Cardless Cash Adoption and Consumer Psychology in a Cashless Market: Structural Equation Model (SEM) Approach

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Abstract

Several financial innovations are introduced in the cashless market but not all of them have either gained user acceptance, contributed to financial inclusion or development of Nigeria's cashless market. The purpose of the study is to examine the determinants of cardless cash in cashless market using SEM approach. Cross-sectional survey and online questionnaire were used in the study. The analyses through structural equation model indicate that customisation is the most vital determinant amongst the variables influencing intention to use cardless cash. Theoretical and managerial implications were identified while it was recommended that further studies should adopt longitudinal survey and focus on integrative model and other unit of analysis such as business firms. It was also recommended that with the big impact of customisation, further studies should focus on dimensions of customisation which will help to ascertain the specific aspect of customisation that serves as the key determinant. The study further recommends technologists and software developers to focus on the customisation of cardless cash in ways that delivers functional value and relational value.

*Keywords***:** Cardless cash, M-payment, Cashless market, Emerging economy

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Introduction

The advent of internet has facilitated the transformation of business communications, nature of transactions and payment systems. The electronic transactions are one of the key areas favoured by internet (Oliveira et al., 2017). The digital innovations are impacting operations of financial institutions, business firms, and consumers' consumption and use behaviour. They provide a strong base for electronic transactions (Twum et al., 2016) and influence how businesses interact with customers (Kim et al., 2019). As a result, several means of executing financial transactions without cash are in the cashless market (Slozko & Pelo, 2015). However, there are indications from extant literature of some innovations failing to meet the taste of consumers because of several issues that involve user friendliness, ease of navigation and complexities in using an innovation. Some of these innovations include AOL and QR codes that were not adopted in US (Eadicicco et al., 2017). In essence all technological innovations are not the same as factors that influence one might not significantly influence another (Ramos-de-Luna et al., 2019). Cardless cash is novel technology, and the study is a pioneer study in cardless cash in Nigeria. While related studies in Nigeria focused on simple statistical approaches, the study adopts a structural equation model to provide a robust result about structural the relationships such that it will present a comprehensive guide than adopting simple statistical approaches as in extant literatures of related innovation.

The key facilitators that influence consumer use of the innovations are mostly the speed of transactions, ease of connection (Duarte et al., 2018), usefulness and convenience (Singh et al., 2020). However, recent technological innovations have consistently altered the way businesses and transactions are executed (Liébana-Cabanillas et al., 2014). In most cases they are a consequence of businesses' drive to redirect attention to customers, and customers' willingness to access and experience the power of new technologies (Lara-Rubio et al., 2020). However, the speed of technological innovation adoption is dependent on needfulness (Kujala et al., 2017) and leveraging capacity of institutions to utilise the consumers' readiness to adopt changes in electronic payments (Lara-Rubio et al., 2020). In this regard, efforts and focus of technological firms are on introducing more commercial transaction services (Ramos-de-Luna et al., 2016) with the aim of driving towards a cashless economy. This is despite the disappearance of some financial innovations from payment ecosystem because of poor acceptance and traction (Liébana-Cabanillas et al., 2018) yet more cashless innovations have increased in demand, number, and value such that the cashless market evolves and is driven towards cashless economy (Guardian, 2016).

In Nigeria, one of the aims of cashless society is to minimise cash usage through alternative channels (Ajayi, 2014) given the strong reliance on cash transactions (Acha et al., 2017). The channels involve automated teller machine (ATM), mobile payments, REMITA, POS, and Web though performance of these channels differs due to different levels of consumer confidence (Central Bank of Nigeria, 2018). Despite the increasing innovations in Nigeria, Demirgüç-Kunt et al. (2018) assert that more than 40% adult Nigerians are still unbanked. This could arise from illiteracy, ignorance, infrastructural inadequacy, and poor guarantee of security (Chijioke et al., 2020). It calls for more inclusive innovations and analysing the capacity of the existing innovations to meet the rapid changing taste of users.

In recent time, cardless cash option emerged on some ATMs. Cardless cash refers to the owner's legitimate accessing of their account through ATM for any transaction without using the owner's eligible ATM card. It enables the account holder to grant another the permission to perform monetary transactions from an ATM without using an eligible ATM card (Innova, 2015). This approach does not require the account holder to have an ATM card to operate the machine, but it involves requesting cash through the bank's app and using the generated personal identification number (PIN) to draw cash after punching the PIN on the

ATM. It is a useful avenue to mitigate identity theft and frauds associated with ATM cards (Arnfield, 2017; Phothikitti, 2020). It promotes customer service through transaction speed, effectiveness, and low transaction cost (Nambiar & Bolar, 2022). As an emerging option in Nigeria, it has not gained traction and user acceptance. This informs the psychological position of consumers in accepting or rejecting innovations.

Essentially, consumers have the prerogative to accept or resist innovations (Cornescu & Adam, 2013). In most cases, people's acceptance and resistance to innovation is defined by the changes that are associated with the innovation (Ellen et al., 1991). "One of the fundamental premises of the modern field of consumer psychology is that people often accept innovations not specifically for what they do but because the roles they play in individuals' lives extend well beyond the tasks that they perform" (Solomon, 2004, p. 484). As a result, there are differences in technological acceptance and usage. This is because consumer decisions and acceptance of innovation are influenced by different factors (Ramya & Ali, 2016) such as perception, belief, and norms (Durmaz, 2014). In addition, technological innovations are not the same (Ramos-de-Luna et al., 2019) which can account for disparity in findings on technological innovations.

From the foregoing, despite the benefits of the cardless cash, there is poor acceptance of the innovation, low awareness, and poor information about it in the cashless market, and scarcity of empirical literature on the innovation in Nigeria. A key challenge of potential innovations is poor awareness on the usefulness of the innovation and its benefits, poor perception (Jaisinghani, 2017), "infrastructural support, individual innovativeness, poor information on usefulness and usage, consumer resistance, and issues associated with interoperability" (Oliveira et al., 2016). Thus, the purpose in this study is to assess the direct and indirect determinants of cardless cash by proposing a location-based predictive model. This will involve modifying technological acceptance model (TAM) by incorporating trust, risk, customisation and subjective norm to the model, and providing recommendations that will guide financial institutions, financial technological firms, and consumers in adopting the innovation.

Review of Related Literature

Cardless cash

Cardless cash is a financial innovation that enables customers to use bank's mobile banking app on Smartphone to generate a numeric authentication code – PIN – and transact through the owner's account (Nambiar & Bolar, 2022). It is one of the technological innovations that do not require use of plastic cards to perform transactions on ATM. It is most useful when the customer is not in possession of the ATM card (The Times of India, 2022). It possesses huge potential for financial inclusion. Particularly, it can facilitate financial inclusion among customers in semi-urban and rural areas where there is low percentage of active card (The Times of India, 2022). This is significant in Nigeria given the large number of Nigerian population's poor access to financial services despite the conscious commitments of CBN (MERCY CORPS, 2017). The benefits of cardless cash include fraud control (Ojha, 2022), promotion of ease with which transactions is conducted, non-dependence on physical ATM card to perform transaction (The Economic Times, 2022) and progress to access cash anytime and anywhere (Nambiar & Bolar, 2022). Studies indicate that there are obvious customer concerns with cardless cash. Poor knowledge of the benefits, risk of usage (Nambiar & Bolar, 2022) and customer's level of capability with technology can impact their intention to use it (Ali et al., 2021). Studies indicate that risk, perceived usefulness, and perceived ease of use influence users' motivation to adopt the innovation (Ali et al., 2021) though usefulness is the

key motivating factor (Nambiar & Bolar, 2022). However, though extant literature shows that all technologies do not have same user acceptance (Ramos-de-Luna et al., 2019) greater resort to cash withdrawal in Nigeria is particularly due to technophobia, ignorance, absence of merchant support (Okafor, 2019).

Theoretical background

Technological innovations have been studied from various dimensions such as theory of reasoned action, theory of planned behaviour, diffusion of innovation, TAM among others. These theories are often from studies in social and behavioural psychology but have been used extensively in Marketing. However, TAM is mostly applied in studies because of its robustness and empirical validation though it is criticised for omitting other important variables that has the capacity to influence adoption of innovation (Jeong & Yoon, 2013). Hence, there are several modifications and extensions of TAM (Ramos-de-Luna et al., 2017). The theory was propounded by Davis (1989) to explain the reason behind users' adoption or rejection of an innovation. It highlights the role of perceived usefulness and ease of use in influencing users' decisions on how and when to use technological innovation. The key variables are perceived usefulness, perceived ease of use, and attitude. The theory has been modified in different fields such as in online shopping (Oloveze et al., 2022), mobile payment (Ramos-de-Luna et al., 2019), NFC technology (Ramos-de-Luna et al., 2017), and online payment system (Liébana-Cabanillas et al., 2018) among others.

Hypotheses Development

Perceived ease of use (PEoU)

PEoU means simplicity and effortlessness associated with use of innovation (Davis 1989). It is an important construct of TAM that greatly influence acceptance of innovation through perceived usefulness (Phonthikitti, 2020). It is instrumental to perceived usefulness when there is greater simplicity associated with use of innovation (Elkhani et al., 2014).Its usefulness is handy when banks want to connect with their customers (Jeong & Yoon, 2013). If cardless cash is difficult to use, users will hardly adopt it (Ali et al., 2021). It significantly influences behavioural intention in some studies (Alalwan et al., 2017; Phonthikitti, 2020) but not in other studies (Ooi & Tan, 2016). Therefore, we hypothesise that:

> *Hypothesis 1:* Perceived ease of use positively and significantly determines intention to use cardless cash

Perceived usefulness (PU)

PU is the perception an individual has about an innovation in terms of enhancing task efficiency or performance (Davis 1989). It emphasises the importance of offering utility (Oloveze *et al.,* 2020). It helps customers to achieve results that are tangible (Liébana-Cabanillas &Alonso-Dos-Santos, 2017). It is useful in explaining the continuing intention to use cardless technology when users perceive its usefulness (Phonthikitti, 2020). In technological innovations it positively influences intention (Oloveze et al., 2022; Liébana-Cabanillas & Alonso-Dos-Santos, 2017) but a most significant predictor of intention in other studies (Nambiar & Bolar, 2022). Thus, we hypothesise that:

> *Hypothesis 2:* Perceived usefulness positively and significantly influence intention to use cardless cash

Subjective norm (SN)

SN is the belief individuals have due to the expectation of other people in their life (Fishbein & Ajzen, 1975). It involves the user's belief of his/her referents and the motivation to comply with the desires of the referents (Ramos-de-Luna et al., 2019). The impact of referents is prominent in cases where there is uncertainty and feelings of consequences with use of innovation (Oloveze et al., 2022). Thus, importance of subjective norm is pronounced in situations of poor knowledge and experience on the innovation (Schierz et al., 2010). Studies show its link with ease of use (Ramos-de-Luna et al., 2019; Ramos de Luna et al., 2017), behavioural intention (Lara-Rubio et al., 2020) and perceived usefulness (Ramos-de-Luna et al., 2019) though other studies showed no link between subjective norm and perceived usefulness (Ramos-de-Luna et al., 2017). Therefore, we hypothesise that:

> *Hypothesis 3:* Subjective norm significantly influence perceived usefulness of cardless cash.
> *Hypothesis 4:* Subjective norm significantly influence perceived ease of use of cardless cash.
> *Hypothesis 5:* Subjective norm is significantly related to intention to use cardless cash.

Perceived trust (PT)

Trust is assessed from different dimensions such as cognitive and behavioural components of trust (Kalinic et al., 2021). The behavioural component considers explains trust in online technology as the state wherein the user of a virtual firm's online service decides to be vulnerable to the activity of the virtual firm with the expectation that the virtual firm will fulfill vital obligation to the user irrespective of the ability of the user to have a level of control over the virtual firm (Liébana-Cabanillas et al., 2014). The cognitive dimension considers trust as expectation and reliability expressed by one party to another on fulfillment of obligations in exchange relationship (Dwyer et al., 1987). It is a vital requirement in online settings because of risks involved in online transactions than offline transactions (Molinillo et al., 2020). With individuals that have internet proficiency and know-how, trust is expected to be higher (Liébana-Cabanillas et al., 2014). Thus, in cardless cash, it is the expectation that banks will fulfill their obligation to cardless transactions with the user without taking undue advantage of the user. Studies show its link with behavioural intention (Leong et al., 2013; Liébana-Cabanillas et al., 2017) and usefulness (Liébana-Cabanillas & Alonso-Dos-Santos, 2017). Thus, we hypothesise that:

> *Hypothesis 6:* Perceived trust significantly influence perceived usefulness of cardless cash
>
> *Hypothesis 7:* Perceived trust significantly influence intention to use cardless cash

Customisation

Customisation is the adaptation of the offering of an organisation to the needs of the customers (Liébana-Cabanillas et al., 2017). In mobile technology innovation "it is its use and of user, context, and content information to provide personalised products/services to meet individuals' specific needs" (Liao et al., 2005). With cardless cash, customisation is about enhancing financial inclusion by adapting the cardless transaction on ATM to enable individuals to meet their needs of accessing cash without the need of plastic card. It significantly predicts usefulness in mobile innovations (Morosan, 2014) and behavioural

intention in m-commerce innovation (Liébana-Cabanillas et al., 2017). Consequently, we hypothesise that:

Hypothesis 8: Customisation significantly influence perceived usefulness

Hypothesis 9: Customisation significantly influence intention to use cardless cash

Perceived risk

Risk is an attribute that deals with uncertainties about transactions as well as the attendant consequences of engaging with a new thing (Kalinic et al., 2019). It is a consumers' perception of potential loss in using a service for an expected outcome (Singh et al., 2020). With innovative services, it is a source of consumers' concern and serves as constraint in consumer adoption of services (Alalwan et al., 2018). It deals with theft of personal information (Singh et al., 2020) and loss of money (Kalinic et al., 2019). Extant literature indicates that while it has a negative impact on behavioural intention in some studies (Kalinic et al., 2019; Marriot & Williams, 2018), it is not significant in others (Kizgin et al., 2018; Singh et al., 2020). The innovation is in its nascent stage in Nigeria and the associated risk has not been evaluated. Therefore, we hypothesise that:

Hypothesis 10: Perceived risk negatively and significantly determine intention to use cardless cash

Figure 1. Conceptual model of the study that gives a summary of the hypotheses
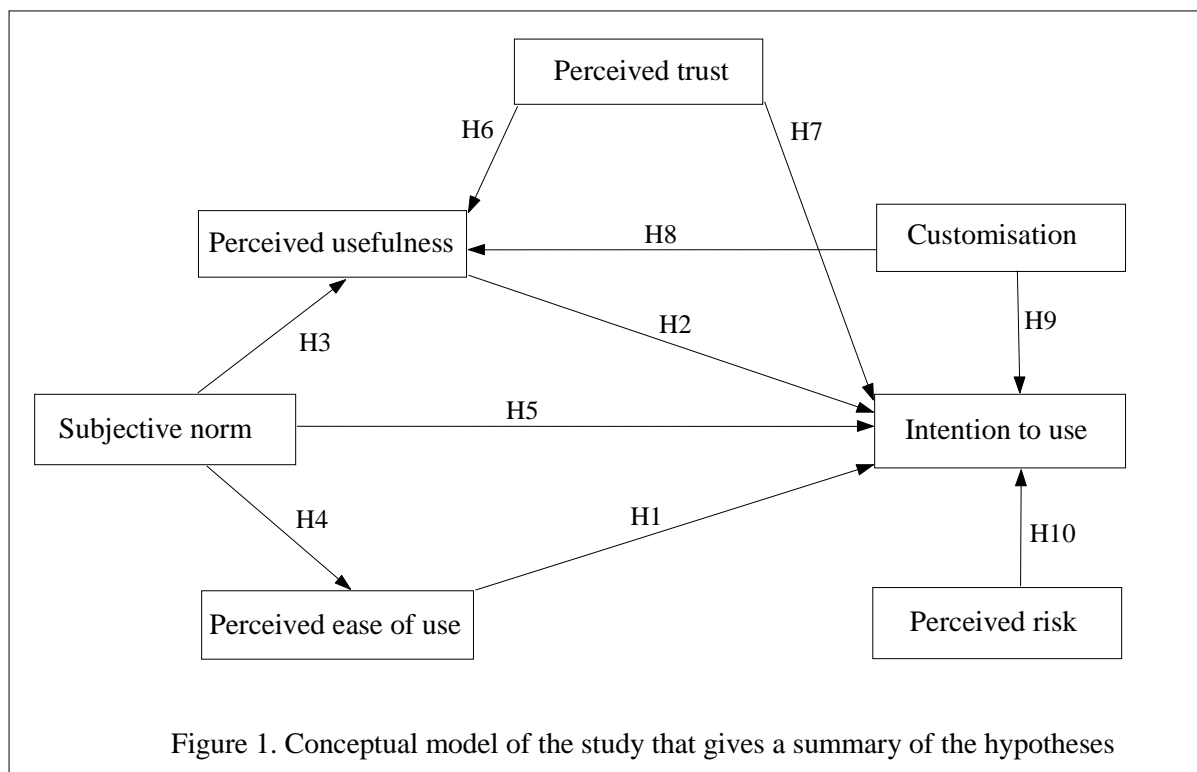
Research methodology

Cross-sectional survey was conducted to evaluate the proposed conceptual model. Bank customers with access to ATM were the key respondents of the study.

Measurement development

In the first place, a structured questionnaire was adapted from related studies on technological innovation to test the relationships and reflect the local context of cardless cash. PEoU, PU and SN were adapted from Lara-Rubio et al., (2020); Customisation was adapted from Liébana-Cabanillas et al., (2017); PT was adapted from Liébana-Cabanillas et al., (2014); PR was adapted from Kalinic et al., (2019); while Intention to use was adapted from Ramos-de-Luna et al., (2017). The questionnaire was structured with 7-point Likert scale that ranged from strongly agree to strongly disagree. A screening question was used to screen out the individuals that have used it. Demographic variables that include age, gender and education were added to understand the demographic profile of the respondents.

The next approach involved subjecting the instrument to preliminary test. This was done through face and content validity by using 5 experts in the academia who ensured the appropriateness of the worded questions. The population was drawn from university students in Nigeria who can be classified as the educated youth of the nation. The main reason for choosing them is because they consist of the class of innovators and early adopters as they are specifically characterized by their willingness to take a risk; very social with the closest contact to scientific and tech sources; advanced in education as well as having high tolerance to adopting techs even if they ultimately fail (Rogers, 2003). Snowball sampling technique was used for this study as Onyeizugbo (2013) assert that it is recommended in situations that require identifying and reaching other members of the population after the researcher has identified a few ones.

Data collection

Data was collected using online questionnaire which was designed with Google form. It was distributed using email list and the social media. 253 forms were collected. 211(83.4%) were usable after screening out 42 (16.6%) forms due to inappropriateness. The demographic profile of the respondents shows that for the age of respondents, 73.5% were below 30 years, 26.5% were above 30 years. 61.8% were male while 38.2% were female. 79.4% are undergraduates, 20.6% are postgraduates.

Data analysis

SPSS v.21 and STATA 13 are the statistical packages used for the analysis. Firstly, common method bias (CMB) was conducted using Herman's single-factor test. This was done with IBM SPSS by adjusting all items to single factor. With the result of 35.625, one factor accounted for 35.625% variance. Thus, CMB was not a problem since the threshold is 50% (Kalinic et al., 2019). Secondly, confirmatory factor analysis was conducted using promax rotation with Kaiser normalisation. Six factors were extracted. The Kaiser-Meyer-Olkin is 0.914 which indicates sampling adequacy while Bartlett's Test of Sphericity is 2779.526 at P=0.000 thus rejecting the null hypothesis of no difference in variance among the respondents' responses. Thus, it validates the suitability of the sample data for factor analysis (Ali et al., 2021).

Reliability and Validity test

Cronbach alpha (CA), composite reliability (CR) and convergent validity were used to test the reliability and validity of the instrument. With the threshold of 0.7 (Verkijika, 2018) for CA each of the constructs satisfied the criteria except PEoU (0.643). However, CR is deemed more robust in testing reliability. With the threshold of 0.7 and 0.5 for CR and convergent validity (usually established through average variance extracted - AVE) (Nunnaly, 1978), all

the constructs met the criteria for CR and AVE. The factor loadings (FL) were all above 0.60. Illustrations are on table 1.

Structural equation model (SEM) and hypotheses testing

SEM was used in the path analysis to prove the proposed hypotheses. Firstly, the fit of the conceptual model was evaluated for adequacy of the model's reproduced matrix and the observation matrix. The key approaches are illustrated in table 2 with the recommended threshold and the values produced by the model. The multivariate normal distribution accounted by the chi-square shows normal distribution. The values of RMSEA, and SRMR are within the thresholds. The incremental adjustments evaluated through CFI and TLI indicators are also within the thresholds. Generally, through these goodness-of-fit indices criteria the results indicate good fit of the model. In addition, the R^2 value of the overall model further shows 68.1% independent variables' explanation of the variations in intention to use cardless cash. See table 2 for illustration.

Table 2: Result of fit indices

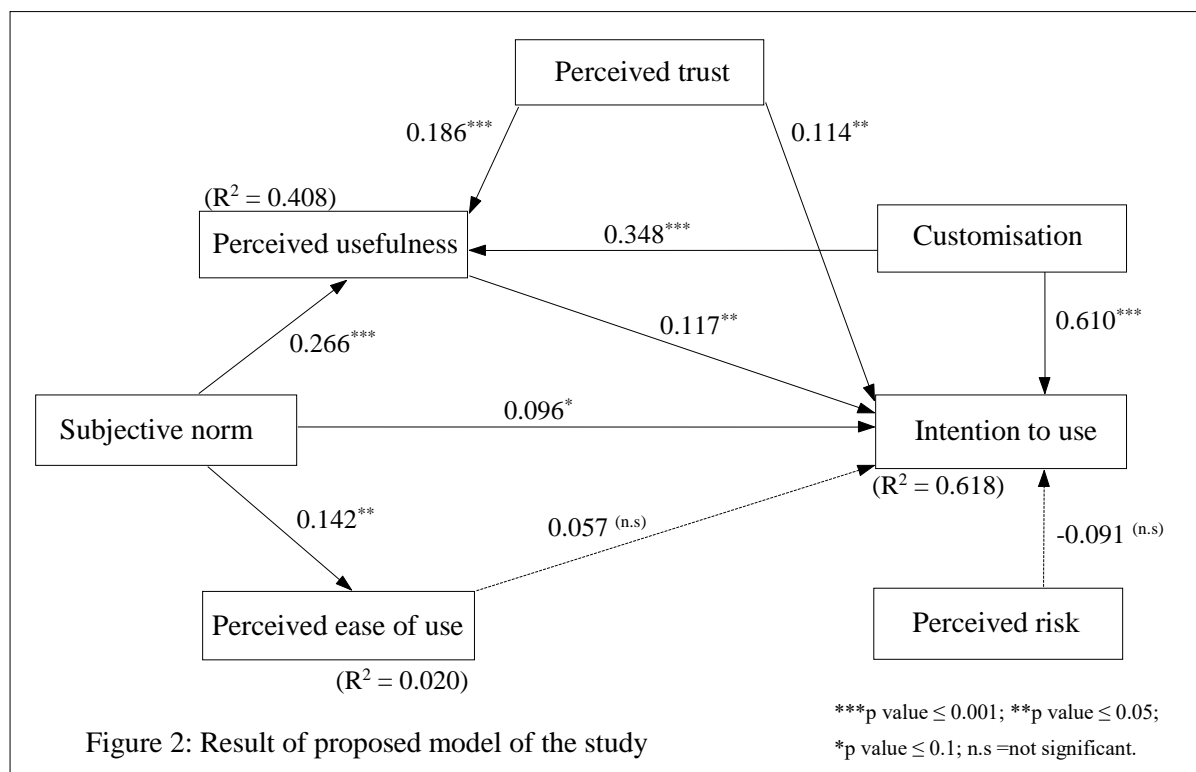| Fit indices	Recommended value	Value in the model	Reference
$\chi^{2/df}$	<5	4.654	Bentler and Paul (1996)
RMSEA	<0.08	0.000	Hu and Bentler (1999)
Pclose	>0.05	0.712	
CFI	>0.90	1.000	Bentler and Paul (1996)
TLI	>0.90	1.003	Schumaker and Lomax (2016)
SRMR	<0.08	0.018	Pituch and Stevens (2016)
R^2(PU)		0.408	
R^2(PEoU)		0.020	
R^2(INT)		0.618	
Overall R^2		0.681	

Notes: RMSEA =Root mean squared error of approximation. CFI =Comparative fit index. TLI =Tucker-Lewis index. SRMR = Standardized root mean squared residual. PU =Perceived Usefulness. INT =Intention to use cardless cash

Secondly, the result of the SEM shows that beside the result of H1 and H10 that are not significant all the proposed hypotheses were confirmed at different *p*-values. The path of PEoU→Intention to use is not significant (H1: β = 0.057; $p \leq$ 0.189) as validated in related studies (Ooi & Tan, 2016) but not in others (Phonthikitti, 2020). The path of PU→Intention to use is significant (H2: β = 0.117; $p \leq$ 0.035). This is confirmed in other technological innovation studies (Oloveze et al., 2022; Nambiar & Bolar, 2022). H3, H4, and H5 were from subjective norm. The proposed hypotheses were supported for the influence of SN on PU (H3: β = 0.266; $p \leq$ 0.000) as validated in others (Ramos-de-Luna et al., 2019), influence of SN on PEoU (H4: β = 0.142; $p \leq$ 0.035) as confirmed in related studies (Ramos de Luna et al., 2017) and influence of SN on intention to use cardless cash (H5: β =0.096; $p \leq$ 0.067) as confirmed in other findings on financial innovation (Lara-Rubio et al., 2020).H6 and H7 were from perceived trust. The results indicate the paths are significant for perceived usefulness (H6: β = 0.186; $p \leq$ 0.002) as confirmed in similar studies (Liébana-Cabanillas & Alonso-Dos-Santos, 2017) and intention to use (H7: β =0.114; $p \leq$ 0.033) as confirmed in related studies (Liébana-Cabanillas et al., 2017). H8 and H9 were proposed from customisation. The results indicate the significance of the paths. H8 is significant (β = 0.348; $p \leq$ 0.000) thus confirming the influence of customisation on perceived usefulness of cardless cash. This is

confirmed in similar studies (Morosan 2014). H9 is significant (β = 0.610; $p \leq$ 0.000) as validated in other related studies (Liébana-Cabanillas et al., 2017). This proves the effect of customisation on intention to use cardless cash. The path PR→Intention to use is not significant (H10: β = -0.049; $p \leq$ 0.339) as validated in related studies (Kizgin et al., 2018; Singh et al., 2020) though not in others (Kalinic et al., 2019; Marriot & Williams, 2018). The results are illustrated in table 3 and figure 2.

Table 3: Testing of hypotheses

Hypotheses	Std. estimates	Std. error	p-value	Result
H1: Perceived ease of use→Intention to use	.057	.043	0.189	Not supported
H2: Personal usefulness→Intention to use	.117	.056	0.035	Supported
H3: Subjective norm→Perceived usefulness	.266	.058	0.000	Supported
H4: Subjective norm→Perceived ease of use	.142	.067	0.035	Supported
H5: Subjective norm→Intention to use	.096	.052	0.067	Supported
H6: Perceived trust→Perceived usefulness	.186	.060	0.002	Supported
H7: Perceived trust→Intention to use	.114	.053	0.033	Supported
H8: Customisation→Perceived usefulness	.348	.060	0.000	Supported
H9: Customisation→Intention to use	.610	.047	0.000	Supported
H10: Perceived risk→Intention to use	-.049	.052	0.339	Not supported

Figure 2: Result of proposed model of the study

***p value $\leq$ 0.001; **p value $\leq$ 0.05; *p value $\leq$ 0.1; n.s =not significant.

Discussion

The objective of this study is to evaluate the direct and indirect predictors of cardless cash using a proposed conceptual model. The test of the model indicates good fit of the proposed model as it satisfied the various criteria for evaluating structural models. The discussion covers theoretical and managerial implications and contribution to study.

Theoretical implication

The result show that the predictors explained 61.8% variance on intention to use cardless cash which is a better predictive model given that it is higher than related models on cardless cash – R^2=0.317 (Phonthikitti, 2020). Out of the six predictors, customisation is the most significant direct predictor of cardless cash. The result buttresses the role of customisation and the importance of adapting the innovation to the need and preferences of the users. It indicates the need to involve the opinion of the users on how to drive the innovation to deliver the needed utility they need. In addition, it buttresses the importance of freedom and convenience of financial or business transaction at anytime and anywhere without the need for ATM card. This is validated in technological innovation involving m-commerce (Liébana-Cabanillas et al., 2017).

Perceived usefulness is established as the second most important variable. In some other studies it is the most vital variable (Kalinic et al., 2019). The present study shows that users of cardless cash will be more motivated to use the innovation when they see it to offer benefits in terms of quicker and easier transaction and other usefulness such as time savings. Because it affects subjectivity and cognitive belief, any positive performance it delivers is capable of driving users to accept and use it.

Perceived trust is empirically proven to be a significant predictor of intention to use cardless cash. Though it has not being used to address cardless cash, the uniqueness of the innovation proves that it is important in motivating individuals to use the innovation. As confirmed in other related studies on digital market instrument innovations (Leong *et al.,* 2013) the result proves that users value it in accepting cardless cash innovation. This is because of the users' exposure to vulnerabilities to ATM frauds, concerns on service providers living to their transactional obligations in dispensing cash and granting legitimate access to the account, and belief that the system will act responsibly during transactions.

Subjective norm was theorised to influence intention to use cardless cash. The empirical result supports the finding in other technological innovations like P2P (Lara-Rubio et al., 2020) and online shopping (Oloveze et al., 2022). This shows that the impact of referents is vital for new technological innovations. The significance of the result in this study shows that referents can impact the motivation of users to adopt it. The experience of one's referents is the key factor and the value the individuals place on the referents in guiding their choice.

Customisation has the most significant indirect effect on intention to use cardless cash. When users discover the usefulness from the dimension of customisation, it enhances their intention to adopt the innovation. The usefulness indicates the enhancement of performance from the individuals' benefit of being tailored to the users' specific need of not requiring card for transaction, offer of boundless transaction. Essentially, when customisation of cardless cash increases, it enhances usefulness perception of the users.

Subjective norm has the second most indirect influence on intention to use cardless cash. This emphasises the role of referents in motivating users' adoption of cardless cash through provision of information, guide and direction on the usefulness of the innovation. The dual dimensional nature of subjective norm shows that with the referents' impact, users' belief on the usefulness is positively impacted. Secondly their motivation becomes driven

through the referents' specificity on the innovation's usefulness, the kind of derivable benefits and the advantages it has over existing ATM card method.

Perceived trust has an indirect influence on the usefulness of cardless cash. The result indicates that users expect the providers of the service to act fairly in the exchange relationship. It indicates the level of users' reliability on the obligation of the service provider to fulfill it as expected.

Managerial implications

The result provides a direction for fin-tech organisations on the need to innovate further and make cardless cash customisable. This will enhance freedom and usefulness. In addition, the significance of subjective norm indicates calls for the use of endorsers, opinion leaders and other referents in marketing campaigns to drive the users' motivation to adopt the innovation. Referents can influence the users' belief and motivation because of the users' reliability on their opinions and followership in the case of endorsers.

Conclusion

Though cardless cash is in its nascent state in Nigeria, the result offers direction to predictors of bank customers' intention to use the innovation. In addition, it gives a direction to leverage the innovation and bridge financial inclusion. This is necessary given the financial exclusion of 40% adult population in Nigeria. In essence, individuals in semi-urban areas and rural areas with average internet skill can leverage the benefits of the innovation and perform their transaction without worrying about the need of ATM card.

Contribution to study

This is a pioneer study around cardless cash in Nigeria. The use of SEM provides a robust result about the structural relationships. Theoretically, the significance of customisation indicates it can be included as an extension of TAM in studies of e-payments and digital innovations.

Limitation of the study and recommendation for future studies

The survey is cross sectional while the sample size can be considered to be small. This can pose issues in generalisation. In addition, limiting the variables to the ones used in the conceptual model does not imply that there are other variables that can impact the innovations. Therefore, this is an area to be exploited in further studies. The huge impact of customisation calls for studies on the dimensions of customisation. This will help to understand the specific aspect of customisation that influences user's intention to adopt the innovation.

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Appendix

Table 1: Measurement table

Variable	Item	FL	CA	CR	AVE
Perceived usefulness	PU1 =Cardless cash on ATM is useful in cash withdrawal and payment	.808	.797	.829	.548
	PU2 =Using cardless cash on ATM makes it easier to handle cash withdrawal and payment	.709			
	PU3 =Cardless cash on ATM system allow quick use of mobile applications	.705			
	PU4 =In general, the system could be useful for me	.735			
Perceived ease of use	PEoU1 =Interaction with the cardless cash on ATM does not require great effort	.784	.678	.801	.503
	PEoU2 =Interaction with cardless cash on ATM is straightforward	.643			
	PEoU3 =It is easy to get cardless cash on ATM to do what I want	.717			
	PEoU4 =In general, the cardless cash on ATM is easy to use	.684			
Perceived trust	PT1 =Cardless cash on ATM is trustworthy	.791	.812	.846	.581
	PT2 =I would describe cardless cash on ATM as honest	.817			
	PT3 =I believe the system is responsible	.779			
	PT4 =In general, I trust the system	.650			
Subjective norm	SN1 =The people whose opinions I value would approve of me using cardless cash on ATM	.663	.745	.772	.531
	SN2 =Most of the people I have in mind think that I should use a cardless cash on ATM	.719			
	SN3 =They expect me to use cardless cash on ATM	.798			
Customisation	C1 =I think using cardless cash meets my needs	.715	.821	.767	.523
	C2 =The service it offers is in line with my preferences	.746			
	C3 =If I have useful idea on how to improve cardless cash, I will inform the provider	.709			
Perceived risk	PR1=Other people can know information about my transactions if I use cardless cash on ATM	.714	.803	.852	.593
	PR2 =There is high potential for lost money if I make purchases using cardless cash	.898			
	PR3 =There is significant risk in making purchases on internet using cardless cash	.663			
	PR4 =I think that making purchases with cardless cash is risky	.784			
Intention to use	INT1 =Given the opportunity, I will use cardless cash on ATM	.843	.926	.942	.803
	INT2 =I am likely to use cardless cash on ATM for transactions in the near future	.940			
	INT3 =I am open to recommend it to others	.902			
	INT4 =I intend to use cardless cash on ATM when the opportunity	.897			

Note: FL=Factor loadings; CA=Cronbach alpha; CR=Composite reliability; AVE=Average variance extracted