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## Article

# The intention of Muslim customers to adopt mobile banking: The case of Islamic banks in Indonesia

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## BANKING & FINANCE | RESEARCH ARTICLE

# The intention of Muslim customers to adopt mobile banking: The case of Islamic banks in Indonesia

Heri Sudarsono<sup>1\*</sup>, Muamar Nur Kholid<sup>2</sup>, Aidha Trisanty<sup>3</sup> and Maisaroh Maisaroh<sup>4</sup>

**Abstract:** The purpose of this study is to examine the influence of innovation diffusion theory (IDT), perceived risk, customer awareness, and religiosity on customer intention in Islamic bank mobile banking (m-banking). This study examines 219 Islamic bank customers who accepted Islamic banking at various times. The PLS-SEM technique was used to evaluate data from 219 respondents with the assistance of Smart PLS 3.0. The data processing results show that compatibility, complexity, observability, awareness, and religiosity affect the intention to adopt mobile banking. Meanwhile, relative advantage, trialability, and perceived risk do not affect customers' intention to adopt m-banking. Religiosity has the greatest influence on customer intention in adopting m-banking compared to compatibility, observability, and awareness. As a result of these findings, Islamic banks must adhere to Islamic values when creating mobile banking technologies. Additionally, Islamic banks must continue to innovate to maintain a competitive advantage and mitigate risks associated with mobile banking.

**Subjects:** Banking; Management of Technology & Innovation; Internet / Digital Marketing / e-Marketing

**Keywords:** Islamic bank; innovation diffusion theory; perceived risk; awareness; religiosity

## 1. Introduction

Technological innovation is essential for increasing each bank's competitive advantage (Tiwari et al., 2021; Zhou, 2012). The banking industry has been trying to improve services by finding easier and cheaper media for customers to adopt (Alalwan et al., 2016; Mahardika & Soetomo, 2019). The development of information technology in the financial sector encourages banks to use m-banking as their choice in improving services (Gupta et al., 2018). Customers can use M-banking for online transfers, checking account balances, downloading account statements, making bill payments, and other financial activities (Cruz et al., 2010). In addition, M-banking services provide consumers with greater convenience and flexibility in terms of usage and accessibility (Hoehle et al., 2012; Montazemi & Qahri-Saremi, 2015; Sinha, 2011).

Financial Services Authority regulation number 12/POJK.03/2018 regarding the implementation of digital banking services by commercial banks also influencing the presence of mobile banking services in Indonesia, which ushered in a new era of banking, namely the era of digital banking (Financial Services Authority, 2018). Digital banking services are banking services or activities using electronic or digital facilities owned by banks and or through digital owned by prospective customers that are carried out independently. M-banking is a service that allows banking customers to obtain information, communicate, and conduct banking transactions through electronic media

such as automatic teller machines (ATM), electronic data capture (EDC)/point of sales (POS), internet banking, SMS banking, mobile banking, e-commerce, phone banking, and video banking (Financial Services Authority, 2015).

Mobile banking has grown as a revolutionary technology that has changed the operation of the banking system (Baabdullah et al., 2019). The innovation of banking services in m-banking has changed the character of the banking industry. Rogers (2003) identified five main characteristics of innovation, relative advantage, compatibility, complexity, observability, and trialability that influence people to accept innovation. In addition, beliefs, and attitudes (Jamshidi & Hussin, 2013), awareness and uncertainty (Ananda et al., 2020; Thambiah et al., 2010; Tiwari et al., 2021) affect customer intention in adopting bank service innovations. In addition, risk (Al-Jabri & Sohail, 2012; El Mallouli & Sassi, 2021), image, visibility, and volunteerism (Yusuf & Derus, 2013), and religiosity (Jamshidi & Hussin, 2016; P.C. Ezeh & Nkamnebe, 2014; Sudarsono et al., 2021) also influence customer intention in adopting banking service innovations.

Numerous studies have explored the acceptance of m-banking, some of which have been done in the context of Islamic banks, and the argument over what motivates acceptance is currently at the forefront (Malaquias & Hwang, 2019; Raza et al., 2018; Singh & Srivastava, 2018; Suhartanto et al., 2019). However, given how complicated the processes are for adopting new technologies, investigation of the acceptance of m-banking is advised to continue (Raza et al., 2019). Previous research that investigated the adoption of m-banking in Islamic Banks frequently employed the Technology Acceptance Model (TAM) and unified theory of acceptance and use of technology (UTAUT) (Suhartanto et al., 2019; Raza et al., 2019; Thaker et al., 2019). Even though there have been many studies on acceptance m-banking in Islamic bank, it is regrettably still uncommon to discover research that uses innovation diffusion theory (IDT). Since religiosity plays a significant role in predicting consumer behavioral intention (Suhartanto et al., 2018), this study integrates IDT with Religiosity and perceived risk.

This study tries to combine the five characteristics of innovation by Rogers (2003) with perceived risk, awareness, and religiosity variables which are thought to be sufficient to influence customer intention in adopting m-banking in Islamic banks in Indonesia. Customer awareness in using m-banking is influenced by the pragmatic attitude of customers to assess m-banking is more profitable. In addition, the perception of risk is a consideration for Islamic bank customers because m-banking is relatively new for most Islamic bank customers in Indonesia. Meanwhile, in the case of religiously based goods and services, such as Islamic banking services, academics have proposed models that imply that religiosity is a significant factor in predicting consumer behavior (Suhartanto et al., 2019). Since no research examining IDT and religiosity have been found, it is unknown how both IDT and religiosity will influence a person's intention to use mobile banking. As a result, there is a clear need to investigate how the IDT Model and the Religiosity-Intention Model might be combined to provide a better understanding of the uptake of mobile banking, particularly in the Islamic banking sector.

## **2. Theoretical background and hypothesis development**

### **2.1. Innovation diffusion theory (IDT)**

The research uses a combination of innovation diffusion theory (IDT) by combining it with theories relevant to the object of study (Amin, 2012; Jamshidi & Hussin, 2016; Thambiah et al., 2012). As Rogers (2003) proposed, IDT has been used as a theoretical framework in technological innovation adoption research (Lee et al., 2011). Hsu et al. (2007) explained that the characteristics of innovation developed by Rogers (2003) are often used to describe customer intention in adopting innovation in banking. Although in development, several studies delve deeper into the characteristics of consumers that affect the diffusion of innovations (Ananda et al., 2020; Jamshidi & Hussin, 2016). Several studies modify IDT by adding several appropriate variables, such as perceived risk (Al-Jabri & Sohail, 2012; El Mallouli & Sassi, 2021), awareness (Ananda et al., 2020; Thambiah et al., 2010; Tiwari et al., 2021), and religiosity (Jamshidi & Hussin, 2016; P.C. Ezeh & Nkamnebe, 2014; Sudarsono et al., 2021; Suhartanto et al., 2019).

Indonesian people recognize Islamic banks as banks that operate based on Islamic principles. The practice of transactions containing intention food containing pork and liquor is not allowed in Islam (Hudaefi & Badeges, 2021). The first Islamic bank in Indonesia was established in 1992. However, m-banking began to be known by the public since people used SMS services with a PIN to access services. Then switch to the mobile web; users can download and install applications on their cellphones to access m-banking services. However, Islamic bank customers still have not adopted m-banking for routine transactions or have not forgiven all transactions provided by m-banking.

This study includes perceived risk, awareness, and religiosity, which are thought to affect customer intention to adopt m-banking in Indonesia. Perceived risk is included in the model because the average Islamic bank customer is not familiar with m-banking. Novice customers usually consider the risk an essential consideration in their decision to adopt m-banking (Mahardika & Soetomo, 2019). Meanwhile, technological advances based on internet networks allow customers to obtain much information about m-banking. This situation raises awareness of the importance of mobile banking to facilitate daily transactions (Ananda et al., 2020). Finally, most Islamic bank customers believe that m-banking follows their Islamic values. This belief causes customers to adopt m-banking (Sudarsono et al., 2021; Suhartanto et al., 2019).

## **2.2. Relative advantage**

Rogers (2003) defines relative advantage as to how innovation is perceived as better than the idea it replaces. The relative advantage can be interpreted by consumers feeling that the use of the new service is better than the previous service. In the context of Islamic banking, relative advantages may be related to service quality, pricing strategies, and social responsibility practices adopted by banks (Obeid & Kaabachi, 2016). Research by (Al-Gahtani (2001), Anuar et al. (2012), Thambiah et al. (2011) and Amin et al. (2013)) found a positive effect of the relative advantages of Islamic banking services on customer intention to adopt Islamic banking services. Therefore, the following hypothesis can be formulated:

**H1. Relative advantage will be positively related to the intention to adopt m-banking.**

## **2.3. Compatibility**

Compatibility is the degree to which an innovation is thought to be inconsistent with the adopter's culture, social values, and past experiences (Rogers, 2003). Straub (2009) argues that innovation will be more easily adopted if it follows one's schema or understanding. Shih and Fang (2004) say innovation is likely to be accepted if its use does not violate social or cultural norms. Meanwhile, P. C. Ezeh and Nkamnebe (2018) conceptualized compatibility as a contributor to the perceived ease of use of the Islamic banking system. Likewise, with the statement of Hosseini et al. (2015), compatibility is the extent to which a new product or service is consistent and under the needs, beliefs, values, experiences, and habits of consumers. Therefore, potential customers of new products tend to align with ideas that match their current intentions, needs, beliefs, and attitudes (Rogers, 2003). Several studies have found a positive influence between compatibility and intention to adopt innovation (Amin et al., 2013; Aziz et al., 2018; Echchabi et al., 2014; Gerpott, 2011; Huang & Hsieh, 2012; Kaabachi & Obeid, 2016; Mbawuni & Nimako, 2017). Thus, the following hypotheses can be formulated:

**H2. The compatibility will be positively related to the intention to adopt m-banking.**

## **2.4. Complexity**

Complexity is the degree to which an innovation is considered relatively difficult to understand and use (Rogers, 2003). The difficulty level of innovation in Islamic banking services is negatively

related to the customer's intention to adopt the service (Jamshidi & Hussin, 2013; Thambiah et al., 2011). The greater the effort and skill required to adopt the technology (Gerrard & Cunningham, 2003; Teo & Pok, 2003). In line with this, Hamid and Nordin (2001) proved that one of the essential factors for customers to adopt Islamic banking services is the ease of using the services. Similarly, Amin et al. (2013) show that the customer's intention to use financing products in Islamic banks is influenced by the extent to which customers easily understand these products. The more complicated the innovation, the smaller the expectation that customers accept m-banking in daily transactions (Lin & Chen, 2012). Several studies have shown that complexity harms the adoption of an innovation (Ho & Wu, 2011; Obeid & Kaabachi, 2016; Sarea & Hanefah, 2013). So, from this explanation, the following hypothesis can be formulated:

**H3.** *Complexity will be negatively related to the intention to adopt m-banking.*

### **2.5. Observability**

Rogers (2003) describes observability as the extent to which others can see the results of an innovation. In other words, observability relates to how visible the results of an innovation are to others. While some ideas and practices are easy to observe and communicate with others, some innovations are difficult to observe or cannot be communicated to others (El Mallouli & Sassi, 2021). Lin and Chen (2012) believe that the more perceived the observability of innovation, the more likely an organization or individual will adopt the innovation offered. According to Rogers (2003), observability is positively related to the level of adoption. Likewise, Ho and Wu (2011) and Marak et al. (2019) found that observability positively affects customer intention to adopt innovation. The relationship between observability and adoption of m-banking innovation can be formulated in the following hypothesis:

**H4.** *Observability will be positively related to the intention to adopt m-banking.*

### **2.6. Trialability**

Rogers (2003) suggests that trialability is the extent to which an innovation can be tried on a limited basis prior to adoption. Trialability will create opportunities for customers to evaluate the benefits of innovation (Kolodinsky et al., 2004). Practical trials allow bank customers to learn about the benefits of adopting an innovation. In addition, trials are also used to reduce the risks associated with adopting m-banking innovations. It is especially so when the innovation customer feels that the error can be corrected. Previous research suggests that a Trialability relationship with bank service innovation is negatively related to customer adoption of innovation (Al-Jabri & Sohail, 2012; Anuar et al., 2012; Corrigan, 2012; Jamshidi & Hussin, 2016). The hypothesis of the effect of Trialability with the adoption of m banking innovation can be arranged as follows:

**H5.** *The trial will be positively related to the intention to adopt m-banking.*

### **2.7. Perceived risk**

The perception of risk by customers usually arises because of doubts about something that will happen in the future that will have an adverse impact (Koenig-Lewis et al., 2010; Rattanaburi & Vongurai, 2021). Research evidence on the importance of perceived risk in deploying new technologies or services (Gerrard & Cunningham, 2003; Ndubisi & Sinti, 2006). Customers who use m-banking are worried about the risks arising from privacy threats and security concerns (Kuisma et al., 2007; Luarn & Lin, 2005). Hackers can access bank accounts, resulting in the loss of stored data (Coursaris et al., 2009; Poon, 2008). Therefore, several studies have suggested a negative influence between the level of risk and the customer's intention to adopt Islamic

banking services (Gerrard & Cunningham, 2003; Kholid, 2019; Nguyen & Nguyen, 2020). Thus, the effect of risk on the intention to adopt m-banking can be formulated as follows:

**H6.** *Perceived risk has a negative effect on the intention to adopt m-banking.*

### **2.8. Awareness**

Customer awareness about bank services is essential for banks to remain competitive in the banking industry (Mansor et al., 2012). The higher customer awareness of the benefits of m-banking will increase customers' intention in adopting an innovation (Amin, 2012; Jamshidi & Hussin, 2013). Banks should specifically take the necessary steps to create customer awareness to adopt m-banking (Amutha, 2016). Research by Bhatt and Bhatt (2016) identifies that lack of awareness is the main obstacle to accepting mobile banking services among customers. Customer awareness is essential for customers to adopt Islamic banking services (Thambiah et al., 2011). Research by Echchabi and Aziz (2012), Faisal et al. (2014), and Sudarsono et al. (2021) found awareness to be an essential predictor for customers to adopt Islamic bank services. From this explanation, the research hypothesis is formulated as follows:

**H7.** *Customer awareness has a positive effect on the intention to adopt m-banking.*

### **2.9. Religiosity**

Religiosity is defined as the extent to which a person adheres to his religious beliefs (Choi et al., 2013; Delener, 1990), accompanied by a commitment to follow the principles believed to be set by God (McDaniel & Burnett, 1990). Minton & Kahle, (2014) state that religiosity is the extent to which religious beliefs and values are maintained either through spiritual ties or external religious behavior such as practice and behavior. Therefore, religion is the most important social factor in influencing adherents (Butt & Aftab, 2013; Choi et al., 2013). According to the Religiosity-Intention Model, which is consistent with The Theory of Reasoned Action (Fishbein & Ajzen, 2010), religiosity is a significant determinant of consumer behavioral intentions toward a good or service. The impact of religiosity on consumer behavior is due to religion's influence on a person's attitudes and beliefs, which influences their perception of and engagement with the world around them (Suhartanto et al., 2019). As a result, religiosity affects beliefs, knowledge, interactions, and eventually, purchasing decisions. As a result, religion has a significant impact on how much someone consumes goods and services. Research Bananuka et al. (2019), Kaawaase and Nalukwago (2017), Muslichah and Sanusi (2019), Sudarsono et al. (2021), and Suhartanto et al. (2019) found a positive relationship between religiosity and customer intention to adopt Islamic banking services. Thus, the following hypothesis can be formulated:

**H8.** *Religiosity has a positive effect on customers' intention to adopt m-banking.*

Figure 1 shows the research model based on the hypotheses development.

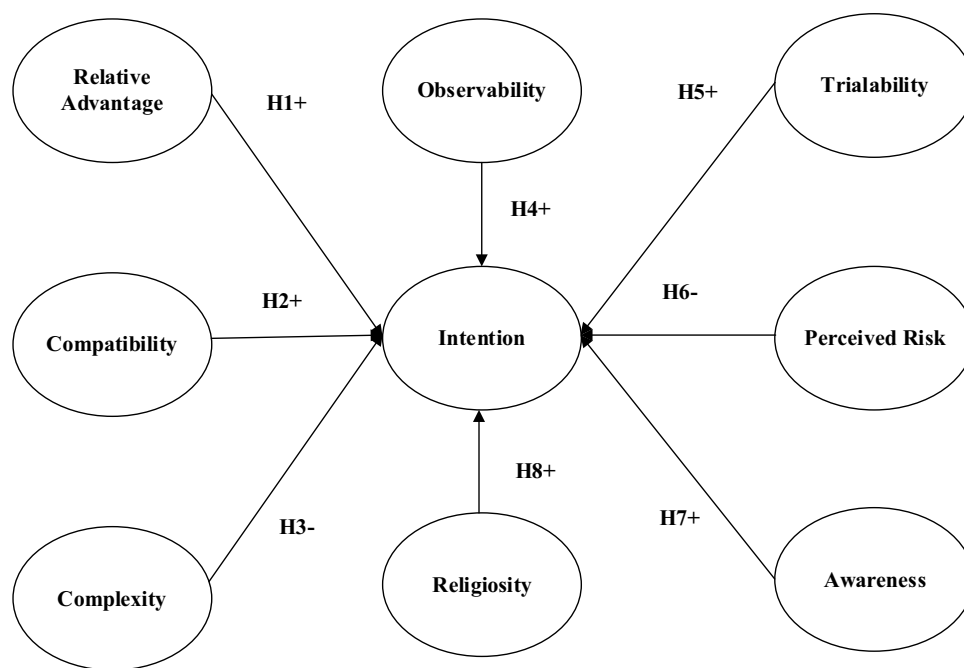
## **3. Research methodology**

### **3.1. Sample design and data collection**

A questionnaire-based survey is used in this quantitative investigation. This study included 219 mobile banking consumers of Islamic banks in Indonesia. The questionnaire was developed using variable measurements from a number of earlier study. Five constructs of innovation diffusion, according to Rogers (2003) which consist of RA, COM, COMX, OB, and TR. Modifications were made by including AW, which was adapted from research by Ananda et al. (2020), Pikkarainen et al. (2004), Al-Somali et al. (2009), P. C. Ezech and Nkamnebe (2018), and Tiwari et al. (2021), PRS taken from Al-Jabri and Sohail



**Figure 1. Research model.**



(2012), El Mallouli and Sassi (2021) and Tiwari et al. (2021). The REL was taken from Amin et al., (2013), P. C. Ezeh and Nkamnebe (2018) and Sudarsono et al. (2021). The questions for each variable were adapted from research by Ananda et al. (2020), Jamshidi and Hussin (2016), and Sudarsono et al. (2021), adapted to the mobile banking problem of Islamic banks in Indonesia. In compiling questions, in-depth interviews were conducted with Islamic banking practitioners and Islamic bank customers. Meanwhile, respondents' answers were based on a Likert scale with five points of choice ranging from 1 (strongly disagree) to 5 (strongly agree). In addition, In-depth interviews with customers and practitioners of Islamic banking were undertaken in order to compile the questions.

A questionnaire test was conducted to find out the relevance of the questions in customer problems. The questionnaire test was conducted on 17 female and 17 male Muslim student respondents. Then from the test results, improvements were made by adding or subtracting some words, sentences, and question modifiers to get questionnaire questions that were easy to understand. Then, questionnaires were distributed through some association groups, lecturers' associations from January 7 to 25 January 2022.

### 3.2. Data analysis

The research model testing using the structural Equation Modeling (SEM) approach. SEM is a statistical methodology that uses structural theory analysis related to several phenomena (Byrne, 2010). PLS as a component-based algorithm (SEM) has become a widely used software application in various research disciplines (Henseler et al., 2009). Based on this, Stan and Saporta (2005) show that PLS has stronger predictive power than other SEM approaches. In addition, researchers have applied PLS because of its predictive ability the theory development is better than theory testing (Urbach & Ahlemann, 2010), which is also consistent with this study. This study uses several new constructs to explain the adoption of m-banking.



## 4. Results

### 4.1. Data description

Participants in this study included 219 mobile banking customers of Islamic banks, consisting of 107 men (0.49%), while 112 women (0.51%). The majority of respondents used m-banking for less than two years. However, several respondents (9%) had used m-banking for more than ten years. Most of the young respondents who were born between 1995 and 2021 or Generation Z were 118(54%), while those born 1977–1994 and 1995–1976 were 73 (33%) and 26 (12%). The most recent education of the majority of respondents was high school (36%), then a bachelor (35%) and master (11%). Meanwhile, most of the respondents' occupations were private employees (42%), then students (39%), and civil servants (9%). Finally, the number of respondents' monthly expenses were mostly below Rp2,500,000 as much as 48%, while Rp. 2,000,000–Rp. 5,000,000, Rp. 5,000,000–Rp. 7,500,000 and Rp. 7,500,000–10,000,000, respectively. -are 23%, 14% and 8% respectively. Table 1 presents in detail the demographic information of the respondents

### 4.2. Data analysis

Factor loadings, composite reliability, indicator reliability, and average variance extracted are used as indicators to evaluate convergent validity, as shown by Hair et al. (2014). From Table 2, it can be explained that all items in the COM, COMX, AW, ENT, OB, RA, RE, and TR constructs have outer loading values above 0.70 (Henseler et al., 2009). The composite reliability value of each construct is more than 0.80 (Daskalakis & Mantas, 2008). In addition, the average variance extracted from each construct is in the range of 0.637–0.818, which exceeds the value of 0.50 (Wixom & Watson, 2001). Thus, this research model meets the reliability test criteria.

The results of the discriminant validity analysis used the criteria of Fornell and Larcker (1981), which compared the square root of the AVE value with the correlation of the latent variables. Table 3 shows that the square root of each AVE consists of AW (0.904), COM (0.837), COMX (0.840), INT (0.826), OBS (0.798), PR (0.826), RA (0.845). REL (0.888) and TRS (0.807) showed a value greater than the highest correlation with other constructs. It shows that discriminant validity is met (Hair et al., 2011). The discriminant validity was also examined in this study utilizing Heterotrait-Monotrait Ratio (HTMT). Table 4 shows that HTMT values less than 0.90. The findings of this study suggest that the model's constructs had achieved discriminant validity. This study examines the value of variance inflation factor (VIF) in addressing common method bias. A threshold of VIF less than 3.3 is suggested by Hair et al. (2011). The results in Table 5 show VIF ranging from 1.127 to 2.920, showing that the measurement model had no collinearity problems.

### 4.3. Hypothesis testing

After the validity and reliability requirements are met, the data is tested for the appropriate model. The statistical results of the goodness of fit model show the Standardized Root Mean Residual (SRMR) value of 0.070 (less than 0.10), so the model can be said to be fit. The Normed Fit Index (NFI) value was obtained at 0.762, which indicates that the model is good because the NFI value is less than 0.90. From the results of SRMR and NFI, this research model can be said to be fit. Then, the coefficient of determination ( $R^2$ ) is generally used in evaluating structural models (Hair et al., 2014). In this study, the value ( $R^2$ ) is 0.66 or shows that 66 percent of the independent variables influence the dependent variable. Additionally, the effect size ( $f^2$ ) values for the one variable are large: religiosity ( $f^2 = 0.183$ ). On the contrary, the effect size ( $f^2$ ) of four variable (AW:  $f^2 = 0.044$ ; COM:  $f^2 = 0.039$ ; COMX:  $f^2 = 0.028$ ; OBS:  $f^2 = 0.020$ ) are low.

The findings of the hypothesis test are shown in Table 6 and Figure 2. The results of hypothesis testing indicate that compatibility (COM) has a significant and positive effect on consumer intentions of Islamic banks in adopting mobile banking (INT) ( $\beta = 0.194$ , t-stat = 2.549,  $p < 0.011$ ). Likewise, complexity (COMX) has a significant and positive effect on INT ( $\beta = 0.150$ , t-stat = 2.113,  $p < 0.035$ ). Observability (OBS) had a significant and positive effect on INT ( $\beta = 0.127$ , t-stat = 1.998,  $p < 0.046$ ). Awareness (AWA) had a significant and positive effect on INT ( $\beta = 0.192$ , t-stat = 1.721,  $p < 0.086$ ). Religiosity (REL) had

**Table 1. Descriptive statistics of the respondent's characteristics (N = 219)**

Characteristics		Frequency	Persentage
Gender	Male	107	0.49
	Female	112	0.51
Long time using m-banking	Less than two years	70	0.32
	2–4 years	64	0.29
	4–6 years	41	0.19
	6–8 years	13	0.06
	8–10 years	11	0.05
	More than ten years	20	0.09
Birth	1995–2012	118	0.54
	1977–1994	73	0.33
	1965–1976	26	0.12
Last education	Junior high school	2	0.01
	Senior high school	79	0.36
	Diploma	36	0.16
	Bachelor	77	0.35
	Magister	23	0.11
	Doktor	2	0.01
Work	Government employees	20	0.09
	Private employees	91	0.42
	Businessman	17	0.08
	Student	85	0.39
	Housewife	6	0.03
Expense per month	Under IDR 1,000,000	52	0.24
	IDR 1,000,001—IDR 2,500,000	52	0.24
	IDR 2,500,001—IDR 5,000,000	50	0.23
	IDR 5,000,001—IDR 7,500,000	30	0.14
	IDR 7,500,001—IDR 10,000,000	17	0.08
	IDR 10,000,001—IDR 12,500,000	7	0.03
	IDR 12,500,001—IDR 15,000,000	5	0.02
	Above IDR 15,000,000	6	0.03

Note: 1 dollar on average equals IDR 14,500,-

a significant and positive effect on INT ( $\beta = 0.307$ ,  $t\text{-stat} = 4.743$ ,  $p < 0.000$ ). Meanwhile, relative advantage (RAD), trialability (TRIB), and perceived risk (PRIS) did not significantly affect INT.

## 5. Discussion

Based on the  $R^2$  assessment, this study confirms that IDT and religiosity explain the intention to adopt m-banking in Islamic banks. Based on the value of  $R^2$ , the proposed model in this study is better than previous studies using TAM (Suhartanto et al., 2019; Thaker et al., 2019). In contrast to Suhartanto et al. (2019), this study found that religiosity was the variable that most influenced the acceptance of m-banking in Islamic banks.

**Table 2. Reliability and convergent validity: validations of the measurements**

Construct	Item	Load	CA	rho_A	CR	AVE
Relative advantage (RA)	RA1	0.748	0.866	0.871	0.909	0.715
	RA2	0.845				
	RA3	0.876				
	RA4	0.904				
Awareness (AWA)	AW1	0.922	0.925	0.930	0.947	0.818
	AW2	0.885				
	AW3	0.945				
	AW4	0.864				
Compatibility (COM)	COM1	0.845	0.893	0.900	0.921	0.700
	COM2	0.875				
	COM3	0.845				
	COM4	0.795				
	COM5	0.822				
Observability (OBS)	OB1	0.816	0.86	0.872	0.898	0.637
	OB2	0.770				
	OB3	0.776				
	OB4	0.852				
	OB5	0.776				
Triability (TRB)	TR1	0.769	0.867	0.882	0.903	0.652
	TR2	0.819				
	TR3	0.770				
	TR4	0.836				
	TR5	0.840				
Perceived risk (PRS)	PR1	0.781	0.885	0.900	0.915	0.682
	PR2	0.870				
	PR3	0.883				
	PR4	0.784				
	PR5	0.806				
Complexity (COMX)	COMX1	0.883	0.893	0.902	0.922	0.705
	COMX2	0.891				
	COMX3	0.708				
	COMX4	0.885				
	COMX5	0.816				
Religiosity (REL)	RE1	0.900	0.933	0.939	0.949	0.789
	RE2	0.930				
	RE3	0.906				
	RE4	0.830				
	RE5	0.873				
Intention (INT)	INT1	0.858	0.883	0.890	0.915	0.683
	INT2	0.760				
	INT3	0.871				
	INT4	0.870				
	INT5	0.765				

Note: Load, Factor Loading; CA, Cronbach's Alpha; CR, Composite Reliability; AVE, Average Variance Extracted.

**Table 3. Discriminant validity: fornell-larcker criterion**

	AW	COM	COMX	INT	OB	PRS	RA	REL	TRB
AW	<b>0.904</b>								
COM	0.611	<b>0.837</b>							
COMX	-0.607	-0.679	<b>0.840</b>						
INT	0.678	0.682	-0.641	<b>0.826</b>					
OBS	0.661	0.636	-0.537	0.631	<b>0.798</b>				
PRS	0.210	0.189	-0.039	0.171	0.224	<b>0.826</b>			
RA	0.526	0.694	-0.615	0.553	0.481	0.172	<b>0.845</b>		
REL	0.529	0.508	-0.460	0.655	0.472	0.225	0.405	<b>0.888</b>	
TRB	0.686	0.592	-0.621	0.597	0.682	0.189	0.541	0.424	<b>0.807</b>

**Table 4. Discriminant validity: heterotrait-monotrait ratio (HTMT)**

	AW	COM	COMX	INT	OB	PRS	RA	REL	TRB
AW	<b>0.000</b>								
COM	0.668	<b>0.000</b>							
COMX	0.662	0.754	<b>0.000</b>						
INT	0.745	0.759	0.714	<b>0.000</b>					
OBS	0.729	0.708	0.576	0.704	<b>0.000</b>				
PRS	0.223	0.206	0.070	0.184	0.269	<b>0.000</b>			
RA	0.574	0.778	0.684	0.617	0.538	0.193	<b>0.000</b>		
REL	0.569	0.552	0.495	0.717	0.514	0.248	0.435	<b>0.000</b>	
TRB	0.754	0.658	0.690	0.662	0.758	0.216	0.608	0.460	<b>0.000</b>

**Table 5. Multicollinearity assessment using VIF values**

	AW	COM	COMX	INT	OBS	PRS	RA	REL	TRB
INT	<b>2.533</b>	<b>2.920</b>	<b>2.438</b>		<b>2.428</b>	<b>1.127</b>	<b>2.148</b>	<b>1.557</b>	<b>2.559</b>

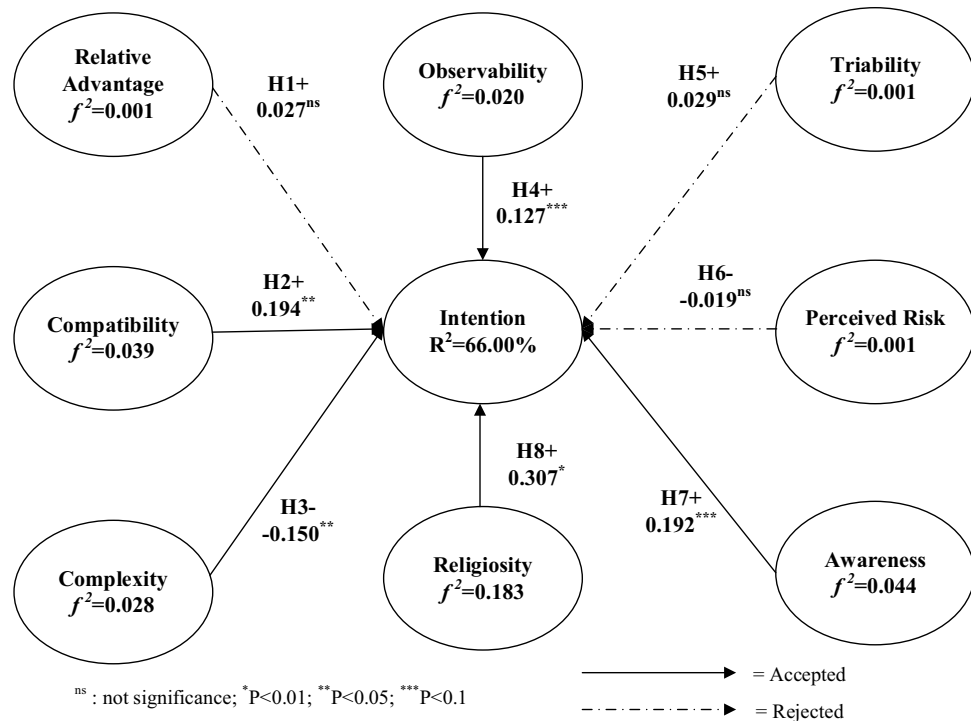
**Table 6. Hypothesis testing**

Hypothesis	Relation	$f^2$	$\beta$	T-Stat	P -Values	Result
H1	RAD -> INT	0.001	0.027	0.468	0.640	Rejected
H2	COM -> INT	0.039	0.194	2.433	0.015	Accepted
H3	COMX -> INT	0.028	-0.150	2.140	0.033	Accepted
H4	OBS -> INT	0.020	0.127	1.912	0.056	Accepted
H5	TRB -> INT	0.001	0.029	0.419	0.675	Rejected
H6	PRS -> INT	0.001	-0.019	0.552	0.581	Rejected
H7	AWA -> INT	0.044	0.192	1.762	0.079	Accepted
H8	REL -> INT	0.183	0.307	4.960	0.000	Accepted

Note: Significant at alpha 1% if the p-value is less than 0.01, significant at 5% if the p-value is less than 0.05, and significant at alpha 10% if the p-value is less than 0.10.

The relative advantage does not affect the customer's intention to adopt Islamic banking m-banking in Indonesia. This finding supports the research conducted by Echchabi et al. (2014) and Sudarsono et al. (2021), which show that relative advantage has no significant effect on customers' intention to adopt sharia insurance. This finding contradicts the study of Amin et al.

**Figure 2. Hypothesis testing.**



(2013), Aziz et al. (2015), Echchabi and Aziz (2012), and Thambiah et al. (2012), and Amin et al. (2013), who confirmed the positive relationship between relative advantage and customer intention to adopt an innovation. It shows that customers do not know much about the benefits of services in Islamic banks. This condition indicates that Islamic banks need to increase the socialization of the use of m-banking, customers understand the advantages of using m-banking.

Compatibility (COM) has a significant and positive effect on customer intentions to adopt Islamic banking services. This finding supports previous research conducted by Gerpott (2011), Huang and Hsieh (2012), Amin et al. (2013), Echchabi et al. (2014), Kaabachi and Obeid (2016), Mbawuni and Nimako (2017), Aziz et al. (2018) and Sudarsono (2021). Thus, customers believe that m-banking is under consumers' needs, beliefs, values, experiences, and habits. It shows that m-banking can align with ideas that match their current intentions, needs, beliefs, and attitudes (Rogers, 2003). Several studies have found a positive influence between compatibility and the intention to adopt an innovation. Islamic banks need to prioritize customer needs, beliefs, values, and experiences to conduct m-banking innovations.

This study reveals that complexity significantly lessens intention. These results indicate that H3 is accepted. This finding is in line with research conducted by Ho and Wu (2011), Obeid and Kaabachi (2016), and Sarea and Hanefah (2013), which found that complexity negatively affects customers intentions to adopt Islamic banking services. Complexity typically prevents successful technology adoption when the newly introduced technology has complicated features that users must spend a lot of time understanding and implementing (Premkumar & Roberts, 1999). Therefore, before any m-banking technology can be properly adopted, it is essential to address the complexity element of m-banking.

Observability (OB) has a positive effect on mobile banking adoption. This finding is relevant to research by Jamshidi and Hussin (2016), Ho and Wu (2011), and Marak et al. (2019), which found a positive relationship between observability and customer intention to adopt innovation. It shows that consumers feel confident and motivated to adopt mobile banking, including recommending

services giving a positive word of mouth about the experience of using m-banking innovations to others. If many people can see the benefits of m-banking, it will increase the opportunities for other parties individually and in groups to adopt m-banking. Likewise, the role of leaders or community leaders in an organization can influence customer behavior to adopt m-banking innovations. Islamic banks need to take a persuasive approach to influential leaders or leaders of groups/organizations to use m-banking innovations to increase customer intention in adopting m-banking innovations.

Trialability (TR) has no significant effect on mobile banking adoption. This result is not following the findings of Al-Jabri and Sohail (2012), Anuar et al. (2012), Corrigan (2012), and Jamshidi and Hussin (2016), who found that Trialability did not affect the intention in adopting m-banking innovation. For customers, Trialability is not essential because customers can immediately use it easily through information guides obtained on the internet. In addition, customers do not need a special time to try out using m-banking because the instructions used are simple and easy to understand. This situation causes the trial not to affect the customer's intention to adopt m-banking. Banks must explain the function of m-banking to customers, but it should be realized that every customer does not need this. Therefore, banks need to change how they explain the benefits of m-banking through more communicative videos so that customers are more motivated to adopt m-banking.

Perceived Risk (PR) does not affect the customer's intention to adopt Islamic banking services. These results are consistent with the research of Mahardika and Soetomo (2019), but these results are not consistent with the findings of Gerrard and Cunningham (2003), Kholid (2019), Nguyen and Nguyen (2020). This study shows that customers pay less attention to risk in adopting m-banking. It can happen because customers have perceived and believed that m-banking would not be detrimental. In addition, customers have never faced any problems even though they have made transactions many times. Islamic banks have convinced customers about the risks of adopting m-banking, guaranteeing that m-banking is safe. Islamic banks as trust institutions need to be active in evaluating the problems faced by customers in using m-banking. The development of digital technology requires banks to remain careful with various modes of crime based on digital technology.

Awareness (AWA) affects the customer's intention to adopt Islamic banking services. These results are in line with research conducted by Echchabi and Aziz (2012), Faisal et al. (2014), and Sudarsono et al. (2021) which found a positive relationship between awareness and intention to adopt m-banking. Both positive and negative experiences enable customers to realize the benefits of m-banking. The benefits of m-banking raise awareness of the importance of adopting m-banking. This result also proves that customers are aware of the benefits of m-banking to assist financial transactions. It shows that Islamic banks have succeeded in conducting socialization related to the benefits of m-banking. Socialization needs to be carried out on an ongoing basis to all customers about the benefits of m-banking. This is done to provide continuous awareness to customers to use m-banking.

Religiosity (REL) affects customer intention to adopt Islamic banking services in Indonesia. This finding is in line with research by Obeid and Kaabachi (2016), Bananuka et al. (2019), Kaawaase and Nalukwago (2017), Muslichah and Sanusi (2019), and Sudarsono et al. (2021). They found religiosity to affect customer intentions to adopt m-banking. According to this study, people become more concentrated on utilizing mobile banking when they make a greater commitment to their religion. These results support academics' claims that using a bank service that complies with Sharia law allows clients to fulfill their religious obligations in addition to their need for banking and financial services (Abou-Youssef et al., 2015). Since Muslims dominate Indonesian society, it can influence the way people choose tools to solve financial transaction problems. Likewise, most Muslims will prefer to use Islamic banks to meet their financial needs in terms of managing their finances. In addition, it is essential to think that Islamic values must be upheld in both the process and the provision of mobile banking

services in Islamic institutions. As a result, a religious person will have a higher opinion of mobile banking services. This study lends credence to the idea that religiosity influences a person's attitude and behavior toward a product when such attitudes and behaviors align with the person's religious identity.

## 6. Practical implications

Islamic bank managers need to realize that religiosity is the primary motivation for customers to use Islamic bank services from the above findings. Islamic banks need to prioritize technological innovation based on the religiosity of bank customers compared to other factors. The relative advantage and perceived risk factors are not significant, indicating that Islamic bank customers adopt m-banking not solely for reasons of profit or loss. Islamic bank customers are more likely to consider adopting m-banking because it is more suited to their needs, easy to learn, and easy to recognize. Therefore, Islamic banks need to maintain Islamic values in developing m-banking innovations. For example, customers who use m-banking can take use of services that make it simpler for them to participate in Islamic social obligations including paying zakat, infaq, and almsgiving. In addition, an Islamic bank must continue to innovate services to increase the relative advantage and reduce the risk that harms customers in using m-banking.

## 7. Limitations and future research directions

There are some limitations to this study. First, it is very difficult to get an exact proportion of gender, length of adopting m-banking, year of birth, education, occupation, expenditure for all respondents, and other demographic groups, especially when considering country factors. Second, this study only captures the intention of customers to adopt m-banking in Islamic banks by using several variables in the innovation diffusion theory and several variables recommended by previous studies. From these limitations, it is recommended for future research to use more proportional data to avoid possible interpretation bias. In addition, it is possible to add educational and occupational background variables to be moderating variables for future research.

## 8. Conclusion

The purpose of this study was to determine the effect of relative advantage, compatibility, complexity, observability, trialability, perceived risk, awareness, and religiosity on the intention of Islamic bank customers to adopt m-banking. From the facts, it can be determined that religiosity is the most important constructs influencing Islamic bank customers' adoption of mobile banking. Religion exerts a greater influence than compatibility, complexity, or awareness. It also shows that the innovations carried out by Islamic banks must consider the religious values that influence the behavior of the majority of Islamic bank customers in Indonesia. However, Islamic banks also need to improve the quality of m-banking innovation so that relative advantage can be increased, and perceived risk can be reduced. It is necessary to attract Muslim and non-Muslim customers who commit to different religious values.

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### References

- Abou-Youssef, M. M. H., Kortam, W., Abou-Aish, E., & El-Bassiouny, N. (2015). Effects of religiosity on consumer attitudes toward Islamic banking in Egypt. *International Journal of Bank Marketing*, 33(6), 786–807. <https://doi.org/10.1108/IJBM-02-2015-0024>
- Alalwan, A. A., Dwivedi, Y. K., Rana, N. P. P., & Williams, M. D. (2016). Consumer adoption of mobile banking in Jordan: examining the role of usefulness, ease of use, perceived risk and self-efficacy. *Journal of Enterprise Information Management*, 29(1), 1. <https://doi.org/10.1108/JEIM-04-2015-0035>



- Al-Gahtani, S. S. (2001). The applicability of the technology acceptance model outside North America: An empirical test in the Arab World. *BITWorld 2001 Conference Proceedings*, 4–6 June. American University in Cairo, Egypt.
- Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of Electronic Commerce Research*, 13 (4), 379–391.
- Al-Somali, S. A., Gholami, R., & Clegg, B. (2009). An investigation into the acceptance of online banking in Saudi Arabia. *Technovation*, 29(2), 130–141. <https://doi.org/10.1016/j.technovation.2008.07.004>
- Amin, H. (2012). Patronage factors of Malaysian local customers toward Islamic credit cards. *Management Research Review*, 35(6), 512–530. <https://doi.org/10.1108/01409171211238271>
- Amin, H., Abdul-Rahman, A., & Abdul-Razak, D. (2013). An integrative approach for understanding Islamic home financing adoption in Malaysia. *International Journal of Bank Marketing*, 31(7), 544–573. <https://doi.org/10.1108/IJBM-02-2013-0008>
- Amutha, D. (2016). A study of consumer awareness towards e-banking. *International Journal of Economics and Management Sciences*, 5(4), 350–353. <https://doi.org/10.4172/2162-6359.1000350>
- Ananda, S., Devesh, S., & Al Lawati, A. M. (2020). What factors drive the adoption of digital banking? An empirical study from the perspective of Omani retail banking. *Journal of Financial Services Marketing*, 25(1–2), 14–24. <https://doi.org/10.1057/s41264-020-00072-y>
- Anuar, M. M., Adam, F., & Mohamad, Z. (2012). Muslim consumers' perception on internet banking services. *International Journal of Business and Social Science*, 3, 5.
- Aziz, S., Afaq, Z., & Wright, L. T. (2018). Adoption of Islamic banking in Pakistan an empirical investigation. *Cogent Business and Management*, 5(1), 1–18. <https://doi.org/10.1080/23311975.2018.1548050>
- Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management*, 44, 38–52. <https://doi.org/10.1016/j.ijinfor.2018.09.002>
- Bananuka, J., Kaawaase, T. K., Kasera, M., & Nalukenge, I. (2019). Determinants of the intention to adopt Islamic banking in a non-Islamic developing country: The case of Uganda. *ISRA International Journal of Islamic Finance*, 11(2), 166–186. <https://doi.org/10.1108/IJIF-04-2018-0040>
- Bhatt, A., & Bhatt, S. (2016). Factors affecting customer's adoption of mobile banking services. *Journal of Internet Banking and Commerce*, 21(1), 1–22.
- Butt, M. M., & Aftab, M. (2013). Incorporating attitude towards halal banking in an integrated service quality, satisfaction, trust and loyalty model in online Islamic banking context. *International Journal of Bank Marketing*, 31(1), 6–23. <https://doi.org/10.1108/02652321311292029>
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: basic concepts, applications, and programming*. Psychology Press.
- Choi, Y., Paulraj, A., & Shin, J. (2013). Religion or religiosity: Which is the culprit for consumer switching behavior? *Journal of International Consumer Marketing*, 25(4), 262–280. <https://doi.org/10.1080/08961530.2013.803901>
- Corrigan, J. A. (2012). The implementation of e-tutoring in secondary schools: A diffusion study. *Computers & Education*, 59(3), 925–936. <https://doi.org/10.1016/j.compedu.2012.03.013>
- Coursaris, C., Hassanein, K., & Head, M. (2009). M-Commerce in Canada: An Interaction Framework for Wireless Privacy. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration*, 20(1), 54–73. <https://doi.org/10.1111/j.1936-4490.2003.tb00305.x>
- Cruz, P., Neto, L. B. F., Munoz-Gallego, P., Laukkanen, T., & Karjaluto, H. (2010). Mobile banking rollout in emerging markets: Evidence from Brazil. *The International Journal of Bank Marketing*, 28(5), 342–371. <https://doi.org/10.1108/02652321011064881>
- Daskalakis, S., & Mantas, J. (2008). Evaluating the impact of a service-oriented framework for healthcare interoperability. *Studies in Health Technology and Informatics*, 136, 285. <https://doi.org/10.3233/978-1-58603-864-9-285>
- Delener, N. (1990). An examination of the religious influences as predictors of consumer innovativeness. *Journal of Midwest Marketing*, 7(3), 67–178.
- Echchabi, A., & Aziz, H. A. (2012). The relationship between religiosity and customers' adoption of Islamic banking services in Morocco. *Oman Chapter of Arabian Journal of Business and Management Review*, 1(10), 89–94. <https://doi.org/10.12816/0002190>
- Echchabi, A., Olorogun, L. A., Azouzi, D., & Boulila Taktak, N. (2014). Islamic insurance prospects in Tunisia in the wake of the Jasmine revolution a survey from customers' perspective. *Journal of Islamic Accounting and Business Research*, 5(1), 15–28. <https://doi.org/10.1108/JIABR-06-2012-0032>
- El Mallouli, A., & Sassi, H. (2021). Determinants of Islamic banking product and services adoption in Morocco: A conceptual framework. *Journal of Islamic Marketing*, 759–0833. <https://doi.org/10.1108/JIMA-06-2020-0194>
- Ezeh, P. C., & Nkamnebe, A. D. (2014). The prospects of Islamic banking among non-Muslim bank customers in south-east of Nigeria. unpublished PhD seminar paper, Nnamdi Azikiwe University, Awka.
- Ezeh, P. C., & Nkamnebe, A. D. (2018). A conceptual framework for the adoption of Islamic banking in a pluralistic-secular nation: Nigerian perspective. *Journal of Islamic Marketing*, 9(4), 951–964. <https://doi.org/10.1108/JIMA-03-2017-0022>
- Faisal, M., Akhtar, A., & Rehman, A. (2014). Awareness of Islamic banking in India: An empirical study. *International Journal of Engineering and Management Research*, 7(6), 1–13.
- Financial Services Authority. (2015). *Panduan Penyelenggaraan Digital Branch Oleh Bank Umum*. <https://www.ojk.go.id/id/kanal/perbankan/Pages/Panduan-Penyelenggaraan-Digital-Branch-oleh-Bank-Umum.aspx>
- Financial Services Authority. (2018). *Penyelenggaraan Layanan Perbankan Digital oleh Bank Umum*. <https://www.ojk.go.id/id/regulasi/Pages/Penyelenggaraan-Layanan-Perbankan-Digital-oleh-Bank-Umum.aspx>
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: the reasoned action approach*. Psychology Press.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 1 (18), 39–50. <https://doi.org/10.1177/002224378101800104>
- Gerpott, T. J. (2011). Attribute perceptions as factors explaining mobile internet acceptance of cellular customers in Germany – An empirical study

- p>comparing actual and potential adopters with distinct categories of access appliances.
- Expert Systems with Applications*
- , 38(3), 2148–2162.
- <https://doi.org/10.1016/j.eswa.20https://doi.org/10.08.001>
- Gerrard, P., & Cunningham, J. B. (2003). The diffusion of internet banking among Singapore. *International Journal of Bank Marketing*, 21(1), 16–28. <https://doi.org/10.1108/02652320310457776>
- Gupta, S. D., Raychaudhuri, A., & Haldar, S. K. (2018). Information technology and profitability: Evidence from Indian banking sector. *International Journal of Emerging Markets*, 13(5), 1070–1087. <https://doi.org/10.1108/IJoEM-06-2017-0211>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A prima on partial least squares structural equation modeling (PLS-SEM)* (1st ed.). Sage.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hamid, A. H. A., & Nordin, N. A. M. (2001). A study on Islamic banking education and strategy for the new millennium: Malaysian experience. *International Journal of Islamic Financial Services*, 2(4), 1–10.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277–320. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)
- Hoehle, H., Scornavacca, E., & Huff, S. (2012). Three decades of research on consumer adoption and utilization of electronic banking channels: A literature analysis. *Decision Support Systems*, 54(1), 122–132. <https://doi.org/10.1016/j.dss.2012.04.010>
- Hosseini, M. H., Fatemifar, A., & Rahimzadeh, M. (2015). Effective factors of the adoption of mobile banking services by customers. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 4(6), 1–13. <https://doi.org/10.12816/0018964>
- Ho, C., & Wu, W. (2011). Role of innovativeness of consumer in relationship between perceived attributes of new products and intention to adopt. *International Journal of Electronic Business Management*, 9(3), 258–266.
- Hsu, C. L., Lu, H. P., & Hsu, H. H. (2007). Adoption of the mobile internet: An empirical study of multimedia message service (MMS). *Omega*, 35(6), 715–726. <https://doi.org/10.1016/j.omega.2006.03.005>
- Huang, L., & Hsieh, Y. (2012). Consumer electronics acceptance based on innovation attributes and switching costs: The case of e-book readers. *Electronic Commerce Research and Applications*, 11(3), 218–228. <https://doi.org/10.1016/j.eierap.2011.12.005>
- Hudaefi, F. A., & Badeges, A. M. (2021). *Maqāṣid al-Shari'ah* on Islamic banking performance in Indonesia: A knowledge discovery via text mining. *Journal of Islamic Marketing*. <https://doi.org/10.1108/JIMA-03-2020-0081>
- Jamshidi, D., & Hussin, N. (2013). Determining a conceptual framework for adoption of Islamic credit card in context of Malaysia. *Journal of Basic and Applied Scientific Research*, 3(1), 188–196.
- Jamshidi, D., & Hussin, N. (2016). Islamic credit card adoption understanding: When innovation diffusion theory meets satisfaction and social influence. *Journal of Promotion Management*, 22(6), 897–917. <https://doi.org/10.1080/10496491.2016.1214206>
- Kaabachi, S., & Obeid, H. (2016). Determinants of Islamic banking adoption in Tunisia: Empirical analysis. *International Journal of Bank Marketing*, 34(7), 1069–1091. <https://doi.org/10.1108/IJBM-02-2015-0020>
- Kaawaase, T. K., & Nalukwago, L. (2017). Religiosity and Islamic Banking in Uganda. *Makerere Business Journal*, 13(1), 70–93.
- Kholid, M. N. (2019). Determinants of intention to use Islamic mobile banking: Evidence from the millennial generation. *Jurnal Ekonomi & Keuangan Islam*, 5(2), 53–62. <https://doi.org/10.20885/JEKI.vol5.iss2.art2>
- Koenig-Lewis, N., Palmer, A., Moll, A., & Karjaluo, H. (2010). Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing*, 28(5), 410–432. <https://doi.org/10.1108/02652321011064917>
- Kolodinsky, J. M., Hogarth, J. M., & Hilgert, M. A. (2004). The adoption of electronic banking technologies by US consumers. *International Journal of Bank Marketing*, 22(4), 238–259. <https://doi.org/10.1108/02652320410542536>
- Kuisma, T., Laukkanen, T., & Hiltunen, M. (2007). Mapping the reasons for resistance to internet banking: A means-end approach. *International Journal of Information Management*, 27(2), 75–85. <https://doi.org/10.1016/j.ijinfomgt.2006.08.006>
- Lee, Y. H., Hsieh, Y. C., & Hsu, C. N. (2011). Adding innovation diffusion theory to the technology acceptance model: Supporting employees' Intentions to use E-learning systems. *Educational Technology & Society*, 14(4), 124–137.
- Lin, A., & Chen, N. C. (2012). Cloud computing as an innovation: Perception, attitude, and adoption. *International Journal of Information Management*, 32(6), 533–540. <https://doi.org/10.1016/j.ijinfomgt.2012.04.001>
- Luarn, P., & Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21(6), 873–891. <https://doi.org/10.1016/j.chb.2004.03.003>
- Mahardika, R. M., & Soetomo, H. (2019). Antecedents mobile banking adoption. *Media Riset Bisnis & Manajemen*, 19(1), 49–62. <https://doi.org/10.25105/mrbm.v19i1.5352>
- Malaquias, R. F., & Hwang, Y. (2019). Mobile banking use: A comparative study with Brazilian and US participants. *International Journal of Information Management*, 44, 132–140. <http://dx.doi.org/https://doi.org/10.1016/j.ijinfomgt.2018.https://doi.org/10.004>
- Mansor, N., Shariff, A. M., & Manap, N. R. A. (2012). Determinants of awareness on Islamic financial institution E-Banking among Malaysian SMEs. *International Journal of Business and Social Science*, 3(5), 93–101.
- Marak, Z., Tiwari, A., & Tiwari, S. (2019). Adoption of 3D printing technology: An innovation diffusion theory perspective. *International Journal of Innovation*, 7(1), 87–103. <https://doi.org/10.5585/iji.v7i1.393>
- Mbawuni, J., & Nimako, S. G. (2017). Determinants of Islamic banking adoption in Ghana. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(2), 264–288. <https://doi.org/10.1108/IMEFM-04-2016-0056>
- McDaniel, S. W., & Burnett, J. J. (1990). Consumer religiosity and retail store evaluative criteria. *Journal of the academy of Marketing Science*, 18(2), 101–112. <https://doi.org/10.1007/BF02726426>
- Minton, E. A., & Kahle, L. R. (2014). *Belief systems, religion, and behavioral economics: Marketing in multicultural environments*. Business Expert Press.
- Montazemi, A. R., & Qahri-Saremi, H. (2015). Factors affecting adoption of online banking: A meta-analytic

- structural equation modeling study. *Information and Management*, 52(2), 210–226 doi: <https://doi.org/10.1016/j.im.2014.11.002>
- Muslichah, I., & Sanusi, S. (2019). The effect of religiosity and financial literacy on the intention to use Islamic banking products. *Asian Journal of Islamic Management (AJIM)*, 1(2), 85–92. <https://doi.org/10.1108/AJIM.vol1.iss2.art2>
- Ndubisi, N. O., & Sinti, Q. (2006). Consumer attitudes, system's characteristics and internet banking adoption in Malaysia. *Management Research News*, 29(1), 16–27. <https://doi.org/10.1108/01409170610645411>
- Nguyen, V. A., & Nguyen, T. P. T. (2020). An integrated model of CSR perception and TAM on the intention to adopt mobile banking. *The Journal of Asian Finance, Economics and Business*, 7(12), 1073–1087. <https://doi.org/10.13106/jafeb.2020.vol7.no12.1073>
- Obeid, H., & Kaabachi, S. (2016). Empirical investigation into customer adoption of Islamic banking services In Tunisia. *Journal of Applied Business Research (JABR)*, 32(4), 1243–1256. <https://doi.org/10.19030/jabr.v32i4.9734>
- Pikkariainen, T., Pikkariainen, K., Karjaluo, H., & Pahnla, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14(3), 224–235. <https://doi.org/10.1108/10662240410542652>
- Poon, W. C. (2008). Users' adoption of e-banking services: The Malaysian perspective. *Journal of Business and Industrial Marketing*, 23(1), 59–69. <https://doi.org/10.1108/08858620810841498>
- Premkumar, G., & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega*, 27(4), 467–484. [https://doi.org/10.1016/S0305-0483\(98\)00071-1](https://doi.org/10.1016/S0305-0483(98)00071-1)
- Rattanaburi, K., & Vongurai, R. (2021). Factors influencing actual usage of mobile shopping applications: Generation Y in Thailand. *Journal of Asian Finance, Economics and Business*, 8(1), 901–913. <https://doi.org/10.13106/jafeb.2021.vol8.no1.901>
- Raza, S. A., Shah, N., & Ali, M. (2018). Acceptance of mobile banking in Islamic banks: Evidence from modified UTAUT model. *Journal of Islamic Marketing*, 10(1), 357–376. <https://dx.doi.org/10.1108/JIMA-04-2017-0038>
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). The Free Press.
- Sarea, A. M., & Hanefah, M. M. (2013). Adoption of AAOIFI accounting standards by Islamic banks of Bahrain. *Journal of Financial Reporting and Accounting*, 11(2), 131–142. <https://doi.org/10.1108/JFRA-07-2012-0031>
- Shih, Y. Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study internet banking in Taiwan. *Internet Research*, 14(3), 213–223. <https://doi.org/10.1108/10662240410542643>
- Singh, S., & Srivastava, R. K. (2018). Predicting the intention to use mobile banking in India. *International Journal of Bank Marketing*, 36(2), 357–378. <http://dx.doi.org/https://doi.org/10.1108/IJBM-12-2016-0186>
- Sinha, A. (2011). Technology in banking—In pursuit of excellence. *BIS central bankers' speeches*. <https://www.bis.org/review/r110816b.pdf>
- Stan, V., & Saporta, G. (2005). Customer satisfaction and PLS structural equation modeling. An application to automobile market. *International Symposium on Applied Stochastic Models and Data Analysis* (pp. 17–20). 17–20 May. Brest: France.
- Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research*, 79(2), 625–649. <https://doi.org/10.3102/0034654308325896>
- Sudarsono, H., Tumewang, Y. K., & Kholid, M. N. (2021). Customer adoption of Islamic banking services: empirical evidence from Indonesia. *Journal of Asian Finance, Economics and Business*, 8(3), 1193–1204. <https://doi.org/10.13106/jafeb.2021.vol8.no3.1193>
- Suhartanto, D., Dean, D., Ismail, T. A. T., & Sundari, R. (2019). Mobile banking adoption in Islamic banks. *Journal of Islamic Marketing*, 11(6), 1405–1418. <https://doi.org/10.1108/jima-05-2019-0096>
- Suhartanto, D., Farhani, N. H., & Muflih, M. (2018). Loyalty intention towards Islamic bank: the role of religiosity, image, and trust. *International Journal of Economics & Management*, 12(1), 137–151.
- Teo, T. S. H., & Pok, S. H. (2003). Adoption of WAP-enabled mobile phones among internet users. *Omega*, 31(6), 483–498. <https://doi.org/10.1016/j.omega.2003.08.005>
- Thaker, M. A. B. M. T., Pitchay, A. B. A., Thaker, H. B. M. T., & Amin, M. F. B. (2019). Factors influencing consumers' adoption of Islamic mobile banking services in Malaysia: An approach of partial least squares (PLS). *Journal of Islamic Marketing*, 10, 4. <http://dx.doi.org/https://doi.org/10.1108/JIMA-04-2018-0065>
- Thambiah, S., Eze, U. C., Santhapparaj, A. J., & Arumugam, K. (2011). Customers' perception on Islamic retail banking: A comparative analysis between the urban and rural regions of Malaysia. *International Journal of Business and Management*, 6(1). <https://doi.org/10.5539/ijbm.v6n1p187>
- Thambiah, S., Eze, U. C., Tan, K. S., Nathan, R. J., & Lai, K. P. (2010). Conceptual framework for the adoption of Islamic retail banking services in Malaysia. *Journal of Electronic Banking Systems*, 2010(1), 1–10.
- Thambiah, S., Ramanathan, S., & Mazumder, M. N. H. (2012). The determinants of Islamic retail banking adoption in Malaysia. *International Business & Economics Research Journal*, 11(4), 437–442. <https://doi.org/10.19030/iber.v11i4.6880>
- Tiwari, P., Tiwari, S. K., & Gupta, A. (2021). Examining the impact of customers' awareness, risk and trust in m-banking adoption. *FIIB Business Review*, 10(4), 413–423. <https://doi.org/10.1177/23197145211019924>
- Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. *Journal of Information Technology Theory and Application*, 11(2), 5–40.
- Wixom, B. H., & Watson, H. J. (2001). An empirical investigation of the factors affecting data warehousing success. *MIS Quarterly*, 25(1), 17–41. <https://doi.org/10.2307/3250957>
- Yusuf, M. O., & Derus, A. M. (2013). Measurement model of corporate zakat collection in Malaysia a test of diffusion of innovation theory. *Humanomics*, 29(1), 61–74. <https://doi.org/10.1108/08288661311299321>
- Zhou, T. (2012). Understanding users' initial trust in mobile banking: An elaboration likelihood perspective. *Computers in Human Behavior*, 28(4), 1518–1525. <https://doi.org/10.1016/j.chb.2012.03.021>



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