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## Effectiveness of Using PLN Mobile Application for Easy Customer Service at PLN Delitua Medan Indonesia

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**ABSTRACT:** Today's information technology has been widely applied in various fields such as banking, education, economics, health and also electricity. The development of technology, especially information, is currently increasingly rapid, this has led to many companies trying to come up with new innovations in terms of customer service which will certainly make it easier for customers to make transactions or other activities. The development of the internet has an increasingly strong influence on life, this cannot be denied, as evidenced by the increasing number of internet users from year to year. Therefore, in an effort to increase the reliability of PLN services, PLN has innovated by releasing the PLN Mobile Application. The research aims to determine the level of understanding of PLN customers and to determine the factors that influence user satisfaction of the PLN Mobile application, both from the customer and PLN officer side. The method used in this research is descriptive qualitative with data collection techniques through interviews with PLN customers and PLN officers at PLN ULP Delitua. The results of this research can be used as recommendations regarding system development by paying attention to factors that have a significant influence on customer satisfaction among PLN Mobile application users.

**Keywords:** Benefit, PLN Mobile, Customer Service, PLN ULP Delitua



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## INTRODUCTION

Digital transformation has become an essential strategy for improving service delivery in various industries, including the energy sector. The integration of digital technologies into customer service processes has been shown to enhance operational efficiency and customer satisfaction (Khan, 2020). This study examines the impact of the PLN Mobile application on customer service quality at PLN ULP Delitua, exploring its benefits, challenges, and the overall effectiveness of its implementation.

The Indonesian government, through PT PLN (Persero), has been actively pursuing electrification across the country. With the advancement of digital technologies, there is a growing emphasis on leveraging these innovations to streamline service delivery. The PLN Mobile application is a key

component of this digital transformation, offering customers an accessible platform to manage their electricity services. Previous studies have highlighted the importance of digital services in enhancing customer experience and operational efficiency (Nugroho, 2021; Wahyuni & Mulyadi, 2019). However, there is a need for a deeper understanding of how such applications are adopted and utilized by customers, particularly in specific regional contexts like Delitua.

Despite the promising potential of digital applications in the utility sector, there remain significant challenges in their adoption. Factors such as technological literacy, infrastructure availability, and customer trust play critical roles in the successful deployment of these tools (Sullivan & Lewis, 2018). In the case of PLN Mobile, while it has been praised for improving service accessibility and customer satisfaction, there are concerns regarding its effectiveness in regions with varying levels of digital literacy (Zhang & Tan, 2022).

The gap in the literature lies in the comprehensive evaluation of PLN Mobile's impact on service quality in specific localities, such as Delitua. This study aims to address this gap by providing an empirical analysis of the application's usage and its influence on customer satisfaction and service delivery efficiency. Specifically, the research will explore the following questions: (1) What are the key benefits of using the PLN Mobile application for customers in PLN ULP Delitua? (2) How has the application influenced customer satisfaction and service quality? (3) What challenges have been encountered in the implementation and adoption of the application in this region?

By addressing these questions, the research seeks to contribute to the broader understanding of digital service adoption in the energy sector, offering insights that could inform future strategies for technology integration in customer service operations.

## **Digital Transformation in the Utility Sector**

Digital transformation is a significant trend across various industries, including the utility sector, where it plays a critical role in enhancing operational efficiency and customer satisfaction. According to Vial (2019), digital transformation involves the integration of digital technologies into all areas of a business, fundamentally changing how organizations operate and deliver value to customers. In the context of the energy sector, digital transformation has been associated with improvements in service delivery, customer engagement, and operational efficiency (Gimpel, Hosseini, Huber, Probst, & Röglinger, 2018). A study by Rossmann (2018) highlights that the utility sector is increasingly leveraging digital technologies such as smart meters, customer management systems, and mobile applications to enhance customer interaction and streamline service delivery.

## **Mobile Applications in Customer Service**

The use of mobile applications in customer service has become a crucial aspect of digital transformation in various industries, including the utility sector. Mobile applications enable customers to interact with service providers in a more convenient and efficient manner. As per the research conducted by Hassan, Chen, and Qi (2020), mobile applications in customer service improve customer satisfaction by providing easier access to services and information.

Furthermore, they also allow for real-time communication and feedback, which is essential for enhancing customer experience and service quality (Kim, 2017).

### **Benefits of Mobile Applications in the Utility Sector**

The adoption of mobile applications in the utility sector, particularly in customer service, has shown significant benefits. Mobile applications like PLN Mobile have been instrumental in improving customer satisfaction by offering services that are accessible anytime and anywhere (Khan & Khan, 2019). According to a study by Martínez-Rojas, del Carmen Pardo-Ferreira, and Rubio-Romero (2018), the use of mobile applications in the utility sector enhances service efficiency and responsiveness, leading to better customer experiences. Moreover, mobile applications contribute to reducing operational costs and improving the overall efficiency of utility services (Dewi, 2022).

### **Challenges in Implementing Mobile Applications**

While mobile applications offer numerous benefits, their implementation in the utility sector is not without challenges. The success of such applications depends on factors such as the level of technology adoption, availability of resources, and user engagement (García-Moreno, López-Serrano, & Martín-Luque, 2019). As highlighted by Müller, Buliga, and Voigt (2018), one of the significant challenges is ensuring that the technology is user-friendly and accessible to all customer segments. Additionally, the successful implementation of mobile applications requires continuous support and maintenance, as well as addressing security and privacy concerns (Reis, Amorim, Melão, & Matos, 2018).

### **The Role of Technology Adoption in Enhancing Service Quality**

Technology adoption is a critical factor in the successful implementation of mobile applications in customer service. The adoption of mobile technology has been linked to improved service quality and customer satisfaction (Shin, Lee, & Kim, 2019). A study by Rana, Dwivedi, and Alryalat (2017) suggests that customers' willingness to adopt new technologies is influenced by factors such as perceived ease of use, perceived usefulness, and the availability of support. Therefore, ensuring that customers are well-informed and supported in using mobile applications is essential for maximizing the benefits of digital transformation in the utility sector (Park, Kim, & Lee, 2017).

### **State of the Art in Mobile Applications for Utility Services**

The latest advancements in mobile technology have enabled utility companies to offer more sophisticated and user-centric applications. For example, the integration of artificial intelligence (AI) and machine learning (ML) in mobile applications allows for personalized services and predictive analytics, which can enhance customer experience and operational efficiency (Chung & Park, 2020). According to Jansen and Ahlström (2021), the use of AI in mobile applications can help utility companies anticipate customer needs and proactively address potential issues, thereby improving service quality and customer satisfaction.

## **METHOD**

This study is a qualitative descriptive study that aims to explore and understand in depth the user experience and perception of the PLN Mobile application in the context of customer service at PLN ULP Delitua. Qualitative descriptive studies were chosen because this approach allows researchers to describe phenomena in detail and comprehensively, as well as to identify and understand various factors that influence customer satisfaction.

The object of this study is the use of the PLN Mobile application by customers at the Delitua Customer Service Unit (ULP), North Sumatra. The research locus focuses on ULP Delitua as a PLN operational unit that handles customer service in the region, which is an area with diverse adoption of digital technology among customers.

The population in this study were all PLN ULP Delitua customers who use the PLN Mobile application. Given the large population and limited resources, this study used a purposive sampling method to determine the sample to be included in the study.

The sample consisted of 20 active PLN Mobile customers who had used the application for at least 6 months. Sample selection was based on demographic variations (age, gender, education level) and experience in using PLN services before and after the PLN Mobile application.

The main informants in this study were PLN ULP Delitua customers who met the criteria as active users of PLN Mobile. In addition, supporting informants also included PLN staff who were responsible for the implementation and technical support of the PLN Mobile application, to provide additional perspectives on the operation and development of the application.

### **Data collection in this study was carried out through two main techniques**

1. In-depth Interviews: In-depth interviews were conducted with 20 key informants to explore their experiences, perceptions, and expectations regarding the use of the PLN Mobile application. Interviews were conducted face-to-face or through long-distance communication media (telephone/video call) using a semi-structured interview guide that allows for flexible exploration of important issues. Each interview was recorded with the informant's permission, and transcription was done verbatim for analysis purposes.

2. Documentation: Additional data was collected through documentation in the form of internal PLN reports, statistical data on application usage, and promotional materials and information related to the PLN Mobile application. This documentation is used to provide additional context and validate the findings from the interviews.

The data collected were analyzed using thematic analysis methods that include the following stages:

1. The recorded interview data were transcribed verbatim. After that, the data from the interviews and documentation were systematically organized to facilitate the analysis process.

2. This stage involves coding the data to identify key themes that emerge from the interview data and documentation. Coding was carried out using an inductive approach, where key themes were identified directly from the data without any initial assumptions.

3. The identified themes were then grouped into broader categories to reveal patterns and relationships between themes. This process allows researchers to understand key aspects of the user experience of the PLN Mobile application.

4. The results of the data analysis were compiled into an in-depth descriptive narrative, describing the user experience and perceptions and the implications of using the PLN Mobile application for customer service satisfaction.

5. To ensure data validity, triangulation was carried out by comparing the interview results with documentation data and additional interviews with PLN staff. This triangulation technique helps ensure that the findings obtained are accurate and representative.

This analysis method allows researchers to gain a comprehensive understanding of the dynamics of PLN Mobile application usage and its impact on customer service at PLN ULP Delitua, as well as providing insights that can be used to improve customer service strategies in the future.

## **RESULTS AND DISCUSSION**

### **Purpose of Launching the PLN Mobile Application**

The main purpose of launching the PLN Mobile application is to provide convenience for customers and a more modern and efficient electricity service experience. This application is expected to improve the quality of PLN services and minimize obstacles that customers often face, such as the length of the administrative process or the difficulty of accessing information related to PLN services. This study aims to evaluate the effectiveness of the PLN Mobile application in increasing customer satisfaction, identifying the benefits felt, and measuring the effect of the application on reducing brokering practices in the PLN ULP Delitua environment.

### **Promotion of the Use of the PLN Mobile Application**

PLN ULP Delitua has actively promoted the use of the PLN Mobile application to all its customers through various media, such as banners at the PLN office and uploads on the PLN Instagram account. In this series of promotions, customers who visit the PLN office are also given direct guidance by PLN staff on how to use the application.

Figure 1 below shows various forms of promotion carried out to introduce the features of the PLN Mobile application to customers.



This study successfully identified several key benefits of using the PLN Mobile application for customers and staff of PLN ULP Delitua. Based on the analysis of data collected through in-depth interviews and documentation, the key findings can be summarized as follows:

1. New Installations, Power Changes, Temporary Connections, and Cost Simulations The PLN Mobile application allows customers to submit new installations, power changes, and temporary connections directly through their smartphones. Based on the data obtained, around 80% of respondents admitted that this application made it easier for them to submit service applications without having to visit the PLN office directly. This was also acknowledged by PLN staff who felt a decrease in administrative workload due to the large number of applications submitted independently by customers.

Table 1: Customer Satisfaction Level with New Installation and Power Change Features

Application Features	Very Satisfied (%)	Satisfied (%)	Quite Satisfied (%)	Not Satisfied (%)
New Installation	50	30	15	5
Power Change	45	35	15	5
Temporary Connection	40	30	20	10



2. Bill Payment and Electricity Token Purchase The bill payment and electricity token purchase features available in this application allow customers to complete transactions directly from their smartphones. The data obtained shows that 90% of customers feel more efficient in making payments through the application compared to previous methods. Previous research by Setiawan (2020) also supports this finding, where the digitalization of payment services can increase time and cost efficiency for customers.

Graph 1: Comparison of Time Efficiency for Electricity Payments Before and After Using PLN Mobile



3. Independent Meter Reading with SwaCAM The SwaCAM feature makes it easy for customers to read their meters independently every month. Based on the interview results, 70% of customers are satisfied with this feature because it gives them more control over their monthly electricity usage. This finding is consistent with the study by Pratama et al. (2019), which showed that self-service in utility services increases customer engagement and billing accuracy.

4. Iconnet Internet Services In addition to electricity services, PLN also offers internet services through the PLN Mobile application. As many as 60% of respondents showed interest in trying this service, indicating significant market potential for PLN in service diversification.

Table 2: Level of Customer Interest in Iconnet Services

Iconnet Services	Very Interested (%)	Interested (%)	Quite Interested (%)	Not Interested (%)
Iconnet Internet	30	30	20	20

5. Reporting Power Outages or PLN Services The PLN Mobile application simplifies the process of reporting power outages, which can be done without having to visit the PLN office. From the

data analyzed, around 85% of customers who use this feature feel more satisfied with the fast response provided by PLN through the application compared to the previous reporting method.

6. Avoiding Brokerage Practices One of the issues raised in this study is PLN's efforts to reduce brokerage practices through the use of the PLN Mobile application. Interview results showed that 75% of respondents felt more comfortable using this application because they could directly interact with PLN without intermediaries. This shows the effectiveness of the application in overcoming brokerage problems that were previously quite disturbing to the community.

### **Statistical Analysis**

To support qualitative findings, descriptive statistical analysis was used to describe the level of satisfaction and effectiveness of the PLN Mobile application among respondents. In addition, a correlation test was conducted to see the relationship between the level of application usage and the level of customer satisfaction.

The results of the correlation test showed that there was a significant positive relationship between the use of the PLN Mobile application and increased customer satisfaction ( $r = 0.65$ ,  $p < 0.05$ ). This finding is in line with research by Rahman & Sari (2022) which found that the adoption of digital technology in utility services significantly increased customer satisfaction.

The results of this study indicate that the PLN Mobile application has succeeded in improving the quality of PLN ULP Delitua services and providing real benefits to customers. The effectiveness of this application can be seen from the increase in customer satisfaction, reduction in the workload of PLN staff, and the elimination of brokering practices. These findings support previous studies which state that the digitalization of utility services can improve operational efficiency and service quality (Setiawan, 2020; Pratama et al., 2019).

However, several challenges still need to be overcome, such as increasing public awareness of the application's features and ensuring wider access for all customers, including those who are less familiar with technology. Therefore, recommendations for further research are to examine more effective strategies in promoting this application and explore the long-term impact of application use on customer loyalty.

### **CONCLUSION**

Based on the discussion and research conducted at PLN ULP Delitua, the benefits of using the PLN Mobile application in customer service are as follows:

1. The use of the PLN Mobile application significantly facilitates the community, especially PLN customers, in conducting electricity transactions and accessing other PLN services.
2. PLN Mobile helps customers save both time and money by eliminating the need to travel to PLN office locations.
3. The PLN Mobile application was launched as a means for customers to find solutions to their electricity-related problems.



Based on the conclusions above, the researcher provides the following recommendations for PLN ULP Delitua:

1. PLN ULP Delitua should increase the frequency and reach of their campaigns to promote the use of the PLN Mobile application. This will help ensure that more customers of PLN ULP Delitua can use and benefit from the application.
2. PLN ULP Delitua should strive to maintain their current high standard of customer service and continue to seek ways to improve further

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