

Behavior Analysis on PLN Mobile Users Using UTAUT Method

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Abstract

The advancement of information technology is currently accelerating in all aspects of life. The presence of information technology, which is constantly evolving, makes it easier for users to use information systems. Technological advancements show that information technology is not currently required for businesses or organizations. PT. PLN (Persero) is a State-Owned Enterprise (BUMN) in the electricity sector that controls, supplies, and serves the community's electricity needs. PT. PLN (Persero) is committed to improving electricity services for all customers. PT. PLN (Persero) provides innovation through the PLN Mobile Application to improve electrical services. The PLN Mobile Application provides users with up-to-date information on electricity services, allows them to register independently based on their needs, and calculates costs. This research aimed to identify the behavioral factors influencing users' acceptance of the PLN Mobile Application. The UTAUT model was used for the research, and it was modified with seven variables: performance expectation, effort expectation, social influence, facilitating conditions, trust, information quality, and behavioral Intention. Sampling using the Probability Sampling Technique, with Random Sampling as the sampling type. The sample size was 400 Surabaya City respondents who used the PLN Mobile Application. SEM-PLS and SmartPls 3 software were used to analyze research data. According to the research finding, the factors influencing Behavioral Intention or user behavior on the PLN Mobile Application were Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence (p-value 0, 05). In contrast, Trust and Information Quality had no positive and insignificant effect on Behavioral Intention.

Keywords: Customer Service; e-Government; PLN Mobile; UTAUT Method

Abstrak

Perkembangan teknologi informasi saat ini mengalami pertumbuhan yang sangat pesat dalam segala aspek kehidupan. Dengan adanya teknologi informasi yang semakin berkembang lebih mempermudah pengguna untuk menggunakan sistem informasi. Perkembangan teknologi yang terjadi menunjukkan bahwa teknologi informasi saat ini bukan menjadi tuntutan bagi perusahaan atau organisasi. PT. PLN (Persero) merupakan suatu Badan Usaha Milik Negara (BUMN) dibidang kelistrikan yang mengontrol, menyediakan, dan melayani kebutuhan listrik masyarakat. PT. PLN (Persero) terus berupaya untuk meningkatkan layanan kelistrikan kepada seluruh pelanggan. Untuk meningkatkan layanan kelistrikan PT. PLN (Persero) memberikan inovasi berupa pengembangan Aplikasi PLN Mobile. Dengan adanya Aplikasi PLN Mobile pengguna akan mendapatkan informasi layanan kelistrikan secara update serta bisa mendaftarkan secara mandiri sesuai dengan kebutuhan masing-masing pengguna, dan bisa mengetahui kalkulasi biayanya. Tujuan penelitian ini adalah untuk mengetahui faktor-faktor perilaku yang mempengaruhi pengguna dalam menerima Aplikasi PLN Mobile. Metode penelitian yang digunakan yaitu UTAUT yang modelnya telah dimodifikasi dengan tujuh variabel yang terdiri dari Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust, Information Quality, Behavioral Intention. Pengambilan sampel menggunakan Teknik Probability Sampling, dengan jenis sampling Random Sampling. Jumlah sampel sebanyak 400 responden berdomisili Kota Surabaya yang telah menggunakan Aplikasi PLN Mobile. Data penelitian dianalisis menggunakan SEM-PLS dengan perangkat lunak SmartPls 3. Berdasarkan hasil analisis diperoleh bahwa faktor yang mempengaruhi Behavioral Intention atau perilaku pengguna terhadap Aplikasi PLN Mobile terdiri dari Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social

Influence (p-value < 0,05) sedangkan Trust, Information Quality tidak berpengaruh positif dan tidak signifikan terhadap Behavioral Intention.

Kata Kunci: e-Government; Pelayanan Pelanggan; PLN Mobile; UTAUT

INTRODUCTION

Technological advancements are currently accelerating in all aspects of life. With the advancement of technology, it is becoming easier for users to use information systems. Technological advancements have demonstrated that information technology is no longer a requirement for businesses or organizations (Antasari & Sukartha, 2015). The use of information technology is becoming more common and can benefit both individual and organizational work (Widiani & Abdullah, 2018). An organization's effectiveness and efficiency can be improved by using information technology. An organization or business cannot be divorced from the influence of information technology, which serves to improve service quality (Kusumawardani et al., 2018).

PT. PLN (Persero) is a state-owned enterprise (BUMN) in the electricity sector that controls, supplies, and serves the community's electricity needs. PT. PLN (Persero), providing customer satisfaction, must provide the best service as a company that sells products and services. PT. PLN (Persero) is committed to providing better service to all customers. The presence of information systems is required in the workplace. It is critical to use information systems to present the need for fast, reliable, and accurate information (Suzanto & Sidharta, 2015).

PT. PLN (Persero) innovates in the development of the PLN Mobile Application, which helps access electricity services such as obtaining information about electricity bills, adding power, public complaint forums, and other information related to electricity services, and this PLN Mobile Application can be used by all groups of people (Nadhif, 2018). The PLN Mobile app is linked to the Integrated Complaint and Complaint Application (APKT) and the Centralized Customer Service Application (AP2T) (Lestari et al., 2019).

The PLN Mobile Application aims to allow people to access services quickly. The PLN Mobile application can be used anytime and from any location (self-service). Users will find many useful features in the PLN Mobile application. Users can access information such as bill checks and token history, requests for new installations, power changes, temporary connections, check the complaint and request status, current electricity

rates, latest PLN news, electricity and telephone maintenance information, and more through PLN Mobile. Voice over Internet Protocol contact center PLN 123 (VoIP).

However, many users continue to complain about the PLN Mobile Application, including those who have made token-type electricity payments, but the payment has not been recorded in the PLN Mobile Application's history. The user can not log in to the PLN Mobile Application and must contact the help desk or email PLN.

Society must accept and use technology as a user to increase productivity and performance (Al-Gahtani et al., 2016). The user factor is currently essential in successfully applying and using information technology.

The user's readiness to accept information technology significantly impacts the technology's success or failure (Saputra, 2014). One of the initial keys to successful information technology implementation is user acceptance. Several studies show that the failure of current information technology applications results more from user behavior (Sarja, 2015). The user factor can be used to assess an information technology's acceptance (Rachmadi et al., 2017).

User acceptance is a critical factor in successfully implementing technology (Nasir, 2013). An analysis of user acceptance of the PLN Mobile Application is required to determine the successful implementation of a technology. The Unified Theory of Acceptance and Use of Technology is one of several models of user acceptance analysis (UTAUT). UTAUT is a model used to explain user behavior related to information technology (Venkatesh et al., 2003).

Several studies have been conducted using UTAUT, and the results have been varied. UTAUT is the most comprehensive recent acceptance model finding in assessing individual technological discovery because it was developed and improved upon previous acceptance models, related theories, and attitudes toward technology. The UTAUT model is a new model that combines eight existing technology acceptance models into a single instrument (Ling et al., 2011). UTAUT provides a foundation for explaining why users accept or reject a technology from a particular point of view, and it has the potential to improve understanding of

technology acceptance (Samaradiwakara & Gunawardena, 2014)

Based on the UTAUT model, this research investigates what factors influence user behavior when using the PLN Mobile Application. This research aims to identify the behavioral factors influencing users' acceptance of the PLN Mobile Application. UTAUT (Unified Theory of Acceptance and Use of Technology) was used as the research method, and the model was modified with seven variables: performance expectancy, effort expectancy, social influence, facilitating conditions, trust, information quality, and behavioral Intention.

RESEARCH METHODS

Research Procedure

The procedure of this research is presented in Figure 1 as follows:

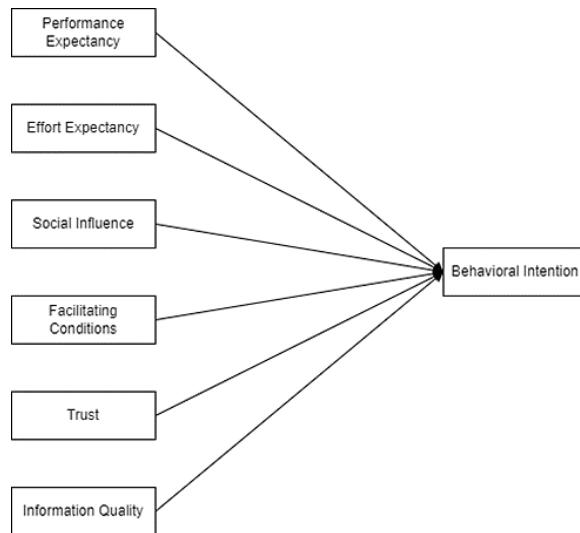


Figure 1. Research Procedure

Literature Review and Observational Study

The literature review was conducted by finding journal articles, books, and other supporting references to explain the phenomenon. To support the literature review, an observational study was conducted to directly observe the research object, in this case, the PLN Mobile Application. Observations were made by directly accessing the PLN Mobile Application on a mobile device and reviewing online the results of reviews from PLN Mobile Application users on the Play Store.

Identification of the Problems

Users have made token-type electricity payments, but the results of the token payment history have not been written on the PLN Mobile

Application, according to reviews of the PLN Mobile Application on the Play Store. Then, PLN Mobile users report being unable to log in to the PLN Mobile Application, so if the user needs payment information, they should contact the help desk or email PLN.

Conceptual Model

The conceptual model in this research can be seen in the following image.

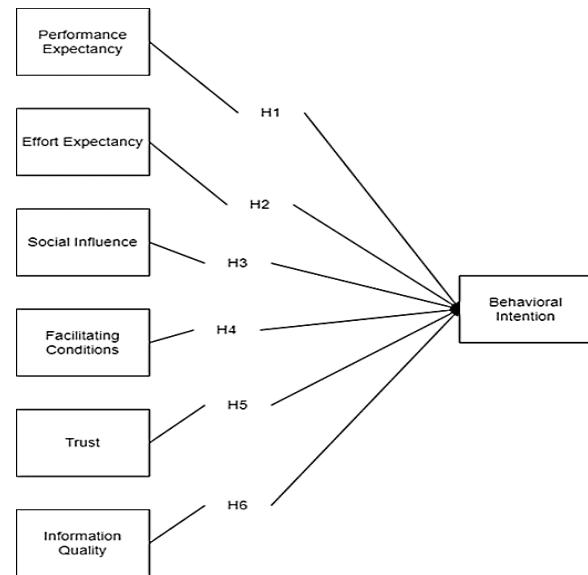


Figure 1, Conceptual Model

Figure 2 above depicts the conceptual model used in this research. This model was adapted from a research model by (Sharma et al., 2018) that employs a modified UTAUT model and adapts the model to a research case study, namely the PLN Mobile application. One independent variable and six dependent variables were used in this model. Performance Expectancy, Effort Expectancy, Social Influence, Facilitation Conditions, Trust, and Information Quality were the independent variables used. Behavioral Intention was the dependent variable.

Research Hypothesis

Performance Expectancy (PE)

Define performance expectancy as an individual's belief that using the system will help him improve his job performance (Venkatesh et al., 2003). According to the findings of this research, users believed that performance expectations influenced their behavioral intentions toward the PLN Mobile Application (Sharma et al., 2018). One of its applications was using electricity services by

users to obtain electricity services quickly. Therefore, the following hypothesis was proposed.

H₁. PE had a positive effect on BI on the use of the PLN Mobile Application

Effort Expectancy (EE)

Define effort expectancy as ease associated with system use (Venkatesh et al., 2003). The UTAUT model confirmed that efforts to learn new system information influenced the Intention to use. According to (Al-Busaidi, 2012), if an information system is simple to use, users will likely adopt and accept it. Therefore, the following hypothesis was proposed.

H₂. EE had a positive effect on BI on the use of the PLN Mobile Application

Social Influence (SI)

Define *social influence* as how far an individual sees that others believe he/she should use a new system (Venkatesh et al., 2003). In this research, social influence was expected to affect the decision to use the PLN Mobile Application. Therefore, the following hypothesis was proposed.

H₃. SI had a positive effect on BI on the use of the PLN Mobile Application

Facilitating Conditions (FC)

Define facilitating conditions as the extent to which an individual believes that other people who are important to him or her believe that he or she should use the new system (Venkatesh et al., 2003). PLN Application for mobile devices. In theory, facilitating conditions have been identified as a significant predictor of behavioral Intention. As a result, the following hypothesis was proposed.

H₄. FC had a positive effect on BI on the use of the PLN Mobile Application

Trust (TRU)

Define trust as the user's expectation that the service provider can be trusted or relied on to fulfill his promises (Venkatesh et al., 2011). Because of perceived trust, people may resist or become unwilling to use technology. The use of the PLN Mobile Application was a new phenomenon in this research, and users preferred face-to-face interactions and manual follow-up procedures to request services or information. Lack of information and the dependability of procedures for requesting services or information could raise distrust, resulting in refusal to use the PLN Mobile Application. As a result, ensuring user trust for transactions to be completed was critical. Therefore, respondents, who perceived the system

as trustworthy, would positively influence behavioral intentions toward the PLN Mobile Application. Therefore, the following hypothesis was proposed.

H₅. TRU had a positive effect on BI on the use of the PLN Mobile Application

Information Quality (IQ)

Define information quality as a user's belief about the quality of the information provided and the extent to which the information received through electronic service interfaces is complete, correct, and timely (DeLone & McLean, 2003). According to the findings of this research, the quality of information influenced the decision to accept the PLN Mobile Application. As a result, the following hypothesis was proposed.

H₆. IQ had a positive effect on BI on the use of the PLN Mobile Application

Sampling Technique

The probability sampling technique was used in this research, along with simple random sampling. Because all members of the research population, namely PLN Mobile Application users, had the potential to become samples, the probability sampling technique was chosen (Sugiyono, 2018). The use of simple random sampling to randomly select sample members from the population was done because the population members were considered homogeneous (Sugiyono, 2018). Smart-PLS 3 data analysis software was used in this research.

Data Sources

The primary data in this research were obtained through questionnaires distributed online, with the primary target being PLN Mobile Application users residing in Surabaya City.

Previous studies on research topics, books, the internet, PLN Mobile Application downloader data on the Google Play Store, and other sources that support research were used as secondary data.

RESULT AND DISCUSSION

Characteristics of Respondents (Data Tabulation)

Table 1. Gender

Gender	Total
Male	173
Female	227



Based on Table 1 above, it could be seen that out of 400 respondents, 43.3% or 173 respondents were male, while 56.8% or 227 other respondents were female. Therefore, it could be inferred that the perception of PLN Mobile Application female users dominated the analysis answer in this research.

Table 2. Age

Age	Total
15 - 19	92
20 - 24	128
25 - 29	60
30 - 34	49
35 - 39	36
> 40	35

According to table 2 above, 23% or 92 respondents were in the age range 15-19 years, 32% or 128 respondents were in the age range 20-24 years, 15% or 60 respondents were in the age range 25-29 years, 12.3% or 49 respondents are in the age range 30-34 years, 9% or 36 respondents are in the age range 35-39 years, and 8.8% or 35 respondents were in the age range age > 40 years.

Table 3. Home Town

Home Town	Total
Surabaya	269
Outside Surabaya	131

According to Figure 4.3, out of 400 respondents, 67.3%, or 269, were from Surabaya, while 32.7%, or 131, were from outside Surabaya.

Table 4. Period of Use of PLN Mobile Application

Period of Use of PLN Mobile Application	Total
Just Downloading PLN Mobile Application	125
1-3 Months	151
4-6 Months	78
>7 Months	46

According to table 4 above, 31.3% or 125 respondents had recently downloaded the PLN Mobile Application, 37.7% or 151 respondents used the PLN Mobile Application 1-3 months a year, 19.5% or 78 respondents used the PLN Mobile Application 4-6 months a year, and 11.5% or 46 respondents used the PLN Mobile Application > 7 months a year.

Table 5. The intensity of PLN Mobile Application Use

The intensity of PLN Mobile Application Use	Total
1-3 times	242
4-6 times	96
>7 times	62

According to table 5 above, 60.5% or 242 respondents used the PLN Mobile Application 1-3 times, 24% or 96 respondents used the PLN Mobile Application 4-6 times, and 15.5% or 62 respondents used the PLN Mobile Application > 7 times out of a total of 400 respondents.

Validity and Reliability Test

Validity and reliability were conducted using SmartPLS 3 software. The validity parameter in the convergent validity test was if the loading factor value was more significant than 0.5, preferably greater than 0.7, and if the Average Variance Extracted (AVE) value was more significant than 0.5. The discriminant validity test's validity parameter compared the AVE (Fornell-Larcker Criterion) root value of a construct, where the value ought to be greater than the correlation between the latent variables, as seen by the cross-loading value. In the reliability test, if Cronbach's Alpha was more significant than 0.7, the reliability test was considered reliable.

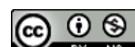


Table 6. Result of validity and reliability test

Variable	Indicator	Loading Factor	AVE	Cronbach's Alpha	Composite Reliability
Performance Expectancy	PE1	0.820	0.536	0.708	0.820
	PE2	0.688			
	PE3	0.596			
	PE4	0.801			
	EE1	0.709			
Effort Expectancy	EE2	0.754	0.54	0.716	0.824
	EE3	0.689			
	EE4	0.784			
	SI1	0.879			
Sosial Influencer	SI2	0.857	0.754	0.837	0.902
	SI3	0.869			
	FC1	0.827			
Facilitating Conditions	FC2	0.800	0.622	0.697	0.832
	FC3	0.736			
	TRU1	0.760			
Trust	TRU2	0.738	0.594	0.772	0.854
	TRU3	0.787			
	TRU4	0.797			
	IQ1	0.714			
Information Quality	IQ2	0.760	0.597	0.831	0.881
	IQ3	0.773			
	IQ4	0.816			
	IQ5	0.797			
Behavioural Intention	BI1	0.886	0.787	0.865	0.917
	BI2	0.894			
	BI3	0.882			

The loading factor value of all indicators in table 6 above was more significant than 0.5 or 0.7, and the AVE value generated by each variable meets the requirements or validity test parameters, where it was more than 0.5. As a result, the questionnaire instrument used could be considered valid. While each variable's Cronbach's Alpha value was more significant than or equal to 0.7, and each variable's Composite Reliability value was more significant than 0.7. As a result, all of the variables tested met the requirements or parameters of the reliability test.

Variance Inflation Factor (VIF)

According to Sriningsih et al. (2018), VIF is a quantity that can detect multicollinearity, a condition in which independent variables have a correlation or are not independent of each other.

Table 7. VIF

Variable	Behavioural Intention
Performance Expectancy	1,958
Effort Expectancy	2,610
Social Influence	2,075
Facilitating Conditions	2,638
Trust	2,993
Information Quality	3,167

Table 7 above shows that the value of VIF for all variables is less than 5, indicating that the multicollinearity test using VIF shows no problem with multicollinearity.

R Square

The R-Square value or the coefficient of determination represented the overall effect size in measuring the structural model. The R² value shown in the blue ellipse or blue circle belongs to the endogenous latent variable (dependent variable), according to which a value greater than 0.67 was considered "strong," a value between 0.33 and 0.67 was considered "moderate," and a value between 0.19 and 0.33 was considered "weak" (Salloum et al., 2019).

The R-Square value obtained was 0.732, which was considered vital. The effect of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions on Behavioral Intention could be 73.2%. The remaining 26.8% was explained by factors other than the model used in this research.

Hypothesis Testing

Figure 3 shows that the path coefficient has a positive value in the PE, EE, SI, FC, TRU, and IQ variables. A two-tailed t-test was used to determine whether the inner model's path coefficient was significant (T-statistics two-tailed). The path

coefficient was declared significant if the T-statistics was greater than 1.65 at a 10% significance level, more significant than 1.96 at a 5% significance level, and greater than 2.58 at a 1% significance level (Wong, 2013)

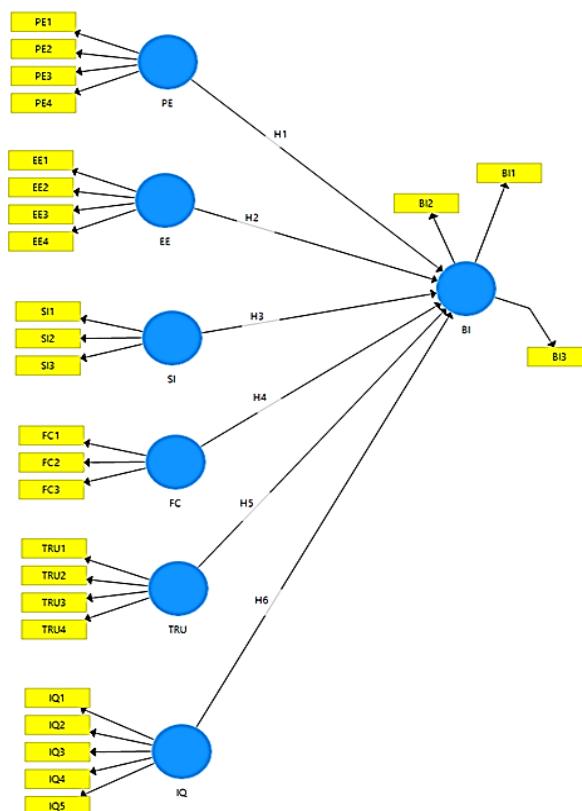


Figure 2. Result of Hypothesis Test

This research employed a 5% significance level, meaning that the T-statistics value ought to be greater than 1.96, and the P-Value should be less than 0.05. The results of hypothesis testing can be seen in the following table 8.

Table 8. Result of Hypothesis Testing

Hypothesis	Path Coefficient	T-Statistics	P-Value	Description
PE-BI	0,132	3,043	0,002	Significant
EE-BI	0,107	2,151	0,032	Significant
SI-BI	0,337	7,194	0,000	Significant
FC-BI	0,394	6,461	0,000	Significant
TRU-BI	0,035	0,596	0,552	Unsignificant
IQ-BI	-0,005	0,082	0,935	Unsignificant

According to the table above, PE, EE, SI, and FC as independent variables significantly affected BI with a p-value of 0.5. While other variables had a p-value greater than 0.5, they had no significant effect on BI. As a result of the hypothesis testing

results, H1, H2, H3, and H4 were accepted, while H5 and H6 were rejected.

The Influence of Performance Expectancy on Behavioral Intention

The hypothesis testing results showed that Performance Expectancy significantly impacted Behavioral Intention. The findings in this research were consistent with previous research by (Saparudin et al., 2020; Sharma et al., 2018); and (Pratiwi & Oktarina, 2020), providing support and confidence that the performance expectancy variable could be used for research on the PLN Mobile Application.

The PLN Mobile Application Service was intended to help customers meet modern society's needs and desires (Sharma et al., 2018). The findings of this significance indicated that to increase subscriber motivation, and companies ought to be able to persuade users that the

performance of the PLN Mobile Application could provide them with the required electricity services. Whereas, according to its function, the PLN Mobile Application ought to be capable of providing electricity services that are effective and efficient in their use, as well as assisting in the resolution of electrical problems.

The Influence of Effort Expectancy on Behavioral Intention

Effort Expectancy significantly affected Behavioral Intention, according to the results of hypothesis testing using SmartPLS software. The findings in this research were consistent with previous research conducted by (Sharma et al., 2018), which was the primary reference used in this research. Furthermore, according to research by (Saparudin et al., 2020). As a result, this research's findings supported previous studies' findings. The PLN Mobile application provided clear and straightforward interactions; there was no need for special skills; it was simple to use and learn.

The Influence of Social Influence on Behavioral Intention

According to the results of hypothesis testing using SmartPLS software, Social Influence significantly affected Behavioral Intention. The findings of this research were consistent with previous research by (Saparudin et al., 2020). As a result, this research strengthened previous research findings and demonstrated that social influence variables could be used in research on the PLN Mobile Application. This significant result demonstrated that the influence of application users' social environments, such as family and friends, encouraged them to use the PLN Mobile Application.

The Influence of Facilitating Conditions on Behavioral Intention

Hypothesis testing using SmartPLS software revealed that Facilitating Conditions significantly affected Behavioral Intention. The findings of this research were consistent with previous research (Pratiwi & Oktarina, 2020). (Sharma et al., 2018). As a result, this research strengthened previous research findings and demonstrated that the facilitating condition variable could be used in research on the PLN Mobile Application. This significant result demonstrated that the PLN Mobile Application was compatible with the technology used on the respondent's smartphone as one of the respondent's facilities.

The Influence of Trust on Behavioral Intention

According to the results of hypothesis testing using SmartPLS software, the trust had no significant effect on behavioral Intention. This research's findings differed from previous studies (Sharma et al., 2018). This difference indicated that the relationship between these variables in the PLN Mobile Application research needed to be studied further to be used in future research. These disparities in outcomes could be attributed to differences in the level of privacy and information policies that encouraged users to use an application. This insignificant result also demonstrated that users face additional challenges limiting their application use. (Rika et al., 2003) mentions voluntary loyalty to PLN for the positive expectations provided by PLN in the user's perception. This demonstrated that users did not believe the PLN Mobile Application could meet the needs of users' electrical services.

The Influence of Information Quality on Behavioral Intention

The hypothesis testing results showed that Information Quality had no significant effect on Behavioral Intention; the greater the public's concern about information issues presented by the PLN Mobile Application, the less likely the public was to use the PLN Mobile Application.

According to the descriptive data of respondents' answers related to information quality, respondents were not overly concerned about the quality of their information when using the PLN Mobile Application. The public's trust in the quality of their information might be since no incorrect information was discovered while using the PLN Mobile Application. The results above indicated that, while the community was unconcerned about the information provided by PLN in implementing the PLN Mobile Application, this did not affect people's Intention to use the PLN Mobile Application. This result contradicted the findings of (Sharma et al., 2018), who discovered that Information Quality had a negative and significant effect on Behavioral Intention; thus, the higher the research respondents' concern about the quality of information obtained in the application of electricity, the lower the respondent's Intention to use electricity applications.

CONCLUSION AND SUGGESTION

Conclusion

According to the findings of this research, Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions influence Behavioral Intention in using the PLN Mobile Application Using the UTAUT Model. Meanwhile, Trust and Informant Quality do not affect Behavioral Intention when using the PLN Mobile application via the UTAUT model.

Suggestion

Research in the future can use modifications to the UTAUT model. Furthermore, it is possible to use research models on accepting or adopting applications other than UTAUT.

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