



## Point of adoption and beyond. Initial trust and mobile-payment continuation intention

Shalini Talwar<sup>a</sup>, Amandeep Dhir<sup>b,c,d,\*</sup>, Ashraf Khalil<sup>e</sup>, Geetha Mohan<sup>f</sup>, A.K.M. Najmul Islam<sup>g</sup>

<sup>a</sup> K. J. Somaiya Institute of Management, Mumbai, India

<sup>b</sup> School of Business and Management, LUT University, Lappeenranta, Finland

<sup>c</sup> Turku School of Economics, University of Turku, Finland

<sup>d</sup> Optentia Research Focus Area, North-West University, Vanderbijlpark, South Africa

<sup>e</sup> Department of Computer Science and Information Technology, Abu Dhabi University, Abu Dhabi, United Arab Emirates

<sup>f</sup> Indian Institute of Management, Kozhikode, India

<sup>g</sup> Department of Future Technologies, University of Turku, Finland

### ARTICLE INFO

#### Keywords:

Expectation confirmation theory (ECT)  
IT continuance model  
Information systems success (ISS) model  
Transaction cost economics (TCE) theory  
Mobile payment  
Post-adoption factors

### ABSTRACT

Initial trust represents the trust that develops upon first use of a product. It is built on the basis of the net effect of factors that stimulate as well as inhibit it. Future transactions require less consumer effort after initial-trust formation. Despite being recognized as an important factor affecting the adoption of innovations, initial trust has been not been greatly explored by prior scholars. The present study remedies this gap by invoking the information systems success (ISS) model, transaction cost economics (TCE) theory, and the IT continuance model to propose a two-step framework that includes the antecedents of a pre-adoption factor, such as initial trust, and post-adoption factors, such as confirmation, perceived usefulness, satisfaction, and continuation intention toward mobile-based payments. Cross-sectional data of 954 first-time mobile-wallet users are analyzed to test the framework. The study findings suggest that information and service quality positively influence initial trust, which, in turn, has a positive association with confirmation and perceived usefulness. Results also reveal a positive relationship between perceived usefulness and continuation intention. These results pave the way for making useful recommendations for future researchers. The study also discusses various inferences that can improve managerial efficacy in promoting the use of mobile-based payment methods.

### 1. Introduction

Mobile-payment methods use wireless networks (such as 4G) and high-performance mobile-operating systems (such as iOS) to undertake financial transactions (Acker and Murthy, 2018). There are a variety of mobile-payment options, like mobile applications for online shopping, mobile payments at the point of sale, and special mobile-payment methods such as mobile wallets (Clement, 2019). Of all these methods, mobile wallets have notably transformed the way people handle their financial transactions (Naidu, 2018). Some of the popular mobile wallets include PayPal, Google Pay, and Apple Pay. The advantages of mobile wallets for consumers, as with other m-payment solutions, include ease and convenience (Acker and Murthy, 2018), and the ability to perform a transaction without limits of location or time (Qasim and Abu-Shanab, 2016).

Despite offering convenience and advantages to consumers, the adoption and use of mobile-based payment methods, including mobile wallets, has been slow in both developed and emerging countries (Kongaut and Lis, 2017). The unanticipated low diffusion of mobile payments, despite increased penetration of enabling technologies, calls for deeper research into consumer behavior impeding the adoption and use of these methods.

The extant literature has revealed that trust, or its lack thereof, is a major reason for non-adoption of online payments (Gao and Waechter, 2017; Liébana-Cabanillas et al., 2015). Notably, in prior empirical investigations of mobile payments, initial trust has been referred to as one of the reasons for uncertainty and has also been considered to cause resistance to payment modes through mobile apps (Hoek, 2017). It is interesting to note here that though prior literature has described two types of trust, namely continuous and initial trust (Siau and Shen, 2003),

\* Corresponding author. School of Business and Management, LUT University, Lappeenranta, Finland.

E-mail addresses: [shalini.t@somaiya.edu](mailto:shalini.t@somaiya.edu) (S. Talwar), [amandeep.dhir@lut.fi](mailto:amandeep.dhir@lut.fi) (A. Dhir), [ashraf.khalil@adu.ac.ae](mailto:ashraf.khalil@adu.ac.ae) (A. Khalil), [mgeetha@iimk.ac.in](mailto:mgeetha@iimk.ac.in) (G. Mohan), [najmul.islam@utu.fi](mailto:najmul.islam@utu.fi) (A.K.M.N. Islam).

<https://doi.org/10.1016/j.jretconser.2020.102086>

Received 26 October 2019; Received in revised form 13 February 2020; Accepted 29 February 2020

Available online 13 March 2020

0969-6989/© 2020 The Authors.

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

only the continuous form of trust, which goes beyond the initial adoption of the product, has been well researched for mobile-based payments (Slade et al., 2015). In comparison, initial trust, which represents users' trust at the first encounter (Yang, 2016; Zhou, 2014), has not been evaluated deeply enough to yield robust insights.

Since initial trust represents the inclination of users to take a risk to some extent (Kim and Prabhakar, 2004), a deeper investigation should illuminate users' pre-adoption decision-making better. Supporting the importance of initial-trust formation in consumer choice behavior, some prior studies have examined and confirmed its impact on the adoption decision related to new technological offerings (Ogonowski et al., 2014). In fact, initial trust can be considered a key pre-adoption variable since it acts as a pull factor in initial usage (Yang, 2016).

We argue here that initial trust is crucial for initial acceptance and continued usage of mobile-based payments because these online transaction methods represent perceived high-risk options and initial trust may actually be necessary for pulling consumers toward them. Thus, the study proposes to investigate initial trust at the point of first adoption by taking mobile wallets as representative of mobile-based payment methods. We propose a two-step model based on antecedents of initial trust drawn from the information systems success (ISS) model (DeLone and McLean, 2002) and the transaction cost economics (TCE) theory (Coase, 1937) and its consequences drawn from the information technology (IT) continuance model (Bhattacharjee, 2001). The proposed model is evaluated by analyzing the extensive data of 954 first-time mobile-wallet users from India.

To contextualize our study's contribution, we attempt to build on the propositions of two prior studies, Gao and Waechter (2017) and Bhattacharjee (2001), which we identified as our conversant articles. Focusing on the pre-adoption stage, the first study theorizes the antecedents and effects of initial trust on the intention to use mobile-based payment systems. The second study focuses on post-adoption continuation intention concerning products and services. The novelty of our investigation is that, first, it brings together pre- and post-adoption aspects dealt with separately by our conversant studies to offer a more complete insight into consumer behavior related to mobile-based payment usage; second, it modifies the post-adoption model proposed by Bhattacharjee (2001) to include *dissatisfaction* as an antecedent of continuation intention, instead of the more frequently used measure, *satisfaction*. We have chosen dissatisfaction to gain a better insight into the discontinuation of mobile-based payment methods after adoption. Notably, it has been argued that the sources of satisfaction are different from those of dissatisfaction (Najmul Islam, 2014), and we anticipate our findings to underscore the differences further.

## 2. Background literature and theories

### 2.1. Initial trust

Research has noted differences between the two forms of trust, namely, initial and continuous (Gao and Waechter, 2017), but very few studies have delved into the effect of initial trust on potential users of mobile-based payments (Lin et al., 2014). Initial trust presumes that users and service providers are yet to have any reliable information and bond before preliminary encounter (Li et al., 2014).

Though initial trust as a concept has been discussed for quite some time (Gefen et al., 2003; Kim et al., 2009), related studies have begun to appear only recently. These studies focused largely on e-commerce (Stouthuysen et al., 2018), wearable commerce (Gu et al., 2016), and mobile commerce and banking (Silic and Ruf, 2018). Furthermore, the literature on initial trust has discussed both its antecedents and outcomes. For instance, some studies on initial trust discuss the influence of different cues, such as central cues (e.g., information quality, computer monitoring) and peripheral cues (e.g., structural assurance, functional consistency) on initial-trust formation (Silic and Ruf, 2018; Yang, 2016). Yang (2016) argued that central cues influence initial trust, and this is

transferable from web-based shopping experiences to the mobile-based shopping experiences. Prior literature has suggested that factors like security perception, the reputation of the company, the usability of the site, and the support of government also have an association with initial trust (Susanto et al., 2013). Furthermore, social presence and trust propensity (Ogonowski et al., 2014) influence initial trust positively, whereas risk influences initial trust negatively. Initial trust, in turn, influences adoption behavior through intention (Oliveira et al., 2014). Silic and Ruf (2018) discussed the importance of central and peripheral cues and satisfaction in initial-trust formation and usage intention in m-commerce. They also underscored how the quality of service has a high impact on initial trust. Zhang et al. (2018) revealed the impact of brand trust on initial trust in online banking and e-commerce. In summary, initial trust is essential in any online transaction (Yang, 2016). As is evident from the literature discussed, initial trust has remained underexplored in the area of mobile-based payments. Prior studies examining the role of initial trust in the area are presented in Table 1.

Given its importance in online transactions, it would be interesting to inspect the role of initial trust in mobile-wallet adoption, an area that has remained underexplored to date. Therefore, the present study examines the formation of initial trust at preliminary encounter, measuring initial trust using Gefen et al. (2003) summarization of prior studies that considered trust to have three distinct sets of beliefs, namely, perceived integrity, benevolence, and ability. Perceived integrity conveys the belief that the service provider adheres to consistent policies and provides reliable services; perceived benevolence conveys the thought that the service provider has the best interests of users in mind, while perceived ability conveys the perception that the service provider has the skills to render excellent service.

### 2.2. Pre-adoption factors: the ISS model and TCE theory

Consumers always face options that bring benefits along with associated risks or unknown factors, following which they have to make choices by weighing the positive and negative factors. Lu et al (2011) underscored this dilemma by discussing the role of both perceived risk and perceived benefits that consumers need to evaluate while taking their product-use decision. Similarly, Ryu (2018) argued that perceived benefits influence Fintech (innovations in the financial and technology crossover space) continuation intention positively and perceived risks influence the same negatively. Potential users of mobile wallets can also be expected to form their perceptions by weighing various benefits offered by mobile-based payment methods, such as convenience, ubiquity, and performance (Morosan and DeFranco, 2016), with risks, such as financial, privacy and psychological (Yang et al., 2015). Prior studies have also argued that while evaluating innovations like mobile payments, consumers look at both positive and negative dimensions (Fazio et al., 2015). Similarly, initial trust formation can also be expected to be influenced by both positive and negative perceptions that potential users have about mobile-based payments. Agreeing with this argument, the present study draws the antecedents of initial trust from factors that are likely to stimulate it as well from the factors that are likely to inhibit it, resulting in initial-trust formation as a net effect of the two.

#### 2.2.1. Stimulators of initial trust: the ISS model

Although no theories have been developed exclusively on the antecedents of initial trust in mobile-payment methods, there are some precedents in the literature to help identify related risks and benefits. Gao and Waechter (2017) used the ISS model (DeLone and McLean, 2002), which has three quality dimensions—perceived information quality, system quality, and service quality—for identifying the perceived benefits of mobile-based payments. Zhou (2011a) also used system and information quality as antecedents of initial trust in mobile banking. Many other prior studies have invoked the benefits dimensions of the ISS model for mobile services, health infomediaries, and online shopping (e.g., Gao and Bai, 2014).

**Table 1**  
Prior literature on initial trust and mobile-based payments.

Author(s)	Country	Sample	Theory	Findings of the study
Gao and Waechter (2017)	Australia	851 potential m-payment adopters	The valence framework, ISS model, TCE model	Perceived information, system and service quality correlated positively with initial trust formation. In comparison, perceived uncertainty correlated negatively with initial trust, which positively influenced perceived benefit and convenience. Together, all three variables predicted usage intention. Furthermore, convenience correlated positively with benefit.
Zhou (2014)	China	229 first-time users of mobile payment	Theory of planned behavior	Self-perception-based variables such as ubiquitous connection and effort expectancy, as well as transference-based variables such as structural assurance and trust in online payment correlated with initial trust, which in turn influenced performance expectancy and usage intention.
Lu et al. (2011)	China	961 users of AliPay internet payment	Trust transfer theory, The valence framework	The customer's trust formed in internet payment services influenced initial trust in mobile-payment services. The findings also revealed the direct and indirect influence of trust and determinants of positive and negative valence on behavioral intention.
Zhou (2011a)	China	210 first-time mobile banking users	Theory of reasoned action	Structural assurance and information quality correlated with initial trust. In comparison, information and system quality influenced perceived usefulness, which was also influenced by initial trust. Furthermore, initial trust and perceived usefulness predicted the intention to use mobile banking.
Zhou (2011b)	China	277 first time mobile-payment users	–	The influence of perceived security, ubiquity, and ease of use on initial trust, which in turn correlated with perceived usefulness and intention to use. Perceived cost was also found to be a driver of usage intention toward mobile payments.
Kim et al. (2009)	Korea	192 cell phone users not registered for mobile banking	Theory of innovation	Relative benefits, propensity to trust, and structural assurances influenced initial trust formation in mobile banking.

In accordance with existing studies, the present study also utilizes the ISS model to propose the stimulators of initial trust. However, only information and service quality are used as antecedents of initial trust. System quality is not employed on the basis of a review of the literature, opinions of an expert panel, and the results of a pilot study that confirmed, in the case of financially literate mobile-phone users, that peripheral cues like usability may not influence trust formation as compared to primary cues like information and service quality (Silic and Ruf, 2018).

### 2.2.2. Inhibitors of initial trust: TCE theory

There is also no consensus on the application of any theory to measure the perceived risk that influences initial-trust formation. As mentioned above, initial trust in mobile-based payments is itself an underexplored concept. However, the transaction-related nature of mobile-based payments helped us in drawing on TCE theory (Coase, 1937) to identify the inhibitors of initial trust. The key postulate of TCE is that users prefer to conduct their transactions such that cost is minimized. Some of the key determinants of transaction costs have been named as frequency, asset specificity, and uncertainty (Williamson, 1996). Of these, uncertainty and asset specificity have been studied more frequently, while prior studies invoking TCE in the online context have not evaluated the third aspect, namely, transaction frequency (e.g., Gao and Waechter, 2017). As postulated by TCE, uncertainty represents the risk arising on account of unanticipated outcomes and the asymmetry of available information. Asset specificity refers to investments made from the long-term perspective to support the chosen mode of transaction. It can represent physical, monetary, informational, or relationship-based asset investment. High asset specificity implies higher switching costs, thereby reducing the flexibility to move from one method to another. It is clear that uncertainty and asset specificity will act as negative cues in consumer choice decisions.

Since mobile-based payments also represent transactions, we have invoked TCE to theorize the inhibitors of initial trust. As we are investigating pre-adoption behavior, transaction frequency is not relevant; only uncertainty and asset specificity have been chosen as antecedents of initial trust. This is also in consonance with the arguments offered by Gao and Waechter (2017) and Ketokivi and Mahoney (2017). Since uncertainty and asset specificity have unfavorable effects on intention (Kim and Li, 2009), we anticipate that first-time users of mobile wallets might have lower trust if they perceive that the uncertainty associated with such methods is high. Similarly, if first-time users feel that they

have to commit time and effort to learn the usage and complete the procedural formalities, they might have lower initial trust.

In summary, the present study has identified information and service quality as stimulators of initial trust and asset specificity and uncertainty as inhibitors of initial trust by referring to the propositions of the ISS model and TCE theory, respectively.

### 2.3. Post-adoption factors: expectation confirmation theory and the IT continuance model

Bhattacharjee (2001) proposed the IT continuance model by adapting expectation confirmation theory (ECT) (Oliver, 1980, 1993) to explore users' intention to continue using IS services and products. The proposed model is also called the post-acceptance model.

The present ECT is the modified version proposed by Kristensen et al. (1999), though initially the theory was called the expectancy-disconfirmation theory (Oliver, 1980). ECT proposes that satisfaction is the chief influencer of the intention of users to continue usage. The theory further posits that satisfaction itself is an outcome of both pre-purchase expectations as well as post-purchase perceptions of deviation from pre-purchase expectations. Positive pre-purchase expectations may lead consumers to use a given product. After adoption, consumers make a cognitive assessment of the expected and perceived performance (this represents users' perception of the actual performance). A comparison of perceived performance with expectation leads to confirmation. If the product falls short of expectations, it leads to negative confirmation. Conversely, if it exceeds expectations, it leads to positive confirmation (Churchill and Surprenant, 1982), which increases satisfaction, thereby enhancing repurchase intention (Bhattacharjee and Lin, 2015; Mäntymäki and Najmul Islam, 2014). On the other hand, negative confirmation would adversely affect repurchase intention (Najmul Islam et al., 2017).

The IT continuance model focuses on post-adoption cognitive beliefs that can influence continuation intention (Bhattacharjee, 2001). It does not include two components of ECT, namely, pre-purchase expectation and perceived performance. However, the model incorporates perceived usefulness (representing post-adoption expectation), which is hypothesized as a consequence of confirmation (embodiment of prior expectations). The model further posits perceived usefulness as the antecedent of satisfaction and continuation intention. It has been used by researchers to examine the behavior of users in a social virtual world (Mäntymäki and Najmul Islam, 2014) and smartphone banking (Susanto

et al., 2016).

The IT continuance model was chosen for the current study to model the post-initial adoption behavior of new users of mobile wallets since it is well accepted in the extant literature as a post-adoption framework. The model helps us in examining the effect of pre-adoption factors, initial trust, and post-adoption behavior because users' perception of confirmation and perceived usefulness in this model subsumes the effect of pre-adoption expectations of the ECT model (Najmul Isalm et al., 2017). Furthermore, the model is suitable for our study because it includes perceived usefulness, which reflects the utilitarian aspects that have been argued in the past to be key considerations for initial adoption as well as the continued usage of the IS products.

### 3. Hypothesis development and research model

The present investigation utilizes the theoretical propositions of the ISS model, TCE, and the IT continuance model to formulate a two-step framework to investigate the antecedents and outcomes of initial trust (Fig. 1). Initial trust plays a pivotal role in our model. In its first part, perceived benefits and risks of mobile-based payments are hypothesized as its antecedents, and initial trust itself is measured as a second-order construct, using perceived benevolence, ability, and integrity. The antecedents of initial trust utilized in the model are information and service quality (stimulators) and perceived asset specificity and uncertainty (inhibitors). Notably, system quality has not been employed as one of the stimulators of initial trust, despite being a part of the original ISS model, on the basis of prior literature, the opinions of a panel, and a pilot study. Thus, the first step captures the factors that enable and/or reduce initial trust formation, such that the net effect of the two would either increase initial trust or decrease it.

In the second part of the model, initial trust represents the point of adoption. In this context, it embodies the positive expectations that initial adopters have about a mobile-based payment that caused them to use it for the first time. By positing initial trust to represent prior expectations, we borrow the pre-adoption aspect of ECT (Oliver, 1980, 1993), and this provides us the basis for utilizing the IT continuance model to hypothesize post-initial adoption behavior. The use of initial

trust to represent pre-adoption expectation is based on the fact that both comprise what non-users believe they will get if they proceeded with initial adoption.

Moving from pre-adoption to the initial post-adoption stage, we use initial trust (representing expectation in the original ECT) to serve as a link between the pre-adoption aspect of ECT and the post-adoption theory of IT continuance. By positing the association of initial trust with confirmation, perceived usefulness, and satisfaction, we agree with Bhattacharjee (2001), who argued that the effect of any pre-adoption factor is captured in post-adoption variables, namely, confirmation and perceived usefulness. Furthermore, linking initial trust with perceived usefulness is also in harmony with the IT continuance model since it postulates perceived usefulness as post-consumption expectation. Thus, we posit that initial trust impacts confirmation, consumers' assessment of perceived usefulness, and satisfaction. These three constructs constitute the IT continuance model along with continuation intention. Based on our review of the literature and subsequent discussions with experts, we substituted satisfaction with dissatisfaction in the post-adoption model. This was done because we wanted to capture the adverse impact of issues related to service or other operational issues regarding continuation intention. The operational description of the constructs constituting the proposed framework is presented in Table 2.

#### 3.1. Perceived information quality and initial trust

Information quality reflects mobile quality aspects, such as accuracy, clarity, relevance, newness, sufficiency, and consistency (Ramayah et al., 2017). From the viewpoint of the initial trust lifecycle, information quality helps at the information assimilation stage, leading to initial trust (Nicolaou and McKnight, 2006). In the online context as well, information quality is an important factor for trust formation (Yi et al., 2013). It also significantly affects initial trust in mobile-based shopping (Yang, 2016). The favorable formation of initial trust is related to higher information-quality evaluation. In the present context, also, it is likely that the availability of relevant and sufficient information would act as a standard for consumers to form views about the trustworthiness of mobile-based payments. Thus, we believe that information quality will

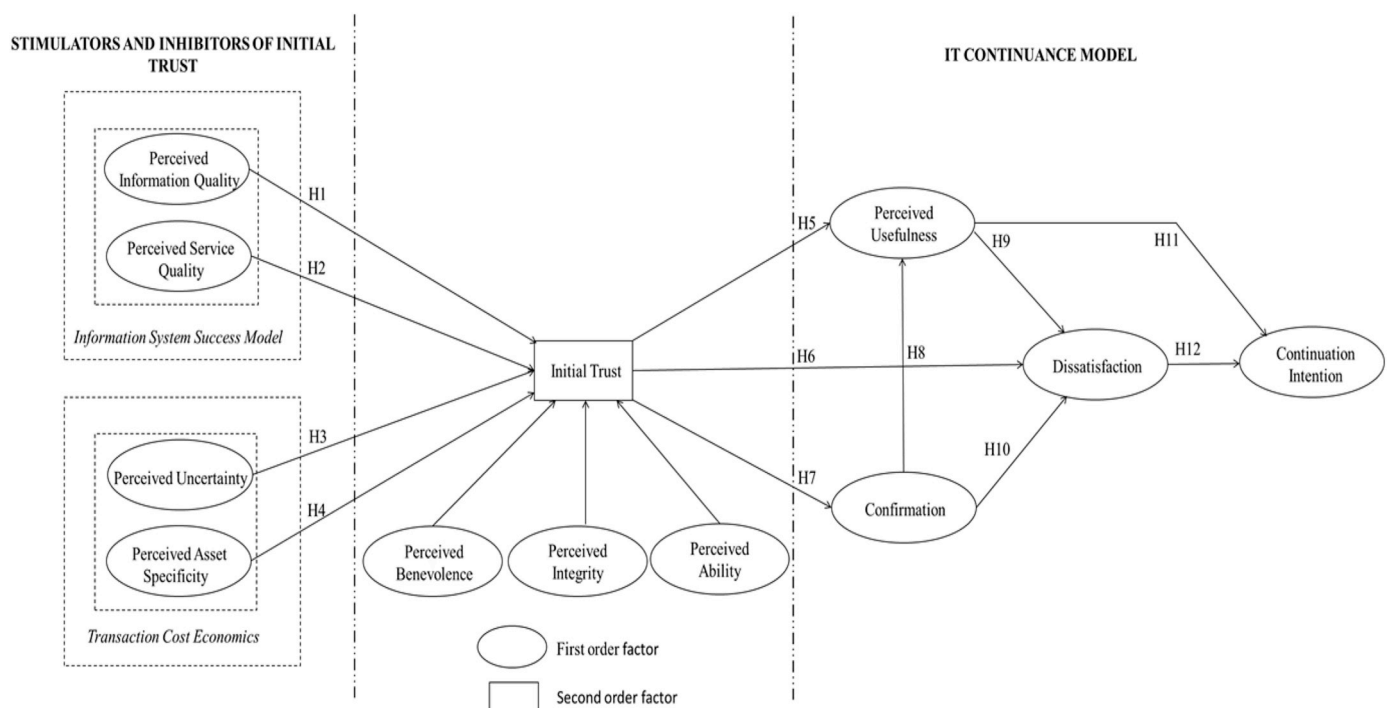


Fig. 1. Proposed research model.

**Table 2**

Description of constructs.

Construct	Operational description	Source
Initial trust (InT)	Users trust at first encounter and, consequently, their inclination to take risk to some extent.	Yang (2016); Kim and Prabhakar (2004)
<i>Antecedents of initial trust</i>		
Perceived information quality (PIQ)	Mobile quality aspects such as accuracy, clarity, relevance, newness, sufficiency, and consistency of information.	Ramayah et al. (2017)
Perceived service quality (PSQ)	Personalization, dependability, and speed of the service.	Gao and Waechter (2017)
Perceived asset specificity (PAS)	Special investments in transaction-specific assets such as human resource, brand, location, time, or physical asset.	Cozzarin and Dimitrov (2016)
Perceived uncertainty (PrU)	Financial and privacy risks, having the potential to cause monetary and psychological losses.	Héroult and Belvaux (2015)
<i>IT continuance model</i>		
Confirmation (CNF)	Extent of fulfillment of initial expectations perceived by the user after initial adoption.	Churchill and Surprenant (1982)
Perceived usefulness (PU)	Post-adoption subjective views of the user that technology improved the way he/she completed the transaction.	Bhattacharjee (2001); Liébana-Cabanillas et al. (2017)
Dissatisfaction (DSAT)	Determinant of discontinued use of IS; it is dependent on pre-purchase expectations.	Bhattacharjee (2001); Oliver (1980)
Continuation intention (CI)	Willingness to continue to use IT-based products on the basis of confirmation of expectations.	Bhattacharjee and Lin (2015)

act as a stimulator of initial trust formation, and we propose:

**H1.** Perceived information quality has a positive association with initial trust.

### 3.2. Perceived service quality and initial trust

Service quality represents personalization, dependability, and speed of the service (Gao and Waechter, 2017). It also represents the match between what users expect and what they receive (Tam and Oliveira, 2016). Perceived quality of service has been found to build initial trust in shopping through mobile apps (Yang, 2016). A recent study by Silic and Ruf (2018) also suggests that it has a substantial effect on initial trust in mobile-based services. We also anticipate that the belief in the ability of the mobile-based payment service provider to deliver reliable and timely service is likely to stimulate the formation of initial trust among non-users. Since customers may have high expectations related to service when using mobile apps, the present study has measured service quality through the ability to deliver professional and personalized services. This implies that consumers expect mobile wallets to provide fast and reliable services and give them a personalized experience at the same time. Hence:

**H2.** Perceived service quality has a positive association with initial trust.

### 3.3. Perceived uncertainty and initial trust

Perceived uncertainty may be understood as privacy and financial risks, which can cause losses, both monetary and psychological (Héroult and Belvaux, 2015). Scholars have argued that, despite various conveniences offered by mobile payments, they have low adoption rates due to various perceived risks (Lin et al., 2014), such as concerns about privacy

(Bailey et al., 2017) and the fear that a small screen size hampers information display (Guo and Bouwman, 2016). Prior findings have revealed that risk and uncertainty cause individual-level inertia and the persistence of the status quo, which ultimately reduce trust (Eid, 2011). Extended literature also suggests that risk is negatively related to consumers' initial trust in different areas, including online consumer-to-consumer behavior (Wu et al., 2015).

The findings of prior studies lead us to believe that, for mobile-based payments also, perception of risk, which reduces the safety of transactions, is likely to hamper initial trust formation. The present study has measured perceived uncertainty in terms of worries and concerns related to the possibility of access to the account by others, sending sensitive information digitally, and the chances of transactions remaining incomplete. The study anticipates that the feeling of uncertainty about the safety of the account and personal information will limit initial trust formation, thereby dissuading non-users from using the payment methods and thus posits:

**H3.** Perceived uncertainty has a negative association with initial trust.

### 3.4. Perceived asset specificity and initial trust

Asset specificity represents special investments in transaction-specific assets, such as human resources, brand, location, time, or physical assets (Cozzarin and Dimitrov, 2016). Prior studies have argued that for innovations like online shopping and payments, consumers consider asset specificity a risk (Wang et al., 2012). For mobile-based payments, asset specificity comes from specific needs, such as a smartphone, additional software, and the acquisition of knowledge to use them (Thakur and Srivastava, 2014), and this need for specific assets implies physical asset specificity (Cozzarin and Dimitrov, 2016). The association of asset specificity with the use of m-payment increases transaction costs, which can be expected to impact initial trust formation (Gao and Waechter, 2017). Thus, if users need to make more specific asset investments to use mobile wallets, then their initial trust is likely to decrease. We anticipate that if a consumer feels that he/she has to devote time getting to know a mobile-payment system and in building relationships with service providers, then he/she might feel constricted and this will reduce initial trust. Perceived asset specificity can also be understood in terms of the perception of potential users about the ease of using the system. Thus, if the system is difficult to use, then it is likely to increase perceived asset specificity and decrease initial trust. The present study has captured asset specificity through time taken to learn the use of app and effort needed to be expended to collect information about user experience. Both these factors are likely to erode initial trust. Therefore:

**H4.** Perceived asset specificity has a negative association with initial trust.

### 3.5. Initial trust, perceived usefulness, dissatisfaction, confirmation, and continuation intention

The first four hypotheses represent step one of our model, which discusses the antecedents of initial trust in the pre-adoption stage. Here, initial trust represents the embodiment of pre-adoption expectations (an ECT construct). We now transition to step two, where initial trust represents the point of adoption, which is associated with post-adoption constructs postulated by the IT continuance model. Therefore, initial trust is here posited as the antecedent of confirmation, satisfaction, and perceived usefulness, which further influence continuation intention.

In the IT continuance model, perceived usefulness represents post-adoption users' belief (Bhattacharjee, 2001) that they will realize expected utility from the use of a product. It can also be said to represent users' subjective views that the technology improves the way they complete a transaction (Liébana-Cabanillas et al., 2017). Perceived usefulness is a commonly used variable in studies on mobile-based

banking adoption (Shaikh and Karjaluoto, 2014) and is an important factor in mobile-based payment usage (Dahlberg et al., 2015). It has also been argued that consumers form usefulness perceptions about a new IS in the early post-adoption stage (Guo et al., 2018).

Since initial trust is influenced by expectations of quality and functional consistency that are likely to improve the user experience (Silic and Ruf, 2018; Yang, 2016), it can be assumed that high initial trust, which is a net effect of stimulators and inhibitors, would enhance perceived usefulness. The positive association between trust and perceived usefulness has been revealed in different areas, including online recommendation agents (Benbasat and Wang, 2018). Thus:

**H5.** Initial trust has a positive association with perceived usefulness.

Trust is important as it leads to an increase in the adoption of the product or service through increasing intention to use as well as satisfaction. For instance, initial trust is an important determinant of the intention to adopt any m-payment service (Yan and Yang, 2014). Agag and El-Masry (2016) also argued that trust plays a key role in predicting purchase intention. Additionally, prior studies have argued that satisfaction also impacts the usage intention of consumers (Susanto et al., 2016) as well as the relationship between initial trust and intention toward m-commerce (Silic and Ruf, 2018).

Researchers have confirmed that overall satisfaction is positively influenced by initial trust (Liébana-Cabanillas et al., 2013; Silic and Ruf, 2018). ECT (Oliver, 1980, 1993) also hypothesizes that satisfaction is determined by pre-purchase expectations. Since our study draws upon the pre-adoption part of ECT and proposes that initial trust is an embodiment of pre-adoption expectations, we also anticipate that initial trust will have an association with the post-adoption construct, satisfaction. Furthermore, based on prior findings, the present study also anticipates a positive association of initial trust with satisfaction. However, this study measured dissatisfaction instead of satisfaction. Dissatisfaction was selected as a construct because it is an important determinant of discontinued use of IS (Bhattacharjee, 2001) and the literature provides limited insight into why users discontinue usage in the initial post-adoption phase. Furthermore, prior research has argued that the sources of dissatisfaction might be different from those of satisfaction (Najmul Isalm, 2014). Hence, this study attempts to investigate whether dissatisfaction is influenced by initial trust and posits a negative association between the two. Thus:

**H6.** Initial trust has a negative association with dissatisfaction.

Confirmation captures the extent of fulfillment of initial expectations perceived by users after initial adoption. If the product exceeds user expectations, it leads to positive confirmation (Churchill and Surprenant, 1982). The current study defines confirmation as the positive congruence between expectations of m-payment methods in the pre-adoption stage and users' perceptions of the actual performance after adoption. Since initial trust is an embodiment of a user's expectation of the quality and ability of service providers, it can be inferred to represent the pre-purchase expectation in ECT (Oliver, 1980, 1993); therefore, it can be anticipated to have an association with confirmation, which, in turn, represents the embodiment of the net positive outcome a user is likely to have from the initial adoption of mobile payments. This implies that when users have higher pre-adoption expectations in terms of the belief that the service provider will protect their interests, will refund losses after unauthorized transactions, and will provide timely, safe, and reliable service, their positive confirmation is likely to be high. Therefore:

**H7.** Initial trust has a positive association with confirmation.

The IT continuance model (Bhattacharjee, 2001) adapts ECT to the post-adoption IS context by postulating that the adoption may change user expectations, such that post-adoption expectations (perceived usefulness) may be different from pre-adoption expectations (initial trust). Bhattacharjee (2001) contended that pre-adoption expectations

captured by confirmation impact post-adoption expectations, captured by perceived usefulness, which in turn, impacts satisfaction positively. Thereafter, many studies revealed the positive association of confirmation with both perceived usefulness and satisfaction (Ouyang et al., 2017).

The current study also expects confirmation to influence perceived usefulness positively. This implies that positive confirmation in the post-adoption phase is likely to increase belief about the usefulness of m-payments. Furthermore, it is also anticipated that high perceived usefulness will lead to an increase in the satisfaction of users from mobile-based payments. Since we are considering dissatisfaction instead of satisfaction, we anticipate an inverse association between the two constructs. Thus:

**H8.** Confirmation has a positive association with perceived usefulness.

**H9.** Perceived usefulness has a negative association with dissatisfaction.

ECT (Oliver, 1980, 1993) has been one of the most widely used theories to study satisfaction (Morgan-Thomas and Veloutsou, 2013). Satisfaction of a mobile service, from the ECT perspective, represents a psychological state, which is an outcome of the consumer's evaluation of perceived deviation of performance from expectation (Chen et al., 2013). In other words, satisfaction is dependent on the difference between pre-purchase expected and post-purchase perceived performance (Marian et al., 2014). Positive confirmation leads to satisfaction (Bhattacharjee and Lin, 2015; Mäntymäki and Najmul Isalm, 2014). On the other hand, negative confirmation can be expected to lead to dissatisfaction (Najmul Isalm et al., 2017).

This research also anticipates that positive confirmation will increase belief in the usefulness of these payment methods after initial adoption and will increase the satisfaction of consumers or, from the perspective of our study, lower their dissatisfaction. Therefore:

**H10.** Confirmation has a negative association with dissatisfaction.

Intentions have been examined extensively by prior research on mobile-based payments (e.g., de Luna et al., 2019; Francisco et al., 2015; Kalinic et al., 2019; Shao et al., 2019). The IT continuance model (Bhattacharjee, 2001) has been one of the most widely used theories to study continuation intention (Guo et al., 2018). It hypothesizes that both perceived usefulness and satisfaction influence continuation of the intention to use IS products. Many studies have confirmed these propositions of the IT continuance model. For instance, Oghuma et al. (2016) examined and confirmed the underlying relationships of the IT continuance model for mobile instant messaging. Ouyang et al. (2017) revealed the influence of perceived usefulness and satisfaction on continuation intention toward massive open online courses (MOOCs). Other scholars have also confirmed the same associations (e.g., Susanto et al., 2016).

The present study also anticipates the positive association of perceived usefulness with continuation intention, as well as the negative association of dissatisfaction with continuation intention. This implies that dissatisfaction will attenuate and perceived usefulness would reinforce the positive aspects of mobile payments, causing users to carry on using the service. Hence:

**H11.** Perceived usefulness has a positive association with continuation intention.

**H12.** Dissatisfaction has a negative association with continuation intention.

### 3.6. Data and methods

Existing validated measures were adapted to develop the items included in our questionnaire by keeping in mind the definitions of the constructs proposed to be tested. The initial instrument was further

refined by input from experts from the field of mobile payments. As a final check, three researchers independently reviewed the items to ensure that there was no ambiguity in any item constituting the questionnaire. It was also pilot-tested with 20 existing mobile-based wallet users and 20 non-users. Minor changes were made in each part to develop the final instrument used for data collection.

The questionnaire was administered to students at two universities in North India. The target group comprised students adept at using smartphones, who were aged 18 to 28 years and were pursuing graduate, post-graduate, or doctoral programs. Although we selected the respondents on the basis of convenience sampling, to ensure effective sampling, we followed the criteria recommended by Akrouf and Nagy (2018). First, the study participants should have been non-users of mobile wallets at that point in time; second, the participants should have expressed their willingness to download the app and use the mobile wallet at least once. Although using a student sample has limitations, the choice of 18-to-28-year-old students as a target segment was motivated by the fact that this age group has been recognized by prior research as early adopters of technology (e.g., Marcum et al., 2016) and is generally considered to have the aptitude to handle relatively novel technologies (e.g., Runnemmark et al., 2015).

The final pen-and-pencil survey, comprising two parts, was administered to non-users of mobile wallets. Participant consent was obtained along with confirmation that they would complete part one of the survey before using the wallet for the first time and part two of the survey after using the app. We received 963 responses of which 9 were discarded as they were incomplete. Demographic details (age, gender, and educational qualification) are presented in Table 3. Of the 954 complete responses, 478 respondents did not have a credit card and 146 did not have a debit card. This confirms that the respondents were already undertaking financial transactions through other means and were thus fit to participate in a study on payment methods. Our approach to data collection—i.e., first collecting data from non-users and then exposing them to the payment app—is consistent with one of the early studies in the area of mobile banking and initial trust (Zhou, 2011a). The collected data were analyzed using structural equation modeling.

## 4. Results

### 4.1. Initial trust

We measured initial trust in terms of perceived integrity, benevolence, and ability (Gefen et al., 2003). Since perceived integrity, benevolence, and ability were measured through multiple items, we measured them as first-order constructs. Consequently, initial trust was measured as a second-order construct. Notably, in prior studies, initial trust has been measured as both a first-order (e.g., Wu et al., 2015; Yang, 2016) and a second-order construct (e.g., Gao and Waechter, 2017; Lu et al., 2011).

### 4.2. Common method bias (CMB)

To counter the threat of potential CMB, to begin with, we ensured that the questions in the survey were clear and concise. We subsequently applied the single factor test proposed by Harman (1976) and found that

**Table 3**  
Demographic profile of the survey respondents.

Variables	Category	Frequency	Percentage
Age	18–28 years	Mean age of 21.61 years [SD = 2.31 years]	
Gender	Female	639	67
	Male	310	32.5
Educational background	Undergraduate	634	66.5
	Graduate	232	24.3
	Doctoral level	29	3

no variances in the CFA model exceeded the cutoff. Next, to be on the safe side we also applied the marker-variable technique (Zeugner-Roth and Zabkar, 2015), which again confirmed that the study was free from CMB-related issues.

### 4.3. Validity and reliability

A pilot survey was employed to confirm face validity, and expert opinion was used to confirm content validity. The average variance extracted (AVE) value of more than 0.50 for all constructs and the composite reliability (CR) value of more than 0.70 confirmed construct reliability and convergent validity (Mackenzie et al., 2011) (Table 4). Furthermore, all inter-construct correlations were less than 85% (Sorensen and Slater, 2010) and the square root of each construct's AVE was greater than the inter-construct correlations, thereby confirming discriminant validity, as displayed in Table 4.

Item level validity was examined using factor loadings, keeping in mind the traditional cutoff of 0.4 (Hair et al., 2010). None of the loadings were below 0.65, as displayed in Table 5.

Next, model fit was evaluated for both the measurement and the structural models. It can be observed in Table 6 that most actual values demonstrated a good fit (Gefen et al., 2018), indicating an acceptable degree of confidence in the reliability of measures. Thus, the measures used in the study are adequate and fit to be used for testing hypotheses, the last step of the analysis.

### 4.4. Structural model

The output of the analyses is exhibited in Fig. 2 and Table 7. The hypothesized stimulators, perceived information ( $\beta = 0.42, p < 0.001$ ), and service quality ( $\beta = 0.33, p < 0.001$ ) were found to have a positive association with initial trust, whereas both the inhibitors, perceived uncertainty ( $\beta = 0.04, p > 0.05$ ) and perceived asset specificity ( $\beta = 0.15, p < 0.001$ ) did not share the hypothesized association with initial trust. In contrast, a positive association was found between initial trust and perceived asset specificity.

The hypothesized association of initial trust with perceived usefulness ( $\beta = 0.45, p < 0.001$ ) and confirmation ( $\beta = 0.60, p < 0.001$ ) was also confirmed, but no relationship with dissatisfaction ( $\beta = 0.05, p > 0.05$ ) was revealed. Similarly, the hypothesized association of confirmation with only perceived usefulness ( $\beta = 0.29, p < 0.001$ ) was supported, but not with dissatisfaction ( $\beta = 0.15, p < 0.01$ ). Additionally, the hypothesized association of perceived usefulness with continuation intention ( $\beta = 0.43, p < 0.001$ ) was supported but not with dissatisfaction ( $\beta = -0.08, p > 0.05$ ). Lastly, dissatisfaction had no relationship with continuation intention ( $\beta = 0.04, p > 0.05$ ).

The percentage variance explained in the initial trust was 54.5%. For confirmation, perceived usefulness, dissatisfaction, and continuation intention, the respective percentage variance explained was 36.1%, 43.2%, 4.0%, and 18.7%. Although the values are low from a general perspective, except for dissatisfaction, these values are quite good, given that this study is a consumer-behavior study (Hair et al., 2011). The possible causes of the low  $R^2$  value for dissatisfaction are discussed later.

## 5. Discussion and implications

### 5.1. Discussion of structural path analysis output

The results of the study support H1 and H2, representing stimulators of initial trust in the pre-adoption phase. This is in accordance with prior investigations in various online contexts (e.g., Ramayah et al., 2017; Silic and Ruf, 2018; Yang, 2016), as also argued and anticipated by us. The magnitude of the impact of information quality on initial trust is the largest among all stimulators and inhibitors. This is a new finding in the context of mobile-based wallets. However, H3 and H4, representing the inhibitors of initial trust, were not supported, in contradiction to our

**Table 4**  
Validity and reliability analysis.

	CR	AVE	MSV	ASV	InT	PSQ	PIQ	PrU	PAS	CI	DSAT	PU	CNF
InT	0.79	0.55	0.40	0.22	<b>0.74</b>								
PSQ	0.75	0.60	0.49	0.18	0.61	<b>0.77</b>							
PIQ	0.73	0.57	0.49	0.20	0.63	0.70	<b>0.76</b>						
PrU	0.80	0.57	0.33	0.11	0.30	0.23	0.20	<b>0.76</b>					
PAS	0.80	0.67	0.37	0.12	0.30	0.17	0.18	0.57	<b>0.82</b>				
CI	0.80	0.58	0.22	0.12	0.44	0.44	0.47	0.15	0.13	<b>0.76</b>			
DSAT	0.83	0.63	0.37	0.10	0.18	0.11	0.11	0.54	0.61	0.06	<b>0.79</b>		
PU	0.76	0.52	0.29	0.13	0.54	0.39	0.42	0.08	0.11	0.36	0.06	<b>0.72</b>	
CNF	0.70	0.54	0.30	0.16	0.55	0.43	0.45	0.21	0.28	0.38	0.24	0.51	<b>0.74</b>

Note: Composite reliability = CR, Average variance extracted = AVE, Maximum shared variance = MSV, Average shared variance = ASV.

arguments based on the prior literature (Thakur and Srivastava, 2014; Wu et al., 2015). A possible reason behind this lack of concern for privacy and security, as proposed by H3, could be that, with time and multiple m-payment options, technology has improved, leading prospective users to have confidence that service providers have sufficient privacy protection and encryption measures in place. Service providers can be anticipated to be careful in protecting privacy and security because any breach can damage their reputation irreversibly. The lack of support for H4 is probably because smartphone use has diffused, and users do not find downloading, installing, and using an app that much of a challenge. A completely unexpected, statistically significant positive association was found between asset specificity and initial trust, which needs to be researched more.

H5 and H7, proposing a relationship of initial trust with perceived usefulness and confirmation, respectively, were confirmed—as anticipated based on the extant literature (e.g., Benbasat and Wang, 2018; Lin et al., 2014). This result implies that, in the case of mobile wallets, post-purchase positive experience is also related to the expectations formed during the pre-purchase stage. Furthermore, H8 and H11, hypothesizing the positive relationship of confirmation with perceived usefulness and that of perceived usefulness with continuation intention were also supported, as posited by the IT continuance model (Bhattacharjee, 2001) and confirmed by past researchers (e.g., Guo et al., 2018; Ouyang et al., 2017).

In comparison, all associations related to dissatisfaction, H6, H9, H10, and H12, hypothesizing the association of dissatisfaction with initial trust, perceived usefulness, confirmation, and continuation intention, respectively, were not supported. Since there is no a priori, we proposed these hypotheses by treating dissatisfaction as the opposite of satisfaction, which has been found by prior studies to have a positive association with other IT continuance model constructs (e.g., Morgan-Thomas and Veloutsou, 2013; Silic and Ruf, 2018). Our results seem to confirm the contention of Najmul Isalm (2014) that dissatisfaction depends on factors different from those leading to satisfaction. This has been discussed in detail while delineating the theoretical implications of the study.

## 5.2. Theory-related inferences

The study draws five theory-related inferences: to begin, our study extends the work of Gao and Waechter (2017), our conversant article, in two ways, first by applying it in the specific context of mobile wallets and second by investigating pre- and post-adoption factors together in the same model. This opens up new areas of investigation concerning mobile-based payments in general. Second, our study adds a new dimension to our another conversant article, Bhattacharjee (2001), by replacing satisfaction with dissatisfaction in the IT continuance model and revealing the fact that dissatisfaction does not act as an antonym of satisfaction, that is, its inverse relationship with the other constructs is not statistically significant. This finding creates newer areas of investigation for future researchers.

Third, our study brings together three seminal theories to explain the

entire spectrum of consumer behavior toward technological innovation, spanning the pre-adoption to the post-adoption phase. In the past, most studies applied mainly theories like innovation resistance theory (Laukkanen, 2015), IT adoption theories such as TAM (Davis, 1989), and UTAUT (Venkatesh et al., 2003) to study consumer behavior toward mobile payments. The ISS model, TCE, initial trust, and the IT continuance model had not previously been used together to assess user adoption and continued use of mobile-based payment methods like wallets.

Fourth, the findings of the study suggest that perceived asset specificity, representing specific needs such as smartphones, additional software, and the acquisition of knowledge to use them (Thakur and Srivastava, 2014) had an unexpected positive association with initial trust. This needs to be investigated further in terms of the influence of moderators to capture individual differences among users. One possible explanation might be the hedonic value, which represents pleasure, recreation, and high-arousal stimuli that any consumption gives (Babin et al., 1994). For instance, consumers might buy new models of gadgets like a camera or new styles of garments to derive hedonic value (Yim et al., 2014). For the present purpose, it can be said that the thrill consumers derive from learning to use a mobile-payment app, and using it thereafter, gives them a hedonic value that causes asset specificity to have a positive effect on initial trust, instead of eroding it.

Last, the IT continuance model posits user satisfaction as an overall evaluation of any IS. Satisfaction has been posited as a prerequisite for understanding consumers' repurchase decisions by ECT also (Oliver, 1980, 1993). However, our findings reveal a diminished role of satisfaction, when tested through proposing an inverse association of the related constructs with satisfaction's opposite, dissatisfaction. Although the current research is the first to examine such an association for mobile-based wallets, this finding raises a question about the emphasis of satisfaction in the context of a utility-driven IS product like the mobile wallet. Consumers likely seek functionality, and confirmation is enough for them to continue using the mobile wallet. This theoretical insight needs to be tested further through analysis of data drawn from multiple samples, as well as different survey approaches (cross-sectional and longitudinal). However, these findings could also be viewed in a different light. They could be interpreted to raise an important question regarding the treatment of dissatisfaction as an antonym of satisfaction. The issue has been discussed in detail by Najmul Isalm (2014), who argued that there was a difference between the factors leading to satisfaction and dissatisfaction among users of a learning management system. The low-explained variance of dissatisfaction in our study supports the argument of Najmul Isalm (2014) that satisfaction is derived from different factors compared to dissatisfaction. Future researchers could study such differences for app-based payments and add a new dimension to satisfaction research in the IS context, which has been primarily skewed toward satisfaction.

## 5.3. Practice-related inferences

Our study offers five suggestions for practice: first, the study finding



**Table 5**  
Factor loadings of all items.

Study Measures	Measurement items	CFA	SEM
<b>PSQ</b> (Gao & Waechter, 2017)	PSQ1. Mobile wallets provide professional services	.66	.66
	PSQ2. Mobile wallets provide personalized services	.87	.87
<b>PIQ</b> (Gao & Waechter, 2017)	PIQ1. Mobile wallets provide me with information relevant to my needs	.81	.81
	PIQ2. Mobile wallets provide me with sufficient information	.70	.70
<b>PrU</b> (Gao & Waechter, 2017)	PrU1. I am worried about using mobile wallets because other people may be able to access my account	.76	.76
	PrU2. I would not feel secure sending sensitive information via a mobile wallet	.79	.79
	PrU3. I feel using mobile wallets still has the risk of an incomplete transaction	.72	.72
<b>PAS</b> (Gao & Waechter, 2017)	PAS1. Learning how to use mobile wallets takes time	.83	.83
	PAS2. It takes time and effort to gather mobile-wallet use experience	.80	.80
<b>InT</b> (Gao & Waechter, 2017)	PB1. I believe that mobile wallets would repay my money if taken from my account through unauthorized transactions	.68	.67
	PB2. I believe that mobile wallets have my best interests in mind	.69	.69
	PI1. I believe mobile wallets have consistent online practices and policies	.68	.68
	PI2. Mobile wallets always provide reliable financial services	.80	.80
	PI3. Mobile wallets always provide safe financial services	.68	.68
	PA1. I believe that mobile wallets provide an excellent mobile-payment service	.75	.75
	PA2. I believe that mobile wallets process my transactions accurately and on time	.73	.73
<b>CNF</b> (Bhattacharjee, 2001)	CNF1. The expectations that I had about mobile wallets were correct	.73	.73
	CNF2. Overall, most of my expectations from using mobile wallets were confirmed	.75	.75
<b>PU</b> (Bhattacharjee, 2001; Limayem et al.,2007)	PU1. Mobile wallets allow me to save time during my shopping	.65	.65
	PU2. Mobile wallets make my shopping less time consuming	.84	.80
	PU3. Mobile wallets are a convenient way to do shopping	.66	.67
<b>DSAT</b> (Bhattacharjee, 2001); Lin & Bhattacharjee, 2008)	DSAT1. I am dissatisfied with mobile-wallet service	.76	.76
	DSAT2. In my opinion, mobile wallets provide unsatisfactory service	.83	.83
	DSAT3. I am dissatisfied with the quality of mobile-wallet service	.78	.78
<b>CI</b> (Bhattacharjee, 2001; Limayem et al.,2007)	CI1. I intend to reuse mobile wallets	.65	.65
	CI2. I will always try to use mobile wallets	.92	.93
	CI3. I plan to use the mobile wallets frequently	.67	.67

Note: PB = Perceived Benevolence, PI = Perceived Integrity, PA = Perceived Ability; Initial Trust = PB + PI + PA

that initial trust has a positive association with confirmation and perceived usefulness is of use to managers. It indicates a need to establish the trust of users even before the trial of the product takes place. Thus, service providers should ensure that not only the perceptions related to technological soundness are taken care of but also that there is effective communication about their reliability and integrity

(Lee and Choi, 2011). Since prior findings have also confirmed that only stimulators are key antecedents of initial trust, service providers should focus on these issues. The reinforcement of positive aspects through advertisement and existing customer reviews, as well as providing insurance cover to ensure protection in case of service issues could help the service providers gain the initial trust of potential users, as suggested by Stouthuysen et al. (2018) for e-commerce.

Second, since information quality is the chief driver in the formation of initial trust in m-payments, providers of these services should place extra emphasis on keeping their apps updated and providing relevant information accurately and quickly. Research has also shown that users of mobile-payment services need to obtain and process high-quality information (Zhou, 2014), and by serving this need for up-to-date information, mobile-based payment service providers can undoubtedly impact the continuation intention. This is critical because any instance of lapse in information quality is likely to impair the trust of users (Slade et al., 2015). Service providers should, therefore, divert sufficient resources toward maintaining and improving information quality.

Third, the magnitude of the association of service quality with initial trust was also found to be notable, though not as high as that of information quality. This implies that prospective users would expect m-payment service providers to render fast and reliable service, along with a personalized experience, to form an initial trust in them. Since the quality of service is critical in the case of services that are mobile-based (Silic and Ruf, 2018), service providers should focus on the following aspects: first, promptly addressing queries raised by users (Yang, 2016); second, generating a customized transaction completion message; and third, investing in technology to reduce transaction-processing time.

Fourth, we suggest m-payment service providers take the initiative and request credit-rating agencies to institute a rating for mobile-based payments. Such a rating could be calculated on the basis of information quality, service quality, convenience, speed, user reviews, merchant tie-ups, and so on. Such ratings would make prospective users feel safe to adopt m-payments on the one hand and, on the other, motivate service providers to focus more on the aspects that can potentially increase the diffusion of m-payments.

Lastly, our study has revealed that both uncertainty and asset specificity have no negative influence on initial-trust formation for mobile-wallet users, a finding that provides insight for service providers retailing mobile payment methods by confirming that technology-related anxieties do not hamper consumers' initial-trust formation. This input is vital in the development of promotional messages and advertisements by indicating that these anxieties need not be emphasized. Instead, the tenor of promotions should be more focused on informational and service-quality aspects.

## 6. Conclusions

Mobile payments, mainly mobile wallets, are being offered by many service providers competing for a larger market share. Thus, understanding consumer behavior, both in pre- and post-adoption phase, toward these services is essential for them. What would induce users to use the mobile-wallet services of a provider for the first time, and what would motivate them to continue using the services, is also of interest to the research community. While behavioral aspects of mobile payments have been researched to an appreciable extent, there are some unaddressed gaps. This study is one of the limited empirical studies to examine the entire spectrum of consumer behavior from pre-adoption concerns to continuation intention. The study employed a two-step model for this purpose. In the first step, the model explained the stimulators and inhibitors of initial trust by utilizing the ISS model and TCE theory, respectively, and thereafter, the model examined the impact of initial trust on confirmation, satisfaction, and continuation intention using IT continuance model.

The proposed model is intended to extend existing theories in the context of digitally driven products like mobile-based payments. The

**Table 6**  
The goodness of fit indices.

Model Fit Indices							
Model	CMIN/DF	GFI	NFI	TLI	CFI	AGFI	RMSEA
Recommended values	<3	>0.90	>0.90	>0.90	>0.90	>0.90	<0.08
Measurement model	2.70	0.95	0.92	0.94	0.95	0.93	0.04
Structural model	3.05	0.94	0.91	0.92	0.93	0.92	0.05

Note. Chi-square ratio degrees of freedom (CMIN/DF), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) Goodness of Fit Index(GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Root mean square error of approximation (RMSEA).

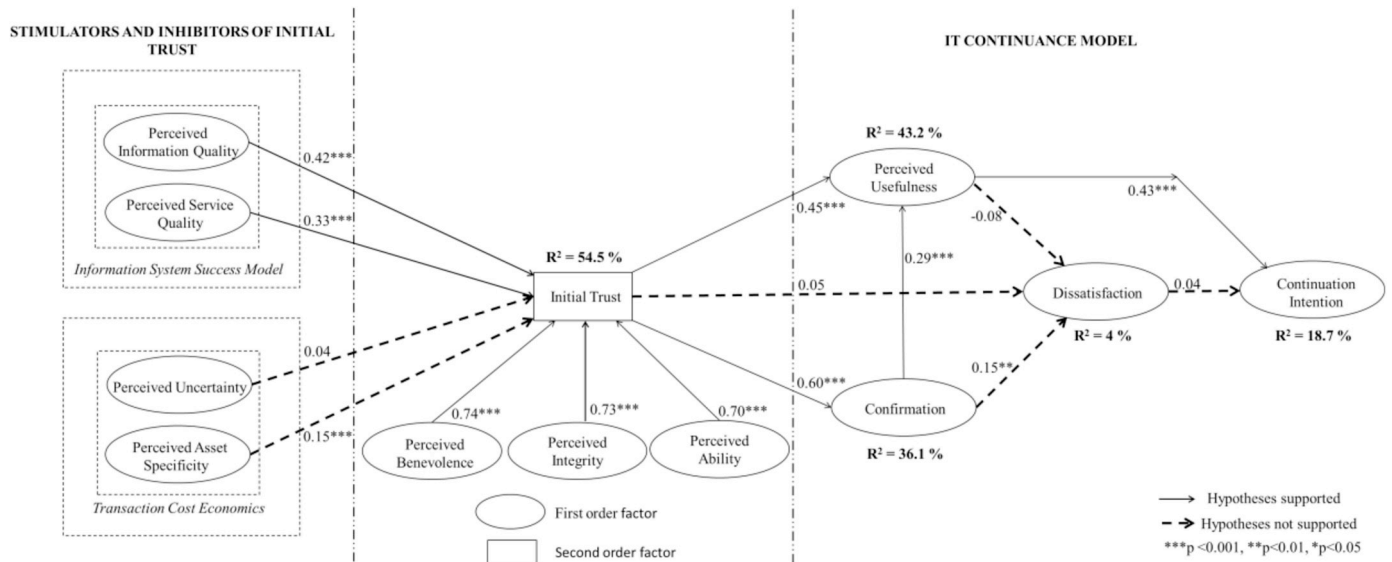


Fig. 2. Result of hypotheses testing.

**Table 7**  
Result of hypothesis testing.

Hypothesis	Path	$\beta$	Significance	Support
H1	PIQ → InT	0.42	<0.001	Yes
H2	PSQ → InT	0.33	<0.001	Yes
H3	PrU → InT	0.04	>0.05	No
H4	PAS → InT	0.15	<0.001	No
H5	InT → PU	0.45	<0.001	Yes
H6	InT → DSAT	0.05	>0.05	No
H7	InT → CNF	0.60	<0.001	Yes
H8	CNF → PU	0.29	<0.001	Yes
H9	PU → DSAT	-0.08	>0.05	No
H10	CNF → DSAT	0.15	<0.01	No
H11	PU → CI	0.43	<0.001	Yes
H12	DSAT → CI	0.04	>0.05	No

objective of the extension is, first, to propose contextually relevant antecedents and consequences of initial trust through an overarching review of the literature, and second, to amalgamate relevant theories to propose a model that explains both initial use and subsequent intention to continue usage. Such adaptation is in accordance with prior attempts to amalgamate or extend theories to explain adoption behavior in the context of technological innovations. For example, technology acceptance theory (TAM) (Davis, 1989) was extended to propose extended technology acceptance theory TAM2 (Venkatesh and Davis, 2000) by including social factors to explain intention to adopt. Similarly, UTAUT is a theory developed by amalgamating eight different acceptance models (Venkatesh et al., 2003).

Our findings confirm a significant positive association of proposed stimulators with initial trust, with information quality being the chief driver. Additionally, the results also revealed a positive association of

initial trust with perceived usefulness and confirmation, where perceived usefulness further predicted continuation intention significantly.

6.1. Limitations and future work

While this study provides various interesting propositions and inferences, it has three main limitations: first, the research design was based on self-reported data, which is prone to methodological issues; second, the data were collected from only one country, though the findings could have been more robust had the data been obtained from multiple geographies; and third, the study is based on data collected from young-adult students between 18 and 28 years of age, so the findings may not be generalizable to other potential users of mobile-based payments. These limitations notwithstanding, the study has made a meaningful start by combining key IS theories to explain consumer satisfaction and the continuation intention of mobile-wallet use. Future studies can build on our findings to enhance the related literature further.

We recommend future researchers address these three limitations in their investigations, for example, researchers could utilize other types of research designs such as longitudinal, experimental, and log-data-based examinations. In addition to this, our study findings could be replicated by collecting data from different geographies to test the wider applicability of the results. This is important because differences among countries in terms of usage of mobile-based payments and maturity of the market exist (Guo and Bouwman, 2016). A study of such differences could be insightful and stimulating (Dennehy and Sammon, 2015). To address the limitation of generalizability, future researchers could undertake comparative studies by collecting data from different age groups and drawing inferences from the data analysis results. Other possibilities

for future work could be: (a) scholars could investigate the moderating effect of demographic variables, such as age and gender, on the association of stimulators and inhibitors with initial trust. Prior literature has confirmed that demographic variables significantly predict mobile- and internet-banking adoption decisions (Laukkanen, 2016); (b) future studies could try to capture the impact of cultural differences on initial trust in m-payments. In the past, intention and adoption of technology have been revealed to be impacted by cultural dimensions (e.g., Laukkanen, 2015).

## Acknowledgement

This work was supported by the Academy of Finland [292448,326066,334595]

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jretconser.2020.102086>.

## References

- Acker, A., Murthy, D., 2018. Venmo: understanding mobile payments as social media. *ACM Int. Conf. Proc. Ser.* <https://doi.org/10.1145/3217804.3217892>.
- Agag, G., El-Masry, A.A., 2016. Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and WOM: an integration of innovation diffusion theory and TAM with trust. *Comput. Hum. Behav.* <https://doi.org/10.1016/j.chb.2016.02.038>.
- Akrout, H., Nagy, G., 2018. Trust and commitment within a virtual brand community: the mediating role of brand relationship quality. *Inf. Manag.* <https://doi.org/10.1016/j.im.2018.04.009>.
- Babin, B.J., Darden, W.R., Griffin, M., 1994. Work and/or fun: measuring hedonic and utilitarian shopping value. *J. Consum. Res.* 20 (4), 644. <https://doi.org/10.1086/209376>.
- Bailey, A.A., Pentina, I., Mishra, A.S., Ben Mimoun, M.S., 2017. Mobile payments adoption by US consumers: an extended TAM. *Int. J. Retail Distrib. Manag.* <https://doi.org/10.1108/IJRDM-08-2016-0144>.
- Benbasat, I., Wang, W., 2018. Trust in and adoption of online recommendation agents. *J. Assoc. Inf. Syst. Online.* <https://doi.org/10.17705/1jais.00065>.
- Bhattacharjee, A., 2001. Understanding information systems continuance: an expectation-confirmation model. *MIS Q.* <https://doi.org/10.2307/3250921>.
- Bhattacharjee, A., Lin, C.P., 2015. A unified model of IT continuance: three complementary perspectives and crossover effects. *Eur. J. Inf. Syst.* <https://doi.org/10.1057/ejis.2013.36>.
- Chen, S.-C., Liu, M.-L., Lin, C.-P., 2013. Integrating technology readiness into the expectation-confirmation model: an empirical study of mobile services. *Cyberpsychol., Behav. Soc. Netw.* <https://doi.org/10.1089/cyber.2012.0606>.
- Churchill, G., Surprenant, C., 1982. Investigation into customer the determinants of satisfaction. *J. Market. Res.*
- Clement, J., 2019, January 17. Mobile payments worldwide - statistics & facts. Retrieved from. <https://www.statista.com/topics/4872/mobile-payments-worldwide/>.
- Coase, R.H., 1937. The nature of the firm. *Economica* 4 (16), 386–405.
- Cozzarin, B.P., Dimitrov, S., 2016. Mobile commerce and device specific perceived risk. *Electron. Commer. Res.* <https://doi.org/10.1007/s10660-015-9204-5>.
- Dahlberg, T., Guo, J., Ondrus, J., 2015. A critical review of mobile payment research. *Electron. Commer. Res. Appl.* <https://doi.org/10.1016/j.elerap.2015.07.006>.
- Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* <https://doi.org/10.2307/249008>.
- DeLone, W.H., McLean, E.R., 2002. Information systems success revisited. In: *Proceedings of the Annual Hawaii International Conference on System Sciences.* <https://doi.org/10.1109/HICSS.2002.994345>.
- de Luna, I.R., Liébana-Cabanillas, F., Sánchez-Fernández, J., Muñoz-Leiva, F., 2019. Mobile payment is not all the same: the adoption of mobile payment systems depending on the technology applied. *Technol. Forecast. Soc. Change* 146, 931–944.
- Dennehy, D., Sammon, D., 2015. Trends in mobile payments research: a literature review. *J. Innov. Manag.* [https://doi.org/10.24840/2183-0606\\_003.001.0006](https://doi.org/10.24840/2183-0606_003.001.0006).
- Eid, M.I., 2011. Determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia. *J. Electron. Commer. Res.*
- Fazio, R.H., Pietri, E.S., Rocklage, M.D., Shook, N.J., 2015. Positive versus negative valence: asymmetries in attitude formation and generalization as fundamental individual differences. *Adv. Exp. Soc. Psychol.* <https://doi.org/10.1016/bs.aesp.2014.09.002>.
- Francisco, L.C., Francisco, M.L., Juan, S.F., 2015. Payment systems in new electronic environments: consumer behavior in payment systems via SMS. *Int. J. Inf. Technol. Decis. Making* 14 (2), 421–449.
- Gao, L., Bai, X., 2014. A unified perspective on the factors influencing consumer acceptance of internet of things technology. *Asia Pac. J. Market. Logist.* <https://doi.org/10.1108/APJML-06-2013-0061>.
- Gao, L., Waechter, K.A., 2017. Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation. *Inf. Syst. Front.* <https://doi.org/10.1007/s10796-015-9611-0>.
- Gefen, D., Karahanna, E., Straub, D.W., 2003. Trust and TAM in Online Shopping: an Integrated Model. *MIS Quarterly.*
- Gefen, D., Straub, D., Boudreau, M.-C., 2018. Structural equation modeling and regression: guidelines for research practice. *Commun. Assoc. Inf. Syst.* <https://doi.org/10.17705/1cais.00407>.
- Gu, Z., Wei, J., Xu, F., 2016. An empirical study on factors influencing consumers' initial trust in wearable commerce. *J. Comput. Inf. Syst.* <https://doi.org/10.1080/08874417.2015.11645804>.
- Guo, J., Bouwman, H., 2016. An Analytical Framework for an M-Payment Ecosystem: A Merchants' Perspective. *Telecommunications Policy.* <https://doi.org/10.1016/j.telpol.2015.09.008>.
- Guo, Y., Zhu, Y., Barnes, S.J., Bao, Y., Li, X., Le-Nguyen, K., 2018. Understanding cross-product purchase intention in an IT brand extension context. *Psychol. Market.* <https://doi.org/10.1002/mar.21094>.
- Hair, J., Black, W., Babin, B., Anderson, R., 2010. *Multivariate Data Analysis a Global Perspective.* Prentice Hall, Upper Saddle River, NJ.
- Hair, Joe F., Ringle, C.M., Sarstedt, M., 2011. Journal of marketing theory and practice PLS-SEM: indeed a silver bullet. *J. Market. Theor. Pract.* <https://doi.org/10.2753/MTP1069-6679190202>.
- Harman, H.H., 1976. *Modern Factor Analysis, 3rd Rev. Ed.* In *Modern Factor Analysis, 3rd rev.*
- Hérault, S., Belvaux, B., 2015. Privacy paradox et adoption de technologies intrusives: le cas de la géolocalisation mobile. *Décisions Mark.* <https://doi.org/10.7193/dm.074.67.82>.
- Hoek, B.V., 2017, December 5. Four factors contributing to slow mobile payment adoption rates in the U.S. retail touch points. Retrieved from. <https://www.retailtouchpoints.com/features/executive-viewpoints/four-factors-contributing-to-slow-mobile-payment-adoption-rates-in-the-u-s>.
- Kalinic, Z., Marinkovic, V., Molinillo, S., Liébana-Cabanillas, F., 2019. A multi-analytical approach to peer-to-peer mobile payment acceptance prediction. *J. Retailing Consum. Serv.* 49, 143–153.
- Ketokivi, M., Mahoney, J.T., 2017. Transaction Cost Economics as a Theory of Management. *Oxford Research Encyclopedia of Business and Management.* <https://doi.org/10.1093/acrefore/9780190224851.013.6>.
- Kim, G., Shin, B., Lee, H.G., 2009. Understanding dynamics between initial trust and usage intentions of mobile banking. *Inf. Syst. J.* <https://doi.org/10.1111/j.1365-2575.2007.00269.x>.
- Kim, K.K., Prabhakar, B., 2004. Initial trust and the adoption of B2C e-commerce. *ACM SIGMIS - Data Base.* <https://doi.org/10.1145/1007965.1007970>.
- Kim, Y.G., Li, G., 2009. Customer satisfaction with and loyalty towards online travel products: a transaction cost economics perspective. *Tourism Econ.* <https://doi.org/10.5367/00000009789955125>.
- Kongaut, C., Lis, P., 2017. Supply and demand sides of mobile payment: a comparative analysis of successful mobile payment adoption in developed and developing countries. In: *28th European Regional Conference of the International Telecommunications Society (ITS): "Competition and Regulation in the Information Age."*
- Kristensen, K., Martensen, A., Gronholdt, L., 1999. Measuring the impact of buying behaviour on customer satisfaction. *Total Qual. Manag.* <https://doi.org/10.1080/0954412997587>.
- Laukkanen, T., 2015. How uncertainty avoidance affects innovation resistance in mobile banking: the moderating role of age and gender. In: *Proceedings of the Annual Hawaii International Conference on System Sciences.* <https://doi.org/10.1109/HICSS.2015.433>.
- Laukkanen, T., 2016. Consumer adoption versus rejection decisions in seemingly similar service innovations: the case of the Internet and mobile banking. *J. Bus. Res.* <https://doi.org/10.1016/j.jbusres.2016.01.013>.
- Lee, J.N., Choi, B., 2011. Effects of initial and ongoing trust in IT outsourcing: a bilateral perspective. *Inf. Manag.* <https://doi.org/10.1016/j.im.2011.02.001>.
- Li, H., Jiang, J., Wu, M., 2014. The effects of trust assurances on consumers' initial online trust: a two-stage decision-making process perspective. *Int. J. Inf. Manag.* <https://doi.org/10.1016/j.ijinfomgt.2014.02.004>.
- Liébana-Cabanillas, F., Muñoz-Leiva, F., Sánchez-Fernández, J., 2015. Behavioral model of younger users in M-payment systems. *J. Organ. Comput. Electron. Commer.* 25 (2), 169–190. <https://doi.org/10.1080/10919392.2015.1033947>.
- Liébana-Cabanillas, F., Noguerras, R., Herrera, L.J., Guillén, A., 2013. Analysing user trust in electronic banking using data mining methods. *Expert Syst. Appl.* <https://doi.org/10.1016/j.eswa.2013.03.010>.
- Liébana-Cabanillas, F., de Luna, I.R., Montoro-Ríos, F., 2017. Intention to use new mobile payment systems: a comparative analysis of SMS and NFC payments. *Econ. Res. - Ekonomiska Istrazivanja.* <https://doi.org/10.1080/1331677X.2017.1305784>.
- Limayem, M., Hirt, S.G., Cheung, C.M.K., 2007. How habit limits the predictive power of intention: the case of information systems continuance. *MIS Q.* 31 (4), 705–737.
- Lin, C.-P., Bhattacharjee, A., 2008. Elucidating individual intention to use interactive information technologies: the role of network externalities. *Int. J. Electron. Commer.* 13 (1), 85–108. <https://doi.org/10.2753/jec1086-4415130103>.
- Lin, J., Wang, B., Wang, N., Lu, Y., 2014. Understanding the evolution of consumer trust in mobile commerce: a longitudinal study. *Inf. Technol. Manag.* <https://doi.org/10.1007/s10799-013-0172-y>.
- Lu, Y., Yang, S., Chau, P.Y.K., Cao, Y., 2011. Dynamics between the trust transfer process and intention to use mobile payment services: a cross-environment perspective. *Inf. Manag.* <https://doi.org/10.1016/j.im.2011.09.006>.

- Mackenzie, S.B., Podsakoff, P.M., Podsakoff, N.P., 2011. Construct measurement and validation procedures in MIS and Behavioral Research: Integrating New and Existing Techniques. *MIS Q.*
- Mäntymäki, M., Najmul Isalm, A.K.M., 2014. Social virtual world continuance among teens: uncovering the moderating role of perceived aggregate network exposure. *Behav. Inf. Technol.* <https://doi.org/10.1080/0144929X.2013.872190>.
- Marcum, C.D., Higgins, G.E., Nicholson, J., 2016. I'm watching you: cyberstalking behaviors of university students in romantic relationships. *Am. J. Crim. Justice* 42 (2), 373–388. <https://doi.org/10.1007/s12103-016-9358-2>.
- Marian, L., Chrysochou, P., Krystallis, A., Thøgersen, J., 2014. The role of price as a product attribute in the organic food context: an exploration based on actual purchase data. *Food Qual. Prefer.* <https://doi.org/10.1016/j.foodqual.2014.05.001>.
- Morgan-Thomas, A., Veloutsou, C., 2013. Beyond technology acceptance: brand relationships and online brand experience. *J. Bus. Res.* <https://doi.org/10.1016/j.jbusres.2011.07.019>.
- Morosan, C., DeFranco, A., 2016. It's about time: revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *Int. J. Hospit. Manag.* <https://doi.org/10.1016/j.ijhm.2015.11.003>.
- Najmul Isalm, A.K.M., 2014. Sources of satisfaction and dissatisfaction with a learning management system in post-adoption stage: a critical incident technique approach. *Comput. Hum. Behav.* <https://doi.org/10.1016/j.chb.2013.09.010>.
- Najmul Isalm, A.K.M., Mäntymäki, M., Bhattacharjee, A., 2017. Towards a decomposed expectation confirmation model of it continuance: the role of usability. *Commun. Assoc. Inf. Syst.*
- Naidu, S., 2018, March 1. Why mobile wallets are the future of money. Retrieved from <https://www.financialexpress.com/opinion/why-mobile-wallets-are-the-future-of-money/1084027/>.
- Nicolau, A.I., McKnight, D.H., 2006. Perceived information quality in data exchanges: effects on risk, trust, and intention to use. *Information Systems Research.* <https://doi.org/10.1287/isre.1060.0103>.
- Oghuma, A.P., Libaque-Saenz, C.F., Wong, S.F., Chang, Y., 2016. An expectation-confirmation model of continuance intention to use mobile instant messaging. *Telematics Inf.* <https://doi.org/10.1016/j.tele.2015.05.006>.
- Ogonowski, A., Montandon, A., Botha, E., Reyneke, M., 2014. Should new online stores invest in social presence elements? The effect of social presence on initial trust formation. *J. Retailing Consum. Serv.* <https://doi.org/10.1016/j.jretconser.2014.03.004>.
- Oliveira, T., Faria, M., Thomas, M.A., Popović, A., 2014. Extending the understanding of mobile banking adoption: when UTAUT meets TTF and ITM. *Int. J. Inf. Manag.* <https://doi.org/10.1016/j.ijinfomgt.2014.06.004>.
- Oliver, R.L., 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. *J. Market. Res.* <https://doi.org/10.1177/002224378001700405>.
- Oliver, R.L., 1993. Cognitive, affective, and attribute bases of the satisfaction response. *J. Consum. Res.* <https://doi.org/10.1086/209358>.
- Ouyang, Y., Tang, C., Rong, W., Zhang, L., Yin, C., Xiong, Z., 2017. Task-technology fit aware expectation-confirmation model towards understanding of MOOCs continued usage intention. In: Proceedings of the 50th Hawaii International Conference on System Sciences. <https://doi.org/10.24251/hicss.2017.020>, 2017.
- Qasim, H., Abu-Shanab, E., 2016. Drivers of mobile payment acceptance: the impact of network externalities. *Inf. Syst. Front.* <https://doi.org/10.1007/s10796-015-9598-6>.
- Ramayah, T., Alalwan, N., Alzahrani, A.I., Alfarraj, O., Mahmud, I., 2017. Modelling digital library success using the DeLone and McLean information system success model. *J. Librarian. Inf. Sci.* <https://doi.org/10.1177/0961000617726123>.
- Runnemark, E., Hedman, J., Xiao, X., 2015. Do consumers pay more using debit cards than cash? *Electron. Commer. Res. Appl.* 14 (5), 285–291. <https://doi.org/10.1016/j.elerap.2015.03.002>.
- Ryu, H.S., 2018. What makes users willing or hesitant to use Fintech?: the moderating effect of user type. *Ind. Manag. Data Syst.* <https://doi.org/10.1108/IMDS-07-2017-0325>.
- Shaikh, A.A., Karjaluo, H., 2014. Mobile banking adoption: a literature review. *Telematics Inf.* <https://doi.org/10.1016/j.tele.2014.05.003>.
- Shao, Z., Zhang, L., Li, X., Guo, Y., 2019. Antecedents of trust and continuance intention in mobile payment platforms: the moderating effect of gender. *Electron. Commer. Res. Appl.* 33, 100823.
- Siau, K., Shen, Z., 2003. Building customer trust in mobile commerce. *Commun. ACM.* <https://doi.org/10.1145/641205.641211>.
- Silic, M., Ruf, C., 2018. The effects of the elaboration likelihood model on initial trust formation in financial advisory services. *Int. J. Bank Market.* <https://doi.org/10.1108/IJBM-02-2017-0038>.
- Slade, E., Williams, M., Dwivedi, Y., Piercy, N., 2015. Exploring consumer adoption of proximity mobile payments. *J. Strat. Market.* <https://doi.org/10.1080/0965254X.2014.914075>.
- Sørensen, H.E., Slater, S.F., 2010. Development and empirical validation of symmetric component measures of multidimensional constructs: customer and competitor orientation. *Psychol. Rep.* <https://doi.org/10.2466/pr0.103.1.199-213>.
- Stouthuysen, K., Teunis, I., Reusen, E., Slabbinck, H., 2018. Initial trust and intentions to buy: the effect of vendor-specific guarantees, customer reviews and the role of online shopping experience. *Electron. Commer. Res. Appl.* <https://doi.org/10.1016/j.elerap.2017.11.002>.
- Susanto, A., Chang, Y., Ha, Y., 2016. Determinants of continuance intention to use the smartphone banking services. *Ind. Manag. Data Syst.* <https://doi.org/10.1108/imds-05-2015-0195>.
- Susanto, A., Lee, H., Zo, H., Ciganek, A.P., 2013. User acceptance of Internet banking in Indonesia: initial trust formation. *Inf. Dev.* <https://doi.org/10.1177/026666912467449>.
- Tam, C., Oliveira, T., 2016. Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective. *Comput. Hum. Behav.* <https://doi.org/10.1016/j.chb.2016.03.016>.
- Thakur, R., Srivastava, M., 2014. Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Res.* <https://doi.org/10.1108/IntR-12-2012-0244>.
- Venkatesh, V., Davis, F.D., 2000. Theoretical extension of the technology acceptance model: four longitudinal field studies. *Manag. Sci.* <https://doi.org/10.1287/mnsc.46.2.186.11926>.
- Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D., 2003. User acceptance of information technology: toward a unified view. *MIS Q.: Manag. Inf. Syst.*
- Wang, Y.S., Wu, S.C., Lin, H.H., Wang, Y.M., He, T.R., 2012. Determinants of user adoption of web ATM: an integrated model of TCT and IDT. *Serv. Ind. J.* <https://doi.org/10.1080/02642069.2010.531271>.
- Williamson, O.E., 1996. The politics and economics of redistribution and inefficiency. In: *The Mechanisms of Governance*.
- Wu, K., Vassileva, J., Noorian, Z., Zhao, Y., 2015. How do you feel when you see a list of prices? The interplay among price dispersion, perceived risk and initial trust in Chinese C2C market. *J. Retailing Consum. Serv.* <https://doi.org/10.1016/j.jretconser.2015.03.007>.
- Yan, H., Yang, Z., 2014. An empirical examination of user adoption mobile payment. In: Proceedings - 2014 International Conference on Management of E-Commerce and E-Government. ICMeCG. <https://doi.org/10.1109/ICMeCG.2014.40>, 2014.
- Yang, S., 2016. Role of transfer-based and performance-based cues on initial trust in mobile shopping services: a cross-environment perspective. *Inf. Syst. E Bus. Manag.* <https://doi.org/10.1007/s10257-015-0274-7>.
- Yang, Y., Liu, Y., Li, H., Yu, B., 2015. Understanding perceived risks in mobile payment acceptance. *Ind. Manag. Data Syst.* 115 (2), 253–269. <https://doi.org/10.1108/imds-08-2014-0243>.
- Yi, M.Y., Yoon, J.J., Davis, J.M., Lee, T., 2013. Untangling the antecedents of initial trust in Web-based health information: the roles of argument quality, source expertise, and user perceptions of information quality and risk. *Decis. Support Syst.* <https://doi.org/10.1016/j.dss.2013.01.029>.
- Yim, M.Y.C., Yoo, S.C., Sauer, P.L., Seo, J.H., 2014. Hedonic shopping motivation and shopper influence on utilitarian grocery shopping in superstores. *J. Acad. Market. Sci.* <https://doi.org/10.1007/s11747-013-0357-2>.
- Zeugner-Roth, K.P., Zabkar, V., 2015. Bridging the gap between country and destination image: assessing common facets and their predictive validity. *J. Bus. Res.* <https://doi.org/10.1016/j.jbusres.2015.01.012>.
- Zhang, Y., Chen, X., Liu, X., Zhu, N., 2018. Exploring trust transfer between internet enterprises and their affiliated internet-only banks: an adoption study of internet-only banks in China. *Chin. Manag. Stud.* <https://doi.org/10.1108/CMS-06-2017-0148>.
- Zhou, T., 2011a. An empirical examination of initial trust in mobile banking. *Internet Res.* <https://doi.org/10.1108/10662241111176353>.
- Zhou, T., 2011b. The effect of initial trust on user adoption of mobile payment. *Inf. Dev.* 27 (4), 290–300.
- Zhou, T., 2014. An empirical examination of initial trust in mobile payment. *Wireless Pers. Commun.* <https://doi.org/10.1007/s11277-013-1596-8>.