global resources and great brand recognition was, however, also mentioned. Unknown third-party vendors (other than own bank) were also mentioned as a concern regarding the handling of personal information.

"*Such as Apple Pay, people are trusting this company and brand is huge so starting from the big and trustworthy companies is logical. However, sharing all the information with these giants are not so secure since some of them are selling individual's information like Google or Facebook*." (R4)

"*I need to know how they use my shopping behavior and personal information if the mobile payment app provider is another company than my own bank."* (R8)

"*Service providers are not clear and I do not know who they are.*" (R6)

The need for social approval was also important for some respondents. Positive reviews on mobile payments, early adopters' reactions and endorsement by a reference group, such as friends and family, were needed by some before adopting new payment options.

"*The more positive reviews mobile payments receive...would make me trust the tools*." (R3)

"*For me it takes time to adopt new innovations because I want to see how first adopters react; I always want to see first that people are trusting and recommending the innovation so that I can start using it*." (R5)

"*Also, since my social environment, such as friends and family, does not use much, it does not encourage me*." (R7)

5. Discussion and conclusions

The aim of this study was to generate insights on the reasons for why some consumers resist mobile payments for in-store purchases, despite the wide choice of such services on the market. This qualitative study identified ten thematic concerns that could be reasonably matched with the five barriers of innovation resistance theory (IRT): Usage, Value, Risk, Tradition and Image. No item emerged that would fall outside these broader barrier categories. See Table 1 for a summary of possible resistance factors to a wider adoption of mobile payments for in-store purchases.

Table 1. Possible resistance factors to a wider adoption of mobile payments for in-store purchases.

Barrier in IRT	Identified themes	Items of concern
Usage barrier	Merchant adoption	• Merchant adoption of specific local payment services not extensive enough • World-wide acceptance of contactless technology
	Knowledge	• Lack of knowledge regarding functionality in mobile payment services
	Fragmentation	• Backup payment needed • Multiple applications for different purchase situations
Value barrier	Relative advantage	• Lack of perceived benefit over other payment options • Poor communication by service providers regarding value proposition
	Incentives	• Need for offers, bonus systems or similar incentives to start using
Risk barrier	Perceived security risk	• Lack of trust in mobile phone, app and contactless technology • Risk of unauthorized use of personal data • Possible monetary loss (e.g. fear of unauthorized transactions) • Other payment options are more secure, especially for higher value purchases
	Reliance on a mobile phone	• Limitations in battery life and possible technical problems • Risk of unprotected and stolen device
Tradition barrier	Old habits and switching costs	• Comfortable in no-change • Effort and learning costs
Image barrier	Image of service providers	• Concerns on what global tech companies may do with your data • Uncertainty of third-party vendors' (other than own bank) handling of personal data
	Need of others' approval	• Clear proof from others that the solution is working as it is supposed to

The findings suggest that Usage barriers relate to three themes: Merchant adoption, Knowledge and Fragmentation. Lack of wide merchant adoption of mobile payments has been extensively discussed by Mallat [11]. This concern is likely to lessen as the critical mass is achieved for specific mobile payments. On the Finnish market the banks are also

collaborating more with the world-wide solutions such as Google Pay and Apple Pay, instead of only providing own and/or vertical local bank solutions. Solutions like Google Pay rely on contactless card payment infrastructure, requiring no additional investments from the merchants, thereby lessening the need for capital expenditure in multiple payment technologies (such as QR code based, NFC-based, cloud-based), which is a concern for merchants [22]. The Finnish market, where this study was conducted, is quite fragmented when it comes to brands in mobile payments, and there is no clear market leader [19]. Not surprisingly, the respondents did point out the need for back-up payment means and having to have multiple applications for different purchase situations. Some of them also felt that they know too little about the features of mobile payments.

Furthermore, the findings suggest that Value barriers relate to two themes: Relative advantage and Incentives. Lack of perceived usefulness compared to alternatives aligns with other studies [12, 18]. In the Nordic mobile survey by Deloitte [18], the lack of perceived benefits of using a mobile phone for in-store payments was a clear reason for not making them. Incentives such as cashbacks were also mentioned as potential value drivers to newcomers of mobile payments. According to Arvidsson [4] consumers believe that mobile payments should be at least as fast, simple and inexpensive as a card payment to be attractive. The findings here indicate that the Value barrier is still a critical hurdle for adopting mobile payments. One could also argue that in regions like the Nordics where bank and credit cards are highly accepted the perceived benefit of mobile payments may be lower than in more cash dominant regions.

Perceived security risk was a major concern among the respondents. This concurs with prior research suggesting that security is always a major concern when adopting new digital financial services [4, 6, 11, 12, 13, 15]. In the present study the concerns were: Lack of trust in mobile phone, app and contactless technology in general, Risk of unauthorized personal data use, Possible monetary loss and that other payment options are more secure, especially for higher value payments. Also, reliance on a mobile phone with a limited battery life, the possibility of theft or unprotected use, was perceived as risky.

Tradition and Image barriers identified were Old habits and switching costs, Image of service providers and Need of others' approval. Being comfortable in no-change combined with learning costs impede the adoption process of mobile payment services, aligning with prior studies [3]. Likewise, concerns of what the global tech companies may do with one's personal data and uncertainty of third-party vendors' (other than own bank) handling of personal information are important issues to address. The image of the actors involved matters, concurring with Arvidsson [4] who stressed the role of the relationship between companies and consumers in the adoption process of services. The present study further suggested that the approval of others is important for adoption.

5.1. Implications, limitations and further research

This study has contributed to existing literature on innovation resistance and digital financial services by identifying ten different themes of concern to adopt mobile payments. Some of them have already been identified in prior studies, while others are new, such as fragmentation and need of others' approval. Seven out of the ten concerns were related to Functional (Usage, Value and Risk) and three to Psychological barriers (Tradition and Image) within the innovation resistance theory. This does not suggest that the psychological aspects of resistance are less important. The image of the service providers, such as the global tech companies, and how they may use personal data, despite implementation of General Data Protection Regulation (GDPR) in Europe, is a notable concern and should be understood better. Overall, perceived risks seem to be a major concern taking various forms, from risks of unauthorized use of personal data to possible loss of money. Importantly, the perceived risks, as emphasized in many prior research [15], are not the sole concern preventing a wider adoption of mobile in-store payments.

Mobile payment actors and merchants seeking to steer customers towards mobile payments could apply various tactics to lower the potential barriers for a wider consumer adoption of mobile payments in-store. Lack of knowledge and switching costs could be overcome by training the less knowledgeable consumers in-store. The relative advantages of mobile payments in-store could be communicated better. Provision of incentives as part of the retailer loyalty schemes and other shopping usage might be an option. A better customer shopping experience ought to be a primary concern for a merchant [22]. Testimonials from adopters and reference groups of mobile payments could also be used more in marketing communications. To reduce consumer perceptions of security risks Mallat [11] proposed that providers need to inform about actions to minimize risks. Also, raising awareness of risks relating to other payment options could be helpful.

This study is not without limitations. An interview study with a small sample of respondents delimits the external validity of the study. The results can, however, facilitate theory development and in the development of a more fine-tuned set of resistance factors with a larger and more representative sample. The findings may be limited to a Finnish context, and thus in other parts of the world different concerns may apply. The mobile payment market is also evolving rapidly, and while some concerns may vanish, others may emerge. It should also be noted that the respondents reported several positive aspects with mobile payments in-store, but here the focus was on analyzing the concerns.

References

[1] Ram, S. (1987) "A Model of Innovation Resistance", in Melanie Wallendorf and Paul Anderson (eds) *NA - Advances in Consumer Research* **14**: 208-212, Provo, UT: Association for Consumer Research.

[2] Tansakul, P., Halgamuge, M. N. and Syed, A. (2019) "Distinguish Significant Adoption Factors That Influence Users' Behavioral Expectation to Utilize Mobile Payment: A Survey." *Structural Equation Modeling Approaches to E-Service Adoption*. IGI Global: 148-168. Web. 28 Jan. 2020. doi:10.4018/978-1-5225-8015-7.ch009

[3] Chemingui, H. and Ben lallouna, H. (2013) "Resistance, motivations, trust and intention to use mobile financial services." *International Journal of Bank Marketing* **31 (7)**: 574-592.

[4] Arvidsson, N. (2014) "Consumer attitudes on mobile payment services – results from a proof of concept test." *International Journal of Bank Marketing* **32 (2)**: 150-170.

[5] Dahlberg, T., Guo, J. and Ondrus, J. (2015) "A critical review of mobile payment research" *Electronic Commerce Research and Applications* **14**: 265–284.

[6] de Kerviler, G., Demoulin, N. T. M. and Zidda, P. (2016) "Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers?" *Journal of Retailing and Consumer Services* **31**: 334–344.

[7] Laukkanen, T., Sinkkonen, S., Kivijärvi, M. and Laukkanen, P. (2007) "Innovation resistance among mature consumers." *Journal of Consumer Marketing* **24 (7)**: 419–427.

[8] Laukkanen, T., Sinkkonen, S. and Laukkanen, P. (2009) "Communication strategies to overcome functional and psychological resistance to Internet banking." *International Journal of Information Management* **29**: 111–118.

[9] Laukkanen, T. (2016) "Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking." *Journal of Business Research* **69**: 2432–2439.

[10] Laukkanen, T. and Kiviniemi, V. (2010) "The role of information in mobile banking resistance." *International Journal of Bank Marketing* **28 (5)**: 372-388, https://doi.org/10.1108/02652321011064890

[11] Mallat, N. (2007) "Exploring consumer adoption of mobile payments – A qualitative study." *Journal of Strategic Information Systems* **16**: 413–432.

[12] Oliveira, T., Thomas, M., Baptista, G. and Campos, F. (2016) "Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology." *Computers in Human Behavior* **61**: 404-414.

[13] Ramos de Luna, I., Liébana-Cabanillas, F., Sánchez-Fernández, J. and Muñoz-Leiva, F. (2019) "Mobile payment is not all the same: The adoption of mobile payment systems depending on the technology applied." *Technological Forecasting & Social Change* **146**: 931–944.

[14] Szmigin, I. and Foxall, G. (1998) "Three forms of innovation resistance: the case of retail payment methods." *Technovation* **18 (6/7)**: 459–468.

[15] Yang, Y., Liu, Y., Li, H. and Yu, B. (2015) "Understanding perceived risks in mobile payment acceptance." *Industrial Management & Data Systems* **115 (2)**: 253-269.

[16] Ram, S. and Seth, J. N. (1989) "Consumer Resistance to Innovations: The Marketing Problem and Its Solutions." *Journal of Consumer Marketing* **6 (2)**.

[17] Statistics Finland (2019) "One-half of Finns have shopped online in the past three months" Retrieved January 28 2020 from http://www.stat.fi/til/sutivi/2019/sutivi_2019_2019-11-07_tie_001_en.html

[18] Deloitte (2019) "Smartphone: the center of life A study on Nordic mobile consumer behavior" *Deloitte Global Mobile Consumer Survey 2019: The Nordic cut*, Retrieved January 3 2020 from https://www2.deloitte.com/content/dam/Deloitte/se/Documents/technology-media-telecommunications/Global-Mobile-Consumer-Survey-2019-Nordic-Cut.pdf

[19] Ristimäki, J. (2019) "The Nordic mobile payment game is changing" Retrieved 28 January 2020 from https://www.bearingpoint.com/en-fi/blog/the-future-of-nordic-mobile-payments/

[20] Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.), New York, Free Press.

[21] Bryman, A. (2012). *Social Research Methods* (4th ed.), New York, Oxford University Press.

[22] Hayashi, F. and Bradford, T. (2014) "Mobile payments: merchants' perspectives. Economic Review." Federal Reserve Bank of Kansas City, Kansas City, MO, 2nd quarter.

[23] Ose, O. S. (2016) "Using Excel and Word to Structure Qualitative Data" *Journal of Applied Social Science* **10 (2)**: 147-162.

[24] Hoofnagle, C. J., Urban, J. M. and Li, S. (2012) "Mobile Payments: Consumer Benefits & New Privacy Concerns." Available at SSRN: https://ssrn.com/abstract=2045580