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Original Article

Factors Affecting KWH Sales Through Public Electric Vehicle Charging Stations (Case Study: PT PLN (Persero) Unit Induk Distribusi Jakarta Raya)

Mimin Milasari[1*], Tri Wahyu Adi[2], Ova Kurniawan[3], Willy Novananda Siregar[4], Muchamad Andi Barata[5]

[1]Institut Teknologi PLN / PT PLN (Persero) PUSLITBANG, Indonesia
[2,3]Institut Teknologi PLN, Indonesia
[4,5]Universitas Trisakti, Indonesia
Email: [1)] milasari3@gmail.com, [2)] triwahyuadi@itpln.ac.id, [3)] ova@itpln.ac.id, [4)] willywiganti@gmail.com, [5)] andi50154@gmail.com

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Abstract

Electric Vehicle Charging Stations (SPKLU) constitute a pivotal element in accelerating the acceptance of electric automobiles and advancing the transition toward sustainable energy within Indonesia. The objective of this paper is to discern the determinants that shape individual preferences in acquiring kilowatt-hours through SPKLU in the operational jurisdiction of PT PLN (Persero) Unit Induk Distribusi Jakarta Raya. The variables under scrutiny encompass the components of the marketing mix, namely merchandise, pricing, site, publicity, station attendants, operational procedure, and tangible manifestation. This investigation employed quantitative descriptive as well as causal approaches, with data processing executed through multiple linear regression facilitated by SPSS version 30. The findings reveal that advantageous placement, clarity of tariffs, and digitalised publicity exert a notable impact on consumers' resolutions regarding SPKLU utilisation. This study suggests increasing the number of SPKLU in strategic locations, providing tariff information transparency through digital media, and increasing promotions through applications and social media campaigns. Further researchers can further examine the psychological, social, and behavioral components of consumers that influence the decision to use SPKLU.

Keywords: Electric Vehicle Charging Station (SPKLU), KWh Sales, Marketing Mix, Sales Determinants, User Decision.

1. Introduction

In recent years, nations across the globe have placed considerable attention on the challenges of global warming and climate change. During the 21st Conference of the Parties (CoP) held in Paris in 2015, these matters became the central theme of deliberation. The gathering culminated in the formulation of a legally binding international accord designed to confront the climate crisis. Among its principal aims is the reduction of the global temperature increase to well under 2°C relative to pre-industrial benchmarks, while also endeavouring to restrain the escalation to no more than 1.5°C (UNFCCC, 2015). This occurrence originates from the release of greenhouse gases generated by human undertakings, with the energy sector serving as the foremost contributor.

Following the 21st Conference of the Parties (CoP) in 2015, several additional conferences have been held. These include the 26th CoP in Glasgow in 2021 and the 27th CoP in Sharm El Sheikh in 2022. At COP 26, countries are expected to increase their commitments

through emission reductions, as well as the importance of climate financing for developing countries (UNFCCC, 2022). Additionally, climate issues and efforts to assist countries most affected by climate change are a primary concern.

Indonesia is one of the most populous countries in the world, and its greenhouse gas emissions are very high. On 23 September 2022, Indonesia formally conveyed its pledge to curtail greenhouse gas discharges and enhance resilience to climate change (Nationally Determined Contribution/NDC) to the UNFCCC Secretariat. In this revised submission, the target for emission reduction was elevated from 41% in the Updated NDC to 43.20% under conditional circumstances, and from 29% in both the First and Updated NDC to 31.89% under unconditional circumstances (UNFCCC, 2022). Concrete measures undertaken include the adoption of sustainable, low-emission practices and technologies, along with the promotion of electric vehicles as a means to diminish transport-related emissions.

The Indonesian government supports the development of electric vehicles (EVs) by providing subsidies, discounts, or credits for the installation of EV charging stations and the purchase of EVs. In addition, there are also regulations that encourage the use of EVs, such as tax exemptions and special permits. Presidential Regulation No. 55 of 2019 concerning the Acceleration of the Battery Electric Vehicle Programme for Road Transport, together with Ministerial Regulation No. 1 of 2023 regarding the Provision of Charging Infrastructure for Battery Electric Vehicles, signify notable advancements in the development of the EV ecosystem.

As the primary electricity provider in Indonesia, PT PLN (Persero) plays a crucial role in developing and implementing sustainable business models. To achieve Net Zero Emissions (NZE) by 2060, PLN is committed to driving energy transformation. According to Evy Haryadi, Director of Transmission and System Planning at PLN, around 2,200 SPBKLU will be built and 2,000 electricity poles will be converted into SPKLU. This will support the growth of the electric vehicle ecosystem. In addition, PLN is helping the community charge electric vehicles with 16,000 home charging points.

The electric vehicle market in Indonesia is growing rapidly as public awareness of environmental issues increases. As an important infrastructure supporting the mass adoption of electric vehicles, SPKLU serves to meet the growing needs of customers, which has the potential to increase revenue streams beyond traditional electricity sales. The implementation of SPKLU not only allows PT PLN to optimise their profits beyond traditional electricity sales, but also enables other domestic companies to participate in the SPKLU business. PLN is working in concert with various stakeholders, including local authorities, private enterprises, and international organisations which is to hasten the expansion of electric vehicle charging infrastructure. One avenue of cooperation takes the form of Public-Private Partnerships (PPP), which enable private entities to participate in both the financing and operation of EV charging facilities.

PT PLN (Persero) Unit Induk Distribusi Jakarta Raya, commonly referred to as PT PLN (Persero) UID Jaya, is the distribution business unit of PT PLN (Persero) responsible for the supply and distribution of electricity in the Jakarta region and plays a crucial role in supporting economic and social activities in Jakarta. According to data from PT PLN (Persero) UID Jaya as of September 2024, the number of SPKLUs in operation is approximately 90 units, consisting of 29 units owned by PLN and 61 units operated by partners. Sales of kWh through SPKLU are expected to support PT PLN (Persero) UID Jaya's kWh sales revenue as the number of electric vehicles (motorcycles, cars, buses) increases. This initiative is in harmony with Sustainable Development Goals (SDGs) 9, 11, 12, and 17, which encompass Industry, Innovation and Infrastructure; Sustainable Cities and Communities; Responsible

Consumption and Production; as well as Partnerships for the Goals. Data obtained from the Indonesian Automotive Industry Association (Gaikindo) in 2022 shows that sales of electric cars in Indonesia reached 15,437 units. This number increased by 383.46% compared to the previous year's figure of 3,193 units (Mustajab, 2023). This is expected to reduce greenhouse gas emissions, aligning with SDGs 7 and 13: Affordable and Clean Energy and Climate Action.

Based on sales data from PT PLN (Persero) UID Jaya, the kWh consumption of electric vehicles supplied by SPKLU or the sale of electricity from SPKLU, as shown in Table 1

Table 1. Electric vehicle kWh consumption in the UID Jaya working area

No	Unit	Year												Total	
		2021			2022			2023			2024			kWh	%
		Total	kWh	%	Total	kWh	%	Total	kWh	%	Total	kWh	%		
1	SPKLU PLN	6	42.215,5	22,7%	13	90.861,9	7,0%	17	411.537,3	8,0%	29	813.175,5	25,4%	1.357.790,1	13,8%
2	SPKLU MITRA	4	1.957,8	1,1%	15	74.701,1	5,8%	35	495.509,5	9,6%	61	961.515,1	30,1%	1.533.683,4	15,6%
3	Home Charging	111	141.652,4	76,2%	782	1.125.312,6	87,2%	3.652	4.255.140,0	82,4%	4.777	1.421.864,2	44,5%	6.943.969,2	70,6%
	Total	121	185.825,7	100%	810	1.290.875,6	100%	3.704	5.162.186,7	100%	4.867	3.196.554,7	100%	9.835.442,7	100%

SPKLU, which is one of the sales distribution channels, shows that its contribution to kWh sales in the UID Jaya working area is still very small, only 29.4% of the total kWh sales consumed by electric cars. On the other hand, a Populix survey of electric car owners in Jakarta found that only 15% of 350 respondents said they wanted to charge their cars at SPKLU.

SPKLU, which is an important ecosystem in promoting the growth of electric vehicle usage, requires significant investment, so adequate economic viability is necessary to ensure the return on investment for SPKLU is achieved. One of the most important factors is to increase the utility of SPKLU by attracting electric vehicle users to charge their electric vehicles at SPKLU. An analysis of the factors that influence customers' decisions to use SPKLU is needed to increase kWh sales. To achieve this marketing strategy, the company can analyse the factors influencing kWh sales at SPKLU through the marketing mix (Willyanto & Iskandar, 2023).

The research question in this study focuses on the factors that can influence the decision to purchase kWh for charging electric vehicles at SPKLU in the PT PLN (Persero) UID Jaya area. The research questions address whether elements such as product, price, location, promotion, SPKLU personnel, process, and physical evidence affect purchasing decisions. Accordingly, the purpose of this study is to examine the extent to which these factors shape kWh purchase decisions at SPKLU within the operational scope of PT PLN (Persero) UID Jaya. By assessing product, price, location, promotion, staff performance, service processes, and physical evidence, the study offers a holistic understanding of the determinants that drive consumer behaviour in utilising electric vehicle charging services.

This study is expected to provide several benefits, both practically and academically. Practically, this study can provide an overview of the factors that play a significant role in kWh sales at PT PLN (Persero) UID Jaya EV charging stations, thereby serving as a basis for formulating marketing strategies. Academically, this study can contribute to the literature and enrich research on marketing strategies in the business of selling kWh at EV charging stations, particularly in Indonesia.

This study has several limitations that need to be considered. The research object is limited to SPKLUs located in the working area of PT PLN (Persero) UID Jaya from 2022 to September 2024. In addition, this study also remains within the corridor of regulations applicable at the time the research was conducted, so that the research results are adjusted to the current legal and policy conditions.

2. Literature Review

2.1. Marketing

Marketing is a business philosophy that prioritises customer satisfaction. It is not just about selling goods or services; it is more about building long-term relationships with customers. The notion focuses on gaining a profound insight into customers' needs and preferences, then designing products or services that are accessible and delivered efficiently. Marketing can be understood as a social and managerial activity through which individuals and groups satisfy their needs and wants by producing, offering, and exchanging goods of value with others (Armstrong et al., 2018). Another perspective defines marketing as the process of formulating and implementing ideas in which product pricing, promotion, and distribution of ideas, goods, and services are arranged to facilitate exchanges that fulfil individual needs while also achieving organisational goals (Wirtz & Lovelock, 2021).

2.2. Marketing Management

Marketing management is described as both an art and a science concerned with identifying target markets in order to attract, sustain, and expand customer potential through the creation, delivery, and communication of superior value (Armstrong et al., 2018). Similarly, Wirtz and Lovelock (2021) emphasise that marketing management constitutes an art and a science in selecting target markets and engaging in the acquisition, retention, and development of customers by producing, delivering, and communicating quality offerings.

2.3. Marketing Strategy

To achieve organisational goals, a marketing strategy is a long-term plan that studies customer needs, selects target markets, and creates methods that generate value. According to Lamb et al. (2021) marketing strategy is the process of selecting and analysing target markets that will develop and maintain a marketing mix that produces satisfying communication between the organisation and the target market. Meanwhile, Armstrong et al. (2018) argue that marketing strategy is a marketing logic that companies use to achieve their business objectives, including market segmentation, positioning, and market positioning, and managing the marketing mix to create value for customer.

2.4. Marketing Mix Strategy

In achieving marketing objectives and delivering value to customers, businesses use marketing mix strategies, which combine various marketing components. In general, the 4Ps (product, price, place, and promotion) serve as the core representation of the marketing mix framework. The marketing mix is defined as a set of tools that can be adjusted for tactical marketing, including product, price, place, and promotion, which companies use to generate the desired response in the target market (Armstrong et al., 2018). The 4Ps concept evolved into the 7Ps as consumer behaviour changed and added three new components: people, process, and physical evidence.

2.4.1. Product

A product is anything (goods/services) that a producer can offer to the market to meet consumer needs or desires, whether goods or services. The term product encompasses not only tangible goods but also services, experiences, events, people, places, properties, organisations, information, and ideas (Armstrong et al., 2018).

2.4.2. Price

According to Kotler & Armstrong (2012), price is the amount of money consumers must pay for the goods they desire. According to Mujito (2025), price is the ability of a form of goods or services to be expressed in monetary terms.

2.4.3. Distribution Channel (Place)

Place is a marketing component related to how a business manages its distribution channels and logistics network to ensure that goods or services are available to customers at the right time (Tjiptono, 2015).

2.4.4. Promotion

Promotion is an important element of the marketing mix. According to Wirtz and Lovelock (2021), promotion is a component of marketing strategy used to influence, inform, or convince the target audience about the goods, services, or ideas being offered. In terms of promotion, as noted by Chaffey and Smith (2022), social media can be used as a platform to interact with the audience. Moreover, Search Engine Optimisation (SEO) and Search Engine Marketing (SEM) may be utilised to help users identify SPKLU locations and conveniently access the nearest available charging point. Educational content can also be utilised to educate consumers about the use of SPKLU.

2.4.5. People

In the marketing mix concept, people are an important component. This includes everyone involved in delivering products or services to customers, including employees, support staff, sales personnel, and even the customers themselves. Service marketing involves interaction between the company providing the service and its customers. According to Wirtz and Lovelock (2021), the role of employees is crucial in ensuring customer satisfaction.

2.4.6. Process

One of the components of the 7P marketing mix is a process that encompasses all the steps and activities involved in delivering a product or service to customers. Within the marketing mix, the process dimension pertains to the series of procedures, mechanisms, and activities implemented by a company to guarantee that its products or services are delivered to customers in an efficient and satisfactory manner (Alzaydi et al., 2018).

2.4.7. Physical Evidence

One important component of the marketing mix is physical evidence, which can include all physical elements seen by customers that shape their perception of the product or service. Examples of physical evidence include facilities, environmental design, packaging, and other elements that support the customer experience.

2.5. Purchase Decision

A purchase decision is the process of gathering various options for action before deciding on a specific action (Schiffman & Wisenblit, 2019). The purchase decision begins with awareness of a need or desire and ends with the decision to buy something (Armstrong et al., 2018).

2.6. Research Model and Hypothesis Development

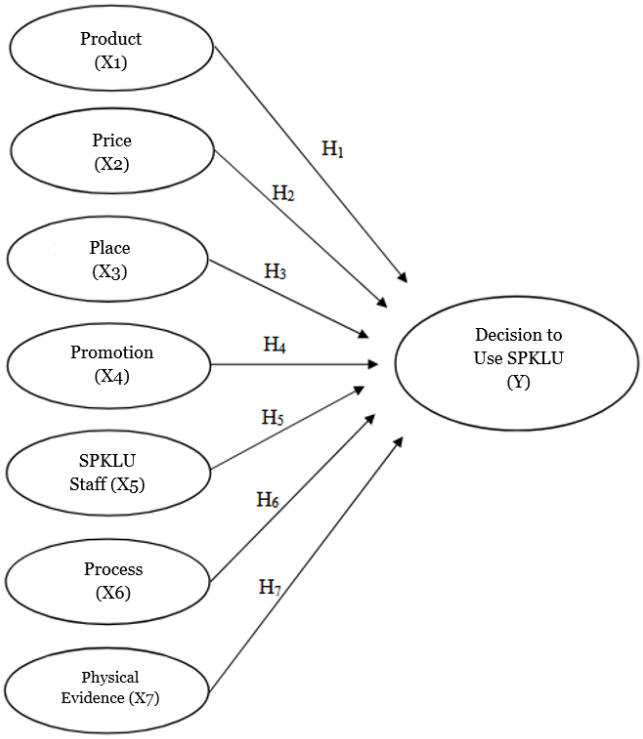

Figure 1. Research Framework

As illustrated in Figure 1, the research framework led to the formulation of the following hypotheses:

H1: The product has a significant influence on the decision to use SPKLU to charge electric cars.

H2: Price has a significant influence on the decision to use SPKLU to charge electric cars.

H3: Location/place has a significant influence on the decision to use SPKLU to charge electric cars.

H4: Promotion has a significant influence on the decision to use SPKLU to charge electric cars.

H5: SPKLU staff have a significant influence on the decision to use SPKLU to charge electric cars.

H6: The charging process significantly influences the decision to use SPKLU to charge electric vehicles.

H7: Physical evidence significantly influences the decision to use SPKLU to charge electric vehicles.

3. Methods

3.1. Pre-Research Stage

Literature research is the first stage of this research. This stage involves studying literature to learn the basic theories about SPKLU, using references from previous research and studying theories relevant to this research. Theories sourced from books, websites, and journals serve as the basis for determining the factors that will influence the kWh revenue of PT PLN (Persero) UID Jaya and the number of kWh sold through SPKLU.

3.2. Research Design

This study uses a quantitative descriptive and causal research design. The descriptive approach is used to describe the characteristics of the independent variables being studied. These independent variables consist of the marketing mix, which includes product, price, location/place, promotion, people, process, and physical evidence. Additionally, the dependent variable is the decision to purchase or use SPKLU to charge electric vehicles. The causal approach is used to determine the extent to which the marketing mix influences the decision to use SPKLU as an option for charging electric vehicles. Quantitative methods use numerical data and statistical analysis to answer questions. Testing hypotheses, identifying patterns, and making generalisations from the collected data are the primary objectives of quantitative methods. Data Collection Methods

Data is a collection of facts or raw information that has not been processed and does not have a clear meaning. It can take the form of text, numbers, images, sounds, or other types of information that can be processed to obtain further information or insights. There are four ways to collect data (Sugiyono, 2022): observation, questionnaires, interviews, and documentation. The author used the following data collection techniques in conducting this research:

The observation technique involves collecting data by directly observing the research object. The author used the observation method in this study at SPKLU in the working area of PT PLN (Persero) UID Jaya.

3.3. Questionnaire Technique

The data collection method used was a questionnaire, in which respondents were given a number of questions to answer. In this study, the questions were closed-ended and used a 5-point Likert scale.

The questionnaires were distributed to SPKLUs in the operational area of PT PLN (Persero) UID Jaya to be filled out by their users. To achieve optimal results, the Slovin formula was used. The Slovin formula is used to determine the minimum sample size required from a population while considering a specific margin of error (Sugiyono, 2011). The population in question is SPKLUs that conduct transactions in the working area of PT PLN (Persero) UID Jaya, namely 90 SPKLUs (29 PLN SPKLUs and 61 Mitra SPKLUs). With a margin of error of 5%, the minimum sample size is 75 SPKLUs.

3.4. Documentation Technique

Documentation technique is a method of collecting the latest data, where the research sources come from documents or previous records, such as archives, reports, articles, books, or digital data. The secondary data in this study are data related to kWh sales transactions at SPKLUs in the operational area of PT PLN (Persero) UID Jaya.

3.5. Data Analysis Technique

Data analysis can be conducted during the process of evaluating, exploring, and drawing conclusions about the information found in the available data. This study will analyse secondary data related to kWh sales transactions at SPKLU in the operational area of PT PLN (Persero) UID Jaya. Additionally, primary data analysis will use the SPSS Version 30.0 for Windows application or program.

4. Results and Discussion

4.1. Research Results

As discussed in the previous chapter, questionnaires were distributed to SPKLU users (79 SPKLUs in total), and data was collected over a two-week period, from 23 December 2024 to 4 January 2025, to obtain further information on the variables that influence kWh sales through SPKLUs in the working area of PT PLN (Persero) Unit Induk Distribusi Jakarta Raya. As part of the data collection process, respondents were provided with 40 questions that could be completed by scanning a barcode. A total of 140 respondents were obtained, which were considered representative of SPKLU users across the 79 SPKLUs.

4.1.1. Classical assumption testing

Table 2. Normality Test Result

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			140
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		1.36480003
Most Extreme Differences	Absolute		.059
	Positive		.042
	Negative		-.059
Test Statistic			.059
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.278
	99% Confidence Interval	Lower Bound	.267
		Upper Bound	.290

The normality test results in Table 2 above show a significance value of 0.20, which is higher than 0.05, indicating that the data is normally distributed.

Table 3. Multicollinearity Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-5.003	2.331		-2.147	.034		
	X1	.033	.080	.036	.408	.684	.395	2.533
	X2	.261	.089	.231	2.928	.004	.495	2.019
	X3	.290	.097	.272	2.989	.003	.373	2.679
	X4	.206	.094	.171	2.191	.030	.506	1.978
	X5	.039	.090	.034	.434	.665	.516	1.936
	X6	.170	.112	.174	1.519	.131	.235	4.255
	X7	.215	.117	.169	1.835	.069	.363	2.757

a. Dependent Variable: Y

Table 3 shows that the tolerance value is > 0.10 and VIF is < 10, so there is no multicollinearity.

Table 4. Heteroscedasticity Test Result

Correlations

			Unstandardized Residual	X1	X2	X3	X4	X5	X6	X7
Spearman's rho	Unstandardized Residual	Correlation Coefficient	1.000	.045	.028	.055	.017	.013	.092	-.006
		Sig. (2-tailed)	.	.593	.739	.518	.843	.879	.278	.943
		N	140	140	140	140	140	140	140	140
	X1	Correlation Coefficient	.045	1.000	.356**	.542**	.208*	.274**	.577**	.343**
		Sig. (2-tailed)	.593	.	<,001	<,001	.014	.001	<,001	<,001
		N	140	140	140	140	140	140	140	140
	X2	Correlation Coefficient	.028	.356**	1.000	.327**	.486**	.442**	.100	.114
		Sig. (2-tailed)	.739	<,001	.	<,001	<,001	<,001	.241	.181
		N	140	140	140	140	140	140	140	140
	X3	Correlation Coefficient	.055	.542**	.327**	1.000	.217*	.164	.593**	.467**
		Sig. (2-tailed)	.518	<,001	<,001	.	.010	.052	<,001	<,001
		N	140	140	140	140	140	140	140	140
	X4	Correlation Coefficient	.017	.208*	.486**	.217*	1.000	.360**	.208*	.187*
		Sig. (2-tailed)	.843	.014	<,001	.010	.	<,001	.014	.027
		N	140	140	140	140	140	140	140	140
	X5	Correlation Coefficient	.013	.274**	.442**	.164	.360**	1.000	.068	-.129
		Sig. (2-tailed)	.879	.001	<,001	.052	<,001	.	.425	.130
		N	140	140	140	140	140	140	140	140
	X6	Correlation Coefficient	.092	.577**	.100	.593**	.208*	.068	1.000	.565**
		Sig. (2-tailed)	.278	<,001	.241	<,001	.014	.425	.	<,001
		N	140	140	140	140	140	140	140	140
	X7	Correlation Coefficient	-.006	.343**	.114	.467**	.187*	-.129	.565**	1.000
		Sig. (2-tailed)	.943	<,001	.181	<,001	.027	.130	<,001	.
		N	140	140	140	140	140	140	140	140

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Looking at the Table 4 above, it can be seen that the significance value is > 0.05, so there are no symptoms of heteroscedasticity.

4.1.2. Multiple Linear Regression Analysis

a. Coefficient of Determination (R^2)

The coefficient of determination is a useful tool for measuring the strength of the influence of independent variables on dependent variables. R2 ranges from 0 to 1, and the higher the value, the more information the independent variable provides for estimating the dependent variable.

Table 5. Coefficient of Determination

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.770[a]	.593	.571	1.401

a. Predictors: (Constant), X7, X5, X1, X2, X4, X3, X6
b. Dependent Variable: Y

From Table 5, R Square 0.593 shows that the influence of variables X1 to X7 on Y is 59.3%. This indicates that 59.3% of the information is provided by variables related to the product, price, location, promotion, SPKLU staff, process, and physical evidence. In other words, the variation in the variables used in the model can explain 59.3% of the variation in the dependent variable, while the remaining 40.7% is attributed to the influence of other variables not included in the study.

b. Regression Equation

Table 6. Regression Equation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-5.003	2.331		-2.147	.034		
	X1	.033	.080	.036	.408	.684	.395	2.533
	X2	.261	.089	.231	2.928	.004	.495	2.019
	X3	.290	.097	.272	2.989	.003	.373	2.679
	X4	.206	.094	.171	2.191	.030	.506	1.978
	X5	.039	.090	.034	.434	.665	.516	1.936
	X6	.170	.112	.174	1.519	.131	.235	4.255
	X7	.215	.117	.169	1.835	.069	.363	2.757

a. Dependent Variable: Y

From Table 6 above, the following regression equation is obtained:

$$\mathbf{Y = -5.003 + 0.033X1 + 0.261X2 + 0.290X3 + 0.206X4 + 0.039X5 + 0.170X6 + 0.215X7}$$

Based on the regression results, the constant value is -5.003, meaning that if all variables are ignored, the decision to use SPKLU decreases. The test results show that price (X2), location (X3), and promotion (X4) have a positive and significant effect on the decision to use SPKLU. Meanwhile, product (X1), staff (X5), process (X6), and physical evidence (X7) have a positive but insignificant effect.

4.1.3. Relationship between Variables X1 – X7 and Y

A. Relationship between Product Variables (X1) and Y

The analysis results in table 7 show that the product variable (X1), which is broken down into several indicators, namely charger type (X1.1), charging quality (X1.2), and additional facilities (X1.3), has a positive and significant effect on the decision to use SPKLU. Meanwhile, device functionality (X1.5) has a positive but insignificant effect, and device security (X1.4) has a negative and insignificant effect.

Table 7. Relationship between variable X1 and Y

Variable X1	Regression coefficient	Sig.
Charger Type (X1.1)	0,387	0,038
Charging Quality (X1.2)	1,061	0,019
Additional Features (X1.3)	0,592	0,036
Device Security (X1.4)	-0,701	0,345
Device Functionality (X1.5)	1,287	0,069

It can be concluded that the most dominant indicator influencing the decision to use SPKLU is charging quality (X1.2), with a coefficient of 1.061 and significance of 0.019. This result reinforces previous research (Rohanah, 2021) which found that product quality has a significant influence on the decision to purchase Premium fuel.

B. Relationship between Price Variables (X2) and Y

Table 8. Relationship between variable X2 and Y

Variable X2	Regression coefficient	Sig.
Quality-based rates (X2.1)	0,101	0,731
Flexible payment options (X2.2)	0,932	0.009
Competitive prices (X2.3)	0,735	0,060
Rate transparency (X2.4)	1,722	<0,001
Promotional price offers (X2.5)	-0,463	0,041

The results of the price variable analysis (X2) show that flexible payment options (X2.2) and tariff transparency (X2.4) have a positive and significant effect on the decision to use SPKLU. Competitive prices (X2.3) have a positive but insignificant effect, while quality-based tariffs (X2.1) are also positive but insignificant. Meanwhile, promotional pricing (X2.5) shows a significant negative effect. It can be concluded that the most dominant indicator is tariff transparency (X2.4) with a coefficient of 1.722 and significance <0.001, confirming that clarity and openness of tariffs are the primary factors in users' decisions to use SPKLU.

C. Relationship between Location Variables (X3) and Y

Table 9. Relationship between variable X3 and Y

Variable X3	Regression coefficient	Sig.
Strategic Location (X3.1)	1,410	0,003
Supporting Facilities (X3.2)	1,089	<0,001
Spacious Parking Area (X3.3)	0,046	0,899
Easy to Find SPKLU (X3.4)	0,786	0,056
Location Security (X3.5)	0,050	0,904

The results of the location variable (X3) analysis indicate that strategic location (X3.1) and supporting facilities (X3.2) have a positive and significant effect on the decision to use SPKLU. Meanwhile, the ease of finding SPKLU (X3.4) has a positive but insignificant effect, and the availability of a large parking area (X3.3) and location security (X3.5) also have positive but insignificant effects.

It can be concluded that the most dominant indicator is strategic location (X3.1) with a coefficient of 1.410 and significance of 0.003, so that proximity and ease of access are the main considerations in the decision to use SPKLU. This is in line with research (Juliany, 2021) that location has a significant effect on the decision to purchase Pertalite fuel.

D. Relationship between Promotion Variables (X4) and Y

Table 10. Relationship between variable X4 and Y

Variable X4	Regression coefficient	Sig.
SPKLU information from social media or applications (X4.1)	1,326	<0,001
Promotional programmes influence usage (X4.2)	0,065	0,795
SPKLU information is updated and easily accessible (X4.3)	1,040	<0,001
Promotions encourage loyal usage (X4.4)	-0,280	0,930
Promotional information is attractive in the media (X4.5)	0,739	0,062

The results of the analysis of the promotion variable (X4) indicate that SPKLU information from social media/applications (X4.1) and updated and easily accessible SPKLU information (X4.3) have a positive and significant effect on the decision to use SPKLU.

Meanwhile, promotional programmes (X4.2) and attractive promotional information (X4.5) have a positive but insignificant effect, while promotional information in the media (X4.4) shows a negative effect, although not significant.

It can be concluded that the most influential variable X4 on Y is SPKLU information from social media or applications (X4.1) with significance <0.001 < 0.05 and a regression coefficient of 1.326, where each 1-unit increase in X4.1 will increase Y by 1.326, assuming other variables remain constant, and vice versa. This aligns with the study by (Mustamu & Putri, 2019), where the My Pertamina app variable significantly influences the decision to purchase Pertamax fuel.

E. Relationship Between Variable X5 (Person/Officer) and Y

Table 11. Relationship Between Variable X5 and Y

Variable X5	Regression coefficient	Sig.
Friendly and polite staff (X5.1)	0,681	0,021
Knowledgeable staff (X5.2)	0,505	0,131
Responsive SPKLU staff (X5.3)	-0,429	0,209
Staff presence creates a sense of security (X5.4)	0,867	0,006
Experience at SPKLU is influenced by interactions with staff (X5.5)	0,180	0,962

The results of the analysis of service officer variables (X5) show that friendly and polite officers (X5.1) and the presence of officers who provide a sense of security (X5.4) have a positive and significant effect on the decision to use SPKLU. Meanwhile, officers who have knowledge (X5.2) and experience in SPKLU influenced by interaction with staff (X5.5) have a positive but insignificant effect. However, responsive staff at the SPKLU (X5.3) actually show a negative influence, although not significant.

It can be concluded that the most influential variable X5 on Y is the presence of staff providing a sense of security (X5.4) with a significance of 0.006 < 0.05 and a regression coefficient of 0.867, where each 1-unit increase in X5.4 will increase Y by 0.867, assuming other variables remain constant, and vice versa. This aligns with the research by Juliany (2021), where service quality significantly influences the decision to purchase Pertalite fuel.

F. Relationship Between Process Variables (X6) and Y

Table 12. Relationship between X6 variables and Y

Variable X6	Regression coefficient	Sig.
Easy-to-understand charging procedure (X6.1)	1,536	0,004
Short and efficient waiting time (X6.2)	0,837	<0,001
Easy-to-use payment system (X6.3)	0,600	0,309
Organised charging process (X6.4)	0,808	0,089
Notifications or charging status information (X6.5)	-0,983	0,117

The results of the analysis of the SPKLU usage process variable (X6) indicate that several indicators have a positive influence on the decision to use SPKLU. The easy-to-understand charging procedure (X6.1) has a positive and significant effect with a coefficient of 1.536 (sig. 0.004), while the short and efficient waiting time (X6.2) also has a positive and significant effect with a coefficient of 0.837 (sig. <0.001). This confirms that ease of procedure and time efficiency are important factors driving consumer decisions. Other indicators such as an easy-to-use payment system (X6.3) and an organised charging process (X6.4) also have a positive effect, but are not significant. Meanwhile, notifications or charging status information (X6.5)

actually show a negative effect, although not significant. It can be concluded that the most influential variable X6 on Y is Easy-to-understand refuelling procedures (X6.1) with a significance of 0.004 < 0.05 and a regression coefficient of 1.536, where each 1-unit increase in X6.1 will increase Y by 1.536, assuming other variables remain constant, and vice versa. This aligns with the research by Solihah (2022), where waiting time significantly affects the purchase of Pertamax.

G. Relationship Between Physical Evidence Variable (X7) and Y

Table 13. Relationship between X7 and Y

Variable X7	Regression coefficient	Sig.
Modern and attractive design (X7.1)	1,132	0,003
Cleanliness in the SPKLU area (X7.2)	0,328	0,509
Easy-to-understand information on equipment use (X7.3)	1,818	<0,001
Good lighting at night (X7.4)	1,058	0,200
The appearance of the SPKLU reflects the professionalism of the service (X7.5)	-1,142	0,130

The results of the analysis of the physical appearance variables of SPKLU (X7) show that there are several indicators that have a positive and significant effect on usage decisions. Easy-to-understand information about the use of the device (X7.3) has the most dominant influence with a coefficient of 1.818 (sig. <0.001), followed by modern and attractive design (X7.1) with a coefficient of 1.132 (sig. 0.003) and good lighting at night (X7.4) with a coefficient of 1.058 (sig. 0.020). These three indicators are the main factors driving consumer decisions to use SPKLU.

Meanwhile, the cleanliness of the SPKLU area (X7.2) has a positive but insignificant effect, so although it contributes, its influence on consumer decisions is relatively weak. Interestingly, the appearance of SPKLU that reflects the professionalism of the service (X7.5) actually shows a significant negative effect with a coefficient of -1.142 (sig. 0.013). This means that the greater the emphasis on formal-professional appearance, the more likely it is to reduce usage decisions. This may be because consumers value practical ease and comfort more than mere formal appearance.

From the findings, hence we can explain that the most influential variable X7 on Y is "Easy-to-understand usage information" (X7.3) with significance <0.001 < 0.05 and a regression coefficient of 1.818, where each 1-unit increase in X7.3 increases Y by 1.818, assuming other variables remain constant, and vice versa. In line with the research (Juliany, 2021) where the coefficient is 0.246 and the significance is 0.001.

4.2. Discussion

The results of this study prove that the hypothesis regarding the influence of marketing variables on the decision to use SPKLU is largely acceptable, although not all variables have a significant effect. H1 is partially accepted, with several product indicators such as charging quality and charger type proving to be significant. Although charging quality, charger type, and additional facilities have a significant effect, device safety factors do not have a significant influence. This can be explained by the fact that consumers place greater emphasis on the speed and reliability of charging, which are directly felt when using SPKLU, while safety is considered a minimum standard that should already be in place. Thus, functional aspects are more important than safety attributes, which are rarely tested directly by users. H2 proved to

be significant, particularly through payment method flexibility and tariff transparency, reinforcing that price transparency is a key decision factor, in line with the findings (Sinaga, 2023) emphasising price transparency as a determinant of consumer trust. H3 is accepted, strategic location and supporting facilities have a real influence, consistent with research (Merik et al., 2021) which found location to be a major determinant in consumer decisions regarding services.

H4 is proven, as demonstrated by the role of digital media as a promotional and information channel that is crucial in shaping SPKLU consumer decisions. This finding is in line with the study by Alalwan et al. (2021), which emphasises the effective role of digital media compared to traditional promotion. H5 is accepted, as the presence of staff and the creation of a sense of security are important factors in user decisions. This supports the literature on service quality in service marketing, which places the dimensions of assurance and empathy (including staff presence and a sense of security) as important aspects in the perception of service quality. These results are consistent with research (Wang et al., 2021) that emphasises the assurance dimension in services. H6 is fully supported, as easy-to-understand charging procedures and efficient waiting times are proven to be significant, supporting Solihah's (2022) findings which emphasise the importance of service time in consumer decisions. Finally, H7 is also accepted, as clear and easy-to-understand usage information is the most influential physical aspect of service. In service literature, tangibles (physical appearance, facilities, usage instructions) are indeed elements of service quality perception. Research in other service contexts highlights that clear instructions or physical communication can enhance user comfort and trust. Thus, it can be concluded that SPKLU development strategies need to focus on technical quality, price transparency, easily accessible locations, clear digital information, process efficiency, and functional physical design.

5. Conclusion

Based on the results of research on the factors that influence kWh sales through SPKLU at PT PLN (Persero) Unit Induk Distribusi Jakarta Raya, it can be concluded that not all variables have a significant influence on customer decisions in using SPKLU services. Product factors, SPKLU staff, processes, and physical evidence were found to have no significant influence because SPKLU services are fundamentally uniform, self-service-based, automated, and more focused on the primary function of charging rather than visual aspects or direct interaction with staff. Conversely, price, location, and promotions were found to have a significant influence on customer decisions. Tariff transparency is the most important element of the price factor because customers require clarity on costs and assurance of no hidden fees. Strategic location is a dominant factor in facilitating accessibility, particularly in city centres and main routes. Meanwhile, digital promotions through apps or social media have proven effective because the majority of electric vehicle users rely on digital information when selecting reliable charging services.

Based on these conclusions, the recommendation is for PT PLN to strengthen the aspects proven to significantly influence customer decisions. First, the selection of EV charging station locations should be prioritised in strategic areas such as shopping centres, business districts, and major transportation routes to further enhance utility and competitiveness. Second, tariff transparency must be strengthened by providing clear and easily accessible information through the PLN Mobile app and information boards at EV charging station locations, accompanied by customer education on the benefits of using electric vehicles and the cost efficiency of charging. Third, digital promotion strategies need to be optimised by utilising

social media, official websites, and the PLN Mobile app, which is regularly updated to ensure that the information provided is relevant to users' needs. Additionally, further research is recommended to explore psychological, social, and consumer behaviour factors to provide a more comprehensive understanding of decisions regarding the use of EV charging stations.

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