

Consumers' intention to use a cashless parking payment system at Duta Mall Palangka Raya: a technology acceptance model approach

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Abstract

This study examines consumer acceptance of a cashless parking payment system at Duta Mall Palangka Raya by drawing on the Technology Acceptance Model (TAM) framework. Specifically, it investigates the extent to which perceived ease of use and perceived usefulness predict users' intention to adopt the system, while also evaluating the mediating function of attitude toward using within these relationships. Employing a quantitative associative design, data were gathered through an online questionnaire distributed to 96 mall visitors selected via probability sampling based on Cochran's formula. Structural equation modelling through Partial Least Squares (PLS) in SmartPLS version 3 was applied for hypothesis testing. Findings indicate that perceived ease of use significantly determines intention to use, whereas perceived usefulness yields no statistically significant direct effect. Attitude toward using partially mediates both relationships. These results highlight that enhancing interface usability is a critical pathway through which positive user attitudes are formed, ultimately driving greater adoption of cashless parking payment technology.

Keywords: Cashless Parking, Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, Intention to Use

Abstrak

Penelitian ini mengkaji penerimaan konsumen terhadap sistem pembayaran parkir nontunai di Duta Mall Palangka Raya dengan mengacu pada kerangka Model Penerimaan Teknologi (TAM). Secara khusus, penelitian ini menyelidiki sejauh mana persepsi kemudahan penggunaan dan persepsi kegunaan dapat memprediksi niat perilaku pengguna untuk mengadopsi sistem tersebut, sekaligus mengevaluasi fungsi mediasi dari sikap terhadap penggunaan dalam hubungan-hubungan tersebut. Dengan menggunakan desain asosiatif kuantitatif, data dikumpulkan melalui kuesioner daring yang dibagikan kepada 96 pengunjung mal yang dipilih melalui pengambilan sampel probabilitas berdasarkan rumus Cochran. Model persamaan struktural melalui Partial Least Squares (PLS) dalam SmartPLS versi 3 diterapkan untuk pengujian hipotesis. Temuan menunjukkan bahwa persepsi kemudahan penggunaan secara signifikan menentukan niat untuk menggunakan, sedangkan persepsi kegunaan tidak memberikan efek langsung yang signifikan secara statistik. Sikap terhadap penggunaan berperan sebagai mediator parsial dalam kedua hubungan tersebut. Hasil ini menyoroti bahwa peningkatan kegunaan antarmuka merupakan jalur kritis di mana sikap positif pengguna terbentuk, yang pada akhirnya mendorong adopsi teknologi pembayaran parkir nontunai yang lebih luas.

Kata kunci: Parkir Tanpa Tunai, Kemudahan Penggunaan, Kegunaan, Sikap Pengguna, Niat Penggunaan

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1. Introduction

Among the determinants shaping the adoption of digital payment systems, users' cognitive assessments of technology performance and operational simplicity occupy a central position. Within the Technology Acceptance Model (TAM) framework, perceived usefulness is conceptualized as the degree to which an individual believes that engaging with a specific system will enhance task performance and overall effectiveness in conducting daily activities (Davis, 1989). Perceived ease of use, by contrast, captures the extent to which a user regards a system as straightforward to comprehend, convenient to operate, and undemanding in terms of cognitive and physical effort (Davis, 1989). Empirical evidence from prior investigations suggests that favorable perceptions of perceived usefulness and perceived ease of use are associated with more positive user attitudes and stronger behavioral intention to use digital payment systems (Ghazali et al., 2026; Purnama et al., 2023). Complementing these findings, Tikaromah et al. (2025) affirm that perceived ease of use and perceived usefulness contribute positively to digital payment acceptance by mitigating transactional complexity and fostering greater efficiency in routine financial activities.

The behavioral dimension of technology adoption is further shaped by attitude toward using, defined as an individual's evaluative disposition, whether favorable or unfavorable, toward engaging with a given technological system (Davis, 1989). Theoretical propositions advanced by Ajzen (1991) suggest that individuals harboring a positive attitude toward using a technology are predisposed to exhibit heightened intention to use and more pronounced acceptance behaviors. Supporting this proposition empirically, Prasetya & Lestari (2024) and Rachman & Umniati (2025) demonstrate that attitude toward using functions as a significant mediator linking perceived ease of use and perceived usefulness to intention to use within digital technology adoption contexts. Beyond attitudinal influences, consumers exhibit a pronounced tendency to respond affirmatively to digital payment solutions characterized by speed, accessibility, and intuitive design, given that such attributes deliver transactional efficiency and flexibility (Afandi et al., 2022; Ryantina & Arinal, 2026).

The deployment of a cashless parking payment system at Duta Mall Palangka Raya exemplifies the progressive integration of digital payment infrastructure within brick-and-mortar service settings. Nevertheless, the mechanisms through which perceived usefulness and perceived ease of use foster intention to use via the mediating role of attitude toward using remain insufficiently examined in semi-mandatory offline payment environments. Existing scholarship has predominantly concentrated on voluntary digital payment modalities, including e-wallets, mobile banking, and online retail transactions, leaving the mediating function of attitude toward using in offline service contexts, particularly cashless parking systems, largely underexplored. Responding to this gap, the present study advances an empirical model that synthesizes perceived usefulness, perceived ease of use, and attitude toward using to elucidate consumers' intention to use cashless parking payment systems within offline commercial settings. Through this endeavor, the study aspires to deliver substantive

theoretical and empirical contributions toward a more nuanced understanding of consumer acceptance behavior in the domain of semi-mandatory digital payment systems.

2. Literature Review

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) explains technology acceptance through two primary beliefs: perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which users believe that technology enhances their performance, whereas perceived ease of use refers to the extent to which technology is perceived as easy to use and free of effort (Davis, 1989; Scherer et al., 2019). These two beliefs shape attitude toward using, which subsequently influences behavioral intention to use, and ultimately affects actual system usage (Davis, 1993; Marangunić & Granić, 2015; Zaineldeen et al., 2020). Early studies indicate that perceived usefulness and perceived ease of use can be measured reliably and both exhibit significant correlations with current and future usage, with perceived usefulness generally exerting a stronger influence than perceived ease of use (Davis, 1989, 1993). Recent meta-analyses and literature reviews further confirm that TAM is a valid and robust model for explaining technology usage intention across various contexts (Granić & Marangunić, 2019; Musa et al., 2024; Rahimi et al., 2018).

The Technology Acceptance Model (TAM) explains that the intention to use technology is primarily shaped by two key beliefs: perceived usefulness, which refers to the extent to which technology is perceived as beneficial and capable of enhancing performance, and perceived ease of use, which refers to the extent to which technology is perceived as easy to use and requiring minimal effort. These two perceptions foster the development of attitude toward using and ultimately influence intention to use, which has been empirically proven to be crucial in the adoption of various digital payment systems such as e-wallets, mobile wallets, e-payments, QRIS, and contactless payments (Chaveesuk et al., 2022; Fadilah & Andriani, 2025; To & Trinh, 2021; Yuliani & Kartika Pertiwi, 2025).

Perceived Ease of Use and Attitude Toward Using

Perceived Ease of Use is defined as the belief that a system is “easy to learn, easy to operate, and does not require substantial effort” when used. Perceived ease of use is often shaped by system quality, ease of access, and users’ confidence in their technological abilities, and it constitutes one of the core constructs within the Technology Acceptance Model (TAM) (Denovan & Marsasi, 2025; Fearnley & Amora, 2020).

Various studies have demonstrated that perceived ease of use has a positive effect on attitude toward use. In the context of regional financial information systems, the perception of ease of use increases users’ confidence that the system is understandable and operable, thereby fostering a more positive attitude toward its use (Asmara & Ratmono, 2021). In the contexts of video conferencing and the Internet of Things (IoT), perceived ease of use has also been shown to enhance users’ attitudes

toward technology (Alzahrani, 2023; Denovan & Marsasi, 2025). Further meta-analytical findings indicate that perceived ease of use has a direct influence on attitude, and technologies that are “responsive and easy to use” tend to cultivate more favorable attitudes and encourage the continued use of the system (Mishra et al., 2023). In the adoption of metaverse platforms and mobile shopping applications, perceived ease of use consistently strengthens users’ attitudes toward technology usage (Aburbeian et al., 2022).

H1: Perceived ease of use has a significant effect on attitude toward using

Perceived Usefulness and Attitude Toward Using

Perceived usefulness refers to the extent to which an individual believes that using a particular technology will enhance their performance, efficiency, or task accomplishment. It is commonly measured through the belief that technology helps complete activities more quickly, more easily, and more effectively, whether in work, learning, or daily activities (Davis, 1989; Liesa-Orús et al., 2023). Various studies have shown that perceived usefulness has a positive and significant effect on attitude toward using across multiple contexts, including gerontechnology for older adults, eHealth, online ticketing applications, and shopping platforms such as Alfagift (Palumian et al., 2021; Toros et al., 2024).

Among elderly users in university settings, higher perceived usefulness is associated with more positive attitudes toward technology use, which in turn strengthens attitude toward using (Liesa-Orús et al., 2023). In the digitalization of MSME tax systems and shopping applications, perceived usefulness enhances attitude, with attitude mediating the relationship between perceived usefulness and both intention to use and actual usage (Andika et al., 2025). Meta-analytical evidence in the hospitality and tourism sectors also identifies perceived usefulness as the strongest predictor within the TAM framework, including its influence on users’ attitudes toward mobile technologies (Li et al., 2024).

H2: Perceived usefulness has a significant effect on attitude toward using

Perceived Ease of Use and Intention to Use

Perceived Ease of Use refers to the belief that a technology is easy to learn, easy to operate, and does not require substantial effort when used. It encompasses users’ perceptions that a system has simple navigation, a clear interface, fast response, flexibility, and accessibility anytime and anywhere, enabling users to feel comfortable and unburdened when using it (Perwitasari, 2022; Wicaksono & Maharani, 2020). Within the Technology Acceptance Model (TAM), perceived ease of use is one of the core factors that shapes behavioral intention to use new technology.

Various studies indicate that perceived ease of use often has a positive and significant effect on intention to use. It has been found to increase usage intention in contexts such as MSME fintech, e-commerce, mobile banking, online travel platforms, internet usage, and fintech and e-commerce in general (Perwitasari, 2022; Putri, 2025). In digital payment systems and distance education platforms, perceived ease of use

has also been shown to exert a strong influence on usage intention, both directly and indirectly through perceived usefulness (Siagian et al., 2022).

H3: Perceived ease of use has a significant effect on intention to use

Perceived Usefulness and Intention to Use

Perceived usefulness refers to the belief that using a particular technology will enhance performance, effectiveness, productivity, or the quality of work or learning outcomes. Individuals who perceive that a technology genuinely helps them complete tasks more quickly, more easily, and more effectively tend to have a high level of perceived usefulness (Kim & Park, 2012; Ruiz-Herrera et al., 2023).

Various studies have demonstrated that perceived usefulness has a positive and significant effect on intention to use across multiple technological contexts. In healthcare services, perceived usefulness has been shown to be a direct predictor of patients' intention to adopt health technologies, alongside perceived ease of use, trust, and privacy concerns (Ruiz-Herrera et al., 2023; Zhou et al., 2024). In the context of student e-commerce usage, perceived usefulness emerges as a primary antecedent of intention to use online shopping platforms (Wicaksono & Maharani, 2020).

H4: Perceived usefulness has a significant effect on intention to use

Attitude Toward Using and Intention to Use

Attitude toward using refers to an individual's positive or negative evaluation of using a technology, or the extent to which the individual perceives the use of the technology as enjoyable, beneficial, and worth pursuing. Individuals who hold more positive attitudes toward a technology tend to demonstrate stronger intentions to use it on a sustained basis (Buabeng-Andoh, 2021; Luik & Taimalu, 2021).

Various studies have shown that attitude has a positive and significant effect on intention to use across many technological contexts. In mobile learning among university students, attitude has been identified as the strongest predictor of intention to use, surpassing the influence of self-efficacy and subjective norm (Buabeng-Andoh, 2021). Among pre-service and in-service teachers in Turkey, attitude toward computer use emerges as a dominant predictor of behavioral intention in both groups (Ursavaş et al., 2019). Similarly, in the context of student teachers in Estonia, attitude toward using technology has been found to exert a strong direct effect on intention to use (Luik & Taimalu, 2021).

H5: Attitude toward using has a significant effect on intention to use

Attitude Toward Using Mediates the Relationship Between Perceived Ease of Use and Intention to Use

Perceived ease of use increases when users perceive a technology as easy to learn, easy to operate, and not effort-intensive. This sense of ease creates a comfortable user experience, leading individuals to develop more positive attitudes toward the technology (Wimbo Raksadigiri & Wahyuni, 2020). For instance, when a system interface is clear and interactions feel smooth, users tend to feel "comfortable" and

“unburdened” while using the technology, which in turn fosters a more favorable attitude toward its use (Palos-Sanchez et al., 2021; Shroff et al., 2011).

The more positive an individual's attitude toward using a technology, the stronger their intention to use it both in the present and in the future. Numerous TAM-based studies have demonstrated that attitude has a positive and significant effect on behavioral intention across various contexts, including teacher multimedia, e-marketing, m-health applications, ERP systems, and digital learning platforms (Palos-Sanchez et al., 2021; Weng et al., 2018). In the context of Instagram Shop, attitude toward use has been found to fully mediate the effect of perceived ease of use on purchase intention (Fatmawati & Ali, 2021). Similarly, in the use of TikTok, attitude partially mediates the influence of perceived ease of use on continuance usage intention (Putri Pertami & Sukaatmadja, 2021). Therefore, attitude toward using functions as a psychological bridge that links perceived ease of use with the intention to use technology.

H6: Attitude toward use significantly mediates the relationship between perceived ease of use and intention to use

Attitude Toward Using Mediates the Relationship Between Perceived Usefulness and Intention to Use

Perceived usefulness increases when users perceive that a technology genuinely provides benefits, such as enabling faster, more practical, safer transactions or enhancing performance. This perception of usefulness encourages the development of a more positive attitude toward using, reflected in users' beliefs that the application is worth using, comfortable, and recommendable (Andika et al., 2025; Fertiwi et al., 2025; Setyawati & Polar, 2022).

The more positive the attitude toward using, the stronger the intention to use. Across various contexts, attitude toward using has been shown to have a positive and significant effect on intention to use technologies, including e-wallets, retail applications, transportation systems, autonomous vehicles, and taxation systems (Andika et al., 2025; Fertiwi et al., 2025; Setyawati & Polar, 2022). Several studies explicitly find that attitude toward using mediates the relationship between perceived usefulness and intention to use. For example, among Alfagift users, perceived usefulness has a positive and significant effect on both attitude toward using and intention to use, with attitude toward using acting as an effective mediator in the relationship between perceived usefulness and intention to use (Andika et al., 2025).

H7: Attitude toward use significantly mediates the relationship between perceived usefulness and intention to use

3. Research Method

This study adopted a quantitative approach within an associative research design to examine the relational dynamics among Perceived Ease of Use, Perceived Usefulness, and Intention to Use, with Attitude Toward Using functioning as a mediating variable in the context of the cashless parking payment system at Duta Mall Palangka Raya.

Hypothesis testing was performed through statistical analysis based on numerical data using SmartPLS 3. The Partial Least Squares–Structural Equation Modeling (PLS-SEM) method was chosen because it was more tolerant of relatively small sample sizes, did not strictly require normally distributed data, and was appropriate for studies focused on predicting user behavior in specific contexts (Hair et al., 2022).

Data collection in this study relied on two complementary sources. Primary data were obtained through a structured online questionnaire administered via Google Forms, whereas secondary data were derived from peer-reviewed academic literature and pertinent antecedent studies. The target population was defined as individuals with demonstrated prior experience using the cashless parking payment system, from whom participants were drawn using a dual sampling approach combining purposive and probability sampling, with verified system usage serving as the eligibility criterion. Application of Cochran's formula to determine an adequate sample size produced a final cohort of 96 respondents, established at a 95% confidence level and a tolerated margin of error of 10%.

Measurement of the four core constructs derived from the Technology Acceptance Model (TAM), namely perceived ease of use, perceived usefulness, attitude toward using, and intention to use, was operationalized through a Likert-scale questionnaire instrument. Analytical procedures encompassed both descriptive statistics and structural equation modeling via the Partial Least Squares (PLS) method. Within the PLS framework, assessment proceeded in two sequential stages: the outer model evaluation, which verified the validity and reliability of each construct's measurement items, followed by inner model analysis, through which the directional relationships among latent variables were examined and the hypothesized structural paths were empirically tested.

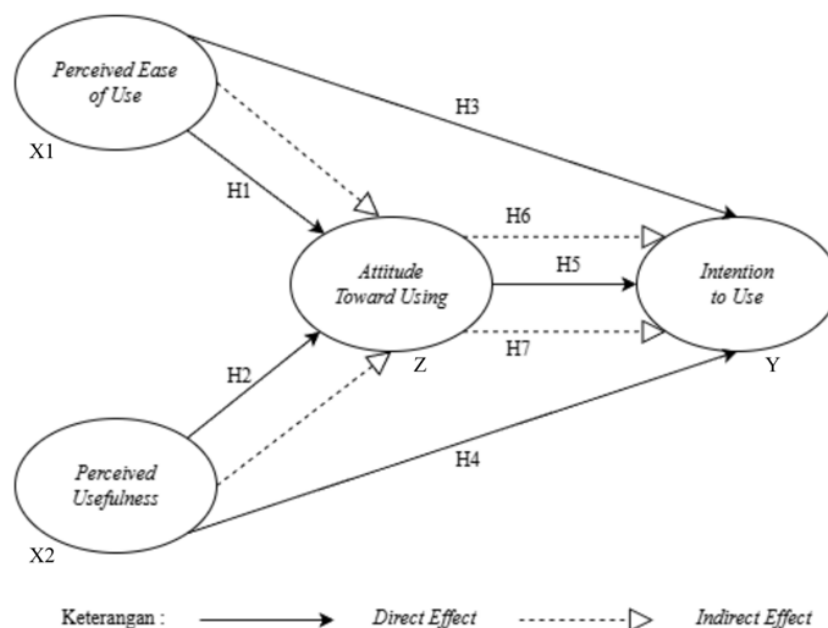


Figure 1. Framework for Research Concepts

Table 1. Identification of variables

Variable	Definition	Variable Indicators
Perceived Ease of Use (X1)	Perceived ease of use refers to an individual's belief that a particular system is easy to operate, clearly understandable, and requires minimal effort to complete specific tasks.	1. Easy to learn 2. Easy to control 3. Clear and understandable 4. Flexible 5. Easy to become skillful 6. Easy to use (Nadia et al., 2025)
Perceived Usefulness (X2)	Perceived usefulness refers to the degree to which an individual believes that using a particular system enhances their performance and offers benefits in completing tasks or activities.	1. Useful in daily activities 2. Increase purchase opportunities 3. Facilitate the transaction process 4. Provide a sense of security 5. Overall usefulness (Puriwat & Tripopsakul, 2021)
Attitude toward Using (Z)	Attitude toward using refers to an individual's evaluation or response toward the use of an information system, which is reflected through the acceptance or rejection of the technology.	1. Affective component 2. Cognitive component 3. Conative component (Nadia et al., 2025)
Intention to Use (Y)	Intention to use refers to the level of an individual's willingness or intention to use a particular technology as an initial indicator of technology adoption.	1. Satisfaction and intention to reuse 2. Ability to control behavioral responses 3. Recommending the use of technology (Puriwat & Tripopsakul, 2021)

4. Results and Discussion

4.1. Results

Respondent Characteristics

Table 2. Respondent Characteristics

	Category	Frequency	Percentage
Gender	Males	38	39.6 %
	Females	58	60.4 %
Age	< 20	18	18.7 %
	20 - 30	76	79.2 %
	30 - 45	2	2.1 %
	45 >	0	0 %
Occupation	Students	8	8.3 %
	University Students	52	54.2 %
	Entrepreneurs	5	5.2 %
	Private Employees	11	11.5 %
	Civil Servants	5	5.2 %
	Other Occupations	15	15.6 %
Income	< Rp. 500.000	23	24 %
	Rp. 500.000 - Rp. 1.500.000	14	14.6 %
	Rp. 1.500.000 - Rp. 2.500.000	7	7.3 %
	Rp. 2.500.000 - Rp. 3.500.000	18	18.7 %
	Rp. 3.500.000 - Rp. 4.500.000	16	16.7 %
	> Rp. 4.500.000	18	18.7 %
Total		96	100%

Based on Table 2, the data collected through the distribution of questionnaires clearly shows that 96 respondents who have used the cashless parking payment

system at Duta Mall Palangka Raya participated in the study. With 38 men (39.6%) and 58 women (60.4%) comprising the overall sample, female respondents predominated in the study. According to the respondents' age distribution, 18 people (18.7%) were under 20, 76 people (79.2%) were between 20 and 30, 2 people (2.1%) were between 30 and 45, and 0 people (0%) were above 45. This suggests that the majority of study participants were between the ages of 20 and 30.

Based on the occupation of respondents, it shows that 8 respondents (8.3%) were students, 52 respondents (54.2%) were university students, 5 respondents (5.2%) were entrepreneurs, 11 respondents (11.5%) were private employees, 5 respondents (5.2%) were civil servants, and 15 respondents (15.6%) had other occupations. This indicates that most respondents in this study were university students.

Lastly, according to the respondents' income levels, there were 23 individuals (24%) with an income of less than Rp 500,000, 14 individuals (14.6%), and 7 individuals (7.3%) with an income of Rp 1,500,000–Rp. 2,500,000; 18 individuals (18.7%) with an income of Rp 2,500,000–Rp 3,500,000, and 16 individuals (16.7 %) with an income of Rp 3,500,000–Rp 4,500,000. This indicates that a considerable proportion of respondents earned less than Rp 500,000.

Evaluation of the Measurement Model (Outer Model)

Convergent Validity

Convergent validity refers to the extent to which a set of manifest indicators associated with a given construct consistently captures the same underlying latent variable. This form of validity is conventionally assessed through two primary criteria: loading factor values and the average variance extracted (AVE).

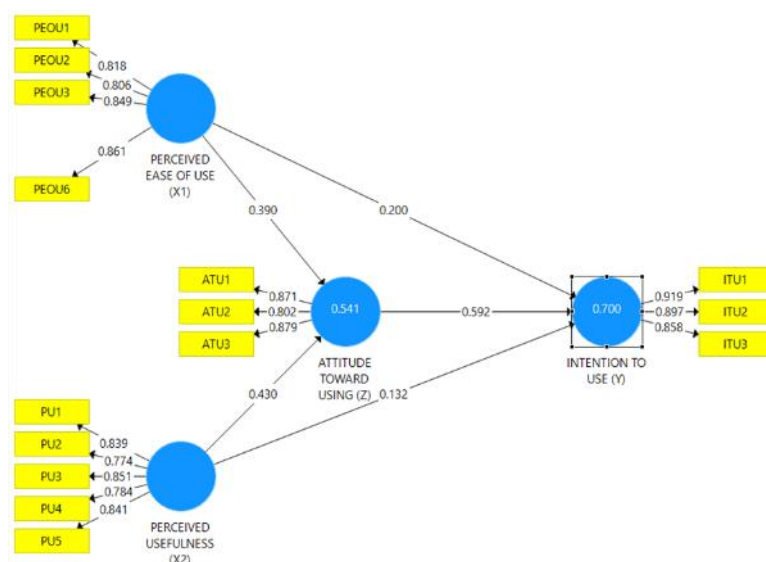


Figure 2. Outer Model PLS

An indicator is deemed acceptable when its loading factor exceeds 0.7, and the AVE surpasses 0.5, as these thresholds signify that the indicators adequately represent the construct under examination. Collectively, these benchmarks reflect the degree to which the latent construct accounts for a meaningful proportion of the variance observed across its corresponding indicators (Hair et al., 2022).

Table 3. Initial Loading Factor Test Results

Variable	ATU (Z)	ITU (Y)	PEOU (X1)	PU (X2)
ATU1	0.871			
ATU2	0.803			
ATU3	0.879			
ITU1		0.919		
ITU2		0.897		
ITU3		0.858		
PEOU1			0.787	
PEOU2			0.816	
PEOU3			0.846	
PEOU4			0.611	
PEOU5			0.681	
PEOU6			0.821	
PU1				0.839
PU2				0.774
PU3				0.851
PU4				0.784
PU5				0.841

Several indicators, including PEOU4 and PEOU5, continued to have loading factor values < 0.7 , according to the initial algorithm testing results in Table 3. As a result, the study model no longer included these indicators.

Table 4. Final Loading Factor Test Results

Variable	ATU (Z)	ITU (Y)	PEOU (X1)	PU (X2)
ATU1	0.871			
ATU2	0.802			
ATU3	0.879			
ITU1		0.919		
ITU2		0.897		
ITU3		0.858		
PEOU1			0.818	
PEOU2			0.806	
PEOU3			0.849	
PEOU6			0.861	
PU1				0.839
PU2				0.774
PU3				0.851
PU4				0.784
PU5				0.841

After the removal process was carried out, the algorithm testing was then conducted again in stages until all remaining indicators met the predetermined criteria in Table 4.

Table 5. AVE Test Results

Variable	Average Variance Extracted (AVE)
Attitude Toward Using (Z)	0.725
Intention to Use (Y)	0.795
Perceived Ease of Use (X1)	0.695
Perceived Usefulness (X2)	0.670

The evaluation results of the Average Variance Extracted (AVE) values showed that all latent variables in the study model had values > 0.5 . Table 5 demonstrates that there may be enough explanation for the fluctuation of the indicators that represent

each concept. Therefore, it may be concluded that the study model's indicators have met the convergent validity requirements and are ready to proceed to the next testing stage.

Discriminant Validity

Discriminant validity is considered to be achieved when the indicators belonging to a given latent variable exhibit a substantially lower degree of correlation with other latent variables relative to the construct they are intended to measure (Hair et al., 2017). To ascertain discriminant validity in the present study, two established assessment procedures were employed concurrently: the Cross-Loading analysis and the Fornell-Larcker Criterion. Within the Cross Loading framework, an indicator was deemed to satisfy the validity requirement when its factor loading on the theoretically assigned latent variable surpassed all corresponding loading values on the remaining constructs in the model. The Fornell-Larcker Criterion, serving as a complementary verification approach, confirmed discriminant validity on the condition that the square root of the Average Variance Extracted (AVE) for each latent variable exceeded the magnitude of its inter-construct correlation coefficients with every other latent variable included in the structural model.

Table 6. Fornell-Larcker Criterion Test Results

Variable	ATU (Z)	ITU (Y)	PEOU (X1)	PU (X2)
Attitude Toward Using (Z)	0.851			
Intention to Use (Y)	0.811	0.892		
Perceived Ease of Use (X1)	0.652	0.667	0.834	
Perceived Usefulness (X2)	0.668	0.650	0.611	0.819

As demonstrated in Table 6, the Fornell-Larcker Criterion assessment confirmed that the square root of the Average Variance Extracted (AVE) for every latent variable in the model surpassed the magnitude of its intercorrelation coefficients with all remaining constructs, thereby satisfying the established threshold for discriminant validity.

Table 7. Cross-Loading Test Results

	ATU (Z)	ITU (Y)	PEOU (X1)	PU (X2)
ATU1	0.871	0.77	0.649	0.586
ATU2	0.802	0.563	0.538	0.577
ATU3	0.879	0.721	0.468	0.545
ITU1	0.745	0.919	0.592	0.601
ITU2	0.737	0.897	0.563	0.581
ITU3	0.687	0.858	0.632	0.556
PEOU1	0.481	0.445	0.818	0.477
PEOU2	0.506	0.500	0.806	0.451
PEOU3	0.492	0.486	0.849	0.405
PEOU6	0.655	0.726	0.861	0.653
PU1	0.621	0.563	0.587	0.839
PU2	0.397	0.435	0.526	0.774
PU3	0.574	0.578	0.539	0.851
PU4	0.506	0.499	0.382	0.784
PU5	0.595	0.562	0.467	0.841

The cross-loading evaluation demonstrated that each indicator yielded a higher loading value on its designated latent variable than on any other latent variable, as presented in Table 7. These outcomes confirm that all indicators satisfy the established criteria for discriminant validity, thereby rendering them appropriate for inclusion in subsequent stages of analysis.

Reliability Testing

Reliability testing serves to assess the degree to which a given construct is measured consistently across its indicators. In structural equation modeling, reliability is commonly evaluated using two complementary measures: Composite Reliability and Cronbach's Alpha. A latent variable is considered reliable when both the Composite Reliability and Cronbach's Alpha values exceed 0.7, as this threshold indicates a sufficient level of internal consistency among the indicators (Hair et al., 2022).

Table 8. Cronbach's Alpha and Composite Reliability Values

	Cronbach's Alpha	Composite Reliability
Attitude Toward Using (Z)	0.810	0.888
Intention to Use (Y)	0.871	0.921
Perceived Ease of Use (X1)	0.855	0.901
Perceived Usefulness (X2)	0.877	0.910

Table 8 demonstrates that all latent variables in this study yielded Cronbach's Alpha and Composite Reliability values exceeding 0.7, indicating that the indicators employed consistently and reliably measured their respective constructs.

Structural Model Evaluation (Inner Model)

Table 9. Coefficient of Determination (R-Square)

	R Square
Attitude Toward Using (Z)	0.541
Intention to Use (Y)	0.700

Model explanatory power was assessed through the coefficient of determination (R^2), which quantifies the proportion of variance in each endogenous variable accounted for by its corresponding exogenous predictors. Table 9 presents the R^2 values obtained for both dependent constructs. With regard to attitude toward using, the R^2 value of 0.541 indicates that perceived usefulness and perceived ease of use collectively explained 54.1% of its total variance, with the remaining 45.9% attributable to variables operating outside the boundaries of the proposed model. Concerning intention to use, an R^2 value of 0.700 demonstrates that the combined predictive contribution of perceived usefulness, perceived ease of use, and attitude toward using accounted for 70.0% of the variance in that construct, whereas the unexplained 30.0% is ascribed to exogenous factors not captured within the model specification.

Table 10. Effect Size (F-Square)

	ATU (Z)	ITU (Y)	PEOU (X1)	PU (X2)
Perceived Usefulness (X2)	0.252	0.029		
Perceived Ease of Use (X1)	0.207	0.069		
Intention to Use (Y)				
Attitude Toward Using (Z)		0.536		

The f-square test results indicated that Perceived Usefulness and Perceived Ease of Use exerted moderate effects on Attitude Toward Using, with effect size values of 0.252 and 0.207, respectively. In contrast, the direct effects of both Perceived Usefulness and Perceived Ease of Use on Intention to Use were classified as small, yielding effect sizes of 0.029 and 0.069, respectively. Notably, Attitude Toward Using demonstrated a strong influence on Intention to Use, as evidenced by an f-square value of 0.536.

Table 11. Predictive Relevance (Q-Square)

	SSO	SSE	Q ² (=1-SSE/SSO)
Attitude Toward Using (Z)	288	179.234	0.378
Intention to Use (Y)	288	135.013	0.531
Perceived Ease of Use (X1)	384	384	
Perceived Usefulness (X2)	480	480	

The Q-square (Q²) test results revealed that Attitude Toward Using and Intention to Use obtained Q² values of 0.378 and 0.531, respectively. Given that both values exceeded zero, these constructs were classified as possessing high predictive relevance. This finding substantiates that the research model demonstrates strong predictive capability in accounting for the variance observed in the endogenous variables.

Hypothesis Testing

Table 10. Hypothesis Testing Results

Relationship Between Variables	Path Coefficient	T-Statistics	P Values	Conclusion
Direct Effect				
Perceived Ease of Use -> Attitude Toward Using	0.390	3.528	0.000	Accepted
Perceived Usefulness -> Attitude Toward Using	0.430	3.781	0.000	Accepted
Perceived Ease of Use -> Intention to Use	0.200	2.605	0.009	Accepted
Perceived Usefulness -> Intention to Use	0.132	0.994	0.321	Rejected
Attitude Toward Using -> Intention to Use	0.592	5.676	0.000	Accepted
Indirect Effect				
Perceived Ease of Use -> Attitude Toward Using -> Intention to Use	0.231	2.658	0.008	Accepted
Perceived Usefulness -> Attitude Toward Using -> Intention to Use	0.254	3.601	0.000	Accepted

Based on Table 10, perceived ease of use has a positive and significant effect on attitude toward using ($\beta = 0.390$; $p = 0.000$) and intention to use ($\beta = 0.200$; $p = 0.009$). Perceived usefulness also has a positive and significant effect on attitude toward using ($\beta = 0.430$; $p = 0.000$), but does not have a significant direct effect on intention to use ($\beta = 0.132$; $p = 0.321$). Furthermore, attitude toward using has a positive and significant effect on intention to use ($\beta = 0.592$; $p = 0.000$). For the indirect effects, attitude toward using significantly mediates the effect of perceived ease of use on intention to use ($\beta = 0.231$; $p = 0.008$) and the effect of perceived usefulness on intention to use ($\beta = 0.254$; $p = 0.000$). Therefore, all hypotheses are accepted, except for the direct effect of perceived usefulness on intention to use.

4.2. Discussion

The results of the first hypothesis indicate that perceived ease of use has a positive and significant effect on attitude toward using the cashless parking payment system at Duta Mall Palangka Raya. This means that the easier the system is perceived to be to use, the more positive users' attitudes toward the technology. A simple and understandable payment system tends to increase users' comfort and confidence in conducting transactions. These findings are consistent with previous studies showing that perceived ease of use positively influences users' attitudes toward digital payment adoption (Ghazali et al., 2026; Tikaromah et al., 2025).

Furthermore, the results show that perceived usefulness also has a positive and significant effect on attitude toward use. Users tend to develop favorable attitudes when they perceive that the system improves efficiency and facilitates transaction activities. These findings support previous studies stating that perceived usefulness is an important factor in shaping positive attitudes toward technology adoption (Ghazali et al., 2026; Purnama et al., 2023). The results also confirm that perceived ease of use has a positive and significant effect on intention to use. This indicates that users are more likely to adopt the cashless parking payment system when the technology is perceived as practical, flexible, and easy to operate. These findings are in line with previous studies that highlight the important role of perceived ease of use in increasing behavioral intention toward digital payment systems (Tikaromah et al., 2025).

However, perceived usefulness does not have a significant direct effect on intention to use. This finding suggests that although users recognize the benefits of the system, perceived usefulness alone is not sufficient to directly encourage stronger intention to use. In the context of cashless parking services, users may consider usefulness as a standard feature rather than a primary determinant of behavioral intention. In addition, attitude toward use has a positive and significant effect on intention to use. Users with favorable attitudes toward the cashless parking payment system tend to show stronger willingness to continue using the technology. This finding supports the Technology Acceptance Model, which explains that positive attitudes toward technology increase behavioral intention (Davis, 1989).

Regarding the mediating role, the results demonstrate that attitude toward using significantly mediates the relationship between perceived ease of use, perceived usefulness, and intention to use. These findings indicate that users' perceptions of system simplicity and usefulness are more effective in increasing intention to use when they first generate positive attitudes toward the technology. This result is consistent with previous studies emphasizing the important role of attitude in strengthening technology adoption behavior (Prasetya & Lestari, 2024; Rachman & Umniati, 2025).

5. Conclusion

Centered on the cashless parking payment system at Duta Mall Palangka Raya, this study assessed the extent to which perceived usefulness and perceived ease of use determine consumers' behavioral intention to adopt the system, positioning attitude toward using as an intervening construct within the proposed framework. Empirical

evidence confirmed that both perceived ease of use and perceived usefulness exerted statistically significant and positive effects on attitude toward using. With respect to direct pathways, perceived ease of use emerged as a significant predictor of intention to use, whereas perceived usefulness failed to yield a statistically significant direct influence on the same outcome variable. Furthermore, attitude toward using not only demonstrated a positive and significant effect on intention to use, but also functioned as a significant mediator in the structural relationships linking perceived ease of use and perceived usefulness to intention to use.

These findings suggest that improving users' intention to adopt the cashless parking payment system should focus on enhancing system simplicity, usability, and overall user experience. The results also imply that although the system offers functional benefits, consumers may not yet fully perceive its practical advantages compared to conventional payment methods. Therefore, the management of Duta Mall Palangka Raya should improve transaction efficiency, minimize technical issues, and provide clear information and user assistance to strengthen positive user attitudes and encourage broader adoption.

Theoretically, this study contributes to the literature on consumer behavior and digital technology adoption in service contexts, particularly in semi-mandatory payment environments. However, this study is limited to consumers at a single shopping center and only examines variables within the Technology Acceptance Model framework. Future research is recommended to investigate broader contexts, involve more diverse samples, and incorporate additional variables such as trust, perceived risk, or facilitating conditions to provide more comprehensive insights into digital payment adoption behavior.

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