

Modelling the determinants of consumers' intentions to use mobile payment services: evidence from Cameroon

Diangha Sylvanus NGOATA¹, Richard NKENE NDEME^{2*}, Marcel Theodore NGAMBI³

¹University of Yaoundé II, Cameroon, sdianghasylvanus@gmail.com

²University of Yaoundé II, Cameroon, nkenendemerichard@gmail.com

³University of Yaoundé II, Cameroon, marcelngambi@yahoo.com

*Corresponding author

Résumé : Cet article propose une extension du modèle UTAUT2 “Unified Theory of Acceptance and Use of Technology” que nous appelons modèle du marketing de la demande, centré sur le client (MDC), afin d'examiner comment les caractéristiques du système de paiement mobile, c'est-à-dire les variables centrées sur le consommateur et les actions de marketing des entreprises, influencent les intentions des consommateurs d'utiliser le paiement mobile. Pour atteindre cet objectif, un questionnaire auto-administré a été utilisé afin de recueillir des données auprès de 462 utilisateurs actuels du mobile money dans les villes de Yaoundé et Douala. Un modèle d'équation structurelle permet de tester les hypothèses de l'étude. Les résultats indiquent que la perception par le consommateur de l'effort espéré “effort expectancy”, de l'influence sociale, de la performance espérée “performance expectancy” et de la sécurité du système de paiement, aussi bien que les promotions et l'évidence physique, ont une influence positive sur l'intention du consommateur d'utiliser les paiements mobiles. Les processus de paiement et le prix perçu ont une influence négative sur l'intention d'utiliser les paiements mobiles. Ce qui suggère que, pour assurer une plus grande utilisation des paiements mobiles, les fournisseurs doivent développer un service de paiement facile à utiliser, pratique, sécurisé, fiable et attrayant, avec des moyens fiables de traçabilité et de récupération des paiements erronés ; ils doivent également capitaliser sur les SMS, le bouche-à-oreille, et les médias sociaux pour promouvoir le service. Ce travail contribue à la littérature existante sur les paiements mobiles en prenant en compte les efforts de marketing de l'entreprise.

Mots clés : adoption, paiement mobile, UTAUT 2, MDC, intention d'utiliser.

Abstract : This paper proposes an extension of the UTAUT2 (Unified Theory of Acceptance and Use of Technology) model that we name the Supply-Marketing-Consumer centric model (SMC), to examine how mobile payment system characteristics i.e. consumer-centric variables and firms marketing actions influence consumers' intentions to use mobile payment. To achieve this, a self-administered questionnaire was used to source data from 462 current adopters of mobile money in the towns of Yaoundé and Douala. Also structural equation modelling helped in testing the study hypotheses. The results indicate that the consumer's perception of effort expectancy, social influence, performance expectancy, and security of the payment system, as well as the firms' promotions and physical evidence, have a positive influence on consumers' usage intention. The payment processes and the perceived price have a negative influence on usage intention. This suggests that, to ensure a wide usage of mobile payments, providers need to develop an easy-to-use, convenient, secure, reliable, and attractive payment service, with reliable means for the traceability and recoverability of wrong payments; and capitalize on SMS, word-of-mouth, and social media channels to

promote the service. The work contributes to the extant literature on mobile payment by integrating the company's marketing efforts.

Keywords: Adoption, Mobile payment, UTAUT 2, SMC, Usage intention.

Classification JEL: M15, M31.

1. Introduction

In a highly globalized and increasingly digitalized economy, as the one we live in today, transaction systems are becoming remote. In such an environment, the search for sustainable growth and competitive advantage by both private and public organizations is a major preoccupation. The advent of ICT has enabled remote transactions between businesses and their clients, states, and other states through what is commonly known as electronic commerce and payment. According to Mallat (2006), "the advancement in mobile telecommunications technology, a high penetration rate of mobile phones, and the success of early mobile content and services such as logos and ring tones have rendered the mobile device a suitable vehicle for arching the social and economic objectives". Today, the use of mobile phones especially smartphones has become an unavoidable habit in people's daily life (Pan, *et al.*, 2022). Due to its ubiquitous characteristics and high penetration rate mobile device has become an attractive and reliable medium for diverse services and product delivery to most of the world population. Some of the services offered to consumers through mobile phones today are advertising, mobile marketing, discounts, or coupons (Oliveira et al, 2016), access to information, entertainment, transaction permissions such as ticket booking, tracking orders, banking services and verification of records and a new trend called "mobile payment" (Abrahão et al., 2015). This last service is the focus of our study.

Mobile payments originated from an endeavour of leveraging existing mobile communications networks which have a far greater reach than banks, to deliver financial services to the world's poor, so that they could become included in financial relations (Kremers and Brassett, 2017; Maurer *et al.*, 2013a). This phenomenon is the outcome of an evolution from electronic commerce, e-payments as well as electronic banking, to mobile commerce and finally mobile payment in the late 1990s and 2000s. Mobile payment is an ICT innovation that is hoped to take over the traditional methods of payments as it appears to be a more suitable means of payment to consumers and organizations in terms of convenience, accessibility, time saving, and cost savings. Statistics indicate that the economic scale of mobile payment could reach \$12.06 billion by 2027, with an annual growth rate of 30.1% (Pramod and Shadaab, 2022).

Despite the presence of improved solutions for mobile payments and their relevance in today's business setting as a new technological advancement, the problems of its acceptance and usage by both consumers and businesses remain a major challenge (Man, 2018). As noted by Dahlberg and Mallat (2002), both mobile and electronic payment in general have failed and their penetration rate remains far lower than expected. No country has been able to achieve huge consumer acceptance of mobile payment (MasterCard, 2014). As such, some researchers including Slade et al. (2015) and Oliveira et al. (2016) suggest further studies to better understand the drivers and inhibitors of mobile payment so as to ensure overall acceptance. Also, research on the determinants of consumers' acceptance or use of mobile payment (Abrahão *et al.*, 2015; Slade *et al.*, 2015; Oliveira *et al.*, 2016; Lin, Wan and Chen, 2019) for example, has given only minor consideration to marketing actions which constitute an essential influence on consumer behaviour. Therefore, our main question is : **does a model that combine both mobile payment system characteristics and marketing efforts act more on consumers' acceptance ?**

This study is realised in the context of Cameroon which is marked by a very low bank account access of about 20%, but with over 17.8 million mobile phone subscribers (Business in Cameroon, 2018). Despite the diverse mobile payments solutions (MTN Mobile Money, Orange Money, Express Union, Monifone, Africpay, YUP by SGC, Nextel “Possa”), offered in this economy, only 25% of the total mobile phone subscribers in Cameroon have a mobile payment account (Telecommunication Regulation Board “ART” (2017), unlike in neighbouring Sub-Saharan countries like Kenya where this rate stands at over 90% and contributes about 74% GDP compared to 1.71% GDP in case of Cameroon (Bidiassé and Mvogo, 2019). Evidently, of the 887 million that entered the mobile money system in Cameroon in 2017, 77% was in the form of P2P transfer and just 8% of it served for payment (media intelligence, 2019). Cash payments still account for over 70% of total payments. The methodology used is quantitative, based on structural equation modelling; this method is justified by the existence of many latent variables.

The remaining part of the paper includes sections on literature review, methodology, data analysis and the discussion of results.

2. Literature Review

This section will focus on mobile payments and the factors that influence mobile payment adoption and usage.

2.1. Mobile payment

Diverse meanings have been associated with mobile payment which is connected to the purchase, payment, or transfer of values through the mobile device without the need for cash or the participation of banking institutions (Dahlberg et al., 2008; Rao and Troshani, 2007). This means, making purchases through a portable device (a smartphone or a Personal Digital Assistant (PDA) for example) by using wireless and other communication technologies such as telecommunication networks and proximity technologies (Dahlberg et al. 2008). We can thus consider mobile payment as the transfer of money by an individual to another (P2P), to a business (C2B); the transfer of money from a business to another business (B2B), to persons (B2P) initiated through a mobile device online (inside m-commerce) or offline (outside m-commerce), at a close (proximity payment) or distant location (remote payments) in exchange for a good or service from the receiver.

Remote payments are those that can be made anytime, anywhere, and do not require a point-of-sale (POS) terminal. They may be person-to-person or person-to-business payments (Becker, 2007). Meanwhile, proximity payment requires the mobile phone to make contact with a terminal in a very close location. It necessitates the installation of a chip in the mobile device to store the user's account information.

2.2. From the traditional UTAUT 2 to the extended UTAUT 2 (the Supply-Marketing-Consumer centric model (SMC))

In the specific case of technological acceptance and usage, a series of theories have been established and applied in explaining consumers' or business behaviour towards the adoption of new technology or innovation. The most frequently used of these theories include TRA, (Ajzen and Fishbein 1975), TPB, (Ajzen, 1991), TAM, (Davis, 1989), DOI, (Rogers 1995), TAM2 (Venkatesh and Davis, 2000), UTAUT, (Venkatesh et al., 2003), UTAUT2, (Venkatesh et al., 2012), and theories of technological readiness such as PERM (Molla and Icker, 2005) and TRI (Parasuraman, 2000). Most recent studies (Kim et al, 2010; Wang and Yi, 2012; Slade et al., 2015; Oliveira *et al.*, 2016; Mugambe, 2017; Palau-Saumell *et al.*, 2019; hit *et al.*, 2023) have applied the UTAUT model and its extension (UTAUT 2) to explain the determinants of consumer's mobile payment adoption behaviours. This model holds that the intention to use technology is determined by performance

expectancy, effort expectancy, social influence and facilitation conditions (UTAUT) plus hedonist motivation, price value, and habit (UTAUT 2), moderated by age, gender, and experience.

A close look at these models enables us to notice that they do not consider marketing effort; of which the marketing mix has been proven to be a key influence in consumer decision-making by Consumer Decision-Making Models (CDMM) such as the Nicosia Model (Nicosia, 1966), the Consumers Decision Making Process Model (Engel, Kollat, & Blackwell, 1968) and the Model of Buyer Behaviour (Howard & Sheth, 1969).

2.2.1. Performance expectancy and behavioural intention to use mobile payment

According to Venkatesh *et al.* (2012), performance expectancy is the extent to which the use of technology will provide benefits to consumers in performing certain activities. Within the field of m-payment, several researchers (Venkatesh *et al.*, 2003; Zhou *et al.*, 2010; Wang and Yi, 2012; Slade *et al.* 2015; Oliveira *et al.* 2016; Mugambe, 2017; Paul-Saumell *et al.* 2019 ; Abou-Shouk and Soliman, 2021) empirically indicate that performance expectancy has a positive effect on m-payment services adoption. An individual's perception of the ubiquity and convenience offered by remote mobile payments in transactions is likely to influence his behavioural intention to use the service. This study presumes:

H1: Performance Expectancy positively influences consumers' intention to use m-payment

2.2.2. Effort Expectancy and behavioural intention to use mobile payment

Effort expectancy refers to “the degree of ease associated with consumers' use of technology” (Venkatesh *et al.*, 2012). Controversial results have been observed in m-payment studies in relation to this concept. While some researchers' findings (Chong, 2013; Abrahão *et al.*, 2015; Musa *et al.*, 2015; Palau-Saumell *et al.*, 2019) indicate that Effort Expectancy has a positive effect on m-payment adoption, others (Wang and Yi, 2012; Slade *et al.*, 2015; Oliveira *et al.*, 2016; Mugambe, 2017) results contradict this finding by indicating no significant relationship between effort Expectancy and behavioural intention to use m-payment. Hence in line with UTAUT stipulation, this study presumes that :

H2: Effort expectancy has a positive influence on consumers' behavioural intention to use m-payment

2.2.3. Social Influence and behavioural intention to use mobile payment

To Venkatesh *et al.*, (2012), it is the degree to which consumers perceive that important others (like family and friends) believe they should use a particular technology. When a consumer's belonging and reference group judgments are positive about using mobile payments, he will likely be encouraged to adopt the services. The majority of findings (Mbogo, 2010; Slade *et al.*, 2015; Ahmed & Ali, 2017; Mugambe, 2017; Lwoga & Lwoga, 2017) indicate a significant positive effect of social influence on BIA m-payment service, even though the findings of Wang and Yi (2012) and Lin *et al.* (2019) in the context of China and Changchit *et al.* (2023) in Vietnam did not find any significant influence. Since mobile payment is still very new in Cameroon which is an economy characterized by high social ties among its populations, this study presumes in line with UTAUT and the majority of findings that:

H3: Social influence positively influences consumers' behavioural intention to use m- payment

2.2.4. Facilitating conditions and behavioural intention to use mobile payments

Facilitating conditions (FC) refers to consumers' perceptions of the resources and support available to perform a behaviour (Venkatesh *et al.*, 2012). Wang and Yi, (2012), Oliveira *et al.* (2016), Lin *et al.* (2019) findings establish that there exists no significant relationship between facilitating condition and behavioural intention. On the contrary, Mugambe (2017); Palau-Saumell

et al. (2019) findings conclude that facilitating conditions have a positive significant influence on consumers' adoption decisions. According to Oliveira et al. (2016), if an operational infrastructure exists and supports the use of m-payment, the behavioural intention to use mobile payment will increase. Thus this study presumes that:

H4: Facilitating conditions positively influence consumers' behavioural intention to use m-payment

2.2.5. Price value/cost and intention to use mobile payment

According to Oliveira et al. (2016), Dodds et al. (1991), price value is a consumer's cognitive trade-off between the perceived benefits of the applications and the monetary cost of using them. The price value is positive when the benefits of using technology are perceived to be greater than the monetary cost (Venkatesh *et al.*, 2012). According to Abrahão et al. (2015), Mugambe (2017) and Lin et al. (2019), Price has no significant influence on behavioural intention to adopt mobile payment. However, empirical findings revealed a negative relationship between cost and adoption intention of mobile payment services by consumers. Based on the low-income status of households in Cameroon, this study presumes that:

H5: Price value/cost has a negative influence on consumers' behavioural intention to use m-payment

2.2.6. Perceived security and behavioural intention to use mobile payment

According to Lee (2009), security refers to the potential loss of control over personal information due to fraud or hackers compromising the security of the online m-payment user. It is the consumer's belief about the potential uncertain negative outcomes of the mobile payment system (Tobbin, 2010). Some studies especially in developing countries reported negative effects of perceived risk on m-payment adoption (Lee, 2009; Yang *et al.*, 2012; Musa *et al.*, 2015; Lin *et al.*, 2019). In these economies, most mobile consumers are concerned with security issues due to many factors including lack of knowledge about m-payment services, lack of legal infrastructure, inappropriate security features, and poor information delivery channels (Mathias, 2015). Based on this, this study assumes that:

H6: Perceive security has a negative influence on consumers' behavioural intention to use m-payment

Beyond the payments system characteristics, the consumers' perception of the marketing mix influences their intentions to use m-payments. The traditional marketing mix (product, price, promotions, and place) was extended from 4ps to 7Ps by Booms and Bitner (1981), who added process, people, and physical evidence into the model. Most of these elements are also considered.

2.2.7. Promotion and behavioural intention to use mobile payment

Promotion refers to marketing communications used to create awareness about an offer to prospects or potential customers and persuade them so that they can investigate it further and effectively adopt the product (Blythe, 2009; Kotler, 2012). This is done through advertisement, public relations, personal selling, direct marketing, sales promotions, publicity, and sponsorship. The promotion function once perfectly implemented results in maximum use of the service (Rauschnabel, Felix, and Hinsch, 2019). Kim et al. (2010) state that the major challenges to consumers' adoption of mobile payment are a lack of awareness and education. Promotional efforts have a positive effect on customers' adoption of Internet banking products and services for example (Felix, 2018). Given the high promotion engaged by m-payment service providers in Cameroon, this study presumes that:

H7: firms' promotion positively influences consumers' behavioural intention to use m-payment

2.2.8. Physical Evidence and behavioural intention to use mobile payment

Since services are characterized by intangibility, consumers are thus subject to uncertainty and lack trust in the service to be received due to lack of physical evidence. Bitner (1992) indicates that the service environment (buildings, the physical layout, staff appearance, and designs) has a significant impact on customer perception of overall service quality. Mahmood and Khan (2014), empirically attested that there is a positive relationship between physical evidence and customer perception. In the same light, Wakefield and Blodgett's (1999) reveal that physical evidence has a significant impact on customers' effective responses and their behavioural intentions. This study thus hypothesises that:

H8: Physical evidence has a positive effect on consumer's intention to use m-payment

2.2.9. People's attitude and behavioral intention to use mobile payment

People are the human actors who partake in service delivery (Hoffman, Kopalle and Novak, 2010). Within the framework of mobile payment service, people regroup both the company's employees, merchants, and other vendors that offer or accept mobile payment to customers. The attitude, behaviour, image, trustworthiness, and professionalism of the people involved most especially in financial services have a high impact on the consumer perception of the service. Welcoming the customer with a smiling face, friendliness, politeness, and understanding, has a positive effect on the customer's perception of the service (Mahmood & Khan, 2014). Senso & Venkatakrishnan (2013) found that Tanzanian m-payment consumers faced a risk of fraud due to many issues including swapping of SIM cards, unfaithful employees, password leakage during a money transfer, fake money, forged mobile money withdrawal text messages. In this perspective, this study hypothesises that:

H9: Peoples's attitude has a negative influence on consumers' behavioural intention to use m-payment

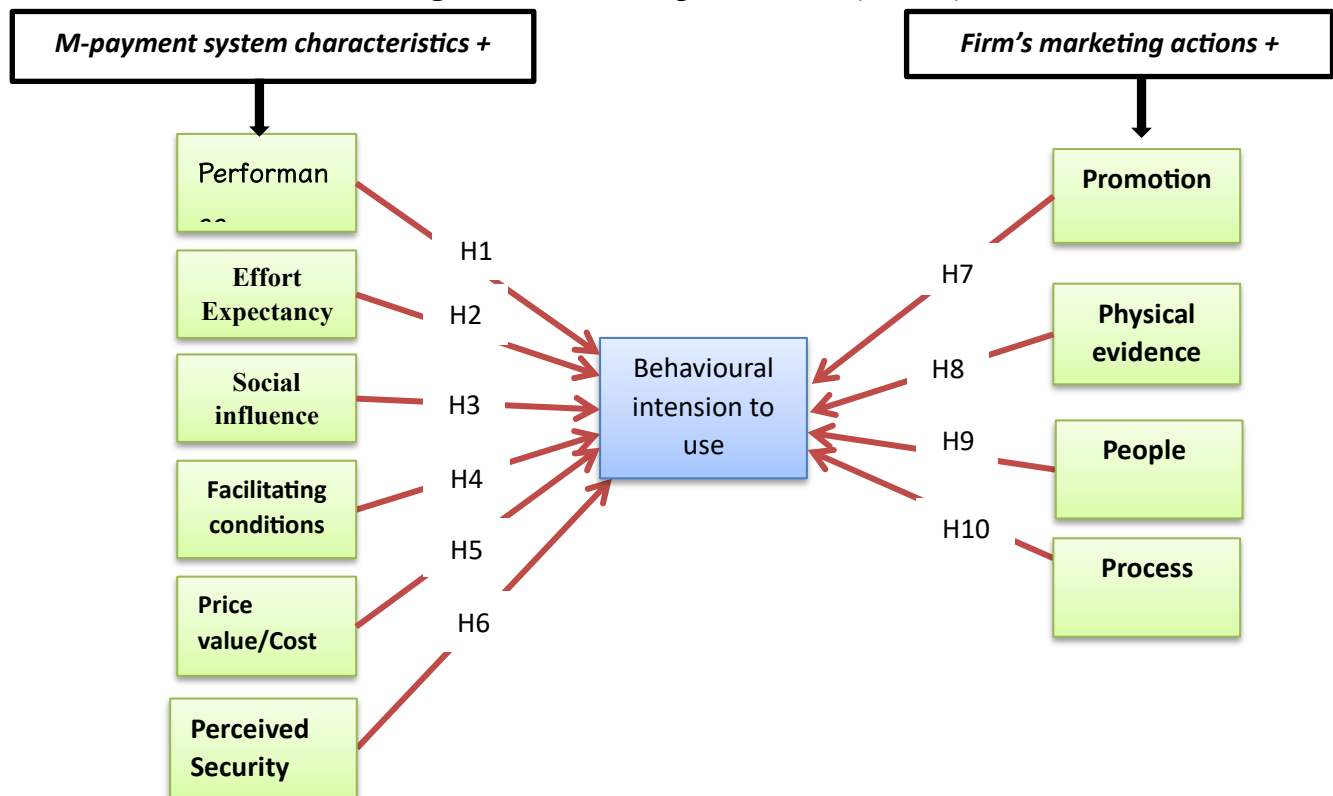
2.2.10. Process and behavioural intention to use mobile payment

Process refers to the procedures involved in delivering a given service to a customer. The process engaged in a service affects the customer's perception and his intentions to adopt the service. A user-friendly service system, less waiting time, availability of information for clients, and staff assistance are vital to gain the customer's intention to adopt a service (Zeeshan, 2013). In the specific case of mobile payment, the customer registers with the mobile payment provider and deposit cash in the account at the POS. Payment is done by typing in the amount to be paid, the receiver contact, confirmation of received name, the input of PIN code and validation, and a confirmation SMS is received. This requires a network that sometimes fails and delays or prevents payment. With this in mind, this study presumes that:

H10: Process has a negative influence on the consumers' intentions to use m-payment

The literature mobilised leads us to the study's conceptual model (SMCC) shown below.

Figure I: The Conceptual Model (SMCC)



Source: author

3. Methodology

This section dwells on the study's population, sampling method, data collection instruments, data analysis and discussion.

3.1. Population

This study targets all mobile money subscribers residing in the towns of Yaoundé and Douala. These two towns are the biggest cities in the country and host a total population of 7 358 000 inhabitants, with 3 822 000 for Yaoundé and 3 556 000 for Douala (Index Mundi, 2019). Also, these cities' population has the highest access to mobile payments services.

3.2. Sampling method

To select the respondents, a multistage sampling procedure was engaged where, purposive sampling was used to select the major business centres and businesses such as mobile payments partner's supermarkets and retail shops, petrol filling stations, utility bill centres, m-payment dealers, mobile phone voucher recharge shops and universities. A random sampling was then applied in selecting the customers that were physically present at each selected businesses.

3.3. Data collection Instrument

A structured questionnaire was developed to collect primary data from respondents. The questions used in measuring consumers' perception of mobile payment system characteristics (performance expectancy, effort expectancy, facilitation condition, price value,) are derived from Venkatesh et al. (2012); Slade et al. (2015); Oliveira et al. (2016); Abrahão et al. (2015). To capture

perceived security, we borrowed from Lwoga and Lwoga (2017) and Lee (2009). Items used to measure the consumer's perception of marketing mix variables (promotion, physical evidence, process, and people) were drawn from McCarthy (1964), Mahmood & Khan (2014), Ahmed & Ali (2017), and adapted to the context of mobile payment. Meanwhile, the items for behavioural intention are derived from Venkatesh et al. (2012) and Oliveira et al. (2016). All questions are rated on a 7-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree" with a midway (4) Neutral point.

The data collection process lasted for 3 months from July 2020 to October. A total of 480 questionnaires were self-administered. Fifteen (15) were not returned and three (3) were incomplete giving a response rate of 96.25%.

4. Data Analysis and Results

We proceeded through exploratory and confirmatory factor analysis, and then structural equations modelling (SEM).

4.1. Socio-economic profile of respondents

Of the 462 respondents, 243 were male and 218 females, age-wise, 263 were youth (18-29 years), 193 were adults (30-59 years), and 6 were old (60+ years). The youth majority is justified by the fact that youth are more innovative than aging. Most of the consumers are of the low-income class as about 210 respondents had income that ranges between 10,000 - 50,000 FCFA and 128 respondents had income between 50,000–122,850 FCFA, meanwhile individuals with income above 900,000 FCFA account for just about 9 respondents. Respondents indicated that the predominant means of awareness of mobile payment is SMS (148), followed by word of mouth (121), sales agents (75), TV ads (65), social media (45), and lastly billboards (9 respondents). The most adopted mobile payment service in Cameroon is MTN mobile money (53.3 % of the respondents), followed by orange money (43.1%), and lastly express union 3.6% of respondents.

4.2. Exploratory factor analysis

An Exploratory Factor Analysis (EFA) with KMO Varimax rotation normalisation to determine and eliminate poorly loading items was launched on all the sixty-four (64) item questions used to measure the independent and dependent variable constructs. All items questions that had KMO <0.5 or crossed-loaded were dropped. This led to a drop of one construct facilitation condition (FC). The retained constructs and items were then subjected to a validity test (Construct validity: $AVE > 0.5$ and discriminant validity: $\sqrt{AVE} > \text{Maximum share variance}$) and reliability test based on (Alpha Cronbach>0.7). The result in table 1 below indicates that all constructs are valid and reliable.

Table 1: Result of exploratory factor analysis

Latent constructs	Indicators	Factor loadings	Factor loading squared	AVE Construct's validity	Alpha Cronbach Reliability	Status
Performance Expectancy PE	PE2	0.768	0.589824	0.62621	0.757	Valid & reliable
	PE3	0.814	0.662596			
Effort Expectancy	EE1	0.622	0.386884	0.578097	.764	Valid & reliable
	EE2	0.715	0.511225			
	EE3	0.726	0.527076			

[EF]	EE4	0.698	0.487204			
Social Influence [SI]	SI1	0.843	0.710649	0.713183	.754	Valid & reliable
	SI2	0.846	0.715716			
Perceived Cost /Price [PC]	PC2	0.805	0.648025	0.597201	.709	Valid & reliable
	PC3	0.713	0.508369			
	PC4	0.797	0.635209			
Perceived Security [PS]	PS1	0.774	0.599076	0.551093	.601	Valid & reliable
	PS2	0.731	0.534361			
	PS3	0.721	0.519841			
Promotion [PROM]	PROM1	0.802	0.643204	0.656164	0.627	Valid& reliable
	PROM2	0.818	0.669124			
Physical Evidence [PE]	PED1	0.718	0.515524	0.52009	0.615	Valid & reliable
	PED2	0.755	0.570025			
	PED3	0.689	0.474721			
People [PP]	PP1	0.73	0.5329	0.551031	0.627	Valid& reliable
	PP2	0.825	0.680625			
	PP3	0.663	0.439569			
Process [PRO]	PRO2	0.721	0.519841	0.587303	.631	Valid& reliable
	PRO3	0.737	0.543169			
	PRO4	0.651	0.423801			
	PRO5	0.68	0.4624			
Behavioural Intension to Use (BIU):	BIU1	0.876	0.767376	0.739856	0.723	Valid& reliable
	BIU2	0.844	0.712336			

Source: Field Data SPSS Output

4.3. Confirmatory factor analysis

A Confirmatory factor analysis (CFA) was engaged to verify whether the data fit the hypothesised measurement model. The provision for model fit index is Chi-square P-Value > 0.05, Confirmatory Factor Index (CFI) Value > 0.9, root mean square error of approximation (RMSEA) value > 0.01, Tucker Lewis index (TLI) > 0.9, standard regression weight factors loading of each indicator must be > 0.5 and must not cross load, while all the path coefficient must be significant. Based on this analysis, the construct People was dropped as none of its indicators loaded appropriately. The final measurement model is a good fit as all the provisions were met (CHIN $\chi^2 = 242.087$, $df = 153$, $p < 0.000$, RMSEA = 0.036, SRMR=0.0390, CFI = 0.944,

TLI=0.930, GFI =0.951, IF=0.945), and standardized loadings were all above 0.5 and with regression paths significant at the 95% and 99% intervals as shown in table 2 below.

Table 2: Result of confirmatory factor analysis

Constructs	Path	Indicators	Estimate	S.E.	C.R.	P - value
Performance Expectancy	--->	PE2: I believe paying through mobile money is more effective	1.000			
	--->	PE3: I believe it is convenient paying for products using mobile money	1.472	.594	2.480	.013
Effort Expectancy	--->	EE1: I believe that mobile payments are easy to use;	1.000			
	--->	EE2: Learning how to use mobile payments would be easy for me;	1.258	.179	7.015	***
	--->	EE3: I have the necessary skills required to use mobile payments	.800	.108	7.412	***
Social Influence	--->	EE4: I feel comfortable manipulating the mobile payments tools (like phones, and tablets)	1.000			
	--->	SI1: People who are important to me (friends) think that I should use mobile payments	1.031	.124	8.344	***
Perceived Cost/Price	--->	SI2: People who influence my behaviour (family members, colleagues, classmates,) think that I should use mobile payments	1.000			
	--->	PC2: I think the fees for using m-payment are expensive	.600	.067	8.897	***
	--->	PC3: I believe the cost of acquiring equipment (phones, tablets,) for using m-payment is relatively high.	.715	.073	9.790	***
Perceived Security	--->	PC4: The current price of payment via mobile money is high	1.000			
	--->	PS1: I believe that using m-payment is riskier than cash	1.351	.169	7.977	***
	--->	PS2: I believe there is a high probability of money loss when using mobile money.	.985	.111	8.899	***
Promotion	--->	PS3: There is a lot of uncertainty in using mobile money for payment.	1.000			
	--->	PROM1: m-payment Adverts on newspapers, TV, social media keep me aware of new offers and entice me to use the service	.880	.165	5.326	***
Physical Evidence	--->	PROM2: Publicity on the registration and usage process of mobile payment makes the service easier to use	1.000			
	--->	PED1: The services environment layout (buildings, physical layout, restrooms) of mobile payment providers makes me trust the service quality	.932	.191	4.881	***
Process (PRO)	--->	PRO3: Mobile payments delivery process requires a network that sometimes fails and blocks its usage	.817	.111	7.366	***
	--->	PRO4: Mobile payment systems technologies lack appropriate security against hackers and fraudsters	1.111	.146	7.611	***
	--->	PRO5: The mobile payment process lacks a reliable means for tracking and recovery forge money withdrawers	1.000			

Source: field data AMOS//S E: standard errors, C R: Conch Bach reliability, Sig: significances ($CI \mu < 0.01$, $\mu < 0.05$).

4.4. Checking normality, multicollinearity, and homogeneity

We employed the Skewness and Kurtosis test at thresholds of -3 & +3, to check for normality of data, the Tolerance and variance inflation factor (VIF) at the thresholds [Tolerance: $1 > 0.1$] and [VI F < 10] to test for the multicollinearity (Hair, Ringle et Sarstedt 2011), and the based Lavene test statistics [P-value > 0.5] to assess the homogeneity of variance. The result reveals that the model is a normal distribution with the absence of multicollinearity, and is homogenous.

Table 3: Normality, multicollinearity, and homogeneity Test.

Constructs	N	Std. Deviation	Skewness		Kurtosis		Tolerance	VIF	Levene Sta s c	Sig.
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error				
PE_mean	462	.76734	-.247	.114	-.032	.227	.880d	1.136	.652	.752
EE_mean	462	.54334	.134	.114	-.420	.227	.865	1.156	1.443	.167
SI_mean	462	.81477	-.010	.114	-.409	.227	.851			.
PE_mean	462	1.39066	-.594	.114	-.256	.227	.882	1.133	1.911	.059
PE_mean	462	1.56724	-.569	.114	-.553	.227	.858	1.165	3.096	.061
PROM-mean	462	.86350	-.345	.114	-.288	.227	.906	1.104	1.948	.054
PE_mean	462	1.05645	-.547	.114	.127	.227	.908	1.102	1.019	.424
PRO_mean	462	.87139	-.490	.114	-.219	.227	.916	1.091	1.380	.194
BIU_mean	462	.90548	-.644	.114	.045	.227	.880	1.136	1.372	.156

Source: Field data AMOS

4.5. Model fit

The study hypotheses were tested using the specifications of SEM with the AMOS software version 24. The model's fitness indexes were (CMIN $\chi^2 = 27.865$, CMIN/df = 1.742, $C_p < 0.408$, =, RMSEA = 0.040, SRMR=0.043, CFI = 0.961, TLI=0.913, GFI =0.951, IFI=0.964, GFI=0.987), and empirical findings are as depicted Table 4 below:

Table 4: Synthesis of hypotheses tests results

Hypotheses	P-Value at 95% (CI)	Conclusion
H1: Performance Expectancy (PE) has a positive significant effect on BIU	[H ₀ : $\mu = 0.042 < 0.05$, $\beta = 0.075$] Positive sig link	Supported
H2: Effort Expectancy (EE) has a positive significant effect on BIU	[H ₀ : $\mu = 0.013 < 0.05$, $\beta = 0.112$]. Positive sig link	Supported
H3: Social Influence (SI) has a positive significant effect on BIU	[H ₀ : $\mu = 0.002 < 0.05$, $\beta = 0.139$] Positive sig link	Supported
H5: Perceived Price/Cost (PC) has a negative effect on BIU	[H ₀ : $\mu = 0.706 > 0.005$, $\beta = -0.017$]. Negative sig link	Not supported
H6: Perceive Security (PS) has a positive significant effect on BIU	[H ₀ : $\mu = 0.035 < 0.05$, $\beta = 0.011$]. Positive sig link	Not supported
H7: Promotion (PROM) has a positive significant effect on BIU	[H ₀ : $\mu = 0.00 < 0.05$, $\beta = 0.198$]. Positive sig link	Supported
H8: Physical Evidence (PED) has a positive significant effect on BIU	[H ₀ : $\mu = 0.00 < 0.05$, $\beta = 0.19$]. Positive sig link	Supported
H10: Process (PRO) has a negative significant effect on BIU	[H ₀ : $\mu = .016 < 0.05$, $\beta = -0.024$] Positive sig link	Supported

Source: field data Amos output (2020)

4.6. Hypoteses test

As observed in table 4 above, the mobile payment system characteristics that significantly determine consumers' intentions to use m-payments, are respectively Social Influence (SI: $\beta = 0.139$; $P < 0.05$) followed by Effort Expectancy (EE: $\beta = 0.112$ $P < 0.05$); and then Performance

Expectancy (PE: $\beta = 0.075$, $P < 0.05$); and Perceived Security (PS: $\beta = 0.011$; $P < 0.05$). However, perceive price though has the expected negative sign, is statistically insignificant, and the facilitation condition was not examined since it failed to cross the EFA test. Concerning the link between consumers' perception of firms marketing actions and their behavioural intentions to use mobile payments, we observe that Promotion (PROM), Physical Evidence (PED), and Process (PRO) are respectively significant determinants of consumers' mobile payment usage intension [(PROM: $P = 0.00 < 0.01$, $\beta = 0.198$); (PED: $P = 0.00 < 0.05$, $\beta = 0.19$, CI =95%); and (PRO: $P = 0.016 < 0.05$, $\beta = -0.024$)], except the construct; People (PPLE) which failed to cross the CFA leading to its rejection.

Overall, out of the 10 formulated research hypotheses as significant determinants of mobile payments, seven (07) (H1, H2, H3, H6, H7, H8, and H10) were statistically significant and hence confirmed. Meanwhile, H4, H5, and H9 were rejected as they were statistically insignificant. Among the different determinants of behavioural intentions to use mobile payments, Promotion (PROM), and Physical Evidence (PED) are the most significant determinants. We see that both the payment system characteristics and marketing actions jointly explain the intention to use mobile payment at 0.69%.

5. Discussion of findings

This study aimed to examine the extent to which consumers' perceptions of mobile payment system characteristics and the firms' marketing mix influence consumers' intention to use mobile payments in their diverse purchase transactions. The methodology used was bases on SEM. Concerning the consumers' perception of mobile payment system characteristics, the study findings reveal that social influence is the most significant and positive determinant of consumer intention to use mobile payments. This particularly concerns the consumer's social belonging and subjective norms. This finding corroborates with some past studies (Musa, Khan, & AlShare, 2015; Slade et al, 2015; Oliveira et al. 2016; Mugambe, 2017; Lin, et al. 2019). It however contradicts that of Lin, Wang and Chen (2019); Wang and Yi (2012). This implies that the consumers' decision to use or not mobile payment in Cameroon is highly influenced by their perception and evaluation of others' behaviour. This finding is justified by the fact that Cameroon just like most African countries is marked by high connectivity, solidarity, and interdependence among its people.

Again, the findings indicate that effort expectancy has a significant positive relationship with consumers' intentions to use m-payment services in Cameroon. This implies that the consumers' judgment of mobile payments as easy to use, convenient, and less complex for use significantly favour its uptake and utilisation in diverse payment occasions. This result is in accord with that of Abrahão et al. (2015); Lin *et al* (2019), but contradicts that of Wang and Yi (2012); Slade, *et al.*, (2015); Oliveira *et al.*, (2016); Mugambe (2017).

The study also reveals that performance expectancy has a positive significant influence on consumers' behavioural intention to use mobile payment. By implication when the consumers perceive the service as efficient and useful in their payment process, they will use the service. Even though it reveals a positive and significant relation as in previous studies (Oliveira et al. 2016; Mugambe, 2017), the relevance of performance expectancy as a determinant of mobile payment usage intension is weak ($B = 0.075$) unlike the findings of Slade et al. (2015) in the UK, Lin et al., (2019) in China, Abrahão et al. (2015) in Brazil that all revealed strong link. This may be justified by the fact that the clients in the case of Cameroon experience more social-related issues in deciding to use m-payment than the service operability itself.

The construct Perceived Price had an insignificant effect on mobile payment usage intension, eventhough it effectively reflected the expected negative relationship on intension to use the service. These findings are consistent with that of Oliveira et al (2016); Mugambe, 2017; Lin, Wang, and Chen (2019), but are inconsistent with those of Mbogo (2010) in Kenya and Mallat

(2006), in Finland. This means a less costly mobile payment system will have a higher rate of usage than a relatively high-cost service. It is thus important to maintain these constructs in the usage model despite the insignificant relationship observed in this study because it has been proven to be a key consideration by consumers in their decision-making process.

The study also showed that Perceived Security (PS) had a significant positive effect on consumers' intention to use the service. Though in contradiction with our expectations and the findings of Tobbin (2010), Wang and Yi (2012), Slade et al. (2015) and Lwoga and Lwoga (2017), the finding is consistent with those of Khraimmet al. (2011); Oliveira, et al. (2016), and Mbogo (2010). This result implies that the consumer's perceptions of the mobile payment system as less risky, with a low possibility of money lost, and less uncertain in payment positively motivates him to use the service.

Concerning the relationship between the consumers' perception of the firms' marketing actions and intentions to use mobile payment, the study revealed that the firms' promotion actions (advertisement and publicity in particular) have the highest significant positive influence on consumers' intentions to use mobile payment service. This means creating awareness and educating consumers on the relative advantage and usage process of m-payment via diverse communication mix elements and channels will increase the uptake and usage of the service. This finding is examined for the first time in the context of mobile payments; however, it supports the findings of Kim et al. (2010) and Lwoga and Lwoga (2017), that m-payment knowledge had an indirect positive effect on its usage through perceived ease of use. The study also indicates that physical evidence (the services environment layout, reputation of mobile payment personnel, and location and expositions of the services) has a positive significant influence on the consumers' intentions to use mobile payments. By implication, the consumer perceptions of the mobile payment service environment as friendly, convent, and comfortable as well as aesthetics, the personnel trustworthiness, cutesy, and confidence will positively influence their intentions to use m-payments. This finding confirms the aspect of the firm's reputation examined as an antecedent to consumers' trust in mobile money continues usage intention by Ahmed and Ali (2017), in Somalia.

Also, the m-payment process (complexity, reliability, time factor, and security) revealed a negative significant effect on consumers' intention to use the service. This implies the consumers' perception of the mobile payment system as complex, time-consuming, lacking a reliable tracking and recovering means for wrong payments or forges money withdrawals, and accurate system security against hackers reduces their intentions to use the service in their diverse payment occasions. This finding corroborates that of Ahmed and Ali (2017), who examine the mobile payment system assurance and quality as antecedence of consumers' satisfaction. If the mobile payment system is reliable and secure, rapid and easy to use, consumers will certainly increase their usage of the service. Also, the construct people (mobile payment agents and another intermediary's attitude, trustworthiness, and behaviour) were not included in the parametric analysis. This was a result of poor loading of some indicators and hence its exclusion as it appears as the only possibility to gain a good fit model. However, it is good to note that its dimensions were observed as reliable and valid measures. Future studies should therefore consider examining this construct to see how it influences the behavioural intention to use.

6. Conclusion

This paper aimed to examine the extent to which consumers' perceptions of mobile payment system characteristics and the firms' marketing mix influence consumers' intention to use mobile payments in their diverse purchase transactions. The hypotheses were tested through SEM. The results indicated that consumers' perception of the mobile payment system characteristics (Performance Expectancy, Effort Expectancy, Social Influence, and Security) significantly influenced their usage intentions. It also indicated that the firms' marketing actions (promotions,

physical evidence, and process) have a significant influence on consumer's intention to use mobile payment services. Given that promotion and physical evidence are the most significant determinant of consumers' intention to use m-payment, our study confirms the key role of firms' marketing actions in influencing consumers' intentions to use a given technology in line with UTAUT 2 model combine to obtain the SMCC model of *this* study.

The first limitation of this study is that the SMCC model developed by extending the UTAUT 2 model with security and service marketing mix variable, excluded the constructs of hedonist motivation and habit as well the moderators of age, gender, and experience this study collected data from mobile money adopters but failed to realize a separate analysis of potential users and actual users. The sampling frame was limited just to the town of Yaoundé and Douala which are just two out of the ten regions of Cameroon.

References

1. Abou-Shouk, M., & Soliman, M. (2021). The impact of gamification adoption intention on brand awareness and loyalty in tourism: The mediating effect of customer engagement. *Journal of Destination Marketing & Management*. doi:10.1016/j.jdmm.2021.100559
2. Abrahão, R. d., Moriguchi, S. N., & Andrade, D. F. (2015). The intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT). *RAI Revista de Administração e Inovação*, 13(2016), 221-230.
3. Ahmed, I. S., & Ali, A. Y. (2017). Determinants of Continuance Intention to Use Mobile Money Transfer: An Integrated. *Journal of Internet Banking and Commerce*, 22(S7).
4. Ajzen, I., & Fishbein. (1975). *Belief, Attitude, Intention, Behavior: An Introduction to Theory and Research*. Reading, MA.: Addison-Wesley.
5. Ajzen. (1991). The theory of Planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
6. Becker, Krista. (2007). *Mobile Phone: The New Way to Pay?* Boston: Federal Reserve Bank of Boston.
7. Bidiassé, H., & Mvogo, G. P. (2019). Les Déterminants De L'adoption Du Mobile Money :L'importance Des Facteurs Spécifiques Au Cameroun. *Revue d'économie industrielle*, 85-115. doi: 10.4000/rei.7845
8. Bitner, M. J. (1992). The Impact of Physical Surroundings on Customers and Employees. *Journal of Marketing*, 56(2), 57-71.
9. Blythe, J. (2009). *Key Concepts in Marketing*. New York: SAGE Publications Ltd.
10. Booms, B. H., & Bitner, M. J. (1981). *Marketing Strategies and Organisational Structure for Service Firms*. In: *marketing of services*. Chicago: American Marketing Association.
11. Business in Cameroon. (2019, April 15). *Orange Cameroon Claims 4.5 million MOMO users, against over 5 million for MTN*. Retrieved 09 30, 2020, from Telecom: www.businessincameroon.com
12. Changchit, C., Changchit, C., Cutshall, R., Pham, L., & Rao, M. (2023). Understanding the Determinants of Customer Intention to Use Mobile Payment: The Vietnamese Perspective. *Journal of Global Information Management*, 31(1), 1-27.
13. Chong, A. Y. (2013). Understanding mobile commerce continuance intention: An empirical analysis of Chinese consumers. *Journal of computer information systems*.
14. Dahlberg, Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, 7(2), 165-181. doi:<https://doi.org/10.1016/j.elerap.2007.02.001>
15. Dahlberg, T., & Mallat, N. (2002). Mobile Payment Service Development - Managerial Implications Of Consumer Value Perceptions. *European Conference on Information Systems (ECIS)* (pp. 649-657). <http://aisel.aisnet.org/ecis2002/139>.
16. Davis, F. D. (1989). Perceived usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13, 139-340.
17. Donnal Hoffman, Kopalle, P. K., & Novak, T. P. (2010). The "Right" Consumers for Better Concepts: Identifying Consumers High in Emergent. *Journal of Marketing Research*, 47(5), 854-865.
18. Felix, R., Rauschnabel, P. A., & Hinsch, C. (2016). Elements of strategic social media marketing: A holistic framework. *Journal of Business Research*, 1-9.

19. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-51.
20. Howard, J. A., & Sheth, J. N. (1969). *The Theory of Buyer Behavior*. New York: Wiley.
21. Index Mundi. (2019, December 7). *Cameroon Demographic Profile*. Retrieved April 12, 2020, from Index Mundi: <http://www.indexmundi.com>
22. Kim, C., Tao, W., Shin, N., & Kim, K. S. (2010). An Empirical Study of Customers' Perceptions of Security and Trust in e-Payment Systems. *Electronic Commerce Research and Applications*, 9(1), 84-95.
23. Kotler, P., & Armstrong, G. (2012). *Principles of Marketing* (13 ed.). Upper Saddle River: Prentice-Hall.
24. Kremers, R., & Brassett, J. (2017). Mobile Payments, Social Money: Everyday Politics of the Consumer Subject. *New Political Economy*, 1-16.
25. Lee, M.-C. (2009). Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141.
26. Lin, H.-Y., Wang, M.-H., & Chen, H.-T. (2019). Determinants for Consumer Adoption of Mobile Payment Technology. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 9(3), 146-159.
27. Lin, X., Wu, R., Lim, Y.-T., Han, J., & Chen, S.-C. (2019). Understanding the Sustainable Usage Intention of Mobile Payment Technology in Korea Cross-Countries Comparison of Chinese and Korean Users. *Sustainability*, 11(5532), 1-23.
28. Lwoga, E. T., & Lwoga, N. B. (2017). USER ACCEPTANCE OF MOBILE PAYMENT: THE EFFECTS OF USER-CENTRIC. *The Electronic Journal of Information Systems in Developing Countries*, 81(3), 1-24.
29. Mahmood, R., & Khan, S. M. (2014). Impact of Service Marketing Mixes on Customer Perception: A Study on Eastern Bank Limited, Bangladesh. *European Journal of Business and Management*, 6(34).
30. Mallat, N. (2006). Exploring Consumer Adoption of Mobile Payments - A Qualitative Study. *Paper presented at the Helsinki Mobility Roundtable*, (pp. 1-14). Finland: Helsinki.
31. MasterCard. (2014). *Mobile payments readiness index*. Retrieved from http://mobilereadiness.mastercard.com/the_index.
32. Mathias, I. (2015). *A Framework for Managing the Security Risks to Customers on the Mobile Payment Ecosystem in Tanzania*. Masters thesis, Avinashilingam University, India, India.
33. Maurer, B. T., Nelms, & Rea, S. (2013a). 'Bridges to Cash': Channeling Agency in Mobile Money. *Journal of the Royal Anthropological Institute forthcoming*.
34. Mbogo, M. (2010). The Impact of Mobile Payments on the Success and Growth of Micro-Business: The Case. *The Journal of Language, Technology & Entrepreneurship in Africa*, 2(1), ISSN 1998-1279.
35. McCarthy, J. E., Perreault, W. D., & Quester, P. G. (1997). *Basic Marketing: A Managerial Approach*, (1st Australasian ed.). Sydney, Australia: Irwin.
36. Media intelligence. (2019). *Electronic Money in Cameroon, evolution, and state of the market*. Douala: MI publication.
37. Mugambe, P. (2017). UTAUT Model in Explaining the Adoption of Mobile Money Usage by MSMEs' Customers in Uganda. *Advances in Economics and Business*, 5(3), 129-136. DOI:DOI: 10.13189/aeb.2017.050302
38. Musa, A., Khan, H. U., & AlShare, K. A. (2015). Factors influencing consumers' adoption of mobile payment devices in Qatar. *Int. J. Mobile Communications*, 670-680.
39. Nicosia, F. M. (1966). *Consumer Decision Processes Marketing and Advertising Implications*. Englewood Cliffs: Prentice-Hall.
40. Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, 61, 404-413.
41. Palau-Saumell, R., Forgas-Coll, S., Sánchez-García, J., & Robres, E. (2019). User Acceptance of Mobile Apps for Restaurants: An Expanded and Extended UTAUT-2. *sustainability*, 11(1210), 1-24.
42. Pan, B., Guo, H., You, X., & Xu, L. (2022). Privacy rating of mobile applications based on crowdsourcing and machine learning. *Journal of Global Information Management*, 30(1), 1-15.
43. Parasuraman, A. (2000). Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies. *Journal of Service Research*, 307-320.
44. Pramod, B., & Shadaab, K. (2022, October). *Mobile payment market outlook- 2027*. US: Allied Market Research.

45. Rauschnabel, P., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, 49, 43-53.
46. Roa, & Troshani. (2007). "Conceptual framework and propositions for the acceptance of mobile services. *Journal of Theoretical and Applied ElectronicCommerce Research*.
47. Senso, N., & Venkatakrishnan, V. (2013). Challenges of Mobile-Phone Money Transfer Services' Market Penetration and Expansion in Singida District, Tanzania. *International Journal of Research in Management & Technology*, 3(6), 205-215.
48. Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modeling consumers' adoption intentions of remote mobile payments in the UK: Extending UTAUT with innovativeness, risk, and trust. *Journal of Psychology and Marketing*, 32(8), 860-873.
49. Tobin, P. E. (2010). Modeling Adoption of Mobile Money Transfer: A Consumer Behavior Analysis. Paper presented at, *The 2nd International Conference on Mobile Communication Technology for Development*. Kampala, Uganda.
50. Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), 186-204.
51. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.
52. Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178.
53. Wakefield, K. L., & Blodgett, J. G. (1999). Customer response to intangible and tangible service factors. *Psychology and Marketing*, 16(1), 51-68.
54. Wang, L., & Yi, Y. (2012). The impact of use context on mobile payment acceptance: An empirical study in China. In A. & Xie, *Advances in computer science and education* (pp. 293-300). Berlin: Springer.
55. Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, 28, 129-142.
56. Zeeshan, Z. M. (2013). The impact of mobile service attributes on males' and females' purchase decisions. *Management & Marketing Challenges for the Knowledge Society*, 8(4), 669-682.

Appendices

Appendix 1: Confirmatory Factor Analysis

