Factors inhibiting the adoption intention of digital payment platforms

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Abstract

The aim of this study was to investigate how specific functional and psychological barriers can lead people to negatively perceive the value of mobile payment platforms, which could serve as an obstacle to their intention to adopt or continue using such platform. Unlike the plethora of studies that have examined the adoption of digital technologies, systems, and applications, in this study, we investigated the consumers' resistance to digital payment platforms and the other barriers to the consumers' adoption of such. The data were collected from Spain using a survey instrument. A total of 217 usable responses were collected and analyzed using the SmartPLS application. Our major findings suggest that the risk, traditional, and image barriers negatively influence the mobile payment platforms' perceived value while the usage barrier does not, and that there is a strong relationship between consumers' perception of the value of such platforms and consumers' intention to adopt and continue using them.

Keywords: Mobile payments, psychological barriers, functional barriers, perceived value, adoption intention

1. Introduction

Not every technology is received well by consumers, and there are several factors that could either promote or inhibit consumers' adoption of a particular technology. The widespread adoption of technologies in particular, such as digital payment systems, is paramount to their success. For this, the technology must fulfill an everyday need of consumers, must be convenient to use, must provide high value, and must not alter or challenge the established norms, values, and traditions. Therefore, identifying and removing the hurdles to the adoption of digital payment platforms will allow countries to avoid or minimize their digital services trade deficit and to compete with the other developed countries in such regard. Hence, identifying the consumer resistance factors to such technologies, which inhibit their deployment and growth, will help marketing executives and digital technology developers increase such technologies' adaptability and usage so they would become part of the mainstream market. This can be done, for example, by considering the functional barriers (usage, value, and risk) and psychological barriers (tradition and image) to such technologies' adoption.

Ondrus and Pigneur (2005) define digital payment technologies as digital solutions and digital business activities, a particular form of e-payment or wireless monetary transaction. Mobile payment, an e-payment variant, is any digital payment in which a portable device such as a smartphone is used to initiate, authorize, and confirm a commercial transaction (Kim et al., 2010). Mobile and other digital payment technologies have been incorporated in

several financial inclusion programs and have thus helped pave the way for sustainable payment mechanisms, savings, and socioeconomic development.

Unlike the comprehensive studies (Shaikh, 2016; Shaikh et al., 2018; Hepola et al., 2016; Glavee-Geo et al., 2017; Karjaluoto et al., 2019), which focused on innovation diffusion and influences and on measuring adoption cognition rather than determining the anti-adoption factors (i.e., Claudy et al., 2015) in the Western and non-Western contexts, this book chapter attempted to investigate the barriers to the consumer adoption of a homegrown digital payment platform or the consumer resistance to such platform.

Using the innovation resistance theory (Ram and Sheth, 1989), this book chapter aimed to ascertain the effects of functional and psychological barriers on the perceived value of the digital payment platform and on the consumers' intention to continue using it. The answer to the research question below was sought.

> **RQ:** How do specific functional and psychological barriers lead to the consumers' negative perception of the value of the mobile payment platform, which can inhibit their intention to adopt or continue using it?

This study's results will benefit product/service design and marketing strategies for increased adoption. For example, the contexts of the reported functional and psychological barriers must be understood to correctly interpret such barriers and to develop the necessary strategy and policy accordingly.

Here, we first discuss the theoretical background of the study (section 2), followed by the research model and hypotheses (section 3). The study method is discussed in section 4, and the findings of the study are presented in section 5. The book chapter is concluded with a discussion of the implications and limitations of the study and the future research directions (section 6).

2. Theory

2.1 Mobile Payments – A Sustainable Payment Mechanism

Portable devices such as smartphones with communication, learning, messaging, and banking applications have been observed to help boost the economic sustainability in remote populations (Pal and Herath, 2020). Moreover, a new regulatory regime such as Payment Services Directive (PSD2) and innovative digital banking and payment models have facilitated inter-industry collaborations and partnerships, thereby creating additional spaces for non-financial entities (e.g., FinTech and telecoms). These non-financial entities, which were earlier considered outside the scope of banking and payment services, now play a key role in developing and offering distinctive mobile banking and payment services with added convenience, ease of use, and other benefits.

In terms of sustainability, these developments have brought forth socioeconomic benefits in the form of various innovative services offered to the less privileged, including the unbanked consumer segment in many developing countries. Mobile payments, being an integral part of mobile financial services, have provided access to emergency payments and transfers and to formal banking and payment services and have promoted a savings culture. The European Commission has been proactive and has pioneered the promulgation of these regulations (PSD and General Data Protection Regulations), which boost the consumer confidence in the banking and payment industry across Europe and beyond, and safeguard personal consumer data and information.

2.2 Innovation Resistance Theory (IRT)

The consumer psychology suggests that consumers or end users react in different ways to different technologies and platforms. These reactions are natural and can be predicted. For example, age, gender, values, culture, and social norms influence consumer attitudes, behaviors, beliefs, and decision-making processes, and consumer decisions can favor or resist adoption .

Several models, frameworks, and theories have been developed and proposed in the last seven decades to understand and examine consumer technology adoption behavior. Among the most popular of these are the Technology Acceptance Model (Davis, 1989), the Theory of Planned Behavior (Ajzen, 1985), the Unified Theory of Acceptance and Usage of Technology (Venkatesh et al., 2003), and the Information Systems Success Model (DeLone and McLean, 1992). The Innovation Resistance Theory (IRT) was first developed by Ram (1987). Two years later, it was modified and re-introduced by Ram and Sheth (1989). In brief, IRT offers a theoretical framework for consumer resistance to technology adoption (Ram and Sheth, 1989). The resistance is measured with five barriers: usage, value, risk, tradition, and image (Laukkanen et al., 2007) divided into two major categories: functional barriers (including usage and risk) and psychological barriers (including tradition and image).

As IRT's name implies, it underscores consumer resistance behavior toward an existing or new technology or platform. This resistance to technology adoption, as argued by Hew et al. (2017), can be due to the fear that the technology may change the existing status quo and may cause the consumers to deviate from their current belief system.

Prior research has used IRT in different settings and contexts and has provided valuable findings. For example, Laukkanen et al. (2007) examined the resistance behavior of the mature and young consumers in Finland toward mobile banking. They found that for both consumer populations, the functional barrier related to value is the most potent barrier to mobile banking adoption.

2.3 Perceived Value of Mobile Payment Platforms

Many studies have examined the latent variable *perceived value* in different technology contexts. Such studies have revealed that perceived value has influenced the adoption of mobile banking (Shaikh and Karjaluoto, 2016; Kang et al., 2012), the acceptance of the mobile payment technology (Yang et al., 2015), the customers' overall satisfaction with and commitment to their bank (Karjaluoto et al., 2019), and the intention to adopt mobile commerce (Shaw and Sergueeva, 2019). Conversely, some studies have also revealed that there are several factors that drive perceived value, such as monetary costs, functional coverage, and perceived usability of mobile banking services (Kang et al., 2012), self-congruence and product novelty of mobile financial services (Karjaluoto et al., 2019), and perceived privacy concerns and performance expectancy of mobile commerce (Shaw and Sergueeva, 2019).

Zeithaml (1988) defines perceived value as the consumer's global evaluation of the utility of a product/service based on the perception of what is received (benefit) in exchange for what is given (price/cost). Kumar and Reinartz (2016) consider perceived value the aggregation of benefits that the customer is seeking, expecting, or experiencing from his or her use of a product/service, and its possible undesired consequences. Logically, when a product/service's benefits exceed the cost, the consumer satisfaction, advocacy, and loyalty will increase, which will benefit the company in terms of increased positive reviews of its product/service and a greater market share for it.

Perceived value is mainly considered a multi-dimensional construct consisting of hedonic and utilitarian values or some combination of the two. Consumers expect utilitarian or instrumental values in the form of the effectiveness and efficiency of the product/service (Karjaluoto et al., 2019) and the product/service's fulfillment of the consumer's everyday need. As such, the utilitarian or instrumental values of the product/service are analogous to its perceived usefulness. Hedonic or non-instrumental values, on the other hand, do not concern the product/service's effectiveness and efficiency or its fulfillment of the consumer's everyday need; instead, they pertain to the pleasure and fun derived from the use of a particular product/service. In a nutshell, companies should develop and sell their product/service's value proposition. If consumers do not grasp a product/service's value proposition, they will likely not perceive the product/service as having value.

3. Research Model and Hypothesis Development

As shown in Figure 1, the theoretical model that was used in this study consisted of five hypotheses: that functional barriers (usage and risk) and psychological barriers (tradition and image) prevent consumers from perceiving the value of mobile payment platforms, and this hinders consumers' intention to adopt such platforms.

Figure 1: Theoretical model

3.1 Functional Barrier to Perceived Value

Among the major functional barriers, usage and risk are considered notorious barriers hampering a new technology or platform's success. Especially concerning the usage barriers, various factors influence consumers' decision to adopt or resist a particular product/service. The fear factor with regard to the use of mobile payment services is particularly high among the older consumers or the boomers, perhaps due to their limited understanding of the new mobile payment platforms and their concern that using such innovation may change their status quo (Ram and Sheth, 1989). Therefore, the usage-related complexity of and snags in newly developed and deployed digital services or platforms can significantly jeopardize their chances of becoming mainstream services or platforms (Kaur et al., 2020). Similarly, uncertainties or the risk of losing personal information may keep the customers from adopting a technology or platform. Although it is indicated in the contemporary literature (Sadiq et al., 2021), however, that functional barriers are significant factors in the resistance to adopting or continually using any new and unfamiliar product, their antagonistic relationship with perceived value has rarely been examined.

We posit that perceived value is one of the core factors contributing to product/service adoption, and that functional barriers may jeopardize it and a respectable platform adoption rate among a demographically dispersed population. Thus, minimizing or eliminating the functional barriers, such as the usage difficulties/risks or uncertainty factors, will likely increase the platform's perceived value. Consumers may then be able to correctly articulate the platform's value proposition. We thus came up with the hypotheses shown below.

H1: Usage barriers are negatively correlated with perceived value.
H2: Risk barriers are negatively correlated with perceived value.

3.2 Psychological Barriers to Perceived Value

The psychological barriers to perceived value consist of the consumers' habits, norms, beliefs, images, and traditions. When designing and deploying an innovative product/service, the traditional norms should be accounted for and a favorable image should be maintained. Any compromise or oversight in this matter will be disastrous for the company.

The current literature (i.e., Claudy et al., 2015; Laukkanen et al., 2007) has divided psychological barriers into two major domains: tradition and image. The traditional barrier is defined as the consumers' perception that adopting or using a new product/service will challenge or change their habit and lifestyle compared to the use of the existing parallel product(s) (Mani and Chouk, 2018). On the other hand, the image barrier is defined as the degree to which a new product/service is perceived as having an unfavorable or lousy image (Ram and Sheth, 1989; Claudy et al., 2015).

An adverse association has been established between the psychological barriers and perceived value, and *relative benefits* have been considered conceptually analogous to perceived value (Anckar and D'Incau, 2002); that is, it is believed that a product/service with a better value proposition will likely gain increased adoption. According to Ram and Sheth

(1989), traditional barriers usually become stronger when consumers believe that adopting or continually using a new or innovative product will affect their value and the product should thus be resisted. Likewise, a relatively complex and risky product/service such as a mobile payment system may obtain a negative image (Hayashi, 2012), which will reduce its perceived usability, benefits, or value. Thus, we came up with the hypotheses below.

H3: Traditional barriers are negatively correlated with perceived value.
H4: Image barriers are negatively correlated with perceived value.

3.3 Effect of Perceived Value on Adoption Intention

The explanation of and logic behind perceived value bring this variable close to the other variables, such as *relative benefits* and *relative advantage*. The analogous relationships between perceived value and these other variables are perhaps due to the fact that perceived value is widely considered the trade-off between benefits and sacrifices; that is, with higher prices, there is no net perceived value (Zeithaml, 1988; Shaw and Sergueeva, 2019).

According to Mallat (2007), mobile commerce and payment's relative advantage includes key attributes such as constancy (being available at all times) and ubiquitousness (being available everywhere). Other studies have identified several other attributes of mobile payment services that have an impact on their perceived value, such as monetary attributes (low cost or even free service features) and non-monetary attributes (convenience, high performance expectancy).

Several studies have cited a direct and strong relationship between a product/service's perceived value and consumers' intention to adopt it. For example, Shaikh and Karjaluoto (2016) found a direct relationship between the perceived value of mobile banking services and their adoption by consumers. Kang et al. (2012) reported a direct relationship between the perceived value and adoption of mobile banking services. Examining the non-monetary benefits of mobile commerce, Shaw and Sergueeva (2019) found a direct relationship between its perceived value and consumers' intention to adopt it. Thus, we came up with the hypothesis below.

H5: Perceived value is directly correlated with adoption intention.

4. Study Method

4.1 Sample and Data Collection Procedure

The data source is a survey of mobile payment application customers consisting of 217 respondents from Spain. The data were collected through a consumer panel by a Spanish marketing research company using its live consumer audience in April 2021. The sample and demographic characteristics are shown in Table 1.

------Insert Table 1 here-----
Table 1: Sample/demographic characteristics

4.2 Measurement

We used measures adapted from established scales. When necessary, the items were modified to suit the mobile payment context. The constructs that were used for the functional barriers were usage and risk barriers. The items for these barriers were adapted from Laukkanen (2016). The psychological barrier constructs' items (traditional and image barriers) were also adapted from Laukkanen (2016). The four items for perceived value (including utilitarian and hedonic values) were adapted from Im et al. (2015). The adoption intention items were also adapted from Bhattacherjee (2001). The constructs and their items, descriptive statistics, and factor loadings are shown in Table 2.

----------Insert Table 2 here---------
Table 2: Items, descriptive statistics, factor loadings, reliability values, and average variance extracted

5. Findings

The obtained data were analyzed using SmartPLS 3.3.3 (Ringle et al., 2015). We first assessed the measurement model for the scales' reliability and the convergent and discriminant validity. All the factor loadings were significant at $p < 0.001$ (two-tailed) and ranged from 0.813 to 0.959 (see Table 2). We assessed the reliability using Cronbach's alpha (Nunnally, 1978) and composite reliability indices (Fornell and Larcker, 1981). Both the Cronbach's alpha and composite reliability values were above the acceptable value of 0.7 (Hair et al., 2018; Nunnally, 1978). The Cronbach's alpha values ranged from 0.81 (for the image barriers) to 0.95 (perceived value) while the composite reliability values ranged from 0.89 (for the risk barriers) to 0.96 (for the perceived barriers and adoption intention).

We assessed the convergent validity using the average variance extracted (AVE) value, where a value of 0.5 and above indicates an acceptable level (Fornell and Larcker, 1981). The AVE values in this study ranged from 0.69 to 0.89 (Table 2), which were above the cut-off value of 0.5. We assessed the discriminant validity using Fornell and Larcker's (1981) criterion and the heterotrait–monotrait ratio of correlations (HTMT) (Henseler et al., 2015). Our evaluation showed that the square root of each latent variable's AVE value is greater than the latent variable's correlation with any other construct in the model. A comparison of the square roots of the AVE values (diagonal values) and the correlations among the constructs are presented in Table 3, which shows support for discriminant validity.

----------Insert Table 3 here---------
Table 3: Discriminant validity coefficients – Fornell–Larcker criterion

As mentioned earlier, we also assessed the discriminant validity using HTMT (Henseler et al., 2015), and the obtained values are presented in Table 4. The HTMT values were below 0.85, demonstrating that discriminant validity was established between any two constructs (Hair et al., 2018; Henseler et al., 2015). The results of the assessment of the convergent and discriminant validity provide ample assurance that the measurement model was sufficiently validated such that the constructs really measure the concepts they were supposed to measure.

----------Insert Table 4 here---------

Table 4: Discriminant validity coefficients – Heterotrait–monotrait ratio (HTMT)

We hypothesized the structural relations between the functional and psychological barriers in relation to perceived value. That is, we hypothesized that the usage, risk, traditional, and image barriers are all negatively correlated with perceived value (H1, H2, H3, and H4, respectively). We proposed that the outcome of perceived value is adoption intention, such that perceived value is directly correlated with adoption intention (H5). We estimated the conceptual model (see Figure 1) using the variance-based SmartPLS analysis technique. We assessed the path coefficients through bootstrapping, and we evaluated the significance of the path coefficients. Table 5 shows the results of the path analysis.

----------Insert Table 5 here---------

Table 5: Structural model results and fit summary (n = 217)

The association between the usage barriers and perceived value is insignificant; hence, H1 is not supported (H1: $\beta = -0.09$; $p > 0.05$). The association between the risk barriers and perceived value, however, though supported (H2: $\beta = -0.11$; $p < 0.10$), can be considered weak. As for the effects of the psychological barriers on perceived value, we found support for the negative effect of the traditional barriers on perceived value (H3: $\beta = -0.12$; $p < 0.05$) and for the negative effect of the image barriers on perceived value (H4: $\beta = -0.15$; $p < 0.01$). Our analysis also shows support for the association between perceived value and adoption intention (H5: $\beta = 0.73$; $p < 0.001$). Thus, the value derived from using a service leads to the service's adoption (Kang et al., 2012; Shaikh and Karjaluoto, 2016; Shaw and Sergueeva, 2019).

6. Implications, Limitations, and Future Research Directions

Mobile payment platforms have come to be widely used by consumers due to their numerous advantages (Liébana-Cabanillas et al., 2020), such as ubiquitous connectivity, high usability, immense convenience, and ease of use. Despite these advantages, however, some barriers hinder mobile payment services and applications' adoption among a wider population segment. The present study analyzed the influence of functional and psychological barriers on the value of mobile payment platforms and their relationship with the consumers' intention to adopt such platforms.

6.1 Theoretical Implications

The study results show some interesting associations between and among the endogenous and exogenous variables. For example, unlike the functional barriers (usage and risk), the psychological barriers (tradition and image) were found to be negatively correlated with the perceived value of the mobile payment services and applications, which is in line with the earlier finding of Ram and Sheth (1989). We found that the association between the usage barriers and perceived value is insignificant. As for the association between the risk barriers and perceived value, it was found to be weak. Finally, a strong direct relationship between perceived value and adoption intention was found, as also reported earlier by Kang et al. (2012) and Shaw and Sergueeva (2019).

6.2 Managerial Implications

The theoretical results of this study confirm the need for the service sector offering innovative banking and payment services to reduce the psychological barriers (traditional and image barriers) to the consumers' intention to adopt such services by boosting their perception of the value of such services. This can be done by carefully following the local traditions and norms currently prevailing in the home country (in this study, Spain). The study results suggest that the psychological barriers are deeply rooted in the consumers' minds, behaviors, and attitudes and require equal attention from the mobile payment service operators. Consequently, the industry will do well to redefine its business and marketing strategies by making them more human-centric, which it can do by trying to understand the fundamental and psychological needs of the market they are serving.

The consumers in Spain somehow do not consider usage a functional barrier when accessing and downloading mobile applications for their everyday use. This is perhaps due to the increasing awareness of the new technologies and innovations by many people in Spain, who have developed a highly adoptive and technophilic attitude (i.e., a strong enthusiasm for new technologies). However, risk barriers are negatively influencing their perceived value of mobile payment platforms, whose use requires keen attention and much practice. While diligently following the newly promulgated GDPR and PSD2 or open banking regulations, the industry should reduce the uncertainties that are usually associated with a new innovation, and should improve their customer services. With these measures, the consumers' perception of the value of mobile banking systems will be improved, and consumers' subsequent adoption of such systems will be enhanced.

6.3 Limitations and Future Research Directions

The present study had certain limitations that need to be addressed for the future research. First, as this study analyzed the consumers' intention of adopting mobile banking systems on the basis of their perception of the value of such systems and the influence of the psychological and functional barriers, it would be appropriate to include new antecedents in

the classic models of intention to use in the future research (Liébana-Cabanillas et al., 2021). In addition, the study was conducted in a developed European country (Spain), and it would be interesting to know if the study's results also apply to developing countries or to countries with a different culture. Thus, it is proposed that cross-cultural analysis be performed in the future (Abdullah and Naved, 2021). Also, the influence of personal and sociodemographic variables on mobile payment platform users' behaviors should be analyzed (Camoiras-Rodriguez and Varela, 2020; Kalinić et al., 2019). Finally, it is proposed that new methods allowing the measurement of the actual usage risk be employed through the use of neuropsychological tools, because risk perception is associated with unconscious and automatic information-processing mechanisms that may render the self-reporting of risks unreliable (Casado-Aranda et al., 2018).

Despite several financial crises and shocks, including those that happened in 2008 and the one that the world is currently undergoing due to the pandemic and the delayed transition to normalcy, the mobile banking and payment systems have survived and even thrived across the globe. Future research may examine the real impact of the pandemic on mobile payment and other related platforms. For example, do pandemics and other related unprecedented situations act as barriers or facilitators of mobile payment platform adoption?

References:

Abdullah, & Naved, K.M. (2021). Determining mobile payment adoption: A systematic literature search and bibliometric analysis. *Cogent Business & Management, 8*(1), 1–21.

Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In J. Kuhl & J. Beckmann (Eds.), Action control: From cognition to behavior (pp. 11–39). Berlin: Springer-Verlag.

Anckar, B., & D'incau, D. (2002). Value creation in mobile commerce: Findings from a consumer survey. *Journal of Information Technology Theory and Application*, *4*(1), 43–64.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, *25*(3), 351-370.

Camoiras-Rodriguez, Z., & Varela, C. (2020). The influence of consumer personality traits on mobile shopping intention. *Spanish Journal of Marketing-ESIC, 24*(3), 331–353.

Casado-Aranda, L. A., Liébana-Cabanillas, F., & Sánchez-Fernández, J. (2018). A neuropsychological study on how consumers process risky and secure E-payments. *Journal of Interactive Marketing, 43*, 151–164.

Claudy, M. C., Garcia, R., & O'Driscoll, A. (2015). Consumer resistance to innovation—a behavioral reasoning perspective. *Journal of the Academy of Marketing Science, 43*(4), 528–544.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60–95.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research, 18*(1), 39–50.

Glavee-Geo, R., Shaikh, A. A., & Karjaluoto, H. (2017). Mobile banking services adoption in Pakistan: are there gender differences? *International Journal of Bank Marketing, 35*(7), 1090–1114.

Hair Jr, J.F., Sarstedt, M., Ringle, C.M. and Gudergan, S.P. (2018). *Advanced Issues in Partial Least Squares Structural Equation Modelling*, SAGE Publications.

Hayashi, F. (2012). *Mobile payments: What's in it for consumers?* Economic Review-Federal Reserve Bank of Kansas City, 35.

Henseler, J., Ringle, C.M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Hepola, J., Karjaluoto, H., & Shaikh, A. A. (2016). Consumer engagement and behavioral intention toward continuous use of innovative mobile banking applications: a case study of Finland. In ICIS 2016: Proceedings the Thirty Seventh International Conference on Information Systems. Digital Innovation at the Crossroads, ISBN 978-0-9966831-3-5. Association for Information Systems (AIS).

Hew, J.J., Leong, L.Y., Tan, G.W.H., Ooi, K.B., & Lee, V.H. (2017). The age of mobile social commerce: an Artificial Neural Network analysis on its resistances. *Technological Forecasting and Social Change*, *144*, 311–324.

Im, S., Bhat, S., & Lee, Y. (2015). Consumer perceptions of product creativity, coolness, value and attitude. *Journal of Business Research, 68*, 166–172.

Kalinić, Z., Liébana-Cabanillas, F. J., Muñoz-Leiva, F., & Marinković, V. (2019). The moderating impact of gender on the acceptance of peer-to-peer mobile payment systems. *International Journal of Bank Marketing, 38* (1), 138–158.

Kang, H., Lee, M. J., & Lee, J. K. (2012). Are you still with us? A study of the post-adoption determinants of sustained use of mobile-banking services. *Journal of Organizational Computing and Electronic Commerce, 22*(2), 132–159.

Karjaluoto, H., Shaikh, A. A., Saarijärvi, H., & Saraniemi, S. (2019). How perceived value drives the use of mobile financial services apps. *International Journal of Information Management, 47*, 252–261.

Kaur, P., Dhir, A., Singh, N., Sahu, G., & Almotairi, M. (2020). An innovation resistance theory perspective on mobile payment solutions. *Journal of Retailing and Consumer Services, 55*, 1–11.

Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior, 26*(3), 310–322.

Kumar, V., & Reinartz, W. (2016). Creating enduring customer value. *Journal of Marketing, 80*(6), 36–68.

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*(7), 2432–2439.

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

Liébana-Cabanillas, F., García-Maroto, I., Muñoz-Leiva, F., & Ramos-de-Luna, I. (2020). Mobile payment adoption in the age of digital transformation: The case of Apple Pay. *Sustainability, 12*(13), 2–15.

Liébana-Cabanillas, F., Molinillo, S., & Japutra, A. (2021). Exploring the determinants of intention to use P2P mobile payment in Spain. *Information Systems Management, 38*(2), 165–180.

Mallat, N. (2007). Exploring consumer adoption of mobile payments–A qualitative study. *The Journal of Strategic Information Systems, 16*(4), 413–432.

Mani, Z., & Chouk, I. (2018). Consumer resistance to innovation in services: challenges and barriers in the internet of things era. *Journal of Product Innovation Management, 35*(5), 780–807.

Nunnally, J. C. (1978), *Psychometric Theory (2nd ed.)*, New York: McGraw-Hill.

Ondrus, J., & Pigneur, Y. (2005, January). A disruption analysis in the mobile payment market. In System Sciences, 2005. HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on (pp. 84c-84c). IEEE.

Pal, A., & Herath, T. (2020). The role of mobile payment technology in sustainable and human-centric development: evidence from the post-demonetization period in India. *Information Systems Frontiers*, 1–25.

Ram, S. (1987). A model of innovation resistance. *Advances in Consumer Research, 14* (1), 208–12.

Ram, S., & Sheth, J.N., 1989. Consumer resistance to innovations: the marketing problem and its solutions. *Journal of Consumer Marketing, 6* (2), 5–14.

Ringle, C.M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. Boenningstedt: SmartPLS GmbH, http://www.smartpls.com. Accessed 11.4.2021.

Sadiq, M., Adil, M., & Paul, J. (2021). An innovation resistance theory perspective on purchase of eco-friendly cosmetics. *Journal of Retailing and Consumer Services, 59*, 1–12.

Shaikh, A.A., 2016. Examining Consumers' Intention, Behavior, and Beliefs in Mobile Banking Adoption and Continuous Usage. University of Jyväskylä (Jyväskylä studies in business and economics 172), https://jyx.jyu.fi/dspace/handle/123456789/52389.

Shaikh, A. A., & Karjaluoto, H. (2016, January). Mobile banking services continuous usage-case study of Finland. In System Sciences (HICSS), 2016 49th Hawaii International Conference on (pp. 1497-1506). IEEE.

Shaikh, A. A., Glavee-Geo, R., & Karjaluoto, H. (2018). How relevant are risk perceptions, effort, and performance expectancy in mobile banking adoption? *International Journal of E-Business Research (IJEBR), 14*(2), 39–60.

Shaw, N., & Sergueeva, K. (2019). The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value. *International Journal of Information Management, 45*, 44–55.

Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D. (2003) User acceptance of information technology: toward a unified view. *MIS Quarterly, 27*, 425–478.

Yang, Y., Liu, Y., Li, H., & Yu, B. (2015). Understanding perceived risks in mobile payment acceptance. *Industrial Management & Data Systems, 115*(2), 253–269.

Zeithaml, V.A., (1988). Consumer Perceptions of Price, Quality and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing, 52*(3), 2–22.

List of Tables and Figures

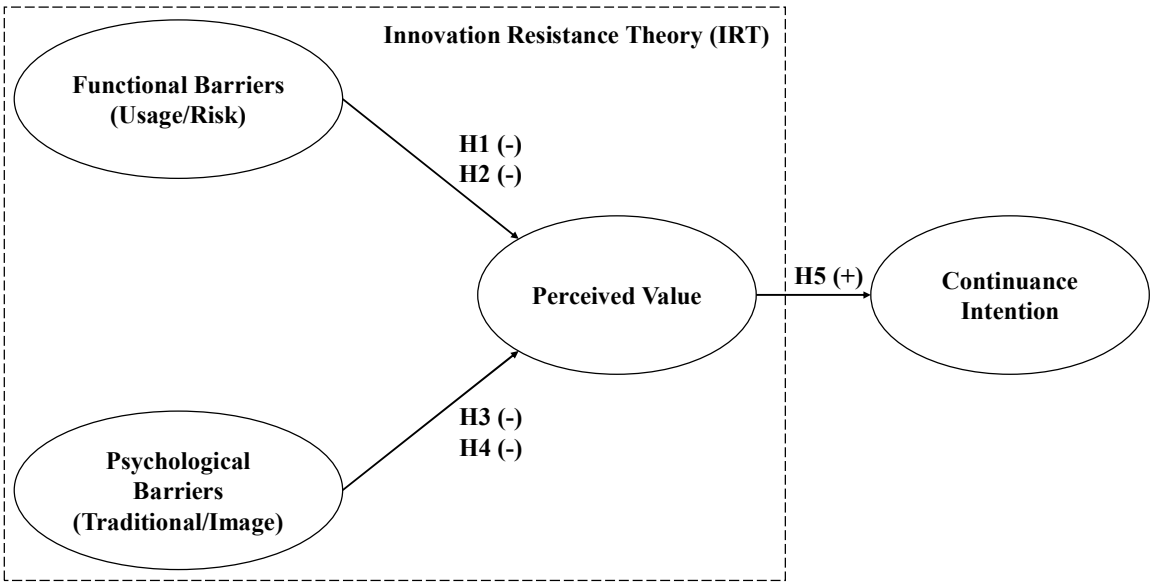

Figure 1: Theoretical Model

Table 1: Sample/demographic characteristics

Demographic characteristics	Frequency	Percent
Gender		
Male	111	51.15
Female	106	48.85
Age		
18 - 34	154	70.97
35 - 54	49	22.58
55 +	14	6.45
Monthly income		
No income	23	10.60
Less than € 1100	88	40.55
From €1100 to € 1800	69	31.80
From € 1800 to € 2700	28	12.90
More than € 2700	9	4.15
Level of education		
Junior High School	2	0.92
Senior High School	11	5.07
Polytechnic	3	1.38
Bachelor	164	75.58
Master	32	14.75
Ph.D.	5	2.30
Occupation		
Student	19	8.76
Unemployed	55	25.35
Employed	116	53.46
Self-employed	20	9.22
Retired	7	3.23
Knowledge of mobile payment applications		
1 (very low)	11	5.07
2	13	5.99
3	25	11.52
4	32	14.75
5	56	25.81
6	68	31.34
7 (very high)	12	5.53

Table 2: Items, descriptive statistics, factor loadings, reliability values and average variance extracted (n=217)

Items	M	S D	K	S	Loadings#	α	CR	AVE
UB1: MP app is convenient because the cell phone is usually with me. (Reversed)	4.02	2.05	-1.30	-0.02	0.865***	0.87	0.90	0.69
UB2: MP app is convenient because I can use it anytime, anywhere. (Reversed)	3.74	1.97	-1.18	0.14	0.877***			
UB3: MP app is convenient because I can use it in any situation. (Reversed)	4.19	2.05	-1.25	-0.10	0.813***			
UB4: MP app is convenient because it is not complex. (Reversed)	3.79	1.87	-1.09	0.07	0.877***			
RB1: I fear, while I am using MP app, I might incorrectly information of the bill/invoice	3.28	1.92	-0.96	0.27	0.867***	0.84	0.89	0.75
RB2: I fear that I may pay more money while I am using the MP app.	3.34	1.80	-0.68	0.34	0.916***			
RB3: I fear that I may pay the wrong vendor while I am using the MP app.	3.53	1.86	-0.95	0.26	0.903***			
TB1: I find it difficult to contact customer service at the MP app.	3.89	1.99	-1.21	0.12	0.819***	0.88	0.92	0.73
TB2: I find it difficult to get some information about MP app use.	3.64	1.91	-1.08	0.22	0.900***			
TB3: I find it difficult to get my problem resolved by a MP app service provider.	4.05	1.99	-1.19	0.03	0.874***			
TB4: I find that the customer service offered by the MP app is not very pleasant.	3.71	1.89	-1.07	0.19	0.833***			
IB1: In my opinion, MP app is often too complicated to be useful.	4.11	1.67	-0.59	-0.19	0.907***	0.81	0.91	0.84
IB2: I have such an image that a MP app is difficult to use.	3.91	1.65	-0.51	0.02	0.929***			
The MP app is…								
PeU1: Ineffective –,–,–,–,–,–,– Effective	4.38	1.33	0.46	-0.24	0.918***	0.95	0.96	0.87
PeU2: Not helpful –,–,–,–,–,–,– Helpful	4.23	1.27	0.66	-0.05	0.946***			
PeH1: Not fun –,–,–,–,–,–,– Fun	4.31	1.28	0.35	-0.03	0.934***			
PeH2: Dull –,–,–,–,–,–,– Exciting	4.32	1.28	0.56	-0.03	0.935***			
CI1: I intend to continue using MP app rather than discontinue its use.	3.96	1.26	0.33	0.09	0.941***	0.94	0.96	0.89
CI2: I intend to continue using MP app than use any alternative payment app.	4.04	1.26	0.56	0.13	0.959***			
CI3: If I could, I would like to discontinue my use of MP app. (Reversed)	4.03	1.26	0.58	0.22	0.933***			

*Note: # Based on 5000 bootstrapping samples. Significant at *** p<0.001 (two-tailed)*; *M Mean, SD Standard deviation, K Kurtosis,S Skewness, αCronbach's alpha, CR Composite reliability, AVE Average variance extracted; MP-Mobile payment.*

Table 3: Discriminant validity coefficients - Fornell-Larcker Criterion

	1	**2**	**3**	**4**	**5**	**6**
Continuance intention (1)	**0.945**					
Image barriers (2)	-0.139	**0.918**				
Perceived value (3)	0.734	-0.166	**0.933**			
Risk barriers (4)	-0.189	0.054	-0.137	**0.864**		
Traditional barriers (5)	-0.159	0.069	-0.155	0.115	**0.857**	
Usage barriers (6)	-0.048	0.043	-0.114	0.006	0.096	**0.834**

Bold values on the diagonal are square root of the AVEs.

Table 4: Discriminant validity coefficients - Heterotrait-Monotrait Ratio (HTMT)

	1	**2**	**3**	**4**	**5**	**6**
Continuance intention (1)						
Image barriers (2)	0.158					
Perceived value (3)	0.776	0.188				
Risk barriers (4)	0.209	0.091	0.144			
Traditional barriers (5)	0.165	0.095	0.149	0.139		
Usage barriers (6)	0.045	0.043	0.094	0.057	0.098	

Table 5: Structural model result and fit summary (n=217)

Hypothesis	**Effects**	**β**	**SD**	**t-value#**	**p-value**	**Result**
H1(-)	Usage barriers → Perceived value	-0.09	0.10	0.94	0.348	Not Supported
H2(-)	Risk barriers → Perceived value	-0.11 §	0.07	1.51	0.090	Supported
H3(-)	Traditional barriers → Perceived value	-0.12*	0.06	1.99	0.047	Supported
H4(-)	Image barriers → Perceived value	-0.15**	0.05	2.72	0.007	Supported
H5(+)	Perceived value → Continuance intention	0.73***	0.07	10.01	0.000	Supported
		R^2	**Q^2**	**Fit Summary**		
Continuance Intention		0.539	0.436	SRMR		0.051
Perceived value		0.070	0.053	d_ULS		0.544
				d_G		0.394
Note: # Based on 5000 bootstrapping samples				Chi-Square		542.765
Significant at *** *p<0.001, ** p<0.01, * p<0.05 (two-tailed), §p<0.10 (one-tailed)*				NFI		0.831