

TECHNOLOGY ADOPTION ANALYSIS OF ISLAMIC BANKS MOBILE BANKING IN INDONESIA

Siti Jamilah^a

Zulfikar Ramadhan^b

Nita Yalina^c

Mirrah Nabighah^d

^{a, b} Faculty of Economic and Business, University of Muhammadiyah Jakarta, Indonesia

^c Business School, Leeds University

^dIndependent Researcher

Email : jamilah17.febumj@gmail.com^a ; zulfikar.ramadhan@umj.ac.id^b ; bnnny@leeds.ac.uk^c ;
m.nabighah@gmail.com^d

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***Correspondence:**

Name: Siti Jamilah

E-mail:

jamilah17.febumj@gmail.com

ABSTRACT

Introduction: The primary objective of this research is to explore customer trust, attitudes, and experience, directly effect on perceived usefulness and perceived ease, and indirectly impact on attitude toward using and actual system use, as utilizing Mobile Banking of the 5 Top Brand Award Sharia Banks.

Methods: The study employs a quantitative method, focusing on understanding the interrelations between multiple variables. Exerting random sampling of 280 customers from the 5 Top Brand Award Sharia Banks participated as respondents in the study, and data was collected through both questionnaires and secondary sources.

Results: The findings from the study indicate that all variables i.e. customer trust, attitude, and experience have a significant effect on perceived usefulness and perceived ease of use. Furthermore, both of them also have significant on attitude toward using and actual system use.

Conclusion and suggestion: In summary, the technology adoption and mobile banking use by consumers variables can be explained by the perceived usefulness and perceived ease of use variables. It implicates that customers have confidence that mobile banking provides benefits for customers related to financial transaction solutions. Therefore, Islamic banks have to always update their technology and inform the public how to use it.

INTRODUCTION

The information and communication technology (ICT) revolution has transformed how people conduct business today. The Internet and technological advances have transformed the delivery and utilization of financial services (Malaquias & Hwang, 2019). Mobile banking is a service that allows consumers to interact with

banks using mobile devices, such as mobile phones, to conduct banking-related transactions anytime and anywhere with lower physical and monetary costs (Glavee-Geo et al., 2017), (Sahoo & S, 2017), (Singh & Kumar Srivastava, 2018) (Malaquias & Hwang, 2019) (Shaikh & Karjaluo, 2015).

Internet banking in Indonesia started in 2001 when Bank Central Asia (BCA) opened Internet banking services with www.klikbca.com site, which other significant banks later followed. At that time, the only Islamic bank operating was Bank Muamalat, established in 1992. Over time, several Islamic banks began to exist along with the development of digital technology in bank applications known as mobile banking. Banking technology is constantly changing and advancing. Adopting technology in the banking sector is more challenging than imagined; it requires effort from customers and banks to apply it. Some external factors that need to be considered in seeing the adoption ability of customers are trust, attitude, and experience. This research wants to comprehend the enhancement of technology for Islamic mobile banking.

Banking products or services involve executing financial and non-financial transactions using mobile devices such as phones or tablets (Veríssimo, 2016). This application allows customers to access their bank accounts through mobile devices to perform conventional and innovative financial transactions without limitations of place and time (Shin et al., 2010) (Baabdullah et al., 2019). With m-banking, banks can cut operational costs while maintaining customer satisfaction (Abu-Taieh et al., 2022).

The data published by Bank Indonesia explains that there is an increase in the volume and value of transactions from the use of mobile banking services every year.

Table 1
Volume and Value of Mobile Banking Transactions Use

Component	Unit	2019	2020	2021	2022	2023
Mobile Banking Transaction Volume	thousand transaction	2.360.094	3.427.101	5.534.245	8.345.937	12.334.036
Mobile Banking Transaction Value	billions of rupiah	3.522.491	4.770.122	7.730.865	9.995.239	14.378.353

Source: Indonesia Central Bank, 2023

Table 1 indicates that many Indonesian people already use mobile banking. However, the issue of mobile banking reliability remains unresolved. In 2023, Indonesia's largest Islamic bank experienced significant technological disruptions. This incident eroded customer trust in Islamic bank operations (Syarifuddin & Kurniawan, 2023; Timur et al., 2024). Furthermore Indonesia is one of the top 10 countries globally with the highest number of cyberattacks, experiencing 2.94% of worldwide cyberattacks in the past two years (Statista, 2024). Therefore, this research purpose to explore how customer behaviour interact with mobile banking, which needs to be studied further by considering the users' beliefs, attitudes, and experiences.

Many previous studies has been done in customer mobile banking behavior by highlighted different variables. Research by Ajzen (1980) has shown that experience determines behavior. Study from Gardner & Amoroso (2004) use four external variables, namely gender, experience using the internet, complexity utilizing the internet, and volunteers. Moreover, the research by Venkatesh & Morris (2000) examined three external variables: subjective norms, gender, and experience. The study by Sharma et al. (2017) denotes that perceptions of ease of use do not influence interest in using mobile banking. The study result of Sudarsono et al. (2024) illustrates that perceived ease of use has no effect on the intention to adopt mobile banking. Furthermore, Hartutik et al. (2024) study explaining that perceived usefulness and ease of use do not influence behavioral intention to use QRIS (Indonesia QR Code Payment System).

Based on author knowledge, study on Indonesia Islamic Mobile Banking customer behaviour it still limited to be discussed, where its actually important component for islamic bank competitiveness in the market. This paper comined 3 fundamental variables representing the Islamic Bank customer behavior which are trust, attitude, and experience. Where the purpose of this research is to analyze the customer acceptance of Islamic mobile banking technology progression in Indonesia as a country which consider as top global concerning in Islamic banking. Looking specifically on It is reviewed from the side of perceived usefulness and perceived ease of use as intervening variables, as well as trust, attitude, and experience as external variables, whether they affect significantly or vice versa.

LITERATURE REVIEW

Mobile Banking

Mobile banking is a service that allows consumers to interact with banks using mobile devices, such as mobile phones, to conduct banking-related transactions, anytime and anywhere with lower physical and monetary costs (Glavee-Geo et al., 2017); (Sahoo & S, 2017); (Singh & kumar Srivastava, 2018). It is considered a part of electronic banking and an extension of internet banking, with its own distinct features (Laukkanen, 2016). Therefore, mobile banking allows clients to conduct banking activities without the need to physically visit an office or ATM (Malaquias & Hwang, 2019). For many financial organizations and customers, mobile banking holds significant value (Baabdullah et al., 2019). With mobile banking, banks can reduce operational costs while maintaining customer satisfaction (Abu-Taieh et al., 2022).

Technology Acceptance Model

Initially, the technology acceptance model refers to the theory of planned behavior. In TPB theory, a person's intention is a sign of their willingness and effort to act, which strongly predicts their actual behavior (Ajzen, 1991). TPB is included in the

field of psychology, but marketing experts have widely adopted and used it in current studies (Yadav & Pathak, 2017) (Jiang et al., 2018) (Si et al., 2019) (Elahi et al., 2022).

Technology Acceptance Model (TAM) is a highly influential and well-known framework in information systems research (Benbasat & Barki, 2007). Technology acceptance model, as defined by Davis, comprises two fundamental constructs: perceived usefulness (PU) and perceived ease of use (PEOU) (F. D. Davis, 1989). These components are key in understanding the user's perspective and play a crucial role in shaping user behavior. Additionally, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are considered crucial factors in determining user acceptance of technology. They impact user attitudes towards a specific technology, which in turn influences their intention to adopt it. Venkatesh & Davis identified that prior experience with technology plays a significant role in technology acceptance. (Venkatesh & Davis, 2000). Thompson et al. defines usage experience as an individual's active involvement or exposure to a particular system and the valuable skills the user acquires by using the system. (R. Thompson et al., 2007).

Technology acceptance model theory has three fundamental bases, such as Perceived Usefulness (PU), Perceived Ease Of Use (PEOU) and Attitude Towards Using the System to adopt and user acceptance of various new technologies (Venkatesh et al., 2003), (Chuttur, 2009), (Bankole et al., 2011), (Govender & Sihlali, 2014), (Shaikh & Karjaluto, 2015), (Shaikh et al., 2015); (Choudrie et al., 2018), (Alzubi et al., 2018). The actual use of new technology can be accurately predicted by focusing on the perceived ease of use (PEOU) and perceived usefulness (PU) variables. This model construction is essential for forecasting the adoption of new technology (Lai, 2017). Other study validated the model by assessing the reliability and validity measures for PU and PEOU across various settings and information systems (Adams et al., 1992).

Many models have been utilized to explore the acceptance and usage of technology. The technology acceptance model (TAM) has emerged as one of the most well-known models for understanding user acceptance of technology and is widely utilized in numerous studies (Alharbi & Drew, 2014), (Binyamin et al., 2017), (Al-Busaidi & Al-Shihi, 2010), (Yoon, 2016), (Mohammadi, 2015). Technology acceptance model refers to the relationship between users and technology, used to predict user acceptance of the technology (Holden & Rada, 2011).

Technology acceptance model was found to be able to provide a reasonable picture of the user's intention to use technology by approximately 40% (Legris et al., 2003) and was widely used in research to determine the likelihood of adopting online systems and user perceptions of system usage (Alsajjan & Dennis, 2006), (Teo et al., 1999), (Gefen et al., 2003), (Moon & Kim, 2001). Davis used the Technology Acceptance Model (TAM) to present system features and stimulation capabilities designed to motivate users to engage with the system (F. Davis, 1985).

Perceived Usefulness

Perceived usefulness refers to how users perceive a technology's usefulness level. The benefits provided by a system can influence a person's perception and lead to increased usage (F. D. Davis, 1986) (F. D. Davis, 1989). Perceived usefulness is one of the fundamental antecedent factors related to the use and adoption of technology (Tarhini et al., 2016); (Alrajawy et al., 2016), (Negahban & Chung, 2014), (Mac Callum & Jeffrey, 2013), (Joo & Sang, 2013). Davis (1989) defines it as the degree to which a person believes that using a particular system will improve his or her job performance. Perceived usefulness reflects the belief that the use of technology brings benefits to users, namely that it can help users to increase the level of speed through the tasks given .

Perceived Ease of Use

Perceived ease of use refers to the extent to which an individual believes that utilizing a specific system will be effortless (F. D. Davis, 1989) (Cudjoe et al., 2015), the degree to which a person believes that using technology will minimize excessive effort (Indarsin & Ali, 2017), and a convenience related to the efforts and comfort of users of specific technologies (Tojib & Tsarenko, 2012). Numerous studies have unequivocally demonstrated the pivotal role of perceived ease of use factors in the realm of information systems (Faqih, 2016), (Koksal, 2016), (Mutahar et al., 2016), (Tarhini et al., 2013), (Iqbal & Qureshi, 2012), (Parveen & Sulaiman, 2008). Perceived Ease of Use is a technological parameter that is interpreted as an individual's assessment of the ease of understanding and using a computer, which involves flexibility, ease of learning, dependability, and the ability to control tasks (Venkatesh, 2000). Consumers can easily evaluate an application's benefits and experiment with new innovations (Gupta & Malhotra, 2013).

Attitude Toward Using

Attitude toward using in Technology acceptance model is conceptualized as an attitude toward using a system in the form of acceptance or rejection as an impact when someone uses technology in their work (F. D. Davis, 1993). While other findings argue that attitude explains a person's acceptance of information technology (Brown et al., 2005). Further researchers defines Attitude Toward Using in Technology acceptance model as conceptualized as an attitude towards using a system in the form of acceptance or rejection as an impact when someone uses a technology in their work (F. D. Davis, 1993). Granić & Marangunić (2019) argue the very rapid increase and progress of technology, especially applications related to information and communication technology, creates choices to decide whether someone will accept or reject a technology.

Actual System Use

Actual system use is the real condition of system usage. They were conceptualized by measuring technology usage frequency and duration (F. D. Davis, 1989). A person will be satisfied using a system if they believe it is easy to use and will increase their productivity, which is reflected in the actual conditions of use (Venkatesh & Davis, 1996). Actual usage is defined as the frequency and time of technology use (H.-W. Kim et al., 2007). One of the most important directions for future research on technology usage is to investigate the impact of system usage on information system success factors such as user satisfaction and performance (Venkatesh et al., 2003).

Customer Trust

In pursuance, Martínez & Rodríguez-del-Bosque (2013) define trust as the most important thing that consumers expect to fulfill their desires according to their expectations. In the realm of banking, trust stands as a cornerstone, holding immense significance (Zhou, 2011b) (Malaquias & Hwang, 2019) as it helps to alleviate customer concerns about uncertainty and insecurity in the mobile environment, which result from the perceived lack of control and human interaction (López-Miguens & Vázquez, 2017) (Singh & Srivastava, 2018b). Agarwal et al. (2009) propose incorporating trust into the behavioral framework to enhance customer behavior prediction.

Trust in the organization providing mobile banking services significantly boosts user adoption of the services (Namahoot & Laohavichien, 2018). Trust is a crucial factor that motivates consumers to use mobile banking services (Afshan & Sharif, 2016), (Baptista & Oliveira, 2016), (Gumussoy, 2016), (Malaquias & Hwang, 2016). Therefore, it is crucial to explore practical strategies for building and maintaining customer trust in mobile banking (Skvarciany & Jureviciene, 2017). According to Zhou (2013), trust is the willingness to be loyal to a service provider based on positive expectations about the service provider's future behavior.

Customer Attitude

The second external variable is Customer attitudes that play a substantial role in influencing purchasing decisions. According to Yahyapour, an attitude is a form of evaluation of the consequences of a particular behaviour (Yahyapour, 2008). According to Aakers (1997), attitudes towards using a system involve how much a person likes or dislikes a product. This can help predict whether a person intends to use a product. Schiffman and Kanuk explain that attitude is at the core of a person's liking or disliking of a specific object. Consumer attitude refers to a consumer's emotional response, which can be in the form of liking or disliking a particular object. For example, it can involve how consumers react to product performance, company brands, product prices, advertisements, and more (Schiffman & Kanuk, 2013). Based on Thompson's

research, individuals will use information and communication technology (ICT) if they know the benefits or uses that positively influence its use (Thompson et al., 2007).

Customer Experience

The third external variable in this study is the user experience. Norman et al. (1995) introduced the term user experience in 1995 concerning research and application of human interfaces. In its original meaning, user experience was intended as the experience between humans and systems, involving many aspects beyond human interface or usability. Thompson et al. define experience of utilization as an individual's active involvement or exposure to a particular system and the valuable skills the user acquires by using the system (R. Thompson et al., 2007). The experience construct was operationalized from the research of Venkatesh & Davis (1996), Venkatesh & Davis (2000), and Legris et al. (2003), where the perceived experience using the Internet is measured in conjunction with the number of years using the Internet.

Hypothesis

Hypothesis 1: Customer trust has a significant effect on perceived usefulness.

Hypothesis 2: Customer attitude has a significant effect on perceived usefulness.

Hypothesis 3: Customer experience has a significant effect on perceived usefulness.

Hypothesis 4: Customer trust has a significant effect on perceived ease of use.

Hypothesis 5: Customer attitude has a significant effect on perceived ease of use.

Hypothesis 6: Customer experience has a significant effect on perceived ease of use.

Hypothesis 7: Perceived ease of use has a significant effect on perceived usefulness.

Hypothesis 8: Perceived usefulness has a significant effect on attitude toward using.

Hypothesis 9: Perceived ease of use has a significant effect on attitude toward using.

Hypothesis 10: Attitude toward using has a significant effect on actual system use.

Framework

The framework of this study:

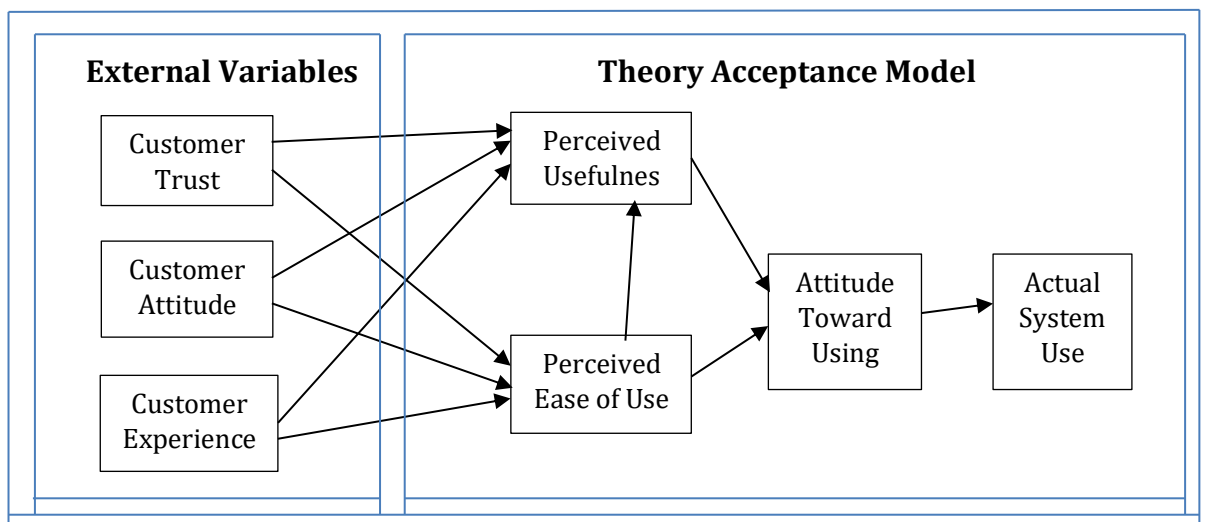


Figure 1. Technology Acceptance Model of Mobile Banking Framework

RESEARCH METHODS

Technology acceptance model is a theoretical basis used to determine the factors that influence the acceptance of a technology in an organization, such as mobile banking. Mobile banking is a banking service that allows customers to conduct banking transactions via mobile devices, such as smartphones or tablets. These transactions can be done through mobile banking applications provided by banks or mobile operator default applications. Technology acceptance model is conceptualized as an attitude towards the use of a system in the form of acceptance or rejection as an impact when someone uses technology in their work (F. D. Davis, 1993)

Customer trust is the level of confidence that customers have in a brand, product, or service. Customer trust is usually formed based on accumulated satisfaction, consistent delivery of quality service, fulfillment of customer needs, honest and fair treatment, and the belief that the company intends to act in the best interests of the customer (Berry, 1999) (Delgado-Ballester & Munuera-Alemán, 2001) (Liljander & Roos, 2002) (Morgan, 1994). Customer attitude expresses an individual's internal feelings and perceptions that show a positive or negative tendency towards an object, product, service, activity, etc (Ajzen & Fishbein, 2000). Customer experience is: the sum of all interactions (including with products and prices) that a customer has with an organization during the life of the "relationship" with the company. Some studies suggest that customer experience reflects the offerings provided and managed by the company (Pine & Joseph, 1998), but other studies define it as the customer's response to company-related contacts (Homburg et al., 2015) (Lemon & Verhoef, 2016) (Meyer & Schwager, 2007).

Perceived ease of use describes the extent to which users believe using an information system is easy and does not require much effort (F. D. Davis, 1989a) (F. D. Davis, 1989). Attitude toward using defines attitude toward use as a person's positive or negative feelings toward using information system technology. Attitude is an internal state or tendency that biases individuals' evaluative response to some degree of favorability and unfavorability (Eagly, 1992). Furthermore, attitude creates specific motives to act toward an object/behavior (Bagozzi et al., 1992). Actual system use is real behavior in adopting a system, which is the real condition of system implementation. Actual system usage is defined as a form of external psychomotor response measured by a person with real use (F. D. Davis, 1989). Actual System Use) is measured as the amount of time spent interacting with a technology and the frequency of its use.

This study focuses on customers who use Mobile Banking at five banks of the Top Brand Award: Bank Muamalat, Bank Syariah Indonesia, BCA Syariah, BJB Syariah, and BTN Syariah. The data type of this study is primer data. The online survey was conducted in November 2023 and distributed online via Google Forms, reaching customers of five Islamic banks across Indonesia. Hair et al. (Hair Jr et al., 2017) recommend using a minimum of 5 or 10 times the total number of indicators as the

sample size. Generally, a sample size of over 100 is preferable, but a sample size smaller than 100 can be acceptable based on the study's background (Hair et al., 2018). The indicators show a total of 56, meaning that the study used a sample size of 280.

This research employed a simple random sampling technique, a type of probability sampling in which researchers randomly select a subset of participants from a population. It used quantitative methods to test how several factors influence people's Mobile Banking decisions. The analysis tool used was a questionnaire with a Likert scale, which analyzed the data with Partial Least Square and processed it in SmartPLS 3.0.

Table 2
Item Construct

Variable	Indicator	Reference
Customer Trust	1. Pay attention to mobile bank service 2. Have the will to transact with mobile banking 3. Mobile banking can be expected 4. Have the knowledge on mobile banking 5. Have the training on mobile banking 6. Have personal experience on mobile banking 7. Have skill to operate mobile banking 8. Have ability to conduct financial transaction with mobile banking 9. Have loyalty with mobile banking 10. Have honesty with mobile banking service 11. Have dependence with mobile banking service 12. Have trust on mobile banking reliability 13. Have trust on mobile banking technology 14. Have trust on mobile banking features 15. Have trust on mobile banking benefit	(Zhou, 2011) (Torres et al., 2012) (Zhou, 2013) (Kotler & Keller, 2014) (Shaikh & Karjaluoto, 2015) (Afshan & Sharif, 2016) (Baptista & Oliveira, 2016) (Gumussoy, 2016) (Malaquias & Hwang, 2016) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Yadav & Pathak, 2017) (Judge & Robbins, 2017) (Singh & Srivastava, 2018) (Namahoot & Laohavichien, 2018) (Jiang et al., 2018) (Malaquias & Hwang, 2019)
Customer Attitude	1. Able to explain about mobile banking to others 2. Able to understand the instruction inside mobile banking 3. Able to applicate mobile banking concept 4. Able to analyse the trouble on mobile banking 5. Able to evaluate the result after applicating mobile banking 6. Able to be disciplined in operating mobile banking 7. Able to be responsible in operating mobile banking	(Ajzen & Fishbein, 2000) (R. Thompson et al., 2007) (Sasmita & Suki, 2015) (Kotler & Keller, 2014) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Yadav & Pathak, 2017) (Rana & Paul, 2017) (Judge & Robbins, 2017) (Singh & Srivastava, 2018) (Jiang et al., 2018) (Malaquias & Hwang, 2019) (Maziyah & Vitasari, 2022) (Hussin & Wahid, 2023) (Batool et al., 2023)

Variable	Indicator	Reference
	8. Intention to search mobile banking information	
	9. Intention to have for mobile banking product	
	10. Intention to have mobile banking service	
Customer Experience	1. Mobile banking has appropriate function 2. Mobile banking has recognition on customer 3. Mobile banking can adapt fast to technology progression 4. Mobile banking can access properly at any place 5. Mobile banking is desired to customer 6. Mobile banking can strengthen mobile banking brand 7. Mobile banking features focus on aesthetic 8. Mobile banking can be memorable to customer 9. Mobile banking can make efficient customer duty 10. Mobile banking product has good quality' 11. Mobile banking service has good quality 12. Mobile banking has capability to satisfy customer	(Ajzen, 1980) (Ajzen, 1991) (Norman et al., 1995) (Venkatesh & Davis, 1996) (Legris et al., 2003) (Venkatesh et al., 2003) (Meyer & Schwager, 2007) (Homburg et al., 2015) (Lemon & Verhoef, 2016) (R. Thompson et al., 2007) (Jain & Bagdare, 2009) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Yadav & Pathak, 2017) (Singh & Srivastava, 2018) (Jiang et al., 2018) (Gomachab & Maseke, 2018) (Malaquias & Hwang, 2019) (Abu-Taieh et al., 2022)
Perceived Usefulness	1. Mobile banking is useful to customer 2. Mobile banking make customer finish the task faster 3. Mobile banking conduct customer do the task faster 4. Mobile banking increase productivity of customer 5. Mobile banking enhance customer effectivity 6. Mobile banking can develop task performance	(Moon & Kim, 2001) (Venkatesh et al., 2003) (Legris et al., 2003) (Gefen et al., 2003) (Chuttur, 2009) (Shin et al., 2010) (Bankole et al., 2011) (Shaikh & Karjaluoto, 2015) (Mohammadi, 2015) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Alzubi et al., 2018)
Pereceived Ease Of Use	1. Mobile banking is easy to use to customer 2. Mobile banking is learnable to customer 3. Mobile banking is fleksible to customer 4. Mobile banking is convenient to transact 5. Mobile banking system is easy to control 6. Mobile banking system is able to make the task conduct easier	(F. D. Davis, 1989) (Moon & Kim, 2001) (Venkatesh et al., 2003) (Legris et al., 2003) (Gefen et al., 2003) (Chuttur, 2009) (Shin et al., 2010) (Shaikh & Karjaluoto, 2015) (Mohammadi, 2015) (Cudjoe et al., 2015) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Choudrie et al., 2018) (Singh & Srivastava, 2018) (Baabdullah et al., 2019)

Variable	Indicator	Reference
Attitude Toward Using	1. Customer has favorable attitude to mobile banking technology usage 2. Customer feel unboring by using technolgy of mobile banking 3. Customer get benefit by using technology of mobile banking 4. Customer enjoys using mobile banking technology	(F. D. Davis, 1989) (Moon & Kim, 2001) (Venkatesh et al., 2003) (Legris et al., 2003) (Gefen et al., 2003) (Chuttur, 2009) (Shin et al., 2010) (Govender & Sihlali, 2014) (Shaikh & Karjaluoto, 2015) (Mohammadi, 2015) (Glavee-Geo et al., 2017) (Sahoo & S, 2017) (Abu-Taieh et al., 2022)
Actual System Use	1. Customer often use mobile banking 2. Customer has long duration in using mobile banking 3. Customer is skillful in using mobile banking	(F. D. Davis, 1989) (Moon & Kim, 2001) (Venkatesh et al., 2003) (Legris et al., 2003) (Gefen et al., 2003) (Chuttur, 2009) (Shin et al., 2010) (Aboelmaged & Gebba, 2013) (Shaikh & Karjaluoto, 2015) (Mohammadi, 2015) (Choudrie et al., 2018) (Abu-Taieh et al., 2022)

RESULT

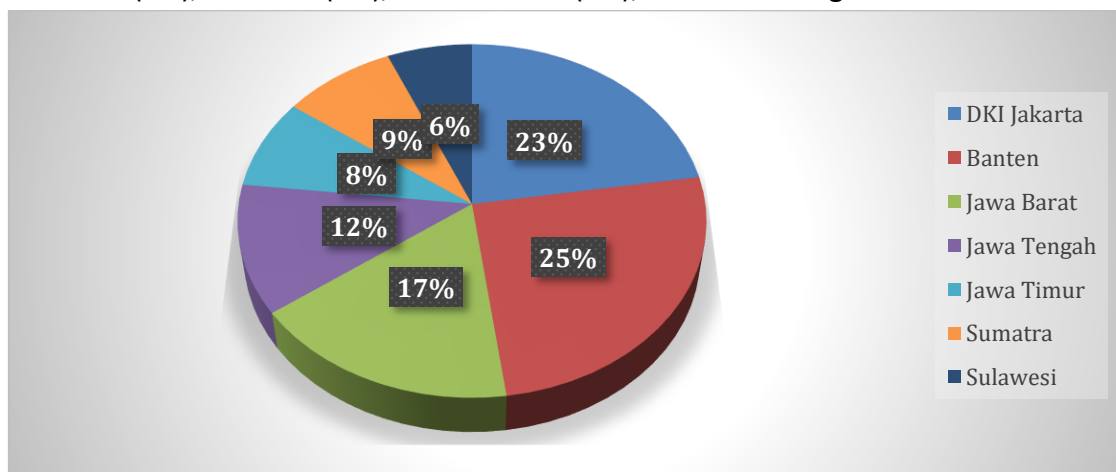
Respondent Characteristic

Table 3
Respondents Characteristics

Characteristics	Category	Frequency	Percentage
Gender	Male	118	0.42
	Female	162	0.58
Age	Under 25 years old	65	23%
	25 – 39 years old	137	49%
	40 – 59 years old	67	24%
	Over 59 years old	11	4%
Occupation	Business Owner	27	10%
	Private Employee	49	18%
	Government Employee	59	21%
	Researcher	31	11%
	Student	35	13%
	Teacher/Lecturer	67	24%
	Manufacture Labour	12	4%
Income	Less than Rp. 2.500.000,-	22	8%
	Rp. 2.500.000 – Rp. 4.999.999,-	97	35%
	Rp. 5.000.000,- - Rp. 10.000.000,-	117	42%
	More than Rp. 10.000.000,-	44	16%
Education	High School/Equivalent	29	10%

Characteristics	Category	Frequency	Percentage
	Diploma/Equivalent	49	18%
	S1 – Bachelor Degree	122	44%
	S2 – Master Degree	59	21%
	S3 – Doctoral Degree	21	8%
Mobile Banking You Use	Bank Muamalat	43	15%
	Bank Syariah Indonesia	145	52%
	BCA Syariah	41	15%
	BJB Syariah	24	8%
	BTN Syariah	27	10%
Experience of Using Mobile Banking	Less than 1 Year	11	4%
	1 – 2 years	53	19%
	3 – 4 years	98	35%
	More than 4 years	118	42%
How Many Times You Access Your Mobile Banking	Seldom	39	14%
	1 - 3 Times/Day	97	35%
	4 - 6 Times/Day	89	32%
	More than 6 Times/Day	55	20%
Kind of Transactions You Use Intensively	Transfer	121	43%
	Payment	75	27%
	Purchase	47	17%
	Balance Check	37	13%
The Reason You Use Mobile Banking	Accessible Anytime, Anywhere	89	32%
	More Safety	77	28%
	Faster	82	29%
	Advanced Technology	32	11%

Questionnaire data were obtained from 280 respondents in the coverage areas covering DKI Jakarta (23%), Banten (25%), West Java (17%), Central Java (12%), East Java (8%), Sumatra (9%), and Sulawesi (6%), as shown in Figure 1.



Source: Author Calculation, 2024

Figure 2. Questionnaire Distribution Location

Outer Model Analysis

Validity Test

An indicator is considered to pass the convergent validity test in the excellent category if the outer loading p-value is below 0.05. It is observed that many of the research variable indicators have outer loading p-values below 0.05, namely, with the outer loading p-values of each indicator being 0. The measurement scale of the outer loading p-value is sufficient to meet the convergent validity requirements. The data depicts that none of the variable indicators have outer loading p-values above 0.05, meaning that all indicators are deemed feasible or valid for research and further analysis.

Hair et al. (2011) recommended a composite reliability value between 0.60 and 0.70 in exploratory research. In addition, factor loading should be more than 0.6, and the average variance extracted (AVE) is higher than 0.5 (Hair et al., 2010). In detail, Chin (1998) explained that the minimum value of the loading factor depends on the research subject, and 0.5 is acceptable. Further to looking at the outer loading value, convergent validity can also be assessed by looking at the AVE (Average Variance Extracted) value > 0.5 so that it can be said to be valid in terms of convergent validity (Fornell & Larcker, 1981). The following are the AVE values of each variable in this study:

Table 4
AVE Variable Value

Variable	AVE (Average Variance Extracted)	Explanation
Customer Trust (X1)	0.519	Valid
Customer Attitude(X2)	0.766	Valid
Customer Experience (X3)	0.648	Valid
Perceived Usefulness (Z1)	0.573	Valid
Perceived Ease of Use (Z2)	0.601	Valid
Attitude Toward Using (Y1)	0.790	Valid
Actual System Use (Y2)	0.736	Valid

Source: Author Calculation, 2024

Reliability Test

In Partial Least Square (PLS), two methods can be used to measure reliability: Composite Reliability and Cronbach's Alpha. The construct is declared reliable if the Composite Reliability and Cronbach's Alpha values exceed 0.7. The following are the results of the reliability test:

Table 5
Cronbach's Alpha Value

Variable	Composite Reliability	Cronbach's Alpha	Explanantion
Customer Trust (X1)	0.925	0.938	Reliable
Customer Attitude (X2)	0.965	0.970	Reliable
Customer Experience (X3)	0.948	0.956	Reliable

Variable	Composite Reliability	Cronbach's Alpha	Explanantion
Perceived Usefulness (Z1)	0.851	0.889	Reliable
Perceived Ease of Use (Z2)	0.859	0.897	Reliable
Attitude Toward Using (Y1)	0.911	0.938	Reliable
Actual System Use (Y2)	0.820	0.893	Reliable

Source: Author Calculation, 2024

Inner Model Analysis

R-square (R²) Testing

Table 6
R-Square Value

Variable	R-Square	Explanation
Perceived Usefulness (Z1)	0.878	Reliable
Perceived Ease of Use (Z2)	0.744	Reliable
Attitude Toward Using (Y1)	0.430	Reliable
Actual System Use (Y2)	0.434	Reliable

Source: Author Calculation, 2024

Hypothesis Testing Results

Direct Effect

Table 7
Direct Effect

Variable Relation	coefficient	P Values	Explanation
X1 -> Z1	0.191	0.000	Positive Significant
X1 -> Z2	0.693	0.000	Positive Significant
X2 -> Z1	0.466	0.000	Positive Significant
X2 -> Z2	0.113	0.001	Positive Significant
X3 -> Z1	0.214	0.000	Positive Significant
X3 -> Z2	0.108	0.039	Positive Significant
Y1 -> Y2	0.183	0.000	Positive Significant
Z1 -> Y1	0.431	0.000	Positive Significant
Z2 -> Y1	0.257	0.011	Positive Significant
Z2 -> Z1	0.659	0.000	Positive Significant

Source: Author Calculation, 2024

External Variables: Customer Trust, Customer Attitude, and Customer Experience

Based on table 4, each external variable in this study shows an AVE (Average Variance Extracted) value above 0.5. This shows that each variable in this study can be said to be valid in terms of discriminant validity. According to table 7, the hypothesis testing results show that the p-value of 0.000 is smaller than 0.05, meaning that external variables significantly affect dependent variables. The data processing results in the study show that the model of this study is good because there are substantial relationships for all variables. This is in line with the research conducted by Lule et al. (2012), Foroughi et al. (2019), and Isaac et al. (2018). The research of Zhou (2011) and

Akturan & Tezcan (2012) found that trust significantly affects perceived usefulness. Trust has a strong positive effect on ease of use (Silva Bidarra et al., 2013). Trust will positively impact the perceived usefulness of mobile banking and the perceived ease of use (Al-Jabri, 2015).

Attitude variable can be approached by social influence or subjective norms. Social influence through the subjective norm is defined as a person's perception that most people who are important to him or her think he or she should or should not perform the behavior in question (Ajzen & Fishbein, 1975). Social influence has a positive effect on perceived usefulness (Gefen & Straub, 1997), (Hsu & Lu, 2004), (Taylor & Todd, 1995), (Venkatesh & Davis, 2000). Users will consider mobile banking useful when they see colleagues, friends, and family members using it and get recommendations, thus having no significance on customers' ease of adoption of mobile banking technology (Akturan & Tezcan, 2012).

Experience using the Internet will be correlated to perceived usefulness of the Internet and the behavioral intention to use the Internet. Prior research has shown that prior experience determines behavior (Ajzen, 1980). It was found that there are significant differences between experienced users and inexperienced users in the influence of the determinant of usage. For experienced users, there was a stronger link between intentions and usage (Taylor & Todd, 1995). Furthermore, perceived usefulness was the strongest predictor of intention for the inexperienced group in the same study.

The results of Taylor and Todd (1995) study of inexperienced and experienced users confirmed that there is a stronger correlation between behavioral intention and behavior (usage) for experienced users. Venkatesh (2000) found that as direct experience with technology increases over time, individuals have a better assessment of the benefits and costs associated with using that technology. R. Agarwal & Prasad (1999) report a strong relationship between an individual's prior experience with similar technologies and their behaviour toward utilising that technology. Szajna (1994) found that usefulness directly determines intentions and usage behaviour as an individual becomes more experienced with information technology.

Perceived Usefulness (Z1)

The perceived usefulness variable has an AVE value above 0.5, as seen in table 4, i.e. 0.573, which shows that this variable in this study can be considered valid regarding discriminant validity. Cronbach's Alpha Value is 0.889 on table 4, so it shows that all variables have a high level of reliability. Based on table 6, it shows that perceived usefulness (Z1) has a coefficient of determination (R²) of 0.878, this shows that the variables Trust (X1), Attitude (X2), Experience (X3), and Perceived Ease of Use (Z2) have an influence on perceived usefulness (Z1) of 87.8%. This value is above 0.75, which means that Trust (X1), Attitude (X2), Experience (X3), and perceived ease of use (Z2) have a strong influence on Perceived Usefulness (Z1).

Based on table 7, the results of the first hypothesis (H1) test show that the coefficient of influence of Trust (X1) on perceived usefulness (Z1) is 0.191 and the p-value is 0.000 which is smaller than 0.05, meaning that trust (X1) has a significant positive effect on perceived usefulness (Z1). Furthermore, the second hypothesis (H2) test, namely the coefficient of influence of attitude (X2) on perceived usefulness (Z1) is 0.466 and the p-value is 0.000 which is smaller than 0.05, meaning that attitude (X2) has a significant positive effect on perceived usefulness (Z1). The results of the third hypothesis (H3) test show that the coefficient of influence of experience (X3) on perceived usefulness (Z1) is 0.214 and the p-value is 0.000 which is smaller than 0.05, meaning that experience (X3) has a significant positive effect on perceived usefulness (Z1).

The results of the study on table 6 show that the coefficient of influence of perceived usefulness (Z1) on attitude toward using (Y1) is 0.431 and the p-value is 0.000 which is smaller than 0.05, meaning that perceived usefulness (Z1) has a significant positive effect on attitude toward using (Y1). Gu et al. (2009) also empirically support the role of perceived usefulness (PU) in contributing to customers' intention to use mobile banking. Recently Hanafizadeh et al. (2014) supported the essential role of perceived usefulness in motivating Iranian customers to adopt mobile banking. According to the model of personal computing utilisation (MPCU), actual usage behaviour can be directly influenced by perceived consequences (e.g., perceived usefulness, job fit) (R. L. Thompson et al., 1991).

According to Triandis (1977), Individual behaviour is usually determined by the potential behavioural outcomes that are interesting and more likely to be noticed. Al Qeisi & Al-Abdallah (2013) support this assumption by confirming a strong relationship between performance expectations, a factor similar to perceived usefulness as proposed by Venkatesh et al. (2003) and actual Internet banking use by Jordanian customers. Similarly, Zhou et al. (2010) empirically agreed on a significant relationship between performance expectations and actual mobile banking adoption.

In considering the Technology Acceptance Model, perceived usefulness is linked to several crucial factors, including effectiveness, performance, and productivity. Perceived usefulness refers to the extent of an individual's belief that using a specific system will enhance his/her job performance (F. D. Davis, 1989). The literature has identified perceived usefulness as a noteworthy determinant of technology acceptance. Lee, Kozar, and Larsen's research found a positive relationship between perceived usefulness and purchase intention in 74 studies (Y. Lee et al., 2003).

The expanded version of the basic Technology acceptance model by Uche et al. (2021) maintains the perceived ease of use of the Technology acceptance model from Davis (1989) as a direct determinant of attitudes and antecedents of intention to use (IU). These factors directly and indirectly impact self-efficacy and technical needs (Davis, 1989). Extensive research has been conducted in recent years, providing ample evidence to support the significant impact of this factor on a consumer's intention to

use a product or service. Specifically, it examines whether it influences perceived usefulness (Khalifa & Ning Shen, 2008), (S. Kim & Garrison, 2009), (Luarn & Lin, 2005), (Wei et al., 2009).

Perceived Ease of Use (Z2)

The perceived ease of use variable has an AVE value is 0.601, above 0.5, as seen in table 4 shows that this variable can be considered valid regarding discriminant validity. Cronbach's Alpha Value is 0.897 on table 4, so it depicts that all variables have a high level of reliability. Based on table 7, it can also be seen that the variable perceived ease of use (Z2) has a coefficient of determination (R²) value of 0.744, which indicates that the variables Trust (X1), Attitude (X2), and Experience (X3) have an influence on perceived ease of use (Z2) of 74.4%. This value is above 0.75, which means that trust (X1), attitude (X2), and experience (X3) have a strong influence on perceived ease of use (Z2).

The results of the fourth hypothesis test (H4) show that the coefficient of influence of trust (X1) on perceived ease of use (Z2) is 0.693 and the p-value is 0.000 which is smaller than 0.05, meaning that Trust (X1) has a significant positive effect on Perceived Ease of Use (Z2). Furthermore, the fifth hypothesis test (H5) is the coefficient of influence of attitude (X2) on perceived ease of use (Z2) of 0.113 and the p-value is 0.001 which is smaller than 0.05, meaning that Attitude (X2) has a significant effect on perceived ease of use (Z2). Then the sixth hypothesis test (H6) is the coefficient of influence of experience (X3) on perceived ease of use (Z2) of 0.108 and the p-value is 0.039 which is smaller than 0.05, meaning that experience (X3) has a significant positive effect on perceived ease of use (Z2).

The results of the study showed that the coefficient of influence of perceived ease of use (Z2) on perceived usefulness (Z1) was 0.183 and the p-value was 0.000, which was smaller than 0.05, meaning that perceived ease of use (Z2) had a significant positive effect on perceived usefulness (Z1). Furthermore, the results of the study also showed that the coefficient of influence of perceived ease of use (Z2) on attitude toward using (Y1) was 0.257 and the p-value was 0.011, which was smaller than 0.05, meaning that perceived ease of Uue (Z2) had a significant positive effect on attitude toward using (Y1).

Perceived ease of use (PEOU) can be important in determining customers' intention to use the technology. This idea has been empirically supported by various mobile banking studies from Akturan & Tezcan (2012), Gu et al. (2009), Hanafizadeh et al. (2014), Luarn & Lin (2005b), and Püschel et al. (2010). According to the argument of Davis et al. (1989), individuals may engage in a cognitive trade-off process, weighing the effort required to successfully implement technology against the benefits gained from using it. The causal relationship between perceived usefulness and perceived ease of use has been widely supported by many researchers, who studied customer adoption of mobile banking (Gu et al., 2009) (Luarn & Lin, 2005).

Based on Isaac et al. (2016) reflect that perceived ease of use significantly impacts perceived usefulness. Several studies have explored the impact of perceived ease of use on actual system usage. For instance Kim et al. (2007) suggested a positive relationship between perceived ease of use and system usage in internet technology. Similarly, studies have highlighted the positive influence of perceived ease of use on actual usage in various technological contexts and applications (Elkhani et al., 2014), (Kripanont, 2007); (Konradt et al., 2006), (McFarland & Hamilton, 2006), (Teo et al., 1999). However, contrasting results suggested that perceived ease of use does not affect actual usage (S. Lee & Kim, 2009).

The information systems literature claims that the greater a system's perceived ease of use, the greater its perceived usefulness (Elkhani et al., 2014). This claim is also supported by Lee (2009) in the context of e-Learning. The relationship between perceived ease of use and perceived usefulness has also been studied frequently in information systems. Several studies have shown a positive relationship between the two variables (Bhatiasevi & Yoopetch, 2015); (S. et al., 2014); (Y.-H. Lee, Hsieh, & Hsu, 2011) (Y.-H. Lee, Hsieh, & Ma, 2011); (M.-C. Lee, 2009); (Ha & Stoel, 2009); (Luarn & Lin, 2005b). This research actually contradicts others, who concluded that perceived ease of use did not predict perceived usefulness (D. Y. Lee & Lehto, 2013).

Attitude toward Using (Y1)

The attitude toward using variable has an AVE value above 0.5, as seen in table 4, i.e. 0.790, which shows that this variable in this study can be considered valid regarding discriminant validity. Cronbach's Alpha Value is 0.938 on table 4, so it shows that all variables have a high level of reliability. From table 6 it can also be seen that the attitude toward using variable (Y1) has a coefficient of determination (R^2) of 0.430, this shows that the variables perceived usefulness (Z1) and perceived ease of use (Z2) have an influence on attitude toward using (Y1) of 43.0%. This value is between 0.25 and 0.5, or close to 0.5, which means that perceived usefulness (Z1) and perceived ease of use (Z2) have a moderate influence on attitude toward using (Y1).

The results of the study show that the coefficient of influence of Attitude toward Using (Y1) on Actual System Use (Y2) is 0.659 and the p-value is 0.000 which is smaller than 0.05, meaning that Attitude toward Using (Y1) has a significant positive effect on Actual System Use (Y2). In Ethiopia, almost all of the studies utilized an adapted version of the Technology acceptance model (Alemayehu, 2017), (Mulualem, 2015), and (Nesibu, 2017) found that both variables (PU and PEOU) have a significant and positive influence on mobile banking adoption. On the other hand, Kalkidan (2016) and Yusuf (2017) found that only one of the two variables had a significant influence, namely perceived usefulness and perceived ease of use.

Other studies depict that perceived usefulness has a positive and significant impact on mobile banking (Al-Fahim et al., 2024). This is consistent with previous

research Mutahar. et al. (2022) (Dokhanian et al., 2022) in different contexts and applications, which reported a significant positive effect of perceived ease of use on perceived usefulness. These findings are also in line with the studies by Alrajawy et al. (2017), Mutahar et al. (2022), Aslam et al. (2023), all of which empirically demonstrate that perceived usefulness and ease of use have positively influence on intention to use mobile banking services.

The information systems literature claims that the greater a system's perceived ease of use, the greater its perceived usefulness (Elkhani et al., 2014). This claim is also supported by Lee (2009) in the context of e-Learning. The relationship between perceived ease of use and perceived usefulness has also been studied frequently in information systems. Several studies have shown a positive relationship between the two variables (Bhatiasavi & Yoopetch, 2015); (S. et al., 2014); (Y.-H. Lee, Hsieh, & Hsu, 2011) (Y.-H. Lee, Hsieh, & Ma, 2011); (M.-C. Lee, 2009); (Ha & Stoel, 2009); (Luarn & Lin, 2005). This research actually contradicts others, who concluded that perceived ease of use did not predict perceived usefulness (Lee & Lehto, 2013).

Actual System Use (Y2)

The perceived ease of use variable has an AVE value of 0.601, above 0.5, as seen in Table 3. This shows that this variable can be considered valid regarding discriminant validity. Cronbach's Alpha Value is 0.897 in Table 5, so it depicts that all variables have a high level of reliability. In addition, Table 6 shows that the Actual System Use (Y2) variable has a coefficient of determination (R^2) value of 0.434. This indicates that the Attitude toward Using (Y1) variable influences Actual System Use (Y2) by 43.4%. This value is between 0.25 and 0.5, which is close to 0.5, indicating that Attitude toward Using (Y1) moderately influences Actual System Use (Y2).

In previous studies, perceived usefulness has been used as a critical antecedent of user attitudes towards using mobile banking services (Aboelmaged & Gebba, 2013), (Raza et al., 2017), (Ghazali et al., 2018). In addition, Mohammadi (2015) found that the perceived usefulness and the efficiency of mobile banking systems positively impact the attitudes of Iranian mobile banking users. A study conducted by Deventer et al. (2018) explained that perceived ease of use significantly impacts attitude toward mobile banking (attitude toward using), and the same thing occurs to perceived relative advantage (perceived usefulness). This research also elucidates that attitude toward mobile banking significantly affects banking usage behavior (actual system use). Analysis of Technology acceptance model studies by (Legris et al., 2003) and (Sun, 2003) revealed significant relationships between each construct. Based on these findings, a modified technology acceptance model was developed for mobile banking.

CONCLUSION

Like many other industries in Indonesia, financial sector has grown and innovated within its spheres of operation. The technology acceptance model is one of the most accepted theories for explaining technology assimilation in banking. This assimilation encompasses how much technology spreads among Islamic banks and their customers. The Technology acceptance model model was used to develop a reasonably modified model to test consumers' acceptance of Islamic mobile banking technology. Technology acceptance model was used, studied, and analyzed for its statistically significant correlations.

The results of this study show that all ten hypotheses proposed were proven to be accepted. This indicates that Indonesian people understand mobile banking technology. This study manifests that the perceived usefulness variable is the most significant factor influencing attitudes toward the system and actual system use in five well-known Islamic banks in Indonesia. This means that using mobile banking technology benefits customers by allowing them to avoid going to an ATM to carry out financial transactions. Furthermore, perceived ease of use is the second most significant factor influencing mobile banking adoption. It suggests that customers are inclined to use mobile banking because it is user-friendly. Additionally, the attitude toward using mobile banking also plays a significant role, as customers feel comfortable and secure while using it. As for the actual system use, customers respond well to mobile banking technology, accessing and conducting financial transactions with a reasonably high frequency.

The results of this study can provide implications for management both practically and theoretically. Practical implications can be used to determine the mobile banking strategy policy of Islamic banking related to customer behavior. Indonesia has enormous potential in the Islamic banking sector. Moreover, the results of this study can be used as reference material to determine the strategy policy for introducing and understanding the progression of mobile banking technology. In theory, this study examines the antecedents of trust, attitudes, and experiences of Islamic bank customers toward the usefulness and ease of using mobile banking technology. So, both have a major influence on the actual use of mobile banking.

The future research can be expanded in several ways. First, by searching other external variables that can influence the use of mobile banking applications, such as religion, subjective norms, self-efficacy, compatibility, and social influence. Second, by using moderation variables, such as psychological, cultural, and environmental factors can also be added. In addition, research can be conducted in various fields to see how these factors vary in different geographic and social contexts.

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