Research Paper

The Effect of Perceived Risk, Security, Trust, And Ease of Use on Usage Decisions Among Dana E-Wallet Users in Samarinda City

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ABSTRACT: *Digital financial services have experienced rapid growth in Indonesia, driven by technological advancements and shifting consumer preferences toward faster, more convenient, and cashless transactions. Among various digital payment platforms, DANA has emerged as one of the most widely used e-wallets in Samarinda City. However, the decision to adopt and continuously use such platforms is deeply influenced by a combination of psychological and technological factors. This study investigates the impact of four key determinants—risk perception, perceived security, trust, and ease of use—on users' decisions to adopt the DANA e-wallet.*

This research employed a quantitative explanatory approach involving 100 active DANA users selected through the Lemeshow sampling formula, given the unknown size of the population. Data were collected using a Google Forms–based questionnaire and analyzed using multiple linear regression. Validity and reliability assessments demonstrated that all measurement instruments met the required standards, with Cronbach's Alpha values exceeding 0.60, and normality tests confirming that the data were normally distributed.

The findings reveal that each of the four variables significantly influences users' decisions to use DANA, with the regression model explaining 69.6% of the variance in usage decisions (Adjusted R^2 = 0.696). Risk perception shows a negative yet significant effect, while security, trust, and ease of use positively and significantly contribute to adoption decisions. These results highlight the importance of strengthening security features, enhancing user trust, and optimizing interface usability for e-wallet service providers. Practically, the study offers valuable insights for DANA in refining service strategies, while academically, it enriches the understanding of consumer behavior in digital finance adoption within emerging markets..

KEYWORDS: *Risk Perception, Security, Trust, Ease of Use, Usage Decision, DANA, E-Wallet.*

I. INTRODUCTION

The rapid advancement of financial technology (FinTech) has fundamentally reshaped the global financial ecosystem, including emerging economies such as Indonesia. Over the past decade, digital payment systems—particularly electronic wallets (e-wallets)—have experienced exponential growth as consumers increasingly shift from conventional cash-based transactions to digital platforms that offer efficiency, accessibility, and real-time processing. This shift is accelerated by expanding smartphone penetration, improved internet infrastructure, and national-level initiatives promoting cashless transactions under the Indonesia Payment System Blueprint 2025. In this context, e-wallets such as DANA, OVO, GoPay, and ShopeePay have become integral components of the digital economy, serving as tools for online purchasing, bill payments, fund transfers, and merchant transactions.

Among these platforms, DANA has emerged as one of the most widely adopted e-wallets in Indonesia, including in Samarinda City—a region characterized by significant demographic diversity and increasing digital literacy. The platform's broad range of features, user-friendly interface, and extensive merchant integration contribute to its growing user base. However, despite these advantages, the decision to adopt and continue using an e-wallet remains a complex behavioral process influenced by multiple perceptual, psychological, and technological factors.

One of the most critical determinants is risk perception, which encompasses concerns related to financial loss, data theft, unauthorized access, system failure, and privacy breaches. Users may hesitate to adopt or continue using an e-wallet if they perceive high levels of uncertainty or vulnerability in digital transactions.

Furthermore, perceived security—such as encryption methods, authentication features, system reliability, fraud prevention, and platform credibility—acts as a counterbalancing factor that strengthens consumer confidence. When users perceive that a platform provides robust protection mechanisms, their willingness to engage in digital transactions typically increases.

Another essential factor is trust, which refers to a user's belief that the platform is reliable, transparent, and capable of safeguarding their financial and personal information. Trust is built not only through technological assurance but also through the platform's reputation, service responsiveness, and the consistency of user experiences. High levels of trust can significantly reduce user-perceived risk, thereby encouraging adoption and continued use of FinTech applications. In addition, the ease of use of the application—reflected in intuitive interface design, smooth navigation, minimal operational errors, and the simplicity of completing transactions—plays a decisive role in shaping user acceptance. Users are more likely to adopt systems they perceive as easy to understand and efficient to operate.

Existing empirical studies indicate that these four factors—risk perception, security, trust, and ease of use—consistently influence e-wallet adoption across various regions in Indonesia. However, research specifically focusing on Samarinda remains scarce, despite the city's rapid digital transformation and increasing reliance on mobile-based financial services. Samarinda's dynamic consumer demographics, growing youth population, and active engagement with digital commerce make it a critical and relevant setting for examining behavioral drivers of e-wallet usage.

Therefore, this study aims to provide a comprehensive analysis of the influence of risk perception, perceived security, trust, and ease of use on the decision to use the DANA e-wallet among active users in Samarinda City. By employing a quantitative explanatory approach, the research seeks to generate empirical insights that enrich the literature on FinTech adoption within developing economies and offer practical recommendations for digital payment providers. The findings are expected to contribute to a deeper understanding of user behavior, support evidence-based improvements in digital payment services, and inform strategies to enhance consumer acceptance and satisfaction in Indonesia's evolving financial landscape.

II.   METHOD

This study employed a quantitative explanatory design aimed at examining the causal relationship between risk perception, perceived security, trust, and ease of use toward the decision to use the DANA e-wallet in Samarinda City. An explanatory approach was chosen to identify the magnitude and significance of the influence of each independent variable on the dependent variable through statistical hypothesis testing. The population of this study consisted of active DANA users residing in Samarinda; however, because the exact population size was unknown, the sample was determined using the Lemeshow formula, which is appropriate for unknown populations and produces a statistically adequate sample size. Using a 95% confidence level, an assumed proportion of 0.50, and a 10% margin of error, the required minimum sample size was calculated to be 96.04 and subsequently rounded to 100 respondents. These respondents met the predetermined criteria, including being 18 years or older, residing in Samarinda, and having used the DANA application for more than two months.

Data were collected using a structured questionnaire distributed online via Google Forms to ensure accessibility and efficient response gathering. The questionnaire consisted of demographic items and Likert-scale statements measuring risk perception, perceived security, trust, ease of use, and the decision to use the DANA e-wallet. All measurement items were adapted from previous validated studies and adjusted to the context of digital payment behavior in Indonesia. The Likert scale utilized five response categories ranging from "Strongly Disagree" to "Strongly Agree." The distributed instrument underwent rigorous testing to ensure validity and reliability. Validity was assessed using Pearson's Product-Moment correlation, showing that all items had significance values below 0.05, indicating that each item was valid in measuring the intended construct. Reliability was examined using Cronbach's Alpha, with all variables achieving alpha values above 0.60—namely 0.604 for risk perception, 0.713 for security, 0.840 for trust, 0.764 for ease of use, and 0.739 for usage decision—demonstrating internal consistency and reliability.

Data analysis employed multiple linear regression to evaluate the partial and simultaneous effects of the independent variables on the dependent variable. Before conducting regression analysis, assumptions of normality and multicollinearity were tested. Normality testing using the Kolmogorov–Smirnov method indicated that the residuals were normally distributed (sig = 0.200 > 0.05), satisfying the normality assumption. Correlation analysis showed a very strong relationship among the examined variables, reflected by a correlation coefficient of $R = 0.842$. Furthermore, the regression model's explanatory power reached 69.6%, as indicated by the Adjusted R^2 value, demonstrating that risk perception, security, trust, and ease of use collectively explain a substantial portion of users' decisions to adopt and continue using the DANA e-wallet. Statistical significance was further confirmed through the t-test, which evaluated the individual effects of each variable, and the F-test, which demonstrated that all variables simultaneously exert a significant influence on usage decisions.

III.   RESULT

The empirical findings of this study provide a comprehensive statistical description of how risk perception, perceived security, trust, and ease of use collectively influence the decision to use the DANA e-wallet among active users in Samarinda City. The results indicate that the relationships between the studied variables are both statistically strong and theoretically meaningful. Table 1 presents the correlation coefficient generated from the regression model.

Table 1. Correlation Coefficient (R)

Model	R
1	0.842

Source: Processed data, 2025

The correlation coefficient of R = 0.842 signifies a very strong association between the independent variables—risk perception, perceived security, trust, and ease of use—and the dependent variable, namely the decision to use the DANA e-wallet. In behavioral and technology adoption research, a correlation value above 0.80 is considered highly indicative of strong linear relationships, suggesting that users' cognitive and affective evaluations of digital platforms are central determinants of their behavioral decisions. This finding aligns with the perspective of the Technology Acceptance Model (TAM), which argues that user perceptions form the basis of technology adoption behaviors.

The explanatory strength of the regression model is elaborated further in Table 2.

Table 2. Coefficient of Determination (R² and Adjusted R²)

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.842	0.709	0.696	0.892

Source: Processed data, 2025

The Adjusted R^2 value of 0.696 indicates that 69.6% of the variability in the decision to use DANA can be explained by the four independent variables included in the model. This proportion demonstrates a highly robust model, particularly for behavioral studies where outcomes are influenced by a wide range of personal, psychological, and contextual factors. The remaining 30.4% represents influences from external variables not examined in the present study, such as promotional activities, perceived usefulness, social influence, digital literacy, and brand image—factors commonly identified in prior digital financial research as additional predictors of adoption.

The significance of the individual effects of each variable was examined using the t-test for partial regression coefficients. These results are summarized in Table 3.

Table 3. Partial Significance (t-test) Results

Variable	t-value	t-table	Significance	Effect Direction
Risk Perception	–1.981	1.661	Significant	Negative
Security	*Significant*	—	< 0.05	Positive
Trust	*Significant*	—	< 0.05	Positive
Ease of Use	*Significant*	—	< 0.05	Positive

Source: Processed data, 2025

The t-test results show that risk perception has a statistically significant negative effect on usage decisions. This implies that users who perceive higher levels of financial or data-related risks tend to be more reluctant to engage in digital payment activities. The negative coefficient direction suggests that increasing concerns around fraud, privacy breaches, or system errors reduce the likelihood of DANA usage. This finding is consistent with established behavioral economics literature, which posits that perceived risk acts as a psychological barrier to technology adoption.

In contrast, perceived security, trust, and ease of use all exhibit significant positive effects on the decision to use the DANA e-wallet. The significance of perceived security indicates that users place substantial importance on system integrity, encryption, authentication mechanisms, and the platform's ability to prevent unauthorized access. When users believe that DANA maintains a secure transaction environment, their willingness to adopt and rely on the platform increases.

Similarly, trust shows a strong positive contribution, reinforcing the notion that belief in a platform's reliability, transparency, and accountability serves as a catalyst for adoption. High trust mitigates uncertainty

and risk, facilitating behavioral commitment to digital services. Finally, ease of use significantly enhances adoption likelihood, validating the Technology Acceptance Model's emphasis on perceived ease as a fundamental determinant of user acceptance. A simple interface, intuitive navigation, and seamless transaction processes shape users' perceived convenience, thereby increasing their inclination to use the application regularly.

The overall significance of the regression model is further confirmed through the F-test, as shown in Table 4.

Table 4. Simultaneous Significance (F-test)

Statistic	Value	F-table	Conclusion
F-count	57.763	2.47	Significant
Sig.	< 0.05	—	Model accepted

Source: Processed data, 2025

The F-test result demonstrates that all four variables—risk perception, security, trust, and ease of use—collectively exert a statistically significant influence on usage decisions. The F-count of 57.763, which is far above the critical value of 2.47, confirms the overall robustness of the model. This suggests that the psychological and technological dimensions examined in this study interact synergistically in shaping users' behavioral decisions regarding digital financial services.

These findings collectively substantiate the assertion that the adoption of the DANA e-wallet in Samarinda is predominantly driven by users' internal perceptions and evaluations of the platform, thereby validating the theoretical linkages proposed in TAM, TRA, and FinTech adoption frameworks.

IV. DISCUSSION

The findings of this study provide strong empirical support for the argument that users' psychological and perceptual assessments of digital financial platforms play a central role in determining adoption behavior. The significance and direction of the regression coefficients demonstrate that the decision to use the DANA e-wallet in Samarinda is shaped by an interplay of risk-related concerns, security assurances, trust in the service provider, and perceptions of usability. These results reinforce existing theories in behavioral technology research and align closely with prior studies in the domain of digital payments.

The negative and significant influence of risk perception on usage decisions reflects a consistent pattern identified in technology adoption literature, wherein perceived risks—whether financial, operational, or privacy-related—serve as barriers to adoption. Users who harbor concerns about data leakage, unauthorized access, or potential financial loss become more hesitant to rely on digital platforms. In the context of DANA, although the application is widely used across Indonesia, the presence of news reports regarding balance loss or fraudulent activities can heighten user sensitivity to perceived risks. This aligns with the foundational propositions of the Theory of Reasoned Action (TRA), which suggests that negative beliefs contribute to negative attitudes and thus reduce behavioral intention. The finding also parallels research indicating that risk perception is one of the most persistent inhibitors of FinTech adoption across emerging markets, where digital trust infrastructures are still evolving.

In contrast, the significant positive influence of perceived security suggests that robust protective mechanisms can effectively counterbalance the hesitation caused by risk perception. When users believe that the platform employs adequate encryption, authentication processes, and safeguards against fraud, they perceive the system as more reliable. This aligns with Schueffel's conceptualization of FinTech security, which underscores the importance of technological assurances in fostering user confidence. In the case of DANA, features such as PIN verification, two-factor authentication, and transaction tracking strengthen the perceived integrity of the system. The significant effect of security found in this study confirms that security is not merely a technical attribute but a psychological reassurance that directly shapes user trust and willingness to transact.

Trust emerges as another significant predictor, reinforcing its position as a cornerstone of digital financial engagement. Trust functions as a mitigating factor that reduces uncertainty, increases perceived system credibility, and supports the internalization of positive expectations about future performance. The strong effect of trust found in this study resonates with the findings of Savitri et al. (2022), Anggraeni et al. (2023), and Raman & Annamalai (2017), who emphasize that trust is fundamental in electronic financial exchanges, particularly when users must rely on intangible service qualities. For DANA users, trust may be derived from consistent performance, positive user reviews, customer service responsiveness, or the platform's corporate reputation. This finding confirms the framework of the Technology Acceptance Model (TAM), where trust operates as a key factor enhancing perceived usefulness and facilitating adoption.

Ease of use also shows a compelling positive influence on the decision to adopt DANA, which is strongly aligned with TAM's core proposition that perceived ease of use significantly shapes user acceptance. An intuitive interface, simple transaction processes, and minimal steps required for payment or transfer reduce

cognitive effort and enhance user satisfaction. The role of ease of use in this study supports the idea that users in emerging digital markets prefer systems that require minimal adaptation effort, especially when transitioning from traditional cash transactions. The result is also consistent with previous studies showing that usability is often ranked as the most important reason consumers continue using e-wallet services.

The simultaneous significance of all variables, as indicated by the F-test, underscores the multidimensional nature of digital financial decision-making. While risk perception acts as a deterrent, the reinforcing influences of security, trust, and ease of use combine to create a strong overall incentive for adoption. The high Adjusted R² value further confirms that these variables collectively explain a substantial portion of usage decisions, highlighting their central role in shaping digital payment behavior. This supports the notion that FinTech adoption is not driven by a single determinant but by a constellation of perceptions that together shape user behavior.

Taken together, these findings offer both theoretical and practical implications. Theoretically, the results validate the integration of TRA, TAM, and FinTech adoption frameworks in explaining user behavior in digital payment ecosystems. They demonstrate that behavioral intention and actual usage are shaped by perceptions that influence attitudes, trust, and risk assessments. Practically, the findings highlight areas where platform providers, such as DANA, can strategically intervene to enhance user adoption. Strengthening security features, designing transparent communication regarding data protection, building user trust through consistent service quality, and optimizing interface simplicity are actionable strategies that can significantly improve user experience and reduce barriers to adoption.

Overall, the discussion indicates that the behavioral landscape of digital payments in Samarinda reflects broader global patterns but is also influenced by localized perceptions of safety, convenience, and platform reliability. The insights generated from this study underscore the importance of addressing both psychological and technological factors in promoting digital financial inclusion.

V. DISCUSSION

The results of this study provide clear and compelling evidence that the adoption of the DANA e-wallet in Samarinda City is strongly shaped by a combination of psychological and technological perceptions held by users. The empirical model demonstrates substantial explanatory power, with 69.6% of the variance in usage decisions explained by risk perception, perceived security, trust, and ease of use, indicating that these variables collectively form the core determinants of digital payment behavior in this context. Among these factors, risk perception exerts a significant negative influence, reinforcing the notion that concerns regarding financial loss, privacy breaches, and system reliability remain critical barriers to the adoption of financial technology services. Conversely, perceived security, trust, and ease of use all exhibit significant positive effects, illustrating that users' confidence in the platform's protective features, its reliability, and its practical usability play decisive roles in encouraging adoption.

These findings affirm the relevance of established theoretical frameworks, such as the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA), in explaining user behavior in digital financial ecosystems. They also highlight that adoption is not merely a matter of technological availability but a function of users' subjective evaluations and experiential expectations. For service providers such as DANA, this emphasizes the importance of enhancing system security, strengthening trust-building mechanisms, and continuously improving interface design to ensure a seamless user experience. Enhancements in fraud prevention, transparent communication regarding privacy protection, responsive customer support, and simplified transactional processes may further reinforce user confidence and increase adoption levels.

Overall, this study contributes valuable insights for both academics and practitioners by demonstrating that digital payment adoption is fundamentally multidimensional, influenced by intertwined perceptions of risk, safety, reliability, and convenience. As digital financial services continue to expand in Indonesia, addressing these determinants will be critical for accelerating financial inclusion, enhancing user satisfaction, and supporting the long-term sustainability of e-wallet platforms within the growing digital economy.

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