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Building Consumer Loyalty in Digital Payment Ecosystems through E-Trust and Service Excellence

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Abstract
This study aims to analyze the influence of E-Service Quality and Brand Image on Customer Loyalty among QRIS ShopeePay users, with E-Trust as a mediating variable, among Generation Z in Malang City. The hypotheses proposed include direct and indirect effects among the variables in the research model. This study employs a quantitative approach using an explanatory-causal research design. Data were collected via an online questionnaire distributed to 119 respondents Generation Z users of ShopeePay QRIS in Malang City using a non-probability sampling technique. Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method via SmartPLS 4.0 software. The results of the study indicate that E-Service Quality and Brand Image have a positive and significant effect on Customer Loyalty, and E-Service Quality also has a positive and significant effect on E-Trust. Meanwhile, Brand Image does not have a significant effect on E-Trust. E-Trust was found to have a positive and significant effect on Customer Loyalty and significantly mediates the effect of E-Service Quality on Loyalty; however, it does not mediate the effect of Brand Image on Loyalty. These findings indicate that service quality and trust are key factors in shaping user loyalty, particularly among Generation Z, who prioritize user experience over brand perception. The implications of this study suggest that digital service providers, particularly ShopeePay, need to focus their strategies on improving service quality, system security, and user experience to strengthen customer trust and loyalty. Further research is recommended to include additional variables, expand the scope of the study, and employ a more diverse methodological approach to obtain more comprehensive results.

INTRODUCTION

In today's digital age, the Indonesian government, through the Ministry of Communication and Digital Affairs, continues to accelerate digital transformation through integrated policies, infrastructure development, and the provision of digital services across various sectors. This transformation encompasses not only digital public services but also efforts to ensure equitable internet connectivity even in the most remote areas of the country, as well as improving the public's digital literacy to ensure that technology is used more effectively and inclusively(Komdigi, 2025). Digital transformation by 2025 is increasingly viewed as a catalyst for economic growth, with the digitization of the payments, financial, and digital services sectors driving efficiency, inclusivity, and economic competitiveness. The role of digital technology in Indonesia's economy is expected to continue growing significantly, including through digital payment innovations such as QRIS and the fintech ecosystem, as outlined on October 31, 2025, by the Communications Department of Bank Indonesia (Bank Indonesia, 2025).

The use of QRIS also serves as an indicator of the widespread adoption of digital payment systems by economic actors due to its ease of use, cross-platform flexibility, and transaction cost

efficiency. QRIS has been widely implemented across various digital wallet and banking applications, such as ShopeePay, OVO, DANA, LinkAja, and mobile banking, thereby expanding access to digital payments for consumers and businesses across various sectors. This trend supports the acceleration of the digitalization of economic transactions across all segments of society and regions in Indonesia (Bank Indonesia, 2025). The widespread use of QRIS by the majority of economic actors is driven by its efficiency. One of the applications offering QRIS features is ShopeePay. This app is a digital wallet service designed to simplify various daily financial transactions, such as topping up balances, sending money, withdrawing cash without admin fees, and making purchases via QRIS at various offline and online merchants (Antara News , 2025). This app also supports mobile top-ups, data plan purchases, and payments for various bills such as electricity, water, and BPJS. In addition, ShopeePay offers a "buy now, pay later" option through SPayLater, as well as a cash loan service through SPinjam, which can be accessed directly from the app for flexible payment options and cash disbursement tailored to users' needs (IDN Times, 2025). The app is shown in the following image:

According to the official ShopeePay website (https://ShopeePay.co.id/), this service offers a number of benefits, including free 24-hour transfers to all banks, the opportunity to earn cashback from various merchants, access to cash loans through SPinjam with fast disbursement and interest rates starting at 1.95%, as well as low-interest installment payments through SPayLater for a variety of needs. ShopeePay's merchant partners are highly diverse, including Alfamart, Alfamidi, Burger King, Starbucks, Kopi Kenangan, Fore, Guardian, Superindo, Pizza Hut, and many other merchant options. This is supported by survey results, as shown in the graph below (Selular.id., 2025).

Data from the Populix report titled Populix PopVoice Gen Z & Millennials Report Q1 2023 indicates that Indonesia's younger generation, particularly Gen Z, prefers to use ShopeePay as their e-wallet. This survey involved 1,478 respondents, comprising 663 Gen Z respondents and 815 Millennials. ShopeePay is the top choice for 77% of Gen Z respondents and 71% of Millennial respondents (data.gooodstats.id). This convenience is what makes ShopeePay increasingly popular as a digital payment system; with its high usage rates, ShopeePay is expected to generate significant profits. According to Bank Indonesia (BI) data, the value of electronic money transactions, including ShopeePay, is projected to reach approximately Rp 1,051 trillion in 2025, an increase of about 25.77% year-over-year (yoy) for all major e-wallet services such as GoPay, OVO, DANA, and ShopeePay. This figure indicates that transactions via e-wallet platforms, including ShopeePay, contribute significantly to the digital economy, potentially generating operational profits and increased business volume for these e-wallet service providers(BI, 2025)

The success of digital services is clearly reflected in customer loyalty. In the digital context, loyalty is measured not only by the frequency of repeat use, but also by users' preference to continue using a particular service despite the availability of many alternatives, as well as their willingness to recommend that service to others (Anderson & Srinivasan, 2003) Customer loyalty is built when users experience consistent service quality, have a high level of trust, and view the brand as part of their digital lifestyle (Gremler & Brown, 1996) Thus, customer loyalty is the ultimate outcome of successful digital services supported by superior E-Service Quality, a strong Brand Image, and well-established E-Trust.

Several previous studies have shown that E-Service Quality and Brand Image are the primary factors influencing customer loyalty to digital services. According to (Rahmawaty et al., 2021)(Sasono et al., 2021) and (Purnama & Mujiatun, 2025) demonstrates that high-quality

electronic services characterized by ease of use, system reliability, transaction speed, and security can enhance customer satisfaction and loyalty. Furthermore, a strong brand image serves as a signal of trust that reinforces users' positive perceptions of digital services (Beltasari et al., 2024; Wilis & Nurwulandari, 2020). However, findings from other studies show inconsistent results, such as (Dewi & Ramli, 2023) and (Pratama et al., 2023)found that E-Service Quality and E-Trust do not always have a significant impact on customer loyalty, even though service usage rates are relatively high. These differing results indicate that digital customer loyalty is not only influenced by usage intensity but also heavily depends on the consistency of service quality and users' perceived system reliability (Griffin, 2002)

This phenomenon is relevant to the empirical conditions of QRIS ShopeePay , where, although the number of users continues to rise, there are still a number of technical issues that could potentially affect customer loyalty. One problem users frequently encounter is failed QRIS transactions even though the balance has been deducted, which can be caused by system outages, unstable internet connections, or other technical issues. For Generation Z users of QRIS ShopeePay in Malang City a city where the young demographic, including Generation Z, remains the largest segment of the population according to the latest data (Malang City BPS). Consequently, various negative experiences with ShopeePay QRIS transactions have the potential to lower perceptions of service quality and weaken the brand image of ShopeePay as a reliable digital wallet.

This issue also has direct implications for users' electronic trust (E-Trust). Research (Anser et al., 2023) and (Purnama & Mujiatun, 2025)emphasizes that E-Trust is a key factor in building digital customer loyalty, particularly for payment services that involve high levels of risk. When user trust is undermined by transaction failures or system uncertainties, it becomes difficult to build customer loyalty, even if the service has a strong brand image and high adoption rates(Lachowicz et al., 2018)

This study employs Expectation Confirmation Theory (ECT) as the grand theory to address theoretical gaps in explaining Generation Z's behavior regarding QRIS ShopeePay usage in Malang. ECT integrates E-Service Quality and Brand Image as expectation antecedents, E-Trust as the confirmation outcome, and customer loyalty as the post-usage evaluation. This framework is further supported by Oliver's (1999) Customer Loyalty Theory and the Stimulus-Organism-Response (SOR) model. Under the SOR lens, service features and brand image serve as stimuli that influence customer satisfaction (organism), ultimately triggering customer loyalty as the systematic response.

Previous studies have widely examined the determinants of customer loyalty in e-commerce and mobile banking environments. However, limited attention has been given to QRIS-based digital payment ecosystems, particularly among Generation Z users in emerging digital economies such as Indonesia. Furthermore, existing findings regarding the role of e-trust as a mediating mechanism between service quality, brand image, and customer loyalty remain inconsistent. This study therefore contributes to the digital payment literature by investigating how e-trust mediates the relationship between e-service quality, brand image, and customer loyalty within the context of QRIS ShopeePay users among Generation Z consumers.

METHODS

Based on the description of the research type, this study is an explanatory study using quantitative methods. Causal explanatory research is a study that aims to test and explain the roles of the variables under study and the relationships between one variable and another (Sugiyono.,

2018). In this study, the population under investigation consists of Gen Z individuals residing in the city of Malang, whose exact number is unknown. For sampling, the method used was non-probability sampling, wherein non-probability sampling is a non-random sampling method, meaning that this method uses criteria selected by the researcher to choose the sample (Sugiyono, 2016).

Therefore, the determination of the sample size in this study was based on the principles of multivariate analysis (Sugiono et al., 2020). Researchers use a rule of thumb stating that the sample size should be at least 5 to 10 times the number of indicators being studied. To help researchers more easily determine the sample size, the number of research indicators in this study was multiplied by 7. In this study, there were 17 indicators. In this study, 119 samples were obtained by multiplying 17 by 7. The type of data in this study depends on where the data can be obtained. There are two sources of data in this study, namely primary data. The primary data for this study was collected from the distribution of questionnaires to respondents, namely Gen Z individuals residing in Malang City. Respondents who met the various criteria established in this study fall into this category, namely: Respondents are Gen Z individuals in Malang City, whether they are migrants or native residents of Malang City, and respondents who use QRIS ShopeePay more than twice

Data collection methods are the techniques used to obtain data and other insights from a study (Siregar, 2017). In this study, the primary data collection method used was a questionnaire. In this study, the researcher distributed the questionnaire online via Google Forms, which was shared through personal networks, social media, and other online platforms.

The tests used to assess the quality of the instrument are validity and reliability tests and PLS TestThis study employs a data analysis method using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, conducted using SmartPLS version 4.0 software. The following outlines the analysis design using SmartPLS and the analytical methods, which are divided into three approaches, namely

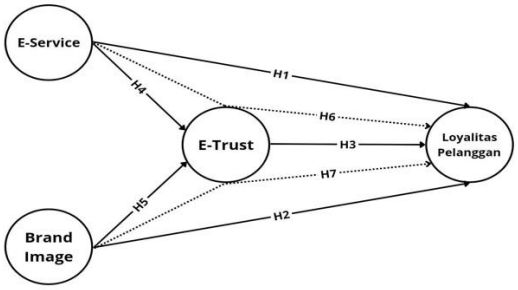

Figure 3: SmartPLS Analysis Design

Hypothesis testing is performed by considering the t-statistic value and the probability value. A hypothesis is accepted or considered significant if the p-value is less than 0.05 (5%). The confidence level used is 95%, and the t-statistic value used is 1.96. Thus, the criterion is that H1 is accepted and H0 is rejected if the t-statistic is greater than 1.96. In addition to rejecting or accepting the hypothesis based on probability, H1 is accepted if the p-value is equal to (Hair, 2021). The testing was conducted using the bootstrapping method.

RESULTS AND DISCUSSION

Outer Model or Measurement Model

There are three criteria for using data analysis techniques with SmartPLS to evaluate the outer model: convergent validity, discriminant validity, and composite reliability.

a. Convergent Validity

Assessment of convergent validity based on the correlation between item scores or core components estimated using PLS software. An individual reflective measure is considered high if it correlates more than 0.70 with the construct being measured. However, in early-stage research on the development of a measurement scale, a loading value of 0.6 is still considered acceptable.

Table 1 Outer Loading (Measurement Model)

Variable	Indicator Item	Loading Faktor	Description
E-SERVICE QUALITY	EQ 1	0,439	Invalid
	EQ 2	0,325	Invalid
	EQ 3	0,65	Valid
	EQ 4	0,625	Valid
	EQ 5	0,393	Invalid
	EQ 6	0,49	Invalid
	EQ 7	0,62	Valid
	EQ 8	0,484	Invalid
	EQ 9	0,604	Valid
	EQ 10	0,574	Invalid
BRAND IMAGE	BI 1	0,265	Invalid
	BI 2	0,78	Valid
	BI 3	0,753	Valid
	BI 4	0,342	Invalid
	BI 5	0,336	Invalid
E-TRUST	ET 1	0,667	Valid
	ET 2	0,587	Invalid
	ET 3	0,352	Invalid
	ET 4	0,649	Valid
	ET 5	0,502	Invalid
	ET 6	0,67	Valid
	ET 7	0,55	Invalid
	ET 8	0,542	Invalid
	ET 9	0,504	Invalid
CUSTOMER LOYALTY	LP 1	0,721	Valid
	LP 2	0,849	Valid
	LP 3	0,68	Valid
	LP 4	0,64	Valid
	LP 5	0,799	Valid
	LP 6	0,84	Valid

Source: Primary data analyzed using SmartPLS 4.0

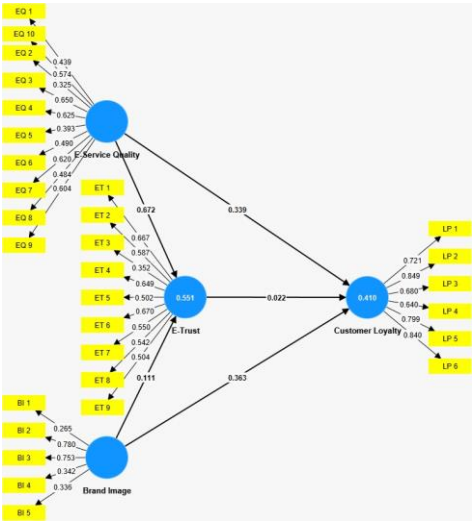

Figure 4 Outer Loading (Measurement Model)

Based on the results of the measurement model analysis, several indicators were identified as having outer loadings below the required threshold. These indicators are recommended for elimination because they do not sufficiently contribute to reflecting the latent construct. After refining the model by eliminating indicators that did not meet the criteria, the following outer loadings were obtained from the re-estimated model:.

Table 2 Outer Loading (Measurement Model) ((Revised)

Variable	Indicator Item	Load Factor	Description
E-SERVICE QUALITY	EQ 3	0,814	Valid
	EQ 4	0,647	Valid
	EQ 7	0,713	Valid
	EQ 9	0,644	Valid
BRAND IMAGE	BI 2	0,852	Valid
	BI 3	0,762	Valid
E-TRUST	ET 1	0,716	Valid
	ET 4	0,783	Valid
	ET 6	0,730	Valid
CUSTOMER LOYALTY	LP 1	0,703	Valid
	LP 2	0,854	Valid
	LP 3	0,687	Valid
	LP 4	0,645	Valid
	LP 5	0,800	Valid
	LP 6	0,873	Valid

Source: Primary data analyzed using SmartPLS 4.0

The results of the measurement model testing show that all indicators have outer loadings above 0.60. This indicates that all indicators are able to reflect the latent construct being measured.

b. Discriminant Validity

The discriminant validity of a model is considered good if the loading value of each indicator of a latent variable is the largest compared to the other loading values for that latent variable. The results of the discriminant validity test are as follows:

Table 3 Discriminant Validity (Cross Loading)

Variable	Indicator Item	X2	X1	Z	Y
Brand Image (X2)	BI 2	**0.852**	0.373	0.307	0.558
	BI 3	**0.762**	0.323	0.335	0.394
E-Service Quality (X1)	EQ 3	0.231	**0.814**	0.581	0.368
	EQ 4	0.288	**0.647**	0.427	0.309
	EQ 7	0.343	**0.713**	0.458	0.357
	EQ 9	0.370	**0.644**	0.443	0.470
E-Trust (Z)	ET 1	0.404	0.411	**0.716**	0.399
	ET 4	0.319	0.628	**0.783**	0.370
	ET 6	0.154	0.456	**0.730**	0.409
Customer Loyalty (Y)	LP 1	0.361	0.287	0.286	**0.703**
	LP 2	0.559	482	0.439	**0.854**
	LP 3	0.445	0.374	0.402	**0.687**
	LP 4	0.390	0.287	0.313	**0.645**
	LP 5	0.458	0.507	0.545	**0.800**
	LP 6	0.469	0.433	0.347	**0.837**

Source: Primary data analyzed using SmartPls 4.0

The results of the discriminant validity test using cross loadings show that all indicators have the highest loading values on the construct they measure compared to other constructs. The

indicator loading values are above the minimum threshold of 0.60 (Abdillah, W. & Hartono, 2015). Thus, it can be concluded that the measurement model has met the criteria for discriminant validity.

c. Evaluating Reliability and Average Variance Extracted (AVE).

Validity and reliability criteria can also be assessed based on the reliability values of a construct and the Average Variance Extracted (AVE) values for each construct. A construct is said to have high reliability if its value is above 0.70 and its AVE is above 0.50. Table 4 presents the composite reliability and AVE values for all variables.

Table 4 Composite reliability dan Average Variance Extracted (AVE)

Variable	Composite Reliability (CR)	Average Variance Extracted (AVE)	Description
E-Service Quality (X1)	0.799	0.501	Reliable, AVE is acceptable
Brand Image (X2)	0.790	0.653	Reliable, AVE is acceptable
E-Trust (Z)	0.787	0.553	Reliable, AVE is acceptable
Customer Loyalty (Y)	0.889	0.575	Reliable, AVE is acceptable

Source: Primary data processed using SmartPLS 4.0

Based on the results of the analysis using SmartPLS, the construct reliability test measured by the composite reliability (CR) value shows that all research variables have a CR above the recommended minimum threshold of 0.70. The Customer Loyalty variable has a CR of 0.889, Brand Image 0.790, E-Service Quality 0.799, and E-Trust 0.787. This indicates that all indicators within each construct possess good internal consistency in measuring the latent variables under study.

Furthermore, the convergent validity test, as measured by the Average Variance Extracted (AVE) value, also yielded satisfactory results. All constructs have AVE values above the minimum threshold of 0.50, namely Customer Loyalty 0.575, Brand Image 0.653, E-Service Quality 0.501, and E-Trust 0.553. These values indicate that each construct is able to explain more than 50 percent of the variance in its constituent indicators.

It can therefore be concluded that the measurement model in this study meets the criteria for reliability and convergent validity; consequently, all constructs are deemed appropriate and reliable for use in the next stage of analysis, namely testing the structural relationships among the variables in the research model.

Structural Model Testing (Inner Model)

A structural model, or inner model, is evaluated by examining the percentage of variance explained, specifically by looking at the coefficient of determination or (R^2) and redundancy level (Q^2) cross-validated using blindfolding, as well as the statistical significance and relevance of the path coefficients (Hair et al., 2019)

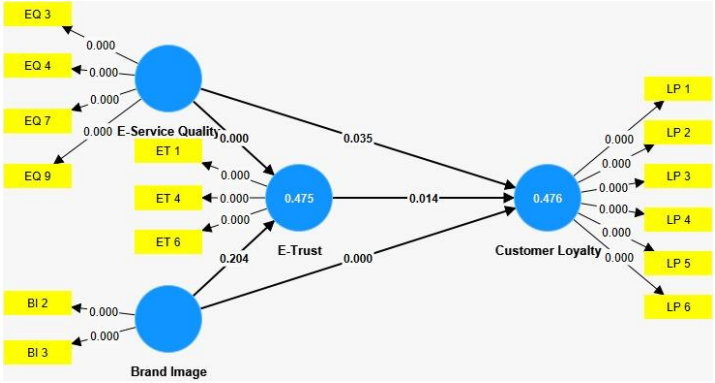

Figure 5 Structural Model (Inner Model)
Source: Primary data processed using SmartPls 4.0

Figure 5 shows the results of the internal model testing, which illustrates the structural relationships among the latent variables: E-Service Quality, Brand Image, E-Trust, and Customer Loyalty. This structural model is used to analyze both direct and indirect effects among the constructs under study using the SEM-PLS approach. The path coefficients (path coefficient) for each relationship indicate the direction and strength of the influence between variables, while the values (R^2) on the endogenous variable indicates the ability of the independent variable to explain the dependent variable. Based on the figure, it can be seen that E-Service Quality and Brand Image have a direct effect on the Customer Loyalty variable and an indirect effect through E-Trust. This model serves as the basis for testing the hypotheses that will be discussed further.

a. PLS R-Squares

The PLS R-squared values represent the proportion of variance in the construct explained by the model. The R-squared values are presented below.

Table 5 R-Square Value

Variable (let)	R-square (R^2)	Adjusted R^2	Q-Square (Q^2)
Z	0.475	0.466	0.242
Y	0.476	0.462	0.257

Source: Primary data analyzed using SmartPLS 4.0

Based on the results of the SmartPLS analysis in the table above, the R-squared value (R^2) shows that the variable E-Trust (Z) has a value (R^2) of 0.475, which means that the independent variables in the model account for 47.5% of the variation in E-Trust or trust. Meanwhile, the Customer Loyalty variable (Y) has a value of (R^2) of 0.476, indicating that 47.6% of the variation in customer loyalty can be explained by the exogenous variables influencing it. Based on the criteria of Hair et al. (2021), the value (R^2) that falls into the moderate category.

Next, based on the Q-square value (Q^2) for the variables E-Trust (0.242) and Customer Loyalty (0.257), both of which are positive values (> 0). This indicates that the research model has good predictive relevance in explaining the endogenous variables.

b. Model Fit

Model fit can be assessed using several indicators, namely the Standardized Root Mean Square Residual (SRMR) and the Normal Fit Index (NIF), as shown in the table below :

Table 6 Model Fit

Description	**Saturated model**	**Estimated model**
SRMR	0.096	0.096
NFI	0.645	0.645

Source: Primary data processed using SmartPls 4.0

The Standardized Root Mean Square Residual (SRMR) of the PLS model is considered to meet the model fit criteria if the SRMR value is < 0.1. In this study, the SRMR value was 0.096, which indicates a good overall model fit. Furthermore, the Normal Fit Index (NFI) has a score range of 0 to 1, where the closer the value is to 1, the better the model. The SmartPLS test results above show that the NFI value is 0.645, which indicates that the data fits the overall model well.

c. F-Square (Effect Size)

The results of the data analyzed using SmartPLS show the following 1>F-square values: :

Table 7 F-square for direct effects

Variable	Brand Image	E-Service	E-Trust	Loyalty
Brand Image			0.023	0.271
E-Service Quality			0.608	0.040
E-Trust				0.049
Customer Loyalty				

Source: Data processed using SmartPls 4.0

The table above shows that the latent variable predictors have varying effects at the structural level. The variable Brand Image on E-Trust has a model goodness-of-fit of 0.023, which indicates a low influence; the variable Brand Image on Customer Loyalty has a moderate influence of 0.271; the variable E-Service Quality on E -Trust has a high influence of 0.608; the variable E-Service Quality on Customer Loyalty has a small influence of 0.040; and the variable E-Trust on Customer Loyalty has a small influence of 0.049. Thus, all endogenous variables are influenced by all exogenous variables. They have small, moderate, and high effects. The highest effect is shown by the variable E-Service Quality on E-Trust, which is 0.608.

Hypothesis Testing

Testing the Hypothesis of Direct Effect

The basis for hypothesis testing in this study is the values of the path coefficients, t-statistics, and p-values obtained through PLS-SEM analysis. The results of this direct effect test serve as the basis for determining whether the previously formulated research hypotheses are accepted or rejected.

Table 8 Hypothesis test results (direct effect)

Description	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Conclusion
E-Service -> Loyalty	0.202	0.213	0.096	2.104	0.035	Accepted
Brand Image -> Loyalty	0.422	0.425	0.081	5.213	0.000	Accepted
E-Service -> E-Trust	0.627	0.632	0.067	9.350	0.000	Accepted
Brand Image -> E-Trust	0.123	0.123	0.097	1.271	0.204	Rejected
E-Trust -> Loyalty	0.220	0.213	0.090	2.451	0.014	Accepted

Source: Data processed using SmartPLS

Before conducting the hypothesis test, it is known that the t-table value at a significance level of 0.05 (5%) is 1.96. The table above shows that the hypothesis tests for each latent variable relationship are as follows: :

1. Hypothesis Testing of E-Service Quality (X1) on Customer Loyalty (Y) .

   Based on the output results above, the t-statistic for E-Service Quality (X1) regarding Customer Loyalty (Y) is 2.104 > 1.96, and the p-value is 0.035 0.050. The original sample estimate indicates a positive value of 0.202, indicating that the direction of the relationship between variable X1 and Y is positive. Thus, H1 in this study is accepted. This means that in this study, the variable E-Service Quality (X1) has a positive and significant effect on the latent variable Customer Loyalty (Y).
2. Testing the hypothesis regarding Brand Image (X2) and its effect on Customer Loyalty (Y).

Based on the results in the table above, the t-statistic for the Brand Image variable (X2) relative to Customer Loyalty (Y) is 5.213 > 1.96, and the p-valueis 0.000 < 0.050. The original sample estimate indicates a positive value of 0.422, showing that the direction of the relationship between the variable Brand Image (X2) and Customer Loyalty (Y) is positive. Thus, H2 in this study is accepted. This means that in this study, the latent variable Brand Image (X2) has a positive and significant effect on the latent variable Customer Loyalty (Y).

3. Hypothesis testing of E-Service Quality (X1) on E-Trust (Y).

   Based on the results in the table above, the t-statistic for the E-Service Quality (X1) variable relative to the E -Trust (Y) is 9.350 > 1.96, and the p-valueis 0.000 < 0.050. The original sample estimate indicates a positive value of 0.422, indicating that the direction of the relationship between the variable E-Service Quality (X1) and E-Trust (Y) is positive. Thus, H3 in this study is accepted. This means that in this study, the latent variable E-Service Quality (X1) has a positive and significant effect on the latent variable E-Trust (Z).

4. Hypothesis Testing of Brand Image (X2) on E-Trust (Z).

   Based on the results in the table above t-statistic for the variable Brand Image (X2) relative to E -Trust (Z) is 1.271 > 1.96 and the p-value is 0.204 > 0.050. The original sample estimate indicates a positive value of 0.123, showing that the direction of the relationship between the variable E-Service Quality (X1) and E-Trust (Y) is positive. Thus, H4 in this study is rejected. This means that in this study, the latent variable Brand Image (X2) has a positive but insignificant effect on the latent variable E-Trust. (Z).

5. Testing the Hypothesis of E-Trust (Z) on Customer Loyalty (Y).

   Based on the results in the table above, the t-statistic for the variable B E-Trust (Z) relative to Customer Loyalty (Y) is 2.451 > 1.96, and the p-valueis 0.014 < 0.050. The original sample estimate indicates a positive value of 0.220, showing that the direction of the relationship between the variable E-Trust (Z) and Customer Loyalty (Y) is positive. Thus, H5 in this study is accepted. This means that in this study, the latent variable E-Trust (Z) has a positive and significant effect on the latent variable Customer Loyalty (Y).

Testing for Indirect Effects

Analysis of the indirect effect is conducted by examining the specific values of the indirect effect, t-statistic, and p-value generated from the SEM-PLS test, which are then used as the basis for drawing conclusions regarding the study's mediation hypothesis. Lachowicz et al. (2018) To determine the effect size of the mediating variable, the Upsilon (V) value is used with the formula $\text{Upsilon (V)} = B^2\,\text{mx}.B^2\text{ym}.\text{x}$ with criteria: > 0.01 (small effect), > 0.075 (medium effect), and > 0.175 (large effect).

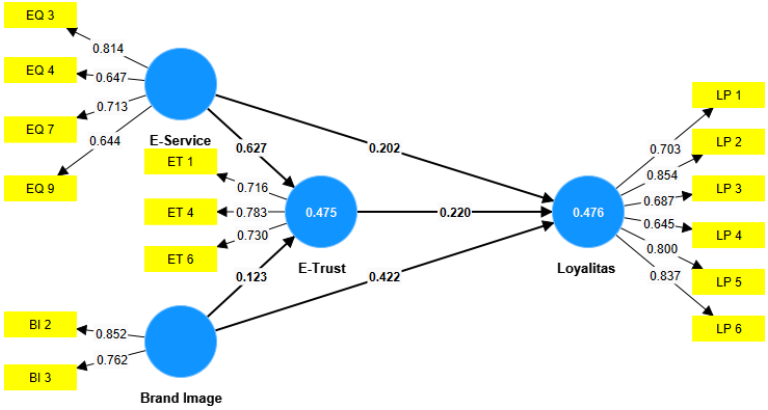

Figure 6 Outer Loading SemPls

Source: Data processed using SmartPls 4.0

Table 9 Calculation of the Upsilon (V) Effect Size

Description	Statistik Upsilon (V)	Conclusion
E-Service -> E-Trust -> Loyalty	$(0.627)^2$ x $(0.220)^2$ = 0.38 x 0.05 = 0.43	High-Level Mediation
Brand Image-> E-Trust-> Loyalty	$(0.123)^2$ x $(0.220)^2$ = 0.02 x 0.05 = 0.001	Does not mediate

Source: SmartPls data processed by the researcher, 2026

The results of the effect size calculation for the indirect effect indicate that E-Trust has a mediation effect of 0.43, or 43%, in mediating the influence of E-Service Quality on Customer Loyalty. Meanwhile, regarding the indirect effect of Brand Image on Customer Loyalty, E-Trust was unable to mediate, with a calculated result of 0.001.

Table 10 Results of the hypothesis test for theindirect effect

Description	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Conclusion
E-Service -> E-Trust -> Loyalty	0.138	0.134	0.058	2.379	0.017	Accepted
Brand Image -> E-Trust -> Loyalty	0.027	0.026	0.025	1.077	0.282	Rejected

Source: Data processed using SmartPls 4.0

1. The Effect of E-Service Quality (X1) on Customer Loyalty (Y) through E-Trust (Z).

   Based on the results in the table above t-statistic for the variable E -Service Quality (X1) on Customer Loyalty (Y) through E-Trust (Z) is 2.379 > 1.96, and the p-value is 0.017 < 0.050. The original sample estimate indicates a positive value of 0.138, indicating that the direction of the relationship between the variable E-Service Quality (X1) and Customer Loyalty (Y) through E-Trust (Z) is positive. Thus, H6 in this study is accepted. This means that in this study, the latent variable E-Service Quality (X1) has a positive and significant effect on the latent variable Customer Loyalty (Y) through E-Trust(Z).
2. The Effect of Brand Image (X2) on Customer Loyalty (Y) through E-Trust(Z).

   Based on the results in the table above t-statistic for the variable Brand Image on Customer Loyalty through E -Trustis 1.077 < 1.96 and the p-value is 0.282 > 0.050. The original sample estimate indicates a positive value of 0.027, indicating that the direction of the relationship between the variable Brand Image (X2) and Customer Loyalty (Y) via E-Trust (Z) is positive. Thus, H7 in this study is rejected. This means that in this study, the latent variable Brand Image (X2) has a positive but insignificant effect on the latent variable Customer Loyalty (Y) through E-Trust.(Z).

DISCUSSION

The Impact of E-Service on Customer Loyalty Among Users of QRIS ShopeePay

The results of the respondents' responses indicate that the variable E-Service Quality received high ratings across all indicators. The results of the hypothesis testing indicate that E-Service Quality has a positive and significant effect on Customer Loyalty, with a coefficient value of 0.202, a t-statistic value of 2.104 (>1.96), and a P-value of 0.035 (< 0.05). Thus, hypothesis H1 is accepted. This finding indicates that the better the quality of electronic services provided by ShopeePay, the higher the level of customer loyalty in using QRIS services.

The results of this study are consistent with research conducted by (Rahmawaty et al., 2021), (Sasono et al., 2021) and (Purnama & Mujiatun, 2025)which states that E-Service Quality has a positive and significant effect on customer loyalty. This indicates that service quality is a key factor in retaining customers in the digital age, particularly in e-wallet services. However, the results of this study are not consistent with some previous studies such as (Dewi & Ramli, 2023) and (Pratama et al., 2023) which found that service quality does not have a significant impact on customer loyalty.

Theoretically, these findings can be explained by the Expectation Confirmation Theory (ECT) proposed by (Oliver, 1999) and developed by Bhattacherjee (2001)This theory explains that loyalty is built when service performance meets or even exceeds user expectations. In this context, the high quality of E-Service on ShopeePay confirms users' expectations, thereby fostering satisfaction, trust, and ultimately loyalty toward the service (Tjiptono, 2014). Thus, it can be concluded that high-quality electronic services play a crucial role in enhancing customer loyalty.

The Impact of Brand Image on Customer Loyalty Among QRIS ShopeePay Users

The results of the respondents' responses indicate that the Brand Image variable received high ratings across all indicators. The results of the hypothesis testing indicate that Brand Image has a positive and significant effect on Customer Loyalty, with a coefficient value of 0.422, a t-statistic value of 5.213 (>1.96), and a P-value of 0.000 (<0.05). Thus, hypothesis H2 is accepted. This finding indicates that the better the brand image of ShopeePay, the higher the level of customer loyalty in using the QRIS service.

The results of this study are consistent with research conducted by (Sasono et al., 2021), (Purnama & Mujiatun, 2025), and (Beltasari et al., 2024) which states that brand image has a positive and significant influence on customer loyalty. This indicates that Brand Image is a key factor in building long-term relationships with customers, particularly in digital-based services. However, in some other studies, the influence of Brand Image may be indirect, mediated by other variables such as trust or customer satisfaction(Zeithaml, 2000). Thus, it can be concluded that Brand Image plays a crucial role in enhancing customer loyalty. The more positive users perceive the brand image of ShopeePay to be, the more likely they are to remain loyal, continue using the service, and recommend the ShopeePay QRIS service to others.

The Impact of E-Trust on Customer Loyalty Among ShopeePay QRIS Users

The results of the respondents' responses indicate that the E-Trust variable received high ratings across all indicators. The results of the hypothesis testing indicate that E-Trust has a positive and significant effect on Customer Loyalty, with a coefficient value of 0.220, a T-statistic value of 2.451 (>1.96), and a P-value of 0.014 (<0.05). Thus, hypothesis H5 is accepted. This finding indicates that the higher the level of user trust in ShopeePay, the higher the level of customer loyalty in using the QRIS service.

The results of this study are consistent with research conducted by Anser et al., (2023), (Purnama & Mujiatun, 2025) and (Alnaim et al., 2022) which states that E-Trust has a positive and significant effect on customer loyalty. This indicates that trust is a key factor in retaining customers in digital services. However, the results of this study are not consistent with several other studies such as (Rahmawaty et al., 2021) and (Syahidah & Aransyah, 2023) which found that E-Trust does not have a significant direct effect on loyalty, but rather through mediating variables such as customer satisfaction. Thus, it can be concluded that E-Trust plays a crucial role in enhancing customer loyalty. The higher the level of user trust in the security, reliability, and integrity of the

ShopeePay service, the greater the likelihood that users will remain loyal, reuse the service, and recommend the ShopeePay QRIS service to others.

The Impact of E-Service on E-Trust Among ShopeePay QRIS Users

The results of the respondents' responses indicate that the variable E-Service Quality received high ratings across all indicators. The results of the hypothesis testing indicate that E-Service Quality has a positive and significant effect on E-Trust, with a coefficient value of 0.627, a T-statistic value of 9.350 (>1.96), and a P-value of 0.000 (<0.05). Thus, hypothesis H3 is accepted. This finding indicates that the better the quality of electronic services provided by ShopeePay, the higher the level of user trust in the QRIS service..

The results of this study are consistent with research conducted by (Anser et al., 2023), (Purnama & Mujiatun, 2025) and (Alnaim et al., 2022) which states that E-Service Quality has a positive and significant effect on E-Trust. This indicates that service quality is a key factor in building user trust in the context of digital services. However, the results of this study are not consistent with previous research (Pratama et al., 2023) which found that service quality does not have a significant effect on trust in certain contexts. Thus, it can be concluded that E-Service Quality plays a very important role in shaping E-Trust. The higher the service quality perceived by users, the higher the level of user trust in QRIS ShopeePay, which ultimately fosters customer loyalty.

The Effect of Brand Image on E-Trust Among ShopeePay QRIS Users

The results of the respondents' responses indicate that the Brand Image variable received high ratings across all indicators. However, the results of the hypothesis testing indicate that Brand Image does not have a significant effect on E-Trust, with a coefficient value of 0.123, a t-statistic value of 1.271 (<1.96), and a P-value of 0.204 (> 0.05). Thus, hypothesis H4 is rejected. This finding indicates that although ShopeePay has a good brand image in the eyes of consumers, this does not necessarily directly increase users' level of trust in the QRIS service.

The results of this study are consistent with research conducted by (Beltasari et al., 2024) which indicates that brand image does not always have a significant direct effect on trust, but may influence it through other variables. However, these results are inconsistent with the findings of (Purnama & Mujiatun, 2025) and (Alnaim et al., 2022) which states that Brand Image has a positive and significant influence on E-Trust. Thus, it can be concluded that although Brand Image of ShopeePay is rated highly by users, this has not yet been able to directly increase E-Trust.

The Effect of E-Service on Customer Loyalty, Mediated by E-Trust Among QRIS ShopeePay Users

The results of the respondents' responses indicate that the variables E-Service Quality and E-Trust both received high ratings, with average scores above 4.00 and respondent achievement levels (RAL) falling into the good to very good categories. The results of the hypothesis testing indicate that the indirect effect of E-Service Quality on Loyalty through E-Trust is positive and significant, with a coefficient value of 0.138, a T-statistic value of 2.379 (>1.96), and a P-value of 0.017 (< 0.05). Thus, hypothesis H6 is accepted. These findings indicate that E-Trust mediates the relationship between E-Service Quality and Customer Loyalty.

Based on the Upsilon (V) statistic calculation, a value of 0.43 was obtained, which falls into the high mediation category. This indicates that the role of E-Trust in mediating the effect of E-Service Quality on loyalty is strong. This means that good service quality not only has a direct impact on loyalty but also an indirect one through increased user trust.

These findings are consistent with studies conducted by Anser et al. (2021), Purnama & Mujiatun (2024), and Alnaim et al. (2022), which indicate that E-Trust acts as a mediating variable in the relationship between E-Service Quality and loyalty. This indicates that, in the context of digital services, trust is a critical factor that strengthens the relationship between service quality and customer loyalty. Thus, it can be concluded that E-Trust is a significant mediating variable in the relationship between E-Service Quality and Customer Loyalty. The better the quality of service provided, the higher the users' trust, which will ultimately increase loyalty toward the ShopeePay QRIS service.

The Effect of Brand Image on Customer Loyalty, Mediated by E-Trust Among QRIS ShopeePay Users

The results of the respondents' responses indicate that the variables Brand Image and E-Trust received high ratings. The results of the hypothesis testing indicate that the indirect effect of Brand Image on Loyalty through E-Trust is not significant, with a coefficient value of 0.027, a T-statistic value of 1.077 (<1.96), and a P-value of 0.282 (>0.05). Thus, hypothesis H7 is rejected. This finding indicates that E-Trust does not mediate the relationship between Brand Image and Customer Loyalty among QRIS ShopeePay users.

Based on the Upsilon (V) statistic calculation, a value of 0.001 was obtained, indicating a non-mediating category or a very low mediating effect. This suggests that although Brand Image has a direct effect on loyalty, it does not do so through the mechanism of trust (E-Trust) as a mediating variable.

The findings of this study are consistent with those of Syahidah & Aransyah (2023) and Pratama et al. (2023), which indicate that the trust variable does not always serve as a significant mediator in the relationship between marketing variables and customer loyalty. However, these results do not align with the studies by Anser et al. (2021) and Purnama & Mujiatun (2024), which found that E-Trust can mediate the relationship between independent variables and customer loyalty. Thus, it can be concluded that E-Trust does not act as a mediating variable in the relationship between Brand Image and Customer Loyalty.

CONCLUSION

This study shows that E-Service Quality and E-Trust are the primary factors influencing QRIS ShopeePay customer loyalty among Generation Z in Malang. E-Service Quality has been shown to have a positive and significant impact on customer loyalty as well as on E-Trust, meaning that the better the service quality (convenience, speed, and comfort), the higher the users' trust and loyalty.

In addition, brand image has a positive and significant impact on customer loyalty, but does not have a significant impact on e-trust. This suggests that Generation Z does not rely solely on brand image to build trust, but places greater emphasis on direct user experience.

E-Trust has been shown to have a positive and significant impact on customer loyalty and to strongly mediate the relationship between E-Service Quality and loyalty. Conversely, E-Trust does not mediate the relationship between Brand Image and customer loyalty.

Overall, it can be concluded that Generation Z's loyalty is more influenced by their actual experience with a service (user experience) than by brand perception alone, making service quality and trust the key factors in retaining users.

Based on the research findings, ShopeePay is advised to improve service quality particularly in terms of transaction speed, system stability, and ease of use as well as to strengthen security and service responsiveness in order to boost trust and loyalty among Gen Z users. Additionally, the

company needs to maintain a positive brand image through innovation and relevant marketing strategies, and develop retention programs such as promotions and premium features to prevent users from switching platforms. For future researchers, it is recommended to include additional variables such as e-satisfaction, price, and ease of use, expand the scope of the study, and employ longitudinal methods and combined analyses to ensure more comprehensive and in-depth research findings..

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