

UNCOVERING THE KEY DETERMINANTS SHAPING ELECTRIC VEHICLES ADOPTION IN INDONESIA

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Received: September 10, 2025; Revised: December 18, 2025; Accepted: January 14, 2026

Abstract: Fossil fuel-powered vehicles are among the major causes of Green House Gas (GHG) output, with Indonesia ranking in the top ten globally. The transition to Electric Vehicles (EVs) in Indonesia is progressing at a modest pace. To support EVs adoption and its environmental benefits, this analysis aims to understand predictors of EVs buying behavior. A survey targeting people domiciled in Jabodetabek, who use EVs or want to purchase EVs, was conducted via questionnaires. Subsequently, Partial Least Square Structural Equation Modeling was employed. On a 5-point Likert scale, 121 respondents were collected. The outcomes showed that price value, subjective norms, perceived ease of use and attitude can predict purchase intention positively and significantly. Furthermore, price value, perceived usefulness and perceived ease of use can predict attitude positively and significantly. Meanwhile, perceived usefulness and perceived behavioral control can't predict purchase intention significantly. Attitude fully mediates the relationship between perceived usefulness and purchase intention, also partially mediates the relationship between price value and purchase intention and perceived ease of use and purchase intention. These findings imply that emphasizing value, usability, and social influence can strengthen attitudes and purchase intention toward EVs. By identifying key behavioral and technological determinants of EV adoption, this study offers empirical insights for policymakers in supporting environmentally sustainable transportation in Indonesia.

Keywords: Attitude, Electric Vehicle, Perceived Behavioral Control, Perceived Usefulness, Purchase Intention

INTRODUCTION

The combustion of carbon dioxide, methane, and nitrogen compounds contributes to the greenhouse effect, leading to climate fluctuations and global temperature rise. Additionally, the greenhouse effect generates pollutants that can harm the environment and pose health risks to humans, including respiratory irritation, infections, asthma, bronchitis, and even cancer. Furthermore, these pollutants can damage ecosystems and disrupt the lives of animals and plants, as smoke and

particulate pollutants settle in the soil and water, potentially contaminating the environment. This contamination may also pose health risks to humans who consume affected animals and plants.

Indonesia ranks eighth in the largest contribution to GHG emissions and every year Indonesia contributes around 1.3 gigatons of carbon emissions ([Katadata, 2024](#)). One of the main contributors to these emissions is vehicles that use fossil fuels, which are often referred to as internal combustion engines. As a result, the

transport system remains structurally dependent on oil, accounting for more than 40% of final oil consumption, while road-based modes represent nearly 90% of sectoral energy use and over 80% of transport emissions, which reached 202 MtCO₂ in 2024 ([IESR, 2025](#)). This reliance on imported oil exposes the economy to international fuel price volatility and fiscal pressure, underscoring the policy urgency of improving transport energy efficiency and scaling sustainable mobility solutions. Meanwhile, to reduce emissions from the use of fossil fuels for vehicles, the Indonesian government is trying to increase the use of EVs, which according to [Khazaei and Tareq \(2021\)](#) can be a pathway for transport emission mitigation.

Five-year sales trends in Indonesia demonstrate that EVs represent only a fractional share market segment compared to Internal Combustion Engine (ICE) ([Kompas, 2024a](#)). Based on Association of Indonesian Automotive Industries (Gaikindo)'s data, EVs accounted for 5% of Indonesia's total national car sales, with 43,188 units sold out of 865,723 units ([Kompas, 2025b](#)). This suggests Indonesia's EV market penetration remains limited, with consumer purchase intention demonstrating either low adoption propensity or significant tendency to 'wait and see' the product, for which customers seek in advance prior experience of other customers when using an Electric Vehicle (EV) before making a purchase, considering that the product is highly priced and used in the long term.

To accelerate EV adoption as pathway to environmental sustainability, this research elucidates the predictors influencing EVs purchase intention. [Keni et al. \(2023\)](#) stated that purchase intention refers to a consumer's emotional feeling and interest in deciding to buy a product or service. This research aims to offer deeper and broader insights into consumer behavior during the decision-making process contribute to companies in designing more

effective marketing strategies to enhance the EVs purchase intention.

[Zadeh et al. \(2022\)](#) stated that purchase intention of EVs can be predicted positively and significantly by attitude, subjective norms, perceived behavioural control, price value, and environmental self-image and can be affected negatively by perceived risk. Meanwhile, perceived usefulness and infrastructure barrier do not have significant influence on purchase intention. In addition, [Shakeel \(2022\)](#) showed that purchase intention of EVs can be influenced positively and significantly by attitude, subjective norms, perceived behavioural control, cognitive status, product perception, monetary and non-monetary incentive policy measures. According to [Butt and Singh \(2023\)](#), EVs purchase intention shows significant positive relationships with perceived ease of use, environmental concern, while demonstrating non-significant associations with perceived usefulness and social influence.

This research wants to examine predictive relationship of EVs purchase intention based on Technology Acceptance Model (TAM) Theory, because this research was conducted on EVs' customers, which can be categorized as new technology for society. Perceived usefulness can be defined as assessment and perception of the newly used system, that will provide some added value, if compared to previous system ([Wilson, 2019](#)). Meanwhile, perceived ease of use describes a consumer's perception that the technology is straightforward and effortless to utilize. When users view EVs as convenient and supportive of their activities, their likelihood of purchasing them tends to rise.

Progressing to a conceptual context, Theory of Planned Behaviour (TPB) plays a crucial role in behavioral research, particularly in analyzing the determinants of consumer intentions and actions in adopting new technologies. According to this theory, a positive attitude, strong social influence, and high perceived control collectively boost a consumer's intention to purchase an EV. Attitude reflects an individual's personal experience

linked to their behavioral tendencies ([Tu and Yang, 2019](#)). [Huang and Ge \(2019\)](#) states that subjective norms as the perception of social pressure or impulse from important individuals in the individual's social environment and perceived behavioural control as consumer's point of view about the ease or complexity perceived in the process of purchasing Evs.

Furthermore, the influence of price value is assessed in this research, which refers to the benefits gained by a consumer from a product or service that exceed its cost ([Zadeh et al., 2022](#)). This factor is regarded as an essential factor compared to the price of gasoline-powered vehicles because of the substantial cost of EVs. As a result, this study developed a research model that combines theory of TAM and TPB, which consists of the influence of attitude, subjective norms, perceived behavioural control, perceived usefulness and perception of ease of use on the Evs purchase intention, and added with the influence of price value.

When individuals believe that a product or service can fill their needs, enhance their activities, is user-friendly, and provide greater benefits than its cost, they tend to develop a favourable attitude toward it. This positive attitude, in turn, strengthens their intention to purchase the product or service. Therefore, the researcher also wants to identify mediating role of attitude to perceived usefulness, perceived ease of use and price value on Evs purchase intention.

Subjective Norms

Subjective norms refer to individual's perception of societal expectations to carry out or avoid a specific action. ([Ajzen, 1991](#)). Subjective norms can be described as an individual's perception of social encouragement that plays a crucial role in their decision to perform or avoid a certain behavior. This encouragement can come in the form of direct statements urging them to purchase or not purchase an EV, as well as various pieces of

information about EVs that the individual may consider.

Perceived Behavioral Control

[Ajzen \(1991\)](#) explained perceived behavioral control as how individuals judge the ease or challenge of carrying out a behavior, which is most likely influenced by prior experience, including barriers and obstacles. Consumers' sense of ease or difficulty in buying an EV is indicated by perceived behavioral control ([Huang and Ge, 2019](#)). In this context, If customers perceived that they have sufficient access to financial ability, EVs dealerships and technical understanding to operate an EV, they are more likely to feel confident in their ability to make the purchase.

Price Value

Price value was a balance between the costs incurred to acquire new technologies and the benefits perceived from the use of the new technology. This describes the trade-off between costs and benefits that affects an individual's decision to adopt new technologies and encourages the intention to make a purchase on the application ([Venkatesh, et al., 2012](#)). Furthermore, [Zeithaml \(1988\)](#) defined price value as the exchange between consumer acceptance (in the form of quality, benefit and utility) and consumer sacrifice (in the form of price). If the perceived benefits exceed the price, than the price value will be positive.

Perceived Usefulness

Perceived usefulness as the extent to which users believe that the new technology can help in achieving goals and improving their achievements [Davis \(1989\)](#). Perceived usefulness represents an individual's view that technology adoption can elevate the effectiveness of their activities ([Keni, 2020](#)). Expanding on this concept, perceived usefulness describes individual' s belief that new technology can help to perform activities better and efficiently, also obtain added value from it,

such as environmental sustainability that can provide long-term benefits for the individual or short-term fuel cost efficiency.

Perception Ease of Use

Perceived ease of use describes how consumers view new technology as straightforward and simple to operate ([Keni, 2020](#)). It represents public perception regarding the complexity and user-friendliness of a new product ([Wilson et al., 2021](#)). Thus, the easier and less effort it takes to study and operate a new product, the faster the adoption of the technology, which shows the high perception of ease of use.

Purchase Intention

[Keni et al. \(2023\)](#) defines purchase intention as the consumer's feelings and interest to decide whether to procure a product or service. [Tu and Yang \(2019\)](#) highlights purchase intention as individual tendency to acquire specific product or service. The customer purchase actions will occur once a customer has developed a prior intention to carry it out.

Attitude

Furthermore, apart from subjective norms and perceived behavioral control, another variable analyzed by [Ajzen \(1991\)](#) as a determinant of consumer behavior is attitude. Attitude can be understood as the degree to which an individual judges a behavior as positive or negative. Attitude is an individual's view of a behavior of a behavior shaped by their personal experiences ([Tu and Yang 2019](#)). In this context, if an individual believes that electric cars are environmentally friendly and cost-efficient, they are more likely to support or purchase one, and vice versa.

Influence of Subjective Norms on Purchase Intention.

Subjective norms affect purchase intention as individuals consider the expectations and opinions of important others

when making buying decisions. Positive social approval increases perceived acceptability and confidence, while weak or negative endorsement reduces purchase intention.

Prior studies conducted by [Zadeh et al. \(2022\)](#) in Malaysia and [Tu and Yang \(2019\)](#) in China both found a positive and significant influence of subjective norms on EVs purchase intention. [Dewi and Najib \(2025\)](#) indicates that social normative pressure toward pro-environmental conduct positively shapes consumers' purchase intention. Individuals often take into account the opinions of those in their social circle before making major decisions, such as buying an EV. Thus, when their social environment, including family, colleagues, and friends, expresses favorable views or supports embracing EVs as green alternatives, it tends to encourage individuals to adopt similar attitudes and strengthen their intention to purchase one.

H_{1a} : Subjective norms have a positive influence on EV's purchase intention

Influence of Perceived Behavioral Control on Purchase Intention

Perceived behavioral control shapes purchase intention through a logical assessment of available resources, skills, and situational constraints. When individuals believe they have sufficient control over the purchasing process, their confidence increases, leading to stronger purchase intention.

[Zadeh et al. \(2022\)](#) found that perceived behavioral control has a positive and significant influence on EV purchase intention in Malaysia, while [Huang and Ge \(2019\)](#) similarly confirmed its positive and significant influence. Perceived behavioral control describes how individuals perceive their capacity to access information and complete the purchase of an EV, taking into account convenience, advanced technology, modern design, ease of charging, lower operational costs, information on government incentives and subsidies, and ultimately, financial capability to make the purchase. The

higher this ability, the stronger the individual's intention to purchase an EV.

H_{1b} : Perceived behavioral control has a positive influence on EV's purchase intention

Influence of Price Value on Purchase Intention

Price value influences purchase intention through rational comparison between the perceived benefits of a product and the costs required to obtain it. When consumers judge that the benefits outweigh the price paid, they are more likely to form a strong intention to purchase.

[Maso and Balqiah \(2022\)](#) found that price value can affect purchase intention of EVs positively and significantly. Studies by [Zadeh et al. \(2022\)](#) and [Khazaei \(2019\)](#) further emphasize that price value positively and significantly influences the intention to purchase EV. Individuals tend to consider whether the value of EV technology, such as energy efficiency, is equivalent to or greater than its price. In general, positive correlation between price value and purchase intention focuses more on the benefits perceived by customers, but in EVs, the contribution to environmental conservation can be a value that influence purchase intention.

H_{1c} : Price value has a positive influence on EV's purchase intention

Influence of Perceived Usefulness on Purchase Intention

Perceived usefulness affects purchase intention through logical evaluation of how well a product enhances performance or solves practical needs. When consumers recognize clear functional benefits, they are more inclined to intend purchasing the product.

Studies by [Wu et al. \(2019\)](#) and [Wang et al. \(2018\)](#) concluded that one of the key determinants shaping positive and significant EV's purchase intention is perceived usefulness. Individuals tend to show strong intent to purchase an EV if they believe it offers short-

term fuel cost savings and serves as a long-term solution to climate change, carbon emissions, and environmental degradation, ultimately improving the quality of their surroundings.

H_{1d} : Perceived usefulness has a positive influence on EV's purchase intention

Influence of Perceived Ease of Use on Purchase Intention

Perceived ease of use influences purchase intention through rational judgment of how simple and effort-free a product is to learn and operate. When consumers expect minimal complexity, they are more confident and more willing to proceed with the purchase.

[Butt and Singh \(2023\)](#) found that perceived ease of use positively and significantly boosts purchase intention, a result likewise confirmed by [Wu et al. \(2019\)](#) in China. Information on how to use and maintain an EV, if conveyed clearly and detail can give confidence that the use of an EV is not complicated, so it can encourage individual's intention to purchase an EV.

H_{1e} : Perceived ease of use has a positive influence on EV's purchase intention

Influence of Attitude on Purchase Intention

Attitude influences purchase intention through logical evaluation of positive and negative beliefs formed toward a product. When individuals hold a favorable overall assessment, they are more likely to translate that attitude into a strong intention to purchase.

Research by [Shakeel \(2022\)](#) and [Ramadani et al. \(2024\)](#) showed attitude influences purchase intention of EV positively and significantly. Individuals' perceptions of the benefits of EVs, including concerns about carbon emissions and climate change, as well as the preference for environmentally friendly and modern technology, can shape their intention to purchase an EV. A positive attitude develops when these advantages are recognized, whereas a negative attitude may emerge if individuals perceive EVs as inferior to gasoline-

powered cars, ultimately discouraging purchase intention.

H₂ : Attitude has a positive influence on EV's purchase intention

Influence of Price Value on Attitude

Price value shapes attitude through a rational assessment of whether the benefits received justify the cost paid. A favorable balance between cost and benefits leads to a more positive overall evaluation of the product.

[Lin and Dong \(2023\)](#) concluded that price value affects attitude positively and significantly. This research is backed by [Maso and Balqiah \(2022\)](#), who highlighted that price value positively influences attitude. When individuals perceive the product's price as fair or even lower than its benefits, they are more likely to develop a positive attitude towards it. A positive attitude can also be formed when customers believe that EVs can contribute to environmental conditions, so they will perceive that the price of EVs includes a contribution to environmental conservation.

H_{3a} : Price value has a positive influence on attitude.

Influence of perceived usefulness on attitude

Perceived usefulness affects attitude through rational consideration of how effectively a product supports needs and goals. When its functional advantages are clear, consumers are more likely to develop a positive attitude toward it.

Furthermore, studies by [Maso and Balqiah \(2022\)](#) and [Zadeh et al. \(2022\)](#) both showed that perceived usefulness positively and significantly boosts attitude and individuals who recognize EVs' environmental benefits tend to view them more favorably, because they view these benefits as an additional benefit compared to gasoline-powered vehicles, considering same functions are also owned by EVs. Additionally, the fuel efficiency of EVs can further motivate individuals to perceive them positively.

H_{3b} : Perceived usefulness has a positive influence on attitude.

Influence of perceived ease of use on attitude

Perceived ease of use shapes attitude through logical judgment of how effortless a product is to understand and operate. When minimal effort is expected, consumers tend to form more favorable attitudes toward the product.

[Zadeh et al., \(2022\)](#) and [Tu and Yang \(2019\)](#) found a positive and significant link between perceived ease of use and attitude. This is due to an individual's assessment of how easy it is to use an EV can motivate the individual to perceive an EV positively. This convenience may include the use of advanced technology, ease of charging the battery, safety features and ease of navigation without any significant difficulties. When costumers feel the ease of using, operating, doing maintenance EVs and perceive those ease not more difficult or much different from the using, operating and doing maintenance gasoline-powered vehicles, then customers will have a favorable view of EVs.

H_{3c} : Perceived ease of use has a positive influence on attitude.

Attitude as mediator between price value and purchase intention

Attitude mediates the effect of price value on purchase intention by translating rational evaluations of cost–benefit balance into overall positive or negative feelings toward the product. When price value is perceived as favorable, it strengthens attitude, which in turn increases purchase intention.

Furthermore, [Maso and Balqiah \(2022\)](#) concluded that attitude plays a significant role in influencing the connection between price value and EV purchase intention. If individual feels its benefit and value exceeds cost incurred, thus the benefit and value can enhance positive attitude and motivate individual's intention to purchase it. Meanwhile, [Zadeh et al. \(2022\)](#)

argues that attitudes does not mediate impact of price value to purchase intention for generation Y consumers. This may be caused by consumers from generation Y are generally less sensitive to certain factors, such as price, especially when they perceived high value or benefit from that technology.

H_{4a} : Attitude positively mediates the impact of price value on purchase intention

Attitude positively mediates the impact of perceived usefulness and perceived ease of use on purchase intention

Attitude mediates the relationship by integrating logical assessments of usefulness and simplicity into a coherent evaluation of the product. Positive perceptions on these factors enhance attitude, which then drives stronger purchase intention.

The research findings of [Zadeh et al. \(2022\)](#) and [Maso and Balqiah \(2022\)](#) revealed that attitude significantly mediates how perceived usefulness and perceived ease of use influence purchase intention. Furthermore, this

research states that various benefits of EVs, both for customers (fuel cost efficiency) and for the environment (environmental conservation), can increase people's perception of EVs and ultimately foster their intention to purchase the product. Meanwhile, considering that EVs remain a relatively novel to the public, the ease of accessing information about their specifications and using the technology can influence customers' perceptions. This in turn, could influence their intention to purchase EV.

H_{4b} : Attitude positively mediates the impact of perceived usefulness on purchase intention

H_{4c} : Attitude positively mediates the impact of perceived ease of use on purchase intention

Remarks:

- ▶ : direct relationship
- ▶ : indirect relationship

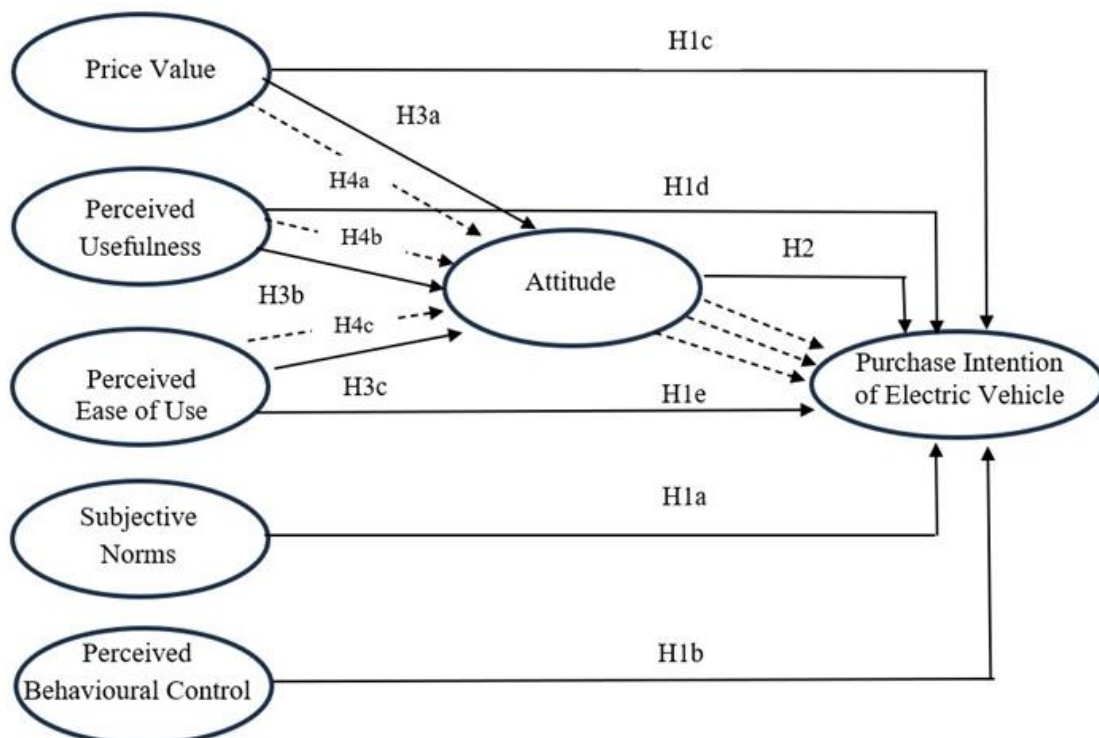


Figure 1. Research Framework

Figure 1 describes the research framework based on the Theory of Planned Behavior and Technology Acceptance Model. The framework illustrates the relationships among price value, perceived usefulness, perceived ease of use, subjective norms, perceived behavioral control and attitude to purchase intention of electric vehicle.

METHOD

A survey methodology is used in this study by distributing an online questionnaires via google forms to all participating respondents. The sampling method adopted is convenience sampling, chosen for its practicality in obtaining respondents who are readily accessible. This ensures that all participants meet the established eligibility requirements. The target sample includes individuals or consumers from the Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) region specifically those who have either used an EV before or intend to purchase one in the future as the requirements. Following the recommendation of [Sekaran and Bougie, \(2016\)](#), who state that an optimal sample size ranges from 30 to 500 participants. Data collection was conducted over a period of 14 days, resulting in 221 respondents, of which 121 respondents met the predefined requirements and were used in the analysis.

All variables were measured using a five-point Likert Scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The indicators used in the questionnaire were derived from established and validated scales in prior studies and subsequently adjusted to fit the context of EV adoption in Indonesia. Following the data collection phase, the information gathered was analyzed with the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method, utilizing the SmartPLS4 software.

In this research, variable subjective norm, perceived behavioural control, price value, perceived usefulness and perceived ease of use are independent variables, while

purchase intention is dependent variable and attitude is mediating variable.

RESULTS

Before performing a thorough analysis of the data and variables in this study, an initial analysis of the respondents' profiles was conducted to obtain a comprehensive understanding of their characteristics. Most respondents are domiciled in Jakarta with total 63 individuals (52.1%), out of 121 respondents are male with total 64 individuals (52.9%) and aged between 29-42 years totaling 58 people (47.9%). Furthermore, most respondents work as employees or private-sector employees totaling 95 individuals (78.5%), with a Bachelor's degree (S1) background accounting for 85 individuals (70.2%). A total of 78 individuals (64.5%) do not receive COP facilities and 28 individuals (23.1%) earn a monthly income within the range from IDR 25,000,000 to IDR 49,999,999. Currently, 23 individuals (19%) are interested in the BYD Seal electric car model.

All research data that met the criteria, i.e.: 121 data were processed through the PLS-SEM approach with SmartPLS software version 4.1.0.9. The analysis starts with an outer model evaluation to verify data validity and reliability. Validity testing is to assess how well the instrument measures the variables, and it includes both convergent and discriminant validity tests. The findings from this evaluation are presented across Table 1 to 3. In convergent validity analysis, the research is deemed valid with the criteria, i.e.: the loading factor results should exceed 0.70 ([Hair et al., 2019](#)) and the Average Variance Extracted (AVE) value should exceed 0.50 ([Hair et al., 2021](#)).

Based on the initial testing, all variable indicators showed loading factor values greater than 0.7 (Table 1), except for the PU4 indicator from the perceived usefulness variable (loading factor = 0.637), SN2 from the subjective norm variable (loading factor = 0.687) and PI4 from the purchase intention variable (loading factor = 0.682) were eliminated from the research model,

because they were less than 0.7, so they did not meet the validity criteria. Referring to Table 1, it can be seen that all variables have AVE values

above 0.50, thus satisfying the criteria for convergent validity.

Table 1. Convergent Validity Result

Indicator	Statement	Variable	Loading Factor	AVE
SN1	Observing those in my social circle drive EVs motivates me to purchase one as well.	Subjective Norms (SN)	0.710	0.529
SN3	Seeing EV ads in the news encourages me to consider buying one.		0.710	
SN4	Seeing EV ads in the news encourages me to consider buying one.		0.770	
SN5	Important people in my life are more likely to purchase an EV if I decide to get one.		0.717	
PBC1	The decision to drive an EV that is eco-friendly compared to a gasoline powered vehicle is absolutely my own decision.		Perceived Behavioral Control (PBC)	
PBC2	I am confident that I can eventually switch to an eco-friendly EV instead of a gasoline-powered one if I choose to.	0.807		
PBC3	I have sufficient resources to drive an eco-friendly EV rather than gasoline-powered vehicle, as a future transportation option.	0.824		
PBC4	I can quickly grasp the technical aspects of operating an EV.	0.738		
PBC5	If I choose to, I can locate a place to purchase an EV.	0.706		
PV1	EV offers economic value that is beneficial over time.	Price Value	0.788	0.618
PV2	The value received from an EV makes its cost reasonable.		0.808	
PV3	I understand that the elevated cost of EVs results from the incorporation of advanced technology.		0.724	
PV4	At the current price point, EVs are a suitable choice as they provide value that justifies their quality.		0.820	
PU1	EVs play a role in minimizing carbon output.	Perceived Usefulness (PU)	0.802	0.623
PU2	EVs contribute to cutting down my household expenses for transportation costs (gasoline).		0.842	
PU3	EVs improve my travel efficiency.		0.719	

Indicator	Statement	Variable	Loading Factor	AVE
PEU1	I think using an EV is easy.	Perceived Ease of Use (PEU)	0.789	0.681
PEU2	I thought it would be easier for me to drive an EV to my destination.		0.769	
PEU3	My engagement with EVs will be noticeable.		0.865	
PEU4	My interaction with EVs will be understandable.		0.871	
PI1	In the future, I aim to acquire an EV.	Purchase Intention (PI)	0.823	0.584
PI2	I intend to buy an EV to reduce environmental pollution.		0.776	
PI3	My forthcoming purchasing decision is to acquire an EV because it will dominate the automotive industry in the future.		0.723	
PI5	I will convey positive things about EVs.		0.729	
A1	Overall, I believe that purchasing an EV is a good choice to reduce gasoline consumption.		Attitude (A)	
A2	Overall, I believe that purchasing an EV to reduce carbon emissions is a wise choice.	0.821		
A3	It feels satisfying for me to purchase an EV and reduce my vehicle's emissions.	0.884		
A4	I support government efforts to implement further policies that encourage EV adoption.	0.837		
A5	An EV that helps prevent further harm to air quality and the climate is beneficial.	0.824		

Furthermore, analysis of discriminant validity to evaluate the extent to which the measurements of different latent variables remain distinct and are not strongly correlated with one another, was carried out based on the HTMT test and the cross-loading test. All variables have HTMT values lower than 1 as shown in Table 2, thus meet the criteria ([Hamid](#)

[et al., 2017](#)). For each indicator, the cross-loading value on its measured variable exceeds the value on other variables, thereby all indicators meet the cross-loading criteria ([Sekaran & Bougie, 2020](#)). Therefore, all data are declared valid, and the analysis proceeds with reliability testing.

Table 2. Discriminant Validity - Heterotrait-Monotrait Ratio (HTMT) Result

Variable	PI	PV	SN	PU	PEU	PBC	A
PI							
PV	0.683						
SN	0.558	0.488					
PU	0.777	0.516	0.346				
PEU	0.753	0.656	0.351	0.671			
PBC	0.721	0.474	0.228	0.855	0.531		
A	0.926	0.542	0.375	0.788	0.665	0.810	

Table 3. Reliability Validity Result

Variable	Cronbach's Alpha	Composite Reliability
PI	0.761	0.848
PV	0.794	0.866
SN	0.711	0.818
PU	0.697	0.831
PEU	0.844	0.895
PBC	0.824	0.877
A	0.888	0.917

Cronbach's alpha and composite reliability values are used to test reliability data. Based on Table 3, since Cronbach's alpha values are above 0.6 and composite reliability values are ≥ 0.7 for all variables, they are considered reliable (Hair et al., 2019) and data analysis can be continued with inner model analysis shown in table 4 and 5.

The inner-model measurement analysis is conducted using R-Square Coefficient test, Goodness of Fit (GoF) test, effect size test, path coefficient analysis, and hypothesis testing. Based on Table 4, R-Square Coefficient result of attitude variable is 0.505, which means that 50.5% of attitude variation can be explained by subjective norms, perceived behavioral control, price value, perceived usefulness and perceived ease of use. Leaving 49.5% arises from different variables.

Table 4 shows R² result of purchase intention variable is 0.679, meaning subjective norms, perceived behavioral control, price value, perceived usefulness, perceived ease of use and attitude account for 67.9% of purchase intention variation with the remaining 32.1% explained by other variables.

Next, the result from GoF test is 0.604, which exceeds 0.36 and is considered large (Hair et al., 2019). Hence, the dependent

variables show strong relevance in predicting the outcomes of the research model.

Effect size analysis is applied to determine the extent to which an exogenous variable contributes to or impacts the endogenous variable within the model. Based on Table 5, the effect size test shows that perceived usefulness and perceived behavioral control do not impact purchase intention. Price value, subjective norms, and perceived ease of use have a small effect, while attitude has a moderate effect on purchase intention. Price value and perceived ease of use slightly influence attitude, while perceived usefulness has a moderate effect on attitude.

Path coefficient analysis measures how changes in independent variables affect dependent variables, with values from -1 (negative relationship) to +1 (positive relationship) (Hair et al., 2021). Based on Table 5 above, path coefficients for all variables are positive.

Hypothesis testing evaluates whether a hypothesis is supported using t-statistics and p-values. A hypothesis is supported at a 90% confidence level if the t-statistic is above 1.645 and the p-value is below 0.10 (Hair et al.2021). The results are shown in Table 5.

Table 4. R-square Coefficient (R²) Result

Variable	R ²
Attitude	0.505
Purchase Intention	0.679

Table 5. Effect Size (f^2), Path Coefficient and Hypothesis Testing Result

Variable	f^2	Path Coefficient	t-statistics	p-values	Conclusion
SN → PI (H _{1a})	0.063	0.156	2.690	0.007	Supported
PBC → PI (H _{1b})	0.002	0.043	0.463	0.644	Not Supported
PV → PI (H _{1c})	0.031	0.128	1.718	0.086	Supported
PU → PI (H _{1d})	0.010	0.081	0.997	0.319	Not Supported
PEU → PI (H _{1e})	0.037	0.149	1.977	0.048	Supported
A → PI (H ₂)	0.293	0.493	5.651	0.000	Supported
PV → A (H _{3a})	0.032	0.151	2.360	0.018	Supported
PU → A (H _{3b})	0.256	0.419	4.988	0.000	Supported
PEU → A (H _{3c})	0.101	0.291	3.146	0.002	Supported
PV → A → PI (H _{4a})		0.075	2.008	0.045	Supported
PU → A → PI (H _{4b})		0.207	3.678	0.000	Supported
PEU → A → PI (H _{4c})		0.144	2.889	0.004	Supported

The hypothesis test confirms H_{1a}, subjective norms exert a positive and significant influence on EV purchase intention. This aligns with [Zadeh et al. \(2022\)](#), [Tu and Yang \(2019\)](#), and [Shakeel \(2022\)](#)'s research, which also found subjective norms significantly boost EV purchasing intention. Social pressure from family, colleagues, and friends plays a key role in driving this intention.

Furthermore, the H_{1b} hypothesis is not supported, so the perceived behavioural control do not have significant influence on EVs purchase intention, which is similar with findings from [Ramadani et al. \(2024\)](#)'s research. Additionally, these results are contrary to the Theory of Planned Behaviour which asserts that perceived behavioral control is a crucial psychological factor affecting consumer purchase intentions ([Ajzen, 1991](#)). These results imply that respondents will not necessarily purchase an EV, even though they have the ability (financial capability, technical skills) to purchase the product. This condition may be caused by considerations regarding infrastructures of charging resources, concerns about the range of the vehicle, the EV battery warranty and the resale price of used EVs can influence individuals' intention to purchase EVs. When individual perceives those external barriers, they may override their sense of control in deciding to purchase an EV. Moreover, in

emerging EV markets such as Indonesia, many consumers remain in an early awareness stage, where intentions are shaped more by attitudes and perceived risks than by behavioral control. Under such conditions, perceived behavioural control may only become significant after the market matures and structural barriers are reduced.

Then, H_{1c} hypothesis is supported, so price value has a positive and significant influence on EVs purchase intention. These outcomes align with studies by [Maso and Balqiah \(2022\)](#), [Zadeh et al. \(2022\)](#), and [Khazaei \(2019\)](#), all of whom found that price value significantly and positively affects purchase intention. Respondents feel that the benefits obtained from using EVs were in accordance with the vehicles' price. Hence, they understand that EVs are a more efficient and economical vehicle choice in the long term, such as the electricity cost is cheaper than gasoline and the positive impact of EVs on reducing air pollution which can be indirectly related to the respondents' health.

Meanwhile, the H_{1d} hypothesis is not supported, consequently perceived usefulness do not significantly influence EVs purchase intention, similar with the previous findings by [Zadeh et al. \(2022\)](#), [Butt and Singh \(2023\)](#), [Maso and Balqiah \(2022\)](#), which showed that perceived usefulness cannot predict purchase

intention of EVs significantly. This condition may be caused by the fact that, although individuals understand that EVs can help them perform activities more efficiently and provide added value, they still consider other factors ([Maso and Balqiah, 2022](#)) such as limited infrastructure, which raises concerns about the difficulty of charging EVs. These concerns may be based on the ratio of EVs per charging station in Indonesia, which is still relatively high, i.e. : 21 EVs per 1 Public EV Charging Station in 2024 ([Kompas, 2024c](#)), which means that there is one charging station for every 21 EVs. This amount can hinder people's intention to purchase the vehicle because the ideal ratio is 10:1 ([CNN Indonesia, 2024](#)). Individuals are more likely to prioritize immediate practical constraints, such as inadequate charging infrastructure, over the perceived functional advantages of EVs, including energy efficiency and lower operating costs, which are typically viewed as long-term gains. In the absence of enabling conditions that reduce short-term uncertainty and risk, perceived usefulness on its own is insufficient to generate strong purchase intention.

Furthermore, the H_{1e} hypothesis is supported, which is consistent with the research's findings by [Butt and Singh \(2023\)](#) and [Wu et al. \(2019\)](#), which mentioned that effect of perceived ease of use to purchase intention is positive and significant. Customers may develop an intention to purchase an EV if they believe that driving an EV feels almost identical to driving a gasoline powered vehicles.

Next, the H₂ hypothesis is supported, indicating a positive and significant impact of attitude on EVs purchase intention, consistent with studies by [Zadeh et al. \(2022\)](#), [Shakeel \(2022\)](#), and [Ramadani et al. \(2024\)](#), who stated that positive perceptions of EV benefits drive purchasing intention. Individuals' positive thoughts regarding EV benefits, such as concern for carbon emissions and climate change, as well as the intention to use more environmentally friendly and modern technologies can lead to intentional buying EVs. In addition, this attitude

can be in the form of a intention to try using EVs which is a relatively new technology.

After that, the H_{3a} hypothesis is supported, consistent with [Lin and Dong \(2023\)](#), and [Maso and Balqiah \(2022\)](#) who concluded that price value positively and significantly influence attitude. Individuals' attitudes towards EVs will increase when they realize that the higher price of EVs (rather than gasoline-powered vehicles) is offset by long-term savings on operating costs, such as fuel and maintenance, as well as tax subsidies.

Then, the H_{3b} and H_{3c} hypothesis are supported, consistent with studies by [Zadeh et al. \(2022\)](#), [Tu and Yang \(2019\)](#), which also found both perceived usefulness and perceived ease of use positively and significantly influence attitude. When individuals feel that the technological features of EVs can provide significant benefits in driving, when compared to the features of gasoline-powered vehicles, it will motivate a positive attitude towards the EVs.

Individuals positive assessment that EVs have a low level of complexity and are easy to use, along with their advanced and user-friendly technological features, will encourage a positive attitude toward the product. Furthermore, if individuals perceive that EVs are easy to drive, charge, and maintain, they will develop a more favourable attitude toward them.

Meanwhile, H_{4a} hypothesis is supported, showing a positive and significant impact of price value on EVs purchase intention through attitude, which supports [Maso and Balqiah \(2022\)](#)'s findings. However, these results differ from [Zadeh et al. \(2022\)](#)'s study, which found that attitude did not mediate the relationship between price value and purchase intention among Gen Y customers. The perception of the price of an EV that is affordable or comparable to its efficiency and long-term benefits will form a positive attitude, which ultimately strengthens EV purchasing intention. If consumers assess the price of EVs as reasonable and in accordance with the benefits received, such as features and quality, then a

positive attitude will be formed, which further increases the intention to purchase.

Next, H_{4b} hypothesis is supported, so that there is positive and significant indirect effect of perceived usefulness on EV purchase intention via attitude, consistent with [Zadeh et al. \(2022\)](#), [Maso and Balqiah \(2022\)](#)'s findings that attitude mediates this relationship.

Based on the H_{1d} Hypothesis, perceived usefulness does not directly impact EV purchase intention, but its effect becomes significant when mediated by attitude, indicating that attitude fully mediates this relationship. Therefore, the various benefits and advantages of EVs, both for customers (fuel cost efficiency) and for the environment (environmental conservation), can enhance the public's favorable view of EVs, which in turn influences their intention to buy the product.

Then, hypothesis 4_c is supported, perceived ease of use positively and significantly influences EV purchase intention through attitude, aligning with [Zadeh et al. \(2022\)](#), [Maso and Balqiah \(2022\)](#)'s findings that attitude mediates this effect. When individuals find EVs easy to drive, charge, and maintain, they develop a positive attitude, which in turn enhances their intention to buy. Mediation analysis shows attitude partially mediates both price value and perceived ease of use on purchase intention.

CONCLUSION

From a theoretical perspective, this study strengthens the explanatory power of the Theory of Planned Behavior (TPB) in the context of EV adoption, showing that attitude and subjective norms significantly shape EV purchase intention, while perceived behavioral control (PBC) does not exert a direct effect. Complementing TPB, insights from the Technology Acceptance Model (TAM) reveal that perceived ease of use (PEOU) positively influences intention, whereas perceived usefulness (PU) affects purchase intention only indirectly through attitude.

Collectively, these findings support the value of an integrated TPB-TAM framework, highlighting motivational components (attitude), social pressure, and technical perceptions jointly drive consumer's decisions to switch to EVs.

From a practical perspective, the theoretical insights derived from this study offer actionable guidance for both EV companies and related industry stakeholders in designing more effective marketing strategies. Specifically, the results highlight the importance of considering subjective norms, perceived behavioral control, price value, perceived usefulness, perceived ease of use, and the mediating role of attitude in shaping consumers' intentions to purchase electric vehicles. In addition, this study provides policy-relevant implications for government authorities by identifying key behavioral drivers that can be leveraged to strengthen EV purchase intention, thereby supporting emission reduction efforts and accelerating the transition toward environmentally sustainable transportation in Indonesia.

Our findings suggest that, to boost consumers' intention to purchase EV, the manufacturer or dealer can focus on socializing the various advantages of EVs offered at relatively higher prices than gasoline-powered vehicles, including the environmental benefits that users can experience when using the product.

Additionally, the research demonstrates a positive and significant effect of subjective norms on the EV purchase intention, so EV companies can strive for the role of these variables, such as organizing a referral program, where a customer can get certain benefits if he invites his social environment to buy an EV, after the customer purchases the product within a certain period of time.

Although this study is limited to Jabodetabek, future research can improve the findings by increasing the sample size, diversifying demographics for better generalization, and including other relevant variables, such as perceived risk, trust to

technology, green satisfaction and green attitude (Celline & Keni, 2024) to enrich understanding of EV adoption, also examining variable that can mediate influence of perceived behavioural control to purchase intention of EVs, such as attitude and trust to technology.

ACKNOWLEDGEMENTS

The author expresses profound appreciation to the Directorate of Research, Technology, and Community Service, Directorate General of Higher Education, Research, and Technology, Ministry of Higher

Education, Science, and Technology of the Republic of Indonesia for the support provided through the 2025 Fiscal Year Postgraduate Thesis Research Grant, issued under Decree No. 1011/LL3/AL.04/2025 dated 4 June 2025. The author also extends sincere gratitude to the Research and Community Service Institute of Universitas Tarumanagara, as well as all individuals and institutions whose contributions, though not mentioned individually, have been invaluable throughout the implementation and completion of this research.

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