Strategic Improvement of New Electricity Connection Services for Residential Customers at PT PLN (PERSERO) UP3 Manado

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Abstract. The demand for new electricity connection services at PT PLN (Persero) UP3 Manado continues to increase in line with the rapid growth of residential housing developments. The current payment model, which only requires one household to pay the connection fee upfront, further increases the risk of uncollected receivables and delays in network construction. This situation highlights the need for a more effective and integrated service improvement strategy. This study aims to formulate priority strategies for improving new electricity connection services for residential customers by considering internal and external factors, customer satisfaction levels, and the potential implementation of an innovative banking mechanism for payment transactions. A qualitative approach was employed through in-depth interviews with eight key informants from PT PLN (Persero) UP3 Manado and housing developers, supported by questionnaires to determine the weights and attractiveness scores (AS) in the SWOT and QSPM matrices. The findings reveal five dominant factors causing delays: limited availability of main distribution materials, repetitive administrative processes, unsynchronized payment mechanisms with construction progress, suboptimal internal coordination, and limited *TMP* monitoring. SWOT analysis generated ten alternative strategies, and QSPM results identified three priority strategies. The strategy with the highest total attractiveness score (7.03) is collaboration with banks to facilitate payment transactions, followed by partnership with housing developers (6.55), and development of an integrated new connection service (6.26). This research concludes that accelerating new electricity connections can be achieved by integrating innovative banking-based payment mechanisms, improving internal processes, and adopting digital technology support.

Keywords: service strategy, electricity connection, residential customers, banking mechanism, PT PLN (Persero).

INTRODUCTION

PT PLN (Persero) is a state-owned electricity company in Indonesia with a mandate to provide electricity services nationwide (Basyariah & Rizki, 2023; Kurniawati, 2022). With a vision to become one of the top 500 global companies and the customer's primary choice for energy solutions, PT PLN (Persero) serves as the primary provider of electricity facilities and services, aiming to meet the needs of the wider community (Sari et al., 2022). However, in its implementation, PT PLN (Persero) frequently faces criticism and complaints from customers regarding the quality of its services, particularly in the process of connecting new electricity connections. This indicates the need for an in-depth evaluation of the operational standards and procedures applied in these services (Chan et al., 2021).

As the sole entity fully responsible for electricity provision, PT PLN (Persero) must fulfill the public energy demand with reliable and sustainable services in accordance with Law No. 30 of 2009 concerning Electricity; however, the Law's structure of vertical integration and granting PLN priority rights in generation, transmission, and distribution constrains the sector's flexibility and response capacity (IEA, 2009). Coupled with these regulatory challenges, rising electricity demand—projected to grow approximately 4.7 percent annually and reach 445 TWh by 2030—puts mounting pressure on PLN's generation infrastructure (Ember, 2024). PLN's

capability enhancement plans, while ambitious—such as adding 47,758 km of new transmission lines, over 100,000 km of medium- and low-voltage networks, and a "Green Enabling Super Grid"—reflect the scale of investment needed to address capacity constraints (Ashurst, 2025). Moreover, despite PLN covering roughly 75 percent of Indonesia's electricity demand, its revenue model based on past audited costs hinders alignment with rising operational expenses and affordability mandates, creating financial strain (Climate Transparency, 2024). Infrastructure limitations are also evident in Eastern Indonesia, where PLN's EPI unit is leading a USD 1.5 billion small-scale LNG deployment project to replace diesel-based power plants, a critical yet complex effort due to supply and logistics hurdles (Reuters, 2025). In sum, while PLN endeavors to balance growing demand, sustainability objectives, and legal mandates, it continues to navigate significant regulatory, financial, and infrastructural constraints that could impair service reliability if not carefully managed.

The process of applying for new electricity connections for housing in North Sulawesi, frequently managed in stages as units are constructed, often allows developers to pay the connection fee (BP) for a single unit on behalf of all, which risks delays since subsequent payments are needed before service activation, thereby reducing efficiency (Ridha & Nugroho, 2022). Such procedural lags can translate into financial exposure for PLN, as failure to meet Service Quality Level (TMP) standards may entail compensation obligations to customers (ADB, 2020). Furthermore, PLN's investment in network expansion—such as installing poles, laying cables, and adding transformers—must remain agile, but these assets may stand idle if connection roll-outs are stalled (World Bank, 2020). Improving business process flow for new connections—such as streamlining approval workflows and reducing lead time—has been shown to reduce time-to-connection by 40%, increasing process effectiveness (Ridha & Nugroho, 2022). Meanwhile, PLN's broader push for efficiency through digital transformation and customer-centric service delivery highlights the need for responsive back-end operations to support timely physical infrastructure deployment (Aditya, 2023). Delays in customer onboarding can undermine PLN's financial stability, especially when business process frictions delay cash inflows (World Bank, 2020; ADB, 2020). Therefore, to uphold service quality standards and minimize potential compensation payouts, PLN must optimize both its business processes and front-end infrastructure readiness.

Based on internal data from PT PLN (Persero) UP3 Manado, the number of R tariff electricity connection requests from July to November 2024 fluctuated, namely 2,114 (July), 2,027 (August), 1,895 (September), 2,151 (October), and 1,709 (November). The total number of connection days decreased significantly from 19,655 days in July to 4,999 days in November, with the average connection time per request also decreasing from 9.3 days to 2.9 days. This data indicates an increase in service efficiency over time. Regulation of the Minister of Energy and Mineral Resources of the Republic of Indonesia No. 27 of 2017 stipulates a standard connection duration of 5 working days for installation without network expansion, 15 working days if network expansion is required, and 25 working days if a transformer is added. However, in practice, delays often occur due to factors such as limited materials, repetitive administrative processes, and suboptimal internal coordination. These delays can trigger compensation payments to customers and lower customer satisfaction levels. Therefore, PT PLN (Persero) needs to improve efficiency through synergies with housing developers and banks to simplify payment mechanisms and create more structured material planning. This

approach is expected to expedite the connection process, reduce the risk of delays, and improve the quality of electricity service for residential customers.

Effective risk management is essential to minimize delays in construction projects, including electricity connections, by identifying and managing factors that hinder project completion (Setiawan & Perdhana, 2019). Risks in electricity connections encompass the possibility of events affecting project objectives, both losses and gains (Cooper & Schindler, 2014); therefore, their management is crucial to improving service quality and customer satisfaction. Data from PT PLN (Persero) UP3 Manado shows a consistent increase in electricity consumption from January to November 2024, often exceeding targets, reflecting growing demand due to population, economic growth, and infrastructure development. These findings demonstrate the effectiveness of the company's electricity resource planning and management. This study aims to understand electricity service policies and close existing gaps through a holistic approach and integrated service strategies to improve the quality of new power connections. A SWOT analysis is used to identify strengths, such as trained human resources, adequate infrastructure, and government support, as well as weaknesses such as connection delays, lack of information transparency, and rigid procedures. The research results are expected to provide a strategic contribution to improving the services of PT PLN (Persero) UP3 Manado, so that it is more responsive to the increasing electricity needs of the community and able to increase efficiency and customer satisfaction.

This study explores the potential for increasing demand for electricity services in line with economic and infrastructure growth in Manado City. This presents PT PLN (Persero) UP3 Manado with the opportunity to expand its service coverage and improve its quality. Technological innovations, such as digital applications to simplify applications and communications, present a significant opportunity to increase efficiency and transparency. Public awareness of sustainable energy also opens up the potential for environmentally friendly services. However, threats such as the emergence of private electricity providers, regulatory changes, and the risk of connection delays that could damage the company's reputation remain. A SWOT analysis was used to identify strengths, weaknesses, opportunities, and threats, while a QSPM helped evaluate and prioritize the most effective strategies. Data were obtained through interviews with residential customers and internal employees to understand their perceptions and experiences. Recommended strategies focus on improving service speed and quality through more efficient, transparent, and digitally based procedures. PT PLN (Persero) UP3 Manado also needs to address the risk of *TMP* compensation and payment uncertainty resulting from a less flexible connection fee model. Proposed strategies include developing an integrated payment mechanism, collaborating with banks, and improving operational systems to increase efficiency, customer satisfaction, and service sustainability.

This study develops a strategy model for improving new electricity connection services by integrating SWOT analysis and QSPM. Theoretically, this study provides a conceptual framework and strategy evaluation method that can be used as a reference in the electricity sector. For customers of PT PLN (Persero) UP3 Manado, this study offers a practical plan to improve the timeliness and quality of service, including more efficient operational procedures, a measurable performance monitoring system, and implementation guidelines with a clear timeline. The results of this study can be replicated by other PLN units to improve new electricity connection services nationally.

METHOD

This study uses a qualitative approach with a case study method to describe the problems of new electricity connection services at PT PLN (Persero) UP3 Manado in depth. Data were collected through in-depth interviews with eight sources consisting of PLN employees and housing developers, questionnaires, and documentation studies of regulations, internal reports, and other supporting documents. The sampling technique used was saturated sampling because the population was relatively small, so all individuals who met the criteria were used as research samples. The data obtained were qualitative as the main data, while quantitative data were used to complement the analysis, including the number of connection requests, average realization time, and electricity consumption trends.

Data analysis was conducted in stages. First, interview data were processed using NVivo software to code, classify, and identify key themes related to internal and external factors affecting service performance. Second, the coding results were analyzed using a SWOT approach to identify strengths, weaknesses, opportunities, and threats. Third, the IFE and EFE matrices were constructed by weighting and rating each strategic factor, resulting in a weighted score reflecting the company's strategic position.

The next step is to develop a Quantitative Strategic Planning Matrix (QSPM) to evaluate strategic alternatives based on their relative attractiveness score (AS) and total attractiveness score (TAS). The strategy with the highest TAS is prioritized as the primary recommendation. This method was chosen because it systematically combines qualitative and quantitative analysis in the strategy formulation process.

Data validity was ensured through triangulation of sources, methods, and time. Source triangulation was conducted by comparing information from PLN employees and developers. Method triangulation combined interviews, questionnaires, and documentation to obtain valid data. Time triangulation was conducted by conducting interviews during different periods (March–April 2025) to ensure consistency of information.

This research was conducted for five months, from February to July 2025, through four stages: preparation (instrument development and resource person coordination), data collection (interviews, questionnaires, documentation), data analysis (processing with NVivo, SWOT, IFE, EFE, and QSPM), and preparation of research report and strategic recommendations. This approach is expected to produce an effective priority strategy to improve the quality of new electricity connection services for residential customers at PT PLN (Persero) UP3 Manado.

RESULTS AND DISCUSSION
Analysis NVivo

Table 1. Coding Results NVivo

No	SWOT aspects	Category (Node/Sub Node)	Example of Source Quotes	Source
1	Strengths	PLN Mobile	"Requests, tracking, and communication can be done via PLN Mobile."	Mrs. Anies 【12】
2	Strengths	PLN Mobile	"No need to go to the office, just use the application."	Clean Edi 【16】
3	Strengths	Trained Human Resources	"PLN employees are competent in their respective fields."	Mr. Gede [13]

4	Strengths	Trained Human Resources	"The officers are certified, work professionally and are friendly."	Pack In Drive 【14】
5	Strengths	Infrastructure	"We have a 20 MWH power surplus and a complete distribution network."	Pak Rezha 【18】
6	Strengths	Infrastructure	"With the existing infrastructure, the connection process is faster."	Clean Edi 【16】
7	Strengths	Government Support	"The government helps through regulations and subsidies, such as the placement of poles."	Pak Rezha 【18】
8	Strengths	Government Support	"There is a PLN promotion that is being promoted by the government."	Mr. Gede [13]
9	Weaknesses	Material Delay	"Materials such as MDU, MCB, cables, are often empty."	Pak Rezha 【18】
10	Weaknesses	Material Delay	"The cable is there, the panel is not. The panel is there, the cable is empty. It happens often."	Pack In Drive 【14】
11	Weaknesses	Internal Coordination	"Connection involves many parts, coordination must be tight."	Mr. Gede [13]
12	Weaknesses	Internal Coordination	"The delay is also because the internal parts are not yet in sync."	Mrs. Anies 【12】
13	Weaknesses	Unclear Information	"Information from PLN is sometimes not conveyed clearly to customers."	Mrs. Anies 【12】
14	Weaknesses	Unclear Information	"At the beginning of the application, it is sometimes slow to update the status to the developer."	This is Marcella 【15】
15	Weaknesses	Process Delay	"Applications sometimes take more than 5 days, especially for extensions."	Pak Clif 【17】
16	Weaknesses	Process Delay	"To install a transformer can take up to 1–2 months."	Mr. Richie Ray 【19】
17	Opportunities	Demand Rises	"The demand trend is getting higher, REI's membership is increasing."	Mr. Richie Ray 【19】
18	Opportunities	Demand Rises	"The government is targeting affordable housing, electricity is a primary need."	Pak Rezha 【18】
19	Opportunities	Developer Collaboration	"PLN can collaborate with developers from the start of the project."	This is Marcella 【15】
20	Opportunities	Developer Collaboration	"Collaborative programs with third parties help accelerate."	Pak Clif 【17】
21	Threats	Material Dependence	"Materials were sent from Java, and took a long time to arrive."	Pak Rezha 【18】
22	Threats	Developer Uncertainty	"PLN needs certainty regarding development, developers also need certainty regarding the network."	This is Marcella 【15】
23	Threats	Administration & Registration Number	"The funds are ready, but the registration numbers are slow to be issued."	Pak Clif 【17】
24	Threats	Slow Communication	"Asking about progress to PLN often gets a slow response."	Pak Clif 【17】

Source: N-Vivo Application

Table 1 presents the results of coding interview data conducted using the NVivo

application. *This* aims to identify the main themes that emerged from the respondents' responses to this research. The coding results are grouped based on four main aspects that form the basis for further analysis, namely: *Strengths, Weaknesses, Opportunities, and Threats.*

In this table there are several important components:

1. SWOT aspects: the main categories that form the framework of the analysis.
2. Category (*Node/Sub-node*): specific themes or topics that emerge from the interviewee's answers.
3. Example of Source Quote: a snippet of an original statement from a source that supports the theme.
4. Source: identity of the source who provided the statement.

The coding process was carried out inductively by rereading the interview transcripts, marking relevant sections, and then grouping them into appropriate nodes. This not only helps organize data but also serves as a basis for compiling a SWOT analysis.

Figure 1. Node NVivo (Application NVivo)

Figure 1 shows the results of mapping the relationships between various elements relevant to a SWOT analysis, specifically in the context of the implementation of PLN Mobile. Each node represents an aspect or entity that plays a role in the analysis, whether related to strengths, weaknesses, opportunities, or threats. The connecting lines between the nodes illustrate the interrelationships between these elements, forming a complex network that reflects the interactions between them.

For example, the relationship between "Infrastructure" and "Employee Performance" demonstrates the significant influence of infrastructure conditions on employee performance. Through this mapping, analysis can provide deeper insights into the internal dynamics of the organization and the relationships between these factors. This information plays a crucial role in formulating more targeted and effective strategies for developing PLN Mobile services.

Figure 2. Word Cloud (N-Vivo Application)

Figure 2 shows a visual representation in the form of word *cloud, which* contains the keywords that appear most frequently in the analysis results related to PLN Mobile. The size of each word reflects its frequency of occurrence, with larger words indicating a higher frequency of mention by respondents.

Words such as "customer," "also," "for," and "we" indicate the analysis' primary focus on customer interactions and experiences. This demonstrates the organization's focus on meeting the needs and expectations of service users. Furthermore, other emerging words provide additional insight into specific issues, opportunities for improvement, and challenges faced in managing new electricity connection services. This visualization helps identify areas requiring further attention in formulating a digital-based service improvement strategy.

SWOT Analysis
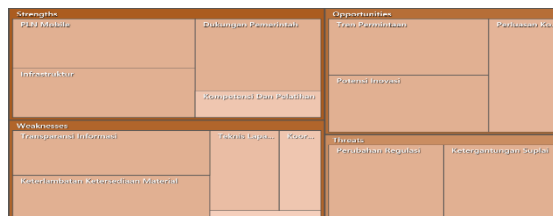
Figure 3. Coding 1 Results NVivo(Results of processing interviews with 8 research sources)

Based on N-Vivo processing of the results of interviews with various sources, the SWOT analysis in Figure 4.3 above describes all the factors that are influential regarding the strengths, weaknesses, opportunities and threats of PT PLN (Persero) UP3 Manado.

Strength
1. PLN Mobile
   The PLN Mobile app is a key strength with the largest area in the diagram, demonstrating that digitizing customer service is a significant strategic asset. This reflects PT PLN (Persero) UP3 Manado's ability to adapt to the digital era and provide easy access to services for customers.
2. Infrastructure
   Solid infrastructure forms a strong operational basis, indicating that PT PLN (Persero) UP3 Manado has adequate physical assets to support electricity distribution in the Manado area and its surroundings.
3. Government Support

Strong government support provides important legitimacy for the operations and development of PT PLN (Persero) UP3 Manado.

4. Competence and Training

Competent human resources and ongoing training programs are internal strengths that support service quality.

Weaknesses

1. Information Transparency

Lack of information transparency is the biggest weakness, based on the area size in the diagram. This can impact public trust and organizational accountability.

2. Delay in Material Availability

The problem of *supply chain in* the provision of materials becomes an operational constraint that can affect the quality and speed of service.

3. Field Techniques

Technical problems in the field indicate a gap between planning and implementation in daily operations.

4. Coordination

Weak internal coordination can hinder the effectiveness of teamwork and the achievement of organizational targets.

Opportunity

1. Demand Trends

The increasing demand for electricity in Manado and its surrounding areas provides significant business growth opportunities.

2. Consumer Expansion

The potential for expanding the customer base represents an opportunity to increase market *share* and *revenue*.

3. Innovation Potential

The possibility of increasing operational efficiency and customer satisfaction through the development of innovative technologies and services.

Threat

1. Regulatory Changes

The risk of regulatory changes from the government has the potential to influence the operational and business strategy of PT PLN (Persero)UP 3 Manado.

2. Supply Dependence

Dependence on suppliers certain threats that can disrupt operational continuity.

A new electricity connection strategy for residential customers at PT PLN (Persero) UP3 Manado is crucial for improving service quality. A SWOT analysis helps identify the strengths, weaknesses, opportunities, and threats. Influence Performance. Optimizing competent human resources and utilizing existing infrastructure can accelerate service delivery. Government support and a positive corporate image are assets for increasing trust and attracting new customers. Implementing flexible bank-based payment mechanisms can reduce payment

delays and risks. By integrating SWOT analysis and risk mitigation strategies, PLN can design more efficient and transparent services that meet customer expectations and strengthen competitiveness.

IFE and EFE Matrix

The stages of compiling the IFE and EFE Matrix generally consist of the following five stages:

Identify Strategic Factors

Identify relevant internal and external factors based on the results of a company audit or environmental analysis. For internal factors, list strengths and weaknesses; for external factors, list opportunities and threats. Use supporting data such as ratios, percentages, and comparative indicators to increase accuracy.

Table 2. Internal External Factors Table

Internal Factors (strengths, weaknesses)	External Factors (opportunity, threat)
1. PLN Mobile and Service Digitalization	1. Increasing Trend in Electricity Demand
2. Solid Electrical Infrastructure	2. Consumer Expansion in the Manado Region
3. Strong Government Support	3. Potential for Electrical Technology Innovation
4. Human Resources Competence and Training	4. Changes in Government Regulations
5. Lack of Information Transparency	5. Material Supply Dependence
6. Delay in Material Availability	6. Renewable Energy Competition
7. Technical Field Issues	
8. Weak Internal Coordination	

Table 3 displays the internal and external strategic factors influencing the performance of new power connections at PT PLN (Persero) UP3 Manado. Internal factors include strengths such as the use of PLN Mobile, a robust electricity infrastructure, and government support, as well as weaknesses such as limited materials, technical field issues, and weak internal coordination.

External factors include opportunities such as increasing electricity demand, potential technological innovation, and expanding consumer bases in the Manado region, while threats include dependence on material supplies and the emergence of renewable energy competition. Identification of these factors forms the basis for determining the weights and ratings in the IFE and EFE matrices, ensuring a more targeted and relevant strategy for the company's actual situation.

Weight Determination

Each factor is assigned a weight ranging from 0.0 (not important) to 1.0 (very important), with a total weight of 1.0. This weight reflects the importance of a factor in determining a company's success. The weighting is based on industry conditions and the factor's impact on organizational performance.

Table 3. IFE and EFE Matrix Weight Table

Factor	Score	Weight
Internal factors (strengths, weaknesses)		
1. PLN Mobile and Service Digitalization	4,50	0,14
2. Solid Electrical Infrastructure	4,75	0,14

3. Strong Government Support	5,00	0,15
4. Human Resources Competence and Training	4,75	0,14
5. Lack of Information Transparency	4,25	0,13
6. Delay in Material Availability	4,38	0,13
7. Technical Field Issues	2,63	0,08
8. Weak Internal Coordination	3,13	0,09
External factors (opportunities, threats)		
1. Increasing Trend in Electricity Demand	4,50	0,21
2. Consumer Expansion in the Manado Region	4,63	0,22
3. Potential for Electrical Technology Innovation	2,75	0,13
4. Changes in Government Regulations	3,00	0,14
5. Material Supply Dependence	3,63	0,17
6. Renewable Energy Competition	2,63	0,13

Source: Questionnaire

Table 4.4 This table presents the results of determining the weighting of strategic factors obtained through a questionnaire distributed to 8 research informants. Each informant assessed the level of importance of each strategic factor to the success of new electrical power connections at PT PLN (Persero) UP3 Manado using a scale of 1–5 (1 = not important, 5 = very important). The scores from all informants were calculated as an average for each strategic factor.

Next, these average results are normalized using the formula:

Weight Factor i= The Mean Score of Factor iTotal Average Value of All Factors

Thus, the total weight of all factors is 1.0. A higher weight indicates that the factor is considered more influential in supporting or hindering the strategy for accelerating new connections. This approach ensures that the weights used in the IFE and EFE Matrices are objective, measurable, and reflect the collective views of relevant experts and practitioners.

Ranking

Each factor is assigned a rating scale of 1 to 4 which is used to indicate the condition of the company:

Internal factors (IFE): 1 indicates a major weakness, 2 indicates a minor weakness, 3 indicates a minor strength, 4 indicates a major strength.

External factors (EFE): 1 indicates the company's response is below average, 2 indicates an average response, 3 indicates an above average response, 4 indicates a very good response.

Table 4. Rating of IFE and EFE Matrices

Factor	*Rating*
Internal factors (strengths, weaknesses)	
1. PLN Mobile and Service Digitalization	4
2. Solid Electrical Infrastructure	3
3. Strong Government Support	4
4. Human Resources Competence and Training	3
5. Lack of Information Transparency	2
6. Delay in Material Availability	3
7. Technical Field Issues	2
8. Weak Internal Coordination	2
External factors (opportunities, threats)	
1. Increasing Trend in Electricity Demand	4

2. Consumer Expansion in the Manado Region	2
3. Potential for Electrical Technology Innovation	3
4. Changes in Government Regulations	4
5. Material Supply Dependence	2
6. Renewable Energy Competition	2

Source: Questionnaire

Table 4 This table displays the ratings given to each factor based on the assessments of the research sources. *Ratings show* the actual condition of the company in responding to strategic factors that have been identified and given on a scale of 1–4, according to the method (David & David, 2017).

The rating value for each factor is the average result from all sources, thus reflecting a collective assessment based on work experience, company performance data, and actual field conditions. *Rating: A* higher rating indicates that the company has strengths or a good response to that factor, while a low rating indicates deficiencies or weaknesses that need to be addressed.

Weighted Score Calculation

Weight multiplied by a scalar ranking to obtain a weighted score for each factor. This score reflects the extent of each factor's contribution to the company's strategic position.

Total Score Interpretation

Add up all the weighted scores to get the total score:

1. For the IFE Matrix, the median score is 2.5. Scores above 2.5 indicate dominant internal strengths, while scores below 2.5 indicate dominant internal weaknesses.
2. For the EFE Matrix, a score above 2.5 indicates that the company's response to external opportunities and threats is relatively good, but a score below 2.5 indicates an ineffective response.

The weighting in this analysis was based on interviews and a thorough understanding of the context of PT PLN (Persero) UP3 Manado, rather than quantitative questionnaire data collection. This approach aligns with the characteristics of qualitative research methodology, which emphasizes in-depth analysis of field realities. Therefore, the weightings assigned reflect actual conditions and dynamics, based on careful observation and insights gained during the research process.

Table 5. IFE Matrix for 8 informants

Internal Factors	Weight	*Rating*	Score
STRENGTH			
1. PLN Mobile and Service Digitalization	0,14	4	0,56
2. Solid Electrical Infrastructure	0,14	3	0,42
3. Strong Government Support	0,15	4	0,60
4. Human Resources Competence and Training	0,14	3	0,42
WEAKNESSES			
5. Lack of Information Transparency	0,13	2	0,26
6. Delay in Material Availability	0,13	3	0,39
7. Technical Field Issues	0,08	2	0,16
8. Weak Internal Coordination	0,09	2	0,18
TOTAL	1		2,99

The evaluation results show that the total internal factor score for PT PLN (Persero) UP3

Manado is 2.99, indicating a preponderance of strengths over weaknesses. While there are weaknesses that require attention, the strengths present serve as strategic assets to support improvement and development. Therefore, utilizing these strengths must be directed toward addressing weaknesses to comprehensively improve the company's performance.

Table 6. EFE Matrix for 8 informants

External Factors	Weight	Rating	Score
OPPORTUNITY			
1. Increasing Trend in Electricity Demand	0,21	4	0,84
2. Consumer Expansion in the Manado Region	0,22	2	0,44
3. Potential for Electrical Technology Innovation	0,13	3	0,39
THREAT			
4. Changes in Government Regulations	0,14	4	0,56
5. Material Supply Dependence	0,17	2	0,34
6. Renewable Energy Competition	0,13	2	0,26
TOTAL	1		2,83

The evaluation results show that the total external factor score of PT PLN (Persero) UP3 Manado is 2.83, which reflects the existence of significant opportunities accompanied by threats that must be anticipated. Opportunities such as increasing electricity demand and technological innovation need to be optimally utilized, while threats related to regulations, limited resources, and renewable energy competition must be addressed through appropriate strategies. By utilizing opportunities in line with threat management, PT PLN (Persero) UP3 Manado can strengthen its competitiveness and performance in the future.
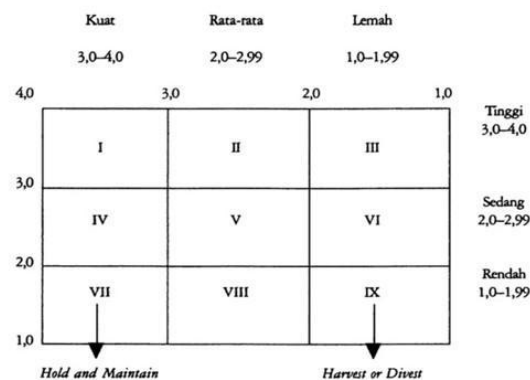

Figure 4. IE Matrix

Based on the analysis results, an IFE value of 2.99 and an EFE value of 2.83 places PT PLN (Persero) UP3 Manado in Quadrant V of the IE Matrix. This position indicates relatively strong internal strength, but faces moderate external challenges. In general, the IE Matrix groups strategies into three categories:

1. Quadrants I, II, and IV
   Business units in this quadrant are recommended to implement the Grow and Build strategies. Suitable alternatives include intensive strategies, such as Market Penetration, Market Development, and Product Development, as well as integrated strategies such as Backward Integration, Forward Integration, and *Horizontal Integration*.

2. Quadrants to III, V, and VII

   Business units in this position should adopt a strategy of Holding and Maintaining. Commonly implemented strategies include market penetration and Product Development to maintain a competitive position.

3. Quadrants to VI, VIII, and IX

   Divisions in this quadrant are generally advised to implement defensive strategies such as Harvest or *Divestiture*.

4. Best Position

   A company is considered to be in the most advantageous position if it is in Quadrant I, which reflects high internal strength and external opportunities.

PT PLN (Persero) UP3 Manado, which is in Quadrant V, has solid internal strength to implement the strategy. *Hold and Maintain. Through* strategic collaboration with the banking sector and other relevant parties, the company can strengthen its stability while preparing for the next phase of growth. Prioritize strategy, Market Penetration and *Product Development*, strengthened by the right partnerships, will help companies maintain their competitive position while moving towards a more superior strategic position in the future. Characteristics of Strategic Position:

1. Dominant Internal Strengths – An IFE score of 2.99 confirms significant strengths in digitalization and infrastructure.
2. Moderate External Environment – An EFE score of 2.83 indicates greater opportunities than threats.
3. Recommended Strategy – Consolidate internal strengths while selectively exploiting opportunities.

Strategic Implications:

1. No aggressive expansion required; focus on optimizing existing performance.
2. Utilize the strengths that have been possessed to maintain competitiveness.
3. Choose the most potential and profitable opportunities to develop.
4. Perform risk mitigation proactively to anticipate threats.

SWOT Matrix

After identifying internal factors (strengths and weaknesses) and external factors (opportunities and threats) through interviews and data processing using N-Vivo, the next stage is to develop alternative strategies using the SWOT Matrix. According to David & David (2017), the SWOT Matrix is a tool frequently used in the strategy formulation process because it can integrate internal and external factors, resulting in four main strategy categories, namely:

1. SO Strategy (*Strengths-Opportunities*): optimizing the organization's strengths in taking advantage of available opportunities.
2. WO Strategy (*Weaknesses-Opportunities*): take advantage of opportunities to overcome existing weaknesses.
3. ST Strategy (*Strengths-Threats*): using strengths to overcome or reduce the impact of threats.
4. WT Strategy (*Weaknesses-Threats*): reduce weaknesses while anticipating possible threats.

As conveyed by Harisudin *et al*(2022), a comprehensive understanding of SWOT factors is far more important than simply measuring numbers, because the effectiveness of a strategy

is determined by an organization's ability to respond to internal and external challenges. Therefore, the SWOT Matrix is not only used to describe conditions but also serves as a basis for determining priority strategies that will be further evaluated using the QSPM Matrix.

Table 7. SWOT Matrix

	Strength		Weaknesses
	1. PLN Mobile and Service Digitalization	1.	Lack of Information Transparency
	2. Solid Electrical Infrastructure	2.	Delay in Material Availability
	3. Strong Government Support	3.	Field Technical Issues
	4. Human Resources Competence and Training	4.	Weak Internal Coordination
Opportunity	**SO Strategy**		**WO Strategy**
1. Increasing Trend of Electricity Demand 2. Consumer Expansion in the Manado Region 3. Potential for Electrical Technology Innovation	1. Optimizing PLN Mobile for Market Expansion (S1, O1) Utilizing the PLN Mobile digital platform as the primary medium for new installation services and customer communication, thereby expanding access and accelerating the connection process. 2. Development of Integrated New Installation Services (S1, S4, O2) Integrating application, payment and service tracking systems into one digital platform to increase transparency and efficiency. 3. Partnership with Housing Developers (S2, S3, O2) Providing electricity connection service packages for housing projects from the construction stage, so that the collective process is faster and supports market penetration.		1. Increasing Transparency through Digitalization (W1, W4, O1) Create a real-time tracking feature and automatic cost estimation in PLN Mobile so that customers can monitor connection progress and reduce complaints about delays. 2. Optimization *Supply Chain* Material (W2, W3, O2) Developing a digital-based material planning system to minimize delays in MDU distribution, especially for large-scale housing projects. 3. Cooperation with Banks for Payment Facilities (W4, O2, O3) Offering flexible payment schemes through banking, including escrow accounts or installments, to help customers and developers make new installation payments more easily.
Threat	**ST Strategy**		**WT Strategy**
1. Changes in Government Regulations 2. Material Supply Dependence 3. Renewable Energy Competition	1. Technology and Service Diversification (S1, S4, T1, T3) Strengthening PLN Mobile with additional features to remain relevant and superior in the face of competition in alternative energy services. 2. Strengthening Operational Resilience (S2, S3, T2) Leveraging infrastructure and government support to mitigate the impact of stringent regulations and ensure TMP targets are met.		1. Risk Management System Improvement (W1, W2, W4, T1) Develop SOPs for mitigating delays in new installations to comply with TMP regulations and reduce potential sanctions. 2. Operational Efficiency and Process Standardization (W2, W3, W4, T2, T3) Reduce manual processes through digitalization and improve internal coordination to be more responsive to external challenges.

The SWOT matrix in Table 7 shows various strategic alternatives. However, based on the

results of the IE Matrix, PT PLN (Persero) UP3 Manado is placed in Quadrant V (*Hold and Maintain*) with a total IFE score of 2.99 and a total EFE score of 2.83. The recommended strategy is market penetration and Product *Development.*

Therefore, the three most relevant strategies were selected for further analysis using the QSPM Matrix, namely:

1. Collaboration with Banks for Payment Ease: Supporting customer payment flexibility, while accelerating connection realization.
2. Development of Integrated New Installation Services: In line with PLN Mobile digitalization and supporting service efficiency.
3. Partnership with Housing Developers: Ensuring the availability of new market installments and optimizing external collaboration.

This strategy was chosen because it has a direct impact on increasing customer satisfaction, reducing the risk of delays, and strengthening the position of PT PLN (Persero) UP3 Manado in facing competition and strict regulations.

QSPM Analysis

The steps for compiling a QSPM include:

1. Identify the key strategic factors from the IFE and EFE Matrices, then list them in the left column of the QSPM.
2. Determine the weight of each factor according to the values used in the IFE and EFE Matrices.
3. Determine the alternative strategies to be compared, based on the results of the matching stage.
4. Assigns an attractiveness score (AS) on a scale of 1–4, to indicate the extent to which each factor influences strategic appeal:
   1 = not interesting
   2 = quite interesting
   3 = quite interesting
   4 = very interesting
   If there is a factor with no influence on available strategies, put a hyphen (-).
5. Calculate the weighted score (TAS) by multiplying the weight of each factor by the given AS score.
6. Add up the TAS scores of each strategy to obtain the Sum *Total Attractiveness Score (STAS)*. Strategy with STAYS. The highest STAS scores are considered the most attractive and worthy of prioritization. The greater the difference in STAS scores between strategies, the more pronounced the difference in feasibility between those strategies compared to other strategies.

Table 8. AS Score Calculation Table

	Strategy 1: Cooperation with Banks for Payment Facilities		Strategy 2: Development of Integrated New Installation Services		Strategy 3: Partnership with Housing Developers	
Internal	Total	Skor AS	Total	AS	Total	AS
1. PLN Mobile and Service	29	4	28	4	28	4

	Strategy 1: Cooperation with Banks for Payment Facilities		Strategy 2: Development of Integrated New Installation Services		Strategy 3: Partnership with Housing Developers	
Digitalization						
2. Solid Electrical Infrastructure	30	4	27	3	25	3
3. Strong Government Support	28	4	30	4	29	4
4. Human Resources Competence and Training	26	3	29	4	26	3
5. Lack of Information Transparency	28	4	25	3	29	4
6. Delay in Material Availability	27	3	26	3	29	4
7. Technical Field Issues	28	4	18	2	23	3
8. Weak Internal Coordination	20	3	24	3	21	3
External						
1. Increasing Trend in Electricity Demand	25	3	28	4	25	3
2. Consumer Expansion in the Manado Region	29	4	23	3	24	3
3. Potential for Electrical Technology Innovation	29	4	27	3	28	4
4. Changes in Government Regulations	23	3	22	3	22	3
5. Dependence on Material Supply	29	4	18	2	24	3
6. Renewable Energy Competition	19	2	13	2	15	2

Source: Questionnaire

Table 8 presents the results of processing the questionnaires given to eight research informants. Each informant rated the attractiveness of the strategy for each factor using a scale of 1–4 (1 = not attractive, 4 = very attractive). The average AS score for each factor was calculated by dividing the total score given by all informants by the number of respondents, and this score was used in calculating the TAS (*Total Attractiveness Score*) in the QSPM Matrix.

Table 9. QSPM Matrix

Key Factors	Weight	Strategy 1: Cooperation with Banks for Payment Facilities		Strategy 2: Development of Integrated New Installation Services		Strategy 3: Partnership with Housing Developers	
		AS	THAT	AS	THAT	AS	THAT
INTERNAL FACTORS - STRENGTH							

Key Factors	Weight	Strategy 1: Cooperation with Banks for Payment Facilities		Strategy 2: Development of Integrated New Installation Services		Strategy 3: Partnership with Housing Developers	
		AS	THAT	AS	THAT	AS	THAT
1. PLN Mobile and Service Digitalization	0,14	4	0,56	4	0,56	4	0,56
2. Solid Electrical Infrastructure	0,14	4	0,56	3	0,42	3	0,42
3. Strong Government Support	0,15	4	0,6	4	0,6	4	0,6
4. Human Resources Competence and Training	0,14	3	0,42	4	0,56	3	0,42
INTERNAL FACTORS - WEAKNESSES							
5. Lack of Information Transparency	0,13	4	0,52	3	0,39	4	0,52
6. Delay in Material Availability	0,13	3	0,39	3	0,39	4	0,52
7. Technical Field Issues	0,08	4	0,32	2	0,16	3	0,24
8. Weak Internal Coordination	0,09	3	0,27	3	0,27	3	0,27
EXTERNAL FACTORS - OPPORTUNITIES							
1. Increasing Trend in Electricity Demand	0,21	3	0,63	4	0,84	3	0,63
2. Consumer Expansion in the Manado Region	0,22	4	0,88	3	0,66	3	0,66
3. Potential for Electrical Technology Innovation	0,13	4	0,52	3	0,39	4	0,52
EXTERNAL FACTORS - THREATS							
4. Changes in Government Regulations	0,14	3	0,42	3	0,42	3	0,42
5. Material Supply Dependence	0,17	4	0,68	2	0,34	3	0,51
6. Renewable Energy Competition	0,13	2	0,26	2	0,26	2	0,26
TOTAL ATTRACTIVENESS SCORE	1	-	7,03		6,26		6,55
PRIORITY RANKING	-	-	1	-	3	-	2

The results of the SWOT analysis and QSPM Matrix indicate that PT PLN (Persero) UP3 Manado needs to implement a Hold and Maintain strategy with three main priorities. The first strategy is cooperation with banks (TAS 7.03) to provide flexible payment mechanisms through credit facilities and escrow accounts, thereby reducing the risk of delays and ensuring stable

cash flow. The second strategy is partnerships with housing developers (TAS 6.55) to plan electricity installations from the beginning of the project, increasing efficiency, and reducing material and technical obstacles. The third strategy is the development of integrated new installation services (TAS 6.26) based on digital through PLN Mobile, which allows real-time monitoring and cost transparency. These three strategies complement each other, creating an efficient, transparent, and sustainable electricity service ecosystem, while increasing the company's competitiveness amidst increasing electricity demand.

CONCLUSION

This study shows that PT PLN (Persero) UP3 Manado has strengths in the form of digitalized services through *PLN Mobile*, adequate infrastructure, government support, and competent human resources. However, there are significant weaknesses, namely delays in material provision, lack of information transparency, technical obstacles in the field, and suboptimal internal coordination. External factors show opportunities in the form of increasing electricity demand, expansion of consumers in the Manado area, and potential technological innovation, but also threats such as regulatory changes, dependence on material supplies, and competition from renewable energy. Based on the results of the SWOT analysis and the company's position in Quadrant V of the IE Matrix, the recommended strategies are Market Penetration and Product Development. Using the QSPM method, three priority strategies were determined, namely cooperation with banks for easy payment (TAS 7.03), partnerships with housing developers (TAS 6.55), and the development of integrated digital-based new installation services (TAS 6.26). The synergistic implementation of these three strategies is expected to increase the efficiency of electricity connections, accelerate services, reduce the risk of delays, and increase customer satisfaction. The results of this study provide a practical contribution in formulating adaptive, integrated, and technology-based service strategies, while strengthening the competitiveness of PT PLN (Persero) UP3 Manado in facing the dynamics of increasing electricity needs.

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