

## Study on the Usage Behavior of PLN Mobile Application using UTAUT 2 Model among PLN Customers in North Sulawesi, Central Sulawesi, and Gorontalo



Abdullah Umar<sup>1</sup>, Rina Djunita Pasaribu<sup>2</sup>

<sup>1</sup>Master of Management Study Program, School of Economics and Business, Telkom University, Bandung, Indonesia

<sup>2</sup>Strategic Management Lecturer, School of Economics and Business, Telkom University, Bandung, Indonesia

**ABSTRACT:** The objective of this research is to analyze the factors affecting consumer behavior in Indonesia regarding the utilization of the PLN Mobile Application within the PLN Distribution Unit located in North Sulawesi, Central Sulawesi, and Gorontalo, employing the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. The selection of this model was based on its recent relevance to the adoption of the PLN Mobile Application.

This research falls under the quantitative category. Sampling is performed using a non-probability sampling method known as purposive sampling. This research involve 385 PLN Suluttenggo customers as respondents. The data analysis technique in this research used Partial Least Square Structural Equation Model (PLS-SEM) utilizing SmartPLS software version 3.2.9.

The outcomes of the research indicate that there are five variables in the UTAUT 2 model that have a positive and significant influence on behavioral intention to use the PLN Mobile application, from the highest to the lowest respectively are price value, habit, social influence, hedonic motivation, and performance expectancy. Meanwhile, there are three factors that positively and significantly influence on usage behavior, namely behavioral intention, facilitating conditions, and habit. Hence, companies can utilize this model to enhance customers behavioral intentions and usage of the PLN Mobile application by taking these factors into consideration.

**KEYWORDS:** Mobile application, Indonesia, Adoption, PLN Mobile, UTAUT2

### I. INTRODUCTION

PT PLN (Persero) is an Indonesian state-owned enterprise entrusted with the responsibility of supplying electricity for the public interest. Data from 2021 indicates that PLN served 82.5 million electricity customers, marking a 4.35% increase compared to the preceding year (katadata.co.id). The Household customer group continues to be the predominant category, accounting for 75.7 million, which is equivalent to 91.71% (katadata.co.id). PLN is consistently obligated to deliver top-notch services, swift response times, and uphold service quality for customers in order to ensure uniform customer satisfaction.

The introduction of PLN Mobile, a mobile application, represents an effort by PLN to enhance service quality and increase consumer satisfaction. Designed for mobile devices, this application is integrated with the Centralized Customer Service Application (AP2T) and the incorporated Complaints and Feedback Application (APKT) system. The development of PLN Mobile is an extension of PLN's strategic initiative to improve customer service, which was initiated from utilization of the PLN 123 Contact Center, Facebook, Twitter, and the PLN Website. In regards to electricity services, these platforms facilitate interactive communication, information exchange, and service provision between PLN and its consumers (Muryono: 2022).

In response to the digital industrial era 4.0, PLN must promptly adapt and make swift adjustments to address the evolving era and customer behaviors. This is exemplified by the accelerated digital transformation of previously established business processes. The extensive repercussions of the pandemic have compelled the world to expedite digital transformation and have urged the industrial sector to adapt and adjust as swiftly as possible (Kominfo website). The global and widespread pandemic conditions pose a significant challenge for every industry, where preparedness in implementing Industry 4.0 digitalization can serve as a solution in addressing these challenges. The Covid-19 pandemic, in fact, has been utilized as a catalyst to expedite PLN's transformation process. PLN's initiation of a digital transformation program on April 21, 2020, is regarded as an adaptive and responsive measure in addressing global challenges (PLN website). PLN Mobile is anticipated to provide electricity customers with convenient access to all electricity-related services, encompassing application service processes, complaints, and disruption information that integrates all PLN business operations.

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However, despite having been in operation for 3 years, the application's usage remains low. For instance, in the PLN North Sulawesi, Central Sulawesi, and Gorontalo Distribution Unit (PLN Suluttenggo), as of December 31, 2022, the number of customers who have installed the PLN Mobile application is 1,042,506 customers, which accounts for only about 52% of the total customer base. Additionally, based on data from June to December 2022, the trend of customers requesting new installation services and making power changes using the application still exhibits considerable fluctuations. Customer requests made through the PLN Mobile application in PLN Suluttenggo remained at 67% by the end of December 2022. This indicates that a significant portion, specifically 33%, of customers have yet to utilize the application for their transactional needs. Furthermore, data concerning reports of disruptions and complaints also indicates that the utilization of features within the PLN Mobile application for customer reporting in PLN Suluttenggo has not reached 100%. Customers who lodge complaints or report disruptions through the application have only reached an average of 66-67% as of December 2022. This highlights a substantial gap in achieving the full implementation of the PLN Mobile application, given that the goal is to have all requests and reports channeled exclusively through the application.

The insignificant amount of PLN mobile application usage indicates that customer acceptance of service digitisation is an interesting issue to be discussed further. One of the ways that can be done in improving technology is to research the extent to which users are interested in accepting and using these technology services. This phenomenon makes the author consider it necessary to examine what factors influence behavioural intentions and customer usage behaviour in the PLN mobile application. In order to tackle the matter at hand, the author has chosen to employ the UTAUT 2 adoption theory as a framework to evaluate and ascertain the elements that influence users' acceptability and utilization of technological services, where the evaluation of behavioral intention in UTAUT 2 is 74% more accurate than in UTAUT 1, according to Venkatesh et al. (2012).

The aims of this research are to analyze the factors influencing consumer behavior in the utilization of the PLN Mobile Application within the PLN Distribution Unit located in North Sulawesi, Central Sulawesi, and Gorontalo. Nevertheless, it is important to acknowledge that, due to the current conditions and circumstances, the researchers have opted not to include moderator variables in this study.

## II. BASIC THEORY AND FRAMEWORK

### 2.1 Strategic Management

Wheelen et al. (2018) define strategic management as a series of managerial decisions and actions intended to affect the long-term performance of an organization. Although significant performance gains may be observed in numerous organizations during the short term, maintaining them for an extended duration continues to be a formidable task for a limited number of firms. Strategic management, as defined by David (2018), encompasses the formulation, implementation, and evaluation of cross-functional decisions with the aim of facilitating the attainment of organizational objectives. Strategic management is preoccupied with the integration of diverse organizational functions—production and operations, research and development (R&D), information systems, marketing, finance and accounting, and management—in order to attain success for the organization.

Environmental scanning encompasses the ongoing surveillance, evaluation, and distribution of data originating from internal and external environments, all of which are vital for personnel operating within the institution. Identifying strategic factors that facilitate the analysis of the organization's strategic decisions is the objective. This stage is employed to assess the preparedness of the organization with respect to its internal and external conditions, as emphasized by Putra (2023). Strategy formulation comprises inquiry, evaluation, and determination; it furnishes organizations with principles by which to attain a competitive edge (Wheelen et al., 2018). As stated by David (2007), strategy formulation, which is analogous to strategic planning, comprises the following phases: establishing long-term objectives, evaluating and selecting strategies, developing vision and mission statements, and undertaking internal and external environmental audits.

The subsequent phase of strategy implementation entails the execution of policies and strategies via the creation of programs, budgets, and processes. The implementation of this process could potentially require modifications to the organization's structure, culture, and management system, as described by Wheelen et al. (2018). As stated by David (2007), strategy implementation, which is similar to the more comprehensive strategic management process, involves the allocation of resources to accomplish the corporation's goals, the formulation of policies for individual business functions, and the establishment of annual objectives. Evaluation and control, the concluding stage in strategic management, involves the surveillance of organizational activities and performance results in order to facilitate a comparison between realized and intended performance (Wheelen et al., 2018).

The corporate strategy delineates the overarching trajectory of the organization with respect to expansion and the administration of its diverse business undertakings. Typically implemented at the product or business unit level, business strategy aims to strengthen the competitive standing of an organization's offerings within a particular market segment or industry. A functional strategy, conversely, is the methodology implemented by functional areas in order to optimize resource productivity and accomplish the objectives and strategies of the organization and its business unit.

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## 2.2 Digital Transformation

The definition of digital transformation, as cited by Firmansyah (2021) from Herbert (2017: 15), revolves around dismantling barriers, eliminating constraints imposed by outdated thinking, and harnessing technology to generate fresh revenue sources, reduce costs, and enhance user experience. In the process of digital transformation of an organisation, there are 3 stages that must be passed, namely Digitisation, Digitalisation, and Digital Transformation.

Digitization, as defined by Khomsin (2004), is the process by which graphical data originating from paper is transformed into digital formats. On the other hand, digitalization, as defined by Li et al. (2016), pertains to the implementation of digital technology or information technology in order to overhaul established business procedures. Within the framework of digitalization, organizations employ digital technology to enhance existing business procedures, either by facilitating better interdepartmental coordination or by delivering supplementary customer value via enhanced user experiences, as Pagani and Pardo (2017) underscore. Kuncoro Wastuwibowo (2020) posits that digital transformation encompasses the organization of business change via formulation and analysis, with the incorporation of digital processes, technologies, and culture to optimize value provision to stakeholders. Digital transformation represents a comprehensive and far-reaching stage in the evolution of businesses, involving extensive modifications across the entire enterprise. At its core, digital transformation goes beyond mere technological upgrades; it entails a fundamental shift that permeates all aspects of an organization. This transformative process results in the emergence of new and innovative business models, some of which may even set industry or company precedents.

In the realm of digital transformation, organizations leverage cutting-edge technologies and digital tools to restructure their operations, workflows, and customer interactions. This transformative journey aims to enhance efficiency, agility, and overall competitiveness in the rapidly evolving digital landscape. By embracing digital transformation, businesses can optimize internal processes, streamline communication, and harness data-driven insights to make informed decisions. Crucially, digital transformation isn't a one-size-fits-all endeavor. Rather, it allows organizations to tailor their strategies to meet specific industry demands and unique organizational needs. As a result, novel business models emerge, often setting new standards within the industry or marking a company as a trailblazer in adopting transformative practices. There's more to a successful digital transformation than using new technologies; it necessitates a cultural shift, fostering an environment where innovation is embraced, and employees are empowered to adapt to change. The companies that lead in digital transformation understand that it is an ongoing journey, requiring continuous adaptation to emerging technologies and market dynamics. In conclusion, digital transformation is a holistic and dynamic process that goes beyond technological upgrades. It revolutionizes business models, allowing organizations to stay ahead in a digitally-driven world. The successful implementation of digital transformation not only ensures the survival of businesses in today's competitive landscape but also positions them as pioneers shaping the future of their respective industries (Iansiti & Lakhani, 2014; Kane et al., 2015; Pagani & Pardo, 2017).

## 2.3 Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2)

Alshehri et al. (2012) cite Gattiker (1984) as defining technology acceptance as the psychological inclination of individuals to employ particular technologies voluntarily or deliberately. The primary objective of the technology acceptance model, as emphasized by Kripannont (2006), is to examine the elements that facilitate or impede the acceptance and adoption of technology and to identify methods for encouraging its use. A multitude of significant theories pertaining to the adoption of products based on information and communication technology by consumers are delineated by Indrawati (2017). UTAUT2 is one of these theories.

The four main components of UTAUT— Effort Expectancy, Social Influence, Performance Expectancy and Facilitating Conditions—affect how people behave when using technology and what their behavioral intentions are. It also has four moderator characteristics that can affect the willingness to embrace and use technology: gender, age, experience, and voluntariness of use (Venkatesh et al., 2003). By incorporating fresh structures like Price Value, Hedonic Motivation, and Habit, UTAUT2 expands the framework even further and makes it more focused on the needs of the consumer (Venkatesh et al., 2012).

The inclusion of the three primary constructs in UTAUT2 is motivated by several factors: (1) Hedonic motivation serves as a significant predictor in numerous studies of individual behavior in the context of technology use; (2) Price value takes into account that individuals will incur costs in using technology, which are deemed pertinent to the benefits and gains acquired; and (3) Habit is a variable that has demonstrated its capacity to predict habitual technology use.

## 2.4 Research Hypothesis and Framework

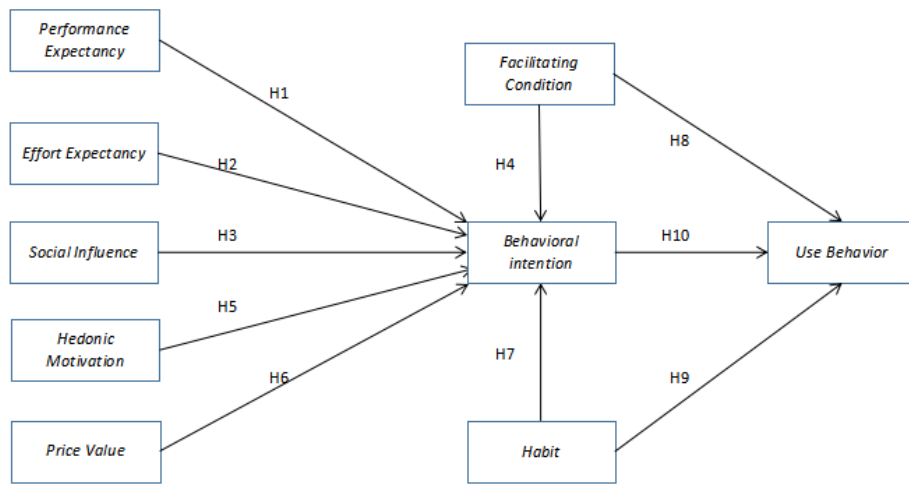
In this research, The variables developed by Venkatesh et al. (2012) were used by the writers without making modifications, as they are best suited for the subject of mobile app research. These hypotheses are as follows:

- H1: Performance Expectancy has a positive and significant influence on behavioral intention
- H2: Effort Expectancy has a positive and significant influence on behavioral intention
- H3: Social Influence has a positive and significant influence on behavioral intention
- H4: Facilitating Condition has a positive and significant influence on behavioral intention

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- H5: Hedonic Motivation has a positive and significant influence on behavioral intention
- H6: Price Value has a positive and significant influence on behavioral intention
- H7: Habit has a positive and significant influence on behavioral intention
- H8: Facilitating Condition has a positive and significant influence on use behavior
- H9: Habit has a positive and significant influence on use behavior
- H10: Behavioral intention has a positive and significant influence on use behavior

Drawing upon the outcomes from previous research and the formulated hypotheses, the research model was created as described below:



Source: Thaker et al. (2020)  
 Tak & Panwar (2017)  
 Venkatesh et al. (2012)

Figure 1. Framework

## III. RESEARCH METHODOLOGY

### 3.1 Research Object and Analysis

This research falls under the category of quantitative research, which is valuable for precise measurement of behavior, opinions, knowledge, or attitudes (Indrawati, 2015). The aim of this research is to employ descriptive analysis and a causal approach to comprehend which variable serves as the cause of a problem, whether conducted through experimentation or non-experimentation, in accordance with Indrawati (2015: 117-118). Causal research can establish the existence of a relationship between two variables (Sekaran & Bougie, 2017: 109). The research population consists of PLN customers who have installed the PLN Mobile application within the service area of the PLN North Sulawesi, Central Sulawesi, and Gorontalo Distribution Unit (Suluttenggo), totaling 1,042,506 customers as of December 31, 2022 (source: PLN Suluttenggo). The majority of these customers belong to the Household Tariff customer category in PLN Suluttenggo.

The employed sampling technique consists of a non-probability sampling method, which does not ensure that all elements or members of the population have an equal opportunity to be sampled (Sugiyono, 2013: 85), in conjunction with a purposive sampling method, which is guided by particular considerations. Z = 1.645 is the result of using a significance level (α) of 5% and a 95% confidence level in this study. 50% is the likelihood that the population will be chosen as a sample; conversely, 50% is the probability that the population won't be chosen as a sample (p = q = 0.5). The determination of the minimum total sample size for this research will be accomplished by employing the Bernoulli formula, as illustrated above:

$$n = \frac{1,645^2 (0,5)(0,5)}{(0,05)^2}$$

n = 270,60 responden

According to the sample calculation outcomes, the minimum required sample size for this research is 271 samples. The author will allocate the sample distribution proportionally across three regions: North Sulawesi, Central Sulawesi, and Gorontalo. The selected samples consist of customers who have installed the application and have used the service at least once. The author succeeded in obtaining 385 valid respondents according to the criteria, who were PLN Mobile application users.

### 3.2 Operational Variable

In this research, the operational variables utilized are defined as follows:

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**Table 1. Operational Variables.**

<b>Variabel</b>	<b>Indikator</b>	<b>Kode Item</b>
<i>Performance expectancy</i> (PE)	PLN Mobile is beneficial to me in the electricity application process.	PE1
	PLN Mobile helps me in obtaining information more quickly.	PE2
	PLN Mobile aids me in acquiring information more conveniently.	PE3
<i>Effort Expectancy</i> (EE)	Learning how to use the PLN Mobile app is easy for me.	EE1
	The user interface/display on the PLN Mobile Application is clear and understandable.	EE2
	PLN Mobile application easy to use.	EE3
	It is easy to become proficient in using the features within the PLN Mobile application.	EE4
<i>Social influence</i> (SI)	People who are important to me feel that I should use PLN Mobile.	SI1
	People who have an influence on my behavior believe that I should use PLN Mobile.	SI2
	People in my surroundings recommend to use PLN Mobile.	SI3
	I use PLN Mobile because a significant number of individuals in my vicinity use it.	SI4
<i>Facilitation condition</i> (FC)	I possess the required resources (smartphone or tablet) to utilize PLN Mobile.	FC1
	I have the requisite knowledge to use PLN Mobile.	FC2
	I can seek assistance from others when encountering difficulties in using the PLN Mobile application.	FC3
<i>Hedonic Motivation</i> (HM)	Using PLN Mobile is enjoyable for me.	HM1
	The features in PLN Mobile make me happy.	HM2
	I feel like I am keeping up with a trend by utilizing electricity services from PLN Mobile.	HM3
	Using PLN Mobile brings me satisfaction.	HM4
<i>Price Value</i> (PV)	I can economize by conducting transactions through the PLN Mobile app.	PV1
	The products available in the PLN Mobile application are reasonably priced.	PV2
	PLN Mobile provides better value compared to transactions on other apps.	PV3
	PLN Mobile presents valuable promotions for me.	PV4
<i>Habit</i> (HT)	Using PLN Mobile has become a customary practice for me.	HT1
	I must use PLN Mobile.	HT2
	Using PLN Mobile services has become natural to me.	HT3
	I have already used to online transaction based self-service.	HT4
	If I want to make a request or lodge a complaint, I instinctively use the application.	HT5
<i>Behavioral Intention</i> (BI)	I intend to continue using PLN Mobile in the future.	BI1
	I will always try to use PLN Mobile in my daily life.	BI2
	I intend to augment my usage of PLN Mobile in the future.	BI3
	My intention is to maintain the use of PLN Mobile rather than opting for any alternative channel.	BI4
<i>Use Behavior</i> (UB)	I frequently use PLN Mobile for electricity services.	UB1
	I will strongly recommend others to use PLN Mobile.	UB2
	I heavily depend on the PLN Mobile application for electricity services.	UB3

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## 3.3 Model Analysis and Test Techniques

The present investigation utilizes quantitative methods of analysis. Purposive sampling, a form of non-probability sampling, is the method of sampling that is employed. The measurement of variables is conducted utilizing a Likert scale (Haryono, 2017). The SmartPLS 3.2.9 software was employed to perform the data processing.

One advantage of PLS (Partial Least Squares) is its robustness as an analytical method, which does not require the data to adhere to a normal distribution (Ghozali, 2008). PLS is useful not just for confirmatory factor analysis (CFA) but also for exploratory factor analysis (EFA). Both small and large sample sizes can be used with a statistical method known as PLS-SEM (Partial Least Squares Structural Equation Modeling) (Bhudiasta, 2016).

In order to evaluate the substantial impact of latent variables on other latent variables, the SmartPLS software utilizes the bootstrapping procedure. Furthermore, significance determination may also employ p-values, in which a variable is deemed significant when its value is smaller than 0.05.

## IV. RESULT AND DISCUSSION

This research employs a questionnaire as the primary data collection method to examine the factors influencing the usage behavior of the PLN mobile application among PLN customers in the North Sulawesi, Central Sulawesi, and Gorontalo regions, utilizing the UTAUT2 model. The questionnaire was disseminated via social media platforms, primarily through WhatsApp messages, over a span of 28 days, from November 10th to December 7th, 2023. The data collected included responses from 385 out of 435 participants who were found to align with the predetermined respondent characteristics. These characteristics encompassed gender, age, highest education level, and duration of PLN Mobile application usage. Data analysis in this research was conducted using SmartPLS software version 3.2.9.

**Table 2. Demographic Characteristics of Respondents**

Demographics	Frequency	(%)	Demographics	Frequency	(%)
<b>Gender</b>			<b>Education Level</b>		
Male	318	83%	Primary or secondary school	25	6%
Female	67	17%	High school	287	75%
Total	<b>385</b>	<b>100%</b>	Diploma	18	5%
<b>Age</b>			Bachelor	55	14%
< 20 years	6	2%	> Master	0	0%
20 – 30 years	101	26%	Total	<b>385</b>	<b>100%</b>
31 – 45 years	169	44%	<b>Experience</b>		
46 – 55 years	95	25%	< 3 months	26	7%
> 56 years	14	4%	3 - 6 months	68	18%
Total	<b>385</b>	<b>100%</b>	6 months - 1 years	97	25%
			1 - 2 years	111	29%
			> 2 years	83	22%
			Total	<b>385</b>	<b>100%</b>

Based on table 2, the characteristics of respondents are dominated by men (83%). Most of the respondents were found in the age group 31–45 years (44%). The most prominent level of education of respondents (75%) is high school. The majority of respondents (29%) are customers who have used the application for 1-2 years.

### 4.1 Descriptive Analysis

Descriptive analysis serves the purpose of providing a perceptual overview of respondents' responses to questions or statements included in the questionnaire related to the research variables in the UTAUT 2 model. The outcomes of the descriptive analysis indicate that all 10 UTAUT 2 variables examined in this research are rated at a very high level, with values surpassing 81.33%. The biggest score is the performance expectancy variable with a score of 90.28%, so it can be concluded that the respondents' assessment of the tested variables is very good.

After the user evaluations were completed using a descriptive methodology, the data was analyzed using the SmartPLS software for Partial Least Square-Structural Equation Modeling (PLS-SEM). Two fundamental steps are involved the data analysis. The outer model analysis, which concentrates on establishing the relationship between latent variables and indicators in this study, constitutes the initial step. After verifying the validity and reliability of all indicators, the inner model analysis ensues, which evaluates on the relationship between one latent variable and other latent variables.

### 4.2 Measurement (Outer) Model

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In this research, the evaluation of the outer model involved validity and reliability testing. Validity testing encompassed two assessments, namely the Convergent Validity test and the Discriminant Validity test. The convergent validity test is employed to assess the extent to which the relationship between indicators and latent variables can be observed, considering the loading factor values and the average variance extracted (AVE) values. On the other hand, the discriminant validity test is conducted to establish the degree of differentiation between one variable and other variables, which can be assessed using the Fornell & Larcker criterion.

In simpler terms, this criterion helps researchers ensure that the measurements used for different variables are truly distinct and not highly correlated. This is essential for avoiding issues of multicollinearity and ensuring that each variable captures unique variance in the study. Ultimately, a successful discriminant validity test contributes to the robustness and reliability of research findings by confirming that each variable is measuring a distinct aspect of the phenomenon under investigation.

**Table 3. Convergent Validity: Outer Loading Factor Score**

Variable	Indicator	Loading Factor	Requirement	Conclusion	Variable	Indikator	Loading Factor	Requirement	Conclusion
<i>Performance Expectancy</i>	PE1	0.861	> 0.700	Valid	<i>Price Value</i>	PV1	0.906	> 0.700	Valid
	PE2	0.916	> 0.700	Valid		PV2	0.902	> 0.700	Valid
	PE3	0.920	> 0.700	Valid		PV3	0.898	> 0.700	Valid
<i>Effort Expectancy</i>	EE1	0.912	> 0.700	Valid		PV4	0.901	> 0.700	Valid
	EE2	0.896	> 0.700	Valid	<i>Habit</i>	HB1	0.890	> 0.700	Valid
	EE3	0.911	> 0.700	Valid		HB2	0.836	> 0.700	Valid
	EE4	0.897	> 0.700	Valid		HB3	0.875	> 0.700	Valid
<i>Social Influence</i>	SI1	0.889	> 0.700	Valid		HB4	0.848	> 0.700	Valid
	SI2	0.879	> 0.700	Valid		HB5	0.867	> 0.700	Valid
	SI3	0.880	> 0.700	Valid	<i>Behavioral Intention</i>	BI1	0.892	> 0.700	Valid
	SI4	0.808	> 0.700	Valid		BI2	0.908	> 0.700	Valid
<i>Facilitating Condition</i>	FC1	0.921	> 0.700	Valid		BI3	0.923	> 0.700	Valid
	FC2	0.920	> 0.700	Valid		BI4	0.905	> 0.700	Valid
	FC3	0.888	> 0.700	Valid	<i>Use Behavior</i>	UB1	0.906	> 0.700	Valid
<i>Hedonic Motivation</i>	HM1	0.894	> 0.700	Valid		UB2	0.907	> 0.700	Valid
	HM2	0.921	> 0.700	Valid		UB3	0.817	> 0.700	Valid
	HM3	0.863	> 0.700	Valid					
	HM4	0.884	> 0.700	Valid					

Table 3 presents the results indicating that all outer loading values are > 0.7, indicating that each indicator meets the validity criteria as determined by the outer loading value. The validity of the indicators utilized in this study is established by their congruence with the variables being examined (Ghozali, 2014). Furthermore, validity testing is conducted based on the average variance extracted (AVE) value. The results of the AVE values are as follows:

**Table 4. Convergent Validity: AVE Score**

Variable	Average Variance Extracted (AVE)	Requirement	Conclusion
<i>Behavioral Intention</i>	0.823	> 0.500	Valid
<i>Effort Expectancy</i>	0.817	> 0.500	Valid
<i>Facilitating Condition</i>	0.827	> 0.500	Valid
<i>Habit</i>	0.745	> 0.500	Valid
<i>Hedonic Motivation</i>	0.793	> 0.500	Valid
<i>Performance Expectancy</i>	0.809	> 0.500	Valid
<i>Price Value</i>	0.813	> 0.500	Valid
<i>Social Influence</i>	0.747	> 0.500	Valid
<i>Use Behavior</i>	0.771	> 0.500	Valid

As indicated in Table 4, all AVE values are > 0.5, signifying that they have satisfied the validity criteria based on AVE (Ghozali, 2014).

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**Table 5. Discriminant Validity: Fornell & Larcker Score**

Variable	Behavioral Intention	Effort Expectancy	Facilitating Condition	Habit	Hedonic Motivation	Performance Expectancy	Price Value	Social Influence	Use Behavior	Conclusion
Behavioral Intention	(0.907)									Valid
Effort Expectancy	0.472	(0.904)								Valid
Facilitating Condition	0.435	0.491	(0.910)							Valid
Habit	0.511	0.474	0.407	(0.863)						Valid
Hedonic Motivation	0.487	0.440	0.409	0.436	(0.891)					Valid
Performance Expectancy	0.456	0.467	0.428	0.404	0.413	(0.899)				Valid
Price Value	0.505	0.462	0.394	0.439	0.410	0.439	(0.902)			Valid
Social Influence	0.499	0.444	0.399	0.464	0.490	0.369	0.403	(0.865)		Valid
Use Behavior	0.688	0.580	0.559	0.545	0.528	0.571	0.557	0.520	(0.878)	Valid

Table 5 illustrates that the correlation values between variables within their respective constructs are higher than the correlation values with variables from other constructs. This leads to the conclusion that all latent constructs have satisfied the requirements for discriminant validity.

**Table 6. Reliability Test**

Variabel	Cronbach's Alpha	Composite Reliability	Status
Behavioral Intention	0.928	0.949	Reliable
Effort Expectancy	0.925	0.947	Reliable
Facilitating Condition	0.896	0.935	Reliable
Habit	0.915	0.936	Reliable
Hedonic Motivation	0.913	0.939	Reliable
Performance Expectancy	0.881	0.927	Reliable
Price Value	0.924	0.946	Reliable
Social Influence	0.888	0.922	Reliable
Use Behavior	0.850	0.910	Reliable

The next step is to assess a variable's reliability, which is evident from the Cronbach alpha value > 0.6, the indicators used are considered reliable, and the Composite reliability value > 0.7, then the internal consistency that occurs between indicators, variables and answers is considered reliable (According to Ghazali (2016). Research will be said to be reliable if it has an assessment of each variable that meets the requirement.

### 4.3 Structural (Inner) Model

#### R-Square

The R Square test is conducted to determine the extent of influence that specific exogenous latent variables have on endogenous latent variables, assessing whether their influence is substantial or not. The magnitude of the R<sup>2</sup> value is divided into 3, namely 0.67 = good, 0.33 = moderate, 0.19 = weak (Hair et.al, 2010). The results of the R Square test in this research are as follows:

**Table 7. R-Square Test Results**

Variabel	R Square
Behavioral Intention	0.458
Use Behavior	0.582

Table 7 reveals that the R-Square value for Behavioral Intention is 0.458, implying that the variables in this research impact Behavioral Intention by 45.8%, while the remaining 54.2% is influenced by other factors. Similarly, the R-Square value for Use Behaviour is 0.582, suggesting that the variables in this research affect Use Behaviour by 58.2%, with the remaining 41.8% being influenced by other factors. In conclusion, all R-square values in this research fall within the moderate model category. Furthermore, based on the goodness of fit (GoF) test results, with an SRMR value of 0.055 which is smaller than 0.1, it can be concluded that the model fits and can be accepted.



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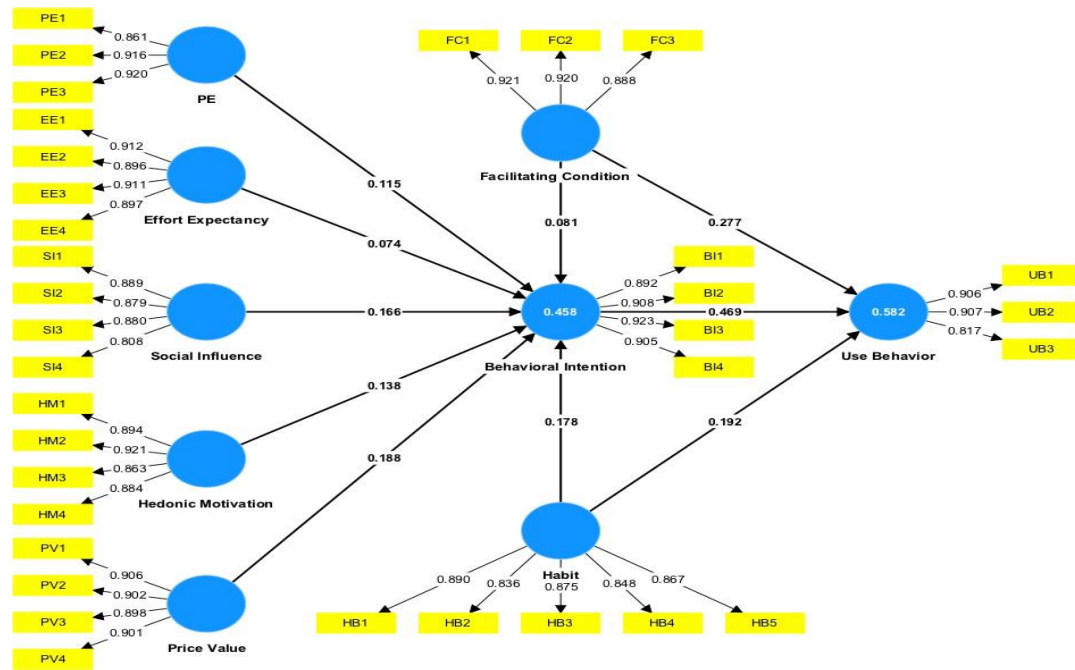


Figure 2. PLS-SEM analysis output

## 4.4 Hypothesis Test Results

Based on the results of the research conducted, the outcomes of the hypothesis testing are summarized as follows:

Table 8. Hypothesis Test Results and Significance

Path Diagram	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-Statistics ( O/STDEV )	p-values	Status
Behavioral Intention -> Use Behavior	0.469	0.475	0.080	5.880	< 0.001	Accepted
Facilitating Condition -> Use Behavior	0.277	0.274	0.063	4.436	< 0.001	Accepted
Social Influence -> Behavioral Intention	0.166	0.171	0.052	3.219	0.001	Accepted
Price Value -> Behavioral Intention	0.188	0.188	0.060	3.111	0.002	Accepted
Habit -> Use Behavior	0.192	0.186	0.065	2.957	0.003	Accepted
Habit -> Behavioral Intention	0.178	0.178	0.064	2.779	0.006	Accepted
Hedonic Motivation -> Behavioral Intention	0.138	0.137	0.057	2.429	0.016	Accepted
Performance Expectancy -> Behavioral Intention	0.115	0.112	0.053	2.150	0.032	Accepted
Facilitating Condition -> Behavioral Intention	0.081	0.076	0.048	1.679	0.094	Rejected
Effort Expectancy -> Behavioral Intention	0.074	0.070	0.051	1.454	0.147	Rejected

The present investigation utilizes a significance level of 5%. The test results for each hypothesis, as shown in Table 8, are detailed as follows:

- The relationship between performance expectation and behavioral intention is statistically positive and significant, as indicated by the coefficient value of 0.115 in the original sample column ( $p\text{-value} = 0.032 < 0.05$ ). It means that H1 is accepted. This result illustrates that the application's ability to provide benefits or advantages for its users has a significant and positive influence on user behavioral interest, where the more application users who benefit from their usage activities will influence the high interest of users in being able to use services on the PLN Mobile application. This is supported by the results of research on technology adoption that was previously conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), Alalwan et.al. (2018) and Prasetyo & Nursandi (2022).
- Effort Expectancy has no influence on Behavioral Intention, because it has  $p\text{-value} = 0.147 > 0.05$ . It means that H2 is rejected. This illustrates that the level of ease in using the application is not a consideration for users to be able to use the application. This is of course different from the results of previous technology adoption studies conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), and Tak & Panwar (2017). However, these results are similar to research conducted by Melisa

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- & Indrawati (2016), Pratiwi & Oktarina (2020), Prasetio & Nursandi (2022), and Hwang & Mulyana (2022) which shows that Effort Expectancy has no influence on Behavioral Intention.
3. The coefficient value (Original Sample column) for the positive influence of social factors on behavioral intention is 0.166; this relationship is statistically significant, as  $p\text{-value} = 0.001 < 0.05$ . It means that H3 is accepted. This illustrates that respondents or application users use it based on suggestions and recommendations from certain people who are considered important to them and have an influence in encouraging them to be interested in using the application. This is in accordance with research conducted by Correa et.al. (2019), Pratiwi & Oktarina (2020), Alalwan et.al. (2018) and Prasetio & Nursandi (2022) which show that Social Influence has a positive and significant effect on Behavioral Intention.
  4. Facilitating Condition has no impact on Behavioral Intention, because the  $p\text{-value}$  is  $0.094 > 0.05$ . It means that H4 is rejected. This illustrates that perhaps PLN has provided many ways to facilitate its users so that they don't need to make more effort to download the application and the application is designed to be easy to use by massively socializing how to use it so that customers can ask people who have already used it. Therefore, the facilities or resources required by users of the PLN Mobile application may not be a primary consideration in their interest in using it. This is of course different from the results of previous technology adoption studies conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), and Tak & Panwar (2017). However, these results are in accordance with research conducted by Hasudungan & Prasetio (2019), Prasetio & Nursandi (2022), Utomo et.al (2021) which shows that Facilitating Conditions have no influence on Behavioral Intention.
  5. The coefficient value (Original Sample column) for the positive effect of hedonic motivation on behavioral intention is 0.138; this relationship is statistically significant, as  $p\text{-value} = 0.016 < 0.05$ . It means that H5 is accepted. This illustrates that the factors of enjoyment, pride, and following trends that come from using applications are very important in user behavioral interest. Thus, hypothesis H5 in this study which states that Hedonic motivation has a positive effect on Behavioral Intention is accepted. This is in accordance with research conducted by Venkatesh et.al. (2012), Alalwan et.al. (2018), Tak & Panwar (2017) and Prasetio & Nursandi (2022).
  6. The relationship between Price Value and Behavioral Intention is statistically significant, as indicated by the  $p\text{-value}$  ( $0.002 < 0.05$ ) and the coefficient value (Original Sample column) of 0.188. It means that H6 is accepted. This illustrates that the comparison of prices or costs obtained from using the application is a consideration of the user's behavioral interests. This item shows that the best price and more economical costs as support for services in the application means that users will not feel in vain when using it. Thus, hypothesis H6 in this research which states that Price Value has a positive effect on Behavioral Intention is accepted. This is in accordance with research conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), Tak & Panwar (2017), and Prasetio & Nursandi (2022).
  7. The coefficient value (Original Sample column) for the positive influence of habit on behavioural intention is 0.178; this influence is statistically significant, as  $p\text{-value} = 0.006 < 0.05$ . It means that H7 is accepted. This illustrates that the user's perception of using the application which is reflected in previous experience or habits influences the user's behavioral interest, where respondents tend to use the PLN Mobile application service automatically due to being used to making online transactions. This is in accordance with research conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), Tak & Panwar (2017), and Prasetio & Nursandi (2022).
  8. The Facilitating Condition has a significant positive effect on Use Behavior, as indicated by the coefficient value (0.277 in the Original Sample column) and the  $p\text{-value}$  ( $0.000 < 0.05$ ). It means that H8 is accepted. This illustrates that the availability of facilities or resources and encouragement to use applications have a positive and significant effect on usage behavior to increase usage. Therefore, the facilities required by users are taken into consideration in encouraging users to use the application. Thus, hypothesis H8 in this research which states that facilitating conditions have a positive effect on Use Behavior is accepted. This is in accordance with research conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), and Pratiwi & Oktarina (2020).
  9. The coefficient value (Original Sample column) for the positive influence of habit on use behavior is 0.192; this influence is statistically significant, as  $p\text{-value} = 0.003 < 0.05$ . It means that H9 is accepted. This illustrates that the user's perception of using the application, which is reflected in previous experience, has a positive and significant influence on usage behavior, where the more often the application is used, the more likely it is to use it continuously automatically. This is in accordance with research conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), Tak & Panwar (2017), and Prasetio & Nursandi (2022).
  10. It is significant that Behavioral Intention influences Use Behavior positively, with a coefficient value of 0.469 (Original Sample column) and  $p\text{-value}$  of  $0.000 < 0.05$ . It means that H10 is accepted. This illustrates that the level of desire to continue using application services has a positive and significant effect on the intensity of application usage behavior. Thus, the hypothesis H10 in this research which states that Behavioral Intention has a positive effect on Use Behavior is accepted.

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This is in accordance with research conducted by Venkatesh et.al. (2012), Thaker et.al. (2020), Tak & Panwar (2017), and Prasetio & Nursandi (2022).

### Indirect Effect

Based on Table 9, it is known that the largest (dominant) indirect influence on Use Behavior is the indirect influence of Price Value on Use Behavior through Behavioral Intention, namely 0.088. This means that the price factor or costs incurred by the user are a strong consideration in influencing the user's interest or behavioral intentions so that it will have an impact on the intensity of using the PLN Mobile application. Customers with a strong interest or intention to use the system will also show a behavioral tendency (Use Behavior) and be interested in using the application.

**Table 9. Indirect effect Test Results**

Path Diagram	Indirect Effect Value
Performance Expectancy -> Behavioral Intention -> Use Behavior	0,054
Effort Expectancy -> Behavioral Intention -> Use Behavior	0,035
Social Influence -> Behavioral Intention -> Use Behavior	0,078
Facilitating Condition -> Behavioral Intention -> Use Behavior	0,038
Hedonic Motivation -> Behavioral Intention -> Use Behavior	0,065
Price Value -> Behavioral Intention -> Use Behavior	0,088
Habit -> Behavioral Intention -> Use Behavior	0,083

Next after Price Value, the order of indirect influence from large to small is: Habit, Social Influence, Hedonic Motivation, Performance Expectancy, Facilitating Condition. Meanwhile, the lowest (weakest) indirect influence on Use Behavior is the indirect influence of Effort Expectancy on Use Behavior through Behavioral Intention, namely 0.035. This shows that convenience factors are not too much of a consideration for users to be interested in using the PLN Mobile application.

### Total Effect

Based on Table 10, the test results of the greatest total influence on use behavior is the total influence of Facilitating Conditions on Use Behavior, which is 0.315. This shows that efforts to increase the use of the PLN Mobile application among all customers are greatly influenced by the conditions that facilitate a person. Customers will tend to use applications if they have the resources (smartphone or tablet), have knowledge of how to use the application, and when experiencing difficulties they can look for someone who can ask for help.

**Table 10. Total effect Test Results**

Path Diagram	Direct Effect Value	Indirect Effect Value	Total Effect Value
Performance Expectancy -> Use Behavior	-	0,054	0,054
Effort Expectancy -> Use Behavior	-	0,035	0,035
Social Influence -> Use Behavior	-	0,078	0,078
Facilitating Condition -> Use Behavior	0,277	0,038	0,315
Hedonic Motivation -> Use Behavior	-	0,065	0,065
Price Value -> Use Behavior	-	0,088	0,088
Habit -> Use Behavior	0,192	0,083	0,275

Meanwhile, on the other hand, the lowest total influence on Use Behavior is the total influence of Effort Expectancy on Use Behavior, which is 0.035. This illustrates that the expected convenience of an application tends not to be much of a consideration for users or customers in deciding to use the application. Other factors such as habits, cheaper prices, social influence, level of enjoyment, and application performance are actually factors that are more considered after facilitating conditions.

Based on the discussion of the research results that have been carried out, the author finds that there are differences between the research results and the theory put forward by Venkatesh et.al. (2012). The research results showed that there were two hypotheses that were rejected, namely that Effort Expectancy showed no effect on Behavioral Intention and Facilitating Conditions had no effect on Behavioral Intention. Referring to the research results related to the study of behavior in using the

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PLN Mobile application using the UTAUT2 model, especially for PLN customers in North Sulawesi, Central Sulawesi and Gorontalo, the conditions and relationships between variables are depicted in the following model:

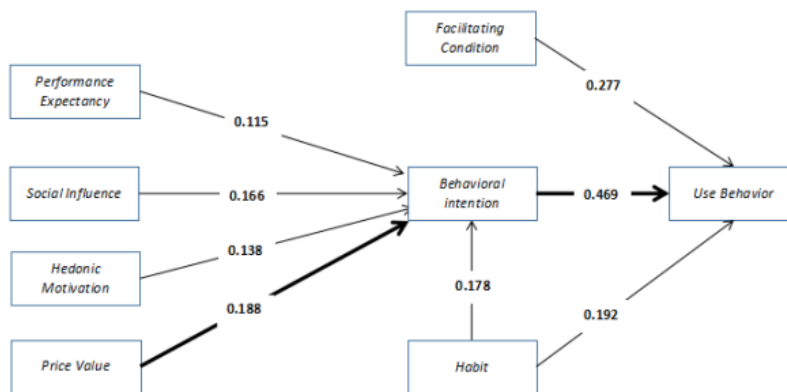


Figure 3. Research Result Model Relationship Diagram

## V. CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

The conclusions drawn from this research, based on the results of discussions presented in the previous section, are as follows:

1. The descriptive analysis results for the ten UTAUT 2 variables examined in this research consistently exhibited exceptionally high levels, exceeding 81.33 percent in every variable. Performance expectancy was identified as the variable with the highest performance, attaining a noteworthy score of 90.28%. Therefore, it is possible to deduce that the assessed variables received exceptionally positive evaluations from the respondents.
2. The findings of the examination indicate that five of the variables examined have a statistically significant and positive effect on Behavioral Intention. However, two variables demonstrate a positive effect but do not reach statistical significance. The details are as follows:
  - a. Performance Expectancy has a positive and significant effect on Behavioral Intention.
  - b. Social Influence has a positive effect on Behavioral Intention.
  - c. Hedonic Motivation has a positive and significant effect on Behavioral Intention.
  - d. Price Value has a positive and significant effect on Behavioral Intention.
  - e. Habit has a positive and significant effect on Behavioral Intention.
  - f. Effort Expectancy has no significant influence on Behavioral Intention.
  - g. Facilitating Conditions has no significant influence on Behavioral Intention.
3. Based on the test results, the variables Facilitating Condition, Habit, and Behavioral Intention show a positive and significant influence on Use Behavior.

### 5.2 Recommendation

#### 1. Academic Aspect

There are two suggestions for future researchers, namely:

- a. In future research, researchers can explore more about other variables, because looking at the R-square value for the Behavioral Intention variable, which is 45.8%, this means that there is still another 54.2% coming from other factors outside of this research. Likewise, the Use Behavior variable has an R-square value of 58.2%, of which another 41.8% comes from other factors outside of those examined in this research, so it needs further exploration.
- b. Researchers can carry out the same research, namely by using the UTAUT 2 adoption theory with the same topic but different areas or research objects, to be able to see the comparison of each work area and the characteristics of respondents so that similar companies can create a comprehensive improvement strategy that can be applied throughout Indonesia in relation to improving application quality and increasing usage.

#### 2. Practical Aspect

There are six suggestions from the results for the company in this case based on the variables in UTAUT 2 to enhance the aspects influencing behavioral intention and Use Behavior, namely:

- a. Price Value is the factor that has the most dominant or significant direct influence on behavioral intention (Behavioral Intention) in using the application. The descriptive analysis's findings show that the item with the weakest assessment is that respondents feel that the PLN Mobile application offers better value than transactions in other applications. Therefore, PLN

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- must pay attention to implementing a better payment method scheme compared to using other applications. Apart from that, it is hoped that the provision of reward points which is currently being implemented will continue to exist and be improved.
- b. In addition, Price Value is also the variable that has the most dominant indirect effect on use behavior which is mediated by intention. Therefore, to increase intention to use application, it is recommended to: carry out more effective socialization regarding the benefits of using the application, provide more massive information regarding available features, promo/discount programs, and the benefits of transactions via the Mobile app compared to conventional methods.
  - c. Social Influence is the second factor that has a significant direct influence on behavioral intention (Behavioral Intention) using the PLN Mobile application. The descriptive analysis result show that the weakest assessment is that respondents feel that using the number of people around them who also use the PLN Mobile application influences their decision to use it. PLN is advised to create a marketing strategy that can encourage users to suggest to those closest to them to use the services in the application. PLN must be more aggressive in promoting the benefits of using the application so that many customers are interested.
  - d. Behavioral Intention has the most significant direct influence on use behavior. Companies must be able to make improvements to the factors that influence behavioral interest so that they can influence the intensity of use (Use Behavior) based on the variables in UTAUT 2. Companies must be more creative in creating programs that can arouse customer interest in switching to using the PLN Mobile application. Without any intention or interest in using the application, customers will not use this application.
  - e. Based on the total effect test, One variable that significantly affects consumer behavior when using the PLN Mobile application is the Facilitating Conditions variable. From the analysis results, the most important assessment item that must be considered is that the knowledge required to use the PLN Mobile application must be re-socialized by the company, through online and offline media, because it has the lowest score. This can have an impact on increasing application usage.
  - f. Applications must be designed to increase enjoyment, comfort and joy for users or consumers when using them.

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