Predicting M-Payment Adoption Intention in Indonesia: Integrating Technology Acceptance Model and Psychological Factors

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Abstract. *The government is currently promoting the growth of m-payment usage in Indonesia. Therefore, research is needed to identify the factors influencing the adoption intention of m-payment. One theory frequently employed to elucidate the usage intention of m-payment is the Technology Acceptance Model (TAM). According to this theory, intention arises from perceived usefulness and perceived ease of use. This study integrates TAM with psychological variables, namely, trust and subjective norms. This research aims to examine the factors influencing the adoption intention of m-payment. Before conducting the model test, this research begins with adapting and validating all measurement tools in the Indonesian language. Participants in this study are individuals aged 17 and above who own smartphones. The entire data collection is done online. The research instrument is validated with confirmatory factor analysis (CFA) on perceived usefulness, perceived ease of use, trust, subjective norm, and the adoption intention of m-payment (N=209). The model test is conducted through path analysis (N=210). The validation process confirms the theoretical model of the five instruments in the Indonesian version. The CFA results indicate that all five research instruments meet the cut-off criteria for fit indices RMSEA, CFI, TLI, and SRMR. The path analysis results reveal that perceived usefulness, perceived ease of use, and subjective norm influence the adoption intention of m-payment. In contrast, trust does not affect the adoption intention of m-payment. This research contributes both theoretically and practically, particularly regarding the factors influencing m-payment adoption.*

Keywords: Intention; m-payment adoption; path analysis; technology acceptance model; trust.

INTRODUCTION

The fast-moving growth of technology and the high average penetration of mobile internet users make smartphones an essential factor in supporting daily shopping activities. Consumers use smartphones to make mobile payment (m-payment) transactions. M-payment is a digital payment service that performs financial transactions using mobile devices and wireless communication technology (Handarkho et al., 2021).

M-payment is generally defined as a cashless payment method using mobile devices to pay for goods, services, or bills. The m-payment process starts from initiation to confirmation

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(Abrahao et al., 2016). According to Tew et al. (2021), m-payment allows users to make payments with mobile devices wherever they are.

The advantage of m-payment is that customers can make payments without carrying a physical card or money, making the payment process more comfortable and faster. Using m-payment can also improve performance and minimize errors in the transaction process (Busu et al., 2018). Related to the economy, digitizing this payment system will increase the economy's output (Bank Indonesia, 2019). Despite this, digital payments are not exempt from risks that need to be watched, such as cyber-attacks and data misuse (Bank Indonesia, 2019). The challenge for economic authorities is to balance optimizing the use of m-payment and mitigating the risks. This research provides information to m-payment service providers about the factors that influence the adoption of m-payment to support the optimization of m-payment use.

Data from financial technology company (fintech) Xendit shows that digital payments will increase in 2021. Digital wallet users are recorded at 43%, virtual account users at 41%, Quick Response Code Indonesian Standard (QRIS) users at 7%, retail outlet users amounting to 7%, and credit card users amounting to 3% (Javier, 2022). On the other hand, based on the Indonesian Internet Service Provider Association Survey (APJII), internet penetration in Indonesia has reached 78.19% in 2023, or 215,626,156 people out of a total population of 275,773,901 people. This year, Indonesia's internet penetration rate has increased by 1.17% (APJII , 2023). This condition shows that Indonesia is a large market in developing m-payment adoption. The digitization of this payment is also supported by Bank Indonesia, which is included in the Indonesian Payment System Blueprint 2025 (Bank Indonesia, 2019).

Several factors that influence non-cash payments, such as gender, social image, subjective norms (Liebana-Cabanillas et al., 2014), compatibility, perceived technological security, performance expectations (Oliveira et al., 2016), hedonic motivation, social influence, innovation (Rahman et al., 2020). Meanwhile, anxiety, lack of efficiency, fatigue, the tendency to wait and see, and the effect of excessive technology choices contribute to the non-adoption of m-payment (Behera et al., 2022). The variables of perceived performance risk, perceived financial risk, and perceived privacy risk were found to have a negative effect on m-payment acceptance intentions (Yang et al., 2015).

Several m-payment adoption studies have been done in Indonesia, such as Rahardja et al. (2023), who examined the impact of using m-payment on customer emotions and continued intention to use m-payment. Handarkho et al. (2021) examined m-payment from the perspective of habit. Lisana (2022) researched the adoption of m-payment in Generation Z. The research identified factors that positively impacted the acceptance of m-payment by putting forward the Unified Theory of Acceptance and Use of Technology (UTAUT). Marriott & Williams (2016) say that the Technology Acceptance Model (TAM) is a theory often used in information system adoption research. According to TAM, technology acceptance is influenced by perceived usefulness (perceived usefulness) and perceived ease of use (Davis, 1989).

An individual's choice to voluntarily accept a new technology is known as technology acceptance. User willingness is essential for successfully implementing and utilizing technology, especially in financial transactions (Kamal et al., 2020). Davis's TAM technology adoption model represents the most sustainable and substantial technology adoption policy. TAM was introduced by Davis (1989). TAM is the model most often used by researchers to determine technology adoption behaviour. This model describes the deliberate actions of users when adopting a new technology. The primary purpose of TAM is to predict the adoption of new technology among users and highlight information system design problems before its use becomes common among people (Yi et al., 2006). However, this theory has been criticized for focusing on technology and ignoring

technology user's psychological, cultural, and behavioral aspects. TAM considers individuals rational and able to form intentions (Lew et al., 2020; Matemba & Li, 2018). The application of TAM in technology adoption needs to consider the psychological process and cultural context behind consumer payment behaviour. This research tries to answer what factors influence the intention of m-payment adoption in Indonesia.

In this research, the author used TAM to examine the adoption factors of m-payment. The model has been adopted by researchers to explore the adoption intentions of technology users in different cultures and contexts, such as in India (Shankar & Datta, 2018), Turkey (Türker et al., 2022), and Pakistan (Zhang et al., 2023). However, Indonesian cultural characteristics are different from other countries. Therefore, the factors influencing the adoption of m-payment may also differ.

Indonesia is a country with a collectivist culture. This certainly has an impact on the consumption behavior of the community. In the collectivist culture presented by de Mooij & Hofstede (2011), the self is related to others and the social context. The adoption of m-payment does not escape social influence. One of those social factors is subjective norms. Subjective norms are related to perceived social pressure to engage or not engage in a behavior (Ajzen, 1991). According to de Mooij & Hofstede (2011), advertising aims to create trust in collectivist countries. Trust is a positive consumer expectation towards m-payment providers (Mayer et al., 1995). Financial transactions with digital technology are vulnerable to fraud. Therefore, trust in payment service providers plays a role in encouraging m-payment adoption (Shaw & Kesharwani, 2019).

In this research, the author adopted this model to determine the factors influencing the adoption of m-payment in Indonesia. The author integrates TAM with factors influenced by the social environment, namely subjective norms, and factors centered on users, namely trust. Therefore, this research aims to test the m-payment adoption intention factor model, which consists of perceived usefulness, perceived ease of use, subjective norms, and trust.

According to Davis (1989), perceived usefulness is the level of belief that the use of technology can be beneficial in conducting transactions. Perceived usefulness is related to the utilitarian value of the payment service provided. Perceived ease of use is confidence that technology is easy to use. The author suspects that both have a positive effect on m-payment adoption intentions. When users feel the benefit and convenience of using m-payment, the greater the chance of m-payment adoption.

Subjective norms are perceived social pressure to engage or not engage in a behavior (Ajzen, 1991). The research of Lu et al. (2005) showed that social influence positively impacts the adoption of internet services via mobile technology. Social influence is considered equivalent to subjective norms. In instant messaging (IM) adoption research, behaviour is influenced by peers (Lu et al., 2005). When users find others adopting IM, they will have the opportunity to join in using it. In relation to the adoption of m-payment, we think that subjective norms have a positive effect on the adoption of m-payment.

Trust consists of three beliefs, namely integrity, competence, and benevolence. Integrity is the ability of m-payment providers to carry out their obligations. Competence is the sufficiency of technical knowledge possessed by m-payment service providers to meet consumer expectations. Benevolence is a concern for protecting the interests of consumers (Palvia, 2009). Gao & Waechter (2015) showed that user trust influences the intention to use m-payment services. The study has also been proven in a meta-analysis by Kumar (2023). Thus, we believe that trust positively affects m-payment adoption intentions.

The research hypothesis is formulated as follows (Figure 1): H1: There is an influence of perceived usefulness on m-payment adoption intention; H2: There is an influence of perceived ease of use on m-payment adoption intention; H3: There is an influence of subjective norms on

m-payment adoption intention; H4: there is an influence of trust on m-payment adoption intention.

In order to carry out this research, an Indonesian version of each variable supported by good psychometric properties is needed. Therefore, this research will begin with the process of adaptation and validation of the instrument's perceived usefulness, perceived ease of use, subjective norms, trust, and m-payment adoption intention.
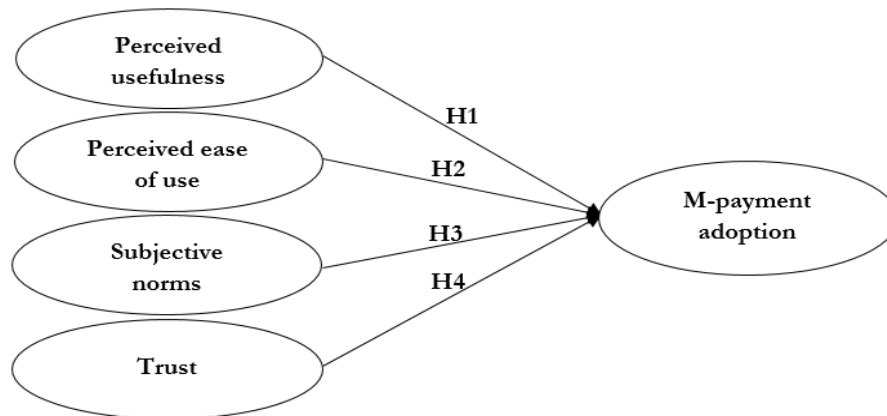

Figure 1.
Research Model

METHOD

This research uses a non-experimental quantitative approach with a correlational and cross-sectional design. This research has two stages: 1) adaptation and validation of research instruments and 2) model testing. The variables used in this research are m-payment adoption intention (MPAI), perceived usefulness (PU), perceived ease of use (PEOU), subjective norms (SN), and trust (TR).

The participants in this research are individuals over 17 years old who use smartphones. Determining the amount of participant adequacy using the a *priori* method with Monte Carlo (Muthén & Muthén, 2002). We set several parameters in the Monte Carlo analysis: 1) the number of participants was set at 200, 2) all instruments were set as unidimensional models, 3) there was no missing data, 4) factor loading for each item was set at 0.80, 5) residual variance for each item is set at 0.36, and 6) the number of replications for all simulations is 10000. Setting the factor loading value at .80 and the residual variance value at 0.36 follows Muthén & Muthén (2002).

Based on Muthén & Muthén (2002), several criteria were checked to determine the adequacy of the number of participants: 1) each parameter and standard error biases of no more than 10%, 2) standard error bias for power 0.80 no more than 5%, and 3) coverage value ranges between 0.91 and 0.98. The results of the Monte Carlo analysis are following the three criteria above so that the minimum number of participants in this research is 200.

Data was collected online using Google Forms in July 2023 (stage 1) and August 2023 (stage 2) using the convenience sampling technique. All participants agreed to the research consent form before completing the research instrument. We included an attention check item (I was born before 1920 AD) in the research instrument to detect careless responses (Shamon & Berning, 2020).

A total of 224 people filled out the research instrument at stage 1. Fifteen participants were removed because careless responses were detected on the attention check item, leaving 209 participants for stage 1. In stage 2, of the 231 participants who filled out the research instrument,

three were removed because they were 17 years old, and 18 were removed because careless responses were detected on the attention item check. Thus, there are 210 participants for stage 2. Participants in stage 1 were 18–60 years old (M= 23.37, SD= 6.97), while participants in stage 2 were 18–59 years old (M= 22.27, SD= 5.82). The complete characteristics of the participants can be seen in Table 1.

Instruments used in this research, MPAI, PU, PEU, SN, and TR, were adapted first to the Indonesian language and culture. The adaptation technique used is forward translation (Beaton et al., 2000) with two translators competent in English and Indonesian. We synthesize the translation results to adapt to the Indonesian language and culture. Then, the synthesis results were reviewed by two experts who understand the conceptual of the research variables. After the review, we tested the readability of the items on five people with the same criteria as the target participants. After the item readability test is done, we carry out data collection.

Table 1.
Research Participant Characteristics

Characteristic	Stage 1		Stage 2	
	n	**%**	**n**	**%**
Gender				
Male	69	33.01	80	38.10
Female	140	66.99	130	61.90
Latest Education				
Highschool and below	128	61.24	147	70.00
Diploma/Bachelor	62	29.67	53	25.24
Master	15	7.18	8	3.81
Doctoral	4	1.91	2	0.95
Occupation				
Entrepreneur	2	0.96	2	0.95
Civil Servant/BUMN	14	6.70	9	4.29
Private employee	20	9.57	22	10.48
University Student	164	78.47	173	82.38
Other	9	4.31	4	1.90
Total monthly m-payment transaction (Rupiahs)				
Never used	22	10.53	22	10.48
Less than 500,000	90	43.06	82	39.05
500,001 to 1,000,000	48	22.97	64	30.48
1,000,001 to 2,000,000	23	11.00	20	9.52
2,000,001 to 3,000,000	14	6.70	12	5.71
3,000,001 to 4,000,000	1	0.48	2	0.95
4,000,001 to 5,000,000	5	2.39	3	1.43
More than 5,000,000	6	2.87	5	2.38
M-payment usage frequency				
Never used	22	10.53	22	10.48
1 to 3 times	60	28.70	60	28.57
4 to 10 times	78	37.32	80	38.10

Characteristic	Stage 1		Stage 2	
	n	%	n	%
11 to 20 times	29	13.88	33	15.71
More than 20 times	20	9.57	15	7.14
M-payment duration of use				
Never used	22	10.53	22	10.48
Less than a year	26	12.44	32	15.24
1 to 2 years	74	35.41	66	31.43
2 to 3 years	43	20.57	39	18.57
More than 3 years	44	21.05	51	24.29
Reason for using m-payment				
Never used	22	10.53	22	10.48
Easier access than cash	101	48.33	105	50.00
Ease of use	84	40.19	82	39.05
Other	2	0.96	1	0.48

Note: Y= Employee Performance; X1= Work Discipline; and X2= Work Environment

The validity of research instruments was tested using evidence of validity based on internal structure (AERA et al., 2014). To prove this validity, we used confirmatory factor analysis (CFA) with the help of Mplus software version 8.8. We used the value of root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker Lewis index (TLI), and standardized root-mean-square residual (SRMR) to evaluate the fit of the model with the data. RMSEA and SRMR values<0.08, as well as CFI and TLI values>0.90 (Wang & Wang, 2020), we use as criteria to evaluate the model.
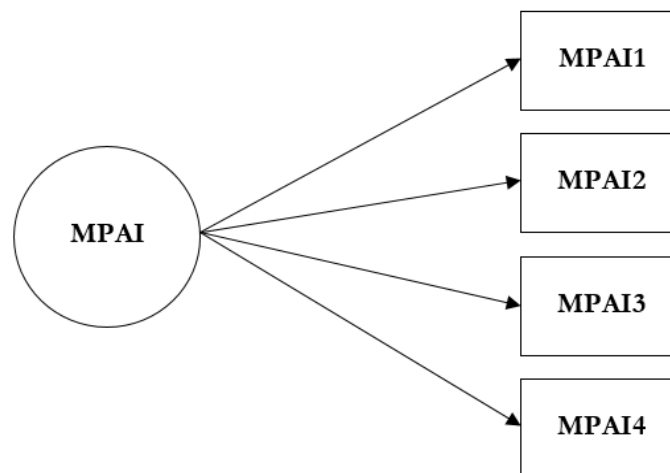

Figure 2.
MPAI Model

M-payment adoption intention is an individual's intention to use m-payment. The instrument used to measure MPAI was adapted from Kim et al. (2010), which consists of 4 items and five response options (very inappropriate to very appropriate). The results of the CFA analysis of the MPAI with four items using the MLR estimator show that the model does not fit the data, $X^2(2)= 14.790$ p<0.001, RMSEA= 0.175 (90% CI [0.099, 0.263]), CFI= 0.945, TLI= 0.835, SRMR= 0.048. Then we

dropped item MPAI4= *"Lima (5) tahun dari sekarang, saya berniat untuk bertransaksi menggunakan smartphone"* (Five (5) years from now I intend to pay for purchases with a mobile phone) because it has the same meaning as item MPAI3= "*Selama enam (6) bulan ke depan, saya berniat untuk bertransaksi melalui smartphone*" (During the next six (6) months I intend to pay for purchases with a mobile phone). In addition to the same meaning, MPAI4 items are also highly correlated with MPAI3 items.

We again analyzed the remaining three items of m-payment adoption intention using CFA with the tau-equivalence model. The use of this model to overcome the degree of freedom= 0 on the congeneric model with three items (Czerwiński & Atroszko, 2023). The results of the analysis show the model fit with the data, $X^2(1)= 0.008$ p= 0.927, RMSEA= 0.000 (90% CI [0.000, 0.060]), CFI= 1.000, TLI= 1.000, SRMR= 0.004. As for the estimated reliability of McDonald's Omega, it is 0.76.

Table 2.
Statistical value, correlation, and MPAI item standardized factor loading

MPAI	M	SD	Skew-ness	Kur-tosis	1	2	3	4	SFL1	SE	SRV	SFL2	SE	SRV
MPAI1	4.17	0.77	-1.06	2.04	1				0.56*	0.06	0.69	0.65*	0.07	0.58
MPAI2	3.98	0.70	-0.71	1.95	0.55	1			0.68*	0.05	0.54	0.85*	0.04	0.27
MPAI3	3.79	0.85	-0.24	-0.37	0.47	0.61	1		0.90*	0.03	0.19	0.71*	0.04	0.49
MPAI4	3.84	0.81	-0.26	-0.20	0.48	0.56	0.78	1	0.87*	0.03	0.24	-	-	-

*Note: SFL= standardized factor loading; SE= standard error; SRV= standardized residual variances; *p<0.001*
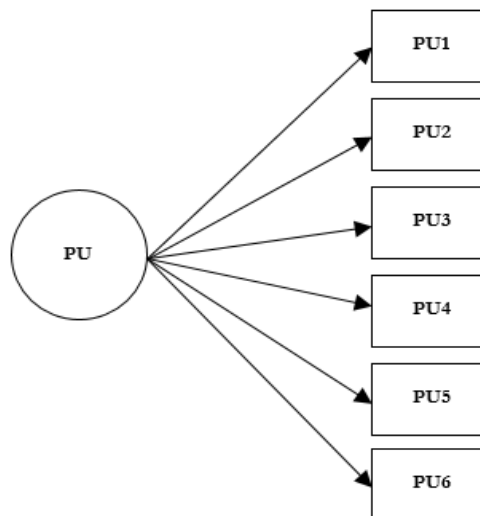

Figure 3.
PU Model

Perceived usefulness is the level of confidence individuals have that using m-payment can be beneficial in making transactions. The instrument used to measure PU was adapted from Davis (1989). The PU instrument consists of 6 items with five response options (very inappropriate to very appropriate). The results of the CFA analysis with the MLR estimator show a fit model with the data, $X^2(9)= 6.870$ p= 0.651, RMSEA= 0.000 (90% CI [0.000, 0.064]), CFI= 1.000, TLI= 1.000, SRMR= 0.023. As for the estimated reliability value of McDonald's Omega PU, it is 0.86 (95% CI [0.83, 0.89]).

Table 3.

Statistical value, correlation, and PU item standardized factor loading

PU	M	SD	Skewness	Kurtosis	1	2	3	4	5	6	SFL	SE	SRV
PU1	4.16	0.77	-0.85	0.98	1						0.79*	0.03	0.38
PU2	3.69	0.90	-0.79	0.84	0.39	1					0.46*	0.07	0.79
PU3	3.78	0.74	0.09	-0.66	0.44	0.34	1				0.60*	0.06	0.64
PU4	3.91	0.76	-0.38	0.27	0.62	0.38	0.54	1			0.80*	0.04	0.36
PU5	4.15	0.68	-0.38	-0.15	0.70	0.38	0.48	0.69	1		0.87*	0.02	0.25
PU6	4.06	0.70	-0.33	-0.19	0.62	0.35	0.51	0.63	0.71	1	0.81*	0.04	0.35

Note: SFL= standardized factor loading; SE= standard error; SRV= standardized residual variances; *p<0.001
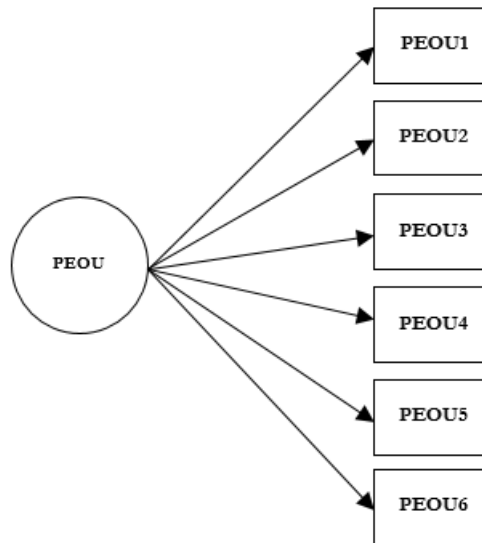

Figure 4.

PEOU Model

Perceived ease of use is the level of individual confidence that m-payment is easy to use. The instrument used to measure PEOU was adapted from Davis (1989). PEOU comprises six items with five response options (strongly disagree to strongly agree). The results of the CFA analysis with the MLR estimator show a fit model with the data, $X^2(9)= 16.830$ p= 0.051, RMSEA= 0.065 (90% CI [0.000, 0.120]), CFI= 0.969, TLI= 0.949, SRMR= 0.032. McDonald's Omega's reliability estimate value on PEOU is 0.93 (95% CI [0.90, 0.95]).

Table 4.

Statistical value, correlation, and PEOU item standardized factor loading

PEOU	M	SD	Skewness	Kurtosis	1	2	3	4	5	6	SFL	SE	SRV
PEOU1	4.12	0.65	-0.65	1.94	1						0.83*	0.03	0.31
PEOU2	4.06	0.67	-0.45	1.10	0.71	1					0.81*	0.04	0.35
PEOU3	3.96	0.66	-0.16	-0.14	0.68	0.71	1				0.87*	0.03	0.25
PEOU4	3.95	0.69	-0.62	1.36	0.69	0.71	0.74	1			0.83*	0.04	0.31
PEOU5	4.01	0.67	-0.11	-0.51	0.74	0.60	0.71	0.62	1		0.82*	0.03	0.33
PEOU6	4.18	0.61	-0.13	-0.50	0.60	0.58	0.68	0.65	0.72	1	0.78*	0.05	0.39

Note: SFL = standardized factor loading; SE = standard error; SRV = standardized residual variances; *p<0.001
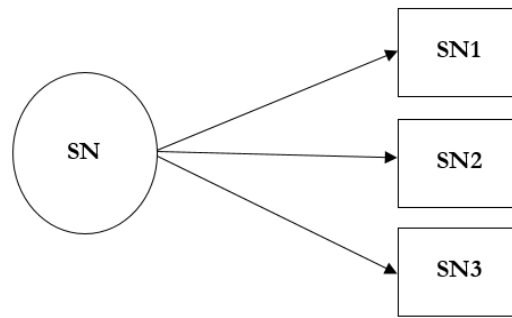
Figure 5.
SN Model

Subjective norm is the perceived social pressure to engage or not engage in m-payment. Our SN instrument is adapted from Shankar & Datta (2018) and consists of three items with five response options (strongly disagree to strongly agree). We used the tau-equivalence model to overcome the degree of freedom= 0 on the congeneric model with three items (Czerwiński & Atroszko, 2023). The results of the CFA analysis using the MLR estimator show a model fit with the data, $X^2(3)= 4.788$ p= 0.188, RMSEA= 0.053 (90% CI [0.000, 0.138]), CFI= 0.977, TLI= 0.977, SRMR= 0.061. The estimated reliability value of McDonald's Omega on SN is 0.82.

Table 5.
Statistical value, correlation, and SN item standardized factor loading

SN	M	SD	Skewness	Kurtosis	1	2	3	SFL	SE	SRV
SN1	3.60	0.78	0.04	-0.14	1			0.78*	0.03	0.39
SN2	3.52	0.79	-0.08	-0.13	0.69	1		0.78*	0.03	0.40
SN3	3.72	0.76	-0.22	0.10	0.54	0.59	1	0.78*	0.03	0.40

*Note: SFL= standardized factor loading; SE= standard error; SRV= standardized residual variances; *p<0.001*
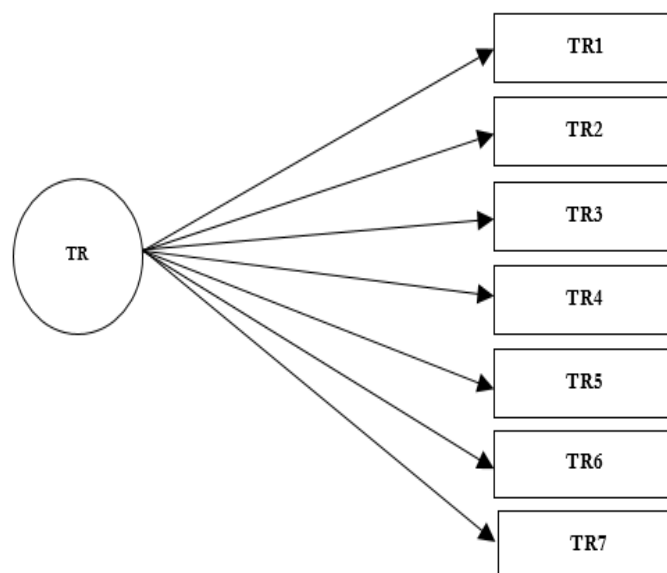

Figure 6.
TR Model

Trust is defined as positive consumer expectations towards service providers (m-payment providers) (Mayer et al., 1995). Our TR instrument is adapted from Shankar & Datta (2018). This instrument consists of 7 items with five response options (strongly disagree to strongly agree). The results of the CFA analysis with the MLR estimator show a model fit with the data, X^2 (14)= 16.216 p= 0.300, RMSEA= 0.028 90% CI [0.000, 0.075], CFI= 0.993, TLI= 0.990, SRMR= 0.033. The estimated reliability of McDonald's Omega is 0.88 (95% CI [0.84, 0.91]).

Table 6.
Statistical value, correlation, and TR item standardized factor loading

TR	M	SD	Skewness	Kurtosis	1	2	3	4	5	6	7	SFL	SE	SRV
TR1	3.51	0.83	-0.49	0.19	1							0.56*	0.08	0.68
TR2	3.88	0.59	-0.66	1.54	0.41	1						0.57*	0.07	0.68
TR3	3.73	0.70	-0.74	1.56	0.46	0.47	1					0.87*	0.03	0.25
TR4	3.81	0.64	-0.23	0.16	0.50	0.39	0.69	1				0.76*	0.05	0.42
TR5	3.64	0.75	-0.59	0.41	0.46	0.48	0.75	0.62	1			0.86*	0.03	0.27
TR6	3.75	0.70	-0.65	0.57	0.44	0.43	0.65	0.56	0.70	1		0.77*	0.05	0.40
TR7	3.89	0.67	-0.54	1.36	0.25	0.41	0.46	0.42	0.42	0.44	1	0.53*	0.07	0.72

*Note: SFL= standardized factor loading; SE= standard error; SRV= standardized residual variances; *p<0.001*

We used path analysis (e.g., Mufiedah et al., 2023; Rai et al., 2021; Susiloadi & Renanita, 2023) with the help of Mplus software version 8.8 to test the model in this research. The score we use in the analysis is a factor score (Skrondal & Laake, 2001) produced from a CFA analysis using stage 2 participants. Before we test the model, we check the multivariate distribution of the data. We also check the reliability estimation of each variable and test the collinearity of each exogenous variable.

RESULTS AND DISCUSSION

This research integrates the Technology Acceptance Model (TAM) framework as a theoretical lens to examine m-payment adoption intentions. For this purpose, new variables are added to the model to understand the characteristics of m-payment. The variables are subjective norms and trust. This research began with the adaptation and validation of research instruments and then continued with model testing.

The results of the adaptation and validation of the five research instruments (MPAI, PU, PEOU, SN, and TR) show that all five instruments meet the model fit criteria (see Table 7) with standardized factor loading values ranging from 0.46 to 0.87 and have reliability estimation values that adequate (ω>0.70). This shows that the instrument used in this research fulfills the validity evidence based on the internal structure with a one-dimensional structure that is in accordance with previous research (Davis, 1989; Kim et al., 2010; Shankar & Datta, 2018).

Several checks precede our model testing phase. The first check is the distribution of research data. Based on a multivariate data distribution examination using Mardia's multivariate test (b1p = 1.95 p<0.05, b2p= 42.70 p<0.05), the model testing data is not normally distributed (Cain et al., 2017; Wang & Wang, 2020). Therefore, we use the MLR estimator in model testing to overcome non-normal data distribution (Muthén & Muthén, 2017).

Table 7.

Goodness of fit values of research instruments

Variable	Item	X²	df	p	RMSEA [90% CI]	CFI	TLI	SRMR	ω [95% CI]
MPAI	3 item	0.008	1	0.927	0.000 [0.000, 0.060]	1.000	1.000	0.004	0.76
PU	6 item	6.870	9	0.651	0.000 [0.000, 0.064]	1.000	1.000	0.023	0.86 [0.83, 0.89]
PEOU	6 item	16.830	9	0.051	0.065 [0.000, 0.120]	0.969	0.949	0.032	0.93 [0.90, 0.95]
SN	3 item	4.788	3	0.188	0.053 [0.000, 0.138]	0.977	0.977	0.061	0.82
TR	7 item	16.216	14	0.300	0.028 [0.000, 0.075]	0.993	0.990	0.033	0.88 [0.84, 0.91]

Note: ω = McDonald's Omega estimated reliability

The second check is reliability. The reliability estimation value of each variable ranges from 0.76 to 0.93 (Table 8). This shows that the model testing data has an adequate reliability estimation value. The third check is collinearity. Based on the VIF and Tolerance values (Table 9), each exogenous variable is not indicated to have collinearity (Field et al, 2012).

Table 8.

Statistical description, correlation, and research variables reliability

Variable	M	SD	Skewness	Kurtosis	MPAI	PU	PEOU	SN	TR
MPAI	0.00	0.43	-0.39	0.30	**0.76**				
PU	0.00	0.52	-0.32	-0.03	0.73**	**0.85**			
PEOU	0.00	0.57	-0.27	0.05	0.72**	0.76**	**0.93**		
SN	0.00	0.55	-0.01	-0.04	0.47**	0.47**	0.43**	**0.83**	
TR	0.00	0.52	-0.14	0.13	0.22*	0.22**	0.26**	0.34**	**0.87**

*Note: *p<0.01; **p<0.001; values in bold are Mcdonald's Omega estimated reliability*

Based on the results of model testing (Table 9), there are three out of four variables in the model that influence m-payment adoption intentions, namely perceived usefulness (H1, R^2= 0.27), perceived ease of use (H2, R^2= 0.28), and subjective norms (H3, R^2= 0.07). In this research, trust has no impact on m-payment adoption intention (H4). The significance of the influence of perceived usefulness on m-payment adoption intentions implies that when users consider the technology to provide them with benefits, the decision to adopt it becomes more significant. Users will adopt m-payment when they consider the method can meet their needs. The significance of the influence of perceived ease of use shows that the ease of using m-payment can increase the intention to adopt m-payment in transactions. The results of this research are in line with the research of Phonthanukitithaworn et al. (2016), Tiwari et al. (2021), and Khan et al. (2023).

Table 9.

Model testing results

	B	SE	b	SE	R²	VIF	Tolerance
PU --> MPAI (H1)	0.31**	0.06	0.38**	0.08	0.27	2.50	0.40
PEOU --> MPAI (H2)	0.29**	0.06	0.38**	0.07	0.28	2.42	0.41
SN --> MPAI (H3)	0.11*	0.04	0.14*	0.05	0.07	1.39	0.72
TR --> MPAI (H4)	-0.02	0.04	0-.02	0.05	0.00	1.16	0.86

*Note: *p<0.01; **p<0.001*

The following findings confirm that subjective norms influence the use of m-payment. The results of this analysis are consistent with the research of Nguyen et al. (2016), Zhao & Bacao (2021), and Wei et al., (2021). Subjective norms reflect the influence of others, such as colleagues, friends, and family, who play a role in consumer decision-making. Individuals rely on suggestions and recommendations from significant others to use or not use m-payment in financial transactions.

The confirmation of subjective norms as a factor influencing the use of m-payment strengthens the role of culture on consumer behavior. People in collectivist cultures think they are connected to their group, mutually obligated to each other, and socially embedded in their network. Therefore, the consumer's priority is to meet the expectations of others, adapt to consensus choices, and build relationships between them (Shavitt & Barnes, 2020).

This research has limitations related to the possibility of individual differences in influencing the intention to use m-payment. Variables of individual differences that can be considered for subsequent studies are personalities, such as innovators, early adopters, and late adopters. The involvement of personality variables can complement the new technology adoption model in the financial field.

This study has several theoretical implications. First, this study provides evidence of the validity of the trust scale, subjective norm, perceived usefulness, perceived ease of use, and the Indonesian version of m-payment adoption intention. Thus, researchers can use these five scales to examine m-payment adoption intentions in Indonesia. Second, this study confirms the TAM as Indonesia's m-payment adoption intention model. This study provides empirical evidence that integrating TAM and subjective norms drives m-payment adoption intentions. This finding can be a reference in developing research with similar topics in Indonesia.

This study also gives implications for m-payment service providers in increasing m-payment adoption. Based on the results of this research, m-payment service providers should consider individuals' usefulness, convenience, relationships, and social networks as sources of influence on the acceptance of m-payment for individuals.

CONCLUSION

The Indonesian government encourages using m-payment as a payment alternative to cash, credit cards, or debit cards. However, research on the factors that drive the adoption of m-payment in Indonesia is still limited. To reduce this gap, this research integrates the TAM with psychological variables, namely subjective norms and trust. This article reports the results of testing the m-payment adoption intention factor model that is equipped with information on the psychometric properties of each measurement tool. An important finding in this research is that the individual's perception of the usefulness and ease of using m-payment drives the use of m-payment. In addition, the decision to use m-payment is also driven by the views of the social environment around the individual. Consequently, these three variables should be considered to increase the adoption of m-payment in transactions. For payment service providers, promotional strategies must consider two things, namely, the suitability of individual needs, values, and lifestyles and involvement in communities, networks, or other social groups.

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