Factors influencing purchase intention of Polytron Electric vehicles among Indonesian consumers

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ABSTRACT

This study analyzes factors influencing the purchase intention of Polytron electric Vehicles in Indonesia by integrating the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB), with infrastructure barriers as an external factor. A quantitative approach surveyed purposively selected respondents, analyzing data through PLS-SEM using SmartPLS. The results indicate that perceived usefulness and perceived ease of use positively and significantly affect consumer attitudes. Consequently, attitude strongly drives purchase intention, effectively mediating the TAM constructs. Interestingly, infrastructure barriers show no significant direct impact on purchase intention, suggesting that short-distance mobility and battery rental models effectively mitigate consumer anxieties. This research guides the local automotive industry to prioritize operational convenience and budget efficiency to accelerate EV adoption and support decarbonization targets.

Keywords: *Technology Acceptance Model; Theory of Planned Behavior; Local Brand; Infrastructure Barriers; Consumer Attitude; Purchase Intention; Electric Vehicles*

INTRODUCTION

Purchase intention serves as the most accurate cognitive predictor of actual purchasing behavior; therefore, understanding it is a crucial element in consumer behavior research (Simsekoglu & Nayum, 2019). Purchase intention reflects the degree of effort consumers are willing to exert to acquire a product (Yadav & Pathak, 2017). In the current automotive industry, understanding purchase intention is a top priority, especially in the context of EV adoption (Qiu & Thoo, 2024). Consumer preferences significantly influence the success of the EV transition, where EVs act as a crucial sustainable technological innovation to mitigate air pollution globally (Austmann, 2021). Therefore, national decarbonization targets through the implementation of clean energy will be difficult to achieve if the formed intention is not strong (Zimm, 2021).

Conceptually, the formation of purchase intention towards electric vehicles is strongly influenced by perceived usefulness, where consumers form the belief that switching to an electric vehicle such as the local brand Polytron will provide functional benefits, particularly in long-term operational cost efficiency (Gunawan et al., 2022; Shalender & Sharma, 2021). In addition to these perceptions, purchase intention is also driven by perceived ease of use, which is closely related to consumers' experience of the ease of operating EV technology, for example, from user-friendly interface features to practical charging processes (Wang et al., 2023). These two perceptions then shape consumer attitudes as a form of overall impression or feeling of liking towards using electric vehicles (Suki & Suki, 2017). The formation of positive consumer attitudes, which act as a mediating variable, is the main trigger for the emergence of purchase intention (Pramono et al., 2025; Simsekoglu & Nayum, 2019). The intention to purchase electric vehicles will be stronger if consumers feel that switching to EV products is a profitable and easy decision to make (Simsekoglu & Nayum, 2019).

In addition to internal factors of perception and attitude, the clean energy transition in developing countries like Indonesia also faces significant external challenges in the form of infrastructure barriers (Sulistyono et al., 2021; Zimm, 2021). Concerns about range (range anxiety) and the limited number of Public Electric Vehicle Charging Stations (SPKLU) create significant psychological barriers for consumers (Adnan et al., 2017). Uneven infrastructure availability creates a sense of uncertainty that effectively hinders purchase intentions even if consumers already have a positive attitude toward electric vehicles (Austmann, 2021; Hidayatullah et al., 2025). Therefore, infrastructure barriers act as a significant external factor that must be considered in understanding EV adoption behavior comprehensively (Shalender & Sharma, 2021).

Despite the growing literature on EV adoption, a significant research gap remains. Most studies use standard models without considering external situational variables such as infrastructure barriers in emerging markets. Furthermore, studies specifically examining the acceptance of local brands are still very limited. The novelty of this research lies in the integration of infrastructure barriers into the research model, focusing specifically on the local brand Polytron, which offers a unique innovation in the form of a battery rental program to reduce initial purchase prices. The urgency of this research is to provide a strategic foundation for the local automotive industry in designing effective marketing strategies, while simultaneously supporting the achievement of the national clean energy transition target.

This study aims to analyze the influence of internal factors—specifically perceived usefulness and perceived ease of use—on consumer purchase intention regarding the local electric vehicle brand Polytron, while examining the mediating role of consumer attitude. Furthermore, the study evaluates how the integration of infrastructure

barriers—as an external situational factor—affects the overall purchase intention model amidst the introduction of battery-leasing program innovations. The findings are expected to contribute to the academic literature on consumer behavior and the Technology Acceptance Model (TAM) by incorporating an external situational barrier variable within the context of emerging markets. Additionally, this research is intended to serve as a strategic foundation for local automotive industry players in designing adaptive marketing strategies and to provide policymakers with insights for optimizing supporting infrastructure development to accelerate national clean energy transition targets.

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM)

Referring to modern consumer behavior literature, the Theory of Planned Behavior (TPB) states that human behavior is fundamentally driven by intentions, which are formed by three main factors: attitude, perceived behavioral control, and subjective norms (Shalender & Sharma, 2021; Yadav & Pathak, 2017). In the context of innovation adoption, one of these three main factors, attitude, is a crucial indicator because it reflects consumers' personal evaluations of the benefits and risks of new behaviors, such as switching from an Internal Combustion Engine (ICE) to an electric vehicle (Effendi & Salehudin, 2026; Simsekoglu & Nayum, 2019). This evaluation serves as the basis for consumers to determine whether the application of new technology will have a positive or negative impact on their lives.

To facilitate understanding the adoption of technical and novel technologies, the TPB is often associated with the Technology Acceptance Model (TAM). This model, revalidated in the context of electric vehicles by Wang et al. (2023), focused on two main determinants: perceived ease of use and perceived usefulness. In research on electric vehicles, the TAM helps explain how technological features create initial consumer beliefs about the unit's practicality and operational benefits, ultimately leading to a positive purchase attitude (Jaiswal et al., 2022).

The integration of TAM and the TPB in this study allows for a more comprehensive analysis of consumer behavior. TAM provides a framework for evaluating the technical and functional aspects of electric vehicles, while the TPB deepens the analysis through consumer psychology, particularly the attitude variable. The synergy between these two theories is particularly appropriate for emerging markets like Indonesia. This integration positions the attitude variable as a crucial mediator, where actual purchase intention (TPB) stems from the formation of positive evaluations in consumers through their assessment of the sophistication of the technical features and the economic benefits offered (TAM) (Jaiswal et al., 2022). Therefore, this integration is able to provide a picture of the dynamics of consumer decisions that involve technical considerations as well as personal evaluations, especially in facing doubts about new technologies in the domestic market.

Perceived Usefulness

Perceived usefulness is the extent to which consumers believe using an electric vehicle will improve mobility efficiency and provide economic benefits (Christianto & Lahindah, 2025). Considering the energy transition in emerging markets, usefulness is assessed not only from an environmental perspective but also from an economic pragmatism and the concept of Total Cost of Ownership (TCO). Consumers tend to consider EV technology

worthwhile if the long-term operational cost savings can offset the higher purchase price compared to conventional vehicles (Tarei et al., 2021).

In the local market context, Polytron's strategy through its Battery-as-a-Service (BaaS) battery rental business model is a determining factor that significantly increases perceived usefulness. This battery rental business model not only lowers the initial purchase price (capital expenditure) but also mitigates the financial risks associated with depreciation and future battery replacement (Shi & Hu, 2024). By transferring battery ownership to manufacturers, consumers can experience higher utility value because the focus of use shifts to vehicle utilization without worrying about the maintenance costs of the most expensive component (battery) in the EV ecosystem (Hidayatullah et al., 2025).

Perceived Ease of Use

Perceived ease of use refers to the degree to which consumers perceive that adopting a new technology will relieve significant physical and mental effort (Utari & Yasa, 2025). In the context of electric vehicles, ease of use extends beyond the ability to drive the product; it also encompasses the ease of use within its supporting ecosystem, particularly in terms of charging convenience. The availability of convenient home charging options allows this technology to be incorporated into daily routines without requiring drastic behavioral changes, thereby directly increasing consumers' perceived ease of use (Cahyadi & Tjhin, 2025).

Ease of use in today's digital era is heavily influenced by the integration of the Internet of Things (IoT) through smartphone apps. Features such as real-time battery management systems and intuitive digital instrument panels play a crucial role in reducing consumers' cognitive load. Technology that provides accurate information about remaining battery power and the nearest charging location makes consumers feel more familiar with and in control of their vehicles (Cahyadi & Tjhin, 2025). In Indonesia, this convenience is key to reducing consumer skepticism towards the reliability of new technologies, thereby creating confidence that switching to Polytron electric vehicle products is a practical and user-friendly process (Jaiswal et al., 2022).

Attitude

Attitude is a consumer's level of personal evaluation, which can be expressed as a feeling of favor or disfavor, toward the behavior of adopting an electric vehicle (Jaiswal et al., 2022). Based on the integrative framework of TAM and TPB, attitude plays a crucial role as a psychological mediator, where perceived ease and usefulness will not directly translate into purchase intention if they are not successfully converted into positive evaluations within the consumer (Jaiswal et al., 2022).

Consumer evaluation of electric vehicles has shifted from simply environmental concerns to economic pragmatism. Consumers tend to adopt a positive attitude when they perceive a combination of environmentally sound and financially prudent measures. Zhao et al. (2024) explain that pro-adoption attitudes toward electric vehicles are most strongly formed when consumers perceive a lower Total Cost of Ownership, where energy efficiency is perceived as both a functional benefit and a social responsibility. Therefore, positive attitudes stem from consumers' belief that electric vehicles are a superior overall transportation solution.

When it comes to the domestic market, attitude formation is heavily influenced by consumer nationalism and cultural affinity for domestic brands like Polytron. The feeling of pride in using local products creates an emotional dimension that strengthens the attitude structure beyond the product's technical features alone. He et al. (2018) posit

that in developing nations, "National Pride" acts as a significant driver of attitudes; consumers perceive that purchasing domestically produced goods contributes to the nation's technological and economic progress.

Trust in local brands often mitigates the perceived risk that typically accompanies new technological innovations. In Southeast Asia, identifying with local brands can foster a sense of security and trust, which in turn strengthens consumers' belief that switching to electric vehicles is a wise and low-risk decision (Shofi & Salehudin, 2025). This relationship between economic value and national identity is a key determinant in shifting Indonesian consumers' attitudes from mere interest to concrete purchase intentions (Hidayatullah et al., 2025).

Infrastructure Barrier

Infrastructure barriers are defined as external situational factors that effectively hinder or limit consumers' ability to adopt electric vehicle technology (Suki & Suki, 2017). These barriers include long charging times, limited charging stations, and uneven distribution of supporting infrastructure (Tarei et al., 2021). Unlike the perceptional TAM variables, infrastructure barriers represent real-world constraints that create significant functional risks for consumers in their daily mobility.

Range anxiety, a key manifestation of infrastructure constraints, manifests as consumers' fear that their vehicles will run out of power before reaching their destination or charging point (Adnan et al., 2017). Capeletti et al. (2024) explain that the availability of visible Public Electric Vehicle Charging Stations (SPKLU) in public spaces is not only a technical issue but also a psychological safety signal for consumers. In developing countries, particularly Indonesia, the continued concentration of SPKLUs in large urban areas creates a perception of uncertainty for consumers with intercity mobility needs, which then significantly suppresses consumer purchase intentions for electric vehicles (Hidayatullah et al., 2025).

Recent references suggest that infrastructure acts as a must-have condition. Even if consumers have a positive attitude toward environmental sustainability and prefer a vehicle's technological features, the lack of adequate infrastructure can reduce or even eliminate purchase intentions (Austmann, 2021; Hidayatullah et al., 2025). Infrastructure barriers have a stronger negative impact on purchase intentions than the positive impact of electric vehicle purchase price incentives (Purwanto & Irawan, 2024). In the case of Polytron in Indonesia, the availability of easily accessible charging infrastructure is a determining factor in whether the economic benefits of Battery-as-a-Service (BaaS) are truly felt by consumers or are instead overshadowed by operational risks due to limited charging capacity (Sulistyono et al., 2021).

Purchase Intention

Purchase intention is the strength of a person's intention to engage in a particular purchasing behavior, or the extent to which an individual is willing to try and pursue a product (Utari & Yasa, 2025). From a sustainable technology perspective, purchase intention represents a consumer's psychological readiness to transition from conventional technology to clean energy innovation. This intention is the cumulative result of a consumer's functional evaluation (TAM) and personal evaluation (TPB) (Jaiswal et al., 2022).

In developing countries like Indonesia, electric vehicle purchase intentions are complex, involving considerations of both technical risks and lifestyle aspirations. Alshurideh et al. (2025) explain that electric vehicle purchase intentions are strongly

influenced by "economic pragmatism," where consumers demonstrate a strong intention when long-term financial benefits are apparent. This intention is driven not only by environmental awareness but also by the perception that the product can improve the user's social status or improve the efficiency of daily mobility (Shalender & Sharma, 2021).

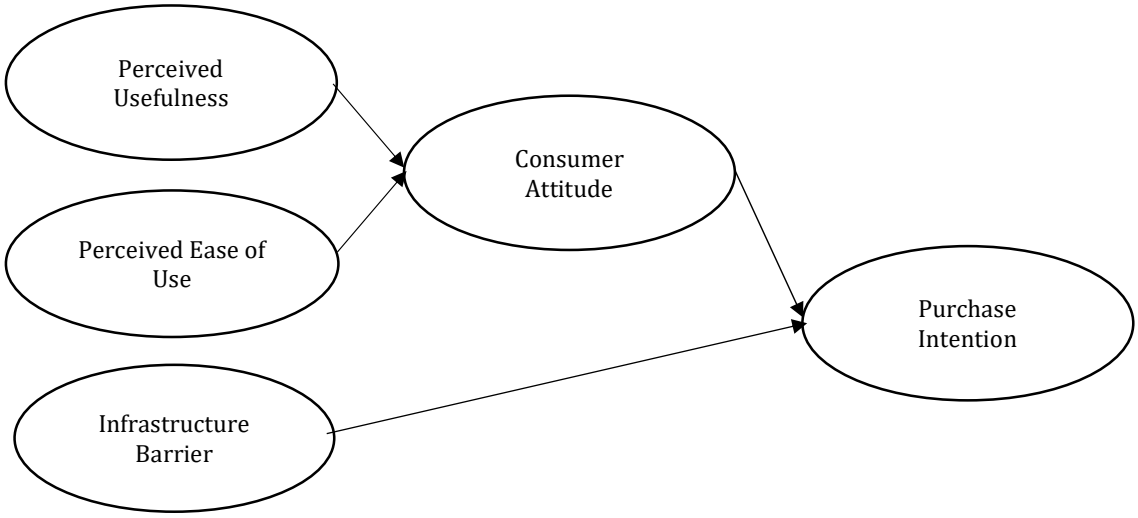
Although the majority of consumers express positive attitudes toward environmental issues, a gap between attitudes and actual intentions (attitude-intention gap) often emerges. To address this gap for local products like Polytron, public trust in the brand and easy access to infrastructure are key drivers. Purchase intentions for local automotive products are often reinforced by a sense of national identity, where consumers perceive purchasing a locally made electric vehicle as a form of support for the nation's technological independence (Zhao et al., 2024).

Purchase intention is specifically influenced by how consumers perceive manufacturers' solutions to existing barriers (Purwanto & Irawan, 2024; Sulistyono et al., 2021). For example, the availability of smart features and the battery leasing business model offered by Polytron can reduce perceived financial and technical risks, thereby strengthening consumer purchase intention (Hidayatullah et al., 2025). Therefore, purchase intention in this study reflects consumers' highest likelihood of adopting Polytron products as their future mobility solution.

Research Framework

To provide a systematic overview of the relationships between the studied variables, this study combines the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM). This integration aims to understand how consumers, particularly in Indonesia, adopt electric vehicles. Within this framework, technical aspects, represented by perceived usefulness and perceived ease of use, are positioned as benchmarks that shape consumer attitudes. These established consumer attitudes then become the primary determinant in developing purchase intention.

This research model is expanded by incorporating infrastructure barriers as an external factor. This variable is predicted to significantly mitigate or hinder consumer purchase intentions, given that the electric vehicle charging ecosystem in Indonesia is still under development and not yet evenly distributed. The synergy of these variables is expected to provide a comprehensive picture of the complexity of the consumer decision-making process regarding local electric vehicle adoption. The conceptual model used in this study is shown in Figure 1.



Source: Created by author for this research, 2026

Figure 1
Research Framework

Hypotheses

Based on the theoretical background and previous empirical evidence, the researcher has developed the following hypothesis:

H1: Perceived usefulness has a significant influence on consumer attitudes toward Polytron electric vehicles.
H2: Perceived ease of use has a significant influence on consumer attitudes toward Polytron electric vehicles.
H3: Attitude has a significant influence on purchase intention for Polytron electric vehicles.
H4: Infrastructure barriers has a significant influence on purchase intention for Polytron electric vehicles.
H5: Attitude mediates the influence of perceived usefulness on consumer purchase intention for Polytron electric vehicles.
H6: Attitude mediates the influence of perceived ease of use on consumer purchase intention for Polytron electric vehicles.

METHOD

This study applies a quantitative approach with an explanatory and conclusive causal design. The conclusive causal design was chosen to objectively test cause-and-effect relationships (Creswell & Guetterman, 2024; Malhotra, 2019). The application of numerical data analysis aims to validate the research hypothesis through rigorous statistical testing (Hair et al., 2022). The main focus of this study is to determine how perceived usefulness, perceived ease of use (Zhao et al., 2024), and infrastructure barriers (Tarei et al., 2021) influence purchase intention of Polytron electric vehicles through consumer attitudes as a mediating variable (Simsekoglu & Nayum, 2019).

The population in this study consists of Indonesians who have general knowledge of the local Polytron brand and are planning or considering owning an electric vehicle in the future. Given the unknown population siz, the sampling procedure follows Malhotra's (2019) recommendations for an infinite population. Referring to the theory of Sugiyono

(2023), the sample size for an unlimited population can be calculated using the Cochran formula as follows:

$$n_0 = \frac{Z^2 \cdot p \cdot q}{e^2}$$

With a 95% confidence level (Z = 1.96), a p and q proportion of 0.5, and a margin of error of 10% (e = 0.1), the minimum sample size was 96.04. To maintain statistical power, the researchers collected data from 142 respondents. This number is considered sufficient to detect the influence between variables at a significant level and has met the minimum criteria for analysis using SmartPLS 4 based on the recommendations of Hair et al. (2022) regarding statistical power in path analysis models.

The sampling technique used purposive sampling, selecting respondents based on specific criteria aligned with the research objectives to ensure more representative information (Sekaran & Bougie, 2016; Sugiyono, 2023). The respondent criteria were determined as follows:

1. Indonesians with general knowledge of the Polytron brand.
2. Interested in or planning to own an electric vehicle in the future.

The determination of the criteria for respondents who have knowledge and transition plans is based on Utari & Yasa (2025), who explains that studies on purchase intention must target individuals who are at the cognitive stage of decision consideration.

Primary data were collected through a structured questionnaire instrument distributed online with the aim of reaching respondents widely and efficiently (Sekaran & Bougie, 2016). Each statement sentence in the questionnaire was measured using a 5-point Likert Scale (1: Strongly Disagree to 5: Strongly Agree). The use of this scale aims to obtain variations in respondents' perceptions and attitudes objectively and precisely (Sekaran & Bougie, 2016; Sugiyono, 2023).

In this study, data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method using SmartPLS 4 software (Ringle et al., 2022). Based on recommendations from Hair et al. (2022), the analysis procedure was divided into two main stages:

1. Measurement Model Evaluation (Outer Model): This stage aims to ensure that the research instrument is valid and reliable. Convergent validity is tested through the loading factor value (threshold > 0.7) and Average Variance Extracted (AVE > 0.5). Instrument reliability is evaluated using Composite Reliability (CR) and Cronbach's Alpha values, with a minimum requirement of 0.7.
2. Structural Model Evaluation (Inner Model): This stage is the testing of the relationship between variables (hypotheses). This test includes an assessment of the coefficient of determination (R^2) to measure the predictive power of the model and the Path Coefficient to see the direction of the relationship. In the statistical significance test, the researcher used a bootstrapping procedure with a sample size of 5,000 subsamples to obtain a p-value (significant if < 0.05) and t-statistics (> 1.96 for a 95% confidence level).

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

This study was conducted using data from 142 respondents. The respondent criteria for this study were: Indonesian citizens who have general knowledge of the Polytron brand

and plan to own an electric vehicle in the future. Respondents in this study were not required to make a purchase as the focus of this study was purchase intention and not actual purchasing behavior.

The demographic characteristics of the respondents can be seen in Table 1.

Table 1
Respondent Characteristics

	Description	Amount	
		Frequency	Percentage
1	**Age**		
	< 25	6	4.2%
	25 – 30	12	8.5%
	31 - 35	13	9.2%
	36 – 40	12	8.5%
	41 – 45	40	28.2%
	46 – 50	26	18.3%
	51 – 55	26	18.3%
	55 – 60	7	4.9%
	> 60	1	0.7%
2	**Domicile**		
	Bandung	2	1.4%
	Bekasi	1	0.7%
	Makassar	1	0.7%
	Semarang	6	4.2%
	Surabaya	1	0.7%
	Tangerang	1	0.7%
	Yogyakarta	2	1.4%
	Kudus	112	78.8%
	Pati	4	2.8%
	Demak	4	2.8%
	Magelang	2	1.4%
	Jepara	3	2.1%
	Sragen	1	0.7%
	Boyolali	1	0.7%
	Lombok	1	0.7%
	Temanggung	1	0.7%
3	**Profession**		
	PNS/TNI/POLRI	4	2.8%
	Karyawan Swasta	68	47.9%
	Pengusaha	7	4.9%
	Tenaga Pendidik	31	21.8%
	Spesialis IT	1	0.7%
	Freelancer/Kreatif	2	1.4%
	Ibu Rumah Tangga	26	18.3%
	Mahasiswa	2	1.4%
	Sopir	1	0.7%
	Buruh	2	1.4%
	Teknisi	1	0.7%
4	**Average Income per Month**		
	< Rp. 1.000.000	31	21.8%
	Rp. 1.000.001 – Rp. 3.000.000	38	26.8%
	Rp. 3.000.001 – Rp. 5.000.000	16	11.3%
	Rp. 5.000.001 – Rp. 8.000.000	25	17.6%
	Rp. 8.000.001 – Rp. 10.000.000	14	9.9%
	> Rp. 10.000.000	18	12.7%

Source: Data Analyzed by author, 2026

The majority of respondents in this study were in the mature productive age range, with the highest percentage being between 41 and 45 years old (28.2%). More broadly, respondents between 41 and 55 years old dominated the sample, accounting for 64.8%. This indicates that the interest in transitioning to Polytron electric vehicles predominantly stems from economically established individuals where long-term operational efficiency is a key factor in purchasing decisions.

Based on domicile, the majority of respondents came from the Kudus area, representing 112 people (78.8%). This high participation rate from this region is highly relevant to the research objective, given that Kudus is the primary operational and manufacturing center for the Polytron brand. This naturally fosters stronger brand awareness and high local loyalty to Polytron products. However, the presence of respondents from outside Java, such as Makassar and Lombok, indicates that interest in Polytron electric vehicles has spread to various regions across Indonesia.

In terms of occupation, respondents in this study were predominantly private sector employees (47.9%). This group of workers tends to be more sensitive to the efficiency of daily transportation operational costs and is more open to automotive technology innovations that can support their work productivity. Furthermore, the 21.8% of respondents from the Education sector indicate interest among education professionals, who may consider the long-term efficiency and educational value of using environmentally friendly technology.

Respondent characteristics based on average monthly income indicate that the majority of respondents earn between Rp 1,000,001 and Rp 3,000,000 (26.8%), followed by those with incomes below Rp 1,000,000 (21.8%). This indicates that interest in the transition to Polytron electric vehicles is particularly strong among segments of society that prioritize daily budget efficiency and view it as a viable solution to reduce fuel costs. Not only that, this group of respondents also perceives Polytron electric vehicles as economical and affordable vehicles for various levels of society, including those who are in the early stages of financial stability but have a high awareness of long-term energy savings.

Outer Model Test

The measurement model evaluation test (outer model) is a crucial stage in the Structural Equation Modeling (SEM) framework, specifically when applying the Partial Least Squares (PLS-SEM) approach (Hair et al., 2022). This stage aims to test how well the studied indicators represent their latent constructs and ensure that the measurement instrument captures the studied variables validly and reliably (Hair et al., 2022; Subhaktiyasa, 2024).

This assessment involves several key criteria with specific terms and conditions. Convergent validity can be determined by the outer loading value, which is required to be at least 0.70, and the Average Variance Extracted (AVE), which must be above 0.50. Composite Reliability (CR) and Cronbach's Alpha must reach a minimum threshold of 0.70 (Ringle et al., 2022). The results of the validity and reliability test are presented in the following table.

Table 2
Validity and Reliability Test

Construct	Item	Loading	α	CR	AVE
Perceived Usefulness	I feel that using a Polytron electric vehicle will save me long-term operating costs compared to a gasoline-powered vehicle.	0.856	0.809	0.886	0.722
	Using a Polytron electric vehicle offers added value because it's more environmentally friendly.	0.823			
	Polytron electric vehicles effectively support my daily activities.	0.869			
Perceived Ease of Use	I found the features on the Polytron electric vehicle (such as the instrument panel) easy to learn.	0.836	0.865	0.918	0.788
	The charging process for the Polytron electric vehicle seemed practical and hassle-free.	0.899			
	Operating the Polytron electric vehicle technology didn't require much effort or exhaustion.	0.925			
Attitude	I'm happy to be able to contribute to the clean energy transition by using local Polytron products.	0.833	0.833	0.900	0.751
	I think switching to a Polytron electric vehicle is a wise decision.	0.873			
	Overall, I have a positive outlook on electric vehicle adoption in Indonesia.	0.892			
Infrastructure Barrier	I'm worried that the battery in my Polytron electric vehicle will run out before I reach my destination or find a charging station.	0.863	0.826	0.896	0.743
	The limited number of Public Electric Vehicle Charging Stations (SPKLU) makes me hesitant to purchase a Polytron electric vehicle.	0.903			
	The difficulty of accessing charging stations in public locations is considered a significant technical risk.	0.818			
Purchase Intention	I will be looking for more information on Polytron electric vehicle models and prices.	0.792	0.737	0.851	0.657
	I intend to purchase a Polytron electric vehicle in the future.	0.859			
	I would prefer a Polytron brand electric vehicle over a conventional brand if the infrastructure is adequate.	0.777			

Source: Data processed using SmartPLS 4, 2026

Based on the data processing results of the outer model presented in Table 2, it can be confirmed that all indicators in this study have met the established validity and reliability standards. The applied measurement model is adequate and suitable for proceeding to the structural model analysis stage (inner model) to examine the relationships between variables in the context of the electric vehicle industry (Zhao et al., 2024).

Convergent Validity Test

Convergent validity was analyzed based on outer loading values above 0.70 and Average Variance Extracted (AVE) above 0.50 (Hair et al., 2022). Based on the results in Table 2, all research indicators had outer loading values above 0.70, with the highest value in the

PEU indicator (0.925) and the lowest in PI3 (0.777). Convergent validity at the variable level was strengthened by the AVE values of the five constructs exceeding the 0.50 threshold, with PEU recording the highest value (0.788) and PI recording the lowest value (0.657). These results prove that all indicators are valid and able to accurately represent their latent constructs.

Reliability Test

This test was conducted to ensure the internal consistency of the instrument through Cronbach's Alpha and Composite Reliability (CR) parameters with a minimum threshold of 0.70 (Ringle et al., 2022). The test results showed that all constructs had high reliability, with Cronbach's Alpha values ranging from 0.737 to 0.865 and CR values ranging from 0.851 to 0.918. The PEU variable achieved the highest internal consistency value (CR 0.918), followed by AT (CR 0.900), IB (CR 0.896), PU (CR 0.886), and PI (CR 0.851). All values were above the required limits, thus declaring this research instrument consistent and reliable.

Determination Coefficient Test

The initial stage in evaluating a structural model is to examine the coefficient of determination (R^2). This test aims to measure the ability of the independent variables to explain variation in the dependent variable (Hair et al., 2022). The higher the R^2 value, the stronger the research model is in predicting the phenomenon under study. A high R^2 value indicates a better level of predictive accuracy and explanatory power of the proposed model (Shmueli et al., 2019). The results of the coefficient of determination analysis in this study are presented in the following table.

Table 3
R-Square Value Results

	R-Square	R-Square Adjusted
Attitude (Z)	0,689	0,684
Purchase Intention (Y)	0,534	0,527

Source: Data processed using SmartPLS 4, 2026

Based on Table 3, the R^2 value for Attitude (Z) is 0.689, indicating that Perceived Usefulness and Perceived Ease of Use simultaneously explain 68.9% of the variation in consumer attitudes. The R^2 value for Purchase Intention (Y) is 0.534, indicating that the model has moderate ability (53.4%) in predicting purchase intention of Polytron electric vehicles in Indonesia.

Hypothesis Testing Results for Direct Effects

Hypothesis testing aims to determine the direction of the relationship and the level of significance between variables in the structural model (Hair et al., 2022). The results of this test were obtained through a bootstrapping process with 5,000 subsamples in SmartPLS 4. The significance assessment criteria used were T-statistics > 1.96 and P-values < 0.05 at a 95% confidence level (Hair et al., 2022). The results of the direct effects test are presented in the following table.

Table 4
Hypothesis Test Results (Direct Effects)

Hypothesis	Variable	Path Coefficient	T-Statistics	P-Value	Explanation
H1	Perceived Usefulness -> Attitude	0,443	4,129	0,000	Significant
H2	Perceived Ease of Use -> Attitude	0,496	4,826	0,000	Significant
H3	Attitude -> Purchase Intention	0,709	12,562	0,000	Significant
H4	Infrastructure Barrier -> Purchase Intention	-0,056	0,835	0,404	Not Significant

Source: Data processed using SmartPLS 4, 2026

Based on Table 4, the path coefficient results show that most of the variable relationships have a T-statistic value greater than 1.96 and a P-value less than 0.05, which indicates that Hypothesis 1 (H1), Hypothesis 2 (H2), and Hypothesis 3 (H3) are accepted. On the other hand, the relationship between Infrastructure Barrier and Purchase Intention (H4) has a T-statistic value of 0.835 and a P-value of 0.404, so the hypothesis is rejected.

Hypothesis Testing Results for Indirect Effects

The indirect effect test aims to evaluate the role of the mediating variable Attitude (Z) as a mediator in the relationship between the independent variable and the dependent variable (Hair et al., 2022). This analysis is crucial for understanding the internal mechanisms or psychological pathways of consumers in the decision-making process of adopting electric vehicle technology.

This test uses the bootstrapping procedure, a recommended non-parametric method for producing accurate parameter estimates in complex mediation models (Hair et al., 2022). Based on the data processing results, the following results were obtained.

Table 5
Hypothesis Test Results (Indirect Effects)

Hypothesis	Variable	Path Coefficient	T-Statistics	P-Value	Explanation
H5	Perceived Usefulness -> Attitude -> Purchase Intention	0,314	3,990	0,000	Significant
H6	Perceived Ease of Use -> Attitude -> Purchase Intention	0,352	4,261	0,000	Significant

Source: Data processed using SmartPLS 4, 2026

Based on Table 5, the path coefficient results show that most of the variable relationships have T-statistics values greater than 1.96 and P-values less than 0.05, which indicates that Hypothesis 5 (H5) and Hypothesis 6 (H6) are accepted.

Discussion

Ease of use and functional benefits have been shown to accurately shape positive consumer attitudes toward Polytron electric vehicles. Practical product operations, such as ease of use of features and easy charging, play a stronger role in building initial interest

than functional benefits. Once the ease of use aspect is met, consumers then validate it with rational utility aspects, such as efficiency in daily transportation costs. The results of this study support the technology acceptance model, which states that operational convenience is the primary gateway before consumers assess the usefulness of a new innovation (Wang et al., 2023).

Positive attitudes are the most dominant driver in triggering purchase intentions for Polytron electric vehicles. This confirms that adoption intentions are driven by internal affective evaluations, not simply by information about the product's technical specifications. Consumers need a sense of trust and personal conviction that switching to a Polytron electric vehicle is the right move. This positive attitude is a crucial bridge that transforms passive interest into an active purchase intention, in line with the principles of the theory of planned behavior (Jaiswal et al., 2022).

Interestingly, infrastructure barriers, such as limited public charging facilities, have not been shown to reduce consumer purchasing intentions. This phenomenon occurs because respondents' daily mobility is dominated by short distances, which can be met through independent charging at home. Furthermore, Polytron's strategy of offering a battery rental program and the availability of an independent home charging network has successfully alleviated consumer concerns, so limited public infrastructure is not considered a major obstacle.

Attitude has been shown to play a mediating role, bridging the gap between perceived usefulness and ease of use and purchase intention. This process confirms the existence of a two-stage psychological mechanism in decision-making (Jaiswal et al., 2022). Perceptions of usefulness and ease of use do not automatically trigger purchase intention; they must first be internalized into an attitude of liking or agreeing (Jaiswal et al., 2022). This matured positive attitude ultimately drives the consumer's psychological commitment to actual purchase intention (Jaiswal et al., 2022; Simsekoglu & Nayum, 2019).

CONCLUSION AND SUGGESTION

This study analyzes the influence of perception, with attitude as a mediator, and infrastructure barriers on purchase intention for Polytron electric vehicles in Indonesia. Perceived usefulness and perceived ease of use significantly shape positive consumer attitudes toward the product. This suggests that functional aspects, such as ease of operation (charging and instrument panel features) and operational cost efficiency, play a crucial role in building consumer psychological acceptance.

The attitude variable in this study serves as a crucial mediating mechanism linking functional perceptions to purchase intention. Consumer purchase intention is formed through a psychological process in which positive evaluations and approval of the clean energy transition influence their decision-making. Attitude proved to be a strong indicator of actual purchase intention. Conversely, infrastructure barriers such as limited gas stations (SPKLU) did not significantly reduce purchase intention in this study. These results emphasize that for groups already aware of clean energy use, educational value and long-term efficiency are prioritized over current technical infrastructure constraints.

Reflecting on the important role of digital communication and public relations in building brand image, Polytron is advised to focus more on content that strengthens emotional bonds related to local products and clean energy. Social media strategies should not only demonstrate promotional visibility but also build brand credibility by educating consumers about the product's ease of use and smart charging features, reducing psychological barriers.

Future research is recommended to include additional variables such as brand experience, electronic word of mouth, and perceived value. These factors are closely related to how consumers evaluate technology brands in the digital environment before making a purchase decision. Future studies should expand the analytical scope by comparing consumer perceptions of local brands, such as Polytron, against major global competitors.

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