

Adoption of Digital Micro Wakaf Bank by Ultra-Micro and Micro Businesses in Indonesia

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ABSTRACT

Keywords:

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Background: Micro, small, and medium enterprises (MSMEs) are the backbone of the economy of Indonesia. Despite that fact, ultra-micro and micro-entrepreneurs still face several constraints. Micro Waqf Bank (MWB) is one solution that utilizes Islamic social funds. This solution develops digital financial services to expand access to financing, efficiency of services, and business development. The limited study of ultra-micro and micro entrepreneurs' adoption of MWB's digitalization makes this research important.

Method: This research uses a mixed-methods approach, combining quantitative and qualitative methods. In this research, a sequential/stepwise mixed-methods strategy was used, with a sequential exploratory design. The analysis technique used in this research is a qualitative descriptive analysis technique, or what is usually called explanation making, namely, by using data analysis methods and describing the results of interview observations to find out in depth about the adoption of digital MWB in the 5 MWBs. The quantitative method data analysis technique used by researchers uses the Partial Least Squares (PLS) method with SmartPLS software.

Results: The research results show that there are several obstacles that prevent the use of the MWB mobile from being used comprehensively. However, the intention of ultramicro and micro business actors who are BMW customers to use and adopt the BMW application or other digital BMWs as a means of payment transactions and personal and business development for business actors is quite good.

Conclusion: This study shows that the use of mobile MWB has not yet reached its full potential due to various challenges in its implementation and adoption. However, ultra-micro and micro business owners, as MWB customers, demonstrate a strong interest in using MWB's digital services for transactions, business development, and capacity building. These findings highlight the importance of enhancing usability, aligning with the needs of MSMEs, and ensuring transaction security to increase the adoption of MWB's digital services.

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INTRODUCTION

Micro, small, and medium enterprises (MSMEs) play an essential role in local economic activities (Abduh et al., 2024; Barkley & Jokonya, 2024; Weerakoon et al., 2026). However, many MSME actors still encounter difficulties in obtaining financing from the banking sector and other formal financial institutions (Bisht & Singh, 2020; Saifurrahman & Kassim, 2024; Wardhono et al., 2019; Zaluchu et al., 2022). This has happened due to technical and non-technical constraints. For example, the existence of insufficient collateral. Also, the limited access to information. Due to this issue, one of the alternative solutions that emerged was Islamic social finance to help the productive poor community and ultra-micro business actors. One institutional form developed for this purpose is the Micro Waqf Bank (MWB), which finances and empowers, especially for communities around Islamic boarding schools.

This study investigates the adoption and use of digital services and products by non-bank financial institutions, such as Micro Waqf Bank (MWB), among ultra-micro and micro-business actors who use MWBs by integrating the TRI and TAM models (Mahmood et al., 2023; Musyaffi et al., 2022). The study aims to identify and analyze MWB customers' user experiences. Technology adoption models have been widely used across fields, including education (El Amri et al., 2024; Habibi et al., 2026), finance (Jena, 2025; Mahmood et al., 2023), banking (Othman et al., 2019; Toan Duc Le et al., 2018), Islamic fintech and Islamic social finance, and e-commerce (Shaikh et al., 2020). Recent studies have also confirmed the relevance of technology adoption frameworks in Islamic financial services and fintech innovation (Maniam, 2025; Suswanto et al., 2025).

However, research regarding the adoption of MWB digitalization in Indonesia remains limited (Abdullah et al., 2024; Hasiba et al., 2021; Wuryan et al., 2025). This condition indicates an important research gap in which MWB has a distinctive character as an Islamic social finance institution focused on empowering productive poor communities and ultra-micro business actors, especially in the 'pesantren' environment (Disemadi & Roisah, 2019; Fuadi et al., 2021; Hasiba et al., 2021). The empirical studies observe the service adoption and use of customers on digital MWB services, which have also been recently digitalized. As a result, this research is important in analyzing the factors that affect the adoption and use of digital MWB by ultra-micro and micro business actors in Indonesia.

This research will not only examine adoption behavior but also seek to examine how to implement digital MWB and the challenges faced by MWB managers as well as its customers during its adoption. Thus, the study employs both qualitative and quantitative methods. The aim of phase 1 qualitative research is to explore the implementation of digital MWB and barriers to its implementation in practice. Whereas the aim of phase 2 quantitative is to test the determinants of customers' intention to adopt digital MWB. The research design exhibits conformity in terms of the mixed-method sequential exploratory design as described in the methodology section of the upload draft.

This study occasions theoretical frameworks hailing from technology readiness and technology acceptance. The four dimensions of the Technology Readiness Index (TRI), namely optimism, innovativeness, discomfort, and insecurity, explain how users' readiness toward technology influences their perception of digital MWB. The study employs the Technology Acceptance Model (TAM) in explaining customer adoption behavior through perceived usefulness, perceived ease of use, attitude, and intention to use. The conceptual model shows that optimism, innovativeness, discomfort, and insecurity lead to PU and PEOU, and then PU and PEOU influence attitude, and attitude influences intention to use digital MWB.

Based on this framework, the proposed research model of this study is represented in Figure 1 below.

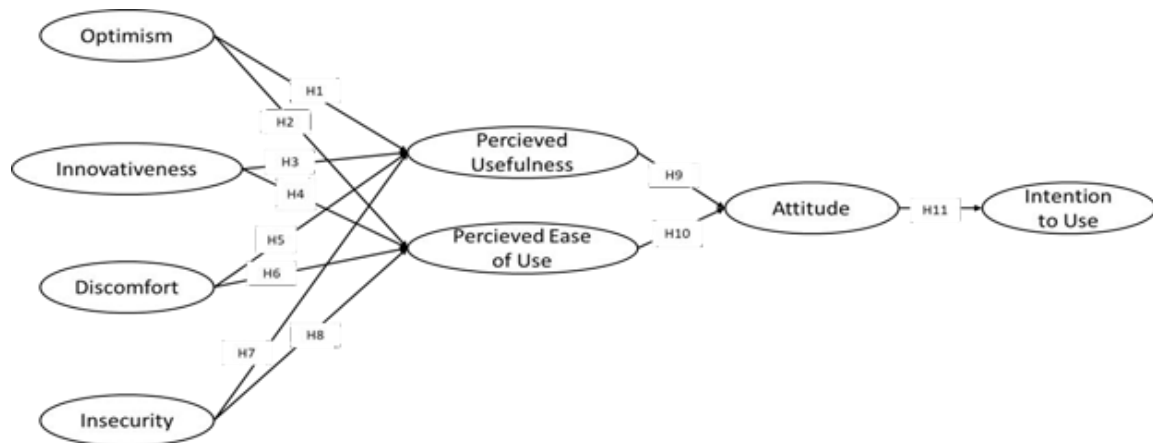


Figure 1: Research Model

Figure 1 illustrates the proposed relationships among the TRI and TAM constructs in explaining the intention to use digital MWB services.

Based on the proposed model, the hypotheses proposed in this study are as follows: H1: Optimism influences perceived usefulness; H2: Optimism influences perceived ease of use; H3: Innovativeness influences perceived usefulness. H4: Innovativeness influences perceived ease of use; H5: Discomfort influences perceived usefulness; H6: Discomfort influences perceived ease of use; H7: Insecurity influences perceived usefulness; H8: Insecurity influences perceived ease of use; H9: Perceived usefulness influences attitude; H10: Perceived ease of use influences attitude; H11: Attitude influences intention to use digital MWB.

The study adds to the literature on technology adoption by integrating TRI and TAM models in the context of Islamic social finance, namely, the digitalization of micro waqf banks, which remains underexplored in prior studies. The results are likely to offer insight to regulators, MWB managers, and other similar institutions in their endeavor to create digital services that are more inclusive, accessible, and functional for ultra-micro and micro-business actors in Indonesia.

METHOD

This research employs a mixed-method approach that combines quantitative and qualitative methods. A sequential explanatory mixed-method design was used in this study. In the first phase, quantitative data were collected and analyzed to examine the factors determining ultra-micro and micro business actors' intentions to adopt digital MWB. In the second phase, qualitative data were collected and analyzed to further explain, support, and triangulate the quantitative findings, particularly regarding the implementation of digital MWB and the obstacles faced by MWB administrators, MWB members, and ultra-micro and micro business actors as customers in adopting digital MWB.

Four provinces in Indonesia, namely West Nusa Tenggara, West Sumatra, North Sumatra, and East Java, were used in this study. The locations of the research were 5 Micro Waqf Banks, namely: (1) MWB PPM Al Kautsar, Limapuluh Kota, West Sumatra; (2) MWB Mawaridussalam Serdang Deli, North Sumatra; (3) MWB ATQIA Bonder, Central Lombok; (4) MWB Al-Fitrah Wava Mandiri; and (5) MWB Bahrul Ulum Barakah Sejahtera.

Overall. There are 62 micro waqf banks operating in 20 provinces in Indonesia with around 60,000 customers. The quantitative phase sample was determined based on the Slovin formula, resulting in a final sample size of 424 people. Customers of MWB are the respondents selected by the researchers through the purposive sampling method. This sampling technique was used due to the respondents allegedly having first-hand experience relating to the use and adoption of digital MWB services.

The quantitative phase of this research involved MWB members as respondents. Data in this phase were collected through a structured questionnaire using a Likert scale. Meanwhile, the qualitative phase involved MWB administrators and MWB members as informants. Data in the qualitative phase were

gathered through interviews and observations. The qualitative data were used to support the triangulation of data and information obtained from the quantitative phase.

The qualitative phase analysis technique used was descriptive qualitative analysis using the making-an-explanation approach by describing the results of interviews and observations to understand the adoption of digital MWB in five MWBs in depth. In the quantitative phase, the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. The evaluation of the structural model and measurement model evaluation of measurement and structural model proposed by the research. The measurement model assessment covers convergent validity, discriminant validity, and reliability. Meanwhile, the structural model evaluation examines path coefficients and the relationships among latent variables based on the proposed research model integrating the Technology Readiness Index and the Technology Acceptance Model.

RESULTS AND DISCUSSION

Quantitative Study

Respondents in this research are members of the Micro Waqf Bank (MWB) who are ultra-microentrepreneurs who have received financing from MWB. The population of this research is 62 micro waqf banks spread across 20 provinces in Indonesia, with a total of 60,000 customers.

Table 1. Respondent Demographic Data

Gender	Frekuensi	%	Longtime Member	Frekuensi	%
Male	0	-	1-3 Year	126	30%
Female	424	100%	>3 Year	298	70%
Age			Amount of Financing		
21-30	60	14%	Rp 1.000.000 - Rp 2.000.000	180	42%
31-40	166	39%	Rp 2.000.001 – Rp 3.000.000	244	58%
>40	198	47%			

The demographic profile reveals that most respondents are female and above 40 years old. This is relevant in explaining technology adoption behavior, especially related to digital literacy and not adopting the technology due to traditional generational perspectives.

An important characteristic of the sample is that all respondents were female. This reflects the operational model of Micro Waqf Banks (MWBs), where financing groups are predominantly composed of women from ultra-micro and low-income households. Similar to the Grameen Bank approach, MWBs prioritize women because they are considered more active in household economic activities, exhibit stronger repayment discipline, and play a central role in family welfare improvement (Yunus, 2007; Armendáriz & Morduch, 2010). Therefore, the gender composition of the sample is not the result of sampling bias but reflects the actual demographic structure of MWB customers. Nevertheless, the findings should be interpreted with caution and may not be fully generalizable to male micro-entrepreneurs or other Islamic financial service users.

Analysis of the research model in this study uses the SEM-PLS method, which includes the evaluation stage of the reflective measurement model (measurement model) and the evaluation stage of the structural model (structural model). Evaluation of the reflective measurement model uses convergent validity, discriminant validity, and composite reliability (CR).

Table 2. Measurement Model Results

Construct	CR	AVE	Status
Optimism	0.908	0.768	Valid
Innovativeness	0.883	0.790	Valid
Discomfort	0.877	0.781	Valid
Insecurity	0.750	0.513	Valid
PU	0.885	0.720	Valid
PEOU	0.773	0.633	Valid

Attitude	0.885	0.731	Valid
Intention	0.899	0.749	Valid

All constructs meet the requisite thresholds for both convergent validity (the average variance extracted (AVE) exceeds 0.5) as well as reliability (composite reliability (CR) exceeds 0.7). Some indicator loadings are below the 0.7 threshold; however, these indicators were retained as the overall construct validity is acceptable.

Table 3. Structural Model (Path Coefficients)

Path	β	Result
Optimism → PU	0.714	Significant
Optimism → PEOU	-0.233	Significant
Innovativeness → PU	0.197	Significant
Innovativeness → PEOU	0.070	Not Significant
Discomfort → PU	-0.024	Not Significant
Discomfort → PEOU	0.594	Significant
Insecurity → PU	0.054	Significant
Insecurity → PEOU	0.062	Not Significant
PU → Attitude	0.790	Significant
PEOU → Attitude	-0.079	Significant
Attitude → Intention	0.830	Significant

From the information in the table, in general, most of the hypothesized relationships are supported, except for innovativeness on perceived ease of use, discomfort on perceived usefulness, and insecurity on perceived ease of use, which are not supported.

The preceding quantitative results demonstrate the relationships among the variables in the proposed model. However, understanding these findings, particularly the significant and unexpected associations, requires further explanation. Therefore, the next section presents the qualitative findings, which are used to explain, support, and enrich the interpretation of the quantitative results in light of relevant theories.

Qualitative Study

The qualitative findings indicate that customers have not yet fully utilized the digital Micro Waqf Bank (MWB) services, in particular, the BMW mobile application. The observation of five MWBs showed limited use of the application, even though socialization was initiated during the early pandemic of COVID-19.

An MWB Al Kautsar administrator explained that

“The use of MWB Mobile was introduced during the pandemic, and customers showed initial interest. However, until now, its implementation has not run optimally.”

This condition is consistently observed across other MWBs. A supervisor at MWB ATQIA stated:

“Even though socialization was conducted, currently almost no customers are actively using MWB Mobile.”

Findings indicate that the obstacles encountered in adoption are not merely technical but also structural and behavioral.

Lack of digital literacy is clearly a major constraint. Most customers are middle-aged or elderly women who are not very educated, and they have difficulty understanding or using mobile-based applications. According to a manager from MWB Ulum Barokah Sejahtera, this problem undermines their confidence in utilizing digital services independently.

“Most of our customers are elderly women, many of them over 50 years old, so even using a mobile phone is still difficult.”

Another barrier to adoption is limited access to digital devices, especially smartphones. Many customers don't have Android smartphones, and among those who do, many don't know how to use them. An MWB administrator at Al Kautsar confirmed this.

“Most customers don't require Android smartphones, and even those who have them lack the skills to operate them.”

Economic constraints also matter crucially. The cost of internet data packages is considered a burden on finances, especially for ultra-micro business actors whose income does not stabilize. Consequently, necessities take precedence over access to digital devices for customers.

According to MWB's management, infrastructure constraints are particularly weak internet connectivity in rural and remote areas, further impeding the effective utilization of digital MWB services. According to MWB's management.

“Network signal is one of the main obstacles because many customers live in remote areas where internet access is limited.”

Furthermore, the results indicate that consumers do not feel urged to adopt digital services since the usual face-to-face services are accessible. HALMI meetings (weekly gatherings to enhance customers' knowledge and skills) allow customers to directly make installment payments in cash, decreasing the perceived need for the utilization of apps.

Consumers find interest in using digital services in spite of these challenges. Yet structural constraints often mean that this intention is not achieved. One of the informants stated that:

“While customers are genuinely interested, there are many barriers that make it difficult to use the application.” The appearance of a different adoption

Moreover, the results show the appearance of a different adoption pattern. Customers rarely use the MWB Mobile application directly, but they are increasingly using other digital financial services such as BSI Smart. This service is done by MWB staff and not by customers like MWB Mobile. As noted by an AL Kautsar MWB administrator.

“Customers do not need to have smartphones or internet access because BSI Smart is operated by us; it makes it easier for customers.”

This shows that there is an indirect digital adoption model where intermediaries supply services to customers. This pattern indicates that resistance to technology is not the primary concern; substantially, limitations in users' abilities, access to resources, and supporting infrastructure limitations inhibit the transition from intention to actual usage of digital MWB services.

An important qualitative finding of this study is the emergence of an assisted digital adoption model through BSI Smart, where MWB staff operate the digital platform on behalf of customers. This pattern reflects not only technological limitations but also the communal nature of financial interactions within pesantren-based communities. From an Islamic perspective, this phenomenon can be associated with the concept of *jama'ah* (collective participation) and the role of trusted intermediaries in facilitating social and economic transactions. Rather than emphasizing individual technology use, customers often rely on trusted community representatives who possess greater digital competence.

This finding suggests that technology adoption within Islamic social finance institutions may differ from conventional technology adoption models, which typically assume direct interaction between users and technology. In the MWB context, trust-based intermediation serves as an important mechanism for bridging digital divides. Therefore, assisted digitalization may represent a more culturally appropriate pathway for expanding financial inclusion among ultra-micro and micro entrepreneurs than fully self-service digital models in underserved communities (Dusuki, 2008; Hassan et al., 2022).

The quantitative findings presented above provide statistical evidence of the relationships among the variables in the proposed model. However, these results require further interpretation to understand their meaning within the context of digital MWB adoption. Therefore, the following discussion integrates relevant theoretical perspectives with qualitative findings from interviews and observations to explain, support, and enrich the quantitative results.

This research aims to determine the application of digital MWB in Indonesia and to identify the factors that influence the intentions/interest of ultra-micro and micro-business actors in adopting digital MWB in the form of the MWB Mobile and BSI Smart applications. Apart from that, this research was also conducted to determine the extent to which these intentions/interests encourage them to use digital MWB products/services in the form of MWB mobile and BSI Smart, as well as the obstacles that contribute to the adoption of digital MWB.

Based on the results of data analysis obtained through interviews and observations in the field, it is clear that the implementation of digital micro waqf bank products or services, such as MWB Mobile, cannot be carried out optimally and massively, even though socialization has been carried out. This is different from using the BSI smart application, which is also one of the services/products provided by micro waqf banks. BSI Smart has been more widely used by customers to date. It's just that for BSI Smart, the operation is not done by customers but by MWB managers and supervisors using EDC or applications provided by BSI.

Based on explanations from customers and managers, there are obstacles to using MWB Mobile due to external and internal factors. Internal factors come from the conditions of customers who accept and use the MWB mobile application. Based on the statements of managers and supervisors, many customers experience problems in using it because the limited type of cell phone they own cannot support the use of the application. The age factor also contributes to internal barriers to using the application. Many customers aged 40 years and over are Gen X (Alphonso, 2016). One factor influencing technology use and engagement, including digital technology, is age (Ahmad & Dixit, 2025; Han & Ko, 2025). The majority of them have low education, so understanding and getting used to using it requires more effort. Economic factors also contribute to obstacles, where MWB customers are ultra-micro business actors from productive poor communities who are unbankable. So if you want to actively use the MWB mobile application, it will increase their costs.

To understand the extent of digital MWB adoption, the factors that influence the intention to adopt digital MWB, and the implementation and obstacles of digital MWB, researchers used a mixed-methods approach consisting of two studies. The first study used a quantitative survey involving 424 respondents from 5 MWB in Indonesia. The integration of the TRI (Technology Readiness Index) and TAM (Technology Acceptance Model) frameworks in this research was used to predict the intention to adopt digital MWB among ultra-micro and micro businesses in Indonesia. TAM has 2 main theoretical constructs, namely, perceived usefulness and perceived ease of use. The optimism and innovativeness variables in the TRI model are drivers of technology readiness. The integration of the TRI and TAM models is supported by previous research (Martens et al., 2017; Rafdinal & Senalajari, 2020).

The results of data analysis show that innovation has no significant effect on perceived ease of use. This is reinforced by the results of interviews, where they stated that they felt the application was quite complex, so even though it was innovative, if they found it difficult to understand or use the innovation, then the perception of ease of use remained low. This is also supported by the respondents' educational backgrounds, the majority of whom are lowly educated.

Another obstacle that drives respondents' low digital adoption intentions is also resistance to change. This is because many of the customers are elderly women (40 years and over), and they have little exposure to technology. Mobile phones have not been used optimally for work/supporting business development. Apart from the limited sophistication of the cellphones they own, the use of cellphones is limited to making telephone calls and sending SMS or photos, so they do not feel that using this innovation is easy, and even though it is innovative, it is felt that it does not meet their needs at that time. Furthermore, this is compounded by the lack of training and understanding, even though socialization has been carried out. Seeing the lack of response from business actors when given socialization regarding digital MWB, conditions after Covid-19 have returned to the essence of HALMI activities, namely, weekly face-to-face interaction, training, and providing understanding of digital technology, which was not continued. The limitations of their cellphones and lack of understanding make them feel difficult and not confident in using them. Apart from that, external factors, namely the difficulty of getting an internet connection, are also an obstacle for those who want to use it.

Insecurities do not have a significant effect on perceived benefits. The results of this research show that in some cases, the influence of insecurities on perceived usefulness is not always negative. This

happens when security and privacy issues are handled well, so that users can increase the perception of usefulness of technology. The benefits of having digital MWB are felt to be very helpful during the COVID-19 pandemic. MWB mobile can be a solution to fulfill urgent problems such as purchasing electricity credit, cell phone credit, transferring funds, and other economic transactions. So that customers, as users, are willing to overcome feelings of distrust/insecurity to fulfill these needs. This finding is supported by the results of interviews with both MWB managers and customers, where this digital MWB was.

From an Islamic perspective, the finding that insecurity does not significantly reduce perceived usefulness can be understood through the concepts of *amanah* (trustworthiness) and *tawakkul* (reliance upon Allah). In Islamic financial transactions, users often place trust not only in technological systems but also in the institutions and individuals managing them. Micro waqf banks are embedded within *pesantren* communities, which generally enjoy strong moral legitimacy and social trust (Dusuki, 2008; Hassan et al., 2022). Consequently, concerns regarding technology security may be mitigated by confidence in the institution's integrity and adherence to Islamic values. This suggests that trust in Islamic institutions may complement technological trust in shaping users' perceptions of digital financial services (Chapra, 2000; Hassan et al., 2022).

Furthermore, the COVID-19 pandemic created circumstances in which digital financial services became necessary for maintaining economic and social activities. This finding can also be interpreted through the Islamic principle of *darurah* (necessity), which allows flexibility in responding to extraordinary conditions. During the pandemic, customers continued using digital services despite feelings of insecurity because these services enabled essential transactions, financing activities, and participation in MWB programs. Thus, perceived usefulness outweighed concerns about technology-related risks, illustrating how necessity can influence technology adoption behavior within an Islamic social finance context.

Launched during the pandemic as a solution to keep MWB activities running smoothly despite government regulations for social distancing and lockdowns, Halmi activities, payment installments, and other transactions that customers require can still be made without having to come to MWB, the bank, or the place where payment and purchase transactions have to be made. Even though customers feel uncomfortable or don't trust using the MWB mobile, they still use it during the pandemic, and for BSI Smart, they still use it today.

Other inconveniences also come from economic limitations during the pandemic. Where to use micro waqf bank mobile apps customers must have an internet quota, and this is an additional cost for them when they want to use it. Apart from that, the internet also causes inconvenience when doing Halmi via Zoom. But this does not reduce the benefits felt from using the MWB mobile during the pandemic. Apart from inconvenience, distrust, especially by customers who do not have a suitable cellphone to use the application, so they have to use someone else's cellphone (children, husband, or other family members), is also a factor that contributes to discomfort. These customers feel worried that the funds that can be accessed from the application are used by other people for their personal interests. But this also does not affect the perceived benefits of having mobile MWB.

The research results show that the optimism factor influences the formation of perceptions of ease of use and usefulness. Optimism describes the user's belief that technology has benefits, while innovativeness describes the tendency to want to experiment with technology (Parasuraman, 2000). This shows that optimism regarding the benefits of the MWB Digital application brings the perception that technology is able to provide features that are easy to operate and can increase their effectiveness and productivity.

Innovation factors also influence the formation of perceptions of usefulness. This shows that MWB Digital has features that are useful and easy to use. Based on qualitative data analysis from interviews and observations, MWB mobile has easy and varied features to support customers' economic activities, such as features for payment transactions (PLN, Telkom, BPJS, outlet payments smart, payment of financing, and other bills); transfers (transfers between members, between cooperatives, transfers to bank accounts, transfers to owned accounts, and even to clearing bank accounts); check balances; savings information; financing history; financing mutations; savings balances futures;

purchases (electricity credit, cellphone and internet data, top up Gopay driver, OVO, and link only); and donations.

Beyond functionality and convenience, the adoption of digital financial services in Islamic institutions is closely associated with Islamic digital ethics. Islamic financial technology should uphold principles such as transparency, accountability, fairness, and the protection of users' rights. Therefore, enhancing transaction security, data protection, and transparency mechanisms is not only a technical requirement but also an ethical obligation within Islamic finance. Strengthening these aspects may increase customer confidence and support wider adoption of digital MWB services (Alserhan, 2020; Shaikh et al., 2020; Alshater et al., 2022).

Discomfort influences the formation of perceptions of ease of use. The digital MWB application, which began to be used during the Covid-19 pandemic, is still seen by ultra-micro and micro businesses as a new phenomenon, and they still feel comfortable making installment payments/deposits directly (cash). Apart from that, the socialization carried out to provide understanding to customers regarding the MWB mobile application was not carried out repeatedly and evenly. This was known from interviews with several customers who stated that some did not receive socialization, especially customers who had just joined after the pandemic. This causes some customers to feel uncomfortable and affects their perception of the ease of use of the MWB mobile application. Users who experience discomfort in using new technology find it difficult to use it (Walczuch et al., 2007), so they get less benefit from the technology. This result is consistent with Martens, Roll, and Elliott (2017), who demonstrated that users' technology readiness influences their acceptance of mobile payment systems. Specifically, discomfort with new technology may weaken perceived ease of use, making users less able to utilize the technology effectively and, consequently, less likely to perceive its benefits. In the TAM model, perceived ease of use and perceived usefulness are considered important variables in determining attitudes towards using digital MWB applications. Normatively, the more someone considers digital MWB useful and easy to operate, the better the attitude they will have towards using the application. Therefore, the technology used in mobile financial applications such as mobile banking (in this case, MWB mobile is the same as mobile banking) must be simple and easy to understand to increase acceptance among customers (Al Hammam & Ul Hadi, 2024; Bouhlel & Mzoughi, 2024; Sah & Gautam, 2026). Applications that are easy to use will attract consumers to use them and thus will shape their attitudes (Fatmawati et al., 2023; Naatu et al., 2025; Nor et al., 2024; Norng, 2022). Perceived usefulness and perceived ease of use are related to user perceptions of the technical quality of using digital MWB by ultra-micro and microbusinesses. During COVID-19, people are required to observe social restrictions so that digital payment/deposit transactions can be accommodated by MWB Digital. MWB Digital will be easy to adopt by ultra-micro and micro businesses if the MWB digital application is able to provide benefits and is easy to use during COVID-19. The findings reveal that perceived usefulness has a significant positive influence on attitude toward using digital MWB, which is consistent with the Technology Acceptance Model and previous studies (Lim & Soesilo, 2024; Moti & Walia, 2020; Nugroho et al., 2025; Putri et al., 2021; Sah & Gautam, 2026). However, an unexpected finding is that perceived ease of use exhibits a significant negative relationship with attitude ($\beta = -0.079$), indicating that greater perceptions of ease do not necessarily translate into more favorable attitudes among MWB customers.

An unexpected finding of this study is the significant negative relationship between perceived ease of use and attitude toward digital MWB adoption ($\beta = -0.079$). This result differs from the original Technology Acceptance Model (TAM), which generally predicts that easier technologies lead to more positive user attitudes (Davis, 1989; Venkatesh & Davis, 2000).

The qualitative findings help explain this unexpected result. Although some customers perceived digital services as relatively easy to use, they did not necessarily develop a more favorable attitude toward digital adoption. Many respondents preferred face-to-face interactions through HALMI meetings and group-based transactions, which they perceived as more trustworthy, familiar, and socially meaningful. This finding is consistent with previous studies suggesting that social interaction, trust, and established routines may influence technology adoption more strongly than technical simplicity, particularly among older and low-income users (Walczuch et al., 2007; Han & Ko, 2025).

Therefore, in the context of MWB customers, ease of use alone may not be sufficient to foster positive attitudes toward digital services. Social and cultural preferences may outweigh technological considerations, resulting in a negative relationship between perceived ease of use and attitude.

Attitude has a significant effect on the intention to use or intention to adopt a digital micro-waqf bank; this shows that the user's attitude towards technology can influence the user's intention to use it. Attitudes are expected to facilitate transactions and function to reduce barriers to technological innovation (Akinwale & Kyari, 2022; Hu et al., 2019; Sembiring et al., 2022; Tanchangya et al., 2026; Valsamidis et al., 2020). A positive attitude towards technology will make users tend to have a stronger intention to use it. Users who feel happy and enthusiastic about technology tend to have a higher intention to use it.

The findings from the results of this quantitative data analysis are supported by the results of interviews where MWB mobile was used during the pandemic, and now more customers use BSI Smart, which is also an MWB digital service in collaboration with BSI. Based on these results, it shows that customer attitudes towards using MWB digital are positive, even though customers do not operate directly (BSI Smart); they show an attitude of accepting the existence of digital products/services provided by MWB and have the intention/interest to use them, even though some of them do not use them. Due to external obstacles related to not having an Android cellphone or not having a good internet connection.

Theoretically, this study extends the integration of TRI and TAM by incorporating contextual insights from Islamic social finance. The findings indicate that technology adoption among MWB customers is influenced not only by technological readiness and perceived usefulness but also by Islamic values, institutional trust, social relationships, and community-based support mechanisms. This suggests that future studies on Islamic fintech and Islamic social finance adoption may benefit from integrating conventional technology acceptance theories with constructs such as trust (*amanah*), reliance (*tawakkul*), necessity (*darurah*), and collective participation (*jama'ah*).

Integration of Quantitative and Qualitative Findings

The qualitative findings provide important explanations for several quantitative results. First, the significant influence of optimism on perceived usefulness is supported by interview findings showing that customers recognized the practical benefits of digital MWB services, particularly during the COVID-19 pandemic when digital transactions became necessary. This finding is consistent with technology readiness theory, which argues that optimistic users tend to perceive technology as beneficial and productivity-enhancing (Parasuraman, 2000).

Second, the non-significant relationship between innovativeness and perceived ease of use can be explained by the limited digital literacy of many customers. Although some respondents were interested in new technologies, they lacked the skills and confidence required to operate mobile applications independently. This finding supports previous studies indicating that innovativeness alone does not necessarily translate into perceptions of ease when digital competency remains low (Martens et al., 2017; Mahmood et al., 2023).

Third, the non-significant effect of insecurity on perceived ease of use is supported by qualitative evidence showing that customers often relied on MWB staff or supervisors when using digital services. Consequently, concerns regarding technology security did not directly affect their perceptions of operational ease.

Most importantly, the qualitative findings provide an explanation for the unexpected negative relationship between perceived ease of use and attitude. Interviews revealed that customers frequently preferred conventional face-to-face interactions through HALMI meetings despite acknowledging that some digital services were relatively easy to use. This finding suggests that social interaction, trust, and habitual practices remain important determinants of technology acceptance among ultra-micro entrepreneurs, complementing the technological factors emphasized in TAM (Davis, 1989; Venkatesh & Davis, 2000).

CONCLUSION

This research assesses the uptake of digital Micro Waqf Bank (MWB) services among ultra-micro and micro-business actors in Indonesia through the integration of the Technology Readiness Index and the Technology Acceptance Model. The results show that technology readiness has a significant effect on perceptions, which can be explained by perceived usefulness and perceived ease of use. The attitude,

which is strongly affected by perceived usefulness, significantly influences the intention to use the digital MWB service.

Nonetheless, the actual use of digital MWB services is low despite relatively strong intention levels. Essentially, digital illiteracy, lack of a smartphone, the high cost of internet, and poor infrastructure are the main reasons for the hindrance. The emergence of the assisted digital adoption model is due to users accessing digital services through MWB staff instead of directly on their devices.

This paper extends the literature on technology adoption by demonstrating the need to contextualize models in terms of socio-economic conditions, in this case, Islamic social finance.

The implications of the study indicate that financial regulators and MWB stakeholders should not only prioritize technological developments but also improve digital literacy, expand infrastructure, and strengthen assisted service mechanisms in order to promote the adoption of ultra-micro and micro business actors.

This research study has limitations. Firstly, the sample is limited to a selected micro-waqf bank in Indonesia. Thus, the finding may not fully represent all of MWB Indonesia. Secondly, the study used a cross-sectional design and will not capture changes in user behavior over time. Thus, it is recommended that future studies should broaden the geographical scope and use longitudinal approaches for better insight on digital adoption. Furthermore, the incorporation of other intervening variables, such as social influence or facilitating conditions, may provide a fuller explanation of digital financial service adoption.

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