The effectiveness of the PLN website application as a communication media and services for customers during the pandemic period in Pangkalpinang city

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Abstract. PT. PLN (Persero) as one of the state-owned enterprises (BUMN) received a mandate from the Indonesian government to provide electricity services and COVID-19 stimulus assistance to people affected by the COVID-19 pandemic. Due to social distancing policy during current pandemic, PT. PLN (Persero) should provide alternative online media services, such as the PT PLN (Persero) website application to meet all the electricity needs of customers and distribute electricity payment stimulus assistance. Therefore, it was interesting to study the effectiveness of the PT. PLN (Persero) website application as a communication media and services during the pandemic period in Pangkalpinang city. This study used four established variables to assess the quality of e-service, namely efficiency, fulfillment, service availability, and privacy. The method used in this research was a quantitative method with a questionnaire approach. The number of samples was 399 respondents. The sampling method was purposive sampling with the criteria of respondents was the user of the PT PLN (Persero) website application. Based on the analysis of survey questionnaire results, observation, and other supporting data, it was concluded that PT. PLN (Persero) website application for customers during the pandemic in Pangkalpinang city is significantly effective as it had fulfilled all the variables mentioned above.

1. Introduction

At the end of 2019, the world was shocked by the disease that spread so fast. This disease was allegedly originated from China, to be precise in the city of Wuhan. This disease is known as Coronavirus Disease 2019 (COVID-19), which is caused by Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-21). In Southeast Asia, the countries with the highest COVID cases are the Philippines and Indonesia. The spread of this virus is so fast that it has a broad impact, both socially and economically. Finally, the World Health Organization declared a pandemic because the virus can spread from one person to another across countries, continents around the world [1-4].

Since the confirmed case of the Covid-19 infection in Indonesia in early March 2020, various efforts and policies have been made by the government to address the increasingly widespread outbreak, starting from social distancing, physical distancing, to the implementation of a large scale social restrictions (PSBB). Both Government Regulation Number 21 of 2020 and Regulation of the Minister of Health of the Republic of Indonesia Number 9 of 2020 are the legal basis for the implementation of PSBB in the context of accelerating the handling of Covid-19. This policy wass
then applied by the local government to implement the PSBB at regional scale. The implementation of these policies has resulted in several consequences from economic, health, and social aspects. The most social impact felt by people was that daily interaction activities are now carried out through virtual or by empowering technology in interactions such as working and studying from home. In this case, the use of technology is beneficial in reducing physical contact between humans. Electronic services (e-service) is a general term that refers to service over information communication technologies (ICTs) and can be found in many disciplines [5]. In assessing the quality of electronic services, Zeithaml, Malhotra, and Parasuraman argued that there are four dimensions as the core of electronic services, including efficiency, fulfillment, system availability, and privacy [6]. One of the largest companies

PT. PLN (Persero) as one of the largest electricity companies in the world, with more than 76 million customers and electrifying more than 15 thousand islands in Indonesia [7], is considered as one of the motors that drive national economy. Therefore, it is certainly one of PLN responsibilities to address dynamic demands in many fields, especially in customer service. Thus, it stated in the Decree of Director Number 501.K/DIR/2012 regarding service, disclosure, and disclosure of public information in the PT PLN (Persero) environment that PLN aims to provide good public information service, which is transparent, effective, and accountable. Accordingly, the use of technology for online web-based PLN services is then essential to support government programs in regards with health protocols of physical distancing. Through the PLN website application, customers who are in Pangkalpinang city and its surroundings can apply for the service process independently without going to the Pangkalpinang Service Unit Office. People can access many features in the application that provides new Installation service menu, power change, temporary connection, checking application status, COVID-19 stimulus discount information, information on electricity bills, purchase of tokens, and other information related to programs organized by PT. PLN (Persero). Therefore it is interesting to study the effectiveness of PLN e-services in current global pandemic situation Website applications since it seems to be long pandemic.

2. Methods
This research was conducted from March to June 2020 in Pangkalpinang, Indonesia using quantitative method with a questionnaire approach. Sampling used purposive sampling technique [8], which included seven districts of Pangkalpinang region. Sample informants were 399 respondents from the total population of 152,781 people accordingly to the Slovin formula as follows: n = N / (1 + (N x e^2)). The criteria for sample informants taken in this study were customers of PT PLN (Persero) in the Pangkalpinang city, who had accessed the PLN website application during the pandemic. Questionnaire form was generated using Google platform that was sent to each determined informant.

Primary data was the answers to questions that were loaded into the google form based on variables of efficiency, fulfillment, system availability, and privacy. Secondary data obtained in this study was the data on the realization of the New Install and Power Change service through the PLN website application at PT. PLN (Persero) Customer Service Unit (ULP) of () Pangkalpinang. All data required, both primary and secondary one, became material for further analysis and conclusions. Furthermore, it provided a descriptive data presentation. A qualitative research approach begun with the assumption and the use of an interpretive framework that formed or influenced the study of research problems related to the meaning imposed by individuals or groups on a social or human problem [9].

3. Results and Discussion
The number of PLN customers with household tariff (R1) category in Pangkalpinang city was 152,781 customers. Most of these customers were got impacted by COVID-19 pandemics, which caused a significant decline in economic capacity. Thus, the government issued a policy to overcome these problems. The COVID-19 stimulus assistance program is specifically for PLN customers who have 450 V power who will get free electricity. Meanwhile, customers who have 900VA power that belongs to the subsidized category will get a 50% reduction in electricity bill costs. PLN website
application has accommodated this stimulus assistance program to assist the government in channeling aid to the right people. In Pangkalpinang city, 24,215 customers are receiving stimulus programs, which are 31.79% of the total subsidized customers in Bangka Belitung Province who have benefited from the program.

The trend of the realization of the New Installation and Power Change service through the PLN Pangkalpinang website is presented in Figure 1.

![Figure 1](image_url)

Figure 1. The trend of realization of new installation and power change service in PLN customer service unit Pangkalpinang through PLN website application.

The trend of the new install and power change service submitted online through the PLN website application from December 2019 to June 2020 showed a significant increase in the number of new install and power change services realization in April 2020 of 22.8% and 23.7%, respectively, compared to that in February 2020, as shown in Figure 1. February 2020 was the situation before the discovery of the COVID-19 cases, and April 2020 was after the implementation of the social distancing policy. Based on these observations, it is revealed that PLN customers in Pangkalpinang city prefer to take advantage of the online services of the PLN website application to meet the needs of new install services and power change during the COVID-19 pandemic. It was considered to be more effective and efficient than having a visit to the PLN office and as an anticipatory measure of the risk of being exposed to COVID-19. The pandemic has resulted in most people take internet-based services to communicate, interact, and continue with their job responsibilities from home. Internet services have risen in usage from 40% to 100%, compared to pre-lockdown levels [10].

3.1. Validity test

Table 1 showed the results of the validation test for variables of efficiency, fulfillment, and system availability using the SPSS 25 program. As shown in Table 1, the value of the Pearson correlation (r count) for each question was greater than the value of r table. This means that all indicators or question items that measure all variables were valid.

3.2. Reliability test

Reliability test results towards variable efficiency, fulfillment, service availability, and privacy had a value of Cronbach Alpha (α) > 0.60 (Table 2), which meant that each question item in this study could be stated as having a good and feasible reliability value. It can be considered that his recommendation has been met [11].
### Table 1. Validation tests for efficiency, fulfillment, system availability, and privacy of PT PLN (Persero) ULP Pangkalpinang website service

| No. | Question Tested | Number of respondents | R calculated | R Table | Result |
|-----|-----------------|-----------------------|--------------|---------|--------|
|     |                 |                       |              |         |        |
| 1   | The PLN website application makes it easy to get the services that I need. | 399 | 0.745 | 0.098 | Valid |
| 2   | The PLN website application has fast loading times. | 399 | 0.865 | 0.098 | Valid |
| 3   | The PLN website application makes it easy to log in and log out quickly. | 399 | 0.889 | 0.098 | Valid |
| 4   | The PLN website application provides e-mail service process confirmation. | 399 | 0.832 | 0.098 | Valid |
| 5   | The PLN website application provides all the services and all the information quickly. | 399 | 0.906 | 0.098 | Valid |
| 6   | The PLN website application provides clear instructions. | 399 | 0.868 | 0.098 | Valid |
| 7   | The PLN website application has met my expectations. | 399 | 0.876 | 0.098 | Valid |
| 8   | The PLN website application is functioning and running well, and there are no problems when I use it. | 399 | 0.916 | 0.098 | Valid |
| 9   | The PLN website application is easy to operate. | 399 | 0.919 | 0.098 | Valid |
|     |                 |                       |              |         |        |
| 10  | I feel that my privacy is protected while accessing the PLN Website application. | 399 | 0.961 | 0.098 | Valid |
| 11  | I feel safe making transactions and data entry with the PLN application. | 399 | 0.959 | 0.098 | Valid |

### Table 2. Test of reliability efficiency, fulfillment, availability, and customer privacy who use the PLN website application in Pangkalpinang city

| No. | Question tested | Cronbach's alpha | Result |
|-----|-----------------|------------------|--------|
| 1   | Efficiency      | 0.780            | Reliable |
| 2   | Fulfillment     | 0.982            | Reliable |
| 3   | Service Availability | 0.812         | Reliable |
| 4   | Privacy         | 0.915            | Reliable |

3.3. Efficiency

Based on the test results on 399 respondents, the average value for all efficiency indicators was 3.31 on a Likert scale of four, as shown in Figure 2. This data suggest that customers feel the speed of the PT PLN website service. The high value of this efficiency indicator showed customer satisfaction as stated in reference [13].
3.4. **Fulfillment**

The results of the fulfillment test obtained an average value of 3.21 on a Likert scale of four as shown in Figure 3. These results indicated that the PT PLN website has met what is needed and expected by PLN customers. The suitability between customer expectations and services received means that the results of this study are in line with previously stated by Xu [12].

![Figure 3](image3.png)

**Figure 3.** Graph of the fulfillment survey results for PLN website application in Pangkalpinang city.

3.5. **Service Availability**

The result of the service availability test was 3.27 on a Likert scale of 4, meaning that the PT PLN website had met customer needs in the aspect of user-friendly and easy to use. This result is in line with previous reference [12], regarding the fairness and responsiveness of the service system using the PT PLN website application (Figure 4).

3.6. **Privacy**

The study on the average value of the privacy indicator obtained an average value of 3.35 on a Likert scale of four, as shown in Figure 5. It suggests that the privacy variable had fulfilled the sense of security for customers regarding their privacy when conducting transaction processes and data entry in PLN website application [12].
Figure 4. Graph of service availability survey results for application of PLN website in Pangkalpinang city.

Figure 5. Graph of customer privacy survey results for application PT PLN website in Pangkalpinang city.

4. Conclusions
The current study evaluated the effectiveness of PLN website application as a communication media and services for customers in Pangkalpinang city during the COVID-19 pandemic. The results reveal that PLN website application fulfilled the effectiveness category of efficiency, fulfillment, system availability, and privacy. In conclusion, PT PLN (Persero) provides good service that meets customer expectations through its website application during current situation of COVID-19 pandemic.

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