

Continuance intention of mobile payment: TTF model with Trust in an African context

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4 **Continuance intention of mobile payment: TTF model with Trust in an**
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6 **African context**
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10 **Abstract**
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12 The use of mobile payment (m-payment) is growing exponentially in developing countries. A
13 small number of investigations have been undertaken on what makes people continue to use m-
14 payment in an African context. We combine the task technology fit (TTF) model, expectation-
15 confirmation model (ECM), and trust dimension to explain the influence of continuance use of m-
16 payment. We collected 384 valid questionnaire responses from Mozambique. The results show
17 that the relevant constructs to explain continuance intention are use, individual performance,
18 overall trust, and the moderation role of satisfaction.
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25 **Keywords:** Mobile payment; Continuance intention; Task technology fit model; Expectation-
26 confirmation model; Trust; African context.
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Continuance intention of mobile payment: TTF model with Trust in an African context

1. Introduction

How do trust and the alignment of task and technology characteristics affect the continuance use of mobile payment (m-payment)? M-payment has become one of the prominent services in use today (Gao and Waechter, 2015; Zhou, 2014), by which users can make payments for goods, services, and bills; check balances; and transfer money anytime and anywhere (Kujala et al., 2017; Liébana-cabanillas et al., 2018; Lu et al., 2017; Oliveira et al., 2016; Zhou, 2014). M-payment is defined as any payment in which a mobile device (mobile phone or tablet) is used to perform financial value exchanges (initiate, authorize, and confirm) in return for goods and services (Shao et al., 2019). There are different ways to conduct a transaction using m-payment. The simplest way is short-message-based, by which using a simple mobile phone the user can check balances or conduct payment using short text messages (Singh et al., 2020; Zhou, 2013). The m-payment service is growing exponentially all over the world and is bringing benefits to users and the providers (Humbani and Wiese, 2018). Considering its benefits, companies are providing it in different ways around the globe (Fan et al., 2018a; Singh et al., 2020).

The technological sector in the African context is still under development, which represents a challenge for the entire economy. Financial services such as banks are not equally available in all regions of a country, e.g. Mozambique (Humbani and Wiese, 2018; INE, 2019), so people living in rural areas are forced to travel farther to gain access to banks (Batista and Vicente, 2014; Humbani and Wiese, 2019). Due to the lack of access to technology in the same proportion; a service that can be used by the population, regardless of their literary and economic level, reducing the need to use banks, is of great importance (Pal et al., 2020). For m-payment, the technological factors in the African context facilitate its accessibility (e.g., one needs only a telephone network) (Jack and Suri, 2011), thereby bringing the service to many people.

Much research has been directed to the subject of m-payment (Lu et al., 2017; Oliveira et al., 2016; Sinha et al., 2019). Previous literature reports the use of different theoretical models to investigate continuance intention to use m-payment. Zhou, (2013a) used information system

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4 success and flow theory to examine continuance intention of m-payment services. Shao et al.,
5 (2019) used trust and innovation diffusion theory to understand m-payment platforms. Lu et al.,
6 (2017) used expectation-confirmation theory, mobility, privacy protection, social influence, and
7 cultural values to understand m-payment continuation. Chen and Li, (2017) used IT continuance,
8 risk-trust, and affect-cognition literature to understand continuance intention of m-payment
9 services. Besides that, as Teng and Khong, (2021) annotated, mobile services present several
10 challenges, including small screens and uncooperative keypads, communication bandwidth, and
11 other constraints, which impact customer experiences with m-payments services. Additionally,
12 according to the APWG Phishing Activity Trends Report, one of the most prevalent attacks in the
13 third quarter of 2021 was against financial institutions and payment providers (APWG, 2021.)
14 which may affect the user mistrust. Considering that after the change from traditional payment
15 method (cash) to m-payment, users may have uncertainty and mistrust when using m-payment, the
16 transactions involve cash, as well as the technological factors that may affect the use of m-
17 payment. Motivated by these issues, this study seeks to analyse the task-technology fit (TTF)
18 (Goodhue and Thompson, 1995) and overall trust (Oliveira et al., 2017) theories and evaluate their
19 relationships for continuance intention. Furthermore, no previous study has joined the TTF, overall
20 trust, and ECM constructs into a single model, as we do in the present study (Davison and
21 Martinsons, 2016). The TTF model states that IT can have a positive impact on an individual's task
22 performance if the IT functionalities match the requirements of the tasks that the user needs to
23 perform (Goodhue and Thompson, 1995). Regarding the TTF, the model was used in different
24 technological contexts such as: mobile banking (Tam and Oliveira, 2016), MOOCs (Wu and Chen,
25 2017), social media search system (Dang et al., 2020), and internet banking (Rahi et al., 2020),
26 and has been combined with different theoretical models such as: technology continuance theory
27 (Rahi et al., 2020), technology acceptance model (TAM) (Wu and Chen, 2017), DeLone and
28 McLean information systems success model (D&M ISSM) (Tam and Oliveira, 2016), mental
29 workload and unified theory of acceptance and use of technology (UTAUT) (Dang et al., 2020).
30 Overall trust refers to the combination of factors such as competence, integrity, and benevolence
31 in order to understand the user's confidence to use IT (Oliveira et al., 2017). Many studies have
32 used overall trust in combinations with different models and in different contexts. Oliveira et al.
33 (2017) used overall trust with consumer characteristics, firms' characteristics, website
34 infrastructure, and interactions to examine purchase intention in e-commerce. Tam et al. (2019)

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4 used overall trust with D&M ISSM to examine individual performance in e-commerce.
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6 Considering that cyber security is today considered a fundamental challenge to any country or
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8 organization, and especially in mobile payments contexts, it is important to have a sense of security
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10 and trust. Considering that fact, we expect that there is a positive link between overall trust and
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12 use and continuance intention. In addition to trust, the asymmetry of information and
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14 communication technology (ICT) across African countries is another challenge. The constraints of
15
16 that asymmetry could affect the long-term of viability of mobile payment, and for that reason it
17
18 would be valuable to understand how the task-technology-fit of mobile payment may explain the
19
20 use and individual performance in Mozambique.
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23 The contribution of this study is twofold. First, it contributes to the literature on continuance
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25 intention, even though many studies have been carried out in the context of technology adoption
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27 (Khalilzadeh et al., 2017; Verkijika, 2020). Continuance intention has an impact on the long-term
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29 survival of technology (Bhattacharjee, 2001), and for this reason this study seeks to expand the
30
31 knowledge on this topic by joining the two theories mentioned above: task-technology
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33 characteristics and expectation-confirmation model. Second, this study is based on the ECM model
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35 (Bhattacharjee, 2001), which has been tested in different contexts such as m-payment platforms
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37 (Shao et al., 2019), MOOCs (Gao et al., 2015), and mobile apps (Tam et al., 2020). However,
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39 information systems (IS) have different characteristics and functionalities (Nascimento et al.,
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41 2018). In this sense, we seek to extend the model to understand the impact of technological aspects
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43 (TTF) and trust in continuance intention to use m-payment. In addition, we explore the impact of
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45 satisfaction as a moderator. To the best of our knowledge this study is the first to combine the TTF,
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47 ECM and the trust dimension to investigate continuance intention.
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50 The plan of the paper is as follows. We begin with a literature review of the relevant studies
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52 regarding m-payment, TTF, and the dimension of trust. Second, we present the research model,
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54 followed by the hypotheses. Third, we present the methodologies used to test the hypotheses. We
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56 then show the results, followed by a discussion and implications of this study, and suggestions for
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58 future research.
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2. Literature review

2.1. Mobile Payment in an African context

In Africa m-payment has over 29 million active users in more than five countries (Jack and Suri, 2011; Vodafone Group, 2016). In some countries it is called mobile money (Koloseni and Mandari, 2017). M-payment refers to services that enable users to transfer money, pay services and goods, and withdraw money via a mobile phone (Koloseni and Mandari, 2017; Shao et al., 2019). It is sometimes confused with online payment, but it is not the same because online payment uses any mobile device connected to the internet, such as a tablet, mobile phone, or laptop (Zhou, 2015), while m-payment uses only mobile phones with or without internet. In Mozambique 26.4% of the population uses a mobile phone and 11.7% uses m-payment (INE, 2019). This exponential growth is occurring because this service is becoming an alternative solution for rural and urban people to access financial services (Humbani and Wiese, 2019). As most bank branches are distant from people, they naturally wish to avoid travelling long distances to access the bank's services. M-payment thus offers substantial benefits by having an appropriate account and being able to use it anytime and anywhere (Jack and Suri, 2011). Earlier studies have pointed out that m-payment originated in developing countries via SMSs and that it spread quickly due to limited cash alternatives, such as bank accounts and credit cards, thereby helping communities that were otherwise excluded from the financial system (Humbani and Wiese, 2019; Makina, 2017). The value of conducting studies in the African context is therefore evident (Humbani and Wiese, 2019).

Earlier studies on continuance intention to use m-payment have been published (X. Chen and Li, 2017; Lu et al., 2017; Park et al., 2017; Yu et al., 2018). Considering that our aim is to understand the intention to continue using m-payment, we reviewed previous studies to understand what has already been done in the context of m-payment (see Table 1). Chen and Li (2017) investigated the intention to continue to use m-payment services using IT continuance, risk-trust, and affect-cognition. Koloseni and Mandari (2017) used the theory of planned behaviour, perceived cost, perceived trust, and satisfaction to examine continuance usage of mobile money services. Yu et al. (2018) investigated the intention to continue using m-payment based on trust transfer theory. Humbani and Wiese (2019) used the technology readiness index to predict adoption and continuance intention, with the goal of exploring the readiness of the m-payment app technology. Shao et al. (2019) investigated antecedents of trust and continuance intention in m-payment

platforms based on trust and innovation diffusion theory. Raman and Aashish (2021) investigated the antecedents of users' willingness to continue using m-payment services, based on trust, convenience, social value, satisfaction, service quality, attitude, risk, and effort expectancy. Odoom and Kosiba (2020) used UTAUT to investigate continuance intention of m-money. Liébana-Cabanillas et al. (2021) investigated the determinants of intention to continue using and the moderating effect of gender and age of NFC m-payment users. It can be noted that different models were applied, such as theory of reasoned action, perceived value theory, UTAUT2, personal innovation in information technology, mobile payment technology acceptance model, ECM, among others. With our analysis of the literature, we found that there are different models applied to study m-payment, and most of them used trust as a construct. But none of them have integrated TTF and overall trust. Additionally, m-payments take advantage of portable technologies, which are constrained by issues such as small keyboards, display size, and data transmission. Regarding general perception of trust to give transparency and security to mobile payment, and considering the impact of mistrust or uncertainty, the functionalities, and the technological drivers for m-payment use, it is of great importance and necessity to examine the users' continued use intention and perceptions toward m-payment. Furthermore, it is essential to offer effective m-payment functionalities that can better handle user transactions (Zhou, 2014). As a result, we looked at TTF and overall trust as our base theories and examined how they affected the continuance intention.

Table 1 - Different studies on mobile payment continuance intention

Technology/ dependent variable	Model/theory	Constructs/factors (independent variables)	Country	Source
Mobile payment continuance usage	Trust, flow, system quality, and information quality	Trust in online payment, system quality, information quality, performance expectancy, trust in mobile payment, flow	China	(Zhou, 2014)
Mobile payment services continuance intention	IT continuance, risk-trust, and affect-cognition	Satisfaction, post-perceived usefulness, disconfirmation of pre-perceived usefulness, post-perceived risk, disconfirmation of pre-perceived risk, institution-based trust, trusting beliefs	China	(X. Chen & Li, 2017)
Mobile money services continuance usage	TPB, perceived cost, perceived trust, and satisfaction	Perceived cost, perceive trust, attitude, subjective norm, perceived behavioural control, satisfaction	Tanzania	(Koloseni & Mandari, 2017)

Mobile payment continuance intention	TTT	Trust in online payment, perceived similarity, perceived entitativity, trust in mobile payment, satisfaction	China	(Yu et al., 2018)
Mobile payment apps continuance intention	TRI E-ECM	Optimism, innovativeness, convenience, compatibility, discomfort, insecurity, cost, risk, adoption, usefulness, ease-of-use, satisfaction	South Africa	(Humbani & Wiese, 2019)
Mobile payment platforms continuance intention	Trust and IDT	Mobility, customization, security, reputation, trust, perceived risk	China	(Shao et al., 2019)
Mobile payment systems continuance intention	Trust, convenience, social value, satisfaction, service quality, attitude, risk, and effort expectancy	Attitude, convenience expectancy, perceived risk, satisfaction, service quality, social value, perceived trust	India	(Raman & Aashish, 2021)
Mobile money continuance intention	UTAUT	Facilitating conditions, effort expectancy, performance expectancy, perceived credibility of agent, social influence	Ghana	(Odoom & Kosiba, 2020)
NFC mobile payment continuance intention	TRA, PVT, UTAUT2, PIIT, MPTA and ECM.	Consumer brand engagement, Satisfaction, trust, risk, personal innovation, hedonic motivation, performance, quality value, subjective norms	Spain	(Liébana-Cabanillas et al., 2021)

Note: Theory of planned behaviour (TPB), trust transfer theory (TTT), technology readiness index (TRI), extended expectation-confirmation model (E-ECM), innovation diffusion theory (IDT), unified theory of acceptance and use of technology (UTAUT), theory of reasoned action (TRA), perceived value theory (PVT), unified theory of acceptance and use of technology 2 (UTAUT2), personal innovation in information technology (PIIT), mobile payment technology acceptance model (MPTA), expectation confirmation model (ECM).

2.2. Information system continuance model

“IS continuance” was introduced by Bhattacharjee (2001) to explain the intention to continue using IS. The ECM model focuses on three cognitive feelings (expectation of confirmation, perceived usefulness, and satisfaction). The model proposes that satisfaction is the strongest influencer of continuance intention, on the grounds that it results from the confirmation of expectations and the perception of performance. This means that after the user adopts the IS, and uses it for a while, (s)he will realize whether the expectations have been confirmed and if the IS is/are useful. If the result is positive the level of satisfaction increases and, consequently, the intention to continue using the IS increases (Bhattacharjee, 2001). The model has been used in previous studies, has been integrated with other models, and has been applied in different contexts (Franque et al., 2020). Wu and Chen (2017) integrated TAM, TTF, MOOCs’ features, and social motivation to investigate continuance intention to use MOOCs. Gao et al. (2015) joined the information success model, flow

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4 theory, and trust to investigate mobile purchase. Humbani and Wiese (2019) integrated the
5 technology readiness index to explore the use of mobile apps. In the present study we combine
6 TTF and overall trust in order to understand m-payment. The model will help us to assess the effect
7 of TTF and overall trust factors on continuance intention.
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10 11 12 13 **2.3. Task technology fit (TTF) model** 14

15 The TTF model introduced by Goodhue and Thompson (1995) is applied in IS research to explain
16 the performance impact of IS. The theory argues that the ability of an IS to perform an activity
17 task characteristic easily and well, and the technology characteristics that support such activities,
18 significantly influence the use and performance impact of an IS. When the task and technology fit
19 together, the users' activities are facilitated, improving the use of the technology, and thereby
20 improving the perception of performance impact (Goodhue and Thompson, 1995). The better
21 alignment of the task and technology characteristics makes it possible to encourage the use and
22 performance impact of m-payment. Several research papers apply the TTF model combined with
23 other theories. Oliveira et al. (2014) combined TTF, UTAUT, and initial trust model (ITM) to
24 investigate mobile banking adoption. The authors used TTF to predict the performance expectancy
25 and adoption in the UTAUT model. Tam and Oliveira (2016b) combined TTF and the IS Success
26 model to understand the influence of mobile banking on individual performance. They used TTF
27 to predict usage and individual performance (performance impact) constructs and as a moderator
28 of the relationship between user satisfaction and individual performance. Dang et al. (2018)
29 combined mental workload (MWL), TTF, and UTAUT to examine the impacts of mental workload
30 and TTF on acceptance of the social media search system. They used TTF to predict the
31 performance expectancy, effort expectancy, and facilitating conditions of the original UTAUT
32 model. Wu and Chen (2017) combined TTF and TAM to understand continuance intention to use
33 MOOCs, using TTF to predict the constructs' perceived usefulness and perceived ease of use of
34 the TAM model. Larsen et al. (2009) combined TTF and post-acceptance model (PAM) to
35 understand users' motivation to continue the use of IS. They used TTF to predict the constructs'
36 perceived usefulness and utilization in the PAN model. Afshan and Sharif (2016) combined TTF,
37 UTAUT, and ITM to investigate mobile banking acceptance in Pakistan. They used TTF to predict
38 the behavioural intention construct of the UTAUT model. We thus find that most studies that used
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4 TTF had behavioural intention and adoption as the outcome. In this sense, the integration of TTF
5 with ECM will provide some insight into m-payment research.
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8 9 **2.4. Trust**

10 Trust has been conceptualized in several ways according to the context in which it is applied
11 (Gefen, Karahanna, and Straub, 2003; Oliveira, Alinho, Rita, and Dhillon, 2017). According to
12 early literature, in a general view trust reflects the ability of IS to fulfil the tasks correctly, i.e., the
13 IS provider keeps their promise and does not deceive users, and the benefits of the IS need to be
14 perceived by the users and the providers (Zhou, 2014). In m-payment, trust reflects users' beliefs
15 in the reliability of the transactions made through m-payment. If an m-payment provider ensures
16 secure transactions, fulfils the tasks correctly, and does not deceive the users, it will be possible to
17 improve the perception of reliability amongst the m-payment users (Chen and Li, 2017; Zhou,
18 2014). There are several research articles that combine trust with other theoretical models in IS
19 research, such as Zhou and Li (2014), who investigate mobile social network services; Zhou (2013)
20 to understand m-payment continuance intention; Gao et al. (2015) to perceive consumers' mobile
21 purchase continuance intention.
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35 In our research we use the overall trust and trust dimension. Benevolence, competence, and
36 integrity comprise the dimension of trust (Oliveira et al., 2017). Competence reflects the ability of
37 an IS provider to enforce their promises to users. Integrity reflects the IS provider's capacity to act
38 consistently, reliably, and honestly while keeping its promises. Benevolence reflects on the
39 probability of an IS provider to maintain users' interests and to show sincere concern with the
40 well-being of the users (Chen and Dhillon, 2003; Oliveira et al., 2017; Palvia, 2009);
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47 **3. Research model**

48 The purpose of our study is to understand the continuance intention, which we use as the basis of
49 the ECM model (Bhattacharjee, 2001). Considering ECM an axiomatic theory, which is acceptable
50 and truly self-evident (Lee et al., 2021), in the current study we adopted for our model two
51 constructs, satisfaction and continuance intention (Bhattacharjee, 2001), the dependent construct
52 of our study is continuance intention. Following the parsimony approach and reducing model
53 complexity to make it easier to grasp, the constructs perceived usefulness and confirmation were
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4 not added. The addition of other models and variables offers a better understanding of continuance
5 intention to use m-payment. Motivated by task and technology characteristic and potential risk
6 associated with m-payment, our study integrates TTF and overall trust to investigate the impact on
7 m-payment continuance intention. The TTF model and overall trust focus on different aspects and
8 have different perspectives on influence of use and continuance intention. Each model focuses on
9 a certain perspective, however, combining them can offset and complement each other in the
10 context of m-payment continuance intention. The theoretical model (Fig. 1) is designed to examine
11 the continuance intention to use m-payment in the African context. The model asserts that:
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- 20 1. TTF determines the use of m-payment and the perceived individual performance:
- 21 2. the use of m-payment can have an indirect or direct influence on continuance intention,
22 and a direct influence on individual performance.
- 23 3. individual performance determines the continuance intention directly.
- 24 4. the trust dimension can have an indirect or direct influence on continuance intention, and
25 a direct influence on the use.
- 26 5. user satisfaction may moderate the impact of individual performance, use, and the trust
27 dimension on m-payment continuance intention.
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37 The following section presents the proposed hypotheses.
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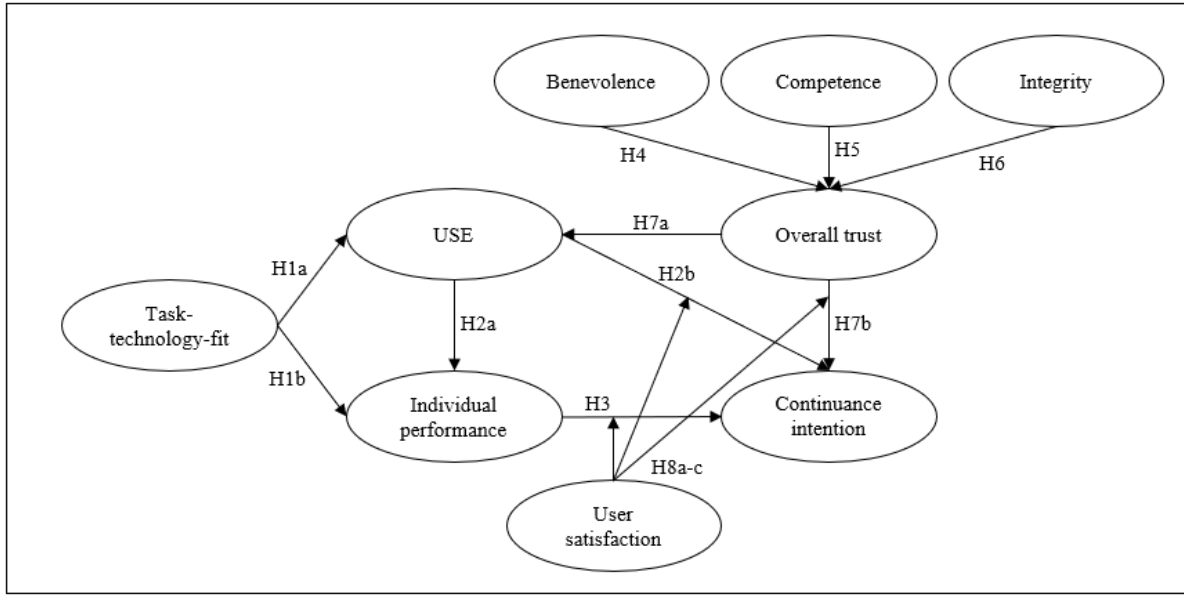


Figure 1 - Proposed research model.

From the TTF perspective, task characteristics refers to activities carried out by users when they are using m-payment. However, if the task characteristics of the m-payment are easy to use, appropriate, and understandable (Wu and Chen, 2017), the users will be comfortable with their use and continue using it. On the other hand, users facing difficulties in using m-payment will prefer to opt for traditional payment methods rather than m-payment (Rahi et al., 2020). Task characteristics are relevant constructs to influence TTF positively (Rahi et al., 2020; Tam and Oliveira, 2019).

Technology characteristics are physical and logical tools (hardware and software), i.e., the look, feel, and speed of technology. An effective technology makes m-payment more attractive and useful for the users (Rahi et al., 2020). This factor can affect the long-term use of the technology (Tam and Oliveira, 2016b, 2019). For m-payment, the technology characteristics play an important role, and as users are carrying out monetary transactions, the speed of the operation and the response time are important factors. With the minimum technology characteristics, the users need to understand the actual working of tasks of m-payment (Tam and Oliveira, 2019; Wu and Chen, 2017).

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4 The TTF is the fit between task and technology characteristics (Goodhue and Thompson, 1995;
5 Wu and Chen, 2017). This attribute means that when m-payment users perceive a match between
6 task and technology (understand that the features and technological characteristics are suitable for
7 carrying out transactions) it will be possible to improve the usage and the continued usage of m-
8 payment (Tam and Oliveira, 2016b). Therefore, it is expected that the m-payment users will
9 perform the tasks efficiently (Rahi et al., 2020). When the m-payment tasks are easy to use, fast,
10 and provided anytime and anywhere, users will feel the usefulness of m-payment, thereby
11 increasing the work performance of the individual. Thus, we hypothesize:
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19 **H1a:** TTF positively influences use.

20 **H1b:** TTF positively influences individual performance.
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24 When users start to use any system, they start to perceive benefits. When using m-payment, users
25 will perceive its benefits and the level of perceived individual performance will increase. Earlier
26 studies report empirical support for the relationship between use and individual performance (Tam
27 and Oliveira, 2016a, 2016b). Thus, the frequent use of m-payment to check balances, make
28 transfers, pay for goods, etc. will influence the individual performance, and increase the intention
29 to continue using m-payment. When users perceive effortless use, and when they start perceiving
30 performance outcomes (Chang, Liu, and Chen, 2014), usage will become more frequent. When
31 the use of m-payment services starts to become automatic and users use it more often, we expect
32 that the continuance usage of m-payment will increase (Tam and Oliveira, 2016b). Thus, we
33 hypothesize:
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42 **H2a:** Use positively influences users' individual performance.

43 **H2b:** Use positively influences continuance intention.
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48 Individual performance is the perception on the part of an individual that m-payment enables the
49 accomplishment of tasks more easily and quickly. It suggests that individuals use m-payment if
50 they perceive that it would be useful and save time to conduct activities (DeLone and Mclean,
51 2003; Tam and Oliveira, 2016b). Tam and Oliveira (2016a) observed that TTF and use affect
52 individual performance. Dang et al. (2018) and Oliveira et al. (2014) revealed that TTF affects
53 performance expectancy. When the user perceives the performance of the IS they understand the
54 benefits of m-payment. In this way the individual performance can influence the intention to
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4 continue using m-payment. Nevertheless, for the task and technology characteristics, the user can
5 access m-payment anytime and anywhere. In this sense, by improving the perception of individual
6 performance it will be possible to improve continuance intention to use m-payment. Thus, we
7 hypothesize:
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11 **H3:** Individual performance positively influences continuance intention.
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15 With the evolution of IS, trust began to be important (Koksal, 2016). Some researchers divide trust
16 into three parts: competence, integrity, and benevolence (Oliveira et al., 2017). Competence
17 reflects the ability of an m-payment provider to enforce its promises to users. Integrity reflects the
18 m-payment provider's willingness to act reliably and honestly while keeping its promises.
19 Benevolence reflects the ability of an m-payment provider to ensure the welfare of its m-payment
20 users. In this sense, when the m-payment provider handles the user's transactions, is honest, keeps
21 its commitments, and acts in the best interest of the users, overall trust is positively influenced
22 (Chen and Dhillon, 2003; Oliveira et al., 2017). Thus, we hypothesize:
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29 **H4:** Benevolence positively influences users' overall trust.
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31 **H5:** Competence positively influences users' overall trust.
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33 **H6:** Integrity positively influences users' overall trust.
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37 Trust is a concept that has long been studied in a variety of disciplines (Oliveira et al., 2017; Palvia,
38 2009). In IS trust is the attitude of users to try to avoid risky situations when using IS (Palvia,
39 2009). Talwar et al. (2020) found that initial trust affects perceived usefulness and confirmation.
40 Shao et al. (2019) confirmed that trust affects continuance intention. In this sense, when the user
41 believes in the IS or has some level of confidence, (s)he will intend to use it (Oliveira et al., 2014).
42 Trust is an important factor in ensuring the use and continuance intention to use m-payment.
43 Therefore, for m-payment to succeed, the provider must ensure a low-risk situation in order to
44 improve the users' trust (Zhou, 2014). When the users have a high level of trust in m-payment and
45 the provider, the continuance intention to use m-payment will improve (Oliveira et al., 2017).
46 Thus, we hypothesize:
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53 **H7a:** Overall trust positively influences use.
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56 **H7b:** Overall trust positively influences users' continuance intention.
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4 Satisfaction reflects the feeling of an individual when using m-payment services (Bhattacharjee,
5 2001). When the usage experiences and performance outcomes are positively confirmed, it will be
6 possible to improve the users' satisfaction of a service or IS (Bhattacharjee and Lin, 2014). To
7 ensure the continued use of the m-payment, one must first use it, so using it is an important factor
8 (Zhou, 2014). In the use of m-payment trust plays an important role, and trust is therefore another
9 important factor for use (Shao et al., 2019). Additionally, when we use the m-payment its
10 advantages and benefits are recognized. Thus, we believe that the level of satisfaction that the user
11 has can moderate the impact of the use, trust, and individual performance in the continuance
12 intention to use m-payment. When users are pleased with the m-payment, the long-term
13 relationships become stronger (Yu et al., 2018). In our study we are proposing that satisfaction can
14 positively moderate the main relationships of continuance intention, namely: individual
15 performance, use, and overall trust on continuance intention (Carillo et al., 2017; Cho, 2016;
16 Mouakket, 2015; Yu et al., 2018). Thus, we hypothesize:

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28 **H8a:** User satisfaction positively moderates the impact of individual performance on continuance
29 intention.

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32 **H8b:** User satisfaction positively moderates the impact of use on continuance intention.

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34 **H8c:** User satisfaction positively moderates overall trust on continuance intention.

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37 Considering our proposed model, we expect that use and individual performance can be considered
38 as mediators. The consequence of overall trust on continuance intention can be direct or through
39 use. In addition, the consequence of use on continuance intention can be direct or through
40 individual performance. Thus, we hypothesize:

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44 **H9a:** Use positively mediates the relationship between overall trust and continuance intention.

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46 **H9b:** Individual performance mediates the relationship between use and continuance intention.

49 50 **4. Methods**

51 52 **4.1. Measurement**

53 We applied an online survey to collect data (Alraimi, Zo, and Ciganek, 2015; Chang and Zhu,
54 2012; Chen, Yen, and Hwang, 2012; Tam and Oliveira, 2016). We built a questionnaire with
55 constructs and items drawn from the literature (see Appendix A). The measurement items for
56 benevolence, competence, integrity, and overall trust are adopted from Oliveira et al. (2017); the
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4 TTF, use, and individual performance from Tam and Oliveira (2016); satisfaction and continuance
5 intention from Bhattacharjee and Lin (2014).
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10 **4.2. Data**

11 We used a seven-point scale to measure the items, ranging from 1 (totally disagree) to 7 (totally
12 agree). The survey was created and administered in English and revised for content validity by a
13 language professional. A professional translator translated the questionnaire into the Portuguese
14 language because the survey was administered in Mozambique. The questionnaire was then
15 translated back into English to ensure that the meanings were correct (Brislin, 1970). To validate
16 the instruments, we conducted a pilot test on a group of 30 students who were excluded from the
17 main sample. Overall, 384 valid responses were received. We applied the Kolmogorov-Smirnov
18 test (K-S) to examine the distribution of the two groups of respondents, and found no statistically
19 significant differences between the first and second groups. (Ryans, 1974). Harman's test
20 (Podsakoff et al., 2003) was used to check for common method bias, and confirmed no significant
21 bias. We collected the data between June 2018 and November 2018. Statistics indicate that 64%
22 of the respondents were professional workers, 59% were men, 39% had used m-payment one (1)
23 to four (4) times during the last 3 months (Table 2).
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37 **Table 2 - Sample characteristics**

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Age			
< 25	129	34%	
25 - 30	122	32%	
31 - 40	85	22%	
41 - 50	39	10%	
> 50	9	2%	
Gender			
Female	158	41%	
Male	226	59%	
Education			
High school or below	91	24%	
Bachelor's degree	179	47%	
Master's degree or higher	114	30%	
Employment			
Students	99	26%	
Professional workers	244	64%	
Retired	1	0%	

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Unemployed	40	10%
Marital status		
Single	187	49%
Married	86	22%
Divorced	23	6%
Widowed	10	3%
Marriage in fact (cohabitation)	75	20%
Do not know answers	3	1%
M-payment usage frequency (time / 3 months)		
1 - 4	149	39%
5 - 10	98	26%
> 10	137	36%

5. Data analysis and results

PLS-SEM (partial least squares structural equation modelling) with Smart PLS (v. 3.2.8) (Ringle et al., 2015) was used in this research to test and assess the hypotheses of the proposed model. Earlier research has recognized the potential of PLS-SEM for theory development (Alraimi et al., 2015; Côte-Real et al., 2020; Tam and Oliveira, 2016b). Additionally, the data are not normally distributed (K-S test), the research model is complex, and the research model has not been tested in the literature. Thus, PLS-SEM is an appropriate method for this research.

5.1 Measurement model

To evaluate the measurement model, we applied (1) the indicator reliability (considering good loading to be greater than 0.70), (2) construct reliability (using composite reliability (CR) indicator), (3) convergent validity (using average variance extracted (AVE)), and (4) discriminant validity. The results are reported in Tables 3 and 4. All CRs and AVEs are greater than the recommended threshold values of 0.70 and 0.50, respectively (Fornell and Larcker, 1981; Hair, Hult, Ringle, and Sarstedt, 2016; Henseler, Ringle, and Sinkovics, 2009).

Table 3 - Measurement model

Construct	AVE	Composite Reliability	Cronbach's Alpha	Item	Loadings	t-value
Task Technology Fit (TTF)	0.595	0.854	0.771	TTF1	0.757	30.595
				TTF2	0.829	33.772
				TTF3	0.801	33.594
				TTF4	0.690	16.863
USE (U)	0.654	0.883	0.823	U1	0.837	40.879
				U2	0.804	31.559
				U3	0.828	33.871
				U4	0.764	22.359
Individual Performance (IP)	0.678	0.863	0.762	IP1	0.845	53.862
				IP2	0.878	65.528
				IP3	0.742	19.317
Benevolence (B)	0.578	0.804	0.634	B1	0.733	15.976
				B2	0.819	33.241
				B3	0.725	13.953
Competence (COMP)	0.617	0.829	0.691	COMP1	0.780	25.168
				COMP2	0.796	28.684
				COMP3	0.781	25.036
Integrity (I)	0.634	0.874	0.806	I1	0.768	27.753
				I2	0.822	35.366
				I3	0.843	50.340
				I4	0.748	21.795
Overall Trust (OT)	0.639	0.876	0.812	OT1	0.813	35.953
				OT2	0.823	36.363
				OT3	0.788	24.712
				OT4	0.773	25.229
Satisfaction (S)	0.721	0.886	0.807	S1	0.868	52.255
				S2	0.860	46.628
				S3	0.818	28.705
Continuance Intention (CI)	0.696	0.873	0.782	CI1	0.837	43.392
				CI2	0.811	26.823
				CI3	0.854	56.534

Note: AVE: Average variance extracted.

Table 4 - Latent construct correlations and the square root of AVEs

	Mean	STDEV	TTF	U	IP	B	COMP	I	OT	S	CI
TTF	4.709	1.029	0.771								
U	4.877	1.291	0.458	0.809							
IP	4.679	1.183	0.626	0.504	0.824						
B	4.389	1.091	0.433	0.405	0.429	0.760					
COMP	4.501	1.144	0.479	0.545	0.435	0.456	0.786				
I	4.618	1.151	0.554	0.488	0.462	0.550	0.630	0.796			
OT	4.526	1.154	0.369	0.441	0.435	0.582	0.554	0.586	0.800		
S	4.612	1.251	0.452	0.624	0.428	0.483	0.615	0.522	0.518	0.849	
CI	4.679	1.204	0.552	0.576	0.579	0.444	0.518	0.471	0.438	0.473	0.834

Notes: STDEV: Standard deviation; TTF: Task technology fit; U: Use; IP: Individual performance; B: Benevolence; COMP: Competence; I: Integrity; OT: Overall trust; S: Satisfaction; CI: Continuance Intention.

All constructs fulfil the criteria (see Table 3), ensuring convergence. The Fornell-Larcker test was used to assess discriminant validity. For this the square root of AVE of each construct should be greater than the correlation between constructs (Fornell and Larcker, 1981) (see Table 4). Moreover, we examined the cross-loadings criteria (Appendix B), and heterotrait-monotrait ratio of correlations (HTMT) (Appendix C). Each item presents higher loading on its corresponding factor than the cross-loading, ensuring discriminant validity (Chinn, 1998; Götz et al., 2010). Based on HTMT (Appendix C), we can see that all the values are below 0.90, and conclude for discriminant validity (Henseler et al., 2015). The results indicate that the constructs are statistically distinct, and thus, we can assess the structural model. This means that the measurement model results indicate good indicator reliability, construct reliability, convergence validity, and discriminant validity.

5.2 Structural model

The results of the structural model were examined by the path coefficients that present the strength of the constructs' relationships, variance inflation factor (VIF), t-statistic value, and variance explained (R^2) to validate the hypotheses and constructs (see Fig. 2). The structural model examination used 5000 bootstrap resamples to estimate the paths' significance (Henseler et al., 2009). We tested the VIF to assess the multicollinearity and all the constructs are below the threshold of 5, thus indicating the absence of multicollinearity (Hair et al., 2016).

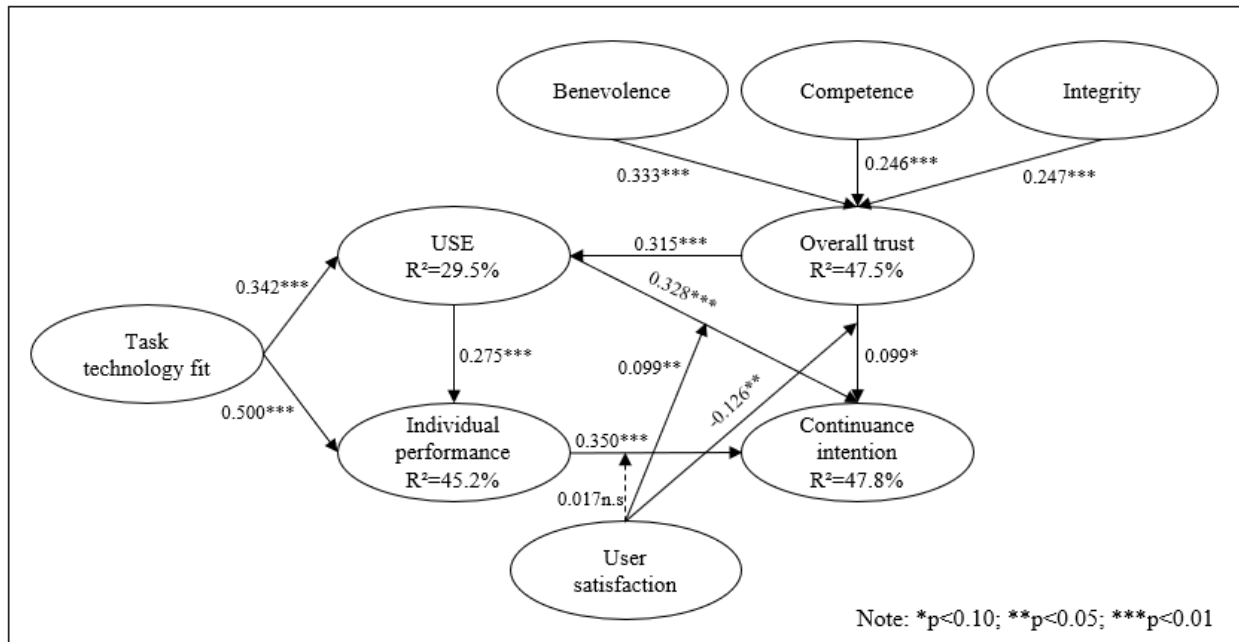


Figure 2 - Research model

Regarding R^2 (see detail in Fig. 2), the results of the PLS structural model explain 29.5% of the variation in use. The task technology fit, and overall trust are significant in explaining use, thus, confirming H1a and H7a. The research model explains 45.2% of the variation in individual performance and are explained by task technology fit and use, confirming H1b and H2a. The research model explains 47.5% of overall trust variation, explained by benevolence, competence, and integrity, confirming H4, H5, and H6. The research model explains 47.8% of the continuance intention, explained by use, individual performance, and overall trust, confirming H2b, H3, and H7b. Additionally, three moderating effects (H8a, H8b, and H8c) were examined. The findings showed that H8b and H8c were significant, and H8a was not statistically significant. However, the moderation effect of H8c is negative, meaning that greater user satisfaction will be weaker in the relationship between overall trust to continuance intention, thus confirming H8b and H8c.

5.3. Mediating role of use and individual performance

The findings reveal that there are mediation effects on some constructs. Mediation effect (indirect effect) is presented by a third intervening variable between an independent and a dependent construct (Hair Jr. et al., 2016). We performed a mediation analysis and the results (Table 5) show

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4 that individual performance is a partial mediator between use and continuance intention. Also, use
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6 is a partial mediator between overall trust and continuance intention.
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10 **Table 5 - Mediation analysis**

	Beta	t-Test	p-Value	conclusion
H9a: OT → U → CI	0.103	3.922	0.000	Partial mediation
H9b: U → IP → CI	0.096	3.635	0.000	Partial mediation

16 Notes: Use (U); individual performance (IP); overall trust (OT), and continuance intention (CI).
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19 **6. Discussion**

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21 We developed and validated a conceptual model that explains the importance of the TTF model
22 and overall trust toward continuance intention to use m-payment. The findings show that 13 of the
23 15 hypotheses were confirmed (Table 6). Overall trust can influence use and continuance intention
24 to use m-payment. Overall trust is supported by benevolence, competence, and integrity. This
25 means that m-payment service providers should ensure the best interests of their end-users, service
26 support should do its best to assist users, and end-users should feel supported and confident with
27 the services. Additionally, the service provider must be honest with users, keeping its
28 commitments with the end-users. When the m-payment service provider has enough expertise to
29 support users, the users will start trusting the provider and the technology, thereby motivating them
30 to use m-payment, and boosting their intention to continue using m-payment (Oliveira et al., 2017;
31 Yu et al., 2018; Zhou, 2011). By improving users' overall trust, it will be possible to improve use
32 and the intention to continue using m-payment (Zhou, 2013, 2014). TTF positively impacts use
33 and individual performance. The task and technology characteristics are fundamental to the use of
34 m-payment, considering that users have different experiences. Users must realize that the features
35 are objective, easy to use, with perceptible information, and that the characteristics of the
36 technology are adequate to use the functionalities. For example, in Mozambique, service providers
37 should ensure a greater fit of task and technology characteristics to enhance the usage of m-
38 payment by users (Tam and Oliveira, 2016b).
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56 Considering the limitations of banking infrastructure, in terms of space and time, m-payment is a
57 useful alternative as it provides real-time services anytime and anywhere and is an attractive
58 alternative for people who live far from banks (Yu et al., 2018). By improving the task and
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technology characteristics, it will be possible to improve the use and perceived individual performance of end-users, and consequently improve the intention to continue using m-payment. Use positively affects individual performance and continuance intention to use m-payment. However, when the users sense trustworthiness and that m-payment providers deliver adequate services with good characteristics to end-users, they will feel satisfied and motivated to use m-payment, consequently perceiving the performance of m-payment and being satisfied to continue using it (Fan, Shao, Li, and Huang, 2018; Liébana-Cabanillas et al., 2018). Individual performance positively influences continuance intention to use m-payment. When end-users understand that m-payment is useful for their daily financial activities, helps them to accomplish their tasks easily, and enables them to do tasks more quickly, users perceive individual performance, and continue using m-payment. The m-payment provider should ensure good m-payment characteristics that are easy to use, easy to interpret, fast, and available anywhere and anytime. Doing so will allow the users to perceive the benefits, guaranteeing perceived individual performance (Larsen et al., 2009; Tam and Oliveira, 2016b). By improving individual performance, it will be possible to improve the intention to continue using m-payment.

Table 6 – Results of the hypotheses

Hypotheses	Independent construct	→	Dependent construct	Findings (β)	P-value	Support
H1a	Task technology fit	→	Individual performance	0.500	0.000	Yes
H1b	Task technology fit	→	Use	0.342	0.000	Yes
H2a	Use	→	Individual performance	0.275	0.000	Yes
H2b	Use	→	Continuance intention	0.328	0.000	Yes
H3	Individual performance	→	Continuance intention	0.350	0.000	Yes
H4	Benevolence	→	Overall trust	0.333	0.000	Yes
H5	Competence	→	Overall trust	0.246	0.000	Yes
H6	Integrity	→	Overall trust	0.247	0.000	Yes
H7a	Overall trust	→	Use	0.315	0.000	Yes
H7b	Overall trust	→	Continuance intention	0.099	0.071	Yes
H8a	Individual performance * Satisfaction	→	Continuance intention	0.017	0.778	No
H8b	Use * Satisfaction	→	Continuance intention	0.099	0.033	Yes
H8c	Overall trust * Satisfaction	→	Continuance intention	-0.126	0.025	No

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4 Additionally, satisfaction moderates the relationships amongst use and overall trust of m-payment
5 to explain continuance intention (Susanto et al., 2016; Yu et al., 2018). When the use of m-payment
6 is moderated by the existence of satisfaction, it is observed that the impact will be high to explain
7 continuance intention to use m-payment. In contrast, the moderating effect of satisfaction on
8 overall trust to explain continuance intention will be weaker. In this sense, if m-payment users
9 have a high level of satisfaction, use will gain strength, and overall trust will lose strength in
10 explaining m-payment continuance intention. The findings also reveal that individual performance
11 is a partial mediator between use and continuance intention, and use is a partial mediator between
12 overall trust and continuance intention. When users have confidence of m-payment, in the services,
13 and value the reliability properties, they increase their intention to continue using m-payment.
14 With use mediation and frequent use of m-payment, trust improves, and consequently intention to
15 continue using m-payment increases. This means that when the users use m-payment in their daily
16 lives to buy products or services and transfer or withdraw money, the intention to continue using
17 it increases. During m-payment use, perceived individual performance such as accomplishing tasks
18 quickly, easily, and perceiving the usefulness of m-payment in everyday life, enhances the positive
19 impact of continuance intention to use m-payment. Thus, m-payment providers should ensure fast
20 task completion, ease of use, and provide services that are useful for the user.
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37 We plotted the moderations of satisfaction to better understand their behaviour (Fig. 3) (Aiken et
38 al., 1991). Figure 3 illustrates that use of m-payment has a more significant impact on m-payment
39 continuance intention when user satisfaction is higher. Thus, with a higher level of user
40 satisfaction, the use of m-payment will increase the intention to continue using m-payment.
41 Additionally, overall trust has a low significant impact on m-payment continuance intention when
42 user satisfaction is higher. Therefore, the importance of overall trust for m-payment continuance
43 intention is important when user satisfaction is low.
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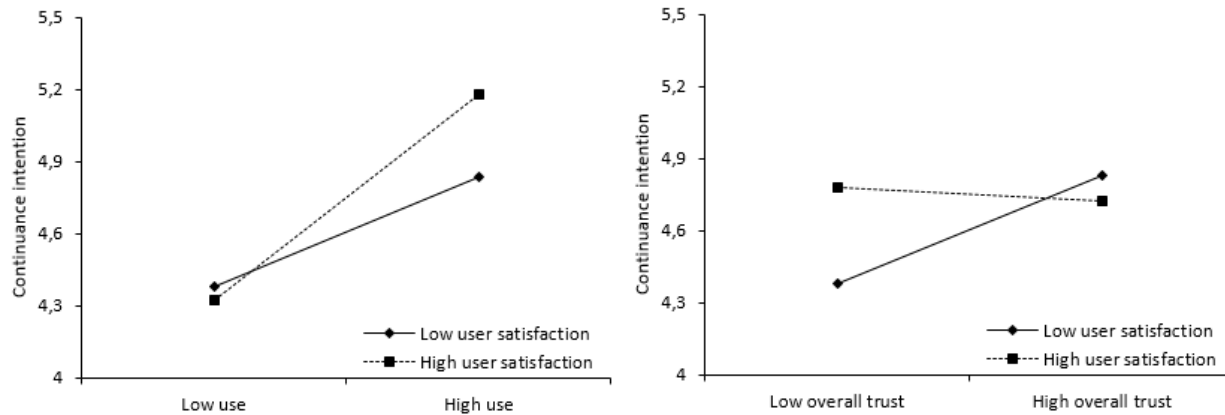


Figure 3 - Moderation effect of user satisfaction

6.1. Theoretical implications

The current study investigates the continuance intention to use m-payment. We joined TTF, overall trust, and ECM. Our results indicate that both TTF and overall trust are important and should be considered when evaluating the continuance intention to use m-payment or similar systems. This means that users' perceptions associated with the level of fit between features and technology, as well as users' confidence in using m-payment may ultimately lead to the intention to continue using m-payment. The study joins the TTF, overall trust, and ECM models to evaluate m-payment, which has not been reported in previous literature. TTF and overall trust were combined to explain continuance intention of the ECM, which is, nevertheless, a well-known model and is one of the most popular and widely accepted models (Bhattacharjee, 2001). The findings suggest that the integration of TTF and overall trust present predictive power to explain continuance intention. Individual performance, use, and overall trust explain 47.8% of the variation in continuance intention. This result indicates that our model performs well compared to previous studies such as the original ECM (Bhattacharjee, 2001), which explained $R^2=41\%$, Idemudia et al. (2018), which explained $R^2=46\%$, Albashrawi and Motiwalla (2019), which explained $R^2=45.9\%$, and Gong et al. (2020), which explained $R^2=41.6\%$. Thus, indicating that TTF and overall trust are important antecedents for m-payment continuance intention.

Second, the model was applied in the African context for m-payment, addressing the concept of continuance intention (Humbani and Wiese, 2019). To the best of our knowledge, very few studies have addressed continuance intention in this context. Therefore, with the proposed model researchers in the IS field can adapt it to suit other situations in the future. Third, the findings

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4 suggest that individual performance and use are the strongest predictors of continuance intention
5 in the context of m-payment. Nevertheless, the results show that the constructs of overall trust and
6 satisfaction must be taken into consideration when addressing continuance intention
7 (Bhattacharjee and Lin, 2014; Zhou, 2014). In the Bhattacharjee (2001) model satisfaction is the
8 strongest predictor of continuance intention. In our model satisfaction was explored as a moderator
9 of use, individual performance, and overall trust in continuance intention. The results show that
10 satisfaction moderates the relationship between use and overall trust on continuance intention.
11 Interestingly, the moderation effect in the relationship of overall trust on continuance intention is
12 negative, suggesting that when the level of satisfaction is high, trust is not an important factor
13 influencing continuance intention, suggesting that user trust is important only when the level of
14 satisfaction is low. The results also suggest that the constructs of individual performance and use
15 are partial mediators of use and continuance intention, and overall trust and continuance intention,
16 respectively. This study demonstrates that the proposed model provides support for the importance
17 of the added constructs, such as the trust dimension to explain continuance intention. The study
18 shows that TTF is an important predictor of m-payment use and perceived individual performance
19 (Oliveira et al., 2014; Tam and Oliveira, 2016b). Use is an important predictor of perceived
20 individual performance and m-payment continuance intention. Overall trust, use, and perceived
21 individual performance are important predictors of continuance intention.
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41 **6.2. Practical implications**

42 Our study has several practical implications for m-payment decision-makers and providers. Our
43 results suggest that m-payment providers seeking long-term usage should focus on real-time
44 accessibility, real-time services, and services that are quick and secure in order to enhance the task
45 and technology fit of m-payment (Ouyang et al., 2017). This finding is very important to decision-
46 makers and providers because when they provide services with a better fit between task and
47 technology (e.g., providing tasks that are easy to use, enhancing system speed, reducing system
48 downtime, etc.), it will affect the use of m-payment, increase the perceived individual
49 performance, and consequently enhance m-payment continuance intention. In this sense, if m-
50 payment providers want their active customers (users) to continue using m-payment, they should
51 provide adequate services to them.
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6 This study implies that benevolence, competence, and integrity have significant impacts on overall
7 trust (Oliveira et al., 2017; Tam et al., 2019). This, in turn, suggests that m-payment providers
8 should handle m-payment transactions, be truthful to users, act genuinely with users, keep their
9 commitments, and do their best to help users, especially when it involves fraud, or pending
10 transactions. Doing these, it will be possible to increase users' trust in m-payment. Perceived
11 benevolence occurs when the user believes that the m-payment provider acts in their best interest,
12 and if needed the provider will do their best to help. Perceived competence is when the user
13 believes that the m-payment provider has the ability to handle m-payment transactions. Perceived
14 integrity occurs when the user believes that the m-payment provider acts sincerely, is honest, and
15 keeps to their commitments. Therefore, in order to improve the reliability for users, the m-payment
16 provider should be honest and user-oriented to create a good image, because users need to believe
17 that the m-payment provider will always fulfil their promises. This might encourage users to use
18 and continue using m-payment (Oliveira et al., 2017; Palvia, 2009).
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32 However, to enhance the continuance intention to use m-payment, the provider should ensure
33 trustworthiness and provide quick and easy to use tasks that are easy to understand in order to
34 ensure perceived individual performance of users. Considering the moderating effects of
35 satisfaction, the m-payment provider should ensure a high level of satisfaction to improve the use
36 of m-payment. When the users are satisfied, they will use and also invite others to use m-payment.
37 Based on these findings, it is recommended that the m-payment provider base its action plans on
38 the determinants that influence m-payment users, such as task-technology fit, trust, perceived
39 individual performance, and the use of m-payment.
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48 **6.3. Limitations and future research**

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50 Some limitations exist in our study. The data were collected in Mozambique, and to generalize the
51 applicability of the study, it is suggested that future studies could be conducted in other African
52 countries. The sample represents a highly educated population because we collected the data at
53 universities, but most m-payment users are from the rural areas of Mozambique. Future studies
54 may test our model in a different part of the country and/or in another African country. Considering
55 that gender equality is an interesting and important topic in the African context (Humbani and
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4 Wiese, 2018), future research may examine the differences between genders. This study is related
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6 to a single type of technology (m-payment); a comparison with another technology (e.g., m-
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8 banking) might reveal other insights and enhance generalization. Considering that cultural factors
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10 play an important role in an African context, future research might include some cultural factors,
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12 such as uncertainty avoidance or individualism.
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14 15 **7. Conclusions** 16

17 The rise of m-payment in Africa has brought many opportunities to people, and banks are changing
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19 the way that they provide services to local communities (Batista and Vicente, 2018; Humbani and
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21 Wiese, 2018). Our study empirically assesses TTF and the dimension of trust amongst users to
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23 create the intention to continue using m-payment. This study contributes to the literature by
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25 providing a theoretical model to explain continuance intention to use m-payment. It provides a
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27 baseline to decision-makers and providers of how technological factors and trust are important to
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29 ensure long-term usage of m-payment. The results demonstrate that the most important factors to
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31 explain m-payment continuance intention are individual performance, use, and overall trust.
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33 Individual performance and use play important roles as partial mediators between use-continuance
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35 intention and overall trust-continuance intention. Our results show that satisfaction has significant
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37 importance as a moderator between use and overall trust on continuance intention.
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Conflict of Interest

The authors have no competing interests to declare that are relevant to the content of this article.

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Appendix A. Questionnaire for the constructs

Nº	Constructs	Questionnaire Items	Source
1	Competence (COMP)	COMP1. M-payment has the ability to handle my transactions. COMP2. M-payment has sufficient expertise to do business on the network. COMP3. M-payment vendor is very knowledgeable about the technology.	(Oliveira et al., 2017)
2	Integrity (I)	I1. I believe m-payment is honest with its users. I2. I believe m-payment acts sincerely in dealing with users. I3. I believe m-payment is truthful in its dealings with me. I4. I believe m-payment would keep its commitments.	(Oliveira et al., 2017)
3	Benevolence (B)	B1. I believe m-payment would act in my best interest. B2. If I required help, m-payment personnel would do their best to help me. B3. M-payment vendor is interested in my well-being, not just its own.	(Oliveira et al., 2017)
4	Overall Trust (OT)	OT1. I like to trust m-payment. OT2. I find m-payment trustworthy. OT3. I like the reliability of m-payment. OT4. I value the trustworthy characteristics of m-payment.	(Oliveira et al., 2017)
5	Task Technology Fit (TTF)	TTF1. M-payment services are appropriate. TTF2. M-payment account management services are appropriate. TTF3. Real-time m-payment services are appropriate. TTF4. In general, m-payment services are enough.	(Tam & Oliveira, 2016b)
6	Use (U)	U1. I use m-payment. U2. I use m-payment to buy products and services. U3. I use m-payment to make transfers. U3. I use m-payment to withdraw money.	(Tam & Oliveira, 2016b)
7	Individual Performance (IP)	IP1: M-Payment enables me to accomplish tasks more quickly. IP2: M-Payment makes it easier to accomplish tasks. IP3: M-Payment is useful for my job.	(Tam & Oliveira, 2016b)
8	Satisfaction (S)	S1. I am very pleased to use m-payment. S2. I am very happy with m-payment. S3. I am delighted with m-payment.	(Bhattacharjee & Lin, 2014)
9	Continuance Intention (CI)	CI1. I intend to continue using m-payment rather than discontinue its use. CI2. My intentions are to continue using m-payment rather than manual processing or other alternative means. CI3. I plan to continue using m-payment in my job.	(Bhattacharjee & Lin, 2014)

Appendix B. Cross loadings

	TTF	U	IP	B	COMP	I	OT	S	CI
TTF1	0.757	0.416	0.501	0.417	0.472	0.483	0.389	0.456	0.515
TTF2	0.829	0.353	0.466	0.323	0.351	0.452	0.305	0.365	0.439
TTF3	0.801	0.352	0.489	0.323	0.391	0.466	0.216	0.301	0.429
TTF4	0.690	0.278	0.471	0.256	0.240	0.286	0.208	0.250	0.296
U1	0.368	0.837	0.440	0.329	0.432	0.395	0.346	0.494	0.534
U2	0.354	0.804	0.404	0.334	0.464	0.395	0.362	0.497	0.490
U3	0.409	0.828	0.405	0.336	0.430	0.392	0.343	0.526	0.422
U4	0.353	0.764	0.379	0.311	0.438	0.397	0.378	0.505	0.409
IP1	0.607	0.451	0.845	0.350	0.386	0.416	0.328	0.394	0.498
IP2	0.525	0.419	0.878	0.352	0.379	0.392	0.361	0.354	0.501
IP3	0.392	0.370	0.742	0.365	0.304	0.327	0.400	0.300	0.427
B1	0.322	0.361	0.356	0.733	0.374	0.443	0.456	0.399	0.372
B2	0.309	0.300	0.330	0.819	0.339	0.422	0.477	0.370	0.357
B3	0.366	0.257	0.289	0.725	0.327	0.387	0.385	0.328	0.274
COMP1	0.393	0.453	0.393	0.395	0.780	0.518	0.464	0.526	0.462
COMP2	0.295	0.432	0.318	0.296	0.796	0.422	0.402	0.443	0.395
COMP3	0.434	0.398	0.310	0.376	0.781	0.537	0.435	0.474	0.359
I1	0.429	0.372	0.303	0.376	0.512	0.768	0.493	0.426	0.354
I2	0.469	0.378	0.319	0.421	0.526	0.822	0.432	0.432	0.419
I3	0.460	0.417	0.421	0.474	0.497	0.843	0.485	0.418	0.383
I4	0.404	0.384	0.428	0.482	0.470	0.748	0.447	0.381	0.345
OT1	0.308	0.343	0.364	0.529	0.449	0.497	0.813	0.405	0.367
OT2	0.296	0.363	0.364	0.430	0.434	0.509	0.823	0.392	0.321
OT3	0.312	0.362	0.372	0.430	0.449	0.432	0.788	0.383	0.356
OT4	0.264	0.342	0.289	0.467	0.440	0.432	0.773	0.475	0.356
S1	0.437	0.634	0.413	0.439	0.561	0.466	0.457	0.868	0.432
S2	0.355	0.499	0.324	0.357	0.507	0.460	0.440	0.860	0.406
S3	0.354	0.444	0.350	0.435	0.495	0.398	0.421	0.818	0.362
CI1	0.437	0.511	0.483	0.349	0.447	0.398	0.370	0.392	0.837
CI2	0.473	0.415	0.431	0.373	0.384	0.357	0.323	0.378	0.811
CI3	0.474	0.508	0.528	0.389	0.459	0.420	0.397	0.412	0.854

Notes: TTF: Task technology fit; U: Use; IP: Individual performance; B: Benevolence; COMP: Competence; I: Integrity; OT: Overall trust; S: Satisfaction; CI: Continuance Intention.

Appendix C. Heterotrait-monotrait ratio of correlations (HTMT)

	TTF	U	IP	B	COMP	I	OT	S	CI
TTF									
U	0.571								
IP	0.805	0.633							
B	0.618	0.557	0.619						
COMP	0.642	0.722	0.592	0.684					
I	0.695	0.599	0.586	0.769	0.839				
OT	0.459	0.541	0.560	0.804	0.737	0.721			
S	0.562	0.761	0.540	0.673	0.817	0.644	0.639		
CI	0.703	0.711	0.744	0.625	0.698	0.592	0.547	0.592	

Notes: TTF: Task technology fit; U: Use; IP: Individual performance; B: Benevolence; COMP: Competence; I: Integrity; OT: Overall trust; S: Satisfaction; CI: Continuance Intention.