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Does Personal Innovativeness Drive EV Adoption? The Mediating Role of Perceived Risk among Indonesian Consumers

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Abstract

The Indonesian electric vehicle (EV) market has witnessed significant growth, yet a notable gap remains between high consumer interest and actual adoption due to psychological barriers. This study aims to investigate the determinants of EV purchase intention by examining the influence of personal innovativeness and the mediating role of perceived risk, specifically within the context of Chery electric vehicles in the Jabodetabek region. Employing a quantitative approach, data were collected from 100 respondents using purposive sampling and analyzed using Structural Equation Modeling (SEM) with SmartPLS. The findings reveal that personal innovativeness has a significant positive direct effect on purchase intention and a significant negative effect on perceived risk. Conversely, perceived risk negatively impacts purchase intention. Importantly, the study confirms that perceived risk mediates the relationship between personal innovativeness and purchase intention. These results suggest that while innovativeness is a key driver of adoption, the reduction of perceived risk is crucial for converting consumer interest into actual purchases. The study provides strategic insights for automotive marketers to target early adopters and implement robust risk-reduction strategies to accelerate EV adoption.

Keywords: *Electric Vehicles, Personal Innovativeness, Perceived Risk, Purchase Intention, Consumer Behavior.*

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INTRODUCTION

The transportation sector is fundamentally characterized as a derived demand, driven by the necessity of mobility arising from spatial discrepancies in human activity (Jaya, 2022). This inherent need has catalyzed a continuous surge in the automotive sector, evidenced by a significant escalation in motor vehicle production in Indonesia. According to Statistics Indonesia (Badan Pusat Statistik, 2023), production figures rose from over 4.3 million units in 2020 to approximately 6.7 million units in 2022. However, this growth has precipitated severe environmental consequences. Reports from the International Energy Agency indicate that carbon emissions from motor vehicles accounted for approximately 24% of global carbon emissions in 2019 (Teter et al., 2019 in Permana et al., 2023). In response to these sustainability challenges, the global transition toward Electric Vehicles (EVs) has become an urgent agenda. In Indonesia, government intervention through fiscal incentives such as the Luxury Goods Sales Tax (PPnBM) exemption and the expansion of Public Electric Vehicle Charging Stations (SPKLU) has successfully stimulated the market. This is demonstrated by a 161% year-on-year increase in the distribution of Battery Electric Vehicles (BEVs) throughout 2024 (Kompas Otomotif, 2025b)

Amidst the competitive landscape of the Indonesian EV market, which is currently dominated by manufacturers from China, Chery has emerged as a key player with a distinct growth dynamic. Despite entering the market later than some of its primary competitors, Chery has demonstrated aggressive performance, recording a 118% growth in retail sales in 2024 (Kompas Otomotif, 2025a). Chery's market expansion is heavily concentrated in the Jabodetabek (Greater Jakarta) region, which contributes nearly half of its total national sales. This dominance is bolstered by the strategic location of its local assembly facilities (CKD) and a robust dealer network within the area (CheryManado.com, 2023; Wahyu, 2025). Consequently, Chery provides a compelling case study for analyzing EV adoption within Indonesia's primary economic hub.

Although sales data and surveys suggest a rising purchase intention among consumers, mass adoption remains hindered by psychological barriers. A study by PwC Indonesia (2024) reveals that a segment of consumers remains skeptical, not primarily due to pricing, but due to perceived risks regarding infrastructure, battery durability, and resale value. These findings suggest that the decision to adopt an EV is not solely a rational calculation of cost-benefit but is significantly influenced by an individual's readiness to embrace new technology, defined as personal innovativeness (Agarwal & Prasad, 1998; Khazaei, 2019). Consumers with high personal innovativeness are typically more risk-tolerant and proactive in adopting early-stage technologies (Yang et al., 2023).

However, high personal innovativeness does not automatically negate perceived risk, defined as the consumer's negative expectation regarding potential losses in performance, financial value, or time (Shu et al., 2022). Preliminary observations, including field notes from the 2025 Gaikindo Indonesia International Auto Show (GIIAS) and social media discourse regarding Chery, indicate a persistent gap: while consumers are enthusiastic about the technological features offered, concerns regarding after-sales service and long-term infrastructure continue to impede the final purchase decision. Previous literature suggests that personal innovativeness can mitigate perceived risk, which in turn fosters purchase intention (He et al., 2018). Therefore, understanding the interplay between personality traits and risk assessment is crucial for predicting consumer behavior, serving as a fundamental key to unlocking the barriers to mass adoption in this developing market. Based on the identified gap between market potential and consumer hesitation, this study formulates four specific research questions to be examined within the context of Chery vehicles in Jabodetabek:

RQ1. Does personal innovativeness significantly influence purchase intention?
RQ2. Does personal innovativeness significantly influence perceived risk?
RQ3. Does perceived risk significantly influence purchase intention?
RQ4. Does perceived risk mediate the relationship between personal innovativeness and purchase intention?

Corresponding to these inquiries, the primary objective of this research is to empirically analyze the direct and indirect determinants of the decision-making process regarding electric vehicles. Specifically, this study aims to validate the extent to which an individual's openness to innovation affects their purchase intent and whether this relationship is contingent upon their perception of risk. By achieving these objectives, the research intends to provide a comprehensive understanding of the psychological mechanisms driving EV adoption, offering valuable insights for bridging the gap between consumer interest and actual purchase behavior.

The adoption of electric vehicles (EVs) is not merely a rational decision based on economic benefits but is significantly influenced by individual personality traits, specifically Personal Innovativeness. Personal innovativeness is defined as the degree to which an individual is willing to try out any new information technology or innovation earlier than others in their social system (Agarwal & Prasad, 1998). According to Yang et al. (2023), this

trait reflects a consumer's inherent predisposition to embrace change and navigate technological complexity independent of others' influence.

However, the decision to purchase an EV is often hindered by Perceived Risk, which acts as a critical psychological barrier. Perceived risk represents a consumer's subjective expectation of loss or negative consequences associated with a purchase decision (Shu et al., 2022). The interaction between these variables forms the core mechanism of this study. While perceived risk generally deters adoption, personal innovativeness plays a crucial role in mitigating this barrier. Research by He et al. (2018) suggests that highly innovative individuals perceive lower risks because their technical confidence allows them to better evaluate and manage the uncertainties of new technology.

Personal innovativeness is defined as an individual's willingness to adopt new technologies earlier than others within a social system (Agarwal & Prasad, 1998). In the context of electric vehicle adoption, innovative consumers tend to show greater openness toward technological innovation and lower sensitivity to uncertainty. Previous studies have reported that personal innovativeness positively influences purchase intention while reducing perceived risk associated with emerging technologies (He et al., 2018; Yang et al., 2023). Therefore, based on the existing literature, the following hypotheses are proposed:

H1: Personal Innovativeness has a positive and significant influence on EV Purchase Intention.

H2: Personal Innovativeness has a negative and significant influence on Perceived Risk.

H3: Perceived Risk has a negative and significant influence on EV Purchase Intention.

H4: Perceived Risk mediates the relationship between Personal Innovativeness and EV Purchase Intention.

METHOD

This study employs a quantitative approach with a descriptive and verificative design to investigate the causal relationships between personal innovativeness, perceived risk, and purchase intention. The research was conducted in the Jabodetabek region (Jakarta, Bogor, Depok, Tangerang, and Bekasi). This location was selected as the primary research context because it serves as the central hub for Chery's distribution and sales in Indonesia, contributing approximately 47% of the brand's national sales. Furthermore, the availability of infrastructure such as charging stations and authorized dealerships is most concentrated in this metropolitan area, making it the most relevant setting for examining electric vehicle adoption behavior.

The population for this study comprises consumers residing in the Jabodetabek area who have expressed interest in purchasing Chery electric vehicles. Given that the exact size of the population is unknown, a non-probability sampling technique, specifically purposive sampling, was utilized to select respondents. The inclusion criteria for the sample were individuals who: (1) reside in Jabodetabek, (2) play a role in vehicle purchasing decisions, and (3) have been exposed to information regarding Chery EVs in the last six months. Data collection was carried out using an online survey (Google Form) distributed through digital channels. The determination of the sample size followed the guidelines for Structural Equation Modeling (SEM) proposed by Hair et al. (2019) which recommends a ratio of 5 to 10 observations per indicator. With 20 measurement indicators in this study, the minimum required sample size was determined to be 100 respondents, with a target range of up to 200 respondents to ensuring statistical power.

The research instrument employed a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to measure all constructs. Personal Innovativeness was assessed using five measurement items adapted from Yang et al. (2023), which evaluate the respondent's capability to understand high-tech products, their engagement with technological trends, and their propensity to be early adopters. Perceived Risk was measured as a comprehensive multidimensional construct consisting of 12 items adapted from Shu et

al. (2022). These items encompass five key dimensions: performance risk regarding vehicle reliability and range; physical risk concerning safety hazards; financial risk related to high costs and resale value; time risk regarding charging inconvenience; and social risk involving potential negative social judgment. Lastly, EV Purchase Intention was evaluated using three items adapted from Yeğin & Ikram (2022), capturing the respondent's willingness, consideration, and specific planning to purchase a Chery electric vehicle in the future.

RESULTS AND DISCUSSION

The measurement model was evaluated to assess the validity and reliability of the research constructs. The assessment focused on indicator loadings, composite reliability (CR), and average variance extracted (AVE). The results of the initial PLS algorithm are presented in Table 1.

Tabel 1. Initial PLS Algorithm Result

Items	EV Purchase Intention	Perceived Risk	Personal Innovativeness
EVPI_1	0.893		
EVPI_2	0.834		
EVPI_3	0.893		
PI_1			0.892
PI_2			0.825
PI_3			0.851
PI_4			0.745
PI_5			0.764
PR_1		0.742	
PR_10		0.828	
PR_11		0.727	
PR_12		0.841	
PR_2		0.760	
PR_3		-0.168	
PR_4		0.832	
PR_5		0.831	
PR_6		0.870	
PR_7		0.809	
PR_8		-0.193	
PR_9		0.841	

The initial PLS algorithm results indicate that two indicators of the Perceived Risk construct (PR_3 and PR_8) did not meet the recommended loading threshold. Therefore, both indicators were removed from the model and the analysis was re-estimated. The results of the refined measurement model are presented in Table 2.

Tabel 2. Measurement Model Result

Construct	Items	Loadings	CA	ρA	CR	AVE
Personal Innovativeness Yang et al. (2023)	Ability to understand high-tech products	0.892	0.875	0.882	0.909	0.668
	Keeping up with the latest technological developments	0.825				
	Enjoying the challenge of understanding technology	0.851				
	Ease of operating technology	0.745				

	Being the first to try new technology	0.764				
Perceived Risk Shu et al. (2022)	Concerned that EV performance is inferior to gasoline cars.	0.742	0.941	0.942	0.950	0.656
	EVs have limited driving range and speed.	0.759				
	Concerned that EVs could cause accidents.	0.833				
	EV batteries pose a risk of fire or explosion.	0.830				
	EV battery damage cannot be claimed under insurance.	0.873				
	EV prices are too high compared to conventional cars.	0.812				
	EV charging takes an excessive amount of time.	0.842				
	It is difficult to find EV charging stations.	0.829				
	Purchasing an EV would negatively affect my social image.	0.725				
	Concerned that others might negatively judge the decision to buy an EV.	0.839				
EV Purchase Intention Yeğin & Ikram (2022)	I am willing to choose an electric vehicle in the future.	0.893	0.845	0.852	0.906	0.764
	I will consider purchasing an electric vehicle in the future.	0.834				
	I plan to purchase an electric vehicle in the future.	0.893				

The final measurement model demonstrates satisfactory validity and reliability. All remaining indicators achieved loading values above 0.70, while the CR and AVE values exceeded the recommended thresholds. These results indicate that the measurement model is suitable for further structural model analysis. Following the assessment of the measurement model, the structural model was evaluated to examine the proposed relationships among variables. The results of the structural model assessment are presented through the R^2, Q^2, and hypothesis testing results.

Tabel 3. R Square

Variable	R^2
EV Purchase Intention	0.696
Perceived Risk	0.720

The evaluation of the structural model began by examining the Coefficient of Determination (R^2) to assess the explanatory power of the model. The results indicate that the model explains 72.0% of the variance in Perceived Risk (R^2 = 0.720) and 69.6% of the variance in EV Purchase Intention (R^2 = 0.696). According to Hair et al. (2019), R^2 values are categorized into three levels: 0.75 (substantial), 0.50 (moderate), and 0.25 (weak)[3]. Thus, the obtained values are considered substantial to moderate, demonstrating that Personal Innovativeness is a strong predictor of both risk perception and purchase intention in the context of electric vehicle adoption.

Tabel 4. Q Square

Variable	Q^2
EV Purchase Intention	0.517

Perceived Risk	0.448

Furthermore, the predictive relevance of the model was assessed using the Stone-Geisser's Q^2 value, obtained through the blindfolding procedure. The analysis yielded Q^2 values of 0.517 for EV Purchase Intention and 0.448 for Perceived Risk. Since both values are considerably greater than zero, this confirms that the structural model possesses strong predictive relevance for the endogenous constructs.

Tabel 5. Structural Model Result

Path	Path Estimate	t-value	P-value
H1: Personal Innovativeness → EV Purchase Intention	0.530	6.963	0.000
H2: Personal Innovativeness → Perceived Risk	-0.848	21.621	0.000
H3: Perceived Risk → EV Purchase Intention	-0.335	3.609	0.000
H4: Personal Innovativeness → Perceived Risk → EV Purchase Intention	0.285	3.475	0.001

The hypothesis testing results are presented in Table 5. The findings indicate that all proposed hypotheses are supported. Personal Innovativeness has a positive and significant effect on EV Purchase Intention and a negative and significant effect on Perceived Risk. Furthermore, Perceived Risk negatively affects EV Purchase Intention. The results also confirm the mediating role of Perceived Risk in the relationship between Personal Innovativeness and EV Purchase Intention. These findings provide empirical evidence regarding the importance of individual innovativeness and risk perception in shaping consumer intentions toward electric vehicle adoption.

Effect of Personal Innovativeness on EV Purchase Intention

The findings indicate that Personal Innovativeness has a positive and significant effect on EV Purchase Intention. This result suggests that consumers who are more open to new technologies tend to show stronger intentions to purchase electric vehicles. Individuals with high levels of innovativeness are generally more willing to explore unfamiliar products and are less hesitant when faced with technological change. In the context of electric vehicles, these consumers perceive EVs as an attractive innovation that offers benefits beyond conventional transportation. This finding is in line with previous studies by Pamidimukkala et al. (2024) and Hasudungan and Saragih (2024), which found that consumers with stronger innovative tendencies are more likely to develop favorable attitudes and purchase intentions toward electric vehicles. Therefore, personal innovativeness can be considered an important driver of EV adoption, particularly during the early stages of market development.

Effect of Personal Innovativeness on Perceived Risk

The results show that Personal Innovativeness has a significant negative effect on Perceived Risk. This finding indicates that innovative consumers tend to perceive lower levels of risk when considering the adoption of electric vehicles. Consumers who are comfortable with new technologies are generally more confident in evaluating information, understanding product features, and adapting to technological uncertainty. As a result, concerns related to battery performance, charging infrastructure, and other technological issues become less prominent. This result supports the findings of He et al. (2018) and Wang et al. (2020), who argued that highly innovative individuals are more capable of coping with uncertainty and are therefore less influenced by perceived risks associated with emerging

technologies. In the context of EV adoption, personal innovativeness appears to function as an important factor that reduces psychological barriers to purchase.

Effect of Perceived Risk on EV Purchase Intention

The findings further reveal that Perceived Risk negatively influences EV Purchase Intention. This result indicates that consumers are less likely to consider purchasing electric vehicles when they perceive greater uncertainty regarding product performance, financial costs, charging accessibility, or long-term reliability. Although public awareness of electric vehicles has increased significantly, concerns regarding practical usage and potential losses continue to affect consumer decision-making. This finding is consistent with previous studies conducted by Cheng et al. (2019) and Shu et al. (2022), which identified perceived risk as one of the main barriers to EV adoption. The results suggest that reducing consumer concerns remains essential for increasing purchase intention and encouraging broader market acceptance of electric vehicles.

Mediating Role of Perceived Risk

This study also confirms the mediating role of Perceived Risk in the relationship between Personal Innovativeness and EV Purchase Intention. The findings suggest that innovative consumers are not only more willing to adopt electric vehicles directly, but also tend to perceive lower levels of risk, which subsequently strengthens their purchase intention. In other words, personal innovativeness contributes to EV adoption by helping consumers manage uncertainty and evaluate potential risks more positively. This finding supports the mediation mechanism proposed by He et al. (2018), which emphasizes that the influence of innovativeness on technology adoption often occurs through a reduction in perceived risk. Therefore, the role of perceived risk should not be viewed solely as a barrier but also as an important mechanism through which individual characteristics influence purchasing decisions.

CONCLUSION

This study examined the influence of Personal Innovativeness on EV Purchase Intention with Perceived Risk as a mediating variable in the context of Chery electric vehicles in the Jabodetabek region. The results reveal that Personal Innovativeness positively influences EV Purchase Intention and negatively influences Perceived Risk. In addition, Perceived Risk was found to have a significant negative effect on EV Purchase Intention. The findings also confirm that Perceived Risk mediates the relationship between Personal Innovativeness and EV Purchase Intention. These results indicate that consumers who are more innovative tend to perceive lower levels of risk and consequently exhibit stronger intentions to adopt electric vehicles.

From a practical perspective, the findings suggest that automotive manufacturers should not only focus on promoting technological innovation but also implement effective risk-reduction strategies. Efforts such as providing battery warranties, improving charging infrastructure accessibility, and offering experiential marketing programs may help increase consumer confidence and accelerate EV adoption.

This study is subject to several limitations. First, the research was conducted only in the Jabodetabek region, which may limit the generalizability of the findings to other regions in Indonesia. Second, the study employed purposive sampling, which may not fully represent the broader population of potential EV consumers. Third, the analysis focused exclusively on the Chery brand, and consumer perceptions may differ across other EV manufacturers.

Future studies are encouraged to expand the geographical scope, apply probability sampling techniques, and examine additional variables that may influence EV adoption, such as environmental awareness, government incentives, perceived value, and consumer

trust. Such efforts may provide a more comprehensive understanding of the factors driving electric vehicle adoption in Indonesia.

References:

Agarwal, R., & Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. Information Systems Research, 9(2), 204–215. https://doi.org/10.1287/isre.9.2.204

BPS (Badan Pusat Statistik). (2023). Statistik kendaraan bermotor Indonesia 2023. Badan Pusat Statistik Indonesia.

Cheng, P., OuYang, Z., & Liu, Y. (2019). Understanding bike sharing use over time by employing extended technology continuance theory. Transportation Research Part A: Policy and Practice, 124, 433–443. https://doi.org/10.1016/j.tra.2019.04.013

CheryManado.com. (2023, July 21). Chery Sales Indonesia raih peningkatan penjualan. https://cherymanado.com/chery-sales-indonesia-raih-peningkatan-penjualan/

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). When to use and how to report the results of PLS-SEM. Emerald Publishing Limited.

Hasudungan, A., & Saragih, H. S. (2024). Green consumption: The role of perceived symbolic value and personal innovativeness. Journal of Responsible Production and Consumption, 1(1), 159–176. https://doi.org/10.1108/JRPC-10-2023-0008

He, X., Zhan, W., & Hu, Y. (2018). Consumer purchase intention of electric vehicles in China: The roles of perception and personality. Journal of Cleaner Production, 204, 1060–1069. https://doi.org/10.1016/j.jclepro.2018.08.260

Jaya, I. N. (2022). Transportasi dan mobilitas masyarakat modern. Mitra Wacana Media.

Khazaei, H. (2019). The influence of personal innovativeness and price value on intention to use electric vehicles in Malaysia. European Online Journal of Natural and Social Sciences, 8(3), 483–494.

Kompas Otomotif. (2025a, January 16). Omoda E5 dominasi penjualan Chery sepanjang 2024. https://otomotif.kompas.com/read/2025/01/16/172100615/omoda-e5-dominasi-penjualan-chery-sepanjang-2024

Kompas Otomotif. (2025b, March 6). Pasar mobil listrik Indonesia: Merek China mendominasi. https://otomotif.kompas.com/read/2025/03/06/072200215/pasar-mobil-listrik-indonesia--merek-china-mendominasi

Pamidimukkala, A., Kermanshachi, S., Rosenberger, J. M., & Hladik, G. (2024). Adoption of electric vehicles: An empirical study of consumers' intentions. Transport Economics and Management, 2, 359–366. https://doi.org/10.1016/j.team.2024.11.001

PwC Indonesia. (2024, November 14). Perilaku dan kesiapan konsumen Indonesia terhadap kendaraan listrik. https://www.pwc.com/id/en/media-centre/press-release/2024/indonesian/perilaku-dan-kesiapan-konsumen-indonesia-terhadap-kendaraan-list.html

Shanmugavel, N., & Micheal, M. (2022). Exploring the marketing related stimuli and personal innovativeness on the purchase intention of electric vehicles through technology acceptance model. Cleaner Logistics and Supply Chain, 3, 100029. https://doi.org/10.1016/j.clscn.2022.100029

Shu, T., Wang, Z., Lin, L., Jia, H., & Zhou, J. (2022). Customer perceived risk measurement with NLP method in electric vehicles consumption market: Empirical study from China. Energies, 15(5), 1637. https://doi.org/10.3390/en15051637

Wahyu, D. (2025). Chery Arta Bekasi Barat dibuka dealer 3S terbesar di Jabodetabek. https://www.gridoto.com/read/224250058/chery-arta-bekasi-barat-dibuka-dealer-3s-terbesar-di-jabodetabek

Wang, Y., Wang, S., Wang, J., Wei, J., & Wang, C. (2020). An empirical study of consumers' intention to use ride-sharing services: Using an extended technology acceptance model. Transportation, 47(1), 397–415. https://doi.org/10.1007/s11116-018-9893-4

Yang, H., Song, H., Cheung, C., & Guan, J. (2023). Are prior smart hotel visiting experience and personal innovativeness critical to future visit intention? Journal of China Tourism Research, 19(2), 266–289. https://doi.org/10.1080/19388160.2022.2064381

Yeğin, T., & Ikram, M. (2022). Analysis of consumers' electric vehicle purchase intentions: An expansion of the theory of planned behavior. Sustainability, 14(19), 12091. https://doi.org/10.3390/su141912091