

The Role of Trust in the Intention to Continue Using Mobile Payment Applications in Indonesia: A Case Study of Gen Z in Batam City

Muhammad Ikhlash^a, Theresia Purba^b

^aDepartment of Business and Management, Politeknik Negeri Batam, Batam, ikhlash@polibatam.ac.id, Indonesia

^bDepartment of Business and Management, Politeknik Negeri Batam, Batam, purbatheresia52@gmail.com, Indonesia

Abstract. This study examines the impact of trust on Generation Z's intention to continue using mobile payment applications in Batam City, drawing on Innovation Diffusion Theory (IDT) and Trust Building Theory as theoretical foundations. Using a quantitative approach, data were collected from 348 respondents and analyzed using SEM-PLS, including validity tests (AVE, loadings), reliability assessments (Cronbach's Alpha, Composite Reliability), model fit evaluation (SRMR), bootstrapped path analysis, and moderation testing via MICOM and Multi-Group Analysis (MGA). Findings reveal that security ($\beta = 0.427$, $p < 0.001$) and reputation ($\beta = 0.330$, $p < 0.001$) significantly contribute to building user trust, while mobility and customization show no significant impact. Trust substantially reduces perceived risk ($\beta = -0.751$, $p < 0.001$) and enhances continuance intention ($\beta = 0.490$, $p < 0.001$). Conversely, perceived risk negatively affects usage sustainability ($\beta = -0.318$, $p < 0.001$). Gender moderation analysis indicates no significant moderating effect on the antecedent-trust relationships. These findings underscore that security and reputation are critical drivers of trust, which serves as a pivotal mechanism linking technological attributes to sustained digital engagement among Gen Z mobile payment users. The study contributes to digital payment literature by demonstrating that foundational trust elements outweigh convenience features in fostering long-term user loyalty.

Keywords: Trust, Continuance Intention, Security, Reputation, Generation Z, mobile payment, Batam City

* Corresponding author. E-mail: ikhlash@polibatam.ac.id

Introduction

Advances in digital technology have transformed the way people transact, with mobile payment applications becoming increasingly popular in Indonesia. The increase in the adoption of these applications is driven by the growth of the digital economy, internet penetration, and smartphone use, especially among Generation Z (Gen Z), who are known to be adaptive to technology (Bank Indonesia, 2022; Dahlberg et al. (2015). This demographic gravitates toward mobile payment services due to perceived convenience, enhanced security features, and attractive promotional incentives. However, ease of access also presents risks of impulsive spending patterns without adequate financial literacy (Chen et al., 2021).

Around 70% of Gen Z in Indonesia have used digital financial applications and are actively exploring new features, such as e-wallets and buy-now, pay-later services (Nugroho, 2024). However, according to Gefen et al. (2003) and McKnight et al. (2002) the sustainability of using these applications still faces challenges, especially related to trust in the security, privacy, and reliability of the system. Previous literature has highlighted trust as a key factor in the adoption of digital services, with elements of reputation, customization, security, and mobility as key drivers (Shao et al., 2019). In addition, according to Shao et al. (2019) and Kalinić et al. (2019), gender also serves as a moderating variable that can influence the formation of user trust in applications.

This study replicates previous research by Ansori and Nugroho (2024), which discussed the relationship between trust factors and the continuation of mobile payment application use in Indonesia. However, critical research gaps persist. First, previous studies predominantly employed heterogeneous samples, obscuring generation-specific behavioral patterns. Gen Z exhibits distinct digital nativity, risk perceptions, and value orientations that warrant isolated examination (Dimock, 2019). Second, geographical contextualization remains limited, despite regional variations in digital infrastructure, cultural norms, and economic conditions significantly affecting technology adoption patterns (Hofstede, 2001).

However, this study differs in two main ways: first, it focuses explicitly on the segment of Gen Z that has unique characteristics in its use of technology; second, the geographical context of the research is limited to Batam City. Batam was chosen because of its

characteristics as a city with significant digital economic growth and ever-increasing technological facilities. Data from Badan Pusat Statistik Batam City (2024) support this, which indicates that more than 75% of young people in this city regularly use digital financial applications.

This research addresses these gaps by focusing exclusively on Gen Z users in Batam City, Indonesia. Batam represents an ideal research context due to its unique characteristics as a Special Economic Zone with accelerated digital infrastructure development, high internet penetration (84.7%), and extensive e-commerce integration (BPS Batam, 2024). The city's youthful demographic composition (56% under 35 years old) and strategic position as a regional trade hub create distinctive dynamics for mobile payment adoption. Data from Badan Pusat Statistik Batam City (2024) indicates 78.3% of residents aged 18-28 regularly utilize digital financial applications—substantially higher than the national average of 58.6% (OJK, 2024). Additionally, Batam's multicultural environment and exposure to Singaporean financial technology innovations provide insights into cross-border digital payment behaviors (Batam Investment Board, 2023).

To construct a robust theoretical framework, this study integrates two complementary theories. Innovation Diffusion Theory (IDT), proposed by Rogers (1962), explains the adoption of technology through five key attributes: relative advantage, compatibility, complexity, trialability, and observability. In mobile payment contexts, relative advantage manifests through mobility and customization features that enhance user control and accessibility (Shao et al., 2019). Second, the Trust Building Theory by McKnight et al. (2002) posits that digital trust emerges from perceived security, reputation, integrity, and competence. This framework elucidates the formation of trust in risk-laden digital environments. By synthesizing these theories, this study provides a comprehensive analysis of how technological attributes shape trust, influence risk perceptions, and ultimately determine continuance intentions among digitally native users.

Literature Review

Innovation Diffusion Theory (IDT)

The Innovation Diffusion Theory (IDT), developed by Rogers (1962), describes the process of adopting innovation in society through five main attributes: relative superiority, compatibility, complexity,

trialability, and observability. In the context of mobile payment, the characteristics of relative superiority are operationalized through aspects of mobility and customization (Shao et al., 2019). Consumers tend to adopt new technologies if they perceive greater benefits than those offered by existing systems (Taylor & Todd, 1995). IDT is also used to analyze users' trust in digital technologies, including online payment applications and internet-based platforms (Venkatesh et al., 2003).

Trust Building Theory

Trust is a key element in online interactions, especially in digital financial transactions. The theory of building trust developed by McKnight et al. (2002) identifies two main components: willingness to depend and belief in benevolence, integrity, and competence. In the context of mobile payment applications, trust encompasses the belief that these applications can protect personal data, ensure security, and be reliable in various situations (Gefen et al., 2003). A good online reputation and positive reviews from previous users also play a crucial role in building trust (Shao et al., 2019).

Mobile Payment

Mobile payment (mobile payment) is a mobile device-based payment solution designed to provide convenience and flexibility for users to carry out financial activities anytime and anywhere (Dahlberg et al., 2015). The mobile payment application utilizes various technologies, including Near Field Communication (NFC), QR Codes, digital wallets, and biometric technologies such as fingerprint scanners and facial recognition, to enhance the security and convenience aspects of transactions (C. Kim et al., 2010). The main advantage of mobile payment lies in its ability to overcome geographical limitations and provide fast and efficient transaction access (Lu et al., 2011). However, the adoption of this technology still faces challenges in the form of user doubts about security and the persistence of traditional payment methods (Dahlberg et al., 2015).

Continuance Intention

In the context of digital payments through mobile devices, continuance intention refers to the user's desire to continue using the mobile payment application after they have had an initial experience with it (Amoroso & Lim, 2017). Sustainability of use

is greatly influenced by user satisfaction with application features, such as convenience, security, and reliability of services (T. Zhou, 2013). The continuance intention model, developed by Bhattacherjee (2001), emphasizes the importance of expectation confirmation and post-use evaluation. The benefits perceived by users, such as convenience, have a more dominant positive influence on sustainability intentions compared to perceived risk (Ubaidillah et al., 2023).

Hypothesis Development

The Effect of Mobility on Trust

In Innovation Diffusion Theory by Rogers (1962), mobility is an attribute of relative excellence because it provides flexibility in accessing applications at any time and from anywhere. For Gen Z, who prioritize speed and efficiency, this feature reinforces the perception of service reliability. Shao et al. (2019) demonstrate that mobility enhances user comfort. Similar findings were also presented by Chong et al. (2012) and Liébana-Cabanillas et al. (2014), which demonstrate that mobility has a positive impact on the formation of trust in digital services.

H_1 : Mobility has a positive effect on trust

The Effect of Customization on Trust

Customization is a key element of relative superiority in IDT, allowing for the personalization of features according to the user's needs (Huang et al., 2014). Gen Z tends to trust systems that give them control and experiences that suit their preferences. When users feel that the app can be tailored to their style and habits, it creates a sense of engagement and ownership that reinforces trust. This statement is reinforced by the research result by Suh and Han (2003), who found that customization strengthens the perception of reliability and fosters a sense of user engagement, thereby positively impacting trust.

H_2 : Customization has a positive effect on trust

The Effect of Security on Trust

Trust Building Theory posits that security serves as the foundation of trust in digital services (McKnight et al., 2002). In mobile payments, security includes the protection of personal data and transactions. Although Gen Z is familiar with technology, they still have concerns about data leaks and the misuse of information. Therefore, trust increases as users feel

safe from the risk of information leakage and misuse. This is supported by Chellappa and Pavlou (2002), who affirm the importance of security in building user trust.

H₃: Security has a positive effect on trust

The Influence of Reputation on Trust

Reputation, as a collective perception of the credibility of service providers, is an important signal in the digital environment (McKnight et al., 2002). Gen Z tends to rely on reviews, ratings, and social opinions before using an app. A good reputation can serve as an initial trust signal for users who have not had hands-on experience with the app. Studies by Laurence & Candiwan (2020) and Reskyana & Candiwan (2020) demonstrate that reputation is a key factor in establishing trust in digital financial applications, such as OVO and LinkAja.

H₄: Reputation has a positive effect on trust

The Effects of Gender Moderation

The theory of social role by Eagly (1987) posits that there is a difference in preferences for technology use between men and women. Gender can moderate the strength of the relationship between mobility, customization, security, reputation, and user trust. Shao et al. (2019) show that women are more responsive to security and customization, while men tend to be influenced by mobility and reputation. Kalinić et al. (2019) also support the notion that antecedent influences on beliefs differ significantly between genders.

H₅: Antecedent influence on gender-moderated beliefs

According to Venkatesh et al. (2012) and Z. Zhou et al. (2014), efficiency and technical function are the primary focus of men when using technology. In the context of mobile payments, mobility, which is access anytime and anywhere, is more valuable for them because it is directly related to productivity. This is reinforced by Liébana-Cabanillas et al. (2014), who found that men are more sensitive to mobility features in forming trust in digital financial applications.

H_{5a}: The effect of mobility on confidence is stronger in men

Women tend to appreciate personal and customizable features, such as appearance, control, and emotionally relevant user experiences, more than men (San Martín & Jiménez, 2011). Customization in digital apps allows female users to feel more

personally involved and have control over the system, which ultimately reinforces their trust in the app. Shao et al. (2019) found that women are more responsive to personalization features in digital financial services, while Suh and Han (2003) assert that flexibility and control in the system increase the perception of trust, especially in female users.

H_{5b}: The effect of customization on stronger trust in Women

Security is a significant factor in building trust among female users, as they are more sensitive to digital risk such as data misuse and fraud (Chawla & Joshi, 2020). Women's trust in apps increases when they feel their data and transactions are well-protected. As in the study by Shao et al. (2019), security was shown to have a greater influence on women's confidence than men's.

H_{5c}: The effect of security on stronger trust in Women

Men are more likely to use reputation as an early indicator of trust, especially in conditions of limited information. They are more responsive to user reviews, brand popularity, and the app's social image. Kalinić et al. (2019) show that reputation plays a greater role in shaping men's trust in fintech services, as they tend to rely on a rational approach in assessing the credibility of the system.

H_{5d}: The effect of reputation on trust is more substantial in men

The Influence of Trust on Perceived Risk

In Trust Building Theory, high trust reduces the perception of risk because users feel confident that digital systems will operate reliably and securely (Gefen et al., 2003). When users have confidence in the reliability and security of the app, concerns about risk such as financial loss and data misuse decrease. Research by Lin et al. (2017), and T. Zhou (2013) has shown that trust has a significant influence on reducing perceived risk in digital financial services.

H₆: Trust Negatively Affects Perceived Risk

The Effect of Trust on Continuation Intention

According to the Continuance Intention model developed by Bhattacherjee (2001), users' desire to continue using digital services is significantly influenced by their trust in the system. In this case, the sustainability of mobile payment application use is highly dependent on user perception of the security, reliability, and reputation aspects of the application

used. Trust fosters a sense of security and satisfaction with the system, which in turn encourages loyalty. Shao et al. (2019), T. Zhou (2013), and Köster et al. (2016) also provide empirical support for these findings, suggesting that trust significantly increases the sustainability intention associated with app use.

H₇: Trust Positively Affects Intention to Continue Use

The Influence of Perceived Risk on Continuance Intention

The perceived risk is a subjective evaluation of the potential losses associated with the use of technology D. J. Kim et al. (2008). As perceived risk increase, users' tendency to continue utilizing digital services will decrease. Studies conducted by Lin et al. (2017) and Shao et al. (2019) that the perception of risk is the main inhibiting factor in forming the intention to continue using digital financial applications.

H₈: Perceived Risk Negatively Affects Intention to Continue Use.

Research Model

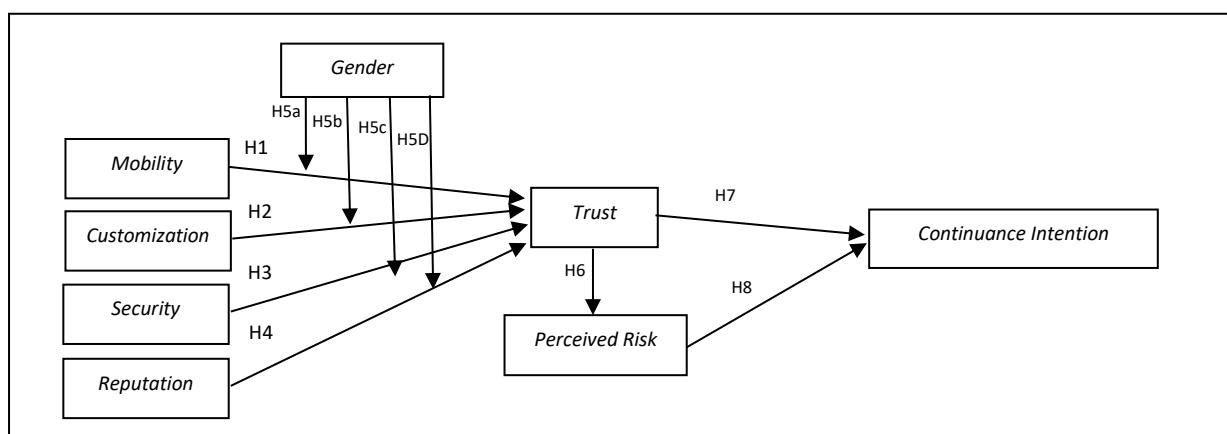


Fig. 1. Research Model

Source: Primary Data (2025)

Research Methods

Sampling and Data Collection

This study employs a quantitative survey methodology using structured questionnaires as the primary data collection instrument. The target population comprises Generation Z individuals, operationally defined as those aged 18-27 years (born between 1997 and 2007), residing in Batam City, Riau Islands Province, Indonesia. According to Batam City Electoral Commission (KPU) data reported through regional media, 224,469 Gen Z voters (born 1995-2000, overlapping with our broader 1997-2007 definition) were registered for the 2024 Regional Elections (Batam Pos, 2024; GoKepri, 2024). This figure provides a conservative population estimate, as it excludes Gen Z individuals born after 2000 who form a substantial portion of our target demographic.

Purposive sampling was employed with three inclusion criteria: (1) age 18-27 years, (2) Batam City residency, and (3) active mobile payment application usage (minimum twice monthly) within the past six months. Sample size was calculated using Slovin's formula with a 5% margin of error:

$$n = N / (1 + N(e^2))$$

Where $N = 224,469$ and $e = 0.05$, yielding a minimum required sample of 399 respondents. However, to account for potential incomplete responses and enhance statistical power, we distributed 420 questionnaires. After data screening for completeness, missing values, and attention checks, 348 valid responses were retained for analysis (82.9% valid response rate).

The questionnaire employed established measurement scales adapted from prior, validated instruments (see Table 1), with all items measured on 5-point Likert scales (1 = Strongly Disagree to 5 = Strongly Agree). A pre-test with 30 respondents

confirmed the clarity of items and their face validity. The final questionnaire was distributed online via Google Forms through social media platforms (WhatsApp, Instagram, Line) and university networks from May 16 to June 12, 2025. Data collection occurred in Batam City, ensuring geographical consistency. Secondary data from official statistics (BPS, OJK, Bank Indonesia) were supplemented with primary survey data to contextualize the findings.

This study prepares an operational definition of variables based on quantitative and measurable indicators. The indicators are compiled based on references from relevant previous studies. A further explanation of the variables, indicators, reference sources, and measurement times used is provided in Table 1.

Table 1
Variable Operations

Variable	Indicators	Source
Mobility	Payment access capabilities from any location.	Shao et al (2019)
	Flexibility of transaction times.	Kim et al (2010)
	Integration with mobile devices for real-time transactions.	Huang et al (2014)
Customization	Personalize payment features.	Huang et al (2014) Shao & Zhang (2018)
	Flexibility of payment options.	
	Customizable security settings.	
Security	Perception of system reliability.	McKnight et al (2002) Zhou (2011)
	Personal data protection.	
	Secure transaction guarantee (biometrics/PIN).	
Reputation	Positive image of applications in the community.	Lin et al (2017) Kalinić et al (2020)
	Recommendations from social circles.	
	Previous user reviews.	
Trust	Confidence in the reliability of the application.	McKnight et al (2002) Shao et al (2019)
	Perception of service provider integrity.	
	Trust in the protection of user data.	
Perceived Risk	Concerns over data leaks.	Kim et al (2008) Köster et al (2016)
	Fear of financial loss.	
	Uncertainty of internet network performance.	
Continuance Intention	The desire to continue using the app.	Zhou (2013) Bhattacherjee (2001)
	Recommend apps to others.	
	Post-service satisfaction.	
Gender (Moderator)	Respondent's gender (Male/Female)	

Source: Primary Data (2025)

This study was analyzed using the Structural Equation Modeling method with the Partial Least Squares (SEM-PLS) approach, which was processed using SmartPLS software version 4.0. This technique is employed because it can simultaneously analyze the relationships between constructs, even for non-normal data and complex models (Hair et al., 2022). Validity testing was conducted using a convergent validity approach, characterized by an AVE value of 0.5 or greater and an indicator load factor of 0.7 or greater (Hair et al., 2022). In addition, discriminant validity is tested using the Fornell-Larcker criterion, where the square root of AVE of a construct must be greater than the correlation of that construct with other constructs (Fornell & Larcker, 1981). Meanwhile, reliability is assessed with a minimum value of 0.7, and Composite Reliability (CR), with a minimum value of 0.7, is used to indicate the internal consistency of indicators within one construct (Hair et al., 2022).

Prior to hypothesis testing, model fit was evaluated using Standardized Root Mean Square Residual (SRMR), where a Δ value of 0.10 or less indicated that the model had an adequate fit (Hair et al., 2022). SRMR is used as a complementary indicator in PLS-SEM to ensure that globally constructed models are compliant with empirical data. However, PLS-SEM itself places more emphasis on the predictive capabilities of the model (Sarstedt et al., 2014). Path analysis was conducted using the bootstrapping technique with 5,000 subsamples to obtain a robust parameter estimate and test the significance of the relationship between constructs through t-statistics and p-values, with a significance level of $p < 0.05$ used as the standard to reject the null hypothesis (Hair et al., 2022).

Measurement Invariance of Composite Models (MICOM) testing is performed prior to Multi-Group Analysis (MGA) to ensure the measurement model is

equivalent between groups. MICOM consists of three stages: (1) configural invariance, fulfilled if the model structure and indicators are the same; (2) compositional invariance, fulfilled if the composite correlation ≥ 0.95 and p-value ≥ 0.05 ; and (3) equality of mean and variance, fulfilled if the p-value ≥ 0.05 . If the first two stages are met, even if the third stage is not, the model is considered to meet partial measurement invariance, allowing the MGA analysis to proceed (Henseler et al., 2016).

After the model met the partial measurement invariance via MICOM, the MGA analysis was performed to see if there were differences in influences between groups, such as gender. In SmartPLS, the analysis can use the PLS-MGA method or the permutation test. The difference is considered significant if the p-value < 0.05 . If significant, then moderator variables (e.g., gender) have been shown to

influence the relationship between constructs (Hair et al., 2022); (Henseler et al., 2016).

Results and Discussion

Result

348 valid responses met the inclusion criteria (82.9% response rate). All respondents fell within the 18-28 age range, consistent with Generation Z classification. Based on Table 2, the majority of respondents reported having completed high school education or its equivalent, with a monthly income or allowance ranging from IDR 3,500,000 to IDR 5,000,000. Most of the respondents worked as private employees. In terms of mobile payment usage, the majority of respondents use this application about 1-2 times every week.

Table 2
Respondent Profile

Demographic Factors	Frequency	Percentage
Gender		
Men	151	43.39
Women	197	56.61
Age		
<18 Years	18	4.80
18 - 28 Years	348	92.80
> 28 years old	9	2.40
Final Education		
High School/Equivalent	200	57.47
Diploma	74	21.26
Bachelor (S1)	70	20.11
Postgraduate (S2/S3)	4	1.15
Work		
Student/Student	150	43.10
Civil Servant/Indonesian National Armed Forces/Indonesian National Police	11	3.16
Private employees	153	43.97
Self-employed	23	6.61
Other	11	3.16
Frequency of Mobile Payment Use		
Every day	95	27.30
3-6 times/week	113	32.47
1-2 times/week	115	33.05
<1 time/week	25	7.18
Salary per month		
< IDR 500,000	36	10.34
IDR 500,000 - IDR 1,500,000	60	17.24
IDR 1,500,000 - IDR 3,500,000	53	15.23
IDR 3,500,000 - IDR 5,000,000	108	31.03
> IDR 5,000,000	91	26.15

Source: Primary Data (2025)

Validity and Reliability Analysis

Table 3 presents the results of the convergent validity analysis, which shows that the entire construct

has an AVE value above 0.5 and the load factor of the indicator exceeds 0.7, thus meeting the convergent validity criteria.

Table 3
Validity and Reliability

Construct	Items	Outer Loading	AVE	Convergent Validity Test	Cronbach's Alpha	CR	Reliability Test
Mobility	MB1	0.865	0.742	Accepted	0.825	0.896	Reliable
	MB2	0.904					
	MB3	0.812					
Customization	CS1	0.869	0.738	Accepted	0.822	0.894	Reliable
	CS2	0.896					
	CS3	0.810					
Security	SR1	0.883	0.742	Accepted	0.825	0.896	Reliable
	SR2	0.906					
	SR3	0.791					
Reputation	RE1	0.787	0.711	Accepted	0.796	0.881	Reliable
	RE2	0.887					
	RE3	0.853					
Trust	TR1	0.846	0.776	Accepted	0.854	0.912	Reliable
	TR2	0.944					
	TR3	0.849					
Perceived Risk	PR1	0.861	0.747	Accepted	0.832	0.899	Reliable
	PR2	0.858					
	PR3	0.874					
Continuance Intention	CI1	0.857	0.752	Accepted	0.835	0.901	Reliable
	CI2	0.913					
	CI3	0.830					

Source: Primary Data (2025)

Table 3 also indicates that the entire construct has Cronbach's Alpha values above, and a Composite

Reliability (CR) exceeds 0.7, which indicates an excellent level of reliability.

Table 4
Fornell-Larcker Criteria

	Continuance Intention	Customization	Mobility	Perceived Risk	Reputation	Security	Trust
Continuance Intention	0.867						
Customization	0.655	0.859					
Mobility	0.653	0.836	0.861				
Perceived Risk	0.686	0.726	0.735	0.864			
Reputation	0.768	0.749	0.719	0.768	0.843		
Security	0.698	0.679	0.617	0.698	0.739	0.861	
Trust	0.729	0.711	0.671	0.751	0.784	0.794	0.881

Source: Primary Data (2025)

The results presented in Table 4 indicate that each construct has a root value of AVE greater than the correlation with other constructs, suggesting that discriminant validity has been achieved.

Hypothesis Testing

Before performing hypothesis testing in PLS-SEM, it is essential to evaluate the overall model fit using indicators such as the SRMR (Standardized Root

Mean Square Residual). According to Hair et al. (2022) SRMR indicates the extent to which the model built is in accordance with empirical data, and a value below 0.10 is considered to indicate a good fit model.

This study yielded an SRMR value of 0.102, which is slightly above the ideal threshold. However, in the PLS-SEM approach, the SRMR serves only as a complementary indicator, as the primary focus of PLS-SEM is the model's predictive capabilities, not its

global structural fit (Sarstedt et al., 2014). As long as the construct demonstrates good reliability and validity, as well as a significant relationship between variables, the model remains feasible for hypothesis

testing, even if the SRMR value is slightly above the standard.

Table 5
SRMR

	Saturated Model	Estimated Model
SRMR	0,076	0,102
d ULS	1,321	2,399
d G	0,649	0,779
Chi-square	1471,025	1626,238
NFI	0,757	0,731

Source: Primary Data (2025)

Direct Effect

Table 6
Hypothesis Testing Summary

Hypothesis	Path Coefficients	t-statistics	p-values	Conclusion
H1: Mobility → Trust	0,081	1,230	0,219	Not supported
H2: Customization → Trust	0,107	1,548	0,122	Not supported
H3: Security → Trust	0,427	8,585	0,000	Supported
H4: Reputation → Trust	0,330	5,252	0,000	Supported
H6: Trust → Perceived Risk	0,751	26,211	0,000	Supported
H7: Trust → Continuance Intention	0,490	8,173	0,000	Supported
H8: Perceived Risk → Continuance Intention	0,318	5,185	0,000	Supported

Source: Primary Data (2025)

As shown in Table 6, the mobility variable had no significant effect on trust, with a path coefficient of 0.081, a t-statistic of 1.230, and a p-value of 0.219 ($p > 0.05$). This means that despite the positive direction of the relationship, the influence of mobility on trust formation is very weak and not statistically significant.

The same thing also happened with the customization variable, which had no significant effect on the confidence of the values $p = 0.122$, coefficient = 0.107, and $t = 1.548$. In contrast to safety, which shows a positive and significant influence on trust with a path coefficient of 0.427, a t-statistic of 8.585, and a p-value of 0.000. Reputation showed a positive and significant influence on trust, with a path coefficient of 0.330, a t-statistic of 5.252, and a p-value of 0.000. Furthermore, trust has a powerful and significant influence on lowering risk perception, with a path coefficient of 0.751, a t-statistic of 26.211, and a p-value of 0.000. Additionally, trust has a positive and significant effect on the intention to continue using the application, with a coefficient of 0.490, a t-statistic of 8.173, and a p-value of 0.000. Risk perception had a significant effect on intention to

continue use (coefficient 0.318; $t = 5.185$; $p = 0.000$), but the positive direction contradicted the theory that risk should lower intention.

Gender Moderation Test

Gender moderation testing in this study was conducted using the Measurement Invariance of Composite Models (MICOM) approach, which comprises three main stages. In the first stage, configural invariance is tested by using the same model and indicators in both groups, indicating that configural invariance is considered to have been met, and the analysis can proceed to the next stage.

The second step, compositional invariance, based on Table 7, shows that the correlation value and p-value for each construct meet the criteria of compositional invariance, with a p-value of 0.05. However, the reputation construct, with a correlation of 0.997 and $p = 0.011$, does not meet this criterion because $p < 0.05$, so it is declared not invariant at this stage.

In step 3a of the equality of means test, only the safety and intention to continue met the mean

invariance criteria ($p > 0.05$), while the other constructs were not invariant.

Then, in step 3b of the equality of variances test, based on Table 7, only the intention to continue met the criteria of variance invariance ($p > 0.05$), while the other constructs did not.

Therefore, MGA analysis is only performed on constructs that meet the requirements of invariance, such as safety and intention to continue. The results of the analysis on non-invariant constructs must be interpreted carefully, as the differences that arise can be caused by variations in construct structures, rather than differences in relationships between variables.

Table 7
MICOM Measurement Invariance Test

Step 2	Original correlation	p-value	Interpretation
Mobility	0.998	0.076	Invariant
Customization	0.999	0.432	Invariant
Security	1.000	0.635	Invariant
Reputation	0.997	0.011	Non-Invariant
Trust	1.000	0.507	Invariant
Perceived Risk	0.998	0.055	Invariant
Continuance Intention	1.000	0.404	Invariant
Step 3a (mean)			
	Original difference	p-value	Interpretation
Mobility	-0.473	0.000	Non-Invariant
Customization	-0.482	0.000	Non-Invariant
Security	-0.209	0.067	Invariant
Reputation	-0.412	0.000	Non-Invariant
Trust	-0.272	0.014	Non-Invariant
Perceived Risk	-0.401	0.001	Non-Invariant
Continuance Intention	-0.216	0.059	Invariant
Step 3b (variance)			
	Original difference	p-value	Interpretation
Mobility	0.719	0.000	Non-Invariant
Customization	0.995	0.000	Non-Invariant
Security	0.377	0.013	Non-Invariant
Reputation	0.561	0.000	Non-Invariant
Trust	0.545	0.003	Non-Invariant
Perceived Risk	0.669	0.001	Non-Invariant
Continuance Intention	0.263	0.079	Invariant

Source: Primary Data (2025)

To test the effect of gender moderation, the analysis was conducted using Multigroup Analysis (MGA). Table 8 presents the test results showing that the entire p-value of the Multi-Group Analysis (MGA) analysis is above 0.05. This means that there are no significant differences between men and women in the influence of mobility, customization, security, and reputation on

trust. Thus, gender does not moderate the relationship between these constructs. Although there were differences in the coefficients and significance values within each group, these differences were not statistically significant. Therefore, the influence of constructs on beliefs can be considered similar in both gender groups.

Table 8
Analysis Results Multigroup

Hypothesis	Men - men		Woman		p-value MGA	Conclusion
	Coefficient	p-value	Coefficient	p-value		
H5a: Mobility -> Trust	0,122	0,230	0,052	0,479	0,566	Insignificant
H5b: Customization -> Trust	0,165	0,140	0,058	0,464	0,435	Insignificant
H5c: Security -> Trust	0,379	0,000	0,464	0,000	0,373	Insignificant
H5d: Reputation -> Trust	0,295	0,003	0,336	0,000	0,725	Insignificant

Source: Primary Data (2025)

Discussion

This study was conducted to investigate the impact of various factors, including mobility, customization, security, and reputation, on user trust, as well as their influence on risk perception and sustainable intention to use mobile payment applications among Generation Z in Batam City. The results of the statistical analysis, conducted through SEM-PLS, provide an interesting and important picture that warrants in-depth discussion.

The analysis revealed that the mobility variable had no significant impact on the formation of trust ($\beta = 0.081$; $p = 0.219$). This indicates that ease of anytime, anywhere access is already considered a standard feature by Gen Z, no longer a trust-building factor. This phenomenon occurs because Gen Z's very high level of digital literacy makes them no longer consider mobility as a competitive advantage. Accessibility has actually become a basic expectation in the use of financial applications. This supports the view of Innovation Diffusion Theory by Rogers (1962), which posits that innovative features can experience a decrease in influence over time and undergo widespread market adoption.

The customization variable also did not have a significant impact on user confidence levels ($\beta = 0.107$; $p = 0.122$). While personalization is an important element in digital technology, these results indicate that users do not automatically build trust simply because apps offer customizable features. Therefore, it is likely that the available customization features are not relevant enough or have not been directly felt by users. Gen Z wants personalization that truly fits their lifestyle, not just a look or color setup. These results align with the findings of Huang et al. (2014) who stated that the impact of customization is highly dependent on users' perception of value.

While the previous two variables were not significant, security actually had a significant positive impact on user confidence ($\beta = 0.427$; $p < 0.001$). This means that the higher the user's perception of system security, the more trust is built in the application. In the context of digital financial transactions, a sense of security is the primary need that must be met. Gen Z may already be familiar with technology, but still has concerns about data leaks or fraud. Therefore, clarity about the data protection system is a key factor in establishing trust. These findings support theories proposed by McKnight et al. (2002) and Chellappa and Pavlou (2002).

Reputation was also found to be a significant factor in forming trust ($\beta = 0.330$; $p < 0.001$). The app's

positive image in the eyes of the public and good user reviews give a credibility signal to new users. Given the high level of involvement of Gen Z in social media, the influence of public opinion and the community is a significant factor in shaping their perceptions. They will trust applications that have received widespread recognition online, either through ratings, testimonials, or peer experiences. These findings are consistent with the results of previous studies by Kalinić et al. (2019) and McKnight et al. (2002).

A high level of trust significantly lowers risk perception ($\beta = -0.751$; $p < 0.001$) while increasing the user's intention to continue using the app ($\beta = 0.490$; $p < 0.001$). This indicates that when users have a level of trust in the app, they not only feel safer but are also motivated to continue using it. This is a significant finding because it reinforces the notion that trust serves as a bridge between psychological comfort and user loyalty. In the context of Gen Z being critical and quickly changing platforms, trust can be the key to retaining users. These findings are reinforced by the results of research conducted by Lu et al. (2011), Cao et al. (2018), and T. Zhou (2013).

The results of the analysis showed that the higher the perception of risk, the lower the tendency of the user to continue using the application ($\beta = -0.318$; $p < 0.001$). When users perceive an app as risky, they are less likely to continue using it, despite its features and benefits. These findings reflect Gen Z's sensitivity to potential losses, especially in the form of data or fund loss. Therefore, minimizing risk through education, additional security features, and transparent communication is an essential strategy. The studies by D. J. Kim et al. (2008) support these findings.

The results of the moderation analysis showed that gender did not moderate the relationship between antecedents and trust significantly (all $p > 0.05$). Nonetheless, there is a tendency that men pay more attention to functionality, such as mobility, while women are more sensitive to reputation and security. These differences may reflect the influence of social and cultural values on technology preferences; however, they are not statistically significant enough, as the fundamental perceptions and beliefs seem to be similar across both genders. These findings are consistent with those of Chawla and Joshi (2020), (Kalinic et al., 2019), and Shao et al. (2019).

According to the H5a hypothesis, the effect of mobility on confidence was not significant in either males (coefficient = 0.122, $p = 0.230$) or females (coefficient = 0.052, $p = 0.479$), with an MGA p-value of 0.566. This indicates that the level of ease of access

or flexibility in using digital services has not been sufficient to influence user trust, regardless of gender significantly.

For H5b, the effect of customization on trust was also insignificant and did not differ between genders, with the male coefficient (0.165; $p = 0.140$) higher than that of the female (0.058; $p = 0.464$), and the MGA p-value of 0.435. This suggests that service personalization has not had a significant impact on building trust among both male and female users.

In H5c, safety was shown to have a significant effect on confidence in both groups (males: 0.379, $p = 0.000$; females: 0.464, $p = 0.000$). However, the MGA p-value of 0.373 indicates that there was no significant difference. Although women show a higher coefficient, statistically, the influence of security is felt equally by both genders.

Meanwhile, in H5d, reputation also had a significant effect on confidence in males (0.295; $p = 0.003$) and females (0.336; $p = 0.000$), but with an MGA p-value of 0.725, no significant differences were found between groups. Even women show slightly higher coefficients, so the hypothesis that reputation has a more substantial influence on men is unproven.

Based on these results, the authors argue that the trust-forming factors in the use of digital services are universal and are not significantly influenced by gender differences. This means that male and female users show relatively similar responses to aspects such as security, reputation, and personalization.

These findings are consistent with previous research by Gefen et al. (2003), which found that in the context of technology, trust in systems is more influenced by perceptions of the quality and integrity of systems than by demographic factors such as gender. In addition, Chellappa and Pavlou (2002) asserts that the trust dimension in e-commerce is generally formed by an objective perception of the platform's security and reputation, rather than by the personal characteristics of the user.

This research confirms that trust is the primary foundation for building loyalty among Gen Z users of mobile payment applications. To foster this trust, app developers must focus on improving security and establishing a good reputation, rather than just offering personalization or accessibility features. In addition, managing risk perception is crucial so that users feel comfortable and continue to use the app in the long term.

Conclusion

The study's results indicate that user trust plays a crucial role in encouraging Gen Z in Batam City to continue using digital payment applications sustainably. Trust is proven to be significantly formed through the perception of the app's security and reputation, which provides a sense of security and credibility in the eyes of users. Meanwhile, mobility and customization have not had a significant impact on trust, which is most likely due to Gen Z's perception that these features are already a basic standard in digital applications, so they no longer significantly affect trust formation.

High trust significantly lowers the perception of risk that users feel, and ultimately increases the intention to continue using the app consistently. On the other hand, the perception of risk has a significant negative impact on the intention to continue using the service, suggesting that insecurity towards the application can directly lower user loyalty to the service.

Although the role of gender as a moderator variable was not statistically significant, the test results showed a tendency for different preferences between men and women. Gender preferences show that men tend to prioritize ease of access and flexibility of services, while women prioritize trust and data protection. These findings provide practical insights for app developers on the importance of a more personalized and inclusive approach in designing and marketing digital financial services to diverse user segments.

This research indicates that mobile payment application providers should prioritize strengthening the elements that have the most significant influence on building user trust, particularly security and reputation. The study's results confirmed that these two factors had a significant impact on the formation of trust, which ultimately decreased risk perception and increased the intention to use the application for sustainability.

Therefore, companies must establish a robust, transparent, and trustworthy security system, for example, by implementing the latest encryption technology, biometric verification, and open communication regarding data protection policies. This step is crucial in providing psychological assurance to users that their data and transactions are entirely secure.

Additionally, building and maintaining a strong digital reputation is a top priority. App developers are advised to optimize their marketing strategies by featuring positive reviews, satisfied user testimonials, and good app ratings on public platforms. A good

reputation will be an early indicator of trust, especially for new users who lack firsthand experience.

While customization and mobility features are not significant in building trust, they can still play a role in improving the overall user experience. Therefore, developers can consider a preference-based approach, not as a key trust-building factor, but rather as a supporting element for long-term user convenience and loyalty.

The study's results also showed that gender did not play a significant moderating role, but there were indications of a difference in preferences based on gender. Therefore, companies can still leverage this information for more careful market segmentation, for example, by crafting marketing messages tailored to gender preferences, even if they are not the primary basis of their product development strategy.

In addition, because risk perception has been shown to significantly reduce the sustainability intention of use, companies need to provide digital education and literacy that emphasizes the security aspect of the application. Informative and Gen Z-friendly digital awareness campaigns can help alleviate users' concerns and foster their loyalty to the app.

With a strategy that focuses on security, reputation, and transparent and inclusive communication, companies can strengthen user trust and encourage the sustainable use of mobile payment applications among Generation Z in a sustainable manner.

This study has several limitations that should be considered when interpreting the results and generalizing the findings. First, this study was conducted with a limited sample of Generation Z in Batam City, so the results cannot necessarily be generalized to Gen Z populations in other regions in Indonesia or other countries with different demographic, cultural, and technology adoption characteristics. Regions with different socioeconomic conditions and digital infrastructure are likely to show non-uniform results, particularly in terms of perceptions of security and application reputation.

Second, data collection methods that rely solely on quantitative survey-based questionnaires can limit the depth of understanding of user perceptions and behaviors. The psychological nuances or personal motivations behind the beliefs may not be fully revealed through structured answers. Future research is recommended to complement this quantitative approach with qualitative methods, such as in-depth interviews, to gain a deeper understanding.

Third, other variables that have the potential to affect sustainability trust and intention have not been included in this research model. Factors such as social

influence, cultural norms, economic status, digital literacy, or previous negative experiences with apps can contribute to trust and risk perception; however, these factors have not been examined in this study. Further research can expand the conceptual framework by integrating these variables.

Fourth, the results showed that two of the four antecedent factors (mobility and customization) had no significant effect on trust. However, the study did not further explore why this was the case. Further research can use a mixed methods approach to explain Gen Z's perception of app features that are considered "ordinary" or less relevant in building trust.

Fifth, although a gender moderation test was conducted, the results showed that gender was not a significant moderator variable. This opens up the question of whether differences in user preferences are more influenced by factors other than gender, such as digital experiences or educational backgrounds. Future research may consider behavioral or psychographic segmentation approaches as an alternative to moderation.

Ultimately, this research was conducted over a limited period and within a specific socioeconomic context. Changes in the macro situation, such as new regulations, digital security crises, or increased privacy awareness, may affect the relevance of findings in the future. In addition, even if the measurement instrument has qualified for validity and reliability, there is still a possibility that some items do not fully capture the actual perception of the user, so future retesting and development of the instrument will still be necessary to improve the accuracy of the results.

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