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Abstract

Purpose – To examine the key factors that can engender initial trust in mobile money and to also determine whether initial trust can contribute to the perceived value of mobile money, use and recommendation intentions. More specifically, this paper, based on initial trust building model, aims to identify the institutional, cognitive and socially related factors enhancing initial trust in mobile money and its relationship with perceived value, use and recommendation intentions.

Design/methodology/approach – A self-administered questionnaire was used to collect data from 781 research participants. Variance-based structural equation modelling was used to examine the proposed research model.

Findings – This research shows the importance of the institutional factor of structural assurance, in conjunction with perceived firm reputation and communicability, in engendering initial trust in mobile money and, in turn, enhancing perceived value, use and recommendation intentions. The research further confirms the mediating influence of perceived value in the relationships between initial trust, use and recommendation intentions. Originality/value - The originality of this work lies in the development and empirical confirmation of the research model and which together contributes to an increase understanding of initial trust building in mobile money acceptance. Value-wise, this work has the potential to inform managerial and public policy interventions by helping mobile money operators and policymakers' rollout essential and even sophisticated financial services like borrowing using the mobile phone for the financially under-served in developing and trust-deficit settings.

Keywords: Mobile phone, Perceived value, Behavioural intention, Initial trust, Antecedent factors, Mobile money acceptance

Introduction

Mobile money, which refers to the use of mobile phone for performing a range of financial transactions including merchant/bill payments, savings and peer-to-peer transfer, is considered key for expanding access to financial services in mostly developing nations (Demirguc-Kunt et al., 2018). This is because most individuals currently living in the developing world seem to have greater access to the mobile phone than to financial products provided by banks and other related service providers. In African countries such as Nigeria, for example, only 36.7% of the adult population have a bank account, but more than 68% own a mobile phone (Enhancing Financial Innovation and Access (EFInA), 2019), while overall mobile phone penetration rate in the country is currently estimated to be around 104.9% (Nigerian Communications Commission, 2021). In the meantime, a key distinction between mobile

money and mobile banking is that the former does not (necessarily) require the consumer to have an existing bank account, while the latter is often an add-on service available to customers with accounts in traditional banking institutions (Osakwe and Okeke, 2016). It is often powered using the unstructured supplementary service data (USSD) infrastructure provided by mobile network operators; there are also apps provided by mobile money operators (MMOs) for performing financial transactions.

While it is commonly understood that the use of mobile money can lead to increased financial inclusion and especially in African countries, its adoption rate, however, in several African countries and including Nigeria remains very low to-date (Enhancing Financial Innovation and Access (EFInA), 2019; GSM Association, 2019; Lepoutre and Oguntoye, 2018; Osakwe and Okeke, 2016). More specifically, the adoption of mobile money and especially in Nigeria has been mired by concerns around trust, meaning that issues around trust should be prioritised to encourage the broad uptake of mobile money among potential users in the country (GSM Association, 2019; Lepoutre and Oguntoye, 2018; Okeke and Eze, 2018).

Therefore, academic research as well as the operators of mobile money especially in countries, such as Nigeria, currently experiencing the low uptake of the service, will benefit from studies that specifically explore the important factors that will enhance potential users' initial trust in mobile money and ultimately their decision to use and recommend the service.

Although scholars agree that building initial trust in mobile money is critical to its wider acceptance (Abdul-Hamid et al., 2019; Chauhan, 2015; Osei-Assibey, 2015), there is limited guidance in the mobile money literature regarding the specific factors that can make potential users develop trust in mobile money. To address the gap in the literature, the current research and based on the literature (Eastlick and Lotz, 2011; Kaabachi et al., 2017; Kleijnen et al., 2004; McKnight et al., 2002; Okeke and Eze, 2018) identifies institutional factors and in particular structural assurance, company-based factors, namely, perceived reputation and awareness creation as well as social factors, namely, communicability as key for building initial trust in mobile money. The current research therefore seeks to build on past research in initial trust building model (Eastlick and Lotz, 2011; Kaabachi et al., 2017; Koufaris and Hampton-Sosa, 2004; McKnight et al., 2002) by extending it to the mobile money context. In short, one of the objectives of the current research is to provide empirical guidance, and that is informed by theory, on the antecedents of initial trust in mobile money.

An additional gap in mobile money research that these authors observe is that relatively little attention has been paid to consequences of individuals (initial) trust in mobile money and even the few research on the topic to-date has been blurred by contradicting evidence (Abdul-Hamid et al., 2019; Ahmed and Ali, 2017; Baganzi and Lau, 2017). Take for an example, the research of Baganzi and Lau (2017) in the Ugandan context who find that trust plays a lesser role in users' decision to use mobile money and which contrasts with those of Abdul-Hamid et al. (2019) who find a strong relationship between trust and adoption intention in Ghana. Besides, in the research of Ahmed and Ali (2017) in Somalia, the authors reported a negative relationship between trust and mobile money continuance intention and further blurring our knowledge about the role of trust in behavioural intentions. These mixed empirical findings around the implications of consumer trust in mobile money acceptance have therefore necessitated the urgency to revisit the role that initial trust particularly plays in mobile money use intention and by extension its recommendation intention. Thus, one of the objectives of the current study is to re-examine the link between initial trust, use and recommendation intentions of mobile money based on data from a different economic context. In similar lines, we expand empirical exploration of the consequences of initial trust in mobile money by proposing that initial trust formation can enhance mobile money perceived value. This proposal is consistent with the argument

put forward in past research (Chang et al., 2020; Chong et al., 2003; Collier and Sherrell, 2009) regarding the idea that when potential users form initial trust in mobile money, they will be more likely to recognise the value that comes with the technology and eventually the technology acceptance and extra-roles such as product/technology recommendation. Therefore, an additional objective of the current research is to test the above suggestion that perceived value is positively influenced by initial trust and that, in turn, it positively predicts use and recommendation intentions.

Together, the current research advances the understanding of mobile money research and especially from a consumer standpoint in three ways. First, this study by incorporating constructs such as communicability and consumer awareness, which previously have been overlooked in extant initial trust building model, enriches the scholarly value of initial trust building in Fintechs such as mobile money. We should also note that this is the first work in the mobile money context to specifically employ a theoretically based initial trust building model in its investigation. This work therefore strengthens existing knowledgebase about initial trust formation in technology adoption and in particular advances theoretical understanding of mobile money acceptance from an initial trust building perspective. The second is that by shedding light on the institutional, cognitive and socially enabled initial trust predictors and namely structural assurance, perceived firm reputation, user awareness and communicability, the study increases empirical understanding of the measures needed for engendering initial trust in Fintechs such as mobile money, especially in contexts where the uptake of mobile money has been very slow and attributable to trusting concerns. The last contribution of this study concerns reconciling the finding by Baganzi and Lau (2017), which shows that trust may not always be sufficient in increasing potential users' receptivity to mobile money, of which the current study identifies perceived value as playing a dual role in the relationship between trust, use and recommendation intentions. To our knowledge, this paper is the first to suggest that the impact of initial trust on both use and recommendation intentions of mobile money is mediated through the process of perceived value.

Theoretical background and hypotheses development

Initial trust building model

This paper following the research of Koufaris and Hampton-Sosa (2004, p. 378) defines initial trust as "the willingness of the trusting party to depend or rely upon the trustee in the expectation of a certain beneficial outcome or that the trustee will not act opportunistically". Stated another way, to trust is to believe that a service provider will act as promised and thus there is some degree of uncertainty and vulnerability associated with trusting beliefs (Koufaris and Hampton-Sosa, 2004; McKnight et al., 2002). While trust and trustworthiness are often used interchangeably, some scholars have particularly noted in the literature that trust and trustworthiness are conceptually distinct (Colquitt et al., 2007; Frazier et al., 2010; Yu et al., 2015). According to Yu et al. (2015, p. 238), "while trust is often related to the belief one holds about the service provider, trustworthiness on the other hand is concerned with trait or character of the service provider" and of which the latter has been suggested in organisational research as an antecedent factor to trust (Colquitt et al., 2007; Frazier et al., 2010; Frazier et al., 2010). In this research, however, it must be borne in mind that the focus here is on initial trust formation and not trustworthiness.

According to theorists and empiricists, initial trust is an important factor in technology adoption (Eastlick and Lotz, 2011; Kim et al., 2008; Kim and Park, 2013; Koufaris and Hampton-Sosa, 2004; McKnight et al., 2002; Xin et al., 2013), especially because consumers tend to respond positively to what they have faith and trust in. This also means that a lack of initial trust in a technology, such as

mobile money, can stymie its broader uptake by consumers. As has been previously highlighted, the consensus is that a lack of trust among consumers in contexts such as Nigeria represents an important impediment to mobile money uptake (Enhancing Financial Innovation and Access (EFInA), 2019). Hence, the value in understanding the factors that would enhance initial trust in the technology and ultimately promote its wider acceptance in the society. Indeed, trust exists when potential users feel secured about the reliability of the technology (McKnight et al., 2002; Xin et al., 2013) and thus considered it worthy of use. While previous studies on mobile money concurrently support the notion that initial trust is critical to the successful uptake of the service/technology (Abdul-Hamid et al., 2019; Okeke and Eze, 2018), there is a scarcity of research that provides information about the specific key measures that can support initial trust building in mobile money and therefore a key reason for the current inquiry.

In particular, this research has identified the institutional factor of perceived structural assurance as an enabler of initial trust formation in mobile money and which is congruent with the literature (Chandra etal., 2010; Kaabachi etal., 2017; McKnight etal., 2002; Xin etal., 2013). According to Baganzi and Lau (2017), perceived structural assurance reflects consumers' beliefs about "the availability of legal structures, technological structures and other payment security measures to ensure that mobile money transactions are successfully completed by mobile money services providers" (p. 6/7). In this light, the availability of structural assurance helps to reinforce consumers' beliefs regarding the safety of mobile money transactions (Chandra et al., 2010; McKnight et al., 2002; Xin et al., 2013). Moreover, recent mobile money research has argued that structural assurance can lower risk perceptions often associated with its use (Baganzi and Lau, 2017) and thereby increasing trust in mobile money (Ahmed and Ali, 2017). Indeed, according to Ahmed and Ali (2017), individuals will tend to develop a higher level of trust in mobile money especially if they are provided with adequate transaction safeguards as well as the opportunity to seek redressal for failed and/or fraudulent transactions. Thus, it is hypothesised that:

H1. Perceived structural assurance has a positive impact on initial trust in mobile money.

In addition to the above, perceived reputation, which following previous research (Chandra et al., 2010), we define as the extent to which MMOs and their agents are recognised by potential users as fair and honest, is considered key for enhancing initial trust in mobile money. Moreover, it has been highlighted by researchers about the very importance of firm reputation building and in relation to uncertainty reduction, especially in societies characterised by trust deficit (Osakwe etal., 2020; Osakwe and Yusuf, 2020). Indeed, firms that enjoy a good reputation are often more likable and therefore more likely to be trusted by consumers. Relatedly, there is a growing body of evidence in mobile payment research that individuals who consider a service provider to have a strong reputation tend to be more trusting of the service provider (Xin et al., 2013). This evidence has also been further corroborated within the mobile money context in Somalia, where it was shown that individuals tend to have more trust in MMOs with a good impression in the society (Ahmed and Ali, 2017). We therefore believe that having a good reputation is key for building potential users' trust in mobile money and especially in societies where regulatory and policy uncertainties are the main staple and such as in Nigeria. In sum, the following is hypothesised:

H2. Perceived reputation of the firm has a positive impact on initial trust in mobile money.

Similarly, consumers awareness - defined as the extent to which the individual possesses adequate knowledge and/or familiarity with the services of MMOs and their corresponding agents (see also Al-Somali et al., 2009; Ke et al., 2016) - is identified to play a vital role in the formation of mobile money initial trust. It is not surprising therefore that issues around the need to promote consumer awareness of mobile money in Nigeria particularly has been receiving attention in the literature (Enhancing Financial Innovation and Access (EFInA), 2019; Okeke and Eze, 2018). In fact, it is known that limited consumer awareness is an impediment to trust building in mobile money (Okeke and Eze, 2018) and in turn its acceptance (Chauhan, 2015; Enhancing Financial Innovation and Access (EFInA), 2019). Meanwhile, in consumer brand studies, scholars have highlighted the importance of brand awareness -an extension of consumer awareness - to online trust building (Ke et al., 2016). Moreover, in the context of merchants operating in the largely African informal economy, Okeke and Eze (2018) found that merchants' trust in mobile money is influenced by their levels of awareness of the technology. Accordingly, the following is hypothesised:

H3. Consumer awareness has a positive impact on initial trust in mobile money.

Another factor that we consider might play an important role in initial trust formation in mobile money is communicability and which is usually defined as the "measure of the degree of simplicity with which the users of a given innovation are able to demonstrate the benefits of a new good to their respective social reference groups'' (Kapoor et al., 2015, p. 157). Although communicability has been theorised and empirically validated in the mobile ticket context to influence behavioural intentions (Kapoor et al., 2015), this study, however, makes the first effort to understand the extent to which it implicates initial trust and especially in the mobile money context. According to early research (Kleijnen et al., 2004), communicability bears strong similarities with the concept of social influence in the theory of planned behaviour (Ajzen, 1991) and which has been highlighted in the internet banking context of a developing country to play an important role in trust regarding consumers use of the above technology (Chaouali et al., 2016). At the same time, given that communicability hinges in part on observability and in part in part on social approval (Kapoor et al., 2015), it is therefore argued to help reduce transaction uncertainty and thereby enhancing trusting beliefs of mobile money. Based on the preceding discussion, it is expected therefore that:

H4. Communicability has a positive impact on initial trust in mobile money.

Having identified four factors that may strongly influence initial trust in mobile money, this paper now turns to the potential consequences of initial trust in this specific Fintech. The main consequences of initial trust in mobile money that the current paper has identified are use and recommendation intentions. According to previous research, individuals with higher trusting beliefs in a technology tend to be more willing to use (Abdul-Hamid et al., 2019) and recommend it to their friends and family members (Kim and Park, 2013; Kong etal., 2020). Of course, it is important to emphasise that the current mobile money research is inconsistent with findings regarding the positive role of trust in behavioural intentions (Ahmed and Ali, 2017; Baganzi and Lau, 2017). Nonetheless, we consider initial trust to play an important role regarding influencing use and recommendation intentions of mobile

money. Another reason to also believe this is the overwhelming research evidence regarding the positive influence of trust in behavioural intentions in domains such as internet banking (Chaouali et al., 2016; Hoehle et al., 2012), cryptocurrency transactions (Abbasi et al., 2021; Mendoza-Tello et al., 2019) and mobile payment (Chandra et al., 2010; Xin et al., 2013). In sum, the following is hypothesised:

H5. Initial trust has a positive impact mobile money use intention.

H6. Initial trust has a positive impact mobile money recommendation intention.

As previously highlighted, perceived value is identified to be an important outcome of initial trust in mobile money. By perceived value, this paper following the research of Collier and Sherrell (2009), defines it as "the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (p. 495). More simply, perceived value in this context means that the benefits potential users will derive from using mobile money will outweigh the efforts and time that may be required to use it. Empirically, it has been shown in the literature that perceived value is influenced by the level of trust that individuals have in a technology (Chong et al., 2003; Collier and Sherrell, 2009; Lien et al., 2015), and this implies that trust may be an important predictor of perceived value of mobile money. Consistent with past research (Collier and Sherrell, 2009; Lien et al., 2015), we also expect perceived value to not only be a strong predictor of the behavioural intentions but also mediates the influence of initial trust in the relationship with use and recommendation intentions. Besides, recent research has found that perceived usefulness and which has a strong resemblance of perceived value mediates the influence of trust on intention to use (Mendoza-Tello et al., 2019). Therefore, the following is hypothesised:

H7. Initial trust has a positive impact perceived value of mobile money

H8. Perceived value has a positive impact on mobile money (a) use intention and (b) recommendation intention.

H9. Perceived value partially and complementary mediates the influence of initial trust on mobile money (a) use intention and (b) recommendation intention.

Research method

Sample and data collection

Given that early adopters of mobile money have been found to be younger and often digitally literate (Tobbin and Adjei, 2012), we therefore focused on young adults and who were at the time of conducting this study are university students, in line also with Cobla and Osei-Assibey (2018). The study used convenience sampling and data collection was undertaken between the first and second quarters of 2018 using self-administered questionnaires. In the end, we received 781 valid responses and of which 45% were females and 55% were males. About 60% of sample respondents were under 26 years and 68% of the respondents indicated that they prefer making their financial transactions using the mobile phone and thus implying that there is a greater opportunity for mobile money services and especially among the younger population in the country.
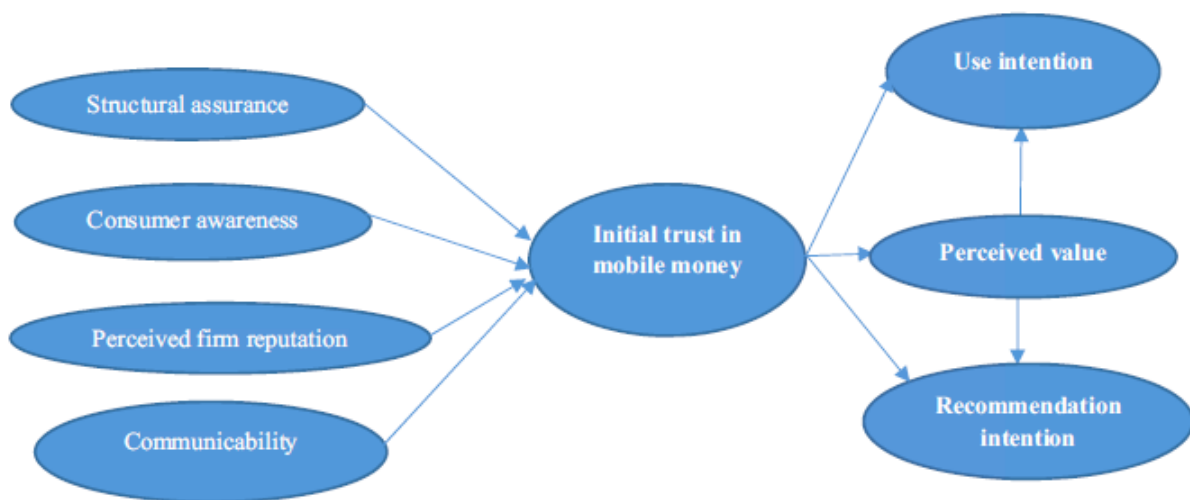

Figure 1 illustrates the research hypotheses and especially in the form of a conceptual model.

Instrument validation and controlling for common method bias

Measurement instruments were in most cases modified from existing research and which was done to ensure content validity. Appendix lists the sources of the modified measurement items.

Concerning the controls for common method bias (CMB henceforth), this study following prior recommendations (Podsakoff et al., 2003) used ex-ante approaches in controlling for CMB by signalling to the respondents that they were no wrong or right answers to the questions asked. Moreover, it was stated that participation was voluntary and not based on any cash rewards. Similarly, it was stated that responses will be treated confidentially and used for research purposes only. More so, the study used different anchors for measuring several of the measurement constructs (Appendix). This study equally used the recommended collinearity approach by Kock (2015) and found that there was no concern with CMB, as all the variance inflation factor (VIF) values are less than 3.3. Finally, results from using Harman's technique indicated that that the most dominant factor explained only about 35.8% of the total variance and seven components of more than one eigen values emerged from the analysis Therefore, based on the above procedural and diagnostic measures, the possibility of CMB contaminating the research findings is very minimal at best.

Statistical tool

This study uses variance-based structural equation modelling (VB-SEM) partly because our objective in this study was to expand the initial trust building model and within the mobile money context. Additionally, the use of VB-SEM is justifiable due to the complexity of the research model, including the investigation of mediation effect (Hair et al., 2019). We should also note that in our analysis, no strict distributional assumption has been made as VB-SEM is commonly understood to be robust to data non-normality, hence additional reason for relying on VB-SEM (Hair et al., 2019). Finally, our analysis remains exploratory in nature and further justifying the utility of VB-SEM (Osakwe et al., 2020; Osakwe and Yusuf, 2020). This study uses SmartPLS in estimating the research hypotheses, which allows us to set the number of bootstrap samples to 5,000 and no sign changes as part of the algorithm.

Results

Measurement model

Following prior research (Hair etal., 2019; Leong etal., 2020; Osakwe etal., 2020), convergent validity was assessed through the inspection of item loadings, composite reliability (CR) scores and average variance extracted (AVE). As reported in Table 1, item loadings, on average, exceeded 0.7 and were all statistically significant ($p < 0.001$). Next, the reported Cronbach's alpha, as well as CR, scores exceeded 0.7 and which are consistent with the literature (Hair etal., 2019). Finally, as shown in Table 1 the AVE for all the constructs were all above the reported minimum threshold of 0.5 (details appear in Table 1).

Having met the requirements for convergent validity of the study constructs, the next was to assess the degree to which the constructs discriminate from each other. As a result, this study following previous work performed discriminant validity test using the heterotrait-monotrait (HTMT) ratio of correlations inference approach (Henseler et al., 2015). Based on Table 2, there is evidence for discriminant validity as none of the HTMT values exceeded 0.85 (Henseler et al., 2015). The study further tested for discriminant validity based on the Fornell and Larcker (1981) approach and results provided further confirmation that the research constructs are distinct from each other (Table 3). Although not reported here due to space limitations that have been imposed by the journal, a visual inspection of the cross-loadings matrix did show that all measurement items loaded strongly on their respective theorised constructs and further adding to evidence on discriminant validity.

Structural model

According to Hair et al. (2019), the first thing to do before assessing structural model parameters is to assess whether there are collinearity issues. As shown in Column 7 in Table 4, there are no collinearity issues especially as the VIF values are far lower than the ideal threshold value of 3 (Hair et al., 2019). Having satisfied collinearity requirements, we then assessed the structural model based on the following quality criteria, namely, R-squared, Stone-Geisser Q-squared, effect size (f2), p-value and confidence interval estimate of path coefficients (details are contained in Table 4). In particular, the model explains 58.9% variance in initial trust, while it also explains 24.9% variance in perceived value of mobile money. Importantly, the explanatory power of the current initial trust building model is comparable to prior technology-based studies (Chandra et al., 2010; Kong et al., 2020; McKnight et al., 2002) and even relatively higher than, for example, those of Chaouali et al. (2016) and Xin et al. (2013) in the internet banking and mobile payment context, respectively. In addition to the above, the model

accounted for 29.2% variation in mobile money use intention, and which is comparable to the research of Abdul-Hamid et al. (2019) in Ghana as well as those of Kim and Park (2013) in the social commerce context. In terms of recommendation intention, the proposed model's explanatory power is 46.4% - which is moderately high - and compares well to prior technology-based research (Kong et al., 2020); it nevertheless exceeds the amount of variance explained in studies in other parts of the world such as Asia (Kim and Park, 2013; Singh et al., 2020). Furthermore, the Q^2 statistic and which represents the overall model predictive power is positive and significantly greater than zero (0) and therefore reinforcing the predictive relevance of the proposed research model. Meanwhile, the results of the mediation analysis are also reported in Table 4. Altogether, there is empirical support for all research hypotheses but H4. Finally, in terms of control variables, females appear to be more willing to use mobile money than their male counterparts.

Table 1. Descriptive statistics and measurement model convergent validity

Construct	Item	loadings	Cronbach's alpha	CR	AVE
Consumer awareness ($\bar{x} = 3.988$ SD $= 0.780$)			0.805	0.872	0.631
	CA1	0.749			
	CA2	0.814			
	CA3	0.816			
	CA4	0.796			
Communicability ($\bar{x} = 3.671$ SD $= 0.753$)			0.721	0.842	0.641
	CO1	0.753			
	CO2	0.883			
	CO3	0.758			
Perceived firm reputation ($\bar{x} = 3.736$ SD $= 0.764$)			0.820	0.893	0.735
	RP1	0.875			
	RP2	0.831			
	RP3	0.866			
Structural assurance ($\bar{x} = 3.706$ SD $= 0.809$)			0.791	0.877	0.704
	SA1	0.852			
	SA2	0.845			
	SA3	0.821			
Initial trust ($\bar{x} = 3.703$ SD $= 0.851$)			0.842	0.904	0.759
	TR1	0.865			
	TR2	0.887			
	TR3	0.863			
Perceived value ($\bar{x} = 3.934$ SD $= 0.770$)					
	PV1	0.789			
	PV2	0.883			
	PV3	0.851			
	PV4	0.848			
Use intention ($\bar{x} = 4.170$ SD $= 0.859$)			0.850	0.909	0.769
	UI1	0.869			
	UI2	0.902			
	UI3	0.859			
Recommendation intention ($\bar{x} = 3.970$ SD $= 0.756$)			0.821	0.893	0.736
	RI1	0.854			
	RI2	0.858			
	RI3	0.862			

General discussions and conclusions

Our objective in this research was to extend the initial trust building model to mobile money research. In particular, the current research has investigated the influence of structural assurance, awareness, perceived firm reputation and communicability on initial trust formation in mobile money and its impact on perceived value, use and recommendation intentions. The research study succeeded in confirming all hypotheses except for the relationship between communicability and initial trust in mobile money. In the section that follows, the authors discuss extensively how the current research effort contributes to emerging research on mobile money acceptance and how it also consolidates current knowledge on emerging technologies adoption.

Theoretical implications

First, unlike other previous research in mobile money acceptance, our research specifically focused on initial trust building by drawing on the growing literature on technology-based initial trust building model. In particular, this research has been the first in mobile money research to incorporate cognitive trust-building antecedents, namely, consumer awareness and perceived firm reputation, socially enabled trust-building antecedents such as communicability, in addition to the institutional trust-building antecedent of structural assurance, in researching the influential predictors of initial trust in mobile money. As our research reveals, only communicability was not found to significantly influence initial trust in mobile money and our model's explanatory power is relatively high (R^2 = 58.9%).

Table 2. Discriminant validity based on HTMT ratio

Constructs	1	2	3	4	5	6	7	8
1. Consumer awareness								
2. Communicability	0.502							
3. Use intention	0.455	0.429						
4. Perceived firm reputation	0.476	0.500	0.501					
5. Recommendation intention	0.688	0.606	0.543	0.549				
6. Structural assurance	0.477	0.549	0.470	0.617	0.626			
7. Initial trust	0.501	0.481	0.514	0.745	0.614	0.849		
8. Perceived value	0.579	0.592	0.574	0.535	0.766	0.618	0.588	

Table 3. Correlation matrix (Fornell and Lacker's approach)

Constructs	1	2	3	4	5	6	7	8
1. Consumer awareness	0.794							
2. Communicability	0.386	0.800						
3. Use intention	0.378	0.345	0.877					
4. Perceived firm reputation	0.387	0.388	0.421	0.857				
5. Recommendation intention	0.564	0.472	0.454	0.452	0.858			
6. Structural assurance	0.384	0.424	0.390	0.501	0.509	0.839		
7. Initial trust	0.416	0.383	0.436	0.620	0.513	0.697	0.871	
8. Perceived value	0.484	0.474	0.495	0.452	0.647	0.513	0.500	0.844

Table 4. Summary of hypotheses testing

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	VIF	LL	UL	f^2	Supported
Control	Age → Use intention	0.000	0.019	0.024	0.981	1.006	−0.034	0.037	0.000	
Control	Gender →Use intention	−0.059	0.032	1.848	0.065	1.003	−0.126	−0.002	0.005	
Control	Age → Recommendation intention	0.012	0.027	0.430	0.657	1.006	−0.042	0.062	0.000	
Control	Gender → Recommendation intention	0.010	0.027	0.385	0.700	1.003	−0.041	0.063	0.000	
H1	Structural assurance → Initial trust	0.489	0.036	13.624	$p < 0.001$	1.499	0.416	0.558	0.390	Yes
H2	Perceived firm reputation→ Initial trust	0.335	0.036	9.192	$p < 0.001$	1.461	0.262	0.407	0.188	Yes
H3	Awareness → Initial trust	0.095	0.026	3.689	$p < 0.001$	1.313	0.046	0.147	0.017	Yes
H4	Communicability → Initial trust	0.008	0.031	0.271	0.787	1.353	−0.049	0.071	0.000	No
H5	Initial trust → Use intention	0.253	0.040	6.403	$p < 0.001$	1.343	0.175	0.331	0.068	Yes
H6	Initial trust → Recommendation intention	0.253	0.035	7.325	$p < 0.001$	1.343	0.182	0.319	0.089	Yes
H7	Initial trust → Perceived value	0.500	0.034	14.776	$p < 0.001$	1.000	0.431	0.564	0.334	Yes
H8a	Perceived value →Use intention	0.366	0.041	8.874	$p < 0.001$	1.339	0.283	0.445	0.142	Yes
H8b	Perceived value →Recommendation intention	0.522	0.036	14.494	$p < 0.001$	1.339	0.449	0.591	0.381	Yes
H9a	Initial trust → Perceived value→Use intention	0.183	0.025	7.339	$p < 0.001$		0.135	0.233		Yes
H9b	Initial trust → Perceived value→Recommendation intention	0.261	0.028	9.243	$p < 0.001$		0.206	0.317		Yes
Post-hoc	Consumer awareness →Communicability	0.388	0.036	10.907	$p < 0.001$	1.000	0.320	0.458	0.177	

Trust ($R^2 = 0.589$, $Q^2 = 0.589$); Perceived value ($R^2 = 0.249$, $Q^2 = 0.443$); Perceived value ($R^2 = 0.249$, $Q^2 = 0.443$);
Use intention ($R^2 = 0.292$, $Q^2 = 0.222$); Recommendation intention ($R^2 = 0.464$; $Q^2 = 0.176$)

Notes; Adjusted R2 is reported here. LL and UL represent lower - and upper -bound confidence intervals. Stone-Geisser's Q2 indicates model predictive relevance

Through the research results, our research reinforces the notion in a previous mobile money research, which was undertaken in the firm context (Okeke and Eze, 2018), about the critical role that the cognitive factors of awareness and perceived firm reputation play in engendering initial trust. In this light, efforts must be made by the MMO to increase its awareness and reputation in the marketplace to enhance (potential) users' trust in the technology/service.

Furthermore, while not directly hypothesised, the current research finds from running a supplementary analysis that consumer awareness is an important precursor to the engagement in communicability of mobile money and especially as it pertains to potential users being able to demonstrate and communicate its functionalities to others. Through the supplementary analysis, therefore, the research provides preliminary insight into the antecedent role of consumer awareness in enhancing mobile money communicability and especially among its potential users; and further adding to research on mobile money acceptance. This research further complements prior mobile money acceptance research in the Ugandan context concerning the role that the institutional environment and in particular structural assurance plays in engendering initial trust in mobile money acceptance (Baganzi and Lau, 2017), which is also consistent with the growing evidence-base in mobile payment research (Chandra et al., 2010; Xin et al., 2013). Consequently, regulators as well as MMOs must continue to play an active role by assuring users of the safety of their financial transactions especially given the prominent role that structural assurance plays in initial trust formation.

Second, while there is evidence in other contexts and such as in online hotel booking (Lien et al., 2015), online shopping (Chong et al., 2003) and self-service technology (Collier and Sherrell, 2009) showing the development of initial trust in the technology contributes meaningfully to its perceived value, this is the first report on mobile money research in relation to the positive influence of initial trust in perceived value of mobile money. It is also the first within the context to provide evidence regarding the mediating role of perceived value in the relationship between initial trust, use and recommendation intentions. This study has therefore increased the understanding of the role of perceived value as both a mediator and direct outcome of initial trust in mobile money and enhancing prior understanding of the role of trust in technology perceived value (Collier and Sherrell, 2009; Lien etal., 2015; Mendoza-Tello etal., 2019).

Finally, this paper similarly reconciles the finding in Baganzi and Lau (2017) that earlier found trust to be insufficient for increased mobile money acceptance. This research therefore extends previous mobile money acceptance research by suggesting that perceived value of mobile money mediates the influence of trust on both use and recommendation intention. At the same time, while the current research contradicts the publication by Ahmed and Ali (2017) who found trust to play a negative role in consumer acceptance of mobile money in Somalia, it reinforces those of Abdul-Hamid et al. (2019) and Bongomin and Ntayi (2019) as well as research in other domains including internet banking (Hoehle et al., 2012; Kaabachi et al., 2017), cryptocurrency transactions (Mendoza-Tello et al., 2019) and mobile payment (Xin et al., 2013) regarding the prominent role that trust plays in consumers' behavioural intentions. Altogether, the research contributes to increased understanding of initial trust building in mobile money research, while further complementing previous research effort in consumer acceptance of emerging technologies.

Practical implications

A key implication of this study is that regulatory guidelines and technology safeguards as captured by structural assurance contribute the most to potential users' initial trust in mobile money. Therefore, managers and regulators alike must continue to provide sound guidelines including clear explanations

of the security safeguards and legal recourse that consumers can resort to in the eventuality of system breakdown or even theft and suspicious activities.

Relatedly, MMOs must ensure they continue to invest in building their firm reputation since this has been found to positively relate to initial trust formation in mobile money. As consumers are more likely to interact with mobile money agents who live within their neighbourhoods, MMOs must ensure their agents are properly trained in all ramifications of customer services including complaint handlings as well as the need for them to remain consistently fair and honest in their dealings with users of the service. In short, any wrongdoings on the part of the agents can undermine the MMO's reputation and ultimately decreasing users' trust in the technology/service, especially if they are not resolved in a timely and adequate manner.

Similarly, given that mobile money is an emergent development, there is a need therefore for increased consumer awareness as this has strong implications for increased initial trust in the technology. In particular, the benefits of mobile money services over and above alternatives like cash payments and informal savings (e.g. use of Esusu system) must be communicated effectively through marketing campaigns in both traditional and new media platforms. In particular, to increase mobile money awareness, MMOs should use mostly radio campaigns as well as more indigenous (or localised) means such as town hall meetings to target the underbanked who currently live, for example, in rural Nigeria. Similarly for the millennial underbanked segment, we recommend that MMOs increase their awareness to this potentially large market in places such as Nigeria using, for example, celebrity endorsement and social media influencers. This way, MMOs can increase their service awareness and ultimately impacting on potential users' trust in the technology/service provided by these companies.

Furthermore, managers and/or practitioners in the mobile money ecosystem should ensure that their services are reliable and dependable and one way to signal this important virtue is for them and their agents to ensure that they are above aboard by faithfully keeping to their promises. Moreover, in certain situations where they cannot keep their promises, perhaps due to system breakdown, they must take appropriate actions in remedying it and update their customers accordingly. All these efforts, this study believes, are instrumental in building consumer confidence and initial trust in mobile money and further implicating perceived value, use and recommendation intentions of the technology/ service. Indeed, for managers, an important step that can be taken to elevate value perception regarding mobile money services, is to build consumer trust through measures such as structural assurance, reputation building and awareness creation. All this will ultimately influence consumer behavioural responses towards mobile money and in relation to use and recommendations of mobile money.

Finally, in view of the research finding that females rather than males are more likely to adopt mobile money, though not directly hypothesised but consistent with a recent research in Ghana (Amoah et al., 2020), we suggest therefore that MMOs target (potential) female consumers more to further boost the broader uptake of the service by this set of consumers. Targeted messaging to female consumers will need to inform them about the potential benefits of using mobile money as well as the preventive measures put in place to ensure the reliability and integrity of the mobile money system. More so, as it is publicly known that many women in developing economies (such as in Nigeria) are disproportionately excluded from access to formal financial services, MMOs can therefore take full opportunity of this gendered gap in financial services in countries like Nigeria, where it is known also that adult females are more willing to take-up non-banking financial services, as well as informal financial channels, than adult males (Enhancing Financial Innovation and Access (EFInA),2019). As such, there is a need by MMOs in the research context to prioritise their marketing efforts towards adult

female consumers and especially those living in peri-urban and rural areas and thereby leading to increased financial inclusion for women and the larger society.

Research limitations and avenues for further study

This study has limitations that need to be addressed in further research. One of its limitations is that it was based on cross-sectional evidence gathered from a single country, and this calls for the research topic to be extended to other nations and normally developing nations where it is often implied that majority of their adult citizens have more mobile phones than formal bank accounts. Another limitation of the current study is that, even though the sample was drawn from young adults and who are often classified as belonging to the underbanked segment, it is not entirely representative of the underbanked population nor does it reflect the unbanked population.

Similarly, given that the proposed initial trust building model was limited to the explanation of about 30% variance in use intention, there is need therefore for scholars to extend the current model by including additional constructs like perceived self-efficacy, compatibility with lifestyle and outcome expectations, which all lie outside the scope of the current investigation. In addition to the above, a fruitful research line that can be pursued by scholars is the empirical investigation of the interaction of bank coverage especially in terms of distance covered to get to a nearest bank branch and trust in influencing mobile money acceptance in developing societies such as African countries. In this way, we may be able to understand in detail how the institutional context interacts with trusting beliefs in determining (dis)adoption of mobile money especially in places, such as in Nigeria, where financial exclusion remains relatively high.

This study despite the limitations it carries has provided a theoretically enriched model for initial trust building in mobile money and its related outcomes. This work has shown that perceived structural assurance, firm reputation and consumer awareness are important precursors to initial trust in mobile money. This in turn has important implications for perceived value, use and recommendation intentions of mobile money. Relatedly, there was strong support for the mediating influence of perceived value in the relationship between initial trust, use and recommendation intentions, further enriching current knowledge about the interrelationship among the highlighted variables.

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Appendix

Constructs, items and their sources

Consumer awareness (1 - absolutely no to 5 - absolutely yes); adapted from Al-Somali et al. (2009j and Ke et al. (2016):

Before now, I have heard about Mobile Money Operators like Paga, Firstmonie, eTransact Pocket moni, U-MO and so on.

I have seen Mobile Money being used by people that I know and others too.

I have seen advertisements about Mobile Money on various media such as TVs, newspapers and/or social media.

In general, I am familiar with services offered by Mobile Money Operators and their Agents.

Structural assurance (1 - strongly disagree to 5 - strongly agree); adapted from Xin et al. (2013)

I believe the mobile money system has enough safeguards to make me feel comfortable using it to conduct financial transactions.

I feel assured that legal and technological structures adequately protect me from any problems that may arise from using Mobile Money.

I feel confident that encryption and other technological safeguards on the Mobile Money platform make it safe for financial transactions.

Communicability (1 - completely disagree to 5 - completely agree); adapted from Kapoor et al (2015):

Explaining the functionality and risks involved in using Mobile Money would not be difficult for me.

I think that I could very easily describe the effects of using Mobile Money.

I could communicate to others the consequences of using Mobile Money.

Perceived firm reputation (1 - completely disagree to 5 - completely agree); adapted from Xin et al. (2013):

I believe Mobile Money Operator has a good reputation.

I believe Mobile Money Operator has a reputation for being fair.

I believe Mobile Money Operator has a reputation for being honest.

Initial trust (1 - strongly disagree to 5 - strongly agree); adapted from Xin etal. (2013)

I trust Mobile Money services/systems to be reliable.

I trust Mobile Money operations to be secure.

I believe Mobile Money Operators are trustworthy.

Perceived value (1 - completely disagree to 5 - completely agree); adapted from Yang etal. (2016)

Using Mobile Money is reasonably economical for me.

Compared to the effort to put, using Mobile Money is beneficial to me.

Compared to the time to spend, using Mobile Money is worthwhile to me.

Overall, using Mobile Money should deliver me good value.

Use intention (1 - completely disagree to 5 - completely agree); adapted from Venkatesh et al. (2003):

I predict I will use Mobile Money services in the future.

I plan to use Mobile Money in the future.

I expect my use of Mobile Money to continue in the future.

Recommendation intention (1 - strongly disagree to 5 - strongly agree); adapted from Oliveira etal. (2016j:

If asked, I am willing to recommend mobile money services to others.

If I have a good experience with Mobile Money, I will recommend friends to subscribe to the service.

In general, I would be comfortable recommending a well-known Mobile Money operator to those close to me.