



Strategy Formulation to Increase User Intention to Use Electric Ride Hailing Service in Indonesia

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ABSTRACT

The emergence of electric ride-hailing services as a form of contribution from applicators in response to the government's transformation movement towards massive and equitable use of electric vehicles (EVs) by 2030 has captured the attention of the public in Indonesia. However, this new business model still needs to be reviewed to gain more awareness so that more users can use the service. Research on user perceptions of the technology is needed to develop electric ride-hailing services. Analysis of factors related to the user adoption process of electric online transportation services will be carried out using an integrated model of the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB). Data processing and analysis will be carried out using the Structural Equation Modeling (SEM) method. The results showed that usefulness has a significant effect on Attitude Towards Use and Attitude Towards Use has a significant effect on Intention to Use so that applicators are expected to be able to implement strategies in increasing user perceptions of the value of usefulness in increasing the intention to use this service.

Keywords: Technology Acceptance Model, Theory of Planned Behavior, Structural Equation Modeling, electric ride hailing services, electric vehicle (EV), Why How Laddering, Strategy to Mission Matrix.

INTRODUCTION

Indonesia is the largest archipelagic country, consisting of more than 13,000 islands (Andréfouët et al., 2022; Wirawan et al., 2024). It has a fairly massive population of 273,523,615 people, which makes Indonesia the fourth most all over the world after China, India, and the USA (UN World Population Prospects, 2022). The population until now has always indicated a significant increase per year where it is proven, according to the comparison of the 2010 Population Census Results and the 2020 Population Census Results, that there is a gap of 32.56

million people, or it can be said that there is an increase of around 3.26 million people per year (BPS, 2021);(Ezennia, 2022; Tiganasu et al., 2020).

The significant increase in population in Indonesia was followed by the rise in the need for transportation facilities (Aboye et al., 2024; Suryadi & Sudjono, 2020; Suryawan et al., 2024; Wirawan et al., 2024). The trend of urgency of the needs of the Indonesian people for transportation equipment is validated in data released by the Central Statistics Agency (2020) that there is a tendency to increase by 4.89% per year on the development of the number of private cars and a tendency to increase by 5.42% per year on the development of the number of personal motorcycles. This trend is considered for the factors of flexibility, efficiency, and affordability that encourage the majority of people to prefer to use private vehicles rather than using public transportation facilities. Flexibility is viewed from all forms of business in order to get comfort, safety, and lux levels that are in accordance with personal standards. The efficiency of reviewing the scope of costs incurred if passengers who ride private vehicles is calculated to the maximum, and there is a gap when compared to the cost of riding public transportation per head and the ease of carrying many goods that are considered more comfortable and safe. Affordability is viewed in terms of price variations in each brand and model of which vehicle

can be adjusted to personal preferences and payment methods that are considered attractive, such that the car immediately becomes ownership rights.

However, the tendency to use private vehicles that are crucial raises a new problem that becomes a consequence, namely an increase in congestion levels. This congestion level is validated through congestion index data covering the Jabodetabek area, reaching 49% (Belgiawan et al., 2024; Wang et al., 2021) . The index also tends to experience a significant increase when compared to the congestion index during the COVID-19 pandemic, which is at 34% (Amaris et al., 2024; Shi & Goulias, 2024). According to Rusdy Permana (2022), this is also caused by an imbalance in the ratio between the growth of road length in Jabodetabek of approximately 0.01% per year and the growth in the number of vehicles of roughly 3% per year (Yokoyama et al., 2023).

Several efforts have been optimized by the local government in order to reduce the congestion index (DKI Jakarta Transportation Office, 2022), one of which is the arrangement of the integration of KRL, MRT/LRT, and Transjakarta stations and tariffs, as well as the improvement of the JakLingko public transportation integration system and intermodal integration so that it becomes orderly and orderly. In addition, the government is also cooperating with the development of a new transportation business, namely online transportation. As time goes by, the transportation sector undergoes a massive transformation, and technological developments encourage the implementation of online-based transportation models by utilizing applications such as ordering media to facilitate consumers in meeting mobilization needs. This can provide benefits for both customers and drivers where they can find

out each other's location accurately and in real-time, customers can know the driver's general identity and vehicle information, and customers can travel flexibly based on demand, which supports time efficiency (Barman et al., 2023; Venegas et al., 2021). The utilization of online transportation services has proven popular in Indonesia, where 21.7 million people in Indonesia have recorded using ride-sharing services as of January 2020 (We Are Social Digital Indonesia, 2020). Where it is shown that 75% of Indonesian internet users use mobile applications related to mapping so that applicators from ride-hailing players can understand people's behavior to present more innovations and targeted solutions.

However, from all the positive sides obtained by the existence of online transportation, there are still environmental conditions that need to be accounted for due to the use of fuel oil (BBM). This is validated by the level of greenhouse gas emissions, which increased by 29.05% from the historical data of the last 10 years (Besagni et al., 2021; Blom et al., 2022; Böttner et al., 2020; Jia et al., 2022). In addition, environmental conditions are also validated through the issue of global warming in Indonesia, where there has been a normal increase in average air temperature, which shows a positive anomaly with a value of 0.35°C in November 2022. Indonesia's air temperature anomaly in August 2022 is the 5th highest anomaly value throughout the observation data period since 1981.

With the increasing environmental drive due to the use of fossil fuels, the government also supports the development of domestic electric motor vehicle (KBL) innovations that offer several solutions, such as capabilities to improve air quality and encourage innovation in the technology, engineering, and local manufacturing industries. Through the encouragement and opportunities provided by the government, the development of KBL implemented by ride-hailing players is expected to be introduced more deeply to the community by being applied to online transportation and playing an active role in supporting the development of the green economy in Indonesia. The implementation of electric online transportation operations certainly faces new challenges in adapting and innovating within the scope of the ecosystem, namely electric vehicle manufacturers, state-owned developers of battery provision and Public Electric Vehicle Charging Stations (SPKLU), maintenance facility providers by each provider, and the process of penetrating service services to demand in the market.

Therefore, in facing the situation of early adaptation to the existence of the expansion of the electric online transportation business, research on the determinants of customer intention and satisfaction in using electric online transportation needs to be carried out so that ride-hailing players companies can find out what factors or variables need to be maintained and developed in service services so that they can attract awareness of customer buying interest and retain existing customers to get used to it Using electric online transportation services. Another reason why this research needs to be done is because research on the application of electric online

transportation still needs to be bigger compared to research on other types of online transportation services.

This study aims to analyze customer behavior patterns in determining the use of electric online transportation services through the distribution of questionnaires by utilizing the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) approaches to determine customer intention variables in the use of service services that will affect customer satisfaction and determine customer-centric strategies so that ride-sharing players can perform to increase competitiveness (Chen et al., 2023).

RESEARCH METHODS

The stage begins with the creation of a conceptual model on which the research is based, followed by the design of a research questionnaire, which then undergoes a pilot testing stage to ensure effectiveness. This was followed by testing the validity and reliability of data to ensure the quality of data obtained through the distribution of questionnaires to 528 respondents online through social media. Quantitative primary data with the Likert scale is then processed using IBM Statistics SPSS 26 and Lisrel 8.80, mainly through the Covariance-Based Structural Equation Modeling (CB-SEM) method applied using the Lisrel 8.80 application. In addition to primary data collection through questionnaires, preliminary data is also obtained in the strategy design stage through a form containing a strategy design to increase the intention of using electric online transportation services, which experts then assess. Secondary data, such as the results of previous research and information on the development of electric vehicles, is also used to complement the primary data. The research method adopted in the analysis of acceptance of the use of electric online transportation involves an integrated model between the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). The addition of variables such as control influences and environmental influences emphasizes the selection of this model. The relationship formed from the combination of TAM and SDGs has proven relevant in various fields of research, especially in electric online transportation services. This model, originally developed by Taylor and Todd in 1995, was considered suitable for this study because it has correlations, recency, and scope of research appropriate to the context under study.

RESULTS AND DISCUSSION

The significance test is used to analyze the causal relationship of a structural model consisting of observations of the t-value, coefficient of determination, and effect size of the factors involved.

Based on the t-value it can be stated that all hypotheses can be accepted or all existing exogenous variables have an influence on endogenous variables as based on the t-value

requirement that a variable can be said to influence if the t-value in the structural equation has a value of ≥ 1.96 (Khairi et al., 2021).

Table 1. t-value and Conclusion Hypothesis

Hypothesis	Information	t-value	Conclusion
H1	<i>Usefulness has a significant impact on Attitude Towards Use</i>	6.66	Accepted
H2	<i>Performance Expectancy has a significant impact on Attitude Towards Use</i>	7.56	Accepted
H3	<i>Hedonic Motivation has a significant impact on Attitude Towards Use</i>	4.45	Accepted
H4	<i>Price Value has a significant impact on Attitude Towards Use</i>	9.11	Accepted
H5	<i>Attitude Towards Use has a significant impact on Intention to Use</i>	3.51	Accepted
H6	<i>Subject Norm has a significant impact on Intention to Use</i>	10.53	Accepted
H7	<i>Perceived Behavior Control has a significant impact on Intention to Use</i>	7.50	Accepted

Based on the R^2 value obtained, this R^2 value will represent how representative the exogenous variable is to the endogenous variable. The following in Table 2 is interpreted as the analysis of the R^2 value obtained.

Table 2. R^2 Value and Analysis

Endogenous Variables	Exogenous Variables	R^2	Analysis
ATU		0.64	<i>Usefulness, Performance Expectancy, Hedonic Motivation, and Price Value account for 64% of Attitude Towards Use variants</i>
SN		0.54	<i>Usefulness, Performance Expectancy, Hedonic Motivation, and Price Value account for 54% of Subjective Norm variants</i>
	U, PE, HM, PV		
PBC		0.59	<i>Usefulness, Performance Expectancy, Hedonic Motivation, and Price Value account for 59% of Perceived Behavior Control variants</i>
THAT		0.61	<i>Usefulness, Performance Expectancy, Hedonic Motivation, and Price Value account for 61% of Intention to Use variants</i>

Based on the effect size value represented through the covariance matrix, exogenous variables can be analyzed that provide a significant influence correlation to certain endogenous variables.

Table 3. Value of Effect Size and Analysis

Endogenous Latent Variables	Exogenous Latent Variables	Effect Size	Analysis
<i>Attitude Towards Use (ATU)</i>	<i>Usefulness (U)</i>	36%	<ul style="list-style-type: none"> • <i>Usefulness</i> exerts the most significant influence on <i>Attitude Towards Use</i>. • <i>Attitude Towards Use</i> has the most significant influence on <i>Intention to</i>
	<i>Performance Expectancy (PE)</i>	24%	
	<i>Hedonic Motivation (HM)</i>	23%	
	<i>Price Value (PV)</i>	31%	
	<i>Attitude Towards Use (ATU)</i>	62%	
	<i>Subject Norm (SN)</i>	45%	
	<i>Perceived Behavior Control (PBC)</i>	50%	

Based on the results obtained, Usefulness is considered more significant than Price Value. This invites quite sensitive perceptions due to the tendency of price-sensitive Indonesian people in making purchase transactions (Kristian & Bachtiar, 2021). However, if further reviewed and elaborated with the perception of the applicator in providing electric online transportation services, the usefulness factor is the main consideration that becomes the fulcrum of implementation, namely the process of introduction and habituation in using electric online transportation services, where the investment in the procurement of this technology is large enough to affect the price offered in the market (Anthony Suharjono, 2022). This usefulness factor refers to users being able to feel that the technology obtained can make users play a role and contribute to the green economy. This is in line with Eric Wagnes' statement (2019) that there is user segmentation that applies in the market so that this service will focus on user segments who have higher awareness and curiosity about the implementation of green sustainable development-based technology and the principle that products with prices that may be more expensive will provide higher quality. In addition, Deric San (2019) also stated that the role of value proposition in building products is important by involving innovation in service features and cannot be duplicated easily so that price is not always the main focus. Deric San

(2019) also stated that customers who prioritize value usefulness over price sensitivity will give birth to users who may indeed be more difficult to get but these users are more loyal.

The entire hypothesis of this study is accepted based on the analysis carried out. First, H1 states that usefulness has a significant impact on attitude towards use, and this hypothesis is accepted. The explanation is that the perceived usefulness when using electric online transportation services significantly affects the responsiveness of the use felt by users. Furthermore, H2 states that Performance Expectancy has a significant impact on Attitude Towards Use, and this hypothesis is also accepted. This indicates that expectations of the service's performance have an impact on user responsiveness.

H3 states that Hedonic Motivation has a significant impact on Attitude Towards Use, and this hypothesis is accepted. This shows that lifestyle patterns with users' hedonic motivations have an impact on responsive attitudes towards use. H4 states that Price Value has a positive impact on Attitude Towards Use, and this hypothesis is accepted, indicating that service price has an effect on user responsiveness. H5 states that Attitude Towards Use has a significant impact on Intention to Use, and this hypothesis is accepted, illustrating that the user's responsive attitude has an impact on the intention to use the service. H6 states that the subjective norm has a significant impact on the intention to use, and this hypothesis is accepted, indicating that the subjective norm within the scope of the user has an impact on the intention to use the service. Finally, H7 states that perceived behavior control has a significant impact on intention to use, and this hypothesis is accepted. The explanation is that user perception in controlling behavior affects the intention to use electric online transportation services.

From the results of the analysis obtained, the electric online transportation applicator can develop products so that this business line can continue to expand. Strategy formulation is carried out using the Why How Laddering method and Strategy to Mission Matrix.

Why How Laddering: Before formulating a strategy, the author conducts a literature study first to be used as a guideline. With the help of the Why How Laddering method as part of Design Thinking, relationships between variables can be mapped to understand the problem more deeply and help in exploring literature studies.

In this study, 5 relevant recommendations were obtained from literature studies. This formulated strategy is aimed at increasing user demand to continue to adopt the use of electric online transportation. With the help of methods Why How Laddering, the strategies that have been identified will be validated and prioritized by experts. For each strategy obtained, an elaboration of the context of electric online transportation and correlation with hypotheses is carried out.

Table 4. Elaboration of Electric Online Transportation Strategy and Adaptation

Correlati

No.	Strategy	Source	Explanation	on with Hypotheses
1.	Conduct an <i>upsell marketing campaign</i>	(Buttle, 2015; Miller 2021)	By reviewing the price <i>gap</i> between service services with conventional and electric vehicles, a strategy is needed so that users can consider options and ultimately choose services with electric vehicles.	H1, H3, H4, H5
2.	Conduct sales promotions (<i>voucher, bundling, cashback, special price</i>)	(Singh, 2012; Buttle, 2015; Sharma, 2018)	The sales promotion provided is believed to increase 48% of buying interest and 85% of them are positive in making transactions (Yugi Setyarko, 2016).	H3, H4, H5, H7
3.	Doing <i>experiential marketing Strategy</i>	(Ana Maria & Cristinel Petrisor, 2021)	Hold an <i>interactive booth</i> and <i>open talk shows</i> at events.	H6, H7
4.	Improve <i>public relationships</i> by fostering driver communication as communicators	(Cutlip Center & Broom, 2006; Herdiansyah, 2010; Ruslan, 2010)	<i>Public relationship</i> can be done by facilitating special SOPs for drivers in providing explanations about electric online transportation services if when users ask about electric online transportation services in detail.	H1, H2, H5
5.	Take a social media approach	(Moorman & Smit, 2011; Kohli, Suri, & Kapoor, 2014)	<i>Implement digital creative advertising</i>	H1, H5, H6, H7

Strategy to Mission Matrix

After formulating a strategy using the Why How Laddering method based on literature studies, an assessment of the strategy recommendations was carried out by experts using the Strategy to Mission Matrix. First, strategy prioritization will use the results of the effect size in the calculation of Structural Equation Modeling (SEM) that has been done previously to represent strategy modeling in accordance with user response in using electric online transportation services or can be called a customer-centric strategy.

H5	Attitude Towards Use	H1	Usefulness	36%
		H4	Price Value	31%
		H2	Performance Expectancy	24%
	62%	H3	Hedonic Motivation	23%
H7	Perceived Behavior Control			50%
H6	Subject Norm			45%

Figure 1. Effect Size of Each Variable

Based on the effect size ranking, strategies to increase user intentions in adopting electric online transportation services can be sorted as follows: first, improving public relationships by fostering drivers as communicators; second, conduct sales promotions such as vouchers, bundling, cashback, and special prices; third, implementing upsell marketing campaigns; fourth, apply a social media approach; and fifth, implementing an experiential marketing strategy. The selection of this sequence is based on the calculation of the effect of the strategy as a representation of customer-centric strategy priorities.

Then, experts validate the strategy by reviewing it through three objective dimensions, namely impact, effort, and risk. The assessment of strategy recommendations is carried out by conducting Focus Group Discussion (FGD) to map the three objectives qualitatively and quantitatively. By calculating the calculation of impact, effort, and risk through weighting each variable from each subobjective, the specification results of each strategy can be reviewed. The assessment given by experts represents how the applicator assesses the three objectives for strategy implementation so that the applicator can later consider the emphasis of each strategy to be implemented and adjust to the capabilities of the applicator itself. Then, the results of this calculation are translated into the form of strategy mapping with the following visualization.

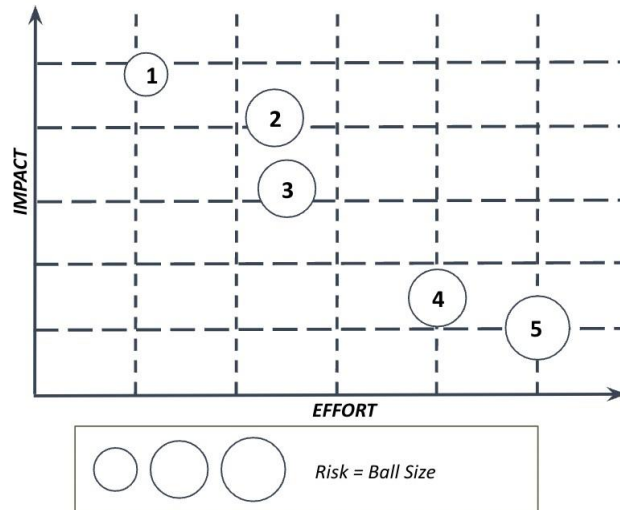


Figure 2. Strategy Mapping

Through the visualization above, it can be seen that strategy (1), namely public relationship is a strategy that requires the least effort, provides the greatest impact, and produces the least risk. While strategy (5), namely experiential marketing strategy, is a strategy that requires the greatest effort, provides the least impact, and produces the greatest risk.

A little discussion about strategies that require the least effort, have the greatest impact, and produce the least risk, namely increasing public relationships by fostering drivers as communicators. It is believed by experts that mouth-to-mouth marketing as one of the educational media is still important and quite effective as well as the interest and curiosity of users is quite high in knowing the technical operations of electric online transportation services. In addition, the applicator simply provides a draft Standard Operating Procedure (SOP) for drivers in providing explanations and experiences regarding the implementation of electric online transportation. Then, when viewed from risk, this strategy does not have a significant risk impact because every acceptance will return to acceptance of perception and consideration for users.

However, based on the results of discussion and analysis of this strategy design, there is still concern that the Strategy to Mission Matrix theory has a high level of flexibility for objective calculations so that

If there are differences in expert view preferences and changes in the situation, it will be possible to reconsider further in the sequencing of strategy recommendations. In addition, this prioritized strategy may not apply to all applicators because there may be different situations, conditions, and urgency to the business model. However, assuming that the applicators have the same objectives, this sequence of strategies can more or less be applied to the entire applicator.

CONCLUSION

The process of accepting technology by users of electric online transportation services is considered a complex and crucial challenge, considering that it involves changing user behavior patterns. This study aims to explore customer behavior patterns in adopting electric online transportation services and identify intention variables that have a significant influence. This is the basis for designing customer-oriented strategies, with the aim of optimizing the service adoption process. The results of data processing and analysis showed that all hypotheses were acceptable, and the study concluded that Usefulness had the most significant influence on Attitude Towards Use, while Attitude Towards Use had the most significant influence on Intention to Use. Based on the implications of Structural Equation Modeling (SEM), the research continued by formulating strategies using the How Laddering Method and Strategy to Mission Matrix. Priority ranking is carried out based on the results of the calculation of Effect Size as a representation of a customer-centric strategy. Next, strategy calculations are carried out by considering the objectives of impact, effort, and risk. The strategy is then visualized in the form of strategy mapping, revealing that the public relationship strategy is the strategy that requires the least effort, has the greatest impact, and produces the least risk. On the other hand, experiential marketing strategies are identified as strategies that require the most effort, provide the least impact, and produce the most risk.

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