

The Effect of Service Quality on Customer Satisfaction, Attitude, and Loyalty of PT PLN (Persero) UP3 Rantauprapat

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Abstract .

PLN stands for PT Perusahaan Listrik Negara (Persero), which is the largest electricity service provider in Indonesia. PLN is a State-Owned Enterprise (BUMN) that plays an important role in providing electricity to the community and industry throughout Indonesia. Every region in Indonesia has a PLN office that functions to serve every community that is a customer of PLN itself, one of which is in the Rantauprapat area which has a PLN (Persero) UP3 Rantauprapat office with many Customer Service Units (ULP) spread across each region as many as 8 customer service units, namely ULP Tanjung Balai, ULP Simpang Kawat, ULP Aek Kanopan, ULP Aek Kota Batu, ULP Rantauprapat Kota, ULP Aek Nabara, ULP Labuhan Bilik and ULP Kota Pinang and with a total of registered customers as many as. However, behind the large number of customers, there are many complaints submitted by customers of PT PLN (Persero) UP3 Rantauprapat which indicate that PT PLN (Persero) UP3 Rantauprapat provides poor service quality which will affect user satisfaction, attitude and loyalty. The purpose of this study is to determine the quality of service from PT PLN (Persero) UP3 Rantauprapat which is perceived by looking at the quality of service, satisfaction, attitude and loyalty of PT PLN (Persero) UP3 Rantauprapat customers. This study uses a quantitative method using a questionnaire using a google form which is distributed to respondents using a purposive sampling technique. Valid and reliable data from 419 respondents were analyzed using structural equation modeling with the help of SmartPLS 4.1.1.2. The results of the study show that the response from respondents for all dimensions and variables has a very good value. Statistical tests show that the Service Quality variable has a significant positive effect on Satisfaction, the Service Quality variable has a significant positive effect on Loyalty, the Satisfaction variable has a significant positive effect on Attitude, the Satisfaction variable has a significant positive effect on Loyalty, the Attitude variable has a significant positive effect on Loyalty. The determination coefficient using R-Square shows that there is an influence of Satisfaction of 82.3% on Attitude, an influence of Service Quality of 78.8% on Loyalty, an influence of Service Quality of 78.5% on Satisfaction. The results of this study suggest to PT PLN (Persero) UP3 Rantauprapat to improve the quality of service to customers as a whole, including standardizing uniforms and official vehicles for each officer who directly interacts with customers and conducting socialization of the reporting flow according to the right field to answer customer needs so that it can improve the assessment of the quality of service provided.

Key words : Service Quality; Satisfaction And Attitude And Loyalty.

1. INTRODUCTION

The State Electricity Company (PLN) is a vital institution providing electricity in Indonesia that has a big responsibility in ensuring the availability and quality of electricity services. Based on Law No. 30 of 2009, PLN as a BUMN has exclusive rights in providing national electricity. The quality of service provided greatly affects customer satisfaction, company image, and operational sustainability. Service quality consists of five main aspects: tangibility, reliability, responsiveness, assurance, and empathy [1] .

PLN has provided various channels to accommodate customer complaints, such as the 123 call center, social media, email, and the PLN Mobile application. PT PLN (Persero) North Sumatra Main Distribution Unit has 10 Customer Service Implementation Units (UP3). One of them, UP3 Rantauprapat, received 3,814 complaints from January to November 2024. This number is higher than its neighboring units such as UP3 Padang Sidempuan (1,653), UP3 Sibolga (1,654), and UP3 Pematangsiantar (2,994). The complaints received were divided into 11 categories, with the majority

of complaints related to Information (1,713 complaints), Measuring and Limiting Devices (APP) (1,200 complaints), and New Installations (536 complaints). In addition, there were 92 reports of repeated complaints in the same period, with the highest number occurring in October [2] .

In terms of the service rating of the disturbance officer, customers gave a total of 6,124 5 stars, but there were still customers who gave 1 star (9 times) and 2 stars (2 times). This shows that although the majority of customers are satisfied, there is still room for improvement in service quality. PLN is obliged to fulfill the Service Quality Level (TMP) indicators in accordance with ESDM Ministerial Decree No. 185.K/TL.04/DJL.3/2024. These indicators include voltage and frequency stability, number and duration of disturbances, and speed of installation and complaint services. For example, the maximum duration of disturbance is 7 hours per month, and the maximum speed of responding to disturbances is 1 hour [3] .

Based on data from the first to third quarters of 2024, UP3 Rantauaprat successfully met most of the TMP indicators, such as voltage stability (highest 21kV and lowest 18kV), frequency (50.5 Hz - 49.5 Hz), and no meter reading errors and bill correction times (0 cases). However, there is one indicator that has not been consistently achieved, namely the speed of responding to complaints of disturbances. In the first quarter, the response time reached 2 to 3 hours, while in the third quarter it increased drastically, even reaching more than 24 hours in July and August [4] .

This mismatch has the potential to reduce customer satisfaction and cause repeated complaints to accumulate. In the context of regulation, according to ESDM Regulation No. 27 of 2017, customers are entitled to compensation if the TMP is not met. The compensation is given in the form of a bill reduction (for postpaid customers) or additional tokens (for prepaid customers). For example, customers with 1,300 VA power (non-subsidized tariff) will receive compensation of 35% of the minimum account value if the TMP is violated. The calculation is: $1,300 \text{ VA} \times 40 \text{ hours} \div 1,000 = 52 \text{ kWh}$, then $52 \text{ kWh} \times \text{Rp}1,467.28 = \text{Rp}76,299$, then the compensation is $35\% \times \text{Rp}76,299 = \text{Rp}26,704$. For 450 VA customers (subsidized tariff), compensation of 20% of the cost of the load is Rp11,000, resulting in a compensation value of Rp990 [5] .

This condition shows the importance of continuous improvement in the disruption response system at UP3 Rantauaprat. The performance of technical and non-technical services must continue to be improved in order to meet the TMP set by the government. Efficiency in handling complaints, increasing the number of personnel or strengthening the digitalization system of services are alternative solutions that need to be considered [6] . With the increasing need for electricity amid economic growth and urbanization, customer demands for fast and reliable services are also increasing. In this case, service quality is not only a technical indicator, but also a representation of the company's commitment to customers and the sustainability of quality public services. PT PLN (Persero) UP3 Rantauaprat needs to follow up on the findings in the TMP report systematically, so that in the future it can strengthen customer loyalty while meeting all targeted service indicators.

II. METHODS

The impact of service quality on attitudes, customer satisfaction, and loyalty at PT PLN (Persero) UP3 Rantauaprat is examined in this study using a quantitative methodology. This method is positivistic and uses statistics to evaluate numerical data using the Structural Equation Modeling (SEM) approach. A Google Form questionnaire is used to collect data as part of the survey research strategy. Service quality, which has five components—tangibility, assurance, responsiveness, reliability, and empathy—is the study's independent variable. Customer loyalty (Y3), contentment (Y2), and attitudes (Y1) are the dependent variables. Every item is scored on a five-point Likert scale.

The study population included all PLN UP3 Rantauaprat customers totaling 508,625 people, and the sample was determined using the Slovin formula with a 5% error rate. The research instrument was tested for validity and reliability before distribution. The study was cross-sectional,

conducted in a certain period of time without intervention, and aimed to determine the causal relationship between variables to draw conclusions and provide recommendations for service improvements.

III. RESULT AND DISCUSSION

Hypothesis Testing (significance)

The significance test in PLS-SEM is used to assess if the link between the model's latent variables may be regarded as statistically significant. In order to determine the path coefficient value and its standard error, the data is re-sampled using the bootstrapping approach, which is typically used in this procedure. The findings are presented as p-values or t-statistics. If the P-Value is less than the designated level of significance (in this study, a significance of 0.05), the link is deemed significant. The proposed hypothesis can be accepted if the relationship between the latent independent and dependent variables has substantial statistical support, as indicated by a significant path coefficient. The direct effect and indirect effect research models' bootstrapping results are as follows.

Bootstrapping Results Direct Effect (Direct Effect I)

In path analysis and structural equation modeling (SEM), bootstrapping direct effect is a statistical technique that tests and estimates the significance of the direct influence of one independent variable (predictor) on the dependent variable (outcome) without the use of a mediator. The following are the outcomes of Bootstrapping Direct Effect:

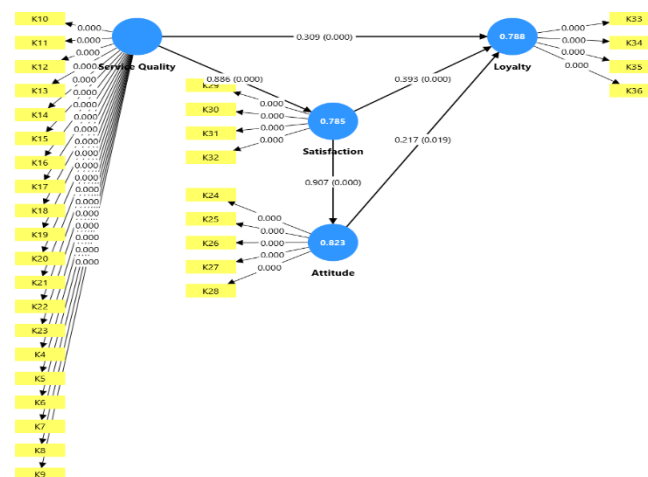


Fig 1. Path Coefficient and P Value
(Source: Processed data, 2025)

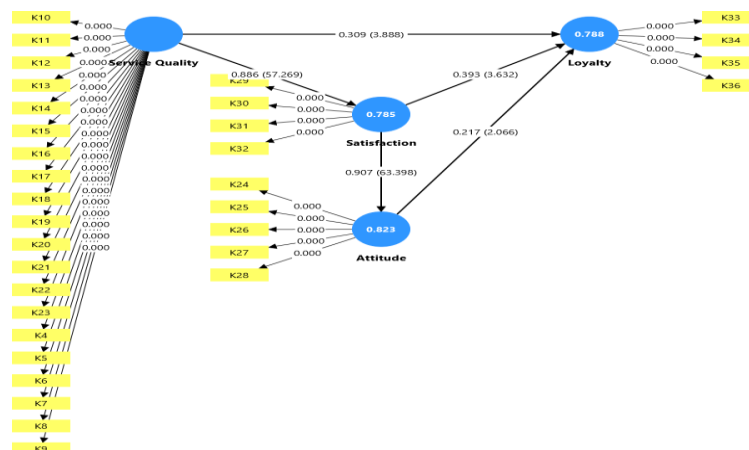


Fig 2. Path Coefficient and T Value
(Source: Processed data, 2025)

Path Coefficient Results Bootstrapping Direct Effect

Path Coefficient	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Caption
Attitude -> Loyalty	0.217	0.216	0.105	2,066	0.019	H5 Proven (Significant)
Satisfaction -> Attitude	0.907	0.907	0.014	63,398	0.000	H3 Proven (Significant)
Satisfaction -> Loyalty	0.393	0.391	0.108	3,632	0.000	H4 Proven (Significant)
Service Quality -> Loyalty	0.309	0.312	0.080	3.888	0.000	H2 Proven (Significant)
Service Quality -> Satisfaction	0.886	0.886	0.015	57,269	0.000	H1 Proven (Significant)

(Source: Processed data, 2025)

The T-statistic value between attitude and loyalty is 2.066, the T-statistic value of the satisfaction variable toward attitude is 63.398, the T-statistic value of the satisfaction variable toward loyalty is 3.632, the T-statistic value of the service quality variable toward loyalty is 3.888, and the T-statistic value of the service quality variable toward satisfaction is 57.269, as can be seen in table 4.22 above. It is clear from these data that all hypotheses are accepted because the T Statistic value for the full path coefficient is higher than the T Table of 1.96. The other route coefficients have a value of 0.000, which is less than the value of 0.05, which indicates significant, whereas the P value of attitude toward loyalty is 0.019. Additionally, it is evident that the overall influence is positive, with the coefficient of the attitude parameter towards loyalty being 0.217, the satisfaction towards attitude being 0.907, the satisfaction towards loyalty being 0.393, the service quality towards loyalty being 0.309, and the service quality towards satisfaction being 0.886. So it can be concluded for each hypothesis as follows:

1. The Influence of *Service Quality* on *Satisfaction*

Based on table 4.22 above, with a coefficient value of 0.886, T statistic of 57.269 which is greater than 1.96, and P value of 0.000 which is less than 0.05, service quality *significantly* increases customer satisfaction . This shows that in the working area of PT PLN (Persero) UP3 Rantauprapat, customer satisfaction increases along with the increase in service quality.

2. The Influence of *Service Quality* on *Loyalty*

Based on table 4.22 above, with a coefficient value of 0.309, T statistic of 3.888 greater than 1.96 and P Value of 0.000 which is smaller than 0.05 , service quality *significantly* increases customer loyalty . This shows that in the working area of PT PLN (Persero) UP3 Rantauprapat, customer loyalty increases along with the increasing quality of service.

3. The Influence of *Satisfaction* on *Attitude*

With a coefficient value of 0.907, a T statistic of 63,398 greater than 1.96, and a P value of 0.000 less than 0.05, table 4.19 above shows that pleasure *significantly* increases attitude . This shows that a person's attitude towards service, both positive and negative, increases along with the level of customer satisfaction.

4. The Influence of *Satisfaction* on *Loyalty*

From table 4.22 above, the results show that *satisfaction* has a very significant positive influence on *loyalty* with a coefficient value of 0.393 , T Statistics of 3.632 greater than 1.96 and P Value of 0.000 which is smaller than 0.05. This shows that the higher the level of customer satisfaction, the higher a person's attitude towards the service, both liking and disliking the service.

5. The Influence of *Attitude* on *Loyalty*

From table 4.22 above, the results show that *attitude* has a very significant positive influence on *loyalty* with a coefficient value of 0.217 , T Statistics of 2.066 which is greater than 1.96 and P Value of 0.019 which is smaller than 0.05. This shows that the higher the level of customer attitude, the higher their loyalty to the service.

Path Coefficient Results Bootstrapping Indirect Effect

Path Coefficient	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Caption
Service Quality -> Satisfaction -> Attitude	0.803	0.804	0.024	33,862	0.000	Proven
Service Quality -> Satisfaction -> Loyalty	0.348	0.347	0.095	3,663	0.000	Proven
Satisfaction -> Attitude -> Loyalty	0.197	0.196	0.095	2,068	0.019	Proven
Service Quality -> Satisfaction -> Attitude -> Loyalty	0.174	0.173	0.084	2,066	0.019	Proven

(Source: Processed data, 2025)

Bootstrapping indirect effects is a valuable tool in mediation analysis. It allows for stronger inferences about the mechanisms by which the independent variable influences the dependent variable, without relying too heavily on distributional assumptions that may not be met in real-world data. By examining the *bootstrap confidence intervals* of the indirect effects, one can determine whether the hypothesized mediation is statistically significant. The effects can be explained as follows:

1. The Influence of *Service Quality* on *Attitude* through *Satisfaction*

The analysis's findings demonstrate that attitude is not much impacted directly by service quality through satisfaction. A T statistic value of 33,862 is larger than 1.96, a P value of 0.000 is less than 0.05, and the coefficient value is 0.803. This implies that high-quality services can influence customer satisfaction by improving attitudes toward the service. Given the importance of the direct relationship between attitude and service quality, satisfaction serves as a partial mediation, meaning that it amplifies the impact of attitude on service quality.

2. The Influence of *Service Quality* on *Loyalty* through *Satisfaction*

The analysis's findings demonstrate that customer happiness and loyalty are not significantly impacted by service quality. A P value of 0.000 is less than 0.05, a T statistic value of 3.663 is greater than 1.96, and a coefficient value of 0.348. This implies that providing high-quality services can boost client loyalty, which in turn influences client satisfaction. Due to the strong direct correlation between loyalty and service quality, satisfaction serves as a partial mediator, strengthening the relationship between service quality and client loyalty.

3. The Influence of *Satisfaction* on *Attitude* through *Loyalty*

The analysis's findings demonstrate that loyalty has no discernible direct impact on attitude as a result of satisfaction. A T statistic value of 2.068 is higher than 1.96, a P value of 0.019 is less than 0.05, and the coefficient value is 0.197. This implies that satisfied customers are more likely to remain loyal to the service, which in turn influences their attitude. Since there is a strong direct correlation between attitude and satisfaction, loyalty serves as partial mediation, meaning that customer loyalty increases the impact of satisfaction on attitudes.

4. The Influence of *Service Quality* on *Loyalty* through *Satisfaction* and *Attitude*

The analysis's findings demonstrate that, through attitude and satisfaction, service quality has no discernible direct impact on loyalty. A T statistic value of 2.066 is higher than 1.96, a P value of 0.019 is less than 0.05, and the coefficient value is 0.174. This implies that high-quality services can boost client loyalty, which in turn influences customer satisfaction and attitude. Given the importance of the relationship between service quality and loyalty, customer happiness and attitude serve as partial mediators, strengthening the impact of service quality on customer loyalty.

Effect Size Results (f^2)

Effect Size (f^2) is used to evaluate the specific impact of independent variables on the prediction of dependent variables. This measurement is done by looking at the change in value R^2 after a particular independent variable is removed from the model. The f^2 direct effect value is interpreted as small if it is less than 0.02, medium if it is between 0.02 and 0.15, and large if it is more than 0.35 (Hair et al, 2017). By calculating the value f^2 , researchers can identify which independent variables have the greatest influence on the dependent variable in the model, thus providing deeper insight into the dynamics of the relationship between latent variables.

Table 4.24 Effect Size Test Results (f^2)

Path Diagram	Effect Size	Rating
Attitude -> Loyalty	0.029	Currently
Satisfaction -> Attitude	4,635	Big
Satisfaction -> Loyalty	0.112	Currently
Service Quality -> Loyalty	0.071	Currently
Service Quality -> Satisfaction	3,645	Big

(Source: Processed data, 2025)

- The influence of *Attitude* on *Loyalty* at the structural level is classified as moderate with a value of 0.029 which is greater than 0.02.
- The influence of *Satisfaction* on *Attitude* at the structural level is quite large with a value of 4.635 which is greater than 0.35.
- The influence of *Satisfaction* on *Loyalty* at the structural level is classified as moderate with a value of 0.112 which is greater than 0.02.
- The influence of *Service Quality* on *Loyalty* at the structural level is classified as moderate with a value of 0.071 which is greater than 0.02.
- The influence of *Service Quality* on *Satisfaction* at the structural level is classified as Large with a value of 3.645 which is greater than 0.02 .

Discussion of Descriptive Analysis Results

Based on the results of the study by distributing questionnaires to 419 respondents of PT PLN (Persero) UP3 Rantauprapat customers, there were respondents with a distribution of eight ULPs in the work area of PT PLN (Persero) UP3 Rantauprapat according to table 4.1. And this study divides the age criteria of respondents into 5 age criteria as explained in table 4.2 above.

This study uses *Service Quality variables* with dimensions (*Tangibility, Reability, Responsiveness, Assurance, Empathy*) , *Satisfaction* and *Attitude* as independent variables and *Loyalty variables* as dependent variables. The results of the study of these variables have been obtained and known by conducting indicator testing on Smart PLS 4.1.1.2. The results of the discussion can be described as follows:

Descriptive Analysis of Service Quality**Tangibility Dimension**

Respondents' assessment of *Tangibility* in PT PLN (Persero) UP3 Rantauprapat is considered very good, this can be seen from the results of respondents' statements that assess " The variety of payment methods provided makes it easy to pay electricity bills" very good compared to other statements. From the author's observations regarding the variety of payments presented by PLN nationally, it does have a variety of payment methods, such as payments can be made at PLN counters, Indomaret, Alfamidi and the like, *E-Commerce, digital banks, digital wallets , mobile banking*, even

facilities at PLN *Mobile* also support payment methods at PLN. This is in line with the statement of the Manager of PT PLN (Persero) UP3 Rantauprapat, Dwita Aswiyanti Syafitri (2025) who said that PLN has a variety of payment methods to make it easier for customers to make transactions related to products offered by PLN, the variety of payments provided by PLN has been done digitally using banking services that can be accessed using PPOB (*Payment Point Online Bank*) or facilities from PLN *Mobile* without having to come to the PLN office to make any payments [7] .

In addition, there is a statement that is considered lower by respondents compared to other statements in the *tangibility dimension* , namely the statement "PLN has *modern work equipment* ". The author saw that the equipment used by PLN in the field often looked shabby and unclean, sometimes the author saw that there was still work equipment that looked in poor condition, this made it possible to get a poor assessment from respondents. In line with that, Dwita Aswiyanti Syafitri (2025) said that regarding the lowest assessment, PLN had actually carried out periodic equipment checks in accordance with the PLN contract with partners according to the equipment's service life according to the contract, so that work equipment that was considered no longer standard was recommended for replacement, in addition, PLN had monitored and *upskilled* officers to maintain the cleanliness of work equipment and Personal Protective Equipment (PPE) [8] .

Reliability Dimension

Respondents' assessment of the overall *reliability dimension* was considered very good, this can be seen from the results of respondents' statements that assessed " PLN helps if I have electrical problems" which was considered very good compared to other statements . From the researcher's observations, PLN officers and PLN employees provide assistance related to electrical problems experienced by customers, an interesting thing that was seen was that sometimes PLN officers made repairs to customer installations that caused the electricity flow to the customer's house to be constrained which should have been done by the electrical service installer because the customer's installation is the customer's own responsibility. In addition, the electrical problems that are often felt by customers are requests related to new connections or changes in power, here the author sees that PLN has conducted socialization both on social media and banners at the PLN office regarding the amount of costs that customers must pay if they want to make new installations and changes in power. In line with the statement of Dwita Aswiyanti Syafitri (2025) Manager of PLN (Persero) UP3 Rantauprapat who stated that PLN responds to customer complaints both from PLN *Mobile*, *Callcenter* 123. PLN also has the Qu Electricity facility at PLN *Mobile* which allows PLN partners to make repairs to customer home installations so that customers do not have to bother looking for other electricity services that do not necessarily have good standards and PLN has carried out transparency regarding customer services such as New Installation costs, Additional Power and others [9] .

In addition, there is a statement that is considered lower by respondents than other statements in the *reliability dimension* , namely the statement " PLN provides disruption resolution services according to the promised time ". The author observed that if a disruption occurs, sometimes PLN officers provide an estimated time which is sometimes far from the time promised to customers. Dwita Aswiyanti Syafitri (2025) said that PLN updates *work progress* in *real time* on the PLN *Mobile application*, where you can see the time starting from when the customer makes a report, team assignment, on the way, on the job, and on so that customers can see the progress without having to worry about how long the handling will be carried out by officers [10] .

Responsiveness Dimension

Respondents' assessment of the *Responsiveness dimension* Overall it is considered very good, this can be seen from the results of the respondent's statement which assessed " PLN is responsive in serving my report" which is considered very good compared to other statements . The author observed that if there is a disruption, either a customer disruption or a widespread disruption, PLN officers immediately make repairs in addition to the disruption officers, officers who serve related to account reports and new installations or changes in power can be considered to have a good response in

serving customers. In line with what was conveyed by the Manager of PT PLN (Persero) UP3 Rantauprapat, Dwita Aswiyanti Syafitri (2025) that PLN has a *response time performance* (response time) and *recovery time* (recovery time) which is monitored directly from the management level in the Customer Service Unit (ULP) to the Top Management level at PLN Head Office because PLN applies the principle of *customer experience* [11] .

In addition, there is a statement that is considered lower by respondents compared to other statements in the *responsiveness dimension* , namely the statement " PLN responds to my request even though it is busy ". The author observed that in the work environment of PT PLN (Persero) UP3 Rantauprapat, there are customer and *stakeholder* groups to speed up the provision of information related to electricity problems, only if there is a widespread blackout, there is a pileup of questions related to the problems experienced by customers in the group so that PLN officers are considered slow in responding to requests or questions from customers. Responding to this respondent's assessment, the Manager of PT PLN (Persero) UP3 Rantauprapat said that PLN carries out real *-time updates* on the PLN *Mobile application* which is expected to allow customers to see the problems or questions they experience directly without contacting PLN officers directly in the middle of handling the disruption being worked on [12] .

Assurance Dimension

the Assurance dimension Overall it is considered very good, this can be seen from the results of the respondent's statement which assessed " PLN employees have a polite attitude." is considered very good compared to other statements . Researchers saw that in addition to PLN officers being polite in serving customers, PLN officers were also patient in serving complaints from customers that were submitted directly even though on social media. In addition, the Manager of PT PLN (Persero) UP3 Rantauprapat stated that PLN implemented the PS4 (Appearance, Attitude, Smile, Greeting and Greeting) implementation program which is required for technical services in serving customers [13] .

In addition, there are statements that are rated lower by respondents compared to other statements in the *Assurance dimension*. namely the statement " PLN employees have the knowledge to answer questions ". Researchers see this incident because sometimes customers ask questions to officers who do not master the question because it is not in their field of expertise, for example, a technical service officer is repairing a disturbance in a house, while doing the job the customer asks about the payment information he experienced was considered too high, this is clear the customer did not get the best answer from the technical service officer because it was not his field of expertise and the customer should have asked the *front office* at the service office. Manager of PT PLN (Persero) UP3 Rantauprapat, Dwita Aswiyanti Syafitri (2025) also has the same opinion, the answers received by customers are considered unsatisfactory because it is possible that the officer being asked has poor knowledge in answering questions from customers [14] .

Dimension of Empathy

Respondents' assessment of *the Empathy dimension* Overall, it was considered very good, this can be seen from the results of respondents' statements that assessed " PLN employees are friendly ." Researchers saw that both PLN officers and PLN employees served customers in a friendly manner in line with the statement of the Manager of PT PLN (Persero) UP3 Rantauprapat Dwita Aswiyanti Syafitri (2025) that it was in line with the PS4 implementation program (Appearance, Attitude, Smile, Greeting, Greeting) which was conveyed to officers every morning during the morning *briefing* [15] .

In addition, there are statements that are rated lower by respondents compared to other statements in the *Empathy dimension*. namely the statement "PLN understands my specific needs as a customer". The researcher saw several incidents where officers in the field could not understand the specific needs requested by customers, such as questions related to the amount of the bill or obstacles related to regulating the use of electrical energy. In line with that, the Manager of PT PLN (Persero) UP3 Rantauprapat Dwita Aswiyanti Syafitri said that officers in the field did not have detailed knowledge other than their abilities in their respective fields [16] .

Descriptive Analysis of Attitude

Respondents' assessment of the *Attitude variable* Overall it is considered very good, this can be seen from the results of the respondent's statement which assesses " I like the service provided by PLN ". The researcher saw that the service provided by officers in the field was considered good and friendly so that respondents liked the service provided by PLN. The Manager of PT PLN (Persero) UP3 Rantauprapat said that in line with the PS4 customer program (Appearance, Attitude, Smile, Greet, Greeting) so that customers feel comfortable when receiving PLN services, and PLN has been transparent about services to the community [17] .

In addition, there is a statement that is considered lower by respondents compared to other statements in the *Attitude variable* , namely the statement "I believe that PLN is professional in serving customers". Researchers saw that there was still the use of vehicles and work equipment that looked dirty and sometimes PLN officers other than technical services still used unprofessional vehicles which were likely to use private vehicles for work. Responding to this, the Manager of PT PLN (Persero) UP3 Rantauprapat said that PLN always *upskills* PLN officers and continues to provide socialization about PLN services and the dangers of electricity [18] .

Satisfaction Analysis

Respondents' assessment of the *Satisfaction variable* Overall it is considered very good, this can be seen from the results of the respondent's statement which assessed " I am facilitated by the facilities of the PLN Mobile application ". Researchers observed that the PLN *Mobile application* has a good star *rating on the Playstore* , namely 4.9 out of 5.0, this researcher assesses that the facilities presented in the PLN *Mobile application* are liked by customers. According to Dwita Aswiyanti Syafitri (2025), Manager of PT PLN (Persero) UP3 Rantauprapat said that PLN always updates the application nationally, it is hoped that it can make it easier for customers [19] .

In addition, there is a statement that is considered lower by respondents compared to other statements in the *Satisfaction variable* , namely the statement "I am satisfied with PLN's solution to the electricity problem experienced". From this statement, the researcher assessed the lack of customer assessment of the solution provided by PLN to the electricity problem experienced, such as the problem of dimming electricity experienced by several villages due to long cable pulls that are far from electricity sources such as main cables and to make improvements to this problem, PLN must make proposals according to the annual budget and this information sometimes does not reach customers who complain because of the ability of officers to convey information that is not in their field of expertise. Manager of PT PLN (Persero) UP3 Rantauprapat Dwita Aswiyanti Syafitri (2025) said that PLN officers in the field would be *briefed* to directing customers to the appropriate field for the problem they are experiencing so that they are right on target for the problem [20] .

Descriptive Analysis of Loyalty

Respondents' assessment of the *Loyalty variable* Overall it is considered very good, this can be seen from the results of respondents' statements that assess " I recommend using PLN's latest service (PLN Mobile) to people who need PLN services ". The researcher saw this because the information presented in the PLN *Mobile application* , both disruption reports and complaints, can be monitored in *real time*, in addition, information related to discounts and promos carried out by PLN can be seen in the PLN *Mobile application* so that the response from respondents is very good regarding recommendations for using this service. According to Dwita Aswiyanti Syafitri (2025), Manager of PT PLN (Persero) UP3 Rantauprapat said that the digitalization innovation from PLN Mobile can be accepted by customers and makes it easier for customers to meet their electricity needs [21] .

In addition, there is a statement that is considered lower by respondents than other statements in the *Loyalty variable* , namely the statement "I recommend switching from postpaid kwh to Prepaid KWH Meter to others". Researchers see the issue developing in the community that the use of Prepaid KWH meters increases electricity bills, this allows respondents to recommend less switching to

Prepaid KWH. According to Dwita Aswiyanti Syafitri (2025), the Manager of PT PLN (Persero) UP3 Rantauprapat said that PLN continues to serve customers who switch to postpaid by evaluating the customer's electricity payment history and making a letter of commitment to pay electricity on time [22].

Discussion of Causal Analysis Results

The Influence of Service Quality on Satisfaction

Based on the results of the statistical test of the variables from table 4.22 above, the results showed that *service quality* has a very significant positive influence on customer satisfaction (*Satisfaction*) so that the Hypothesis 1 value can be accepted with a significant positive influence. Judging from what PLN management has done, PLN seems to be trying to improve the quality of service to customers to increase customer satisfaction even though PLN is basically a monopoly company, in line with what was conveyed by the Manager of PT PLN (Persero) UP3 Rantauprapat Dwita Aswiyanti Syafitri, currently PLN is focusing on the *Customer Experience program* , this proves that PLN is serious about improving services to its customers.

Service quality is the comparison between the service prepared by customers with the service expected by them [23]. A very important value and instrument in improving service quality is needed in a competitive market, because service quality contributes to guest satisfaction, therefore, it is necessary to implement an effective service quality strategy. The perception of service quality by customers is the process of evaluating and comparing the service received with their expectations [24]. Therefore, the main goal of an excellent service quality system is to meet customer needs and even exceed them to satisfy customers [25].

According to Fida (2020), numerous research have demonstrated the connection between customer satisfaction and service quality. High customer satisfaction is a goal for businesses and organizations, particularly those that view enduring connections with clients as valuable assets. Understanding the elements that make up service quality is still up for debate, though. For instance, even though the features of service quality may not be fully understood, customer happiness has emerged as a key factor in the retail banking industry's performance of company operations. It has been accepted by Lots writer as variable predictor satisfaction customer, Which in where they set connection between dimensions quality of service And satisfaction customer considered as connection positive [26].

The Influence of Service Quality on Loyalty

Based on the results of the statistical test of the variables from table 4.22 above, the results showed that *service quality* has a very significant positive influence on loyalty so that the value of Hypothesis 2 can be accepted with a significant positive influence. Given that client loyalty can vary depending on a wide range of variables, numerous different research have been developed to identify the antecedents of consumer loyalty. Customer loyalty is positively impacted by employee loyalty, customer satisfaction, and service quality.

The Influence of Satisfaction on Attitude

Based on the results of the statistical test of the variables from table 4.22 above, the results showed that *Satisfaction* has a very significant positive influence on *Attitude* so that the value of Hypothesis 3 can be accepted with a significant positive influence.

Attitude is considered as a psychological factor that indicates a person's state of mind, may be positive, negative or neutral. A person's attitude towards a service or product leads to liking or disliking it. Furthermore, in many studies it has been found that attitude acts as a mediating factor for SQ. Attitudes are formed over a period of time by the experience and use of things they encounter [27].

The Influence of Satisfaction on Loyalty

Based on the results of the statistical test of the variables from table 4.22 above, the results showed that *Satisfaction* has a very significant positive influence on *Loyalty* so that the value of Hypothesis 4 can be accepted with a significant positive influence.

Customer loyalty and customer satisfaction are significantly correlated. When clients have a positive experience with a business's service, they will continue to do business with that business because they perceive it as less hazardous, which makes them loyal and logical in their decision-making. This is known as customer satisfaction. Actually, a lot of writers support the idea that one of the factors influencing customer loyalty is customer satisfaction, particularly in the service sector where loyalty is based on satisfaction as its foundation [21].

The Influence of Attitude on Loyalty

Based on the results of the statistical test of the variables from table 4.22 above, the results showed that *Attitude* has a very significant positive influence on *Loyalty* so that the value of Hypothesis 5 can be accepted with a significant positive influence.

Every business requires its customers to be loyal. Previous research has shown that devoted clients generate higher profits than new ones. Additionally, it has been noted that attracting new clients is far more expensive than keeping existing ones loyal to the company. Therefore, repeat customers are always preferred by retailers and it represents the strength of an individual's attitude towards a product or service. This concept of loyalty represents a paradox, which means that attitude-based phenomena are influenced by loyalty programs.

Consumer attitudes play an important role in forming loyalty towards a product, brand, or service. Attitude refers to an individual's psychological tendency expressed through consistent evaluation of an object, either positively or negatively. When consumers have a positive attitude towards something, for example because of product quality, satisfactory service, or the suitability of brand values with their personal values, they tend to show high loyalty [28]. This loyalty can be demonstrated through repeat purchases, recommendations to others, and brand defense despite temptations from competitors. Attitudes formed through positive experiences will strengthen the emotional connection between consumers and brands, thus creating long-term bonds. Conversely, if consumers have a negative attitude, loyalty will be difficult to form, and can even cause a rejection effect [29]. Companies need to build positive experiences consistently in order to be able to form attitudes that support loyalty. In the context of increasingly tight market competition, the influence of attitude on loyalty becomes crucial in marketing strategies, because customer loyalty is an important asset for long-term business sustainability [30].

IV. CONCLUSION

Based on the results of research conducted on the service quality of PT PLN (Persero) UP3 Rantaupraptat, it was found that all dimensions in the service quality indicators received very good responses from respondents. The tangibility dimension, which includes physical facilities, equipment, and employee appearance, was assessed to have optimally met customer expectations. Likewise, the reliability dimension related to the company's ability to provide reliable and promised services also received a very good rating, reflecting the consistency of service felt by customers. Furthermore, the responsiveness dimension, which highlights the readiness and speed of employees in helping customers, also showed very good performance, meaning that customers feel served quickly and responsively. The assurance dimension, which includes the competence and politeness of officers and a sense of security in interacting, was also assessed very well. Finally, the empathy dimension, which reflects the company's attention and concern for customer needs, received high appreciation from respondents.

Customer satisfaction, attitude, and loyalty variables also received an assessment in the very good category. This shows that customers are not only satisfied with the services provided, but also have a positive attitude towards the company and show a tendency to remain loyal to using PLN

services. The results of further analysis revealed that there is a positive and significant influence between service quality and customer satisfaction and loyalty. This means that the better the quality of service perceived, the higher the level of customer satisfaction and loyalty. In addition, there is a significant positive relationship between satisfaction and customer attitude and between satisfaction and loyalty, indicating that satisfied customers tend to have positive perceptions and attitudes towards the company and maintain their loyalty. No less important, customer attitudes have also been shown to have a positive and significant influence on loyalty, strengthening the finding that customer perceptions and beliefs play an important role in building long-term relationships.

These findings provide important recommendations for the management of PT PLN (Persero) UP3 Rantauprapat to continue to maintain and improve the quality of service in every dimension. A customer-focused approach, provision of adequate supporting infrastructure, and improvement of human resource competency need to be continuously developed in order to maintain customer satisfaction, positive attitudes, and loyalty in the long term.

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