

The Effect of E-Service Quality Dimensions on E-Loyalty Mediated by E-Satisfaction Among Ovo Application Users in Bandung City

Silvia Lemvika¹, Siti Herawati²

¹²Universitas Jenderal Achmad Yani, West Java, Indonesia

Correspondence: silvialemvika_22p259@mn.unjani.ac.id¹

Abstract

This study examines the phenomenon of a gap between the high number of downloads of the OVO e-wallet application and its lowest rating among other e-wallets, reflecting users' dissatisfaction with the experience they receive, ultimately indicating low user loyalty. This study aims to analyze the effects of efficiency, fulfillment, system availability, and privacy on e-loyalty, mediated by e-satisfaction, among OVO app users, using the Expectation Confirmation Theory (ECT) as the basis for formulating a conceptual model. This study involved 180 samples from the population aged 18-28 years, who had used the OVO e-wallet at least 1 time in the last 1 month and were domiciled in the city of Bandung. This study uses a quantitative approach with a cross-sectional or one-shot survey method to obtain data. Online questionnaires are distributed via Google Forms to OVO e-wallet users. The instrument has been declared valid and reliable. Structural equation modelling (SEM) is used as a data analysis technique using SmartPLS version 3.0. This finding indicates that efficiency and fulfillment have a positive and significant effect on e-satisfaction, whereas system availability and privacy do not. Efficiency, privacy, and e-satisfaction have a positive and significant influence on e-loyalty. Furthermore, e-satisfaction mediates the effect of fulfillment on e-loyalty, but does not mediate the effects of efficiency, system availability, and privacy on e-loyalty.

KEYWORDS

efficiency; fulfillment; system availability; privacy; e-satisfaction; e-loyalty.

Introduction

The current era of technology is developing rapidly, and communication and consumer interaction are experiencing significant changes, as evidenced by the increasing number of internet users. At the beginning of 2025, the number of Indonesian internet users reached 212 million out of a population of 285 million (Haryanto, 2025). It is undeniable that the growth of internet users is accelerating digital development in Indonesia. The development of digital technology certainly affects various aspects of life, including finance. This transformation gave rise to innovations in the financial system, made possible by the internet, also known as financial technology (fintech).

A new era in consumer behavior has dawned, ushered in by the rise of fintech: the cashless society period, in which physical currency is obsolete. Financial technology, the use of technology in the financial sector to create new goods and services, affects monetary stability, the overall system, and the efficiency, smoothness, security, and reliability of the payment system (Kusuma & Asmoro, 2020). With the proliferation of e-wallet platforms brought about by Indonesia's booming financial technology industry, competition among these services is heating up.

An e-wallet is an electronic service and application that can be accessed via a smartphone using an internet connection to carry out transaction activities without the need to carry cash (Diva & Anshori, 2024). The convenience and practicality offered by e-wallets are an important innovation in the digital payment system and have become one of the most popular payment instruments in Indonesia. A division of Lippo Group, PT Visionet Internasional introduced OVO in 2016 and launched it in

Table 1. Rating Aplikasi E-Wallet di Google Play Store

Digital Wallet App Ratings 2025		
Google Playstore Indonesia		
E-wallet	Number of Downloads	Rating Number
Gopay	1.040.000	4,7
Shopeepay	751.000	4,8
OVO	1.170.000	3,7
Dana	8.900.000	4,7

Source: Google Playstore (data processed by researchers 2025)

November 2017. It is one of the most popular electronic wallets in Indonesia.

One thousand three hundred people from Jabodetabek, Bandung, Medan, Makassar, Semarang, Palembang, and Pekanbaru were polled by Insight Asia to find out which electronic wallet platform was the most popular. 71% of people who took the survey had downloaded the app, and 58% of those people are still using it three months later. OVO comes in second place with 70% of users, but only 53% are active. DANA comes in at 61%, ShopeePay comes in at 60%, and LinkAja is at the bottom with 27% of users (Respati & Pratama, 2022). Although OVO is the second-most-popular digital wallet platform, with 70% of users, only 53% are still actively using it in the last three months. The gap indicates low user loyalty.

Based on e-wallet user reviews in table 1, accessed on October 28, 2025, on the Google Play Store, there is a gap between the OVO application's high number of downloads and its rating, which only reaches 3.7 out of 5. This score is the lowest compared to GoPay, ShopeePay, and DANA, which have ratings above 4.7. The low rating reflects users' dissatisfaction with the OVO usage experience and increases the likelihood of switching to other e-wallets. Behaviorally, negative evaluations reflected in public ratings not only indicate an unsatisfactory experience but also reduce the likelihood of recommending and reusing the application, thereby signaling low user e-loyalty. In the context of e-service quality, the relationship among service quality, satisfaction, and loyalty is typically depicted linearly within the Expectation Confirmation Theory (ECT) framework. However, there remains a tendency to equate e-satisfaction, continued use, and e-loyalty, even though these three represent different stages of behavior. E-satisfaction reflects short-term affective evaluations, continued use may be situational, whereas e-loyalty indicates long-term psychological commitment. Although many studies place e-satisfaction as the main mediator in loyalty formation, empirical findings regarding this mediating role remain inconsistent, particularly across the dimensions of system availability and privacy. Therefore, this study does not merely re-test the E-SERVQUAL model but specifically analyzes the direct and indirect effects of e-service quality dimensions on e-loyalty among Generation Z OVO e-wallet users in Bandung to deepen understanding of the mechanisms of e-loyalty formation.

Expectation Confirmation Theory (ECT) serves as the basis for this research, proposing a conceptual model in which e-loyalty is the dependent variable. ECT was first introduced by Oliver., (1980) in the realm of consumer behaviour and social psychology. ECT explains that consumer satisfaction is formed through a process of comparing initial expectations with the actual performance of a product or service (Oliver., 1980). Repurchase intention is the initial commitment to forming loyalty as a behavioural intent (Oliver, 1999). This statement is supported by the consumer behaviour theory of Haines et al., (1970)), which states that behavioural intention is a direct predictor of repeat behaviour, namely repeated actual actions, so that repurchase intention in ECT is an initial form

of loyalty formation. Therefore, deductively, repurchase intention can be reduced to e-loyalty, a more stable form of repetitive behaviour in the context of digital services. This statement is supported by previous research that uses ECT as the main basis for Research, including Al-Ayed., (2022), who asserts that expectations, confirmation, and satisfaction are cognitive sequences that lead to the formation of customer loyalty. Pamungkas & Prasetyo., (2025) state that loyalty is an advanced form of repurchase intention, and that satisfaction serves as a mediator that bridges the relationships among expectations, confirmation, and customer loyalty. This statement is also supported by research (Aslam et al., 2020), (Pitriani., 2022) and (Angga & Santosa., 2025). The consistency of these findings indicates that, both theoretically and empirically, e-loyalty can be used as the dependent variable in ECT.

In this study, the concept of perceived performance is reduced to the empirical level as an independent variable: efficiency, fulfillment, system availability, and privacy, which users compare with their initial expectations. (Parasuraman et al., 2005) developed four dimensions of e-service quality (efficiency, fulfillment, system availability, and privacy) conceptually and empirically positioned as reflective constructs because each dimension is represented by a series of indicators that reflect customer perceptions of electronic service quality. Akinci et al., (2010) , in the context of digital financial services, also show that the four dimensions have a stable and reliable structure, making them feasible for representing electronic service quality. In addition, Zehir et al., (2014) confirmed that the four core dimensions are the main components that consistently explain e-service quality in the digital context.

E-service quality is the ability of a web or media platform to provide effective and efficient facilities for online shopping, purchasing, and the acquisition of goods or services (Parasuraman et al., 2005). Efficiency is the ease with which users can access and search for the desired information in the application (Parasuraman et al., 2005). Fulfillment is the actual performance of the application in accordance with the promises made (Parasuraman et al., 2005). System availability is the ability of applications to function consistently (Parasuraman et al., 2005). Privacy is the company's ability to maintain the integrity of customer data (Parasuraman et al., 2005). E-satisfaction is the pleasant or unpleasant experience customers have when comparing current services to expectations for an online product or service (Atmojo & Widodo., 2022) . The results of this study are supported by research by Ardiyanti & Putra., (2023), Risanty et al., (2025), and Zulfansyah et al., (2024), which found that efficiency, fulfillment, system availability, and privacy partially have a positive effect on e-satisfaction. The statistical hypothesis can then be formulated as follows.

H1a: Efficiency has a positive effect on e-satisfaction for OVO digital wallet users in Bandung City.

H1b: Fulfillment has a positive effect on e-satisfaction for OVO digital wallet users in Bandung City.

H1c: System availability has a positive effect on e-satisfaction for OVO digital wallet users in Bandung City.

H1d: Privacy has a positive effect on e-satisfaction for OVO digital wallet users in Bandung City.

E-loyalty is defined as a customer's positive attitude towards an electronic company that leads to repeat purchases of a particular product brand (Anderson & Srinivasan., 2003). The main triggers for loyalty formation are the speed of the ordering process, promises kept, and the application's emphasis on privacy (Zehir et al., 2014). Therefore, companies must maintain and improve the dimensions of service quality to sustain user satisfaction, which will, in turn, increase user loyalty (Pratamal et al., 2022) . The results of this study are

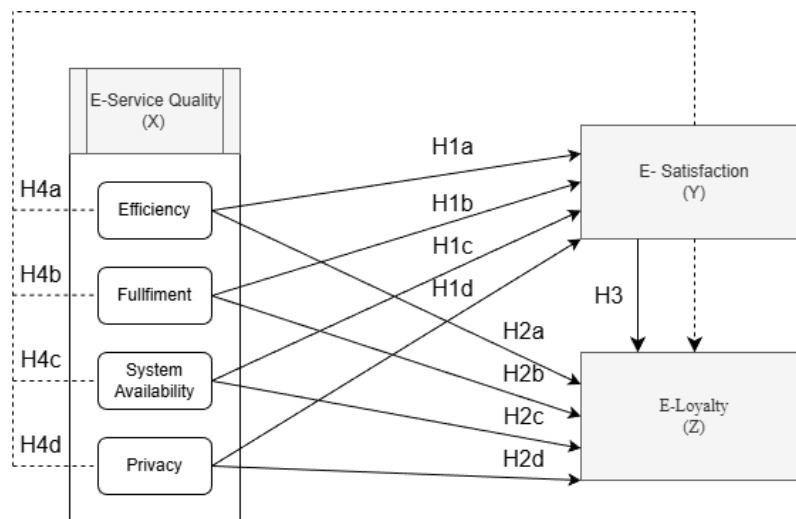


Figure 1. Conceptual Model

Source: Processed data (2026)

supported by [Abdillah., \(2024\)](#) and [Putri et al., \(2024\)](#), who found that the dimensions of e-service quality efficiency, fulfilment, system availability and privacy have a partially positive effect on e-loyalty, so the statistical hypothesis is formulated as follows.

H2a: Efficiency has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2b: Fulfilment has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2c: System availability has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2d: Privacy has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

E-satisfaction plays an important role in shaping e-loyalty; satisfied customers tend to be more loyal, make regular repeat purchases, and can even recommend to others ([Widyaningrum., 2024](#)). Therefore, maintaining and increasing customer satisfaction in the digital realm is a key factor in building strong e-loyalty. This statement supports the research of [Firmansyah & Amrizal., \(2024\)](#), [Khan et al., \(2023\)](#), and [Situmorang & Herawati., \(2024\)](#), who found that e-satisfaction has a positive and significant effect on e-loyalty. The statistical hypothesis can then be formulated as follows.

H3: E-satisfaction has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

[Ardiyanti & Putra., \(2023\)](#) suggest that e-satisfaction mediates the dimensions of e-service quality in e-loyalty. In addition, [Sheu & Chang., \(2022\)](#) suggest that the dimensions of e-service quality, namely efficiency, fulfilment, system availability, and privacy, have a positive influence on e-loyalty mediated by e-satisfaction. The results of this study are supported by [Hasyim et al., \(2025\)](#) and [Abdillah., \(2024\)](#), who state that e-satisfaction mediates efficiency, fulfilment, system availability, and privacy in e-loyalty. The statistical hypothesis can then be formulated as follows.

H4a: E-Satisfaction plays a role in mediating the effect of efficiency on e-loyalty for OVO digital wallet users in Bandung City

H4b: E-Satisfaction plays a role in mediating the effect of fulfilment on e-loyalty for OVO digital wallet users in Bandung City.

H4c: E-Satisfaction plays a role in mediating the effect of system availability on e-loyalty for OVO digital wallet users in Bandung City.

H4d: E-Satisfaction plays a role in mediating the effect of privacy on e-loyalty for OVO digital wallet users in Bandung City loyalty ([Pratamal et al., 2022](#)). The results of this study are supported by [Abdillah., \(2024\)](#) and [Putri et al., \(2024\)](#), who found that the dimensions of e-service quality efficiency,

fulfilment, system availability and privacy have a partially positive effect on e-loyalty, so the statistical hypothesis is formulated as follows.

H2a: Efficiency has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2b: Fulfilment has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2c: System availability has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

H2d: Privacy has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

E-satisfaction plays an important role in shaping e-loyalty; satisfied customers tend to be more loyal, make regular repeat purchases, and can even recommend to others ([Widyaningrum., 2024](#)). Therefore, maintaining and increasing customer satisfaction in the digital realm is a key factor in building strong e-loyalty. This statement supports the research of ([Firmansyah & Amrizal, 2024](#)) ([Khan et al., 2023](#)) and ([Situmorang & Herawati, 2024](#)), who found that e-satisfaction has a positive and significant effect on e-loyalty. The statistical hypothesis can then be formulated as follows.

H3: E-satisfaction has a positive effect on e-loyalty for OVO digital wallet users in Bandung City.

([Ardiyanti & Putra, 2023](#)) suggest that e-satisfaction mediates the dimensions of e-service quality in e-loyalty. In addition, ([Sheu & Chang, 2022](#)) suggest that the dimensions of e-service quality, namely efficiency, fulfilment, system availability, and privacy, have a positive influence on e-loyalty mediated by e-satisfaction. The results of this study are supported by ([Hasyim et al., 2025](#)) and ([Yahya Abdillah, 2024](#)), who state that e-satisfaction mediates efficiency, fulfilment, system availability, and privacy in e-loyalty. The statistical hypothesis can then be formulated as follows.

H4a: E-Satisfaction plays a role in mediating the effect of efficiency on e-loyalty for OVO digital wallet users in Bandung City

H4b: E-Satisfaction plays a role in mediating the effect of fulfilment on e-loyalty for OVO digital wallet users in Bandung City.

H4c: E-Satisfaction plays a role in mediating the effect of system availability on e-loyalty for OVO digital wallet users in Bandung City.

H4d: E-Satisfaction plays a role in mediating the effect of privacy on e-loyalty for OVO digital wallet users in Bandung City

Based on the hypotheses developed above (H1a–H4d), the conceptual model of this study is presented in [Figure 1](#).

Methods

This study uses the survey method, which collects data from samples via questionnaires to explain causal relationships and test hypotheses (Effendi & Tukiran., 2012). This study involved a sample from the population, specifically Generation Z, born between 1997 and 2012, with a minimum age of 17-28 years (Sekar et al., 2023). The age requirement was set based on the assumption that they have sufficient cognitive capacity to complete the questionnaire statements, are OVO e-wallet users at least once in the last month, and that Bandung was chosen as the research location. According to the rules of thumb proposed by Roscoe., 1975) and supported by Sekaran & Bougie., (2017) , the minimum sample size for multivariate studies such as multiple regression should be at least 10 times the number of research variables, yielding a minimum of 60 respondents. Thus, the use of 180 respondents in this study exceeds the recommended minimum and is considered adequate for testing the structural model. Given the time horizon of this study, it is classified as convenience sampling, a design for collecting data or information from individuals that researchers can most easily obtain. Still, this design cannot be generalized to the wider population of e-wallet users (Sekaran & Bougie., 2017). Convenience sampling is a nonprobability sampling method in which individuals do not have an equal chance of being sampled (Sekaran & Bougie., 2017). The collected data is categorized as primary data because it is obtained directly from the source (Sugiyono., 2022). Based on the time horizon of data collection, this study is categorized as a cross-sectional or one-shot study because the data were collected in a single period (Sekaran & Bougie., 2017). The data were sourced from questionnaires completed by individuals based on the characteristics of the research sample. This study used Smart-PLS version 3.0 to test a causal model. The statistical models tested in this analysis are the measurement (outer) model and the structural (inner) model. The outer model measurement was conducted to test construct validity and instrument reliability. There are three criteria for the outer model measurement: convergent validity, discriminant validity, and composite reliability.

Convergent validity describes the extent to which an indicator correlates with the concept it measures, if the indicator loading values is greater than 0.70, the correlation is considered high. In addition, convergent validity can be assessed using the average variance extracted (AVE). A construct is regarded as valid when the average variance extracted reaches a minimum threshold of 0.50. The way to test discriminant validity is to compare the square root of each construct's average variance extracted (AVE) with the correlations among the other constructs in the model. If the AVE root for each construct is greater than the correlation between constructs and other constructs in the model, the instrument is said to have good discriminant validity value (Abdillah & Jogiyanto., 2015). The evaluation of composite validity is performed through two main indicators, namely composite reliability and Cronbach alpha, where values equal to or greater than 0.70 signify that the measurement instrument possesses adequate reliability., (Ghozali, 2015).

Furthermore, evaluate the structural model (inner model) to predict the causal relationship between latent variables (Chin., 1998). The primary criterion applied for evaluating the structural model is the R-squared value, where values of 0.75 represent strong explanatory power, 0.50 indicate moderate explanatory capability, and 0.25 reflect weak model performance (Hair et al., 2021). To see the effect size based on the F-square, which explains the strength of the Influence of the independent variable, which identifies the magnitude of influence exerted by independent variables on dependent

variables: no effect below 0.02, small effect 0.02 to 0.05, moderate effect 0.15 to 0.35, and large effect above 0.35 (Hardisman., 2021). After that, a hypothesis test was conducted to determine whether the null hypothesis (H0) was rejected or retained based on empirical evidence (Sekaran & Bougie., 2017). The hypothesis test was conducted using the bootstrapping technique, which was applied systematically by comparing the calculated t-statistic with a threshold of 1.65 and a significance level of 0.05, using a one-tailed approach. The use of a one-tailed test is justified by the directional nature of the proposed hypotheses, which are based on strong theoretical and empirical foundations from Expectation Confirmation Theory. Prior studies consistently report positive directional relationships among efficiency, fulfilment, system availability, privacy, e-satisfaction, and continuance intention. Therefore, this study assumes a specific direction of effect rather than a bidirectional possibility, making one-tailed testing appropriate for hypothesis verification.

Result and Discussion

This research was conducted on 180 respondents. The characteristics of respondents in this study can be explained by several aspects of the data obtained, namely gender. Respondents were dominated by women (59%), while men (41%) showed higher female participation in the use of digital services. In terms of age, the majority of respondents are in the range of 23-28 years (64%), followed by 20-23 years (30%), and 18-20 years (6%), reflecting the dominance of young, productive age groups that tend to have a high level of digital technology adoption. By occupation, most respondents are employees (61%) and students (32%), while the rest are civil servants, entrepreneurs, and students. In addition, regarding income, respondents are predominantly from middle- to high-income groups, with 39% earning above Rp 5,000,000 per month. Based on the frequency of transactions in the last 1 month, the majority of respondents (83%) made 3-4 transactions, indicating a high level of service usage, so these characteristics are relevant for this study.

Data from table 2, it is known that all questionnaire items efficiency, fulfilment, system availability, privacy, e-satisfaction and e-loyalty have a indicator value greater than 0.70, so that all instruments are declared valid and have met the requirements of the convergent validity test and can measure what should be measured. The composite reliability assessment further confirms that each construct consistently yields reliable measurement outcomes.

Data from table 3, the discriminant validity assessment, based on cross-loading analysis, shows that each manifest variable has stronger associations with its intended latent construct than with alternative constructs, thereby confirming that the measurement instrument achieves an adequate level of discriminant validity.

Based on table 4, The subsequent analytical stage examines the square roots of the AVEs, which confirm that all constructs exceed 0.50, with e-satisfaction recording the lowest value at 0.612. system availability demonstrates the highest value at 0.688, while the comparison between AVE square roots and inter-construct correlations confirms robust discriminant validity.

Based on the analysis results, the R-Square value of 0.769 for the e-satisfaction variable indicates that the independent variables in the model explain 76.9% of the variation in the e-satisfaction variable (see Table 5). In comparison, the remaining 23.1% is influenced by factors outside the model, so the relationship between the independent variables and e-satisfaction is categorised as strong. Furthermore, the R-Square value of 0.612 for e-loyalty indicates that 61.2% of the variance is explained by the independent variables in the model, with 38.8% influenced by external factors, suggesting a moderate

Table 2. Loading Factor and Composite Reliability Values

Symbol	Questionnaire Item	Loading Factor	Composite Reliability
Efficiency (EF)		0.884	
EF1	I can easily find my balance information on the OVO e-wallet.	0.876	
EF2	I can easily find the payment menu for OVO e-wallet business partners (mobile credit, internet, electricity, and water).	0.771	
EF3	I can easily access merchant promotion information on the OVO e-wallet.	0.783	
EF4	I can easily understand the transaction history status on the OVO e-wallet.	0.806	
Fulfillment (FF)		0.882	
FF1	The amount paid by the OVO e-wallet is exactly the same as the bill amount.	0.819	
FF2	The processing time for OVO e-wallet transactions is in line with the promised estimate.	0.796	
FF3	The amount of cashback received by users is in accordance with the amount promised by the OVO e-wallet.	0.812	
FF4	The amount of refunds recorded from merchants to users corresponds to the amount that must be refunded by the OVO e-wallet.	0.799	
System Availability (SA)		0.884	
SA1	The OVO e-wallet is able to operate without prolonged interruptions.	0.833	
SA2	The OVO e-wallet loads new pages quickly.	0.827	
SA3	The OVO e-wallet can accurately display transaction history status.	0.882	
Privacy (P)		0.860	
P1	The OVO e-wallet is able to protect my personal data well.	0.815	
P2	The OVO e-wallet is capable of rejecting or preventing unauthorized access.	0.827	
P3	The OVO e-wallet provides users with a sense of security when submitting personal information.	0.817	
E-Satisfaction (ES)		0.882	
ES1	I am pleased that the OVO e-wallet makes transactions easier.	0.744	
ES2	I am pleased with the performance of the OVO e-wallet in transactions as promised.	0.769	
ES3	I am pleased that the OVO e-wallet can be used consistently without any interruptions.	0.772	
ES4	I am pleased that the OVO e-wallet protects users' personal data well.	0.841	
E-Loyalty (EL)		0.863	
EL1	I am willing to tell others about the positive aspects of the OVO e-wallet.	0.844	
EL2	I am willing to continue using the OVO e-wallet for my daily transactions.	0.813	
EL3	I am willing to recommend the OVO e-wallet to others.	0.876	

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

relationship.

Based on [table 6](#), the following stage of analysis involves evaluating effect size through the calculation of F-squared values to determine the magnitude of influence exerted by independent variables on dependent variables, with the results showing the f^2 value of fulfillment on e-loyalty (0.001), system availability on e-loyalty (0.002) and system availability on e-satisfaction (0.010) indicates no substantive effect, further confirming the weak explanatory role of usability in predicting continued e-loyalty and e-satisfaction. The next stage of analysis involves evaluating effect size by calculating F-squared (f^2) values to determine the magnitude of influence exerted by each independent variable on the dependent variables. Based on the F-square results, the effect of efficiency on e-satisfaction (0.029) and on e-loyalty (0.052) is categorized as weak. Fulfillment demonstrates a relatively stronger contribution to e-satisfaction (0.200), yet its effect on e-loyalty is negligible (0.001). Meanwhile, system availability exhibits very weak effects on both e-satisfaction (0.010) and e-loyalty (0.002). Privacy also shows weak contributions to e-satisfaction (0.027) and e-loyalty (0.036) and the effect of e-satisfaction on e-loyalty (0.036) falls within the weak category. These findings indicate that although several structural paths are statistically significant, their practical effect sizes remain small. This suggests that, in a highly competitive fintech environment, e-service quality dimensions may primarily serve as baseline requirements rather than strong differentiating factors in shaping long-term digital loyalty.

Efficiency has a positive effect on e-satisfaction, with a coefficient of 0.191 and a p-value of $0.014 < 0.05$, so that H_0 is rejected and H_{1a} is accepted (see [Table 7](#)). This shows that the higher the efficiency increases, the e-satisfaction of OVO e-wallet users, so that the ease of finding balances on the application, the ease of the application business partner payment menu, the ease of accessing merchant promos on the application, and the ease of understanding the status of application transaction history can increase the e-satisfaction of OVO e-wallet users. In addition, from the perspective of Expectation Confirmation Theory, this condition indicates that when system performance is perceived as efficient and in accordance with user expectations, satisfaction will increase. This finding aligns with [Zulfansyah et al., \(2024\)](#), who found that efficiency positively affects e-satisfaction.

Fulfillment has a positive effect on e-satisfaction, with a coefficient of 0.479 and a p-value of $0.000 < 0.05$, so that H_0 is rejected and H_{1b} is accepted. This shows that the higher the fulfillment increases e-satisfaction so that the accuracy of the nominal payment with the bill in the application, the timeliness of the transaction process with the estimate promised by the application, the accuracy of the application cashback service with the number of points promised and the accuracy of the nominal refund from the merchant to the user, it can increase the e-satisfaction of OVO e-wallet users. These findings confirm that the match between user expectations and service performance increases e-satisfaction. This finding aligns with research by [Ardiyanti & Putra., \(2023\)](#), which found that

Table 3. Cross Loading Values

Questionnaire Item	Efficiency	Fulfillment	System Availability	Privacy	E-Satisfaction	E-Loyalty
EF1	0.876	0.748	0.667	0.688	0.732	0.638
EF2	0.771	0.653	0.654	0.635	0.565	0.601
EF3	0.783	0.732	0.638	0.69	0.627	0.574
EF4	0.806	0.711	0.64	0.626	0.727	0.596
FF1	0.693	0.819	0.695	0.669	0.742	0.568
FF2	0.712	0.796	0.619	0.608	0.671	0.524
FF3	0.777	0.812	0.627	0.728	0.671	0.662
FF4	0.647	0.799	0.544	0.593	0.670	0.502
SA1	0.627	0.625	0.833	0.684	0.602	0.553
SA2	0.719	0.693	0.827	0.72	0.655	0.584
SA3	0.687	0.645	0.882	0.723	0.664	0.594
PY1	0.621	0.618	0.699	0.815	0.609	0.497
PY2	0.685	0.691	0.688	0.827	0.674	0.686
PY3	0.69	0.672	0.675	0.817	0.649	0.58
ES1	0.613	0.663	0.625	0.633	0.744	0.418
ES2	0.702	0.657	0.669	0.686	0.769	0.638
ES3	0.588	0.63	0.512	0.525	0.772	0.533
ES4	0.663	0.72	0.56	0.615	0.841	0.639
EL1	0.661	0.619	0.586	0.591	0.601	0.844
EL2	0.603	0.567	0.531	0.615	0.604	0.813
EL3	0.62	0.593	0.609	0.629	0.62	0.876

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

Table 4. AVE Values and Square Root of AVE

Variable	AVE	Square Root AVE
Efficiency	0.656	0.810
Fulfillment	0.651	0.807
System Availability	0.718	0.847
Privacy	0.672	0.820
E-Satisfaction	0.612	0.782
E-Loyalty	0.714	0.845

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

Table 5. R-Square

Dependen Variable	R-Square	R-Square Adjusted
E-Satisfaction	0.769	0.764
E-Loyalty	0.612	0.601

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

fulfilment positively affects e-satisfaction.

System availability does not have a positive effect on e-satisfaction, with a coefficient value of 0.096 and a p-value of $0.155 > 0.05$, so that H_0 is accepted and H_{1c} is rejected. This shows that higher system availability does not increase e-satisfaction among OVO e-wallet users, indicating that system availability is perceived as a basic standard that digital service providers must meet, and that, as long as the system is accessible and functioning normally, this aspect does not directly increase user satisfaction. This finding is inconsistent with Fahira et al., (2022) who found that system availability positively affects e-satisfaction. However, this research aligns with Ginting et al., (2022), who found that system availability has no positive effect on e-satisfaction.

Privacy does not have a positive effect on e-satisfaction, with a coefficient of 0.165 and a p-value of $0.060 > 0.05$, so that H_0 is accepted and H_{1d} is rejected. This shows that higher privacy does not increase e-satisfaction among OVO e-wallet users, indicating that protecting personal data is considered a minimum requirement for digital services, but it does not guarantee e-satisfaction among OVO e-wallet users. These findings are not consistent with Risanty et al., (2025) research which found that privacy has a positive effect on e-satisfaction. However, this finding is in line with the research

of Paramita et al., (2025), which found that privacy does not have a positive effect on e-satisfaction.

Efficiency has a positive effect on e-loyalty, with a coefficient value of 0.336 and a p-value of $0.028 < 0.05$, so that H_0 is rejected and H_{2a} is accepted, indicating that higher efficiency increases e-loyalty among OVO e-wallet users. The ease of finding balance information on the application, the ease of finding the application's business partner payment menu, the ease of accessing merchant promo information on the application, and the ease of understanding the application's transaction history status encourage users to remain loyal to the OVO e-wallet. This shows that an easy-to-use application can reduce costs and psychological barriers. High efficiency not only increases satisfaction but also encourages long-term user loyalty. This finding is in line with the research of Pratamal et al., (2022), which found that efficiency has a positive effect on e-loyalty.

Fulfillment does not have a positive effect on e-loyalty, with a coefficient value of -0.045 and a p-value of $0.372 > 0.05$, so that H_0 is accepted and H_{2b} is rejected. This indicates that service fulfillment is not strong enough to shape loyalty directly. In the context of intense digital wallet competition, fulfillment plays a greater role in short-term satisfaction. Still, it does not necessarily encourage long-term commitment without the support of other factors, such as trust, promotion, or added value. This finding is not in line with Abdillah., (2024) research, which found that fulfillment has a positive effect on e-loyalty. However, this research aligns with Arizal et al., (2025), who found that fulfillment does not positively affect e-loyalty.

System availability does not have a positive effect on e-loyalty, with a coefficient value of 0.050 and a p-value of $0.356 > 0.05$, so H_0 is accepted, and H_{2c} is rejected. Suggesting that higher system availability does not increase e-loyalty among OVO e-wallet users. This suggests that user loyalty is not solely determined by system stability, but rather by the overall user experience and perceived long-term value. This finding is not in line with the research of Putri et al., (2024), which found that system availability has a positive effect on e-loyalty. However, this research aligns with that of Razati et al., (2020), which found that system availability does not positively affect e-loyalty.

Privacy has a positive Influence on e-loyalty, with a

Table 6. F-Square

	E-Loyalty	E-Satisfaction	Efficiency	Fulfillment	System Availability	Privacy
E-Loyalty						
E-Satisfaction	0.036					
Efficiency	0.052	0.029				
Fulfillment	0.001	0.200				
System Availability	0.002	0.010				
Privacy	0.036	0.027				

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

Table 7. Results of Statistical Hypothesis Testing

Relationships Between Variables	Original sampel (O)	Sample Mean (M)	Std. Deviation	T-Statistics	P-Values	Description
Efficiency → E-Satisfaction	0.191	0.195	0.086	2.217	0.014	Supported
Fulfillment → E-Satisfaction	0.479	0.468	0.081	5.903	0.000	Supported
System Availability → E-Satisfaction	0.096	0.092	0.094	1.017	0.155	Not Supported
Privacy → E-Satisfaction	0.165	0.176	0.106	1.562	0.060	Not Supported
Efficiency → E-Loyalty	0.336	0.320	0.175	1.919	0.028	Supported
Fulfillment → E-Loyalty	-0.045	-0.020	0.139	0.328	0.372	Not Supported
System Availability → E-Loyalty	0.050	0.067	0.136	0.369	0.356	Not Supported
Privacy → E-Loyalty	0.251	0.250	0.096	2.631	0.005	Supported
E-Satisfaction → E-Loyalty	0.247	0.219	0.132	1.867	0.032	Supported
Efficiency → E-Satisfaction → E-Loyalty	0.047	0.045	0.038	1.254	0.106	Not Supported
Fulfillment → E-Satisfaction → E-Loyalty	0.118	0.101	0.064	1.854	0.033	Supported
System Availability → E-Satisfaction → E-Loyalty	0.024	0.018	0.028	0.853	0.197	Not Supported
Privacy → E-Satisfaction → E-Loyalty	0.041	0.039	0.038	1.090	0.139	Not Supported

Source: SEM-PLS version 3.0 output (Primary Data, 2026)

coefficient value of 0.251 and a p-value of $0.005 < 0.05$, so that H_0 is rejected and H_{2d} is accepted. Suggesting that greater privacy increases e-loyalty among OVO e-wallet users. Thus, the application's ability to protect users' personal data effectively, to reject or prevent unauthorised access, and to provide users with a sense of security when submitting personal information can increase loyalty among OVO e-wallet users. In the context of digital financial services, loyalty is more influenced by a sense of security and trust than by momentary satisfaction. The results of this study indicate that privacy positively affects e-loyalty. This finding is in line with the research of Putri et al., (2024), which found privacy has a positive effect on e-loyalty,

E-satisfaction has a positive influence on e-loyalty with a coefficient value of 0.247 and a p-value of $0.032 < 0.05$ so that H_0 is rejected and H_3 is accepted. This, in turn, can increase users' willingness to tell others about the app, to continue using it in daily transactions, and to recommend it to others. This finding is in line with the research of Firmansyah & Amrizal., (2024), Khan et al., (2023) and Situmorang & Herawati., (2024), state that e-satisfaction has a positive effect on e-loyalty.

E-satisfaction does not mediate the effect of efficiency on e-loyalty, with a coefficient of 0.047 and a p-value of $0.106 > 0.05$, so that H_0 is accepted and H_{4a} is rejected. Indicating that OVO user loyalty is largely shaped by directly perceived efficiency experiences, such as ease of use and transaction speed, rather than satisfaction evaluations. This finding is not in line with the research of Ardiyanti & Putra., (2023), Sheu & Chang., (2022), and Jannah & Herawati., (2025), which found that e-atisfaction mediates the effect of efficiency on e-loyalty. However, this research aligns with Ginting et al., (2022), who

found that e-satisfaction does not mediate the effect of efficiency on e-loyalty.

E-satisfaction mediates the effect of fulfillment on e-loyalty, with a coefficient of 0.118 and a p-value of $0.033 < 0.05$, so that H_0 is rejected and H_{4b} is accepted. Indicating that the accuracy of payments with bills on the application, the accuracy of transaction processing times with the estimates promised by the application, the accuracy of the application's cashback service with the promised number of points, and the accuracy of refunds from merchants to users do not directly increase e-loyalty but first increase e-satisfaction. From the perspective of Expectation Confirmation Theory, when service performance meets or exceeds expectations, users will feel satisfaction, which then develops into loyalty. Thus, e-satisfaction acts as a bridge between fulfillment and e-loyalty. This finding is in line with the research of Ardiyanti & Putra., (2023), Sheu & Chang., (2022), and Jannah & Herawati., (2025), who found that e-satisfaction mediate the effect of fulfillment on e-loyalty.

E-satisfaction does not mediate the effect of system availability on e-loyalty, with a coefficient value of 0.024 and a p-value of $0.197 > 0.05$, so that H_0 is accepted and H_{4c} is rejected. Suggesting that system stability and service availability are insufficient to increase user satisfaction and loyalty. System availability is perceived as a minimum standard that digital wallet service providers must meet, so its existence does not add value to satisfaction evaluation and therefore has no indirect effect through e-satisfaction. This reinforces the view that system availability serves as an operational support factor rather than a major driver of satisfaction-based loyalty. This finding is not consistent with those of Ardiyanti & Putra., (2023), Sheu & Chang., (2022), and Jannah & Herawati., (2025), who found that e-satisfaction mediates the effect of

system availability on e-loyalty. However, this finding is in line with those of [Maesaroh & Nurtjahjadi., \(2024\)](#), who found that e-satisfaction does not mediate the effect of system availability on e-loyalty.

E-satisfaction does not mediate the effect of privacy on e-loyalty, with a coefficient of 0.041 and a p-value of 0.139 > 0.05, so that H0 is accepted and H4d is rejected. Indicating that privacy plays a greater role in building long-term trust than momentary satisfaction. In the context of digital financial services, a sense of security regarding personal data directly encourages commitment and loyalty without requiring a service satisfaction evaluation. Thus, the relationship between privacy and e-loyalty is direct, not mediated by satisfaction. This finding is not in line with the findings of [Ardiyanti & Putra., \(2023\)](#), [Sheu & Chang., \(2022\)](#), and [Jannah & Herawati., \(2025\)](#), who found that e-satisfaction mediates the effect of privacy on e-loyalty. However, this finding aligns with [Maesaroh & Nurtjahjadi., \(2024\)](#), which found that e-satisfaction does not mediate the effect of privacy on e-loyalty.

Conclusion

This study found that efficiency and fulfillment are the main factors influencing e-satisfaction. In addition, fulfillment has the strongest influence on e-satisfaction. Theoretically, these results are in line with expectation confirmation theory (ECT), which states that satisfaction arises when service performance meets or confirms users' initial expectations. Conversely, system availability and privacy do not positively affect e-satisfaction. Efficiency, privacy, and e-satisfaction positively affect e-loyalty. However, fulfillment and system availability do not positively affect e-loyalty. In testing the mediating role, e-satisfaction was found to mediate the effect of fulfillment on e-loyalty, but did not mediate the effects of efficiency, system availability, and privacy on e-loyalty. These findings indicate that service fulfillment affects loyalty by first increasing satisfaction, while efficiency and privacy affect loyalty directly. Thus, e-satisfaction does not mediate all variables but can play a role depending on the characteristics of the e-service quality dimension.

Most previous studies grounded in Expectation Confirmation Theory (ECT) has examined the relationship between e-service quality dimensions and e-loyalty using e-satisfaction as a mediating variable. The uniqueness of this study lies in its contextual focus on Generation Z users of the OVO e-wallet in Bandung City, a segment characterized by high levels of digital adoption and intense competition within the fintech industry. In addition, the model's novelty in this Research is reflected in the systematic examination of both direct and indirect paths between e-service quality dimensions and e-loyalty, yielding a selective mediation pattern. The findings demonstrate that e-satisfaction mediates only the effect of fulfillment on e-loyalty, while efficiency and privacy directly influence e-loyalty without passing through satisfaction mechanisms. Notably, the result that privacy directly shapes loyalty without mediation provides new insight into the role of trust and data security in fostering fintech service loyalty. It enriches the application of ECT by showing that not all service quality dimensions follow the same cognitive, affective, behavioral pathway.

The convenience sampling method used to choose the sample cannot be generalized to the population. Therefore, future researchers are advised to use probability sampling techniques to ensure more representative data. In addition to methodological limitations, this study only examined four

dimensions of e-service quality. Therefore, future studies may consider other variables, such as perceived value and user experience, supported by research ([Kalim et al., \(2024\)](#)) that may influence the variables of e-satisfaction and e-loyalty.

OVO e-wallet management needs to understand the factors that can increase e-loyalty, given that the purpose of this study is to analyse the effect of efficiency, fulfillment, system availability, and privacy on e-loyalty, mediated by e-satisfaction, to address the decline in the OVO e-wallet application rating. Based on the researcher's descriptive analysis, several suggestions are offered. First, efficiency has a high average value, indicating that the OVO e-wallet is considered easy to use and saves users time. However, there is still room for improvement in access speed and in simplifying the transaction flow to optimise the user experience. Continuous improvement in efficiency is important to maintain the alignment between application performance and user expectations, as explained in ECT. Second, fulfillment shows a slightly lower average value compared to other variables, indicating that the fulfillment of service promises, such as the accuracy of payment amounts, transaction processing time, app cashback services, and the accuracy of merchant refund amounts, still needs to be improved. Therefore, OVO e-wallet is advised to strengthen service consistency and information accuracy to improve user satisfaction. Third, system availability received a relatively high average score, indicating that the system is considered quite stable and rarely experiences disruptions. However, increasing system capacity and preventing downtime remain necessary, especially during periods of high application usage, to ensure service continuity and prevent a decline in user satisfaction. Fourth, privacy has a high average score, indicating that users feel their personal data is well-protected. To reinforce this perception, OVO e-wallet is advised to continue improving the transparency of its privacy policy, data security system, and user education regarding personal information management, as privacy plays an important role in building user e-loyalty.

Furthermore, e-satisfaction as a mediating variable also shows a high average value, reflecting that the overall quality of service has been able to meet user expectations. E-satisfaction needs to be maintained by improving all dimensions of e-service quality, especially those with low average scores. Finally, e-loyalty shows a high average score, reflecting users' tendency to continue using and recommending the service. To strengthen e-loyalty, OVO e-wallet should focus not only on the functional aspects of the application but also on building long-term relationships through a high-quality, consistent user experience.

Author Contributions

Silvia Lemvika contributed to the formulation of the research concept, research design, data collection, data analysis using PLS-SEM, and manuscript writing. Siti Herawati contributed to the development of the theoretical framework, research supervision, critical review of the manuscript, and refinement of the discussion and conclusion sections. All authors have read and approved the final manuscript.

Acknowledgements

The author would like to thank all respondents who participated in this study, as well as the Management Study Program, Faculty of Economics and Business, Jenderal Achmad Yani University, for their academic support and facilities, which enabled this study to be completed

successfully.

References

- Abdillah, W., & Jogiyanto. (2015). *Partial Least Square (PLS) : Alternatif Structural Equation Modeling (SEM) dalam Penelitian Bisnis / Willy Abdillah & Jogiyanto* (1st ed.). Penerbit Andi.
- Akinci, S., Atilgan-Inan, E., & Aksoy, S. (2010). Re-assessment of E-S-Qual and E-RecS-Qual in a pure service setting. *Journal of Business Research*, 63(3), 232–240. <https://doi.org/10.1016/j.jbusres.2009.02.018>
- Al-Ayed, S. (2022). The impact of e-commerce drivers on e-customer loyalty: Evidence from KSA. *International Journal of Data and Network Science*, 6(1), 73–80. <https://doi.org/10.5267/j.ijdns.2021.10.002>
- Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. *Psychology & Marketing*, 20(2), 123–138. <https://doi.org/10.1002/mar.10063>
- Angga, & Santosa, A. (2025). *BIMA: Journal of Business Inflation Management and Accounting*, 2, 509–523. <https://doi.org/https://doi.org/10.57235/bima.v2i2.6295>
- Ardiyanti, D., & Putra, H. T. (2023). The Influence of E-service Quality Dimensions on E-loyalty with E-Satisfaction as an Intervening Variable (Study of E-commerce Users in Bandung City). *Asian Journal of Economics, Business and Accounting*, 23(24), 190–206. <https://doi.org/10.9734/ajeaba/2023/v23i241197>
- Arizal, N., Dali, M., Shah, N. R., Hamid, A., Hanifah, & Onasis, D. (2025). The Mediating Impacts of e-Trust Between e-Service Quality Dimensions and e-Loyalty in E-Commerce Industry. *Malaysian Journal of Consumer and Family Economics*, 34(1), 98–135. <https://doi.org/10.60016/majcafe.v34.04>
- Aslam, W., Hussain, A., Farhat, K., & Arif, I. (2020). Underlying Factors Influencing Consumers' Trust and Loyalty in E-commerce. *Business Perspectives and Research*, 8(2), 186–204. <https://doi.org/10.1177/2278533719887451>
- Atmojo, J. J. T., & Widodo, T. (2022). Pengaruh E-Service Quality terhadap E-Customer Loyalty melalui E-Customer Satisfaction sebagai Variabel Intervening Pada Aplikasi Tiket.com. *Jurnal Manajemen*, 13(1), 133. <https://doi.org/10.32832/jm-uiika.v13i1.5092>
- Cempaka Paramita, Paramita, S. G. K., & Indraningrat, K. (2025). Increasing Grab Customer Satisfaction Through E-Servqual: Efficiency, System Availability, Fulfillment, And Privacy. *Interdisciplinary Explorations in Research Journal*, 3(2), 390–408. <https://doi.org/10.62976/ierj.v3i2.1120>
- Chin, W. W. (1998). *Pendekatan kuadrat terkecil parsial untuk pemodelan persamaan struktural* (G. A. Marcoulides, Ed.). Lawrence Erlbaum Associates.
- Diva, M., & Anshori, I. (2024). *Penggunaan E-Wallet Sebagai Inovasi Transaksi Digital: Literatur Review*. 2(6). <https://journal.institiercom-edu.org/index.php/multiple>
- Effendi, S., & Tukiran. (2012). *Metode Penelitian Survei* (Effendi, Ed.; 1st ed.). LP3ES.
- Fahira, A., Rahma, T. I. F., & Syahriza, R. (2022). Pengaruh E-Service Quality Terhadap E-Satisfaction Nasabah Bank Sumut Syariah. *Dinamika Ekonomi - Jurnal Ekonomi Dan Bisnis*, 15(1), 247–264. <https://doi.org/10.53651/jdeb.v15i1.358>
- Firmansyah, A., & Amrizal, A. (2024). Mengukur Peran Mediasi E-Satisfaction dalam hubungan antara E-Trust dan E-Service Quality terhadap E-Loyalty (Studi Kasus pada Nasabah Pengguna E-Banking Perbankan Syariah di DKI Jakarta. *Ekonomis: Journal of Economics and Business*, 8(2), 1126. <https://doi.org/10.33087/ekonomis.v8i2.1583>
- Ghozali, I. (2015). *Partial Least Squares: Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS 3.0, -2/E. (II)*. Badan Penerbit Universitas Diponegoro.
- Ginting, B. D. Y., Suyanto, A., & Febrianta, M. Y. (2022). Analysis Of The Effect Of E-Service Quality On E-Customer Satisfaction And E-Customer Loyalty On Shopee. *Asian Journal of Research in Business and Management*. <https://doi.org/10.55057/ajrbm.2022.4.3.35>
- Haines, G. H., Howard, J. A., & Sheth, J. N. (1970). The Theory of Buyer Behavior. *Journal of the American Statistical Association*, 65(331), 1406. <https://doi.org/10.2307/2284311>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-80519-7>
- Haryanto, A. T. (2025, March 10). *Jumlah Pengguna Internet Indonesia Tembus 212 Juta di 2025*. detiknet. <https://inet.detik.com/cyberlife/d-7816040/jumlah-pengguna-internet-indonesia-tembus-212-juta-di-2025>
- Hasyim, A., Zaid, S., Yusuf, H., & Nur, N. (2025). Number 2 www.journal-administration. In *Journal of Research Administration* (Vol. 8). www.journal-administration.com
- Jannah, A. M., & Herawati, S. (2025). The Influence Of E-Service Quality Dimensions On E-Loyalty Of Brimo Users Mediated By E-Satisfaction In Pt. Bri Customers Pengaruh Dimensi E-Service Quality Terhadap E-Loyalty Pengguna Brimo Yang Dimediasi Oleh E-Satisfaction Pada Nasabah Pt. Bri. 8. <https://doi.org/https://doi.org/10.31539/y74f7p13>
- Kalim, M. N., Prasetyo, W. B., Ramli, A. H., & Mariam, S. (2024). Perceived Value, E-Trust, E-Satisfaction, and E-Loyalty on Online Trip Clients in Jakarta. In *Majalah Ilmiah Bijak* (Vol. 21, Number 1). <https://doi.org/https://doi.org/10.31334/bijak.v21i1.3673>
- Khan, F. N., Arshad, M. U., & Munir, M. (2023). Impact of e-service quality on e-loyalty of online banking customers in Pakistan during the Covid-19 pandemic: mediating role of e-satisfaction. *Future Business Journal*, 9(1), 23. <https://doi.org/10.1186/s43093-023-00201-8>
- Kusuma, H., & Asmoro, W. K. (2020). Perkembangan Financial Technology (Fintech) Berdasarkan Perspektif Ekonomi Islam. *Istithmar : Jurnal Studi Ekonomi Syariah*, 4(2). <https://doi.org/10.30762/istithmar.v4i2.14>
- Maesaroh, A., & Nurtjahjadi, E. (2024). The Influence Of E-Service Quality On Customer Loyalty Mediated By Customer Satisfaction Livin By Mandiri In Bandung City Pengaruh E-Service Quality Terhadap Customer Loyalty Yang Dimediasi Oleh Customer Satisfaction Livin By Mandiri Di Kota Bandung. <https://doi.org/https://doi.org/10.31539/costing.v7i6.11899>
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460. <https://doi.org/10.2307/3150499>
- Oliver, R. L. (1999). *Whence Consumer Loyalty?* <https://doi.org/https://doi.org/10.2307/1252099>
- Pamungkas, A. B., & Prasetyo, B. (2025). Implementation of the Combination Model of Expectation Confirmation Theory and WebQual 4.0 in CRM Analysis of Post-Pandemic ShopeeFood Customer Loyalty ARTICLE HISTORY. *Journal of Advances in Information Systems and Technology*, 7(1). <https://doi.org/https://doi.org/10.15294/jaist.v7i1.17946>
- Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL a multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213–233. <https://doi.org/10.1177/1094670504271156>
- Pitriani, H. (2022). *Pengaruh Fitur Live Shopping Terhadap Loyalitas Pengguna E-commerce di Indonesia dengan Menggunakan Model Expectation Confirmation Theory (ECT) dan Theory Reasoned (TRA)*. <https://repository.uinjkt.ac.id/dspace/bitstream/123456789/77083/1/HARMILA%20PITRIANI-FST.pdf>
- Pratamal, R. P., Prasetyo, K. W., & Aditya, A. (2022). Analyzing e-Service Quality and e-Satisfaction Effects on Customer Loyalty at An Indonesian Digital Marketplace. *Journal of Informatics and Telecommunication Engineering*, 6(1), 126–134. <https://doi.org/10.31289/jite.v6i1.7265>
- Putri, R. M., Zulkarnain, Z., & Samsir, S. (2024). Pengaruh E-Trust dan E-Service Quality terhadap E-Satisfaction dan E-Loyalty Konsumen Gen Z pada E-Commerce Tokopedia. *Jurnal Manajemen Dayasaing*, 26(1), 21–41. <https://doi.org/10.23917/dayasaing.v26i1.4807>
- Razati, G., Rahayu, A., & Agustina. (2020). *Pengaruh E-Service Quality terhadap E-Loyalty pada Pengguna Aplikasi Bilibili.com* (Vol. 20, Number 2). <https://doi.org/https://doi.org/10.17509/strategic.v20i2.28641>
- Respati, A. R., & Pratama, A. M. (2022, November 28). *Survei InsightAsia: 71 Persen Masyarakat Gunakan Dompot Digital, GoPay di Posisi Pertama*. Kompas.Com. <https://money.kompas.com/read/2022/11/28/164000226/survei-insightasia-71-persen-masyarakat-gunakan-dompot-digital-gopay-di-posisi>
- Risanty, N., Yunita, D., & Rosa, A. (2025). Pengaruh E-Service Quality Terhadap E-Satisfaction Pengguna Aplikasi Gojek di Palembang. *Jurnal Media Wahana Ekonomika*, 22(3), 709–725. <https://doi.org/10.31851/jmwe.v22i3.19962>
- Roscoe, J. T. (1975). *Fundamental research statistics for the behavioral sciences* (2nd ed., Vol. 2). Holt, Rinehart and Winston.
- Sekar, A. L., Zahrani, A., & Duha, N. A. (2023). Karakteristik Generasi Z dan Kesiapannya dalam Menghadapi Bonus Demografi 2030. *Accounting Student Research Journal*, 2(1), 59–72. <https://doi.org/10.62108/asrj.v2i1.5812>
- Sekaran, U., & Bougie, R. (2017). *Metode Penelitian untuk Bisnis: Pendekatan Pengembangan Keahlian* (6th ed., Vol. 1). Salemba Empat.
- Sheu, P.-L., & Chang, S.-C. (2022). Relationship of service quality dimensions, customer satisfaction and loyalty in e-commerce: a case study of the Shopee App. *Applied Economics*, 54(40), 4597–4607. <https://doi.org/10.1080/00036846.2021.1980198>
- Situmorang, S. T., & Herawati, S. (2024). Pengaruh E-Service Quality dan E-Trust terhadap E-Loyalty yang Dimediasi oleh E-Satisfaction pada Pengguna Aplikasi Grabbike di Kota Cimahi. *Jurnal Intelektualita: Keislaman, Sosial Dan Sains*, 13(1), 98–109. <https://doi.org/10.19109/intelektualita.v13i1.21481>
- Sugiyono. (2022). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*. CV. Alfabeta .
- Widyaningrum, C. (2024). *Pengaruh E-Service Quality Terhadap E-Loyalty Pada E-Wallet Dana Dengan E-Trust dan E-Satisfaction*. [https://eprints.umm.ac.id/id/eprint/15304/1/Tesis_CholidahAW%20\(2022-012\)%20Perpus.pdf?utm_source=chatgpt.com](https://eprints.umm.ac.id/id/eprint/15304/1/Tesis_CholidahAW%20(2022-012)%20Perpus.pdf?utm_source=chatgpt.com)
- Yahya Abdillah, M. (2024). *Pengaruh E-Service Quality dan E-Trust Terhadap E-Satisfaction Serta Dampaknya E-Loyalty Pengguna E-Wallet Ovo di Kota Bandung* (Vol. 22, Number 3). <https://doi.org/https://doi.org/10.29062/mahardika.v22i3.934>
- Zehir, C., Sehitoğlu, Y., Narcikara, E., & Zehir, S. (2014). E-S-Quality, Perceived Value and Loyalty Intentions Relationships in Internet Retailers. *Procedia - Social and Behavioral Sciences*, 150, 1071–1079. <https://doi.org/10.1016/j.sbspro.2014.09.120>
- Zulfansyah, M., Isnö, M., & Mulyono, A. A. (2024). Analisis E-Service Quality Aplikasi DANA dalam Memenuhi Customer Satisfaction dengan Menggunakan Dimensi E-Servqual. *E-Bisnis : Jurnal Ilmiah Ekonomi Dan Bisnis*, 17(2), 199–214. <https://doi.org/10.51903/e-bisnis.v17i2.2067>