



The Effect of Digital Service Transformation and Service Quality on Customer Satisfaction at PT PLN (Persero) Distribution Main Unit of South Sumatra, Jambi and Bengkulu

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Abstract

In Indonesia's Industrial Revolution 4.0 era, PT PLN (Persero) faces escalating demands for digital efficiency and service quality. Despite prior studies on digital transformation (Vial, 2019) and service quality (Parasuraman et al., 2019), gaps remain in understanding their dual impact in public utilities, particularly in regional contexts like South Sumatra, Jambi, and Bengkulu. This study investigates how digital service transformation (via the PLN Mobile app) and service quality collectively influence customer satisfaction at PT PLN (Persero). Quantitative analysis of 100 PLN Mobile users, employing regression to test hypotheses derived from SERVQUAL and digital transformation frameworks. Both digital service transformation ($\beta=0.489$, $*p<0.05$) and service quality ($\beta=0.521$, $*p<0.05$) significantly enhance satisfaction. However, app crashes and slow response times hinder optimal performance, highlighting unmet technical and operational needs. The study underscores the need for region-specific digital optimization (e.g., lighter app design, faster complaint resolution) to align with global benchmarks (Kotler & Keller, 2016). Findings urge utilities to balance digital innovation with foundational service quality, offering a model for emerging markets.



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Introduction

The success of a business is influenced by several factors, one of the most important of which is the Human Resources (HR) who are involved in the company, work and contribute to the company to influence its development. Especially now that competition in various fields is very tight. In the business world, all companies are required to improve the efficiency of their operational activities in order to maintain their business continuity despite the rise of new competitors. This fierce competition is due to the profound

development of technology. Currently, Indonesia is entering the era of the Industrial Revolution 4.0, with the emergence of many new technologies and changes in the lives and work patterns of many people, such as employees who use the Internet to work as they should (Pertiwi, 2024).

PT PLN (Persero) is an electricity SOE that continues to be committed and innovate to carry out a big mission to illuminate and move the country. Having a vision to become a leading electricity company in Southeast Asia, PLN is moving to become the number one choice of customers for Energy Solutions. PLN carries a Transformation agenda with the aspirations of Green, Lean, Innovative, and Customer Focused in order to provide electricity for a Better Life. PLN can be contacted through the PLN Mobile application available on the PlayStore or AppStore (web.pln.co.id, 2024).

The average growth of the number of PT PLN (Persero) per year with 4 choices of customer categories, namely household, industry, business and others. In the category of the most types of customers, the most are in the Business category, while in the category of the least types of customers, namely in the Industrial category. In 2019/2023, the average growth in the number of customers of PT PLN (Persero) was 4.39%. The number of customers per customer group of PT PLN (Persero) in 2015 to 2023 which has increased every year with the categories of household, industry, business, social, government office buildings, public street lighting. In 2015, it showed the lowest number of customers, which was 61,134,644 with a percentage of 6.39%. Meanwhile, in 2023, the highest number of customers is 89,153,278 with a percentage of 4.11%.

PT PLN (Persero) is a company that provides electricity to all Indonesian people. Nowadays electricity is a very important need because most products from households to industry require electricity. Therefore, PLN must prioritize customer satisfaction through the best service and provide the best service to people from remote villages to big cities. PT PLN (Persero) continues to develop the latest strategies and innovations in customer engagement and strives to further improve the services provided to customers. the number of customers at PT PLN (Persero) the Main Distribution Unit of South Sumatra, Jambi and Bengkulu in 2023 with the categories of household, industry, business, social, government office buildings and public street lighting. In the UID of South Sumatra, Jambi and Bengkulu, the number of customers was 4,300,914 customers with a percentage of 4.82%. South Sumatra showed the number of customers of 2,484,602 customers with a percentage of 2.79%. Jambi shows the number of customers of 1,160,040 customers with a percentage of 1.30%. Meanwhile, in Bengkulu province, the number of customers was 656,269 customers with a percentage of 0.74%.

This research was conducted with the aim of determining the influence of digital service transformation and service quality on customer satisfaction at PT PLN (Persero) Distribution Main Unit of South Sumatra, Jambi and Bengkulu. This study distinguishes itself from prior research by specifically examining the combined impact of digital service transformation (PLN Mobile application) and service quality on customer satisfaction within PT PLN (Persero), a state-owned electricity utility in Indonesia's understudied regions (South Sumatra, Jambi, Bengkulu). While existing literature (e.g., Carvalho, 2023; Ashiq, 2023) explores digital services or service quality in isolation, this research integrates both variables in a public utility context, where service reliability and digital adoption are critical for societal welfare. Additionally, it addresses region-specific challenges (e.g., application crashes, slow response times) not covered in broader studies (e.g., Khan, 2024; Härkönen, 2024), providing actionable insights for improving digital infrastructure in emerging markets. The study also contrasts with works like Mijač (2023) and Pereira (2024) by focusing on non-banking utility services, where customer satisfaction hinges on both technical performance (e.g., outage management) and digital accessibility.

Materials and Methods

The population in this study is all customers of PT PLN (Persero) Main Distribution Unit in South Sumatra, Jambi and Bengkulu who have used the PLN Mobile application. Based on the number of PLN Mobile users of PT PLN (Persero) of the Main Distribution Unit of South Sumatra, Jambi and Bengkulu in 2023 as many as 4,019,431 users. So the number of samples used in this study was 100 respondents.

Results and Discussions

- 1) The digital service transformation variable (X1) has a beta value of 0.489 with a significant value of 0.000 which is less than 0.05. This shows that the digital service transformation variable has a positive and significant influence on customer satisfaction at PT PLN (Persero) Distribution Main Unit in South Sumatra, Jambi and Bengkulu. This proves that the first hypothesis on the variable of digital service transformation has a positive and significant effect is acceptable.

- 2) The service quality variable (X2) has a beta value of 0.521 with a significant value of 0.000 which is less than 0.05. This shows that the service quality variable has a positive and significant influence on customer satisfaction at PT PLN (Persero) Distribution Main Unit in South Sumatra, Jambi and Bengkulu. This proves that the second hypothesis on the variable of service quality has a positive and significant effect is acceptable.

Discussion

The Effect of Digital Service Transformation on Customer Satisfaction at PT PLN (Persero) Distribution Main Unit in South Sumatra, Jambi and Bengkulu

Research results (Härkönen, 2024); (Safari, 2024); (Tsai, 2024); (Ekechi, 2024); (Khan, 2024); (Pereira, 2024); (Motherland, 2024); (March, 2024); (Navanti, 2024); (Sapiri & Awaluddin, 2024); (Amarta, 2024); (Dangaiso, 2023); (Mijač, 2023); (Mamakou, 2023); (Ashiq, 2023); (Carvalho, 2023); (Masitoh, 2023); (Ghonim, 2022); (Mulyono, 2022) shows the results that digital services have a positive and significant effect on customer satisfaction.

Respondents' responses to the PLN Mobile application indicator never crashed and were always smooth when used, showing the lowest value. This shows that the PLN Mobile application still often crashes when used by customers. Based on interviews with several respondents who are customers of PT PLN (Persero) who use the PLN Mobile application, they said that crashes often occur when used. The PLN Mobile application is still complained of being slow when used. In addition, the application capacity is considered quite large, making some customers who have a small amount of smartphone capacity, often unable to download it. Customers say that when opened, applications often cannot be opened/exited from the application or the process of opening the application takes a long time. Customers complain very much about the use of applications that are still not fast in their response to use, especially when needed or in emergency conditions.

In the indicator, the PLN Mobile application provides convenience and efficiency in meeting customer needs, showing the highest score. This shows that the existence of the PLN Mobile application can speed up the process of both customer needs and complaints. Call center services and the various types of services offered make customers do not need to come to the PT PLN (Persero) unit office but can be done directly through the PLN Mobile application. The PLN Mobile application also continues to update according to customer needs and ease of use.

The Effect of Service Quality on Customer Satisfaction at PT PLN (Persero) Distribution Main Unit in South Sumatra, Jambi and Bengkulu

Research results (Carvalho, 2023); (Aeny, 2023); (Kim, 2023); (Connie, 2023); (Ifeoma et al., 2023); (Ajaleen, 2023); (Nova Nur., Zunaedah., Marlina W. 2022); (Yang et al., 2022); (Antara, 2022); (Chuenyindee, 2022); (Rajasulochana & Khizerulla, 2022); (Apriliani et al., 2022); (Ali & Gardi, 2021); (Dam & Cuong, 2021); (Tran & Le, 2020); (Alzoubia et al., 2020); (Fida & Ahmed, 2020); (Gunardi, 2019); (Sondakh, 2019); (Sofyan et al., 2019); (Tombeng et al., 2019); (Keloay et al., 2019); (Novrianda, 2018); (Fiazisyah & Purwidiani, 2018); (Wijaya, 2018); (Pramana, 2018); (Maramis et al., 2018) show that service quality has a positive and significant effect on customer satisfaction. The respondents' responses to the indicators of PT PLN (Persero) officers and employees were quick in responding and informing customers showed the lowest value. This shows that some customers still complain about the response of both officers and employees of PT PLN (Persero) in responding to complaints and information to customers. Customers said that some officers are sometimes still not responsive in meeting customer complaints such as arrival times that are still not in accordance with the schedule and in the call center which is still not responsive in responding to complaints, needs and reports that are considered important (electrical problems, fires, disasters, etc.). Respondents' responses to the indicator of PT PLN (Persero) providing services in accordance with the standards showed the highest score. This shows that all employees of PT PLN (Persero) have tried to provide services in accordance with the standards that have been set. Employees always try to provide the best service for all their customers regardless of social status or so on. Employees are always striving to upgrade by providing better service than before. Because customer satisfaction is the company's priority in providing the best service.

Conclusion

The study concludes that both digital service transformation and service quality significantly enhance customer satisfaction at PT PLN (Persero) Distribution Main Unit in South Sumatra, Jambi, and Bengkulu. To

deepen these findings, future research could investigate the mediating/moderating roles of customer engagement or digital literacy in these relationships, conduct comparative studies across regions or industries to test generalizability, or employ longitudinal analysis to assess long-term sustainability as digital services evolve. This would provide actionable insights for optimizing digital strategies in utilities and beyond.

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