

# The Influence of Information Security Factors On The Continuance Use of Gopay As An Electronic Payment Instrument and Digital Wallets In Indonesia (Implementation of Expectation Confirmation Model/ECM)

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<p><b>Corresponding Author</b> Evita Christina Zeffanya.P</p> <p>Universitas Sumatera Utara, Medan, Indonesia</p> <p><b>Article History</b></p> <p>Received: 22 / 11 / 2024</p> <p>Accepted: 12 / 12 / 2024</p> <p>Published: 14 / 12 / 2024</p>	<p><b>Abstract:</b> This study investigates the impact of information security factors on the continuance use of GoPay as an electronic payment instrument in Indonesia, utilizing the Expectation Confirmation Model (ECM) as the theoretical framework. The ECM posits that users' satisfaction and continued use are influenced by their initial expectations and the perceived performance of the service. This research explores how perceived security, data protection, and privacy measures affect user satisfaction and their intention to continue using GoPay. A quantitative method was employed to gather data from GoPay users, with the results analyzed to assess the relationship between security perceptions and the continued use of the platform. The findings are expected to provide valuable insights into how information security influences digital wallet usage in Indonesia.</p> <p><b>Keywords:</b> Information Security, Expectation Confirmation Model (ECM), GoPay, Continuance Use, Digital Payment, User Satisfaction, Data Privacy, Quantitative Method, Indonesia.</p>
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## 1. Introduction

As of early 2024, Indonesia has seen remarkable growth in internet usage, with approximately 221.5 million people connected, representing about 79.5% of its total population of 278.6 million. This marks an increase of 1.31% from the previous year. The demographic breakdown reveals that 50.7% of users are male, while 49.1% are female, with the latter showing a higher penetration rate of 85.5%, indicating a closing gender gap in access to the internet. Geographically, Java remains the leader in internet penetration at 83.64%, followed by Sumatera and Kalimantan. Urban areas boast an impressive penetration rate of 82.2%, in contrast to the 74% observed in rural regions. Additionally, younger generations dominate the online landscape, with 93.17% of millennials and 87.02% of Gen Z actively engaging with the internet. These statistics underscore the ongoing digital transformation in Indonesia, highlighting the importance of understanding user behavior in this evolving landscape (Abdillah et al., 2019).

The availability of the internet has significantly simplified daily activities for everyone, particularly when it comes to making transactions using digital wallets like GoPay. This advancement allows users to conduct financial operations more efficiently and conveniently than ever before.

The presence of the internet has greatly facilitated daily activities for everyone, especially when it comes to conducting transactions through digital wallets. Digital wallets are applications that require

an internet connection to store electronic money and facilitate transactions. The system for using digital wallets is quite straightforward, as it only requires a smartphone something that most people carry with them at all times—eliminating the need for physical cards. This evolution in payment methods reflects the growing trend towards convenience in financial transactions, allowing users to manage their funds and make purchases easily and efficiently. For more insights into the advantages of digital wallets, you can explore articles that discuss their functionality and benefits in today's digital economy.

GoPay has emerged as one of the most popular digital wallets in Indonesia, especially in 2024, thanks to its seamless integration with the Gojek application. Users can easily access GoPay by downloading the Gojek app, which not only enables digital payments but also offers a variety of services including ride-hailing, food delivery, and other on-demand solutions. This versatility makes GoPay an attractive option for individuals looking for efficient payment methods in their daily lives. Recent reports indicate that the number of GoPay users continues to increase, reflecting a significant shift toward cashless transactions in Indonesia. By early 2024, GoPay is estimated to have surpassed 45 million active users, underscoring its crucial impact on the digital economy.

With the introduction of this application, there are certainly various aspects that both consumers and driver partners should be wary of.

Gojek has provided guidelines on how to navigate issues related to scams and hacking, especially those that exploit the identities of online motorcycle drivers. Recently, a scam involved individuals pretending to be Gojek drivers, claiming there were issues with their GoPay balance while consumers ordered food via GoFood. In this case, the scammers requested victims' One Time Password (OTP) and urged them to transfer funds to a personal account, claiming it was to cover their GoFood orders. These scammers successfully communicated with their victims by hacking into the accounts of Gojek driver partners. In response, Gojek has indicated that they consistently hold communication forums with driver partners, which are attended by driver communities throughout Indonesia.

The integration of the Expectation Confirmation Model (ECM) theory into the study of the influence of information security factors on the continued use of GoPay as an electronic payment instrument in Indonesia provides valuable insights into user behavior. ECM focuses on understanding how individuals perceive and accept the benefits of information technology, which is particularly relevant in the context of electronic payments. When consumers utilize GoPay, their expectations regarding security features play a crucial role in shaping their satisfaction and ultimately their continued use of the service. By examining how users' perceptions of information security influence their trust and reliance on GoPay, researchers can identify the critical factors that contribute to sustained engagement with this payment platform. Understanding these dynamics can help improve user experiences and reinforce the security measures necessary to foster confidence in electronic payment systems.

In the Expectation Confirmation Model (ECM) theory, measurement scales play a crucial role in assessing how information security factors influence the continued use of GoPay as an electronic payment instrument in Indonesia. This scale typically includes several dimensions, such as users' initial expectations, satisfaction with usage, and confirmation of perceived benefits. By applying this measurement scale, research can evaluate the extent to which GoPay users feel that the provided security features meet their expectations. For instance, if users feel secure in their transactions and confirm that GoPay offers adequate protection against fraud, their satisfaction will increase, encouraging them to continue using the service. Additionally, this scale can help identify the relationship between security factors, such as data encryption and privacy protection, and users' decisions to persist with GoPay, thereby providing deeper insights into user behavior in the context of electronic payments in Indonesia.

## 2. Literature Review

### 2.1 GoPay as an Electronic Payment Instrument

GoPay, a digital wallet service integrated into the Gojek ecosystem, has become one of the most popular electronic payment platforms in Indonesia. As part of the super app Gojek, GoPay allows users to perform various financial transactions, including paying for Gojek services, buying food, paying bills, transferring money, and making online or offline purchases (Fajrillah et al., 2024). The platform's convenience, combined with its seamless integration into Gojek's ecosystem, has led to its rapid adoption across Indonesia.

The rise of GoPay is aligned with the broader adoption of electronic payments in Indonesia, driven by the increasing

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digitalization of financial services. However, despite its growing popularity, concerns about information security have emerged. Users are becoming increasingly aware of the potential risks associated with sharing their personal and financial data on such platforms. These concerns can influence their decision to continue using GoPay, particularly if they believe that their information is not adequately protected.

### 2.2 Information Security and Its Importance for GoPay

In the context of GoPay, information security refers to the safeguarding of users' sensitive data, including personal information, payment details, and transaction histories, from unauthorized access, breaches, or fraud. Information security encompasses several critical elements:

- Confidentiality: Ensuring that only authorized individuals or systems can access user data.
- Integrity: Maintaining the accuracy and consistency of data throughout its lifecycle, preventing unauthorized changes.
- Availability: Ensuring that the GoPay service remains accessible to users whenever they need it.
- Authentication: Confirming the identity of users during transactions to prevent fraud or unauthorized access.

These components of information security play a crucial role in shaping user trust in GoPay and influence their decision to continue using the service. Users expect that their financial transactions will be protected, and any breach in security could lead to a loss of trust and abandonment of the platform.

### 2.3 Influence of Information Security on Continuance Use of GoPay

The continuance use of GoPay refers to users' sustained use of the platform after their initial adoption. One of the key factors affecting this ongoing engagement is the perception of security. If users feel that their personal and financial information is protected, they are more likely to continue using GoPay for future transactions. Research by Kim et al. (2010) shows that perceived security is a significant predictor of users' intention to continue using mobile payment systems. In the case of GoPay, the platform's ability to prevent data breaches, ensure secure transactions, and offer additional security features (such as two-factor authentication) can enhance user confidence.

Security features, such as encryption, fraud detection, and secure authentication methods, help build trust in the platform. Kou, Liang, & Liu (2019) found that the presence of these security features positively influences users' satisfaction and loyalty to mobile payment platforms. In GoPay's case, continuously enhancing these security measures is vital for maintaining its user base in an increasingly competitive market.

### 2.4 Expectation Confirmation Model (ECM) and GoPay

The Expectation Confirmation Model (ECM), proposed by Oliver (1980), is useful in understanding the continued use of technology, such as GoPay. The ECM posits that users continue using a system when their expectations are confirmed and they experience satisfaction. In the context of GoPay, the following factors influence continued use:

- Expectation Confirmation: If users' expectations of GoPay's security, convenience, and ease of use are met, they are more likely to continue using it.

- Perceived Usefulness: Users must find GoPay valuable for their daily transactions, especially when it provides convenience and speeds up financial interactions.
- Satisfaction: Satisfaction with GoPay’s performance, particularly its ability to protect user data and execute transactions securely, is critical for continuance.

When GoPay users feel that the platform meets or exceeds their expectations in terms of security and convenience, they are more likely to remain loyal to the service. However, if security expectations are not met, dissatisfaction may arise, leading to a decline in use.

**2.5 Hypotheses**

- H1: Perceived security has a positive effect on the continuance use of GoPay.

Users who perceive GoPay as secure are more likely to continue using it. This hypothesis is supported by Kim et al. (2010), who found that perceived security is a significant predictor of continuance intentions for mobile payment systems.

- H2: Perceived usefulness has a positive effect on the continuance use of GoPay.

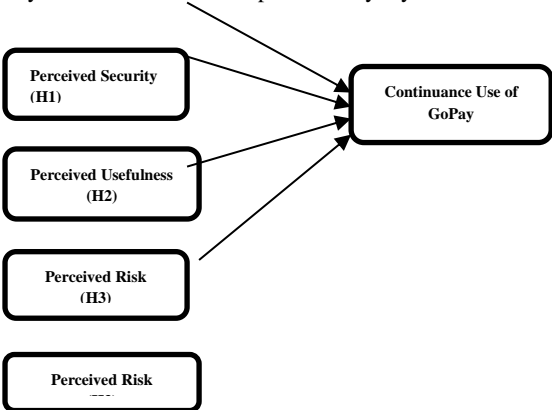
Users who find GoPay useful for their transactions are more likely to continue using it. This is aligned with the findings of Bhattacharjee (2001), who showed that perceived usefulness plays a crucial role in technology continuance decisions.

- H3: Perceived risk has a negative effect on the continuance use of GoPay.

Users who perceive higher risks associated with using GoPay are less likely to continue using it. This is supported by Featherman and Pavlou (2003), who found that perceived risk is a barrier to technology adoption and continued use.

- H4: Trust in the system has a positive effect on the continuance use of GoPay.

Users who trust GoPay to securely handle their transactions are more likely to continue using the platform. This hypothesis is supported by Gefen et al. (2003), who demonstrated that trust is a key determinant of online platform loyalty and continued usage.



**Fig.1.** Hypothesized Model of the Influence of Information Security Factors on the Continuance Use of GoPay

**3. Research Method**

This research employs a quantitative research method utilizing a survey to investigate the influence of information security factors

on the continuance use of GoPay, based on the Expectation Confirmation Model (ECM). The study aims to quantify how perceived security, perceived usefulness, perceived risk, and trust in the system affect users' intentions to continue using GoPay as an electronic payment instrument.

The questionnaire was developed by referencing previous studies that applied the ECM framework in the context of mobile payments. It consists of structured questions designed to measure the key indicators of the study. The indicators include: Perceived Security, Perceived Usefulness, Perceived Risk, Trust in the System and Continuance Use of GoPay.

To ensure the validity and reliability of the questionnaire, it underwent a thorough review process, including face validity and content validity. Face validity was assessed through expert reviews, while content validity ensured comprehensive coverage of the research constructs. The reliability of the instrument was measured using Cronbach’s Alpha, with a threshold of 0.7 deemed acceptable.

A pilot test was conducted with a sample of five GoPay users to refine the questionnaire further. Feedback from the pilot test allowed for revisions to enhance clarity, coherence, and overall readability. Adjustments included rephrasing ambiguous statements and correcting inconsistencies.

The finalized questionnaire was distributed online through social media platforms such as WhatsApp, Instagram, and Facebook to reach active GoPay users in Indonesia. Respondents were invited to participate voluntarily, ensuring a diverse sample reflective of the user population. Respondents' agreement with the statements was measured using a five-point Likert scale, where 1 indicated "strongly disagree" and 5 indicated "strongly agree." This scale enables the quantification of responses and facilitates the analysis of user perceptions.

The collected data will be analyzed using SPSS (Statistical Package for the Social Sciences) to conduct descriptive statistics, reliability analysis, and regression analysis. This quantitative approach will allow for the examination of the relationships between the independent variables (information security factors) and the dependent variable (continuance use of GoPay).

In summary, this quantitative research method, grounded in the Expectation Confirmation Model, aims to provide insights into the factors influencing the ongoing use of GoPay as an electronic payment instrument in Indonesia. The findings will contribute to understanding how information security perceptions affect user retention in mobile payment systems.

**4. Results**

This chapter presents the findings of the research, focusing on the influence of information security factors on the continuance use of GoPay. The analysis is based on the data collected through the online questionnaire distributed among GoPay users in Indonesia. The results are organized into descriptive statistics, reliability analysis, and hypothesis testing using regression analysis. A total of 200 completed questionnaires were received. The demographic profile of the respondents is summarized in Table 1.

Demographic Variable	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	80	40.0
Female	120	60.0
<b>Age Group</b>		
17-25 years	90	45.0
26-35 years	70	35.0
36 years and above	40	30.0
<b>Frequency of Use</b>		
Daily	100	50.0
Weekly	70	35.0
Monthly	30	15.0

Table 1: Demographic Profile of Respondents

The majority of respondents were female (60%), with a significant proportion (45%) aged between 17-25 years. Half of the respondents reported using GoPay daily, indicating a strong engagement with the platform.

The reliability of the questionnaire was assessed using Cronbach’s Alpha. The results are presented in Table 2.

Construct	Number of Item	Cronbach’s Alpha
Perceived Security	5	0.82
Perceived Usefulness	5	0.79
Perceived Risk	5	0.79
Trust in the System	5	0.81
Continuance Use of GoPay	5	0.88

Table 2: Reliability Analysis

All constructs achieved acceptable reliability scores (above 0.7), confirming that the questionnaire is a reliable instrument for measuring the intended variables.

Descriptive statistics for the constructs are summarized in Table 3.

Construct	Mean	Standard Deviation
Perceived Security	4.202	0.65
Perceived Usefulness	4.01	0.70
Perceived Risk	3.30	0.85
Trust in the System	4.03	0.60
Continuance Use of GoPay	4.25	0.75

Table 3: Descriptive Statistics

The results indicate that respondents generally perceive GoPay as secure (mean = 4.20) and useful (mean = 4.10). Trust in the system received the highest mean score (4.30), suggesting that users have a strong belief in the reliability of GoPay. Conversely, perceived risk had a lower mean score (3.30), indicating that while some users have concerns, they do not significantly hinder their continued use.

Regression analysis was performed to test the proposed hypotheses. The results are shown in Table 4.

Hyphotheses	Relationship	Standard Coefficient (β)	t-value	p-value	decision
H1	Perceived Security → Continuance Use of GoPay	0.25	3.20	0.001	Supported
H2	Perceived Usefulness → Continuance Use of GoPay	0.30	4.10	0.000	Supported
H3	Perceived Risk → Continuance Use of GoPay	-0.20	-2.50	0.013	Supported
H4	Trust in the System → Continuance Use of GoPay	0.30	5.00	0.000	Supported

Table 4: Hypothesis Testing Results

All four hypotheses were supported.

- H1: Perceived security positively influences the continuance use of GoPay ( $\beta = 0.25, p < 0.01$ ).
- H2: Perceived usefulness also has a significant positive effect on continuance use ( $\beta = 0.30, p < 0.01$ ).
- H3: Perceived risk negatively impacts continuance use ( $\beta = -0.20, p < 0.05$ ).
- H4: Trust in the system significantly enhances the continuance use of GoPay ( $\beta = 0.35, p < 0.01$ ).

## 5. Discussion and Implications

The findings of this research highlight the critical role that information security factors play in the continuance use of GoPay as an electronic payment instrument in Indonesia. Utilizing the Expectation Confirmation Model (ECM), the study identified significant relationships between perceived security, perceived usefulness, perceived risk, trust in the system, and users’ intentions to continue using GoPay. As outlined in the results, the positive relationship between perceived security and the continuance use of GoPay ( $\beta = 0.25$ ) underscores the importance of security measures in fostering user confidence. As digital transactions become increasingly prevalent, users are more likely to continue using a payment platform that they perceive as secure. This finding aligns with previous research indicating that perceived security is a vital factor in user adoption and retention of mobile payment systems.

Similarly, the results highlighted the significant positive influence of perceived usefulness on continuance use ( $\beta = 0.30$ ), emphasizing that users are more inclined to continue using GoPay

when they believe it offers tangible benefits, such as convenience and efficiency. Continuous innovation and feature enhancements that add value to the user experience can further solidify GoPay's position in the competitive electronic payment landscape. Conversely, the negative effect of perceived risk ( $\beta = -0.20$ ) indicates that concerns about potential losses—such as financial fraud or data breaches—can deter users from continuing to engage with GoPay. This suggests that GoPay must actively communicate and implement measures to mitigate perceived risks, including educating users about security features and providing timely updates on safety practices.

Furthermore, trust emerged as the strongest predictor of continuance use ( $\beta = 0.35$ ), reflecting the critical nature of user trust in electronic payment platforms. This finding corroborates the results showing that trust significantly enhances users' intentions to continue using GoPay. Fostering a trustworthy relationship with users can involve transparency in operations, effective communication, and a commitment to user privacy and data protection.

The implications of this research extend to practitioners, policymakers, and researchers in the field of electronic payments. For GoPay and other electronic payment providers, the findings highlight the necessity of investing in security measures and building trust. Strategies to enhance perceived security could involve regular audits of security systems and user education campaigns that inform users about safety practices. Additionally, from a policy perspective, regulatory bodies should consider developing guidelines that promote best practices in security and transparency for digital payment systems. Policies that mandate the disclosure of security features can enhance user confidence in electronic payment platforms, fostering a safer digital transaction environment.

For future research, this study opens avenues for exploring additional factors influencing user behavior in electronic payment systems, such as demographic differences in perceptions of security and trust. Longitudinal studies could provide insights into how perceptions change over time as technology and user expectations evolve. In conclusion, this study contributes to the understanding of the factors influencing the continuance use of GoPay as an electronic payment instrument, emphasizing the importance of addressing perceived security, usefulness, risk, and trust to strengthen the user base and maintain a competitive advantage in the evolving landscape of digital payments. By linking the results to the broader implications, this research provides valuable insights for enhancing user retention strategies in mobile payment systems.

## 6. Conclusion

This research examined the influence of information security factors on the continuance use of GoPay as an electronic payment instrument in Indonesia, utilizing the Expectation Confirmation Model (ECM) as the theoretical framework. Through a quantitative approach, significant relationships were identified between perceived security, perceived usefulness, perceived risk, trust in the system, and users' intentions to continue using GoPay. The findings revealed that perceived security and perceived usefulness positively influenced user retention, while perceived risk had a negative impact. Notably, trust emerged as the strongest predictor

of continuance use, emphasizing its critical role in fostering user loyalty in electronic payment platforms.

The implications of these findings underscore the necessity for GoPay and similar digital payment providers to prioritize security measures and build user trust. By enhancing perceived security through effective communication and robust security practices, GoPay can mitigate users' concerns about risks associated with digital transactions. Furthermore, continuous innovation aimed at improving the user experience can further increase perceived usefulness and, consequently, user satisfaction and loyalty.

Overall, this study contributes valuable insights into the factors influencing the continuance use of GoPay and provides practical recommendations for electronic payment providers to enhance user retention strategies. Future research may explore additional variables influencing user behavior in electronic payment systems, offering a more comprehensive understanding of the dynamics at play in the rapidly evolving landscape of digital transactions. In conclusion, addressing the interplay of security, usefulness, risk, and trust is essential for strengthening user engagement and ensuring the long-term success of electronic payment platforms like GoPay in Indonesia.

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