

# Assessing customer intention use of mobile money application and the antecedent of perceived value, economic trust and service trust

Mobile money application

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## Abstract

**Purpose** – The purpose of this study is to examine the role of trust and perceived value (PV) in customer intentions to adopt mobile money application (MMA) services. Trust and PV were broken down into various dimensions. This study investigated the two-component base trusts, namely, economic and service, and also PV as an antecedent.

**Design/methodology/approach** – This study involved 402 respondents selected through the interception and online survey approach and had five hypotheses. The structural equation model was used to test the hypothesis of this study.

**Findings** – The findings showed that the PV was related to the customer's intention to use MMA services and economy-based trust. Trust in service providers and economic-based trust were positively related to customer intentions to use MMA services.

**Research limitations/implications** – Although the concept of MMA has been explored in several literatures, the role of trust and PV in the use of MMA has not been of much concern among researchers. In addition, this study described PV as a construction with five supporting dimensions. The current literature showed that the integration of PV with construct trust was still lacking in attention from researchers especially the study of MMA.

**Practical implications** – For practitioners, these findings confirmed that MMA service providers need to convince customers of protection to money and personal information. Also, providers need to ensure that the use of MMA provides cost and time effectiveness. Besides, it is important to ensure the services provided to customers are the fastest way to carry out financial transactions, in this case, including payment and retail purchases. This finding also showed that PV related to MMA services needs to be studied from a customer perspective, focusing on four aspects of ethics, playfulness, customer return of investment and excellent service. Therefore, handling PV in these services requires specific strategies to deal with these various aspects.

**Originality/value** – This study integrated two dimensions of trust, thus economic trust and service trust, the authors also integrated dimension of PV as the antecedent of two dimensions of trust, to understand the dimension of intention use MMA.

**Keywords** Perceived value, Economy trust, Mobile money application, Service trust

**Paper type** Research paper

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## 1. Introduction

Mobile money application (MMA) is a portable technology-based app that has become a massive payment method today. It is also taken as a bank subsidiary, with its services widely applied to individuals' access and complete financial transactions, such as transferring funds, paying bills (electricity, internet and television), online shopping and paying for transportation. According to [Gichuki and Mulu-Mutuku \(2018\)](#), cell phone coverage and usage have exponentially grown. Therefore, MMA services are seen as a possible solution to facilitate financial transactions ([Tchouassi, 2012](#)). An increase in the number of cellphone users and internet penetration leads to a huge growth in the adoption and use of MMA services in the community.

However, online transactions face problems related to customer concerns about trust and perceived value (PV) related to payment services at the time of significant transactions. Previous researchers reported that trust and PV were the main focus in adopting and using electronic payment systems and electronic commerce ([Yang et al., 2015](#); [Ratnasingam et al., 2005](#)). Additionally, in the adoption and use of technology, customers often ignore the role of PV and security risks in the use of technology. Hence, there is a need to further investigate this issue in connection with the use of MMA ([Im et al., 2008](#)). A lot of existing studies treat trust and PV as unidimensional constructs ([Tobbin and Kuwornu, 2011](#)). This study showed that the two factors were multidimensional, which were in agreement with the findings of previous works ([Ball et al., 2016](#)). However, the integration of the relationship between PV and trust to use MMA services was not exhaustively explained by previous studies. This research, therefore, intended to first use MMA by treating trust and PV as a multidimensional construct; second, examining how PV influences consumer intentions to use mobile services; third, exploring economic-based trust, and planning to use these services; fourth, checking the trust in service providers and needs to engage in MMA service relationships.

The majority of existing studies on MMA technology focuses on the perspective of service providers, trust and risk. However, some studies discuss the perceived benefits from a customer perspective aimed at analyzing the implication of value and its effect on customers. In terms of consumer behavior, value is a critical factor in determining one's choices. The higher the PV based on overall consumer ratings, the higher the customer loyalty to the service provider ([Sirdeshmukh et al., 2002](#)). [Farquhar and Rowley \(2006\)](#) showed that consumer recognition and loyalty to products and services depend on the value created by the provider. If the general public who uses MMA is considered a customer, then the value is used as a benchmark in understanding and evaluating the behavior of the consumers. Most of the existing studies discuss value based on the operator's point of view, to discuss the benefits made by the customer, while only a few explore the value based on aspects of participation and attitudes of MMA customers. It is essential to understand the point of view formed from values will encourage loyalty, trust and satisfaction.

The following section presents the reviews of the theoretical background and existing literature, outlining the study hypotheses, sampling design, measurement, descriptive statistics, model measurement and structural equation modeling (SEM). This paper concludes with implications, limits and direction for future research.

## 2. Literature review

### 2.1 Mobile money application services

MMA is a technology that involves the use of mobile phones and online applications in terms of accessing financial services for transaction activities ([Mothobi and Grzybowski, 2017](#)). These

services mostly cover transfers and payments such as mobile banking, over-the-counter banking, agent banking and branchless banking (Diniz *et al.*, 2012).

MMA was developed on the back of weaknesses of semi-conventional lender mechanisms such as automatic teller machines and online banking in meeting the daily needs of customers caused by difficult terms and conditions imposed by these financial institutions. For this reason, MMA services are increasing in popularity.

Unlike other digital banking channels, MMA services are cost-effective, as they operate among financial concepts and telecommunications technologies and involve a variety of shareholders with competing players from various fields (Donovan, 2012). Among these, shareholders or actors, MMA agents (individuals or companies who operate cellular money services) are at the forefront of the deployment of services and play a decisive role in the success of these services.

### 2.2 Trust in digital services

In general, researchers stated that “trust” occupies an essential position in e-business transactions (Safeena *et al.*, 2018). As some customers feel the uncertainty that occurs during the process of e-business and other online transactions that are vulnerable to hacking and misuse of the system (Shaikh *et al.*, 2018). Customers are encouraged to make transactions by trust and PV, which reflect a desire for positive expectations of future behavior (Kim *et al.*, 2018). With this regard, trust refers to consumers’ “beliefs that MMA services have an impact on costs and time. However, providers need to ensure they protect their clients’ money and information with the utmost confidentiality. The intention to use MMA services is directly related to customer trust.

Trust is critical in e-business transactions, as it reduces the risk of becoming a victim of opportunistic behavior, and lack of it is one of the main factors causing consumers to decide not to engage with MMA and other similar services (Chauhan, 2015). Research has shown that trust has a multidimensional concept (Ball *et al.*, 2016; Gefen *et al.*, 2003). Also, it is associated with PV, and be said that lack of it results in a decrease in PV of consumers (Kim and Peterson, 2017). In the context of mobile banking, PV is defined as exposure to a value that encourages customers to use mobile banking (Shaikh *et al.*, 2018). In this study, PV has been defined as the worth seen by customers who use banking services when using MMA services. As it is difficult to measure objectively, the literature focuses on user perception. When the PV is high, consumers decide to be involved in the transaction, and vice versa (Al-Gahtani, 2011). In the current context, then, the PV increases consumers to use MMA services.

### 2.3 Perceived value

Some research previously assumed that PV is part of the critical success factor in the field of marketing (Khalifa, 2004). It was argued, the PV dimension determines service to consumers or even consumer purchase intentions. Therefore, it is developed into a differentiation tool or critical factor to maintain a competitive advantage (Heskett *et al.*, 1994; Ravald and Gronroos, 1996; Yu *et al.*, 2013). The significance of PV is based on the value of the product or service, which is empirically felt by the customer (Zeithaml, 1988). With this result, it is precise reciprocal results between perceived benefits and costs incurred (Lovelock, 2001). In the study of mobile technology results of services valued by individuals, taking into account the benefits derived from them (Kim *et al.*, 2007).

The developed PV refers to five types of theoretical values as follows: functional, social, emotional, epistemic and conditional (Ledden *et al.*, 2007). PV is the result of psychological

experiences felt by consumers, in the form of empirical experiences in one particular product or service (Tynan *et al.*, 2010).

However, value comes in various forms and from several sources, such as product utility, quality, image (shaped by advertising and promotion activities), availability and additional services. Sirdeshmukh *et al.* (2002) stated, PV results in evaluation in the form of a difference between benefits and costs, consumers maintain their relationship with service suppliers if the aspect of profits is higher than the costs incurred. In the aspect of consumer behavior, value is a crucial factor influencing one's choices and behavior toward a product or service. Providers or companies use the experiment value obtained by the customer as a reference and modified to be used in increasing product added benefit, increasing the outcome of customer experience, and worth of the product itself (Shobeiri *et al.*, 2013; Wittmer and Rowley, 2014).

The experimental value might be expressed as a result of interactions between products and customers (Mathwick *et al.*, 2001; Vera and Trujillo, 2013). Moreover, it might also give the results of the relationship between values generated by each experience and personal preference felt by customers. Providers or companies can use the experiment value to study customer favorites and modify to increase product added value and outcome (Shobeiri *et al.*, 2013; Wittmer and Rowley, 2014). According to Holbrook (1994), the value of experience is divided into four, namely, aesthetics, playfulness, customer return of investment (CROI) and service excellence. Previous research, which discussed the relationship between consumer behavior and PV uses these four types of experience value as an assessment indicator (Mathwick *et al.*, 2001; Shobeiri *et al.*, 2013). Aesthetics is the customer's evaluation of aspects related to the service experienced, precisely, whether it is consistent with his personal preferences (Ryu *et al.*, 2010; Hosany and Witham, 2010; De Nisco and Warnaby, 2014). In a virtual community environment, companies can make bold efforts to create something unique by combining several menus, images and colors to attract the attention of customers and deepen the impression left by the product or application (Hornig *et al.*, 2013; Mathwick *et al.*, 2001). Playfulness refers to pleasant feelings that are felt while using the system (Kang *et al.*, 2014). In this case, MMA is assumed as a virtual world. During its usage, consumer activity brings pleasure felt by customers. Therefore, it becomes an essential motivator as a driver in using MMA in the future (Huang *et al.*, 2010). CROI refers to customer evaluation after comparing the investment, which has been issued with the benefits that are felt. CROI is an internal value from the experience and evaluation of customers obtained from the perceived encounter (Kim and Ko, 2012; Shobeiri *et al.*, 2013). Overall, PV is a benchmark for consumers to get excellent service, which is the comparison of customers on their standards, experiences and perceived impressions (Calver and Page, 2013), and whether those consumers have felt the service exceed their expectations.

### 3. Hypothesis development

Trust is a positive expectation related to services in PV, which are felt by consumers (Das and Teng, 2002). Economic-based trust is based on economic benefits (Chai and Kim, 2010). MMA users' perceptions about the benefits in saving time and costs, as well as the economical use of mobile services, are part of consumer trust based on the economy in these services (Chai and Kim, 2010). When customers realize the costs incurred are not proportional to the benefits of MMA services, then the customer will tend to lose trust in these services. As a result, PV from using MMA services affect economic-based trust. From this, we propose the following hypothesis:

H1. PV influences economy-based trust.

PV is considered as a concept, which has a positive impact on the use of MMA services. Furthermore, it is a combination of ethics, playfulness, CROI and excellent service to support these services (Featherman and Pavlou, 2003). The results of MMA service decisions are uncertain. Hence, the PV of MMA services positively influences customer intentions to use (Lopez-Nicolas and Molina-Castillo, 2008). Similarly, Park *et al.* (2005) found a negative relationship between perceived risk and intention to buy online. Considering the role of trust from customers and PV associated with the MMA system (Yang *et al.*, 2015), it is logical to argue, PV influences consumers' intention to use MMA services. PV is also related to trust (Pavlou *et al.*, 2007) and serves to provide a boost of confidence toward customers when using the system (Yang *et al.*, 2015). In general, customers think, using MMA is more efficient and cost-effective compared to using conventional bank transactions or other payment services, the high PV is felt to affect consumers' intention to use MMA services (Bauer *et al.*, 2005). The hypothesis derived from this is:

H2. PV influences the customer's intent to use MMA services.

PV and trust are known to influence consumer behavioral intentions (Martins *et al.*, 2014; Namahoot and Laohavichien, 2018). Furthermore, consumer PV influences its behavior toward MMA services (Bauer *et al.*, 2005). Customers believe that MMA services have some PV elements (Namahoot and Laohavichien, 2018). Furthermore, they try to minimize perceived risk while reducing service utility (Bauer *et al.*, 2005). According to Liébana-Cabanillas *et al.* (2013), PV has a positive influence on trust in MMA services. Thus, the following hypothesis is put forward:

H3. PV influences trust in MMA Service providers.

Trust plays an essential role in the use of MMA (Tobbin and Kuwornu, 2011). In the current study, it is related to both factors, namely, economic and service provider aspects, both of which are important for customers' decision-making in the context of e-business (Chai and Kim, 2010). Furthermore, trust influences the relationship of intention to use MMA services, as it is related to positive customer attitudes (Song and Zahedi, 2002). It tends to influence customer intentions in MMA transactions. Conversely, lack of trust tends to affect the reluctance of customer intentions toward the use of these services. According to Gefen *et al.* (2003), customers tend to provide rational judgments to ensure they get value for the money they have spent. Additionally, customers do not want to waste much time in the process of their business transactions. Therefore, e-business, which is run using MMA transactions, needs to ensure ease of transaction, is a critical discussion (Kuisma *et al.*, 2007). A study by Chai and Kim (2010) showed that economic-based trust influences consumer behavior. Therefore, reported that the level of consumer confidence tends to influence consumer behavior about the use of MMA services. As customers prefer to deal with vendors they can trust (Pavlou *et al.*, 2007), exercising it in MMA service providers (telecommunications, banks and agents) will influence customer intentions to use their services. The following hypothesis is proposed on the basis (see Figure 1, all of hypotheses):

H4. Economy-based trust influences customers to use MMA services.

H5. Belief in providers influences customer intent to use their services.

#### 4. Research methodology

All items used to measure construction were adapted from existing literature. Specifically, those on the customer's intention to use MMA services were adapted from [Yang et al. \(2015\)](#). Similarly, tools that measure the dimensions of PV (ethics, playfulness, CROI and service excellent) were adapted from [Chen and Lin \(2019\)](#) and [Hariguna et al. \(2019\)](#). The items that measure confidence and economic-based trust in service providers are adapted from [Chai and Kim \(2010\)](#). For clarity, all items are measured on a five-point Likert scale (1 = very disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = very agree).

To test models and hypotheses, survey-based research designs were used to gather quantitative data from a large number of respondents. The questionnaire was developed based on the proposed model and distributed only to respondents who could understand it well enough to respond. This questionnaire was tested earlier in January 2019 with the help of students and researchers. The target respondents were MMA service users. From the data, we collected there were 402 respondents from MMA users domiciled in the country of Indonesia, while the time period in collecting data was from February to April 2019.

Data collection involved two components. First, the intercept approach was used to collect data from respondents by intercepting some potential respondents when they use MMA services. This data collection approach had been used as a means to increase response rates ([Boateng et al., 2016](#)). The second component of data collection was an online survey. All responses were then combined and analyzed together.

In total, there were 402 questionnaires used for the final analysis. The majority of respondents (52.49 per cent) were male, and the remaining 47.51 per cent were female. Most respondents (44.78 per cent) were 26-35 years of age, and (47.26 per cent) had completed their bachelor's degrees. Overall, 46.02 per cent used MMA services between one and five times a month. Additionally, the majority of respondents (63.93 per cent) were professionals in the field of private service ([Table I](#)).

The general method variance (CMV) was examined before testing the hypothesis using the Harman single test ([Podsakoff et al., 2003](#)). This was carried out by including all variables in the exploratory factor analysis (EFA). From the EFA findings, more than one factor emerged from the analysis. Additionally, once all measurement items were forced to load into a single factor, it did not account for 50 per cent of the variance. As a result, there were no severe CMV concerns.

#### 5. Results

The SEM (PLS-SEM) approach was used to assess the measurement model and the hypothesis of this study by running SmartPLS 2.0. Partial least square is suitable for testing

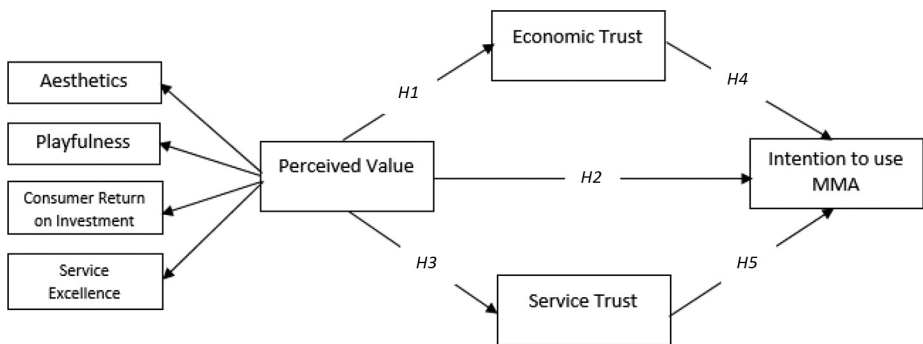


Figure 1.  
Research framework

Characteristics	Frequency	(%)
<i>Gender</i>		
Male	211	52.49
Female	191	47.51
Total	402	100
<i>Age</i>		
15-25	98	24.38
26-35	180	44.78
>35	124	30.85
Total	402	100
<i>Degree</i>		
High school level	113	28.11
Undergraduate	190	47.26
Post undergraduate	99	24.63
Total	402	100
<i>Experience using MMA</i>		
1 time a month	55	13.68
3-5 times a month	185	46.02
>5 times a month	162	40.30
Total	402	100
<i>Occupations</i>		
Private sector	257	63.93
Public sector	145	36.07
Total	402	100

**Table I.**  
Details all of the data demographic

hierarchical content latent variable or high-level models. Compared to covariate-based SEM, PLS-SEM is designed to handle observable low order components and unobservable high order components to reduce model complexity, and this makes it theoretically narrower (Lohmoeller, 1989).

### 5.1 Measurement model assessment

Measurement model assessment is the first step in every SEM process, as it ensures statements, unobserved variables, are measured constructs or observed variables. The measurement model was assessed using three main criteria as follows: convergent and discriminant validities and reliability, following Hair *et al.* (2014).

Convergent validity items are assessed based on outer loading and average variance extracted (AVE). All values are above 0.6, which are above the recommended minimum threshold value of 0.6 (Bagozzi and Yi, 1988). Therefore, outer loading provides support for convergent validity (Hair *et al.*, 2014). In this study, the AVE value obtained between 0.599 and 0.814 is far above the minimum required level of 0.50, as stated by Fornell and Larcker (1981). Therefore, this study showed convergent validity for all constructs. Composite reliability measurements are all higher than the 0.7 thresholds (Table II) of Chin (2010), which is among the measurement models. The measure of construction reliability in this study is above the acceptable level of satisfaction (Table III).

Discriminant validity was evaluated based on the correlation matrix or cross-loadings. According to Fornell and Larcker (1981) criteria, the square root of AVE needs to be higher than the correlation divided between construct and others (Tables III and IV).

**Table II.**  
Reliability analysis  
and convergent  
validity

Construct	Measurement items	Factor loading/ coefficient ( <i>t</i> -value)	Composite reliability	AVE	Cronbach's alpha
Aesthetics	Aes1	0.784	0.833	0.625	0.700
	Aes2	0.740			
	Aes3	0.844			
Playfulness	Pla1	0.850	0.875	0.702	0.786
	Pla2	0.776			
	Pla3	0.883			
Consumer return on investment	CRI1	0.767	0.788	0.560	0.607
	CRI2	0.863			
	CRI3	0.588			
Service excellence	SeE2	0.858	0.833	0.713	0.599
	SeE3	0.831			
Economic trust	ET1	0.780	0.826	0.613	0.685
	ET2	0.767			
	ET3	0.802			
Service trust	ST1	0.721	0.808	0.585	0.646
	ST2	0.746			
	ST3	0.824			
Intention to use MMA	IU1	0.870	0.882	0.715	0.799
	IU2	0.794			
	IU3	0.869			

**Table III.**  
Construct of  
correlation matrix

Constructs	ET	IU	PV	ST
ET	0.783			
IU	0.879	0.845		
PV	0.887	0.925	0.739	
ST	0.838	0.910	0.878	0.765

### 5.2 Structural model assessment

After validating the measurement model, the next step is to assess the structure model, which involves testing the hypothesis. From five hypotheses, they are all significant.

- H1. The relationship between PV influences economy-based trust was significant ( $\beta = 0.887$ ).
- H2. The PV influences the customer's intent to use MMA services is significant ( $\beta = 0.925$ ).
- H3. The PV influences the service-based trust was significant ( $\beta = 0.878$ ).
- H4. Economy-based trust influences customer intent to use MMA services to show significant ( $\beta = 0.165$ ).
- H5. The relationship between trust in MMA service providers influences customer intent to use MMA services is significant ( $\beta = 0.381$ ), such as shown in [Table V](#). [Figure 2](#) shows the structural model.

As observed from the model in [Figure 2](#) and [Table V](#), there are three construction with the following R-square ( $R^2$ ): customer intention to use MMA services (0.903), economy-based



Constructs	Aes	CRI	ET	IU	Pla	ST	SeE
Aes1	0.785	0.480	0.515	0.537	0.543	0.502	0.545
Aes2	0.740	0.658	0.651	0.677	0.691	0.659	0.595
Aes3	0.845	0.667	0.696	0.716	0.702	0.666	0.720
CRI1	0.738	0.768	0.679	0.720	0.688	0.665	0.752
CRI2	0.606	0.863	0.737	0.771	0.757	0.732	0.652
CRI3	0.313	0.589	0.383	0.338	0.342	0.336	0.328
ET1	0.532	0.571	0.781	0.684	0.603	0.657	0.558
ET2	0.688	0.672	0.767	0.668	0.658	0.633	0.682
ET3	0.639	0.703	0.802	0.714	0.741	0.680	0.630
IU1	0.666	0.701	0.794	0.871	0.761	0.776	0.648
IU2	0.748	0.682	0.678	0.795	0.711	0.747	0.784
IU3	0.675	0.785	0.757	0.870	0.807	0.785	0.712
Pla1	0.599	0.643	0.666	0.682	0.851	0.640	0.585
Pla2	0.723	0.724	0.718	0.758	0.776	0.710	0.753
Pla3	0.694	0.724	0.758	0.812	0.884	0.765	0.700
ST1	0.476	0.511	0.592	0.623	0.559	0.722	0.456
ST2	0.697	0.618	0.626	0.686	0.640	0.746	0.703
ST3	0.604	0.709	0.701	0.770	0.728	0.824	0.681
SeE2	0.760	0.693	0.692	0.759	0.714	0.729	0.858
SeE3	0.570	0.668	0.654	0.665	0.660	0.639	0.832

**Table IV.**  
Standardized factor loadings and cross loadings of the outer model

**Notes:** ET = economy-based trust; IU = intent to use MMA; ST = service-based trust; Aes = aesthetics; Pla = playfulness; CRI = consumer return on investment; SeE = service excellence

Hypothesis	Path	Standardized path coefficient	t-value	Supported
H1	PV-ET	0.887***	62.408	Yes
H2	PV-IU	0.925***	97.668	Yes
H3	PV-ST	0.878***	55.767	Yes
H4	ET-IU	0.165**	3.517	Yes
H5	ST-IU	0.381***	6.773	Yes

**Table V.**  
Summary of hypotheses testing results

**Notes:** PV = perceived value; ET = economy-based trust; IU = intent to use MMA; ST = service-based trust; \*\*p-value < 0.01; \*\*\*p-value < 0.001; number of bootstrap samples = 10,000

trust (0.787) and trust in service providers (0.772). These results indicate that PV has a significant impact on economic trust variables of 78 per cent, on service trust of 77 per cent and on customer intention to use MMA by 90 per cent. Similarly, the service trust and economic trust have a significant impact on the customer intention to use MMA by 90 per cent.

## 6. Discussion and conclusions

This study investigated the two-component base trusts, namely, economic and service, and also PV as an antecedent. These three components affected the customer's intention to use MMA services. This research had five hypotheses, and the findings showed that trust and PV were multidimensional constructs. In making decisions, customers pay attention to variables, which change depending on the context, and various dimensions of trust from the PV. The results also showed some forms of trust and perceived PV were related to MMA

services. Other elements in the environment also encouraged customer confidence in service providers and the economy.

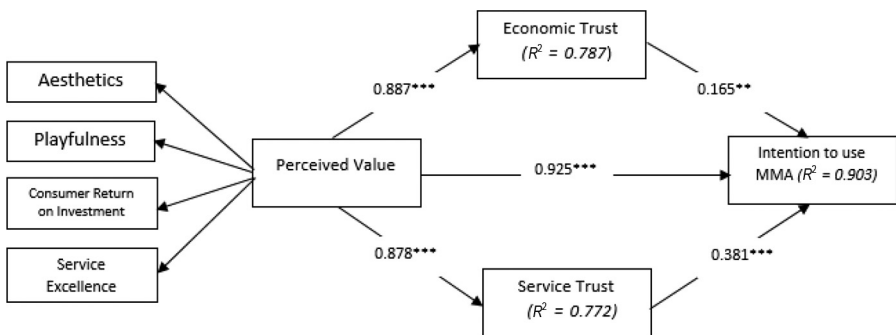
All the hypotheses were stated to be significant and positive. In *H1*, it implied that PV had a good impact on the economic trust felt by MMA services. The *H2* meant that the PV had a positive effect on the intention to use MMA services. With the *H3*, the PV had an encouraging influence on trust in providers. For *H4*, the perceived economic trust had a positive bearing on intentions on MMA services. The *H5* showed that service-based trust positively affects the intention to use MMA services. From the results of *H1* and *H3*, it concretely explains that the role of PV on economic and service-based trust directly has a significant impact, whereas PV has a significant impact on customer intention to use of MMA directly or indirectly (*H2*, *H4* and *H5*). In psychology the higher the PV of the customer will have an impact on their trust in the MMA, this simultaneously stimulates the customer to repeatedly use MMA.

*H5* and *H6* indicated that trust influenced the customer's decision to use MMA services. Previous research (Tobbin and Kuwornu, 2011; Donovan, 2012) shared this observation. Therefore, MMA service providers could consider implementing a strategy that creates or increases customer confidence in it. This trust could encourage customers' intention to use MMA services, with the result that loyalty was formed (Lu et al., 2011; Malaquias and Hwang, 2016).

### 6.1 Managerial, theoretical and social implications

For practitioners, these findings confirmed that MMA service providers need to convince customers of protection to money and personal information. Also, providers need to ensure that the use of MMA provides cost and time effectiveness. Besides, it is important to ensure the services provided to customers are the fastest way to carry out financial transactions, in this case, including payment and retail purchases. This finding also showed that PV related to MMA services needs to be studied from a customer perspective, focusing on four aspects of ethics, playfulness, CROI and excellent service. Therefore, handling PV in these services requires specific strategies to deal with these various aspects.

Customer trust in MMA service providers reduces anxiety and pressure, which customers might experience when conducting financial transactions. In case there is a possibility of a system failure in conducting financial transactions, there is an impact on customers' trust in the service provider. Therefore, the service provider needs to ensure that



**Figure 2.**  
Standardized path coefficients and significance of the inner model

**Notes:** \* $p$ -value < 0.05; \*\* $p$ -value < 0.01; \*\*\* $p$ -value < 0.001; Number of bootstrap samples = 10,000

the process can be recovered automatically in a short time. Additionally, issues relating to customer privacy need to be appropriately maintained to keep and protect the privacy of customers. Their data and information are limited to the needs of MMA transactions. Restricted personal details are not a problem for customers.

With the increasing number of MMA users and the increasing number of MMA providers, it has an impact on social behavior for the community and MMA users, from the results of our research there has been a tendency or phenomenon of cashless society, i.e. more and more people are leaving transactions in cash and only using cash in small amounts. Thus, mobile phones become the main tool in daily transaction activities. Furthermore, the thing that is most worried is digitization of a number of jobs, this phenomenon is a form of job redefinition. In the end, digitalization will not erase all conventional systems, but collaboration is very possible.

### 6.2 Limitations and directions for future studies

Overall, this study has limitations, including the fact that it only used MMA users without considering the opinions of individuals not using them. This would have been a nice approach for MMA providers to prepare new markets. In the future, the use of mobile phone-based technology is likely to be widely used by the community. However, other studies established that there are still many people who do not understand how to use mobile technology, especially communities in rural areas. This study still focused on urban communities.

### References

- Al-Gahtani, S.S. (2011), "Modeling the electronic transactions acceptance using an extended technology acceptance model", *Applied Computing and Informatics*, Vol. 9 No. 1, pp. 47-77.
- Ball, J.G., Manika, D. and Stout, P. (2016), "Causes and consequences of trust in direct-to-consumer prescription drug advertising", *International Journal of Advertising*, Vol. 35 No. 2, pp. 216-247, doi: [10.1080/02650487.2015.1009346](https://doi.org/10.1080/02650487.2015.1009346).
- Bagozzi, R.P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94, doi: [10.1007/BF02723327](https://doi.org/10.1007/BF02723327).
- Bauer, H.H., Reichardt, T., Barnes, S.J. and Neumann, M.M. (2005), "Driving consumer acceptance of mobile marketing: a theoretical framework and empirical study", *Journal of Electronic Commerce Research*, Vol. 6 No. 3, pp. 181-192.
- Boateng, H., Adam, D.R., Okoe, A.F. and Anning-Dorson, T. (2016), "Assessing the determinants of internet banking adoption intentions: a social cognitive theory perspective", *Computers in Human Behavior*, Vol. 65, pp. 468-478, doi: [10.1016/j.chb.2016.09.017](https://doi.org/10.1016/j.chb.2016.09.017).
- Calver, S.J. and Page, S.J. (2013), "Enlightened hedonism: exploring the relationship of service value, visitor knowledge and interest, to visitor enjoyment at heritage attractions", *Tourism Management*, Vol. 39, pp. 23-36.
- Chai, S. and Kim, M. (2010), "What makes bloggers share knowledge? An investigation into the role of trust", *International Journal of Information Management*, Vol. 30 No. 5, pp. 408-415, doi: [10.1016/j.ijinfomgt.2010.02.005](https://doi.org/10.1016/j.ijinfomgt.2010.02.005).
- Chauhan, S. (2015), "Acceptance of mobile money by poor citizens of India: Integrating trust into the technology acceptance model", *info*, Vol. 17 No. 3, pp. 58-68.
- Chen, S.C. and Lin, C.P. (2019), "Understanding the effect of social media marketing activities: the mediation of social identification, perceived value, and satisfaction", *Technological*

- Forecasting and Social Change*, Vol. 140, pp. 22-32, Available at: <https://doi.org/10.1016/j.techfore.2018.11.025>
- Chin, W.W. (2010), "How to write up and report PLS analyses", *Handbook of Partial Least Squares*, Springer, New York, NY, pp. 655-690, doi: [10.1007/978-3-540-32827-8\\_29](https://doi.org/10.1007/978-3-540-32827-8_29)
- Das, T.K. and Teng, B.S. (2002), "The dynamics of alliance conditions in the alliance development process", *Journal of Management Studies*, Vol. 39 No. 5, pp. 725-746, doi: [10.1111/1467-6486.00006](https://doi.org/10.1111/1467-6486.00006).
- De Nisco, A. and Warnaby, G. (2014), "Urban design and tenant variety influences on consumers' emotions and approach behavior", *Journal of Business Research*, Vol. 67 No. 2, pp. 211-217.
- Diniz, E., Birochi, R. and Pozzebon, M. (2012), "Triggers and barriers to financial inclusion: the use of ICT-based branchless banking in an Amazon county", *Electronic Commerce Research and Applications*, Vol. 11 No. 5, pp. 484-494, doi: [10.1016/j.elerap.2011.07.006](https://doi.org/10.1016/j.elerap.2011.07.006).
- Donovan, K. (2012), "Mobile money for financial inclusion", *Information and Communications for Development*, Vol. 61 No. 1, pp. 61-73.
- Featherman, M.S. and Pavlou, P.A. (2003), "Predicting e-services adoption: a perceived risk facets perspective", *International Journal of Human-Computer Studies*, Vol. 59 No. 4, pp. 451-474, doi: [10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3).
- Farquhar, J. and Rowley, J. (2006), "Relationships and online consumer communities", *Business Process Management Journal*, Vol. 12 No. 2, pp. 162-177.
- Fornell, C. and Larcker, D.F. (1981), "Structural equation models with unobservable variables and measurement error: Algebra and statistics", *Journal of Marketing Research*, Vol. 18 No. 3, pp. 382-388, doi: [10.2307/3150980](https://doi.org/10.2307/3150980).
- Gefen, D., Karahanna, E. and Straub, D.W. (2003), "Trust and TAM in online shopping: an integrated model", *Management Information Systems Quarterly*, Vol. 27 No. 1, pp. 51-90, doi: [10.2307/30036519](https://doi.org/10.2307/30036519).
- Gichuki, C.N. and Mulu-Mutuku, M. (2018), "Determinants of awareness and adoption of mobile money technologies: evidence from women micro-entrepreneurs in Kenya", *Women's Studies International Forum*, Vol. 67, pp. 18-22, doi: [10.1016/j.wsif.2017.11.013](https://doi.org/10.1016/j.wsif.2017.11.013).
- Hair, F.J., Jr, Sarstedt, M., Hopkins, L. and G. Kuppelwieser, V. (2014), "Partial least squares structural equation modeling (PLS-SEM) an emerging tool in business research", *European Business Review*, Vol. 26 No. 2, pp. 106-121, doi: [10.1108/EBR-10-2013-0128](https://doi.org/10.1108/EBR-10-2013-0128).
- Hariguna, T., Hung, C. and Sukmana, H.T. (2019), "The antecedent of citizen intention use of e-government service", *Telkommika (Telecommunication Computing Electronics and Control)*, Vol. 17 No. 1, pp. 202-209, Available at: <https://doi.org/10.12928/TELKOMNIKA.v17i1.11588>
- Hesket, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E. and Schlesinger, L.A. (1994), "Putting the service-profit chain to work", *Harvard Business Review*, Vol. 72 No. 2, pp. 164-174.
- Holbrook, M.B. (1994), "The nature of customer value: an axiology of services in the consumption experience", in Rust, R.T. and Oliver, R.L. (Eds), *Service Quality: New Directions in Theory and Practice*, Sage, Newbury Park, CA, pp. 21-71.
- Hornig, J.S., Chou, S.F., Liu, C.H. and Tsai, C.Y. (2013), "Creativity, aesthetics and eco-friendliness: a physical dining environment design synthetic assessment model of innovative restaurants", *Tourism Management*, Vol. 36, pp. 15-25.
- Hosany, S. and Witham, M. (2010), "Dimensions of cruisers' experiences, satisfaction, and intention to recommend", *Journal of Travel Research*, Vol. 49 No. 3, pp. 351-364.
- Huang, C.Y., Chou, C.J. and Lin, P.C. (2010), "Involvement theory in constructing bloggers' intention to purchase travel products", *Tourism Management*, Vol. 31 No. 4, pp. 513-526.

- Im, I., Kim, Y. and Han, H.J. (2008), "The effects of perceived risk and technology type on users' acceptance of technologies", *Information and Management*, Vol. 45 No. 1, pp. 1-9, doi: [10.1016/j.im.2007.03.005](https://doi.org/10.1016/j.im.2007.03.005).
- Kang, J., Tang, L. and Fiore, A.M. (2014), "Enhancing consumer-Brand relationships on restaurant Facebook fan pages: maximizing consumer benefits and increasing active participation", *International Journal of Hospitality Management*, Vol. 36, pp. 145-155.
- Khalifa, A.S. (2004), "Customer value: a review of recent literature and an integrative configuration", *Management Decision*, Vol. 42 No. 5, pp. 645-666.
- Kim, A.J. and Ko, E. (2012), "Do social media marketing activities enhance customer equity? an empirical study of luxury fashion brand", *Journal of Business Research*, Vol. 65 No. 10, pp. 1480-1486.
- Kim, Y. and Peterson, R.A. (2017), "A Meta-analysis of online trust relationships in E-commerce", *Journal of Interactive Marketing*, Vol. 38, pp. 44-54, doi: [10.1016/j.intmar.2017.01.001](https://doi.org/10.1016/j.intmar.2017.01.001).
- Kim, H.W., Chan, H.C. and Gupta, S. (2007), "Value-based adoption of mobile internet: an empirical investigation", *Decision Support Systems*, Vol. 43 No. 1, pp. 111-126.
- Kim, T.Y., Wang, J. and Chen, J. (2018), "Mutual trust between leader and subordinate and employee outcomes", *Journal of Business Ethics*, Vol. 149 No. 4, pp. 945-958, doi: [10.1007/s10551-016-3093-y](https://doi.org/10.1007/s10551-016-3093-y).
- Kuisma, T., Laukkanen, T. and Hiltunen, M. (2007), "Mapping the reasons for resistance to internet banking: a means-end approach", *International Journal of Information Management*, Vol. 27 No. 2, pp. 75-85, doi: [10.1016/j.ijinfomgt.2006.08.006](https://doi.org/10.1016/j.ijinfomgt.2006.08.006).
- Ledden, L., Kalafatis, S.P. and Samouel, P. (2007), "The relationship between personal values and perceived value of education", *Journal of Business Research*, Vol. 60 No. 9, pp. 965-974.
- Liébana-Cabanillas, F., Noguerras, R., Herrera, L.J. and Guillén, A. (2013), "Analysing user trust in electronic banking using data mining methods", *Expert Systems with Applications*, Vol. 40 No. 14, pp. 5439-5447, doi: [10.1016/j.eswa.2013.03.010](https://doi.org/10.1016/j.eswa.2013.03.010).
- Lohmoeller, J.B. (1989), *Latent Variable Path Analysis with Partial Least Squares*, Physica. Heidelberg. doi: [10.1007/978-3-642-52512-4](https://doi.org/10.1007/978-3-642-52512-4).
- Lopez-Nicolas, C. and Molina-Castillo, F.J. (2008), "Customer knowledge management and E-commerce: the role of customer perceived risk", *International Journal of Information Management*, Vol. 28 No. 2, pp. 102-113, doi: [10.1016/j.ijinfomgt.2007.09.001](https://doi.org/10.1016/j.ijinfomgt.2007.09.001).
- Lovelock, C.H. (2001), *Services Marketing*, 4th ed. Prentice Hall International, New York, NY.
- Lu, Y., Yang, S., Chau, P.Y. and Cao, Y. (2011), "Dynamics between the trust transfer process and intention to use mobile payment services: a cross-environment perspective", *Information and Management*, Vol. 48 No. 8, pp. 393-403, doi: [10.1016/j.im.2011.09.006](https://doi.org/10.1016/j.im.2011.09.006).
- Malaquias, R.F. and Hwang, Y. (2016), "An empirical study on trust in mobile banking: a developing country perspective", *Computers in Human Behavior*, Vol. 54, pp. 453-461, doi: [10.1016/j.chb.2015.08.039](https://doi.org/10.1016/j.chb.2015.08.039).
- Martins, C., Oliveira, T. and Popović, A. (2014), "Understanding the internet banking adoption: a unified theory of acceptance and use of technology and perceived risk application", *International Journal of Information Management*, Vol. 34 No. 1, pp. 1-13, doi: [10.1016/j.ijinfomgt.2013.06.002](https://doi.org/10.1016/j.ijinfomgt.2013.06.002).
- Mathwick, C., Malhotra, N. and Rigdon, E. (2001), "Experiential value: conceptualization, measurement and application in the catalog and internet shopping environment", *Journal of Retailing*, Vol. 77 No. 1, pp. 39-56.
- Mothobi, O. and Grzybowski, L. (2017), "Infrastructure deficiencies and adoption of mobile money in Sub-Saharan Africa", *Information Economics and Policy*, Vol. 40, pp. 71-79, doi: [10.1016/j.infoecopol.2017.05.003](https://doi.org/10.1016/j.infoecopol.2017.05.003).

- Namahoot, K.S. and Laohavichien, T. (2018), "Assessing the intentions to use internet banking: the role of perceived risk and trust as mediating factors", *International Journal of Bank Marketing*, Vol. 36 No. 2, pp. 256-276, doi: [10.1108/IJBM-11-2016-0159](https://doi.org/10.1108/IJBM-11-2016-0159).
- Park, J., Lennon, S.J. and Stoel, L. (2005), "On-line product presentation: Effects on mood, perceived risk, and purchase intention", *Psychology and Marketing*, Vol. 22 No. 9, pp. 695-719, doi: [10.1002/mar.20080](https://doi.org/10.1002/mar.20080).
- Pavlou, P.A., Liang, H. and Xue, Y. (2007), "Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective", *Management Information Systems Quarterly*, Vol. 31 No. 1, pp. 105-136, doi: [10.2307/25148783](https://doi.org/10.2307/25148783).
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903, Available at: <https://doi.org/10.1037/0021-9010.88.5.879>
- Ratnasingam, P., Gefen, D. and Pavlou, P.A. (2005), "The role of facilitating conditions and institutional trust in electronic marketplaces", *Journal of Electronic Commerce in Organizations*, Vol. 3 No. 3, pp. 69-82, doi: [10.4018/jeco.2005070105](https://doi.org/10.4018/jeco.2005070105).
- Ravald, A. and Gronroos, C. (1996), "The value concept and relationship marketing", *European Journal of Marketing*, Vol. 30 No. 2, pp. 19-30.
- Ryu, K., Han, H. and Jang, S.S. (2010), "Relationships among hedonic and utilitarian values, satisfaction and behavioral intentions in the fast-casual restaurant industry", *International Journal of Contemporary Hospitality Management*, Vol. 22 No. 3, pp. 416-432.
- Safeena, R., Kammani, A. and Date, H. (2018), "Exploratory study of internet banking technology adoption", *Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications*, IGI Global Hershey, PA, pp. 333-355.
- Shaikh, A.A., Glavee-Geo, R. and Karjaluoto, H. (2018), "How relevant are risk perceptions, effort, and performance expectancy in mobile banking adoption?", *International Journal of E-Business Research*, Vol. 14 No. 2, pp. 39-60, doi: [10.4018/IJEBR.2018040103](https://doi.org/10.4018/IJEBR.2018040103).
- Shobeiri, S., Laroche, M. and Mazaheri, E. (2013), "Shaping e-retailer's website personality: the importance of experiential marketing", *Journal of Retailing and Consumer Services*, Vol. 20 No. 1, pp. 102-110.
- Sirdeshmukh, D., Singh, J. and Sabol, B. (2002), "Consumer trust, value, and loyalty in relational exchanges", *Journal of Marketing*, Vol. 66 No. 1, pp. 15-37.
- Song, J. and Zahedi, F. (2002), "A theoretical framework for the use of web infomediaries", *AMCIS 2002 Proceedings*, p. 308.
- Tchouassi, G. (2012), "Can mobile phones really work to extend banking services to the unbanked? empirical lessons from selected Sub-Saharan Africa countries", *International Journal of Developmental Science*, Vol. 1 No. 2, pp. 70-81.
- Tobbin, P. and Kuwornu, J.K. (2011), "Adoption of mobile money transfer technology: structural equation modeling approach", *European Journal of Business and Management*, Vol. 3 No. 7, pp. 59-77.
- Tynan, C., McKechnie, S. and Chhuon, C. (2010), "Co-creating value for luxury brands", *Journal of Business Research*, Vol. 63 No. 11, pp. 1156-1163.
- Vera, J. and Trujillo, A. (2013), "Service quality dimensions and superior customer perceived value in retail banks: an empirical study on Mexican consumers", *Journal of Retailing and Consumer Services*, Vol. 20 No. 6, pp. 579-586.
- Wittmer, A. and Rowley, E. (2014), "Customer value of purchasable supplementary services: the case of a European full network carrier's economy class", *Journal of Air Transport Management*, Vol. 34, pp. 17-23.

- Yang, Q., Pang, C., Liu, L., Yen, D.C. and Tarn, J.M. (2015), "Exploring consumer perceived risk and trust for online payments: an empirical study in China's younger generation", *Computers in Human Behavior*, Vol. 50, pp. 9-24, doi: [10.1016/j.chb.2015.03.058](https://doi.org/10.1016/j.chb.2015.03.058).
- Yu, J., Zo, H., Kee Choi, M., P. and Ciganek, A. (2013), "User acceptance of location-based social networking services: an extended perspective of perceived value", *Online Information Review*, Vol. 37 No. 5, pp. 711-730.
- Zeithaml, V.A. (1988), "Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence", *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.

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