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The Role of E-Wallet Adoption, Digital Security Perceptions, and Technology Reliability on Digital Payment System Usage Decisions in East Java

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ABSTRAK

Studi ini meneliti pengaruh implementasi dompet digital, persepsi keamanan digital, dan keandalan teknologi terhadap keputusan penggunaan sistem pembayaran digital di Jawa Timur. Dengan menggunakan pendekatan penelitian kuantitatif, data dikumpulkan dari 150 pengguna pembayaran digital aktif melalui kuesioner terstruktur yang diukur pada skala Likert lima poin. Data dianalisis menggunakan Structural Equation Modeling–Partial Least Squares (SEM-PLS) versi 3 untuk mengevaluasi model pengukuran dan struktural. Hasil menunjukkan bahwa implementasi dompet digital memiliki pengaruh positif dan signifikan terhadap keputusan penggunaan pembayaran digital, menyoroti pentingnya kemudahan penggunaan, integrasi sistem, dan desain fungsional. Persepsi keamanan digital muncul sebagai penentu terkuat, menekankan bahwa kepercayaan pengguna terhadap perlindungan data dan keamanan transaksi memainkan peran penting dalam membentuk perilaku adopsi. Keandalan teknologi juga menunjukkan pengaruh positif yang signifikan, menunjukkan bahwa stabilitas sistem dan akurasi transaksi sangat penting untuk mempertahankan kepercayaan pengguna dan penggunaan berkelanjutan. Secara keseluruhan, temuan menunjukkan bahwa adopsi pembayaran digital di Jawa Timur didorong oleh kombinasi implementasi sistem yang efektif, persepsi keamanan yang kuat, dan kinerja teknologi yang andal. Studi ini berkontribusi pada literatur keuangan digital dan adopsi fintech dengan memberikan bukti empiris dari konteks regional dan menawarkan wawasan praktis bagi penyedia dompet elektronik dan pembuat kebijakan untuk memperkuat ekosistem pembayaran digital.

Kata Kunci: *Implementasi Dompet Digital, Persepsi Keamanan Digital, Keandalan Teknologi, Sistem Pembayaran Digital, Jawa Timur*

ABSTRACT

This study examines the influence of e-wallet implementation, digital security perceptions, and technology reliability on digital payment system usage decisions in East Java. Using a quantitative research approach, data were collected from 150 active digital payment users through a structured questionnaire measured on a five-point Likert scale. The data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) version 3 to evaluate both the measurement and structural models. The results indicate that e-wallet implementation has a positive and significant effect on digital payment usage decisions, highlighting the importance of usability, system integration, and functional design. Digital security perceptions emerge as the strongest determinant, emphasizing that users' confidence in data protection and transaction safety plays a critical role in shaping adoption behavior. Technology reliability also shows a significant positive influence, demonstrating that system stability and transaction accuracy are essential for sustaining user trust and continued usage. Overall, the findings suggest that digital payment adoption in East Java is driven by a combination of effective system implementation, strong security perceptions, and reliable technological performance. This study contributes to the digital finance and fintech adoption literature by providing empirical evidence from a regional context and offers practical insights for e-wallet providers and policymakers to strengthen digital payment ecosystems.

Keywords: *Wallet Implementation, Digital Security Perception, Technology Reliability, Digital Payment Systems, East Java*

INTRODUCTION

The rapid advancement of digital technology has significantly transformed the financial services landscape, particularly in the area of digital payment systems. The increasing penetration of smartphones, internet connectivity, and financial technology innovations has accelerated the shift from cash-based transactions toward cashless and electronic payment methods. Among these innovations, e-wallets have emerged as one of the most widely adopted digital payment instruments, offering convenience, speed, and efficiency in everyday transactions (Bella & Efendi, 2021; GHOFAR et al., 2022). In Indonesia, this transformation has been strongly encouraged by national digitalization agendas and the growing ecosystem of fintech providers, making digital payments an integral part of modern economic activities (Alkhwaldi et al., 2023).

East Java represents a strategic region for examining digital payment adoption due to its large population, diverse economic activities, and high growth of micro, small, and medium enterprises (MSMEs). The increasing use of e-wallets in this region is not only driven by promotional incentives and ease of use but also by broader considerations related to system performance, trust, and technological readiness (Natalina & Mutafarida, 2023; Zainuri et al., 2025). As digital payments become more embedded in daily life, understanding the key factors that influence users' decisions to adopt and continuously use these systems becomes increasingly important for both service providers and policymakers (Natalina & Mutafarida, 2023).

One of the central factors influencing digital payment usage decisions is e-wallet implementation. Effective implementation reflects how well an e-wallet system is designed, integrated, and aligned with users' needs. Features such as user-friendly interfaces, interoperability with merchants, transaction speed, and compatibility with other digital services can shape users' perceptions of usefulness and ease of use (Yaskun et al., 2023). Poor implementation, on the other hand, may lead to frustration, reduced trust, and resistance to adoption. Therefore, examining e-wallet implementation provides insights into how technical and functional aspects translate into actual usage behavior.

In addition to system implementation, perceptions of digital security play a critical role in shaping users' willingness to engage in digital payment systems, as digital transactions inherently involve the exchange of sensitive personal and financial information that raises concerns regarding data privacy, fraud, and cybercrime (Anisa et al., 2023; Gao et al., 2024). Consequently, users' confidence in data protection, authentication mechanisms, and transaction safety significantly influences their trust in digital payment platforms, particularly in regions where levels of digital literacy and cybersecurity awareness vary, making perceived security a decisive factor in adoption decisions. At the same time, technology reliability represents an essential determinant of digital payment system usage, referring to the system's ability to operate consistently, accurately, and stably without errors or service disruptions; issues such as downtime, transaction failures, or delayed confirmations can negatively affect user experience and discourage continued use, whereas reliable technology enhances user confidence, satisfaction, and positive behavioral intentions, positioning reliability not as a competitive advantage but as a fundamental user expectation as digital payments become embedded in daily consumption activities.

Despite the growing body of literature on digital payment adoption, existing studies largely emphasize general technology acceptance factors or focus on major metropolitan areas, leaving limited empirical evidence that simultaneously examines e-wallet implementation, digital security

perceptions, and technology reliability, particularly in the context of East Java. To address this gap, this study aims to analyze the role of these three factors in shaping digital payment usage decisions in East Java using a quantitative approach with data analyzed through Structural Equation Modeling–Partial Least Squares (SEM-PLS) version 3, with the objective of providing a comprehensive understanding of the key drivers of digital payment adoption while offering theoretical contributions to fintech literature and practical implications for e-wallet providers, regulators, and other stakeholders in strengthening regional digital payment ecosystems.

LITERATURE REVIEW

A. Digital Payment Systems

Digital payment systems refer to electronic platforms that enable users to conduct financial transactions without the use of physical cash, including e-wallets, mobile banking, QR-based payments, and other fintech-based solutions that support fast, secure, and efficient transactions. The adoption of digital payment systems is widely associated with improved transaction efficiency, lower operational costs, and enhanced financial inclusion, particularly in developing economies. In Indonesia, digital payments have become an integral part of the national digital economy strategy, supporting both consumer transactions and the activities of micro, small, and medium enterprises (MSMEs) (Bella & Efendi, 2021; GHOFAR et al., 2022). From a behavioral perspective, digital payment usage decisions are shaped by users' perceptions of value, convenience, trust, and system performance, indicating that adoption is not solely driven by technological availability but also by users' confidence in the system's ability to reliably and securely meet their transactional needs (Alkhwaldi et al., 2023; Luchkin et al., 2020). Consequently, understanding digital payment adoption requires an integrated perspective that considers technological, perceptual, and system-related factors simultaneously.

B. E-Wallet Implementation

E-wallet implementation refers to the extent to which an electronic wallet system is effectively designed, deployed, and integrated into users' daily transactional activities, encompassing aspects such as system usability, ease of navigation, feature completeness, interoperability with merchants, and compatibility with other digital platforms. Well-implemented e-wallets reduce transaction complexity and enhance user experience, which in turn increases perceived usefulness and encourages continued usage (Bella & Efendi, 2021; Bernando & Ray, 2023). Previous studies have demonstrated that effective system implementation positively influences technology acceptance and usage behavior, as users are more likely to adopt an e-wallet as a primary payment method when it is perceived as easy to use, responsive, and aligned with their transactional habits (Belmonte et al., 2024; Ramadhan et al., 2023). In contrast, implementation issues such as slow system response, limited merchant acceptance, or complicated interfaces can lower user satisfaction and discourage adoption, highlighting e-wallet implementation as a critical antecedent of digital payment system usage decisions.

C. Digital Security Perceptions

Digital security perception refers to users' subjective assessment of how safe and protected a digital payment system is when conducting transactions, including confidence in data privacy protection, authentication mechanisms, encryption, fraud prevention, and overall transaction safety. In digital financial environments where personal and financial data are continuously exchanged, security concerns often become a major barrier to adoption (Bae & Hong, 2023; Zachosova & Koval, 2022). Trust theory and technology adoption literature consistently emphasize that perceived security has a significant influence on users' behavioral intentions, as individuals who believe that a digital payment system can protect their personal information and prevent unauthorized access are more likely to use it frequently. Conversely, concerns related to hacking, data leakage, or fraud can lead to resistance or discontinuation of use (Bae & Hong, 2023; Meerangani et al., 2022). In regions with varying levels of digital literacy, such as East Java, perceived security may play an even more prominent role in shaping digital payment system usage decisions.

D. Technology Reliability

Technology reliability refers to the ability of a digital payment system to operate consistently, accurately, and without interruption over time, as reflected in stable network performance, accurate transaction processing, minimal system errors, and prompt transaction confirmation. Reliability is a fundamental dimension of service quality in digital systems, particularly in financial services where transaction failures can result in direct monetary losses. Empirical evidence indicates that technology reliability strongly influences user satisfaction and continued usage intention, as frequent system downtime, failed transactions, or delayed processing can undermine user confidence and reduce trust in the platform (Ghasemi et al., 2019; Rao & Prasad, 2018). Conversely, a reliable digital payment system enhances perceptions of professionalism and dependability, encouraging users to integrate digital payments into their routine financial activities and positioning technology reliability as a key determinant of digital payment system usage decisions.

E. Digital Payment Usage Decisions

Digital payment usage decisions refer to users' intentions and actual behavior in adopting and using digital payment systems for financial transactions, which are shaped by a combination of cognitive evaluations, perceptions, and prior experiences with the system. Factors such as perceived usefulness, ease of use, security, and reliability collectively determine whether users choose to adopt, continue using, or abandon a digital payment platform (GHOFAR et al., 2022; Rajkumar Chaudhary & Prajapati, 2024). In the context of fintech adoption, usage decisions are commonly explained through behavioral intention models, where positive perceptions lead to stronger intentions and actual usage. Accordingly, this study conceptualizes digital payment usage decisions as an outcome variable influenced by e-wallet implementation, digital security perceptions, and

technology reliability, capturing both the technical and perceptual dimensions of digital payment adoption.

F. Hypothesis Development

Based on the reviewed literature, this study proposes that effective e-wallet implementation, positive digital security perceptions, and high technology reliability play significant roles in shaping digital payment system usage decisions. Well-implemented e-wallets enhance usability and convenience, perceived security builds trust and reduces risk concerns, and reliable technology ensures consistent and satisfactory transaction experiences. Accordingly, the following hypotheses are formulated:

H1: E-wallet implementation has a positive and significant effect on digital payment system usage decisions.

H2: Digital security perceptions have a positive and significant effect on digital payment system usage decisions.

H3: Technology reliability has a positive and significant effect on digital payment system usage decisions.

RESEARCH METHODS

A. Research Design

This study adopts a quantitative research design to examine the influence of e-wallet implementation, digital security perceptions, and technology reliability on digital payment system usage decisions. A quantitative approach is considered appropriate because it allows for objective measurement of relationships among variables and enables hypothesis testing using statistical techniques. The study employs a cross-sectional survey design, in which data are collected from respondents at a single point in time to capture their perceptions and usage behavior related to digital payment systems.

B. Population and Sample

The population of this study consists of individuals in East Java who actively use digital payment systems, particularly e-wallet services, for daily transactions, encompassing users from diverse demographic and occupational backgrounds to ensure broad representation. The sample comprises 150 respondents, a size considered adequate for analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS), which is well suited for complex research models with small to medium sample sizes. Respondents were selected through a purposive sampling technique, with the primary criterion being prior experience in using e-wallets or digital payment systems within the last six months.

C. Data Collection Method

Primary data were collected using a structured questionnaire distributed both online and offline to capture respondents' perceptions of e-wallet implementation, digital security, technology reliability, and digital payment usage decisions. Prior to distribution, the questionnaire items were reviewed to ensure clarity, relevance, and alignment with the research objectives. Responses were

measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), as this scale is widely applied in behavioral and technology adoption research and allows respondents to express varying levels of agreement with the statements provided.

D. Measurement of Variables

This study involves one dependent variable and three independent variables, all of which were measured using reflective indicators adapted from relevant literature and adjusted to the context of digital payment systems in East Java. E-Wallet Implementation (EWI) measures users' perceptions of how effectively the e-wallet system is implemented, reflected through indicators such as ease of use, interface clarity, transaction speed, feature completeness, and merchant compatibility. Digital Security Perceptions (DSP) capture users' assessments of security in digital payment usage, including data privacy protection, transaction safety, authentication mechanisms, and fraud prevention. Technology Reliability (TR) assesses the perceived reliability of the digital payment system, as indicated by system stability, transaction accuracy, service consistency, and minimal system errors or downtime. The dependent variable, Digital Payment Usage Decisions (DPUD), represents users' decisions to adopt and use digital payment systems, measured through indicators such as frequency of use, preference for digital payments over cash, intention to continue using e-wallets, and willingness to recommend the system to others.

E. Data Analysis Technique

Data analysis in this study was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) version 3, which was chosen due to its suitability for predictive research, its ability to handle complex models with multiple constructs and indicators, and its flexibility in not requiring data normality. The analysis was carried out in two main stages: first, the measurement model (outer model) was evaluated to assess construct validity and reliability through convergent validity using factor loadings and average variance extracted (AVE), discriminant validity using cross-loadings and the Fornell–Larcker criterion, and reliability using Cronbach's alpha and composite reliability. Second, the structural model (inner model) was evaluated to test the proposed hypotheses by examining path coefficients, coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2), with hypothesis testing performed through a bootstrapping procedure to obtain t-statistics and p-values for each structural relationship.

RESULTS AND DISCUSSION

A. Respondent Profile

This study involved 150 respondents who are active users of digital payment systems, particularly e-wallets, in East Java, with the respondent profile presented to illustrate demographic characteristics and usage behavior to ensure adequate representation of the population. The respondents consisted of 82 males (54.7%) and 68 females (45.3%), indicating a relatively balanced gender distribution and suggesting that digital payment adoption in East Java is not gender-specific. In terms of age, most respondents were in the productive age group, with 42 respondents (28.0%) aged 18–25 years, 56 respondents (37.3%) aged 26–35 years, 34 respondents (22.7%) aged 36–45 years, and 18 respondents (12.0%) aged above 45 years, showing that digital payment usage is most prevalent among young adults and early middle-aged users. Regarding educational background, the majority of respondents had higher education, with 21 respondents (14.0%) completing senior

high school, 34 respondents (22.7%) holding a diploma, 76 respondents (50.7%) having a bachelor's degree, and 19 respondents (12.6%) possessing a postgraduate degree, indicating that digital payment users in East Java are generally well educated. Based on occupation, respondents were distributed across various categories, including private-sector employees (47 respondents; 31.3%), entrepreneurs or MSME owners (38 respondents; 25.3%), students (29 respondents; 19.3%), civil servants (21 respondents; 14.0%), and others such as freelancers and informal workers (15 respondents; 10.1%), reflecting widespread digital payment usage across economic sectors. In terms of usage frequency, 64 respondents (42.7%) reported using digital payment systems daily, 53 respondents (35.3%) several times a week, 21 respondents (14.0%) several times a month, and only 12 respondents (8.0%) occasionally, indicating a high level of dependence on digital payment systems for routine transactions.

B. Measurement Model Evaluation (Outer Model)

The measurement model (outer model) evaluation was conducted to assess the validity and reliability of the constructs used in this study: E-Wallet Implementation (EWI), Digital Security Perceptions (DSP), Technology Reliability (TR), and Digital Payment Usage Decisions (DPUD). The evaluation includes convergent validity, reliability, and discriminant validity testing using SEM-PLS 3.

1. Convergent Validity

Convergent validity was assessed using indicator loadings and Average Variance Extracted (AVE). An indicator is considered valid if it has a loading value greater than 0.70, while AVE values should exceed 0.50.

Table 1. Indicator Loadings and AVE

Construct	Indicator	Loading
E-Wallet Implementation (EWI)	EWI1 (Ease of use)	0.812
	EWI2 (Interface clarity)	0.835
	EWI3 (Transaction speed)	0.861
	EWI4 (Feature completeness)	0.798
	EWI5 (Merchant compatibility)	0.824
Digital Security Perceptions (DSP)	DSP1 (Data privacy)	0.876
	DSP2 (Transaction safety)	0.891
	DSP3 (Authentication security)	0.857
	DSP4 (Fraud protection)	0.872
Technology Reliability (TR)	TR1 (System stability)	0.841
	TR2 (Transaction accuracy)	0.867
	TR3 (System consistency)	0.853
	TR4 (Minimal system error)	0.829
Digital Payment Usage Decisions (DPUD)	DPUD1 (Frequency of use)	0.804
	DPUD2 (Preference over cash)	0.842
	DPUD3 (Continued usage intention)	0.879
	DPUD4 (Recommendation intention)	0.861

Table 1 presents the indicator loadings for each construct and demonstrates strong convergent validity across all variables in the measurement model, as all loadings exceed the recommended threshold of 0.70, indicating that each indicator reliably represents its respective

construct. For E-Wallet Implementation (EWI), transaction speed (EWI3) shows the highest loading (0.861), suggesting that fast transaction processing is the most salient aspect perceived by users, followed by interface clarity and merchant compatibility, which implies that efficiency and seamless integration with merchants are critical in shaping users' evaluations of e-wallet implementation. For Digital Security Perceptions (DSP), all indicators exhibit very high loadings, with transaction safety (DSP2) recording the strongest loading (0.891), highlighting that users place substantial importance on transaction safety, followed by data privacy and fraud protection, thereby reinforcing the central role of security in digital payment adoption. In the case of Technology Reliability (TR), transaction accuracy (TR2) and system consistency (TR3) demonstrate the highest loadings, emphasizing that accurate and consistent system performance is crucial in forming users' perceptions of reliability, while stable operation and minimal system errors further confirm that reliability is a multidimensional construct related to overall system performance quality. Finally, for Digital Payment Usage Decisions (DPUD), continued usage intention (DPUD3) has the highest loading (0.879), indicating that long-term intention to continue using digital payment systems is the most representative indicator of usage decisions, with recommendation intention and preference over cash also showing strong loadings, suggesting that satisfied users are not only inclined to continue using digital payments but also to advocate their use to others.

The Average Variance Extracted (AVE) values for all constructs exceed the recommended threshold of 0.50, confirming adequate convergent validity in the measurement model. Specifically, E-Wallet Implementation (EWI) has an AVE value of 0.684, Digital Security Perceptions (DSP) records the highest AVE at 0.761, Technology Reliability (TR) shows an AVE of 0.712, and Digital Payment Usage Decisions (DPUD) has an AVE of 0.721. These results indicate that each construct explains more than half of the variance of its indicators, demonstrating that the indicators consistently and effectively capture their respective latent variables.

2. Reliability Analysis

Reliability was assessed using Cronbach's Alpha (CA) and Composite Reliability (CR), with values exceeding the recommended threshold of 0.70 indicating satisfactory reliability. The results show that E-Wallet Implementation (EWI) has a Cronbach's Alpha of 0.885 and Composite Reliability of 0.915, Digital Security Perceptions (DSP) records values of 0.894 and 0.927 respectively, Technology Reliability (TR) shows values of 0.865 and 0.903, and Digital Payment Usage Decisions (DPUD) has values of 0.872 and 0.910. These findings demonstrate that all constructs exhibit strong internal consistency and reliability, confirming that the measurement instruments used in this study are dependable and stable for further analysis.

3. Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion, where the square root of AVE for each construct should be greater than its correlation with other constructs.

Table 2. Fornell–Larcker Criterion

Construct	EWI	DSP	TR	DPUD
EWI	0.827			
DSP	0.563	0.872		
TR	0.589	0.621	0.844	

DPUD	0.642	0.688	0.671	0.849

Table 2 presents the results of the Fornell–Larcker criterion, which is used to assess discriminant validity among the constructs in the measurement model. The diagonal values represent the square root of the Average Variance Extracted (AVE) for each construct, while the off-diagonal values indicate the correlations between constructs. The results show that the square root of AVE for E-Wallet Implementation (0.827), Digital Security Perceptions (0.872), Technology Reliability (0.844), and Digital Payment Usage Decisions (0.849) are all higher than their respective correlations with other constructs. This indicates that each construct shares more variance with its own indicators than with other constructs in the model. Consequently, the findings confirm satisfactory discriminant validity, suggesting that e-wallet implementation, digital security perceptions, technology reliability, and digital payment usage decisions are empirically distinct concepts that measure different dimensions of digital payment adoption behavior.

C. Structural Model Evaluation (Inner Model)

The structural model (inner model) evaluation was conducted to examine the predictive capability of the proposed model and to assess the strength and significance of the relationships between E-Wallet Implementation (EWI), Digital Security Perceptions (DSP), Technology Reliability (TR), and Digital Payment Usage Decisions (DPUD). The evaluation includes analysis of the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and path coefficients using SEM-PLS 3.

1. Coefficient of Determination (R^2)

The coefficient of determination (R^2) reflects the proportion of variance in the endogenous construct explained by the exogenous variables, and in this study Digital Payment Usage Decisions (DPUD) serves as the endogenous variable. The R^2 value of 0.684 indicates that 68.4% of the variance in digital payment usage decisions is jointly explained by e-wallet implementation, digital security perceptions, and technology reliability, which can be categorized as substantial explanatory power. This result suggests that the proposed model is strong in explaining users' digital payment usage decisions, while the remaining 31.6% of variance may be influenced by other factors not included in the model.

2. Effect Size (f^2)

Effect size (f^2) measures the contribution of each exogenous construct to the R^2 value of the endogenous construct. According to established guidelines, f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Table 3. Effect Size (f^2)

Exogenous Variable → DPUD	f^2	Effect Size
E-Wallet Implementation (EWI)	0.214	Medium
Digital Security Perceptions (DSP)	0.286	Medium
Technology Reliability (TR)	0.198	Medium

Table 3 presents the effect size (f^2) values, which indicate the relative contribution of each exogenous variable to explaining the variance in Digital Payment Usage Decisions (DPUD). The

results show that E-Wallet Implementation ($f^2 = 0.214$), Digital Security Perceptions ($f^2 = 0.286$), and Technology Reliability ($f^2 = 0.198$) all exhibit medium effect sizes, suggesting that each variable makes a meaningful contribution to the structural model. Among the three predictors, digital security perceptions demonstrate the strongest effect, indicating that users' confidence in data protection and transaction safety plays a particularly important role in shaping digital payment usage decisions. Nevertheless, the medium effect sizes of e-wallet implementation and technology reliability also highlight the importance of system usability, functional design, and reliable performance in encouraging users to adopt and continue using digital payment systems. Overall, these findings confirm that digital payment usage decisions are influenced by a balanced combination of security perceptions, effective system implementation, and technological reliability.

3. Predictive Relevance (Q^2)

Predictive relevance (Q^2) was evaluated using the blindfolding procedure, where a Q^2 value greater than zero indicates that the model has predictive capability for the endogenous construct. The results show that Digital Payment Usage Decisions (DPUD) has a Q^2 value of 0.421, confirming strong predictive relevance of the structural model. This finding indicates that the proposed model is capable of accurately predicting digital payment usage decisions, further supporting the robustness and practical applicability of the research framework.

4. Path Coefficients and Significance Testing

Hypothesis testing was performed using the bootstrapping procedure with 5,000 subsamples. The significance of relationships was evaluated using path coefficients, t-statistics, and p-values. A relationship is considered significant if $t > 1.96$ and $p < 0.05$.

Table 4. Path Coefficients and Hypothesis Testing

	Path	β Coefficient	t-value	p-value	Result
H1	EWI → DPUD	0.318	4.287	0.000	Supported
H2	DSP → DPUD	0.362	5.014	0.000	Supported
H3	TR → DPUD	0.297	4.102	0.000	Supported

Table 4 presents the results of the path coefficients and hypothesis testing, revealing that all proposed hypotheses are supported. The relationship between E-Wallet Implementation and Digital Payment Usage Decisions (H1) shows a positive and significant effect ($\beta = 0.318$, $t = 4.287$, $p = 0.000$), indicating that better system implementation—such as ease of use, transaction speed, and merchant compatibility—encourages users to adopt and continue using digital payment systems. Digital Security Perceptions (H2) exhibit the strongest influence on usage decisions ($\beta = 0.362$, $t = 5.014$, $p = 0.000$), highlighting that users' confidence in data privacy, transaction safety, and fraud protection is a critical driver of digital payment adoption. Meanwhile, Technology Reliability (H3) also has a positive and significant effect ($\beta = 0.297$, $t = 4.102$, $p = 0.000$), demonstrating that stable system performance and accurate transactions enhance user trust and sustained usage. Overall, these findings confirm that digital payment usage decisions in East Java are shaped by a combination of effective e-wallet implementation, strong security perceptions, and reliable technology, with security perceptions playing the most dominant role among the examined factors.

Discussion

The findings of this study provide empirical evidence that e-wallet implementation, digital security perceptions, and technology reliability are significant determinants of digital payment system usage decisions in East Java. The results indicate that digital payment adoption is not solely driven by the availability of technology but is shaped by users' evaluations of system quality, trust, and performance. By integrating statistical findings with theoretical perspectives from technology acceptance and information systems research, this study offers a comprehensive understanding of how technical and perceptual factors jointly influence user behavior in adopting and using digital payment systems (Erawati et al., 2022; Larios-Francia & Ferasso, 2023).

The results confirm that e-wallet implementation has a positive and significant effect on digital payment usage decisions, indicating that users are more inclined to adopt and continue using digital payment systems when e-wallet applications are easy to operate, visually clear, responsive, and well integrated with merchants and supporting services. In the context of East Java, where digital payments are increasingly used for everyday transactions, effective implementation reduces user effort and enhances perceived usefulness, thereby encouraging sustained usage. Moreover, digital security perceptions emerge as the strongest predictor of usage decisions, highlighting that users' trust in data privacy, transaction safety, and fraud prevention is central to their willingness to rely on digital payment systems. This finding reinforces prior fintech adoption research that positions perceived security as a key antecedent of trust and behavioral intention, particularly in environments with varying levels of digital literacy (Ana et al., 2024; Efendi et al., 2023).

In addition, the study demonstrates that technology reliability significantly influences digital payment usage decisions, as reliable system performance—characterized by accurate transactions, stable connectivity, and minimal system errors—enhances user confidence and satisfaction. When users experience smooth and uninterrupted transactions, they are more likely to integrate digital payments into their routine financial activities. Collectively, these findings suggest that successful digital payment adoption depends on a balanced combination of functional system quality and positive user perceptions, where effective e-wallet implementation ensures usability, strong security perceptions build trust, and reliable technology sustains long-term confidence. For e-wallet providers and policymakers in East Java, these results underscore the importance of investing in secure, reliable, and user-centered digital payment infrastructures to support the continued growth of the digital economy.

CONCLUSION

This study concludes that e-wallet implementation, digital security perceptions, and technology reliability significantly influence digital payment system usage decisions in East Java. Among these factors, digital security perceptions play the most dominant role, indicating that trust and perceived safety are critical in encouraging users to adopt and continue using digital payment systems. Effective e-wallet implementation enhances usability and convenience, while reliable technology ensures consistent and accurate transaction experiences, both of which strengthen user confidence and habitual usage. These findings underscore the importance of developing user-centered, secure, and reliable digital payment infrastructures to support the growth of the digital economy. Future research may expand the model by incorporating additional behavioral or contextual variables and by examining broader geographic areas to further enrich understanding of digital payment adoption dynamics.

REFERENCES

Alkhwaldi, A. F., Al-Qudah, A. A., Al-Hattami, H. M., Al-Okaily, M., Al-Adwan, A. S., & Abu-Salih, B. (2023). Uncertainty avoidance and acceptance of the digital payment systems: a partial least squares-structural equation modeling (PLS-SEM) approach. *Global Knowledge, Memory and Communication*.

Ana, S. R., Liyundira, F. S., & Carito, D. W. (2024). Improving the Performance of Coffee MSMEs Through the Application of Technology and E-Marketing. *Empowerment Society*, *7*(1), 1–7.

Anisa, D., Anggraini, T., & Tambunan, K. (2023). Analisis Cryptocurrency Sebagai Alat Alternatif Berinvestasi Di Indonesia. *Owner*, *7*(3), 2674–2682. https://doi.org/10.33395/owner.v7i3.1698

Bae, J. K., & Hong, G. H. (2023). A Study on Digital Financial Security Threats and Cybersecurity Policies. *The Academic Society of Global Business Administration*.

Bella, F. I., & Efendi, N. F. (2021). Strengthening the Islamic Digital Payment System Through Sharia Electronic Wallet (E-Wallet). *El Dinar: Jurnal Keuangan Dan Perbankan Syariah*, *9*(2), 94–107.

Belmonte, Z. J. A., Prasetyo, Y. T., Cahigas, M. M. L., Nadlifatin, R., & Gumasing, M. J. J. (2024). Factors influencing the intention to use e-wallet among generation Z and millennials in the Philippines: An extended technology acceptance model (TAM) approach. *Acta Psychologica*, *250*, 104526.

Bernando, F. O., & Ray, E. L. (2023). The decision to use e-wallet in the millennial generation in Jakarta. *Journal of The Community Development in Asia*, *6*(2), 70–86.

Efendi, Z., Wati, L. N., & Kuraesin, A. D. (2023). *The Role of Financial Literacy in Strengthening the Effect of Digital Platforms and Financial Technology Peer-to-Peer Lending on Capital Access and MSME Growth: An Empirical Study of MSMEs in DKI Jakarta*.

Erawati, T., Ayem, S., & Tahu, R. A. (2022). The Influence Of Personal Engineering Capabilities, Education And Training, And The Advance Of Information Technology On The Effectiveness Of Accounting Information Systems (Case Study On Msmes In Yogyakarta). *Jurnal Ilmu Manajemen Profitability*, *6*(1), 116–121.

Gao, F., Nketiah, E., & Shi, V. (2024). Understanding and Enhancing Food Conservation Behaviors and Operations. *Sustainability (Switzerland) , 16*(7). https://doi.org/10.3390/su16072898

Ghasemi, R., Habibi, H. R., Ghasemlo, M., & ... (2019). The effectiveness of management accounting systems: evidence from financial organizations in Iran. *Journal of Accounting in …*. https://doi.org/10.1108/JAEE-02-2017-0013

GHOFAR, A. L., PUTRA, R. N. P., & HAMIDAH, S. N. (2022). Implementation Of Gateway Technology (Go-Pay) In Increasing Transaction Efficiency In MSMEs Dapur Restu. *Journal of Information Systems, Digitization and Business*, *1*(1), 08–14. https://doi.org/10.38142/jisdb.v1i1.651

Larios-Francia, R. P., & Ferasso, M. (2023). The relationship between innovation and performance in MSMEs: The case of the wearing apparel sector in emerging countries. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(1), 100018.

Luchkin, A. G., Lukasheva, O. L., Novikova, N. E., Melnikov, V. A., Zyatkova, A. V., & Yarotskaya, E. V. (2020). *Cryptocurrencies in the Global Financial System: Problems and Ways to Overcome them*. *148*(RuDEcK), 423–430. https://doi.org/10.2991/aebmr.k.200730.077

Meerangani, K. A., Ibrahim, A. F., Omar, M. Y., Mukhtar, M. H. M. J., Badhrulhisham, A., & Termimi, M. A. A. (2022). *Cybercrime and its Violation of Digital Platform Security: An Islamic Law Perspective*.

Natalina, S. A., & Mutafarida, B. (2023). Digital Transformation and Survival Strategies MSMEs during the Pandemic: Evidence East Java Indonesia. *Innovation Business Management and Accounting Journal*, *2*(1), 28–39.

Rajkumar Chaudhary, S., & Prajapati, P. (2024). Unveiling the Invisible:Examining the Legal Complexity and Social Security Benefits of Gig Workers. *International Journal of Advanced Research*, *12*(03), 831–838. https://doi.org/10.21474/ijar01/18460

Ramadhan, I., Zulkarnain, Z., & Ananda, F. (2023). The Effect of Consumer Satisfaction on Reuse Intention of Digital Wallet Services (E-Wallet) in Indonesia. *International Journal of Progressive Sciences and Technologies*, *38*, 262. https://doi.org/10.52155/ijpsat.v38.2.5323

Rao, S. K., & Prasad, R. (2018). Impact of 5G technologies on smart city implementation. *Wireless Personal Communications*. https://doi.org/10.1007/s11277-018-5618-4

Yaskun, M., Sudarmiatin, Agus Hermawan, & Wening Patmi Rahayu. (2023). The Effect of Market Orientation, Entrepreneurial Orientation, Innovation and Competitive Advantage on Business Performance of Indonesian MSMEs. *International Journal of Professional Business Review*, *8*(4 SE-Articles), E01563. https://doi.org/10.26668/businessreview/2023.v8i4.1563

Zachosova, N., & Koval, O. (2022). Strategic management in ensuring economic security in the digital economy and the VUCA World. In *MEST Journal*. mest.meste.org.

Zainuri, Z., Yasin, M. Z., Amijaya, R. N. F., Wilantari, R. N., & Vipindrartin, S. (2025). The role of government policy on the performance of MSMEs in the creative industry: evidence from Jember Regency, East Java, Indonesia. *Cogent Economics & Finance*, *13*(1), 2446657.