

Gorontalo Accounting Journal
https://jurnal.unigo.ac.id/index.php/gaj
Vol. 9, Issue. 2, October 2026
P-ISSN: 2614-2074, E-ISSN: 2614-2066
Nationally Accredited Journal, Decree No.225/E/KPT/2022 Sinta 4

Determinants of Contactless Payment Adoption Among Generation Z

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Citation: Putri, M. R. A., & Suryaningrum, D. H. (2026). Determinants of Contactless Payment Adoption Among Generation Z. *Gorontalo Accounting Journal*, 9(1), 305-319. DOI: 10.32662/gaj.v9i2.4687

Article information

Article history:
Received: 26-02-2026
Revised: 02-07-2026
Accepted: 22-09-2026

Abstract. *This research sets out to uncover the factors that shape Generation Z's intention and use behavior towards contactless payment adoption. The research adopted a quantitative method, in which primary data were gathered by distributing a structured survey instrument to participants. Data analysis was performed through the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach utilizing SmartPLS 4 as the analytical tool. The findings reveal that effort expectancy, performance expectancy, social influence, and perceived advantage significantly influence the behavioral intention to use contactless payment services, whereas perceived risk does not have a significant effect. Furthermore, behavioral intention significantly affects Generation Z's actual use behavior of contactless financial services.*

Abstrak. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang memengaruhi niat dan perilaku Generasi Z dalam mengadopsi sistem pembayaran tanpa kontak (*contactless payment)*. Penelitian ini bersifat kuantitatif dan menggunakan data primer yang dikumpulkan melalui kuesioner. Analisis data dilakukan dengan menggunakan model *Partial Least Squares Structural Equation Modeling* (PLS-SEM) menggunakan *software* SmartPLS 4. Hasil penelitian menunjukkan bahwa *effort expectancy, performance expectancy, social influence,* dan *perceived advantage* berpengaruh terhadap *behavioral intention* penggunaan *contactless payment*. Sementara itu, *perceived risk* tidak berpengaruh terhadap *behavioral intention. Behavioral intention berpengaruh terhadap use behavior Generasi Z dalam menggunakan contactless financial services.*

Keywords:
Contactless Payment; UTAUT; Generation Z

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Introduction

The advancement of digital technology has facilitated a societal transition from cash to digital-based cashless transactions, which are perceived as more efficient and convenient (Amrita et al., 2023). The advancement of financial technology is expected to improve the efficiency of transaction processes, user convenience, and security levels in every payment activity. In Indonesia, these technological developments have accelerated the adoption of digital payments, allowing both consumers and merchants to complete transactions seamlessly through smartphones and other connected devices. Furthermore, this technological development has been driven by the public's need to minimize physical contact during the COVID-19 pandemic (Srivastava et al., 2021)**.** The adoption of contactless payment is one of the most rapidly advancing trends in digital payment systems. A study by Mastercard (2020) reported that 79% of global consumers have used contactless payment.

Contactless payment is a payment innovation that utilizes Near Field Communication (NFC), Radio Frequency Identification (RFID), and Quick Response (QR) Code technology (Lee & Pan, 2023). Through this method, financial transactions can be completed without substantial physical contact between the payment device and the merchant's terminal. This service includes various payment instruments, such as the Quick Response Code Indonesian Standard (QRIS), contactless debit/credit cards, electronic money (E-money), and various devices integrated with contactless payment features (Chen et al., 2023). This technological innovation has transformed daily financial activities, making payments faster, more convenient, and accessible to a wider population (Prasetiyo, 2023).

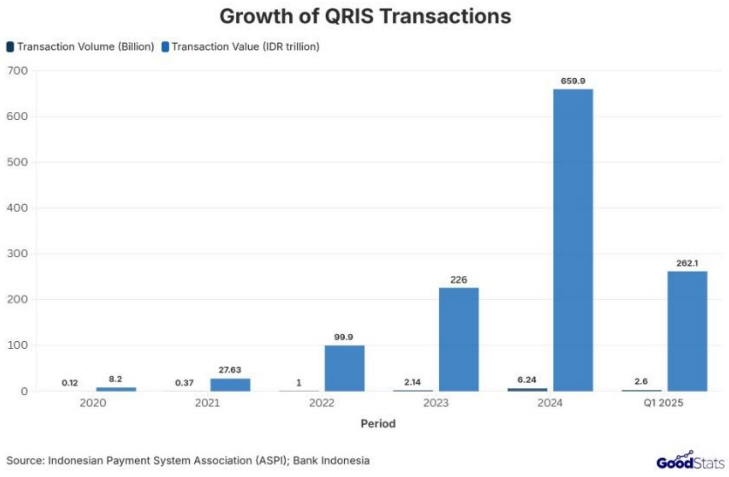


Figure 1. Growth of QRIS Transactions

Data from the Indonesian Payment System Association (ASPI), as presented in Figure 1, indicate that both the nominal value and volume of QRIS transactions have exhibited a significant upward trend since 2021. As of the first quarter of 2025, the nominal value of QRIS transactions reached IDR 262.1 trillion, and the transaction volume reached 2.6 billion transactions. Furthermore, a Visa survey (2025) revealed that many consumers are highly comfortable with contactless payments, with contactless card usage at 69% and QR scanning via digital wallets at 65%. The increased use of contactless payments indicates that public preference for contactless payment methods is growing. The rise of contactless payment reflects a wider shift toward digital solutions, making financial transactions increasingly convenient and efficient (Saputri & Susilowati, 2025).

Along with the increasing use of contactless payments, several risks arise, including the risk of user data leakage, transaction failures, various types of fraud, and other potential risks. According to information from the Indonesian news portal Insider Indonesia (2025), at the beginning of 2024, there was a case of QRIS transaction failure via the Mobile BCA application, which caused users' balances to be deducted even though the transaction was declared unsuccessful. The use of NFC and contactless cards is also vulnerable to various security threats, including card skimming, data tampering, and cloning (Onumadu & Abroshan, 2024). Concerns about the perceived risks of contactless payment systems may negatively affect users' behavioral intention to adopt the technology (Chen et al., 2023).

Formulated by Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) presents a theoretical foundation for examining the determinants of technology acceptance and actual use behavior. The framework combines elements from earlier theoretical models to identify the factors influencing users' intentions and use of technology (Hasti & Syam, 2023). UTAUT presents a relevant theoretical model for analyzing how technological systems improve efficiency, productivity, and decision-making processes. The four main factors in this theory include performance expectancy, effort expectancy, social influence, and facilitating conditions. Several previous researchers, such as Chen et al. (2023); Napitupulu & Cahyadi (2024); and Sitanggang & Suharto (2024) have used UTAUT to study user behavior in technology adoption.

Effort expectancy reflects the perceived ease and simplicity individuals experience when interacting with a technological system (Maharani, 2021). In digital payment, it reflects how simple and user-friendly a contactless payment application or platform is perceived to be by users. The ease of using payment technology can influence users' behavioral intention or the intention to adopt the technology (Anugrah & Ompusunggu, 2021; Lisana, 2024; Sitanggang & Suharto, 2024). The greater the ease of understanding and operating contactless payment systems, the higher the individual's intention to use them.

Performance expectancy reflects the perspective that adopting a technology will deliver advantages and improve efficiency in payment transactions (Chen et al., 2023). When users recognize that the system helps them accomplish tasks more efficiently, their intention to use the technology becomes stronger. Anugrah & Ompusunggu (2021); Hasti & Syam (2023); and Napitupulu & Cahyadi (2024) revealed that performance expectancy positively and significantly influences behavioral intention. Increases in users' perceptions of contactless payment performance, functionality, and benefits are linked to a stronger intention to adopt the technology.

Social influence describes the impact of the social environment on technology usage decisions (Anugrah & Ompusunggu, 2021). It reflects how friends, family, peers, or social networks can influence users' perceptions and acceptance of contactless payment. This influence is particularly strong among younger users, such as Generation Z, who are highly connected through social media and digital communities. Opinions and recommendations from the external environment may influence individuals' intention to adopt contactless payment (Chen et al., 2023; Lisana, 2024; Rahadi et al., 2021).

Informed by the UTAUT model, behavioral intention refers to the extent of an individual's intention or tendency to adopt technology (Namahoot & Jantasri, 2023). Meanwhile, use behavior is the actual frequency or intensity of users in using a system or technology (Sitanggang & Suharto, 2024). Research by Chen et al. (2023), Napitupulu & Cahyadi (2024), Rahadi et al. (2021), and Sitanggang & Suharto (2024) identifies behavioral intention as a primary determinant influencing actual

technology use behavior. When individuals show a strong behavioral intention, it implies that they are mentally prepared and confident to adopt the technology. This intention often leads them to actually use the technology (Sitanggang & Suharto, 2024).

In Indonesia, however, research on contactless payment adoption has primarily focused on the main constructs of the UTAUT model, such as performance expectancy, effort expectancy, and social influence. This limitation reveals a research gap in comprehensively explaining adoption behavior among users. Therefore, this research extends the UTAUT model by including perceived risk and perceived advantage to offer a more comprehensive analysis of users' behavioral intention towards contactless payment. Perceived risk refers to individuals' awareness of and concern for potential negative outcomes when using technology (Hidayat et al., 2020). Research by Chen et al. (2023) shows that perceived risk has a negative effect on behavioral intention. An increased perception of risk among users is associated with a reduced intention to adopt contactless payment systems. Perceived advantage refers to users' perception of the comparative benefits and improvements gained from adopting contactless payment rather than conventional payment methods (Park et al., 2022). These advantages can include faster and more efficient transactions, ease of use of features or services, and system security. Chen et al. (2023) identified that perceived advantage significantly affects behavioral intention.

Financial technology has become an integral component of daily activities for individuals across multiple generations. A Visa survey (2024) shows that cashless behavior is dominant among Generation Z in Indonesia, with 76% of respondents. Generation Z has grown up in a digital environment and is highly engaged with financial technologies (Lau & Kulsum, 2023). They are selective when evaluating payment systems, prioritizing security, benefits, and efficiency (Berlianawati et al., 2024). As a result, their perceptions of risk and technological advantages strongly influence their intention to adopt new payment methods. Therefore, this research examines the factors influencing the intention and behavior of contactless payment usage among Generation Z in Indonesia, using the extended UTAUT model by incorporating perceived risk and perceived advantage, aiming to provide a more comprehensive explanation of Generation Z's intention to use contactless payment.

Research Method

A quantitative approach is employed in this study. Sugiyono (2023) defines quantitative research as a method that emphasizes the collection and analysis of numerical data, utilizing statistical techniques to test predetermined hypotheses. The research population consists of Generation Z individuals who actively use contactless payment services. Referring to the recommendation of Hair et al. (2021), the sample size was determined by multiplying the total number of measurement indicators by five to ten. The study includes 23 indicators, so the minimum required sample size is 115 respondents. Respondents were purposively selected as Generation Z individuals who have used or currently use contactless payments. Primary data for this study were acquired through an online survey using Google Forms and shared on social media platforms to respondents who met the research criteria.

Table 1. Operational Definition and Measurement of Variables

Variable	Concept Variable	Indicator	Measurement Scale
Effort Expectancy (X1)	An individual's perception regarding how effortless and	1. Ease of learning 2. Ease of understanding 3. Clarity of display 4. Ease of process	Likert scale 1-5 (Lisana, 2024)

Variable	Concept Variable	Indicator	Measurement Scale
	easy technology is to understand and use.		
Performance Expectancy (X2)	A person's belief that using technology can provide benefits and improve performance.	1. Speed of use 2. Smoothness of use 3. Accuracy of use 4. Effectiveness of use	Likert scale 1-5 (Napitupulu & Cahyadi, 2024)
Social Influence (X3)	The influence of social factors on an individual's decision making regarding technology adoption.	1. Recommendations from the social environment 2. Usage in the social environment 3. Influence of social trends 4. General social support	Likert scale 1-5 (Rahadi et al., 2021)
Perceived Risk (X4)	How a person sees the potential risks and negative outcomes that might come from using a technology.	1. Financial risk 2. Privacy breach risk 3. Overall risk	Likert scale 1-5 (Hu et al., 2019)
Perceived Advantage (X5)	The extent to which individuals view innovative technology as something superior compared to existing technology.	1. Perception of technological advantages 2. Perception of technological benefits	Likert scale 1-5 (Park et al., 2022)
Behavioral Intention (Y1)	User's tendency to use a technology is influenced by user behavior and individual awareness of the system's benefits.	1. Future usage intention 2. Daily usage intention 3. Desire to increase usage	Likert scale 1-5 (Napitupulu & Cahyadi, 2024)

Variable	Concept Variable	Indicator	Measurement Scale
Use Behavior (Y2)	User's actual behavior in using technology.	1. Consistency of use 2. Frequency of use 3. Willingness to recommend to others	Likert scale 1-5 (Napitupulu & Cahyadi, 2024)

Source: Data processed by researcher (2025)

This study applies a Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS) to analyze data, using SmartPLS 4 as a processing tool. Hair et al. (2021) explain that model testing in PLS-SEM involves two stages, evaluating the outer model and the inner model. The measurement model (outer model) assesses whether the measurement indicators reliably and validly represent the latent variables, including convergent validity, discriminant validity, and construct reliability. The inner model serves to evaluate the structural relationships among latent constructs within the research framework, which includes the coefficient of determination (R-square) and Predictive Relevance (Q-square) tests. Furthermore, hypothesis testing utilizes the t-statistic and p-value, obtained through a bootstrapping procedure, to assess the statistical significance of relationships between variables.

Result and Discussion

Descriptive Statistical Analysis

The data were gathered electronically through a questionnaire administered using the Google Forms platform. The questionnaire was distributed to respondents classified as Generation Z and active users of contactless payment in Indonesia through various social media platforms. Based on this data collection process, data from 146 respondents were obtained, which was then used as the basis for statistical analysis.

Table 2. Descriptive Statistical Analysis

Variables	N	*Mean*	*Median*	*Observed Min*	*Observed Max*	*Standard Deviation*
X1.1	146	4.705	5.000	3.000	5.000	0.485
X1.2	146	4.685	5.000	2.000	5.000	0.533
X1.3	146	4.596	5.000	3.000	5.000	0.556
X1.4	146	4.623	5.000	3.000	5.000	0.563
X2.1	146	4.596	5.000	2.000	5.000	0.615
X2.2	146	4.178	4.000	2.000	5.000	0.679
X2.3	146	4.541	5.000	3.000	5.000	0.610
X2.4	146	4.575	5.000	3.000	5.000	0.606
X3.1	146	4.062	4.000	2.000	5.000	0.878
X3.2	146	4.199	4.000	2.000	5.000	0.841
X3.3	146	4.685	5.000	3.000	5.000	0.520
X3.4	146	4.404	5.000	2.000	5.000	0.736
X4.1	146	3.363	3.000	1.000	5.000	1.244
X4.2	146	3.432	4.000	1.000	5.000	1.152
X4.3	146	3.000	3.000	1.000	5.000	1.147
X5.1	146	4.377	5.000	1.000	5.000	0.751
X5.2	146	4.014	4.000	1.000	5.000	0.891
Y1.1	146	4.616	5.000	2.000	5.000	0.588

Variables	N	*Mean*	*Median*	*Observed Min*	*Observed Max*	*Standard Deviation*
Y1.2	146	4.404	5.000	2.000	5.000	0.717
Y1.3	146	4.219	4.000	1.000	5.000	0.832
Y2.1	146	4.021	4.000	2.000	5.000	0.903
Y2.2	146	3.938	4.000	1.000	5.000	1.068
Y2.3	146	4.295	4.000	2.000	5.000	0.778

Source: Data processed by researcher, SmartPLS output (2025)

Based on Table 2, the overall average score of the indicators for the effort expectancy variable is 4.65. This finding reflects that respondents consider the use of contactless payments as financial technology that is easy to learn and understand, thus requiring little effort to operate. The average score for the performance expectancy variable is 4.47, indicating the perception that contactless payments can enhance the effectiveness and efficiency of users' transactional activities. The social influence variable has an average value of 4.34, indicating that the views, recommendations, and opinions of the social environment can affect an individual's intention to use contactless payment. The perceived risk variable has an average value of 3.26; respondents believe there is potential risk, such as data security risks and financial loss, but not to a very high extent. The average value for the perceived advantage variable is 4.20, which shows that respondents view contactless payment as a superior payment method compared to conventional payment methods. The average value of the behavioral intention variable was 4.41, respondents had a strong intention to use contactless payment in their transaction activities. The use behavior variable has an average value of 4.08 which demonstrates that the level of contactless payment use by respondents is quite high in their financial transaction activities.

Outer Model

Convergent Validity

Convergent validity is the capability of indicators within a construct to correlate with each other and to reflect the construct being measured (Ghozali & Kusumadewi, 2023).

Table 3. Outer Loadings Scores

Variables	*Outer Loadings*	Description
X1.1 <- *Effort Expectancy*	0.856	Valid
X1.2 <- *Effort Expectancy*	0.883	Valid
X1.3 <- *Effort Expectancy*	0.773	Valid
X1.4 <- *Effort Expectancy*	0.862	Valid
X2.1 <- *Performance Expectancy*	0.831	Valid
X2.2 <- *Performance Expectancy*	0.840	Valid
X2.3 <- *Performance Expectancy*	0.858	Valid
X2.4 <- *Performance Expectancy*	0.779	Valid
X3.1 <- *Social Influence*	0.742	Valid
X3.2 <- *Social Influence*	0.780	Valid
X3.3 <- *Social Influence*	0.746	Valid
X3.4 <- *Social Influence*	0.878	Valid
X4.1 <- *Perceived Risk*	0.902	Valid
X4.2 <- *Perceived Risk*	0.890	Valid
X4.3 <- *Perceived Risk*	0.841	Valid
X5.1 <- *Perceived Advantage*	0.900	Valid

Variables	*Outer Loadings*	Description
X5.2 <- *Perceived Advantage*	0.904	Valid
Y1.1 <- *Behavioral Intention*	0.821	Valid
Y1.2 <- *Behavioral Intention*	0.900	Valid
Y1.3 <- *Behavioral Intention*	0.794	Valid
Y2.1 <- *Use Behavior*	0.870	Valid
Y2.2 <- *Use Behavior*	0.864	Valid
Y2.3 <- *Use Behavior*	0.756	Valid

Source: Data processed by researcher, SmartPLS output (2025)

Table 4. AVE Scores

Variables	*Average variance extracted* (AVE)
Effort Expectancy	0.713
Performance Expectancy	0.685
Social Influence	0.622
Perceived Risk	0.771
Perceived Advantage	0.813
Behavioral Intention	0.705
Use Behavior	0.691

Source: Data processed by researcher, SmartPLS output (2025)

Referring to the data analysis results in Table 3 and Table 4, all research indicators have outer loading values more than 0.7 and AVE values more than 0.5. The results show that all indicators are valid and suitable for further analysis. According to Hair et al. (2021), an indicator may be classified valid and adequate if its outer loading is above 0.7 and AVE is above 0.5.

Discriminant Validity

Discriminant validity determines how clearly a construct differs empirically from other constructs within the model (Hair et al., 2021).

Table 5. Cross Loading Scores

Variables	EE	PE	SI	PR	PA	BI	UB
X1.1	**0.856**	0.568	0.414	-0.183	0.249	0.529	0.353
X1.2	**0.883**	0.582	0.438	-0.166	0.281	0.569	0.379
X1.3	**0.773**	0.425	0.234	-0.168	0.111	0.360	0.245
X1.4	**0.862**	0.599	0.392	-0.137	0.138	0.476	0.314
X2.1	0.476	**0.831**	0.433	0.020	0.537	0.602	0.513
X2.2	0.500	**0.840**	0.433	-0.176	0.420	0.614	0.499
X2.3	0.599	**0.858**	0.474	-0.110	0.419	0.653	0.466
X2.4	0.580	**0.779**	0.448	-0.057	0.404	0.572	0.477
X3.1	0.193	0.281	**0.742**	-0.073	0.275	0.289	0.332
X3.2	0.249	0.382	**0.780**	-0.037	0.297	0.419	0.396
X3.3	0.466	0.493	**0.746**	-0.029	0.231	0.499	0.396
X3.4	0.427	0.485	**0.878**	0.066	0.346	0.571	0.454
X4.1	-0.167	-0.098	-0.043	**0.902**	0.102	-0.077	-0.102
X4.2	-0.134	-0.039	0.034	**0.890**	0.040	-0.049	0.035
X4.3	-0.216	-0.124	0.006	**0.841**	0.079	-0.042	0.004
X5.1	0.264	0.505	0.338	0.047	**0.900**	0.479	0.479
X5.2	0.173	0.463	0.321	0.112	**0.904**	0.488	0.537

Variables	EE	PE	SI	PR	PA	BI	UB
Y1.1	0.576	0.630	0.506	-0.053	0.345	**0.821**	0.487
Y1.2	0.495	0.687	0.508	-0.072	0.541	**0.900**	0.643
Y1.3	0.403	0.536	0.473	-0.044	0.453	**0.794**	0.553
Y2.1	0.324	0.498	0.382	-0.042	0.484	0.579	**0.870**
Y2.2	0.289	0.452	0.313	0.047	0.485	0.526	**0.864**
Y2.3	0.354	0.514	0.564	-0.099	0.434	0.564	**0.756**

Source: Data processed by researcher, SmartPLS output (2025)

The results shown in Table 5 demonstrate that all indicators have the highest loading value on the construct being measured, rather than on other constructs, which indicates that the indicators have good discriminant validity. This confirms that the measurement items capture distinct aspects of each construct and do not overlap (Ghozali & Kusumadewi, 2023).

Reliability Test

To verify the consistency of the research instrument in capturing the construct, reliability was carried out through Cronbach's alpha and composite reliability (Hair et al., 2021).

Table 6. Cronbach's Alpha and Composite Reliability Scores

Variables	***Cronbach's Alpha***	***Composite Reliability* (Rho_A)**	***Composite Reliability* (Rho_C)**	**Descriptions**
Effort Expectancy	0.867	0.887	0.908	Reliable
Performance Expectancy	0.846	0.849	0.897	Reliable
Social Influence	0.801	0.829	0.867	Reliable
Perceived Risk	0.860	0.953	0.910	Reliable
Perceived Advantage	0.771	0.771	0.897	Reliable
Behavioral Intention	0.790	0.801	0.877	Reliable
Use Behavior	0.774	0.774	0.870	Reliable

Source: Data processed by researcher, SmartPLS output (2025)

Based on Table 6, the results indicate that all constructs achieved value above the standard benchmark of 0.7, suggesting that the items reliably measure intended variables. Cronbach's alpha values demonstrate that the survey items are coherent and provide consistent responses across participants. In addition, all composite reliability values were above the recommended threshold of 0.7, indicating that the latent variables have strong reliability. The combination of high Cronbach's alpha and composite reliability values reinforces confidence that the constructs are measured consistently and accurately. This aligns with Hair et al. (2021), who state that Cronbach's alpha and composite reliability values should be above 0.7, while values between 0.6-0.7 are still acceptable.

Inner Model

Coefficient of Determination (R^2)

The coefficient of determination (R-Square) value reflects the extent to which variation in the endogenous construct can be explained by the exogenous construct included in the model. A higher R-Square indicates that the independent variables contribute more substantially to explaining the dependent variable (Ghozali & Kusumadewi, 2023).

Table 7. R-Square Scores

Variables	R-square	R-square adjusted	Descriptions
Behavioral Intention	0.634	0.621	Moderate
Use Behavior	0.452	0.448	Moderate

Source: Data processed by researcher, SmartPLS output (2025)

Based on Table 7, the R-square value for the behavioral intention variable is 0.634. The findings demonstrate that 63.4% of users' intention to use contactless payment is influenced by effort expectancy, performance expectancy, social influence, perceived risk, and perceived advantage. Meanwhile, the remaining 36.6% is explained by other variables outside the study, such as promotional activities, as found in Lisana's (2024) study. In addition, the R-square value for the use behavior variable is 0.452. This means that 45.2% of contactless payment use behavior is influenced by behavioral intention. The remaining 54.8% is driven by other factors not included in the research model. Research by Napitupulu & Cahyadi (2024) states that the variable facilitating conditions can influence use behavior.

***Predictive Relevance* (Q^2)**

Predictive Relevance (Q-Square) is a measure used to assess a model's ability to accurately predict endogenous variables. A Q-Square value above zero indicates that the model demonstrates predictive relevance for the endogenous variables (Ghozali & Kusumadewi, 2023).

Table 8. Predictive Relevance Scores

Variables	Q^2predict
Behavioral Intention	0.596
Use Behavior	0.409

Source: Data processed by researcher, SmartPLS output (2025)

The findings summarized in Table 8 reveal that the Q-Square values for the endogenous variables exceed 0, amounting to 0.596 for behavioral intention and 0.409 for use behavior. These findings confirm that the research model has adequate predictive capability.

Hypothesis Testing

Hypothesis testing is conducted through path coefficient significance tests using the bootstrapping method in the SmartPLS software. The obtained results serve to determine the extent and orientation of the effect among variables in the structural framework. The parameter applied refers to Hair et al. (2021), which state that a hypothesis is considered significant if the t-statistic value > 1.96 and the p-value < 0.05.

Table 9. Hypothesis Test Results

Variable	*Original Sample*	*Standard Deviation*	T *Statistics*	P *Values*	Descriptions
Effort Expectancy -> Behavioral Intention	0.177	0.077	2.284	0.011	Accepted
Performance Expectancy -> Behavioral Intention	0.393	0.079	4.978	0.000	Accepted

Variable	*Original Sample*	*Standard Deviation*	T *Statistics*	P *Values*	Descriptions
Social Influence -> Behavioral Intention	0.224	0.062	3.615	0.000	Accepted
Perceived Risk -> Behavioral Intention	-0.011	0.059	0.181	0.428	Rejected
Perceived Advantage -> Behavioral Intention	0.201	0.071	2.828	0.002	Accepted
Behavioral Intention -> Use Behavior	0.672	0.050	13.424	0.000	Accepted

Source: Data processed by researcher, SmartPLS output (2025)

The results presented in Table 9 demonstrate that effort expectancy exerts a positive and significant effect on the variable behavioral intention, as evidenced by a t-statistic of 2.284, a p-value of 0.011, and an original sample value of 0.177. Consequently, H1 is accepted. Performance expectancy also shows a positive and significant effect on behavioral intention, with a t-statistic of 4.978, a p-value of 0.000, and an original sample value of 0.393, thus H2 is accepted. Additionally, social influence has a positive and significant effect on behavioral intention, as evidenced by a t-statistic of 3.615, a p-value of 0.000, and an original sample value of 0.224, therefore H3 is accepted.

A t-statistic of 0.181 and a p-value of 0.428 demonstrate that behavioral intention is not significantly influenced by the perceived risk variable, so H4 is rejected. On the other hand, a t-statistic of 2.828, a p-value of 0.002, and an original sample value of 0.201 demonstrate that perceived advantage has a positive and significant effect on behavioral intention; hence, H5 is accepted. Additionally, a t-statistic of 13.424, a p-value of 0.000, and an original sample value of 0.672 show that behavioral intention has a positive and significant effect on use behavior, indicating the acceptance of H6.

The Influence of Effort Expectancy on Behavioral Intention

The findings indicate that effort expectancy positively and significantly influences Generation Z's behavioral intention to use contactless payment. Generation Z has a strong preference for contactless payment as a payment technology that is easy to use and can simplify their transaction processes. When contactless payment methods are easy to learn, require minimal cognitive effort, and provide clear navigation features, users are more likely to develop favorable intentions to use them consistently. This suggests that complexity, even in small forms such as complicated registration processes or unclear instructions, may reduce their intentions to adopt. Therefore, improved perceptions of simplicity and convenience contribute to stronger adoption intentions (Anugrah & Ompusunggu, 2021). These findings align with the UTAUT framework, which positions effort expectancy as an important factor influencing individual's intention to adopt technology. This outcome supports the results reported in previous studies by Lisana (2024), Anugrah & Ompusunggu (2021), and Sitanggang & Suharto (2024), which demonstrate that effort expectancy exerts a positive and significant effect on behavioral intention. On the other hand, the studies by Chen et al. (2023), Maharani (2021), and Napitupulu & Cahyadi (2024) indicate that effort expectancy does not significantly influence

behavioral intention.

The Influence of Performance Expectancy on Behavioral Intention

The findings confirm that performance expectancy positively and significantly influences Generation Z's behavioral intention to use contactless payment. This finding aligns with the UTAUT framework, which posits that performance expectancy represents an individual's belief that technology use can enhance performance, efficiency, and overall effectiveness. Generation Z tends to adopt technology that has been proven to enhance the performance of daily activities, especially in financial transactions that require speed and convenience (Sitanggang & Suharto, 2024). Therefore, the perception that contactless payment can provide significant performance benefits becomes a key factor in shaping the intention to use it. The greater Generation Z's perception that contactless payment can improve the effectiveness and speed of transactions, the stronger their intention to use it. This research finding aligns with the studies of Paramita & Cahyadi (2024), Rahadi et al. (2021), Anugrah & Ompusunggu (2021), and Sitanggang & Suharto (2024), which also state that users' perceptions of the benefits and performance of technology can influence their intention to use it. However, Chen et al. (2023) found otherwise, stating that performance expectancy does not affect behavioral intention.

The Influence of Social Influence on Behavioral Intention

The findings indicate that social influence positively and significantly influences Generation Z's behavioral intention to use contactless payment. Based on the UTAUT model, social influences such as the opinions of friends, family, or social environments can shape an individual's intention to use a technology. For Generation Z, who are highly connected through social media and peer networks, recommendations and usage patterns among friends, family, influencers, and online communities can strongly shape their perceptions and intentions. When the social environment views contactless payment as a modern, practical, and efficient payment method, individuals will be encouraged to adopt it (Lisana, 2024). This suggests that social pressure and shared beliefs strongly influence behavioral intentions, especially among younger individuals who are actively involved in social groups. The results align with earlier studies by Paramita & Cahyadi (2024), Sitanggang & Suharto (2024), and Lisana (2024), which show that support and influence of the social environment can influence individuals' behavioral intentions to adopt a technology. On the other hand, Nabila & Wikantari (2024) research states that social influence does not have a significant influence on behavioral intention.

The Effect of Perceived Risk on Behavioral Intention

The research results reveal that perceived risk does not have a significant effect on Generation Z's behavioral intention to use contactless payment. This reflects that the perceived risk is not strong enough to influence users' intentions to adopt contactless payment. Generation Z, as digital natives, are highly familiar with various forms of digital financial technologies (Lau & Kulsum, 2023). Growing up surrounded by online platforms, mobile apps, and electronic transactions, Generation Z tends to perceive potential risks related to data security or privacy as controllable and manageable. Repeated use experiences and the perception that contactless payment is relatively safe lead them to prioritize the benefits, convenience, and efficiency of the service over potential risks. This finding is supported by the research results of Napitupulu & Cahyadi (2024), which revealed that perceived risk does not influence behavioral intention. Conversely, Chen et al. (2023) and Hasti & Syam (2023) stated that perceived risk has a significant effect on behavioral intention.

The Influence of Perceived Advantage on Behavioral Intention

The research results show that perceived advantage has a positive and significant effect on Generation Z's behavioral intention in using contactless

payment. Perceived advantage refers to the degree to which an individual believes that using a system provides clear benefits compared to existing alternatives. Dynamic technological developments drive perceived advantage as a relevant factor in determining technology adoption (Park et al., 2022). This demonstrates Generation Z's belief that contactless payments offer added value and more advantages compared to conventional payment methods. The level of perceived advantage is positively related to users' intention to adopt the technology. Contactless payment is seen as more beneficial for Generation Z, who are accustomed to integrated digital systems, especially when the service can enhance transaction efficiency, ease of use, and access flexibility. These findings are in line with Chen et al. (2023), who stated that perceived advantage can influence users' behavioral intention.

The Influence of Behavioral Intention on Use Behavior

The results show that behavioral intention has a positive and significant effect on use behavior. This finding aligns closely with the UTAUT model, which states that behavioral intention is a main predictor of use behavior in technology adoption. This means that the stronger Generation Z's intention and readiness to use contactless payment, the higher the level of actual usage in their daily transaction activities. As a generation accustomed to using financial technology, Generation Z tends to transform usage intentions into actual behavior, especially if the technology used can meet their needs and provide functional benefits. Therefore, it is important to enhance functional benefits, transaction speed, ease of access, transaction security, and positive user experience. The result indicates that behavioral intention serves as a critical determinant in translating intention into actual behavior. This finding is supported by the research results of Chen et al. (2023), Napitupulu & Cahyadi (2024), Sitanggang & Suharto (2024), and Paramita & Cahyadi (2024) which state that behavioral intention has a significant effect on use behavior.

Conclusion and Recommendations

The results of the study show that Generation Z's behavioral intention to use contactless payments is influenced by effort expectancy, performance expectancy, social influence, and perceived advantage, all of which are proven to have an effect. Meanwhile, perceived risk does not influence Generation Z's behavioral intention. Behavioral intention has an influence on Generation Z's use behavior in using contactless payments for daily transactions.

Based on the findings of this study, providers of contactless payment services are advised to focus on ease of use, improving service quality and advantages, as well as maintaining system performance and security stability continuously. These efforts are expected to enhance users' positive experiences and reduce technical barriers, thereby encouraging wider adoption, especially among Generation Z. In addition, future researchers are recommended to develop research frameworks by considering other variables, such as facilitating conditions and promotional activities, in order to gain a deeper understanding of the determinants of contactless payment usage. Future researchers can also involve other generational groups as research respondents to compare differences in characteristics and technology adoption behavior across generations.

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