



Analysis of E-Service Quality and E-Trust on E-Satisfaction of PLN Mobile App Users With Digital Marketing as a Mediating Variable (Case Study at PT. PLN UP3 Pematang Siantar)

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ABSTRACT

This study analyzes the influence of e-service quality and e-trust on the e-satisfaction of PLN Mobile app users, with digital marketing as a mediating variable at PT. PLN UP3 Pematang Siantar. This is a quantitative study using a survey approach, involving 220 respondents and analyzed using Partial Least Squares with SmartPLS. The results indicate that e-service quality and e-trust have a positive and significant effect on e-satisfaction. Both variables also have a positive and significant effect on digital marketing, which subsequently mediates their influence on user satisfaction. The R-square value for e-satisfaction of 0.589 indicates that 58.9% of the variation in user satisfaction is explained by e-service quality, e-trust, and digital marketing. These findings confirm that user satisfaction with the PLN Mobile app is influenced by service quality, user trust, and the effectiveness of digital marketing. This study also highlights the importance of interactive and educational digital communication strategies to enhance user understanding and engagement. The research findings are expected to provide practical insights for PLN to design feature improvements, build customer loyalty, and optimize digital service transformation.

INTRODUCTION

In the context of digital services, e-satisfaction is a key indicator of an application's success in meeting user needs and expectations. E-satisfaction refers to users' evaluations after interacting with a digital service, encompassing the user experience, perceived benefits, transaction convenience, and the service's alignment with initial expectations. In the PLN Mobile app, e-satisfaction is particularly crucial because the success of PLN's digital transformation cannot be measured solely by the number of downloads but also by the extent to which customers genuinely feel satisfied using the app. Corporate-wide, PLN states that by July 2025,

the PLN Mobile app had reached 58 million downloads and 76 million registered customer IDs, while the number of PLN customers at the end of 2024 stood at 92,877,292. This data indicates that app adoption continues to rise, but the quality of the user experience remains the determining factor in whether this digital transformation is truly effective. Findings by Luthfiani, Yuhefizar, and Sudiman (2024), Lulu, Sutrisna, and Patimah (2024), as well as Sarwindah, Mariska, and Marini (2025) also indicate that user satisfaction with PLN Mobile remains a central issue closely linked to the quality of electronic services and user trust in the app.

To obtain an initial overview of the empirical conditions of the study, a preliminary pre-survey was conducted on 20 users of the PLN Mobile app within the operational area of PT. PLN UP3 Pematang Siantar. This pre-survey aimed to examine respondents' perceptions regarding the variables of e-satisfaction, digital marketing, e-service quality, and e-trust. The pre-survey results for the e-satisfaction variable are presented as follows.

Table 1. Pre-Survey of the E-Satisfaction Variable

No	Statement	Agree	Disagree	Total
1	I am satisfied with the PLN Mobile app	11	9	20
2	PLN Mobile helps me meet my electricity service needs well	12	8	20
3	My overall experience using PLN Mobile has been satisfactory	10	10	20
4	I am willing to continue using PLN Mobile because I am satisfied	9	11	20

Source: Pre-survey results, 2026

Based on Table 1, the level of e-satisfaction among PLN Mobile app users is not yet fully established. Although some respondents stated they were satisfied and felt assisted in meeting their electricity service needs, there are still 8 to 11 respondents who have not fully experienced satisfaction. Even regarding the indicator of willingness to continue using the app due to satisfaction, the number of respondents who disagreed was greater than those who agreed. These initial findings indicate that the e-satisfaction of PLN Mobile users at PT. PLN UP3 Pematang Siantar still requires further in-depth analysis. This situation aligns with the findings of Rahmat, Pebrianggara, Yulianto, and Almanfaluti (2025), who analyzed 400 PLN Mobile reviews on Google Play and found a distribution of 284 positive reviews and 116 negative reviews; thus, although positive sentiment is dominant, there remains a significant proportion of dissatisfaction among users.

The variable hypothesized to act as a mediator in the formation of e-satisfaction in this study is digital marketing. Digital marketing is not merely understood as promotional activities but also as a process of communicating service value, conveying information about features, educating users on app usage, and strengthening customer engagement through digital channels. In the context of PLN Mobile, digital marketing is relevant because customers become aware of, understand, and are motivated to use the app not only through direct experience but also through exposure to information via social media, official digital channels, and digital self-service activities. Putri and Kusuma (2025) demonstrate that the use of PLN Mobile in the Balongdowo Thematic Village program is part of the digital marketing implementation by PLN UP3 Sidoarjo to enhance public understanding of PLN's digital services. Meanwhile, Iryantini and Tjahjaningsih (2025) found that digital self-service and social media promotion have a positive and significant effect on customer satisfaction, although they do not have a significant direct effect on loyalty. These findings indicate that digital marketing holds a strategic position as a mechanism that strengthens users' perceptions of digital services before ultimately shaping satisfaction.

Table 2. Pre-Survey of Digital Marketing Variables

No	Statement	Agree	Disagree	Total
1	Promotional information or features of PLN Mobile are easy to find on digital media	12	8	20
2	PLN's digital content about PLN Mobile caught my attention	9	11	20
3	PLN's social media or digital channels helped me understand the benefits of PLN Mobile	10	10	20
4	PLN's digital promotions encourage me to use PLN Mobile more often	8	12	20

Source: Pre-survey results, 2026

Based on Table 2, the digital marketing aspect has not yet shown fully robust results. Although some respondents assessed that promotional information and PLN Mobile features are fairly easy to find, there are still 10 to 12 respondents who stated that PLN's digital content is not yet sufficiently engaging, does not fully help them understand the app's benefits, and does not sufficiently encourage them to use PLN Mobile more frequently. The findings indicate that the digital communication efforts undertaken are not yet fully effective. Within the framework of this study, this condition is significant because weak digital marketing can undermine users' understanding of the app's benefits, meaning that even a genuinely positive user experience may not necessarily result in high levels of satisfaction. This is consistent with the findings of Iryantini and Tjahjaningsih (2025), who identified satisfaction as a key outcome of digital self-service activities and social media promotions.

The first independent variable in this study is e-service quality. In app-based services, e-service quality refers to the system's ability to provide services that are fast, clear, responsive, easy to understand, and run smoothly during use. In the PLN Mobile app, e-service quality is crucial because nearly all customer service processes—from transactions and complaints to information searches—are conducted digitally. Luthfiani et al. (2024) found that e-service quality significantly influences customer satisfaction among PLN Mobile users in Padang Panjang City. Lulu et al. (2024) also demonstrated that e-service quality has a positive and significant effect on customer satisfaction among PLN Mobile users at the Rajapolah ULP. Consistent findings were also reported by Sarwindah et al. (2025) among PLN Mobile users at the Pangkalpinang ULP, where e-service quality and e-trust together explained variations in user e-satisfaction. These findings collectively confirm that the higher the perceived quality of electronic services, the greater the likelihood of user satisfaction.

Table 3. Pre-Survey of E-Service Quality Variables

No	Statement	Agree	Disagree	Total
1	The PLN Mobile app provides fast service when used	12	8	20
2	The service information on the PLN Mobile app is easy to understand	13	7	20
3	The features in the PLN Mobile app work well when used	11	9	20
4	Complaints or service requests submitted through the app are handled well	10	10	20

Source: Pre-survey results, 2026

Based on Table 3, respondents' perceptions of e-service quality are not yet fully optimal. Although some respondents rated the app as fairly fast, informative, and featuring usable functions, there are still 8 to 10 respondents who believe that the digital services within the app

are not yet fully stable and that service handling is not always satisfactory. These findings indicate that the quality of PLN Mobile's electronic services still faces issues regarding service consistency. Empirically, this aligns with the research findings of Luthfiani et al. (2024), Lulu et al. (2024), and Sarwindah et al. (2025), all of whom emphasize that the quality of electronic services is a key determinant in shaping user satisfaction with PLN Mobile.

The second independent variable is e-trust. In the context of digital services, e-trust describes users' confidence that the application can be used safely, reliably, and is capable of protecting their data and transactions. Electronic trust is crucial because in digital applications, users do not interact directly with staff but rely entirely on the system. Consequently, users with high levels of trust in the application are more likely to feel comfortable, confident, and satisfied with the services they receive. Luthfiani et al. (2024) demonstrate that e-trust significantly influences customer satisfaction among PLN Mobile users in Padang Panjang City. Lulu et al. (2024) also found a positive and significant effect of e-trust on customer satisfaction at the Rajapolah ULP. On the other hand, Siahaan, Jodhinata, and Ardyan (2025) demonstrate that customer trust acts as a mediator that strengthens the relationship between e-service quality and customer satisfaction among PLN Mobile users in the UP3 Depok area. These findings confirm that electronic trust functions not only as a direct factor but also as a psychological mechanism that reinforces the formation of user satisfaction.

Table 4. Pre-Survey of E-Trust Variables

No	Statement	Agree	Disagree	Total
1	I believe the PLN Mobile app is safe to use	11	9	20
2	I am confident that my personal data is protected when using PLN Mobile	10	10	20
3	I believe PLN Mobile is capable of providing services tailored to my needs	12	8	20
4	I feel comfortable making transactions through PLN Mobile	9	11	20

Source: Pre-survey results, 2026

Based on Table 4, users' level of e-trust in the PLN Mobile app also appears not yet fully established. There are still 9 to 11 respondents who express doubts regarding the app's security, protection of personal data, and convenience in conducting transactions. This finding indicates that users' electronic trust has not been established uniformly. In digital services, this situation is critical because users who do not fully trust the app's security and reliability will find it harder to develop strong satisfaction. These pre-survey results are consistent with the findings of Luthfiani et al. (2024), Lulu et al. (2024), and Siahaan et al. (2025), who identified trust as a key factor in explaining the level of customer satisfaction with the PLN Mobile app.

Overall, the pre-survey results indicate that user e-satisfaction with the PLN Mobile app at PT. PLN UP3 Pematang Siantar is not yet fully optimal. This situation is likely related to digital marketing that is not yet sufficiently effective, e-service quality that is not yet fully consistent, and e-trust that remains varied among users. On the other hand, previous research over the past five years has indeed highlighted the direct influence of e-service quality and e-trust on e-satisfaction or customer satisfaction among PLN Mobile users. However, based on the sources reviewed, no study has specifically positioned digital marketing as a mediating variable in the relationship between e-service quality and e-trust on e-satisfaction within the context of PT. PLN UP3 Pematang Siantar. Therefore, the study titled "Analysis of E-Service Quality and E-Trust on E-Satisfaction of PLN Mobile App Users with Digital Marketing as a Mediating Variable (Case Study

at PT. PLN UP3 Pematang Siantar)" is important to provide a more comprehensive empirical explanation of the factors influencing the satisfaction of PLN Mobile app users.

LITERATURE REVIEW

E-Satisfaction

According to Lesmana & Balqiah (2023), the PLN Mobile E-satisfaction study measures customer satisfaction with digital services (the PLN Mobile app) based on the experience of using electronic services and the quality of services received online.

E-Satisfaction Indicators

E-satisfaction indicators according to Lesmana & Balqiah (2023).

Expectation Alignment

This indicator describes the extent to which the app's performance meets users' expectations before using the service. In the context of PLN Mobile, users will be satisfied if available features, such as bill payment or checking electricity information, function as expected. The higher the level of alignment between expectations and the reality experienced, the higher the level of user satisfaction.

Overall Satisfaction

This indicator reflects users' general assessment after using the app. Overall satisfaction is a comprehensive evaluation of the user experience, not just a specific feature. If users feel that the services provided by PLN Mobile are high-quality and meet their needs, they will give a positive overall rating.

Enjoyable Experience

This indicator relates to feelings of comfort and enjoyment while using the app. A good experience is demonstrated through ease of use, an attractive interface, and minimal obstacles during the usage process. In this context, user experience (UX) is a key factor influencing satisfaction levels with digital services.

The Right Decision to Use the App

This indicator reflects users' confidence that choosing PLN Mobile was the right decision. When users feel that the app offers benefits, efficiency, and convenience compared to other alternatives, they will assess that their decision to use the app was correct, which ultimately increases satisfaction.

Intention to use again

This indicator shows users' tendency to use the app again in the future. Although often associated with loyalty, in this study the desire to use the app again remains part of a reflection of user satisfaction. Positive experiences will encourage users to continue using the PLN Mobile service consistently.

Digital Marketing

According to Chaffey (2022), digital marketing in the context of mobile app usage involves the use of digital technologies and channels to communicate value, promote services, and build and maintain relationships with users through mobile devices effectively and measurably. In the context of the PLN Mobile app, digital marketing encompasses strategies such as leveraging social media, search engines, digital advertising, email marketing, and online

partnerships to increase awareness, drive app usage, and strengthen user engagement with PLN's digital-based services.

Digital Marketing Indicators

According to Chaffey (2022), the use of digital mobile apps like PLN Mobile is measured by the following indicators:

Search Engine Marketing (SEM)

This indicator relates to how mobile apps can be found through search engines like Google. In the context of the PLN Mobile app, this includes the ease with which users can find information about the app, its services, and features through online searches. The easier the app is to find and access, the more effective the digital marketing strategy is.

Online Public Relations (Online PR)

This indicator describes how a company builds its image and reputation through digital media. In the context of mobile apps, Online PR can take the form of positive information about PLN Mobile on the official website, news portals, or other online media. A good image will increase user trust and interest in using the app.

Online Partnerships

This indicator reflects collaboration with other parties in the digital ecosystem, such as partnerships with payment platforms, e-commerce sites, or influencers. In the context of PLN Mobile, these partnerships can simplify transactions for users or expand the app's reach.

Interactive Advertising

This indicator relates to the use of interactive digital advertising, such as ads on social media, promotional videos, or digital banners. In mobile apps, engaging and interactive ads can increase user interest in downloading and using the PLN Mobile app.

Opt-in Email Marketing

This indicator refers to the use of email as a marketing communication tool for users who have given their consent. In the context of mobile apps, email can be used to provide information on electricity bills, promotions, or app feature updates, thereby maintaining a relationship with users.

Social Media Marketing

This indicator relates to the use of social media to promote the app and interact with users. In the context of PLN Mobile, social media is used to convey information and educational content, as well as to respond quickly to user complaints or questions.

E-Trust

According to Kim & Peterson (2021), E-Trust is users' confidence in a digital platform that the system and service provider will safeguard security and privacy and fulfill service commitments in online transactions.

E-Trust Indicators

E-Trust Indicators (Kim & Peterson, 2021) – PLN Mobile Context:

Perceived Security

This indicator describes users' confidence that the PLN Mobile app is capable of safeguarding personal data and transactions. Users will feel confident if the app system is protected from the risk of data leaks, misuse of information, or interference from third parties.

Reliability

This indicator shows the extent to which the app can function consistently without disruption. In the context of PLN Mobile, reliability is evident in the app's ability to provide services such as payments, bill checks, or complaints without frequent errors or system disruptions.

Integrity (Service Provider Integrity)

This indicator relates to users' confidence that PLN, as the service provider, acts honestly, transparently, and in accordance with its commitments. Users trust that the information and services provided through the app are accurate and not misleading.

Privacy Assurance

This indicator reflects the extent to which users feel that their personal data is protected and not misused. In PLN Mobile, this includes protection of customer data such as meter numbers, identities, and transaction history.

Trust in Transactions

This indicator shows users' confidence that every transaction made through the PLN Mobile app will be secure, accurate, and accountable, including payments for electricity and other services.

E-Service Quality

According to Wang et al. (2023–2024), e-service quality is users' assessment of the performance of digital services, which includes the speed, ease of use, security, and reliability of the application. In the case of PLN Mobile: fast access, smooth transactions, and a secure system.

Indicators of E-Service Quality

Wang et al. (2023–2024) emphasize that e-service quality in mobile applications is measured through the following key aspects:

Speed of Service

This indicator shows how quickly the application responds to users. In the context of mobile applications, access speed, transaction processing, and feature loading are important factors in shaping perceptions of service quality.

Ease of Use

This indicator describes the extent to which the app is easy for users to understand and operate. Apps with simple navigation and clear features will enhance the perception of digital service quality.

System Reliability

This indicator relates to the consistency of the app's performance in delivering services without errors or disruptions. Users will rate the quality as high if the app is stable and accessible at any time.

Service Security

This indicator shows the level of protection for users' personal data and transactions. The more secure an application is, the higher the perceived quality of service experienced by users.

Service Responsiveness

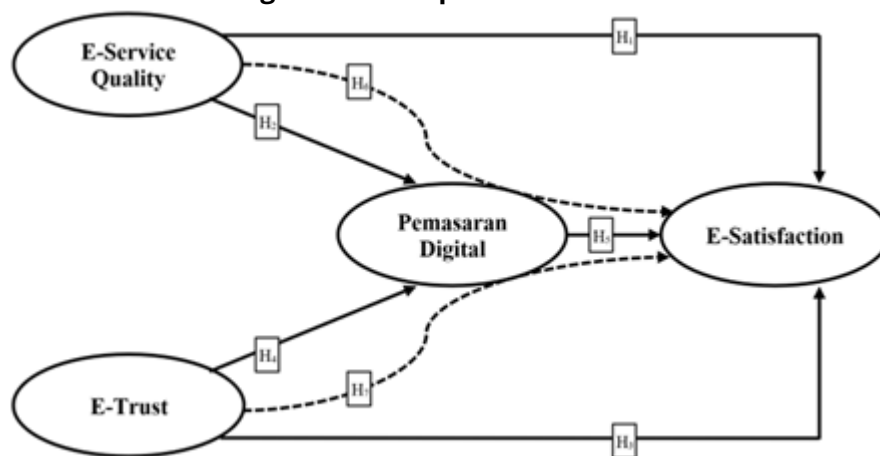
This indicator describes the ability of the system or customer service to respond to user needs, questions, or complaints quickly and accurately.

Interaction Quality

This indicator assesses how users interact with the system or support services within the application, including customer service features, chatbots, or digital help centers.

Conceptual Framework

Figure 1. Conceptual Framework



Research Hypotheses

1. H₁: E-service quality has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
2. H₂: E-service quality has a positive and significant effect on digital marketing at PT. PLN UP3 Pematang Siantar.
3. H₃: E-trust has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
4. H₄: E-trust has a positive and significant effect on digital marketing at PT. PLN UP3 Pematang Siantar.
5. H₅: Digital marketing has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
6. H₆: E-service quality has a positive and significant effect on e-satisfaction through digital marketing as a mediating variable at PT. PLN UP3 Pematang Siantar.
7. H₇: E-trust has a positive and significant effect on e-satisfaction through digital marketing as a mediating variable at PT. PLN UP3 Pematang Siantar.

METHOD

Type of Research

The type of research used is quantitative research. According to Sugiyono (2022), quantitative research is defined as a method grounded in the philosophy of positivism, used to study a specific population or sample; sampling techniques are generally conducted randomly;

data collection uses research instruments; and data analysis is quantitative/statistical, to test established hypotheses. This type of quantitative research was conducted to create a study aimed at examining the relationship between E-Service Quality and E-Trust and their impact on user E-Satisfaction with the PLN Mobile App, with Digital Marketing serving as a mediating variable (Case Study at PT PLN UP3 Pematang Siantar).

Research Location and Timeframe

The study was conducted at PT PLN UP3 Pematang Siantar, located at Jalan Kapten M.H. Sitorus No. 1, Timbang Galung, Siantar Barat District, Pematang Siantar City, North Sumatra. The study was conducted over a period of 3 months, from April to July 2026.

Population and Sample

According to Hair et al. (2022), the population refers to the totality of elements, subjects, or consumers under study, the exact number of which is often unknown, possessing specific characteristics. Hair emphasizes the use of a rule of thumb for determining the sample size, namely 5–10 times the number of indicators or latent variables used in the study. In this study, there are 22 indicators. The researcher selected 10 indicators, so the sample size in this study is $10 \times 22 = 220$ customers.

RESULTS AND DISCUSSION

Validity Test

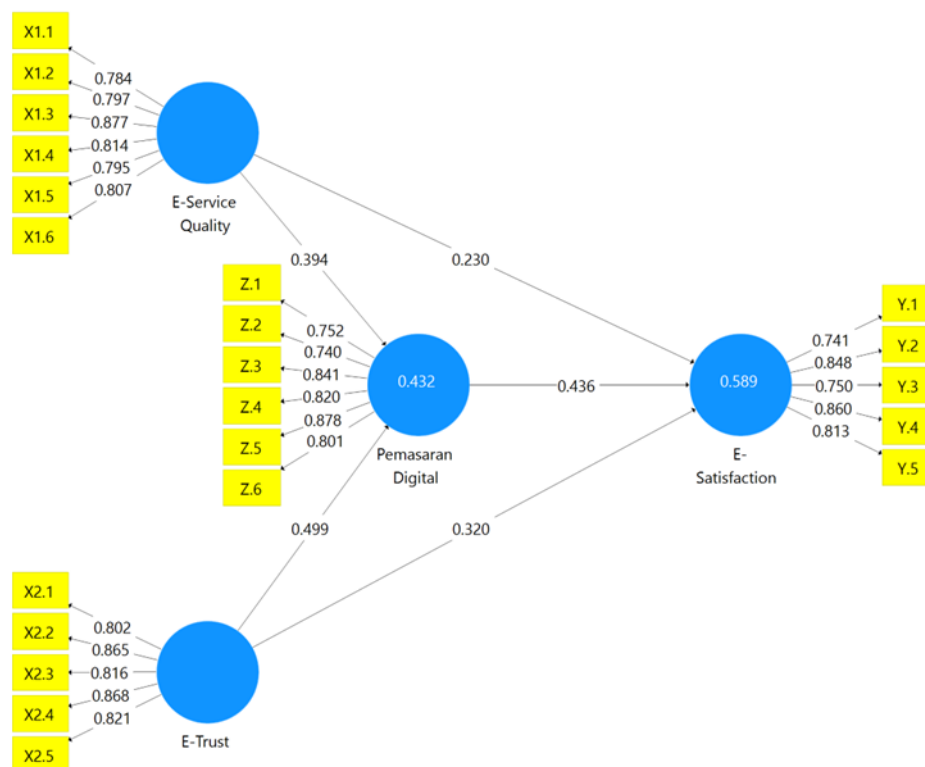
Table 1. Outer Loadings Values

	E-Satisfaction	E-Service Quality	E-Trust	Digital Marketing
X1.1		0.784		
X1.2		0.797		
X1.3		0.877		
X1.4		0.814		
X1.5		0.795		
X1.6		0.807		
X2.1			0.802	
X2.2			0.865	
X2.3			0.816	
X2.4			0.868	
X2.5			0.821	
Y.1	0.741			
Y.2	0.848			
Y.3	0.750			
Y.4	0.860			
Y.5	0.813			
Z.1				0.752
Z.2				0.740
Z.3				0.841
Z.4				0.820
Z.5				0.878
Z.6				0.801

Source: Smart PLS Output, 2025

Based on the values in Table 1 above, the results of the outer model testing through factor loadings/outer loadings indicate that all indicators for each variable have loadings ≥ 0.70 . This indicates that each indicator is measured validly and strongly. Therefore, it can be concluded that all items in the questionnaire have met the validity criteria, as shown in the following figure.

Figure 2 Outer Loadings



In this study, there is an equation consisting of two substructures for substructure 1:

$$Z = \beta_1 X_1 + \beta_2 X_2 + e_1$$

$$Z = 0.394X_1 + 0.499X_2 + e_1$$

For substructure 2:

$$Y = \beta_3 X_1 + \beta_4 X_2 + \beta_5 Z + e_2$$

$$Y = 0.230X_1 + 0.320X_2 + 0.436Z + e_2$$

Reliability Test

Table 2. Construct Reliability and Validity Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
E-Satisfaction	0.862	0.868	0.901	0.646
E-Service Quality	0.897	0.899	0.921	0.661
E-Trust	0.891	0.895	0.920	0.697
Digital Marketing	0.892	0.899	0.918	0.651

Source: Smart PLS Output, 2025

From Table 2 above, the reliability test results show that the Cronbach's Alpha and Composite Reliability values for all constructs are above 0.70. This indicates that all indicators have high internal consistency and are reliable in measuring their respective constructs.

Therefore, the research instrument is deemed reliable and suitable for use in structural equation modeling.

Coefficient of Determination (R^2)

When evaluating a model using PLS, the process begins by examining the R-square for each latent dependent variable. The table below presents the estimated R-square values using SmartPLS.

Table 3. R-Square Results

	R-Square	Adjusted R-Square
Digital Marketing	0.432	0.426
E-Satisfaction	0.589	0.583

Source: Smart PLS, 2025

Table 3 shows the R-squared values for both dependent variables. For the digital marketing variable, the R-squared value is 0.432; this means that the combined effect of e-service quality and e-trust is 0.432, or 43.2%. The remainder is attributed to other variables outside the model. The R-squared value for E-satisfaction is 0.589, meaning that e-service quality, e-trust, and digital marketing account for 0.589 or 58.9%; the remainder is attributed to other variables outside the model.

Direct Effects Between Variables

Direct effects between variables can be seen in the path coefficient values. The data analysis results show that the direct effect values can be seen in the following table.

Table 4. Path Coefficients (Direct Effects)

	Original Sample	T Statistics	P-Values	Conclusion
E-Service Quality -> E-Satisfaction	0.230	4.407	0.000	Accepted
E-Service Quality -> Digital Marketing	0.394	7,250	0.000	Accepted
E-Trust -> E-Satisfaction	0.320	5,547	0.000	Accepted
E-Trust -> Digital Marketing	0.499	11,367	0.000	Accepted
Digital Marketing -> E-Satisfaction	0.436	7,024	0.000	Accepted

Source: Smart PLS Output, 2025

Table 4 shows the following direct effect values:

1. E-service quality has a positive and significant effect on e-satisfaction with a t-statistic value of 4.407 above 1.96 and a significance level of 0.000 below 0.05, meaning that e-service quality has a positive and significant effect on e-satisfaction because the significance value is below 0.05. These findings align with previous research, which also found that e-service quality has a positive and significant effect on e-satisfaction (Jameel et al., 2021).
2. E-service quality has a positive and significant effect on digital marketing with a t-statistic value of 7.250 above 1.96 and a significance level of 0.000 below 0.05, meaning that e-service quality has a positive and significant effect on digital marketing because the significance value is below 0.05. These findings align with previous research, which also found that e-service quality has a positive and significant effect on digital marketing (Fadila, 2025).
3. E-trust has a positive and significant effect on e-satisfaction with a t-statistic value of 5.547 above 1.96 and a significance level of 0.000 below 0.05, meaning that e-trust has a positive

and significant effect on e-satisfaction because the significance level is below 0.05. These findings align with previous research, which also found that e-trust has a positive and significant effect on e-satisfaction (Wilis & Nurwulandari, 2020).

4. E-trust has a positive and significant effect on digital marketing with a t-statistic value of 11.367 above 1.96 and a significance level of 0.000 below 0.05, meaning that e-trust has a positive and significant effect on digital marketing because the significance level is below 0.05. These findings align with previous research, which also found that e-trust has a positive and significant effect on digital marketing (Febriani, 2025).
5. Digital marketing has a positive and significant effect on e-satisfaction with a t-statistic value of 7.024 above 1.96 and a significance level of 0.000 below 0.05. This means that digital marketing has a positive and significant effect on e-satisfaction because the significance level is below 0.05. These findings align with previous research, which also found that digital marketing has a positive and significant effect on e-satisfaction (Zaraswati & Setyawati, 2023).

Indirect Effects Between Variables

Indirect effects between variables can be seen in the specific indirect effects values. The data analysis results show that the indirect effect values are presented in Table 5 below.

Table 5. Specific Indirect Effects

	Original Sample	T Statistics	P Values	Conclusion
E-Service Quality -> Digital Marketing -> E-Satisfaction	0.172	4.720	0.000	Accepted
E-Trust -> Digital Marketing -> E-Satisfaction	0.218	6.287	0.000	Accepted

Source: Smart PLS, 2025

Table 5 shows the indirect effects between variables, which are explained as follows: E-service quality has a positive and significant effect on E-Satisfaction through digital marketing with a t-statistic value of 4.720 above 1.96 and a significance value of 0.000 below 0.05, meaning that digital marketing acts as an intervening variable between e-service quality and e-satisfaction.

E-trust has a positive and significant effect on E-Satisfaction through digital marketing with a t-statistic value of 6.287 above 1.96 and a significance value of 0.000 below 0.05, meaning that digital marketing acts as an intervening variable between e-trust and e-satisfaction.

CONCLUSION

1. E-service quality has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
2. E-service quality has a positive and significant effect on digital marketing at PT. PLN UP3 Pematang Siantar.
3. E-trust has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
4. E-trust has a positive and significant impact on digital marketing at PT. PLN UP3 Pematang Siantar.
5. Digital marketing has a positive and significant effect on e-satisfaction at PT. PLN UP3 Pematang Siantar.
6. E-service quality has a positive and significant effect on e-satisfaction through digital marketing as a mediating variable at PT. PLN UP3 Pematang Siantar.

7. E-trust has a positive and significant effect on e-satisfaction through digital marketing as a mediating variable at PT. PLN UP3 Pematang Siantar.

RECOMMENDATIONS

1. E-satisfaction is the primary focus of this study, as it reflects the extent to which the PLN Mobile app is able to meet customer expectations and needs. To improve user satisfaction, PT. PLN UP3 Pematang Siantar needs to ensure that every transaction on the app runs smoothly, quickly, and securely. Users should also be given the opportunity to provide direct feedback through short surveys or ratings after completing a transaction. Prompt responses to complaints or issues reported through the app will strengthen customer satisfaction. Additionally, periodic evaluation of user satisfaction data is necessary to identify trends, obstacles, and opportunities for improving the app's services.
2. Digital marketing serves as a mediating variable linking service quality and user trust to user satisfaction. Digital marketing strategies should be implemented through social media platforms and digital channels that are close to customers, such as Instagram, Facebook, TikTok, WhatsApp broadcasts, and the official website. The content created should be educational, visual, and practical, such as tutorials on feature usage, transaction guides, and app usage tips. Information regarding the app's benefits must also be clearly communicated to encourage users to actively use PLN Mobile. Monitoring interactions and feedback from digital content will help tailor promotional strategies to user needs.
3. E-service quality encompasses ease of use, access speed, system stability, and clarity of information within the PLN Mobile app. Service quality can be improved by ensuring that every app feature is user-friendly and stable, as well as by providing user guides in the form of videos, digital posters, or FAQs. Regular monitoring of technical issues—such as login failures, payment errors, or delayed notifications—is a crucial step in maintaining the app's reliability. Periodic evaluation of the user experience helps identify features that need to be fixed or improved so that the quality of electronic services remains optimal.
4. E-trust is a key factor because it influences users' willingness to use the PLN Mobile app. To build trust, transaction transparency and the security of personal data must be rigorously maintained. Every transaction status must be clearly displayed, including the report number, estimated completion time, and progress notifications. Education on digital security—such as the use of OTPs, downloading official apps, and maintaining data confidentiality—can enhance users' sense of security. Additionally, every complaint or report must be consistently followed up in accordance with procedures to ensure that trust in the app's services remains intact.

REFERENCES

- Chaffey, D., & Ellis-Chadwick, F. (2022). *Digital Marketing: Strategy, Implementation and Practice* (8th ed.). Pearson Education Limited.
- Fadila, A. (2025). *The Influence of Digital Marketing, E-Service Quality, and Product Quality on Customer Satisfaction Using BSI Mobile from an Islamic Perspective. (A Study of FEBI UIN Raden Intan Lampung Students, Class of 2021)* (Doctoral dissertation, UIN Raden Intan Lampung).
- Febriani, S. F. (2025). *The Influence of Digital Marketing and Satisfaction on Repurchase Intention Through E-Trust as a Mediator Among Tokopedia E-Commerce Consumers* (Doctoral dissertation, Stiamak Barunawati Surabaya).
- Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). Thousand Oaks, CA: Sage.

- Iryantini, Y., & Tjahjaningsih, E. (2025). The influence of digital self-service and social media promotion on customer loyalty, with customer satisfaction as an intervening variable, a study on PT PLN (Persero) customers. *Dinasti International Journal of Economics, Finance & Accounting*.
- Jameel, A. S., Hamdi, S. S., Karem, M. A., Raewf, M. B., & Ahmad, A. R. (February 2021). E-Satisfaction based on E-service Quality among university students. In *Journal of Physics: Conference Series* (Vol. 1804, No. 1, p. 012039). IOP Publishing.
- Kim, J., & Peterson, R. A. (2021). A meta-analysis of online trust relationships in e-commerce. *Journal of Interactive Marketing*, 38, 44–54.
- Lesmana, A., & Balqiah, T. E. (2023). Enhancing Customer E-Loyalty and E-WOM: The Role of Electronic and Non-Electronic Service Quality and Customer Satisfaction (PLN Mobile Application). *Petra International Journal of Business Studies*, Vol. 6 No. 2, pp. 201–212.
- Lulu, N., Sutrisna, A., & Patimah, T. (2024). The effect of e-service quality and e-trust on customer satisfaction among users of the PLN Mobile application in the Rajapolah customer service unit area. *Journal of Economics, Management, Business, and Accounting*, 1(2), 263–278. <https://doi.org/10.37676/jemba.v1i2.570>
- Luthfiani, F., Yuhefizar, Y., & Sudiman, J. (2024). The influence of e-service quality and e-trust on customer satisfaction among users of the PLN Mobile application in Padang Panjang City. *Accounting and Management*, 19(1), 27–42. <https://doi.org/10.30630/jam.v19i1.263>
- PT PLN (Persero). (2025). PLN Statistics 2024.
- PT PLN (Persero). (July 23, 2025). PLN introduces lifestyle features on the PLN Mobile app to support community lifestyles.
- Putri, D. L. E., & Kusuma, Y. B. (2025). Implementation of digital marketing by PLN UP 3 Sidoarjo through the use of the PLN Mobile app in the Balongdowo Sidoarjo Thematic Village program. *Journal of Business Administration Studies*, 1(2), 423–428.
- Rahmat, B. P., Pebrianggara, A., Yulianto, M. R., & Almanfaluti, I. K. (2025). Sentiment analysis of PLN Mobile app reviews using the Naïve Bayes classifier algorithm. *ZONAsi: Journal of Information Systems*, 7(3), 930–945.
- Sarwindah, Mariska, S. A., & Marini. (2025). E-service quality and e-trust to e-satisfaction in services via the PLN Mobile application at ULP Pangkalpinang. *Journal of Information Technology and Computer Science MH. Thamrin*, 11(1), 188–201.
- Siahaan, P., Jodhinata, A., & Ardyan, E. (2025). The role of customer trust in mediating the effects of e-service quality, customer experience, and information quality on customer satisfaction: A case study of the PLN Mobile application in the UP3 Depok area. *COMSERVA: Journal of Research and Community Service*, 4(11), 4989–5002
- Wang, Y., Chen, L., & Liu, J. (2024). Determinants of e-service quality in mobile applications. *International Journal of Information Systems and Services*, 15(1), 45–60.
- Wang, Y., Li, X., & Zhang, H. (2023). Mobile service quality and user experience in digital platforms. *Journal of Digital Service Research*, 12(3), 155–172.
- Wilis, R. A., & Nurwulandari, A. (2020). The effect of e-service quality, e-trust, price, and brand image on e-satisfaction and its impact on e-loyalty of Traveloka's customers. *Journal of Management, Economics, and Accounting*, 4(3), 1061–1099.
- Zaraswati, N., & Setyawati, I. (2023). The success of e-satisfaction and e-repurchase intention at Bukalapak: the role of digital marketing, e-service quality, and e-trust. *Global Education Scientific Journal*, 4(1), 442–456