



Mobile Wallets as a Catalyst for Financial Inclusion and MSME Performance in Emerging Markets

***Resa Nurlaela Anwar**

Universitas Darma Persada,
Indonesia

Devi Anggraeni

Universitas Darma Persada,
Indonesia

***Corresponding author:**

Resa Nurlaela Anwar, Universitas Darma
Persada, Indonesia.

✉ resa.anwar@gmail.com

Article Info:

Article history:

Received: May 02, 2026

Revised: August 04, 2026

Accepted: August 10, 2026

Available Online: September 14,
2026

Keywords:

Business Performance; Financial
Inclusion; Mobile Wallet
Adoption; Perceived Ease of Use;
Perceived Usefulness.



This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Copyright © 2026 by Author. Published by
Politeknik Siber Cerdika International

Abstract

Background: The rapid growth of financial technology, particularly mobile wallets, offers opportunities to enhance financial inclusion and improve micro, small, and medium enterprises (MSMEs) performance in emerging economies. Yet, empirical evidence linking technology adoption to both financial and business outcomes remains limited, especially in regional contexts.

Objective: This study analyzes the determinants of mobile wallet adoption and its impact on financial inclusion and MSME business performance in Pangandaran, Indonesia.

Method: A quantitative design was used with data from 202 MSMEs collected via structured questionnaires. The study applies the Technology Acceptance Model (TAM) framework and Structural Equation Modeling–Partial Least Squares (SEM-PLS) to test the proposed relationships.

Results: Perceived usefulness and perceived ease of use positively and significantly affect mobile wallet adoption, with ease of use as the strongest predictor. Perceived risk and trust do not directly influence adoption; however, perceived risk significantly affects trust, indicating an indirect relationship. Mobile wallet adoption also significantly enhances financial inclusion and business performance, improving access to financial services and operational efficiency. The strongest adoption path is perceived ease of use ($\beta = 0.453$, $t = 4.794$, $p < 0.001$); therefore, reducing interface and training barriers is the most immediate lever for MSME digital-payment uptake.

Conclusion: This study extends TAM by integrating financial inclusion and firm performance as key outcomes, showing mobile wallet adoption as a strategic mechanism to foster inclusive finance and strengthen MSME competitiveness in emerging regions.

To cite this article: Anwar, R. N., & Anggraeni, D. (2026). Mobile wallets as a catalyst for financial inclusion and MSME performance in emerging markets. *INKUBIS: Jurnal Ekonomi dan Bisnis*, 8(3), 2188-2200. <https://doi.org/10.59261/inkubis.v8i3.274>

INTRODUCTION

Rapid digitalization is reshaping financial ecosystems in emerging economies. The Global Findex 2021 reports that 76% of adults worldwide held an account, while digital payments have become an important route for extending financial access to previously underserved users (Demirgüç-Kunt et al., 2022). In Indonesia, mobile wallets can reduce payment frictions for MSMEs, but their benefits depend on the capability of owners to adopt and use the applications in everyday operations. MSMEs contribute more than 60% of Indonesia's GDP and account for over 99% of business entities; yet limited financial access, digital literacy, and technological capacity can constrain their participation in the digital economy. These constraints are salient in Pangandaran, where the study sample is dominated by micro businesses: 99.5% employ one to five workers and 91.6% report annual revenue below IDR 200 million. Although 82.2% of the

sampled MSME actors report using an e-wallet, 54.0% have used one for less than a year, indicating that adoption is recent, and that its financial and performance consequences require examination. Without such evidence, programs that expand digital-payment availability may not translate into sustained financial participation or improved MSME competitiveness (Bahasoan, 2026; Balde, 2026; Tandilino et al., 2025).

Prior mobile-wallet studies predominantly explain consumer-level adoption through usefulness, ease of use, trust, and risk (Aji et al., 2020; Daragmeh et al., 2021). They provide important evidence on adoption intention, but generally do not test whether adoption simultaneously translates into financial inclusion and business performance among micro-scale firms in an emerging regional setting. This study therefore positions mobile-wallet adoption as a post-acceptance mechanism connecting TAM antecedents with financial and business outcomes.

This study extends TAM by integrating financial inclusion and business performance as post-adoption outcomes for MSMEs in Pangandaran. Its novelty lies in testing this integrated pathway in a micro-enterprise-dominated local economy, rather than treating adoption as an endpoint or examining financial and firm outcomes separately. The study aims to examine the effects of perceived usefulness, perceived ease of use, perceived risk, and trust on mobile-wallet adoption; to test the effect of perceived risk on trust; and to assess whether adoption improves financial inclusion and business performance. The findings contribute to TAM by specifying its outcome domain and offer actionable evidence for MSME-support agencies, fintech providers, and policymakers seeking to link usability-oriented interventions with inclusive and competitive local enterprise development.

Literature Review

Mobile Wallet (M-Wallet) Adoption

Mobile wallet adoption refers to the extent to which individuals or business actors utilize digital payment applications to conduct financial transactions efficiently and securely (Hopali et al., 2022; Putrevu & Mertzanis, 2024). Mobile wallets function as electronic systems that store payment information and enable transactions via mobile devices or cloud-based platforms. In Indonesia, the increasing penetration of smartphones and digital infrastructure has accelerated the adoption of mobile wallets, particularly among MSMEs seeking to improve transaction efficiency and customer convenience. Prior studies suggest that mobile wallet adoption is influenced by technological, behavioral, and institutional factors, including perceived usefulness, ease of use, trust, and perceived risk (Aji et al., 2020; Daragmeh et al., 2021). Furthermore, recent studies highlight that mobile wallet adoption not only facilitates transactions but also acts as a catalyst for financial inclusion and business growth, especially in developing economies.

Within TAM, perceived ease of use lowers the effort required to learn and operate a system, whereas perceived usefulness captures the performance benefit expected from that reduced effort (Davis, 1989). In an MSME setting, these mechanisms are complemented by trust and perceived risk: confidence in provider reliability can support acceptance, while perceived risk can inhibit it or shape adoption indirectly through trust. Accordingly, the hypotheses are developed as linked propositions rather than as isolated variable definitions.

Perceived Usefulness

Perceived usefulness (PU) is defined as the degree to which an individual believes that using a technology enhances performance and productivity (Davis, 1989). In digital wallet contexts, PU reflects the perceived ability of mobile payment systems to improve transaction efficiency, reduce costs, and support financial management (Utomo, 2025). Recent studies confirm that PU is a key determinant of mobile wallet adoption, functioning both as a direct predictor and a mediating variable that strengthens behavioral intention (Matar & Aloqaily, 2025). Moreover, PU has been shown to exert a stronger influence than perceived risk in shaping user satisfaction and continuance intention. Beyond adoption, PU also contributes to broader outcomes, as fintech usage enhances MSMEs' transparency, financial access, and operational efficiency, thereby improving competitiveness in digital markets.

H1: Perceived usefulness positively affects mobile-wallet adoption among MSMEs.

Perceived Ease of Use

Perceived ease of use (PEOU) refers to the extent to which a technology is perceived as effortless to use (Davis, 1989). In the context of digital wallets, PEOU reflects how simple, intuitive, and flexible the system is in facilitating financial transactions. Technologies that are easy to use reduce cognitive effort, enhance user confidence, and increase satisfaction, thereby encouraging adoption and continued usage. Empirical evidence confirms that PEOU significantly influences users' intention to adopt digital payment systems, as ease of understanding and operation increases acceptance. Moreover, PEOU indirectly strengthens adoption through perceived usefulness as a mediating factor (Hasmiana & Syamsuddin, 2025). In the MSME context, where digital skills and resources are often limited, ease of use becomes particularly critical in accelerating adoption, reducing operational complexity, and improving transaction efficiency.

H2: Perceived ease of use positively affects mobile-wallet adoption among MSMEs.

Trust

Trust refers to an individual's confidence in a system, formed through knowledge, experience, and social interactions, which shapes their willingness to accept uncertainty and risk. In digital financial contexts, trust plays a crucial role in reducing perceived uncertainty and encouraging user engagement in transactions. Empirical studies confirm that trust is a key determinant of digital payment adoption. Trust significantly influences users' intention to adopt e-wallets by alleviating concerns related to privacy, and reliability (Chawla & Joshi, 2019). It also shapes user attitudes and behavioral intentions, particularly in high-risk environments (Singh & Sinha, 2020). Moreover, trust is closely linked to perceived risk, as lower perceived risk enhances user confidence in digital payment systems (Kim et al., 2008).

H4: Trust positively affects mobile-wallet adoption among MSMEs.

Perceived Risk

Perceived risk denotes the uncertainty and potential adverse consequences associated with digital financial transactions, including privacy, fraud, and transaction-failure concerns. Such concerns may discourage adoption when users expect losses or lack confidence in provider safeguards. Conversely, when risk-related items are phrased as confidence in security, as in this instrument, higher scores represent a more favorable perception of transaction safety; this measurement direction must be considered when interpreting the path to trust.

H3: Perceived risk negatively affects mobile-wallet adoption among MSMEs. H5: Perceived risk affects trust in mobile-wallet services.

H5: The influence of perceived risk on MSMEs' trust in mobile wallet adoption

Financial Inclusion

Financial inclusion refers to the accessibility, availability, and effective use of affordable financial services by all segments of society, particularly underserved groups (Demirgüç-Kunt et al., 2022). In the digital era, fintech, especially mobile wallets, plays a crucial role in expanding financial inclusion by enabling easier access to payments, savings, and financial transactions without reliance on traditional banking systems. Recent studies show that fintech adoption significantly enhances financial inclusion by reducing transaction costs, increasing accessibility, and improving financial service usage among MSMEs. In the MSME context, digital financial services support better cash flow management, financial record-keeping, and access to alternative financing, which are essential for business sustainability. However, financial inclusion in emerging regions remains uneven due to limitations in digital literacy and infrastructure (Utomo, 2025). Therefore, mobile wallet adoption is considered a key mechanism for integrating MSMEs into formal financial systems and improving their financial participation.

H6: Mobile-wallet adoption positively affects MSME financial inclusion.

Business Performance of MSMEs

Recent literature highlights that MSME performance is increasingly influenced by digital transformation and fintech adoption. Digital payment systems improve efficiency, accelerate financial processes, and enhance cash flow management. Fintech adoption also strengthens performance by expanding financial access, improving transparency, and supporting better decision-making. Moreover, digital transformation enhances competitiveness through market

expansion, customer engagement, and operational efficiency. These findings are supported by evidence that digital financial technologies reduce costs and enable data-driven strategies. Additionally, fintech adoption improves financial accessibility and business growth through alternative financing mechanisms, while continuous usage further strengthens long-term performance and sustainability.

H7: Mobile-wallet adoption positively affects MSME business performance.

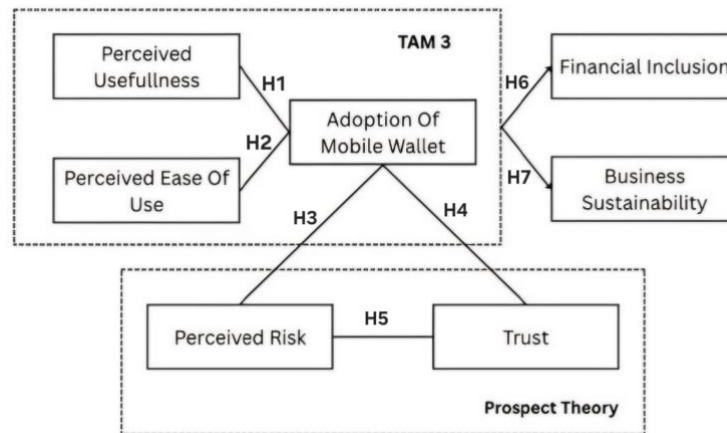


Figure 1. Research Framework

METHOD

This study used a quantitative, explanatory, cross-sectional design to test the proposed TAM-based relationships among perceived usefulness, perceived ease of use, perceived risk, trust, mobile-wallet adoption, financial inclusion, and business performance.

The population comprised MSME actors in Pangandaran, Indonesia. Purposive sampling was used to recruit business owners or managers who were able to report on their enterprise's payment practices. A total of 202 usable questionnaire responses were included in the analysis. The respondent profile indicates that the sample primarily represents micro enterprises, making the evidence most relevant to this business segment.

Data were collected using a structured questionnaire with five-point Likert-scale items (1 = strongly disagree; 5 = strongly agree). The instrument contained four items each for mobile-wallet adoption and financial inclusion, three items each for perceived usefulness, perceived ease of use, perceived risk, and trust, and five items for business performance. The indicator wording and construct statistics are reported in Table 3. Participation was voluntary, and responses were analyzed in aggregate.

Descriptive statistics were used to summarize indicator responses and participant characteristics. The measurement model was assessed through outer loadings, average variance extracted (AVE), HTMT discriminant validity, Cronbach's alpha, and composite reliability. Structural relationships were estimated using SEM-PLS with bootstrapping; hypotheses were evaluated using path coefficients, t-statistics, and p-values at the 5% significance level. This variance-based approach is appropriate for estimating the proposed predictive model with the available sample size.

RESULTS AND DISCUSSION

Results

The Descriptive Analysis

Descriptive statistics were used to summarize the observed responses. As shown in Table 1, indicator means range from 3.926 to 4.406 on a five-point scale, indicating generally favorable perceptions of mobile-wallet use and its associated constructs. Perceived usefulness (PUF1 = 4.406) and perceived ease of use (PEU2 and PEU3 = 4.401) have the highest mean scores. Standard deviations range from 0.724 to 1.073, showing moderate dispersion rather than proving normality or the absence of bias; response quality is assessed more directly through the measurement-model tests reported below.

Table 1
Descriptive Statistics

Variables	Indicators	Mean	Scale min	Scale max	Standard deviation
Mobile Wallet Adoption	MWA1	4.396	1	5	0.839
	MWA2	4.193	2	5	0.905
	MWA3	4.045	1	5	1.073
	MWA4	4.243	2	5	0.83
Perceived Ease of Use	PEU1	4.292	2	5	0.814
	PEU2	4.401	2	5	0.834
	PEU3	4.401	2	5	0.846
Perceives Usefulness	PUF1	4.406	2	5	0.76
	PUF2	4.262	2	5	0.787
	PUF3	4.168	1	5	0.945
Perceived Risk	PRK1	4.094	2	5	0.836
	PRK2	4.203	2	5	0.852
	PRK3	3.926	2	5	0.933
Trust	TRT1	4.134	2	5	0.848
	TRT2	4.297	2	5	0.821
	TRT3	4.054	2	5	0.891
Business Performance	BPF1	4.193	1	5	0.843
	BPF2	4.163	1	5	0.825
	BPF3	4.203	2	5	0.773
	BPF4	4.193	1	5	0.877
	BPF5	4.257	1	5	0.828
Financial Inclusion	FIN1	4.005	2	5	0.835
	FIN2	4.114	1	5	0.857
	FIN3	4.272	2	5	0.724
	FIN4	4.168	1	5	0.95

Mobile-wallet adoption and financial inclusion were measured with four items each; perceived ease of use, perceived usefulness, perceived risk, and trust with three items each; and business performance with five items. Table 2 presents the respondent characteristics. The study does not infer normality from mean–standard-deviation comparisons because SEM-PLS does not require multivariate normality; instead, the adequacy of the measures is evaluated using validity, discriminant-validity, and reliability criteria.

Table 2
Characteristic Sample

Characteristic	Total	Percentage
Gender		
Man	25	12.4%
Woman	177	87.6%
Age (year)		
<25	10	5.0%
26-30	30	14.9%
31-35	55	27.2%
36-40	34	16.8%
>40	73	36.1%
Education		
SD	16	7.9%
SMP	12	5.9%
SMA	116	57.4%
Sarjana/Diploma	57	28.2%

Characteristic	Total	Percentage
Pasca Sarjana	1	0.5%
Use of E-Wallet		
Yes	166	82.2%
No	36	17.8%
Long time using e-wallet (year)		
<1	109	54.0%
1-5	73	36.1%
>5	20	9.9%
Number of Employees		
1-5 Employees	201	99.5%
6-10 Employees	1	0.5%
Revenue Per Year		
<200 Million/Year	185	91.6%
200-500 Million/Year	17	8.4%
Types of E-Wallets		
GoPay	27	13.4%
DANA	88	43.6%
OVO	15	7.4%
LinkAja	10	5.0%
ShopeePay	51	25.2%
Brimo	11	5.4%

The sample characteristics (Table 2) further reveal that most respondents are female (87.6%), aged above 30 years, and predominantly operate micro-scale businesses with fewer than five employees (99.5%) and annual revenues below IDR 200 million (91.6%). Additionally, 82.2% of respondents have adopted e-wallets, although most have less than one year of experience (54.0%). This indicates that digital payment adoption among MSMEs in Pangandaran is relatively recent but rapidly growing, reflecting an early-stage digital transformation environment.

Table 3
Validity Test

Indicator	Code	Outer Loadings	AVE
Mobile Wallet Adoption			
Digital wallet technology has been meticulously implemented in my business	MWA1	0.802	0.668
The digital wallet technology I use has also been used by other parties that support my business (ex: banks, suppliers, consumers, etc.)	MWA2	0.809	
I am trying to be a pioneer in the use of digital wallet technology in this business	MWA3	0.825	
I am satisfied with the technology provided by the digital wallet service provider	MWA4	0.834	
Perceived Usefulness			
I feel that the use of digital wallets will improve the quality of transactions	PUF1	0.886	0.717
I feel that using a digital wallet will increase the accuracy of transactions	PUF2	0.877	
I feel that using a digital wallet reduces transaction time	PUF3	0.773	

Indicator	Code	Outer Loadings	AVE
Perceived Ease of Use			
I feel like learning to use a digital wallet won't be too difficult	PEU1	0.912	0.817
I feel that digital wallets make transactions more flexible	PEU2	0.898	
I find the digital wallet payment system easy to use	PEU3	0.903	
Perceived Risk			
I believe that the use of digital wallets is not risky for financial transactions in MSMEs	PRK1	0.891	0.744
I am confident in digital wallet transaction security technology, so I feel comfortable in accepting MSME payment transactions	PRK2	0.843	
I am not worried about my data privacy when using a digital wallet in MSME transactions	PRK3	0.853	
Trust			
I believe the use of digital wallets provides protection to business actors	TRT1	0.911	0.764
I believe the use of digital wallets can be widely recognized, especially for business actors	TRT2	0.848	
I believe the use of digital wallets will deliver on its promises regarding security and reliability of services and make transactions in a timely manner	TRT3	0.862	
Financial Inclusion			
The level of ability of digital wallets to provide financial services to meet the daily financial needs of business actors	FIN1	0.847	0.710
The level of ability of digital wallets to become a financial service that is adopted and continues to be used to meet the daily financial needs of business actors	FIN2	0.813	
The level of ability of digital wallets as a financial service that is relevant to the needs and lifestyles of business actors	FIN3	0.885	
The level of capability of digital wallets helps business actors achieve financial improvements in their business transactions	FIN4	0.824	
Business Performance			
By using digital wallets, our sales increased	BPF1	0.809	0.710
By using digital wallets, our business profits increase	BPF2	0.841	
By using digital wallets, business performance has improved	BPF3	0.852	
By using digital wallets, our business can compete with other businesses in the same industry	BPF4	0.844	
By using digital wallets, we can increase interaction with consumers	BPF5	0.869	

The validity and reliability of the measurement model were assessed through outer loadings, Average Variance Extracted (AVE), discriminant validity (HTMT), and reliability tests. The results show that all indicator loadings exceed the recommended threshold of 0.70, confirming strong convergent validity. Additionally, all AVE values are above 0.50, indicating that each construct explains more than half of the variance of its indicators, thus meeting the criteria for construct validity. Discriminant validity, evaluated using the HTMT criterion, shows that all

values are below the threshold of 0.90, indicating that each construct is empirically distinct from others. This confirms that the measurement model does not suffer from multicollinearity issues and that each variable captures a unique conceptual domain.

Reliability analysis further supports the robustness of the measurement model, as all Cronbach's alpha and composite reliability values exceed 0.70. For instance, business performance demonstrates a high composite reliability value (0.925), indicating strong internal consistency. Overall, these results confirm that the measurement model is both valid and reliable, allowing for further structural model analysis

Table 4*Discriminant Validity*

	BPF	FIN	MWA	PEU	PRK	PUF	TRT
Business Performance							
Financial Inclusion	0.889						
Mobile Wallet Adoption	0.410	0.456					
Perceived Ease of Use	0.345	0.481	0.802				
Perceived Risk	0.483	0.452	0.613	0.637			
Perceived Usefulness	0.475	0.527	0.810	0.875	0.868		
Trust	0.822	0.680	0.454	0.417	0.694	0.575	

The following Table 5 is the result of the calculation of reliability values using Cronbach Alpha and Composite Reliability. The test results show that all variables meet the criteria > 0.7 for Cronbach's alpha and Composite Reliability. Therefore, it can be concluded that the measures used in this study case have passed the reliability test.

Table 5*Cronbach's Alpha and Composite Reliability*

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)
Mobile Wallet Adoption	0.837	0.856	0.890
Perceived Usefulness	0.805	0.838	0.883
Perceived Ease of Use	0.889	0.893	0.931
Perceived Risk	0.828	0.831	0.897
Trust	0.845	0.853	0.907
Financial Inclusion	0.865	0.876	0.907
Business Performance	0.899	0.910	0.925

The following Table 6 presents the analysis of the pathway in the test hypothesis:

Table 6*Hypothesis Testing*

	Original Sample (O)	T Statistics (O/STDEV)	P Values	Result
Perceived Usefulness -> Mobile Wallet Adoption	0.311	2.878	0.004	Accept
Perceived Ease of Use -> Mobile Wallet Adoption	0.453	4.794	0.000	Accept
Perceived Risk -> Mobile Wallet Adoption	0.030	0.388	0.698	Reject
Trust -> Mobile Wallet Adoption	0.049	0.916	0.360	Reject
Perceived Risk -> Trust	0.584	8.763	0.000	Accept
Mobile Wallet Adoption -> Financial Inclusion	0.403	5.883	0.000	Accept

	Original Sample (O)	T Statistics (O/STDEV)	P Values	Result
Mobile Wallet Adoption -> Business Performance	0.374	5.008	0.000	Accept

The structural model results (Table 6) support most of the proposed hypotheses. Perceived usefulness has a positive and significant effect on mobile wallet adoption ($\beta = 0.311$, $t = 2.878$, $p < 0.05$), indicating that MSMEs are more likely to adopt digital wallets when they perceive clear functional benefits. Similarly, perceived ease of use shows a stronger and significant influence ($\beta = 0.453$, $t = 4.794$, $p < 0.001$), highlighting usability as a key driver of adoption, particularly for MSMEs with limited technological capabilities. In contrast, perceived risk ($\beta = 0.030$, $t = 0.388$, $p > 0.05$) and trust ($\beta = 0.049$, $t = 0.916$, $p > 0.05$) do not have a direct effect on adoption, suggesting that MSMEs prioritize practical benefits over risk considerations in early adoption stages. However, perceived risk significantly affects trust ($\beta = 0.584$, $t = 8.763$, $p < 0.001$), indicating an indirect mechanism where risk perceptions shape adoption through trust.

Mobile-wallet adoption has a positive and significant effect on financial inclusion ($\beta = 0.403$, $t = 5.883$, $p < 0.001$) and business performance ($\beta = 0.374$, $t = 5.008$, $p < 0.001$). The results therefore indicate that adoption functions as both a financial-access enabler and an operational-performance mechanism; the two outcomes are reported separately to avoid duplicating the business-performance conclusion.

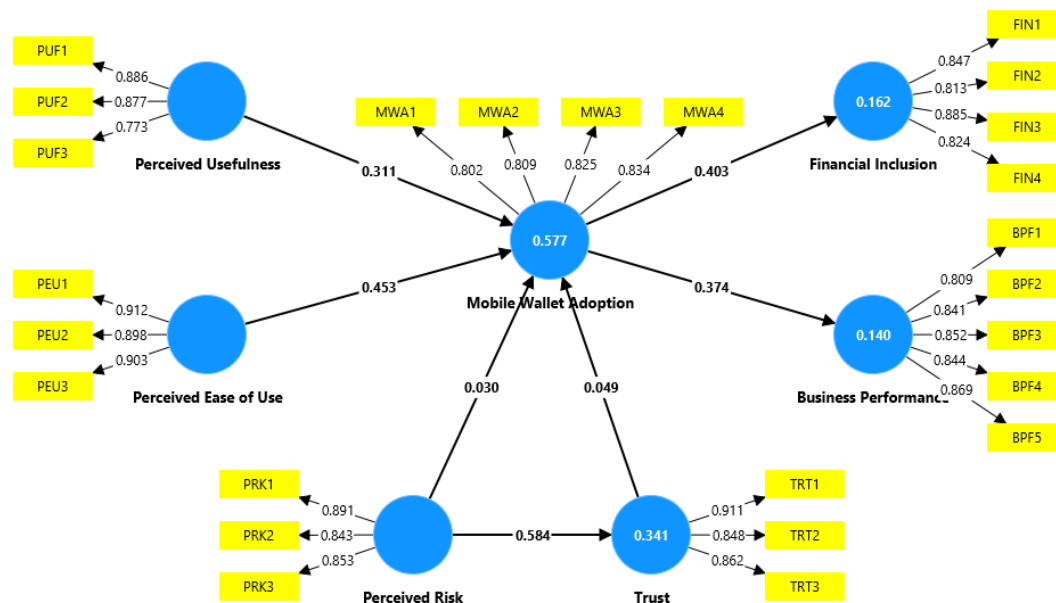


Figure 2. SEM PLS Model

Discussions

H1 : Perceived Usefulness to Mobile Wallet Adoption

Perceived usefulness positively and significantly affects mobile-wallet adoption ($\beta = 0.311$, $t = 2.878$, $p = 0.004$), supporting H1. The result indicates that Pangandaran MSME actors are more likely to use mobile wallets when they expect clearer transaction benefits, including speed, accuracy, and improved service to customers. This finding is consistent with TAM and prior evidence that performance-related benefits motivate digital-payment uptake (Daragmeh et al., 2021; Davis, 1989).

H2 : Perceived Ease of Use to Mobile Wallet Adoption

The results show that perceived ease of use has a positive and significant effect on mobile wallet adoption ($\beta = 0.453$, $t = 4.794$, $p < 0.001$), indicating that usability is a key determinant of MSMEs' adoption decisions. When digital wallet systems are perceived as simple, intuitive, and flexible, MSME actors are more likely to adopt them, as ease of use reduces cognitive effort and operational complexity—particularly important for users with limited digital skills.

This finding is consistent with the Technology Acceptance Model (TAM), which posits

that perceived ease of use directly influences behavioral intention and indirectly enhances perceived usefulness. Empirical studies further support this relationship. Perceived ease of use significantly drives mobile wallet adoption by lowering technological barriers Daragmeh et al. (2021) and shaping users' willingness to adopt digital payments, especially in emerging markets. Similarly, user-friendly interfaces increase adoption by enhancing confidence and reducing resistance. Moreover, perceived ease of use strengthens perceived usefulness, amplifying its overall effect on adoption.

In the context of MSMEs in Pangandaran, these findings highlight that minimizing technical complexity is essential, as business actors prefer technologies that require minimal training and can be easily integrated into daily operations. Overall, perceived ease of use emerges as a critical driver of fintech adoption and a key enabler of digital transformation among MSMEs.

H3 : Perceived Risk to Mobile Wallet Adoption

Perceived risk does not significantly affect mobile-wallet adoption ($\beta = 0.030$, $t = 0.388$, $p = 0.698$); therefore, H3 is not supported. This result must be interpreted in light of the sample's early-stage adoption context: practical usability and perceived benefits may be more salient than risk considerations when micro-enterprise owners decide whether to use a payment channel. It also contrasts with studies that find risk to be a direct barrier, suggesting that regional digital maturity, respondent composition, and the small scale of the enterprises may condition this relationship.

The non-significant direct path should not be interpreted as evidence that security is unimportant. Rather, it indicates that perceived risk does not independently explain adoption after usefulness, ease of use, and trust are included in the model. Given the cross-sectional design, this study does not claim mediation; future research should test indirect effects with a preregistered mediation analysis and compare MSMEs with different levels of digital maturity.

H4 : Trust to Mobile Wallet Adoption

The empirical results indicate that trust does not have a significant positive effect on mobile wallet adoption ($\beta = 0.049$, $t = 0.916$, $p > 0.05$), suggesting a weak and statistically insignificant relationship in this study context. While prior literature generally positions trust as a critical enabler of digital payment adoption, this finding implies that, among MSMEs in Pangandaran, trust does not serve as a primary determinant of adoption decisions. Instead, MSME actors appear to prioritize functional benefits and usability over trust-related considerations when deciding to adopt mobile wallet technologies. This result contrasts with established studies that report a strong positive relationship between trust and technology adoption.

For example, Singh & Sinha (2020) demonstrate that trust significantly enhances users' intention to adopt digital payment systems by reducing uncertainty and perceived risk. Similarly, Xia et al. (2023) highlight that trust strengthens both initial adoption and continuance intention in fintech usage. However, the divergence in this study suggests that in early-stage or rapidly evolving digital ecosystems, such as MSMEs in emerging regions, trust may play a less direct role.

H5 : Perceived Risk to Trust

Perceived risk has a positive and significant effect on trust ($\beta = 0.584$, $t = 8.763$, $p < 0.001$), supporting H5. Because the perceived-risk items are worded as confidence in transaction security and the absence of privacy concern, higher scores should be interpreted as more favorable security perceptions rather than greater fear of risk. Under this coding direction, the positive coefficient indicates that MSME actors who perceive the wallet environment as safer report stronger trust in the service provider. This interpretation is consistent with the role of security safeguards in supporting trust in digital transactions (Kim et al., 2008).

H6 : Mobile Wallet Adoption to Financial Inclusion

The results indicate that mobile wallet adoption has a positive and significant effect on financial inclusion ($\beta = 0.403$, $t = 5.883$, $p < 0.001$), demonstrating that the use of digital payment systems substantially enhances MSMEs' access to and participation in formal financial services. This finding suggests that mobile wallets function not only as transaction tools but also as

gateways to broader financial ecosystems, enabling MSMEs to conduct payments, manage finances, and build transaction histories that support financial integration.

This result is consistent with prior studies emphasizing the role of fintech in promoting inclusive finance. Demirgüç-Kunt et al. (2022) highlight that digital financial services significantly expand financial access among underserved populations by reducing geographic and institutional barriers. Similarly, Setiawan et al. (2025) found that fintech adoption enhances financial inclusion by improving accessibility, affordability, and usability of financial services, particularly for MSMEs. In line with this, recent evidence from emerging economies indicates that mobile wallet usage increases financial participation by facilitating easier transactions, improving liquidity management, and enabling access to alternative financial products such as microcredit and digital savings. The adoption of mobile wallets enables these businesses to overcome structural barriers and participate more actively in the digital economy. Overall, the findings reinforce the notion that mobile wallet adoption is a key driver of financial inclusion, particularly in emerging regions. By providing accessible, efficient, and user-friendly financial services, mobile wallets empower MSMEs to improve financial management and expand their economic opportunities. This highlights the strategic importance of promoting digital payment adoption as a pathway toward inclusive and sustainable economic development.

H7 : Mobile Wallet Adoption to Business Performance

Mobile-wallet adoption positively and significantly affects MSME business performance ($\beta = 0.374$, $t = 5.008$, $p < 0.001$), supporting H7. The result suggests that digital payments can support transaction efficiency, customer convenience, and the business practices associated with stronger operational performance. This association should not be read as proof of causality because the study uses cross-sectional self-reported data.

These results are consistent with prior studies emphasizing the transformative role of fintech. Digital payment adoption improves efficiency, cash flow management, and overall performance, while fintech integration enhances competitiveness through market expansion and customer engagement. From a financial inclusion perspective, digital financial services reduce access barriers and facilitate the use of formal financial products Demirgüç-Kunt et al. (2022), with fintech adoption further improving accessibility, affordability, and usage among MSMEs.

Additionally, supporting evidence indicates that perceived ease of use encourages adoption, while trust indirectly shapes user behavior by increasing perceived benefits and intention to use digital payment systems (Sleiman et al., 2021; To & Trinh, 2021). In the context of MSMEs in Pangandaran, these findings underscore the strategic importance of mobile wallet adoption in promoting both financial empowerment and business sustainability. Overall, mobile wallet adoption functions not only as a technological innovation but also as a key driver of inclusive economic development and MSME growth in emerging economies.

CONCLUSION

This study shows that, for MSMEs in Pangandaran, the value of mobile-wallet adoption lies less in trust or perceived risk as direct adoption drivers and more in whether the service is useful and easy to use. Perceived ease of use is the strongest determinant of adoption, and adoption is associated with stronger financial inclusion and business performance. The study therefore extends TAM from an adoption-focused explanation to an outcome-oriented model that links acceptance with financial participation and enterprise capability. Practically, MSME-support programs and fintech providers should prioritize simple interfaces, low-friction onboarding, and targeted digital-literacy support; policymakers can complement these measures with reliable connectivity and consumer-protection mechanisms that reinforce confidence in digital payments.

Despite these contributions, this study has several limitations. First, the research is geographically limited to MSMEs in Pangandaran, which may restrict the generalizability of the findings to other regions with different socio-economic and technological conditions. Second, the study relies on self-reported data, which may be subject to response bias and perceptual limitations. Third, the cross-sectional design limits the ability to capture dynamic changes in technology adoption behavior over time. Future research is therefore encouraged to expand the geographical scope, apply longitudinal approaches, and incorporate additional variables such as digital literacy, innovation capability, and competitive advantage to provide a more

comprehensive understanding of fintech adoption in MSMEs.

ACKNOWLEDGEMENT

We sincerely thank the Directorate General of Higher Education, Ministry of Education, Culture, Research, and Technology for their valuable support and confidence in our vision, made possible through the Fundamental Research Grant Program (124/C3/DT.05.00/PL/2025). This funding has been instrumental in helping us pursue our objectives and contribute meaningfully to the field of mobile wallets. The authors also extend their appreciation to the Dinas Koperasi dan UKM Perdagangan dan Perindustrian Kabupaten Pangandaran for their valuable assistance, support, and cooperation throughout the data collection process. Their contribution has been instrumental in facilitating access to MSME actors and ensuring the successful completion of this research. Together, we are well-positioned to make a lasting impact in the Mobile wallet landscape.

ACKNOWLEDGEMENT

The authors sincerely thank the MSME owners and managers in Pangandaran who voluntarily participated in this study. Their time, openness, and valuable responses provided the empirical basis for examining mobile-wallet adoption, financial inclusion, and business performance in the local MSME context.

AUTHOR CONTRIBUTION STATEMENT

Resa Nurlaela Anwar contributed to the conceptualization, methodology, data collection, formal analysis, and initial manuscript drafting. Devi Anggraeni contributed to the validation of the research design, interpretation of findings, critical revision of the manuscript, and final approval of the submitted version. Both authors share responsibility for the integrity and accuracy of the study.

REFERENCES

- Aji, H. M., Berakon, I., & Md Husin, M. (2020). COVID-19 and e-wallet usage intention: A multigroup analysis between Indonesia and Malaysia. *Cogent Business and Management*, 7(1). <https://doi.org/10.1080/23311975.2020.1804181>
- Bahasoan, A. N. (2026). Digital Payment Adoption and MSME Competitiveness in Indonesia: The Roles of Transaction Efficiency, Financial Inclusion, and Business Performance. *Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)*, 5(7), 1783–1798.
- Balde, T. A. and E. R. R. (2026). Digital Payment Adoption, Operational Efficiency, and SME Financial Performance: A Systematic Evidence Review . *JMET: Journal of Management Entrepreneurship and Tourism* , 4(2), 142–157.
- Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt mobile wallet in India – An empirical study. *International Journal of Bank Marketing*, 37(7). <https://doi.org/10.1108/IJBM-09-2018-0256>
- Daragmeh, A., Sági, J., & Zéman, Z. (2021). Continuous Intention to Use E-Wallet in the Context of the COVID-19 Pandemic: Integrating the Health Belief Model (HBM) and Technology Continuous Theory (TCT). *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 132. <https://doi.org/10.3390/joitmc7020132>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319–340. <https://doi.org/10.2307/249008>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. In *The Global Findex Database 2021*.
- Hasmiana, H., & Syamsuddin, F. R. (2025). The Influence of Perceived Ease of Use on Behavioral Intention Through Perceived Usefulness as an Intervening Medium in Digital Payment DANA. *Jurnal Economic Resource*, 7(2). <https://doi.org/10.57178/jer.v7i2.1122>
- Hopali, E., Vayvay, Ö., Kalender, Z. T., Turhan, D., & Aysuna, C. (2022). How Do Mobile Wallets Improve Sustainability in Payment Services? A Comprehensive Literature Review. In *Sustainability (Switzerland)* (Vol. 14, Number 24). <https://doi.org/10.3390/su142416541>
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in

- electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544–564. <https://doi.org/10.1016/j.dss.2007.07.001>
- Matar, A., & Aloqaily, A. N. (2025). The mediating influence of perceived usefulness on consumer behaviour towards driving e-wallet adoption in Jordan. *Journal of Open Innovation: Technology, Market, and Complexity*, 11(4). <https://doi.org/10.1016/j.joitmc.2025.100651>
- Putrevu, J., & Mertzanis, C. (2024). The adoption of digital payments in emerging economies: challenges and policy responses. *Digital Policy, Regulation and Governance*, 26(5). <https://doi.org/10.1108/DPRG-06-2023-0077>
- Setiawan, B., Triana, D., Al Azizah, U. S., Wahyuni, A. S., Victor, V., Nathan, R. J., & Fekete-Farkas, M. (2025). Financial technology (Fintech) innovation and financial inclusion: comparative study of urban and rural consumers post-Covid-19 pandemic. *Journal of Innovation and Entrepreneurship*, 14(1). <https://doi.org/10.1186/s13731-024-00452-x>
- Singh, N., & Sinha, N. (2020). How perceived trust mediates merchant's intention to use a mobile wallet technology. *Journal of Retailing and Consumer Services*, 52. <https://doi.org/10.1016/j.jretconser.2019.101894>
- Sleiman, K. A. A., Juanli, L., Lei, H., Liu, R., Ouyang, Y., & Rong, W. (2021). User Trust levels and Adoption of Mobile Payment Systems in China: An Empirical Analysis. *SAGE Open*, 11(4). <https://doi.org/10.1177/21582440211056599>
- Tandilino, C., Pontoh, G. T., Darmawati, D., & Indrijawati, A. (2025). Digital Financial Inclusion as a Mediator of Digital Financial Literacy and Government Support in MSME Performance. *International Journal of Financial Studies*, 13(4). <https://doi.org/10.3390/ijfs13040199>
- To, A. T., & Trinh, T. H. M. (2021). Understanding behavioral intention to use mobile wallets in vietnam: Extending the tam model with trust and enjoyment. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1891661>
- Utomo, F. S. (2025). Factors Influencing User Adoption of Mobile Payment System: An Integrated Model of Perceived Usefulness, Ease of Use, Financial Literacy, and Trust. *Journal of Digital Market and Digital Currency*, 2(2). <https://doi.org/10.47738/jdmdc.v2i2.31>
- Xia, H., Lu, D., Lin, B., Nord, J. H., & Zhang, J. Z. (2023). Trust in Fintech: Risk, Governance, and Continuance Intention. *Journal of Computer Information Systems*, 63(3). <https://doi.org/10.1080/08874417.2022.2093295>