# Analysing The Interest In Buying Electric Motorbikes In The Community In Jakarta

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**Abstract**

This study aims to analyse the Technology Acceptance Model (TAM) on the interest in buying electric motorbikes in DKI Jakarta. TAM is a model used to understand how users accept and use new technology. This model involves several main dimensions, such as Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Attitude (A). This research uses purposive sampling method for sample selection. The analysis techniques applied include descriptive analysis and average score calculation. The results showed that the Attitude Towards dimension received an average score of 3.37 which was included in the "strongly agree" category and was in the very highlevel interval. The Perceived Ease of Use dimension obtained a score of 3.37 which is in the high interval scale range. Meanwhile, Perceived Usefulness received a score of 3.30 which is also in the very highlevel interval. Of the three dimensions, Attitude Towards has the highest effectiveness value, followed by Perceived Ease of Use, and then Perceived Usefulness. This suggests that a positive attitude towards electric motorbikes is the most powerful factor influencing purchase intention, followed by ease of use and perceived usefulness. The implications show that the factors that influence the purchase interest of electric motorbikes can be measured using TAM, which plays an important role in measuring purchase interest in the Jakarta community. In addition, the results of this study can also serve as a basis for the government in designing policies that support the use of electric motors, such as tax incentives or subsidies for the purchase of electric motors.

**Keywords:** Purchase Intention; Electric Motorbike; Attitude; Perceived Ease of Use; Perceived Usefulness.

## 1. Introduction

Air pollution in Jakarta is currently a conflict that has a negative impact on people's health and the environment as a whole. In recent years, the rapid growth of population and industry in the city of Jakarta has resulted in an increase in gaseous emissions to the air. The air quality in Jakarta is classified as unhealthy and not conducive to life (Hasiman, 2023). One of the main contributors to air pollution is gas emissions from motor vehicles. Most of the causes of air pollution in the Jabodetabek area come from local activities, especially from the transport sector (Pandu, 2023).

The use of electric motorbikes can be a very good option, considering that these vehicles do not emit gas emissions, so they can play a role in improving air quality in Jakarta. Government efforts encourage the purchase of electric motorbikes by using battery-powered electric vehicles as operational service vehicles and individual service vehicles for central and local government officials. By promoting the use of electric motorbikes, the government hopes to increase awareness of the importance of using electric vehicles.

According to research from Deloitte and Foundry, the use of electric motors in Indonesia is set to increase 13-fold during 2020-2022 (Annur, 2023). Electric motorcycles have become a major focus in transforming the transport industry, offering a greener solution in an effort to help alleviate air pollution and energy problems in the transport sector.

Electric motorbike users often complain about the battery draining quickly when they carry extra weight or passengers. Many complaints make the interest in buying electric motorbikes in the eyes of the public so doubtful that they are still not sure about switching from petrol-fuelled motorbikes to electric motorbikes. Currently, the number of electric charging stations in Indonesia is still relatively small, so people are worried that they will have difficulty finding a place to charge their electric vehicles.

Purchase interest is an action by creating and instilling thoughts in consumers regarding products to be able to bring up consumer desires (Suhatman et al., 2020). In this study, the Technology Acceptance Model (TAM) theory is suitable for evaluating new technologies such as electric motorbikes and their appeal to consumers. TAM provides an understanding of how perceived usefulness and ease of use can influence consumer attitudes towards the adoption of electric motorbikes. Dengan menggunakan model ini dapat menganalisis bagaimana faktor-faktor tersebut berkontribusi terhadap niat beli motor listrik di kalangan

penduduk DKI Jakarta. Using this model, we can analyse how these factors contribute to the purchase intention of electric motorcycles among DKI Jakarta residents.

## 2. Literature Review

Interest in buying electric motorbikes in the community in DKI Jakarta focuses on an in-depth understanding of what factors shape people's interest in electric motorbikes. This research measures Purchase Intention, Technology Acceptence Model (TAM) which plays an important role in shaping consumer preferences. In addition, theories of sustainability and environmental awareness are also an important foundation as people are increasingly inclined to choose environmentally friendly products.

Purchase intention can be used to test the applicability of new sales channels to help managers decide whether to develop the concept further and decide which geographic markets and consumer segments to target through the channel (Peña-García et al., 2020). In addition, purchase intention is understood as a consumer willing to buy a product. The concept of purchase intention and TAM are able to measure the advertising effectiveness of promotional activities (Sangen et al., 2021).

The Technology Acceptence Model (TAM) theory can prove a useful model for various measurements on the acceptance of new technology because this theory understands why users can accept or reject a technology and how user acceptance of technology can be improved with new technology designs (Ammenwerth, 2019). The TAM concept in this study is measured based on the perceptions of consumers regarding the products they want to buy and adaptations from research (Andrina et al., 2022), including perceived usefulness, perceived ease of use, Attitude, and Attitude.

## 3. Material and Method

### 3.1 Design Study

This research uses quantitative methods because the research data is digital but the analysis is carried out in statistical form and can be used to discover and develop various new sciences and technologies. (Zakariah et al., 2020). In addition, to determine the relationship and analyse the Technology Acceptance Model (TAM) on motorcycle purchase intention, researchers used a survey method using online and offline questionnaires through the Google Form application. The researchers used these two methods to make it easier for researchers to obtain primary data from respondents and to see factual data in the field, and

this survey method will certainly produce data in accordance with the wishes of the researchers.

To speed up the completion of the questionnaire, the questionnaire was distributed online through the Google Form platform. The data obtained was then processed using descriptive analysis. Descriptive analysis is a method of collecting and presenting data so that it can provide useful information (Pahleviannur et al., 2022).

**3.2 Data Analysis Technique**

This study adopts a descriptive analysis technique, as a process to provide a general or specific description of the data used without drawing general conclusions from the data. This approach aims to describe and classify the data that has been collected, thus providing a clear understanding of the problem being studied. In this study, descriptive analysis measures the Analysis of Interest in Buying Electric Motorbikes in the people of DKI Jakarta with TAM theory.

**Table 1. Criteria Score and Achievement Level**

| No | Criteria Score | Achievement Level |
|---|---|---|
| **1** | 0% – 25% | Very Low |
| **2** | 26% – 50% | Low |
| **3** | 51% – 75% | High |
| **4** | 76% – 100% | Very High |

In this study, the results of the questionnaire were described using a criterion score divided into four criteria with their respective achievement levels, to facilitate the interpretation of the results of the questionnaire filled out by the respondents.

**Average rating scale**

STT: Strongly Disagree (on a scale of 1.00 - 1.75)
TT : Disagree (on a scale of 1.76 - 2.5)
T : Agree (on a scale of 2.6 - 3.25)
ST : Strongly Agree (on a scale of 3.26 - 4.00)

The research was analysed based on the dimensions that exist in the buying interest of electric motorbike consumers in the DKI Jakarta community using the average score method previously described, the average value will then be included in the scale range from very uninterested (STT) to very interested (ST). then further determine the average value as follows:

## 4. Result and Discussion

The validity test in the research instrument aims to determine whether the instrument is valid or not. A statement item is considered valid if its r value is greater than r table. Researchers use the Pearson Product Moment correlation formula with a significance level of 5%.

**Table 2 Validity Test**

| Dimensions | Item | N | R count | R table | Description |
|---|---|---|---|---|---|
| Perceived Usefulness | Item 1 | 160 | 0,719 | 0.1552 | Valid |
| | Item 2 | 160 | 0,681 | 0.1552 | Valid |
| | Item 3 | 160 | 0,753 | 0.1552 | Valid |
| | Item 4 | 160 | 0,760 | 0.1552 | Valid |
| | Item 5 | 160 | 0,704 | 0.1552 | Valid |
| | Item 6 | 160 | 0,788 | 0.1552 | Valid |
| Perceived Ease of Use | Item 7 | 160 | 0,636 | 0.1552 | Valid |
| | Item 8 | 160 | 0,735 | 0.1552 | Valid |
| | Item 9 | 160 | 0,736 | 0.1552 | Valid |
| | Item 10 | 160 | 0,752 | 0.1552 | Valid |
| | Item 11 | 160 | 0,672 | 0.1552 | Valid |
| Attitude | Item 12 | 160 | 0,676 | 0.1552 | Valid |
| | Item 13 | 160 | 0,712 | 0.1552 | Valid |
| | Item 14 | 160 | 0,643 | 0.1552 | Valid |
| | Item 15 | 160 | 0,763 | 0.1552 | Valid |

After conducting a validity test on the data that has been obtained, all R Counts obtained are greater than R Table at 0.1552 with a significant level of 5%. The results of the validity test are considered worthy of further research, because they produce valid data and indicate that the item has a strong correlation with the concept being measured.

Reliability test is an analysis to assess the consistency of measurements if repeated (Zakariah et al., 2020). If the Cronbach alpha value is more than 0.60, the variable is considered reliable, while if the value is less than 0.60, the variable is considered unreliable. If the alpha value is closer to one, the more reliable the data reliability value is.

**Table 3 Reliability Test**

| Dimension | N | Cronbach's alpha Score | *Cronbach's apha* | Description |
|---|---|---|---|---|
| Perceived Usefulness | 160 | 0,892 | > 0,60 | **Reliable** |
| Perceived Ease of Use | 160 | 0,859 | > 0,60 | **Reliable** |
| Attitude | 160 | 0,853 | > 0,60 | **Reliable** |

The results of the reliability test in this study are shown in Table 3 Cronbach's alpha values in the third dimension are greater than 0.60, indicating that the four survey instruments are reliable and trustworthy.

In supporting this research, information on answers from respondents is needed to get valid results. After obtaining information on the answers of the respondents, the researcher displays a table explaining the frequency of respondents' answers to the statements of each indicator of the Technology Acceptance Model (TAM).

**Table 3 Descriptive Statistical Analysis Perceived Usefulness**

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| PU1 | I think using an electric motorbike will make activities easier | fi | 3 | 10 | 303 | 204 |
| | | ∑ Wifi | 520 | | | |
| | | % | 1,88% | 3,13% | 63,13% | 31,88% |
| | | Total | 8 | | 152 | |
| | | | 5,00% | | 95,00% | |
| | | Mean | 3,25 | | | |
| PU2 | I think electric motorbike is useful for daily activities | fi | 3 | 4 | 267 | 264 |
| | | ∑ Wifi | 538 | | | |
| | | % | 1,88% | 1,25% | 55,63% | 41,25% |
| | | Total | 5 | | 155 | |
| | | | 3,13% | | 96,88% | |

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| | | Mean | 3,36 | | | |
| PU3 | I think electric motors make activities faster | fi | 1 | 42 | 219 | 260 |
| | | ∑ Wifi | 522 | | | |
| | | % | 0,63% | 13,13% | 45,63% | 40,63% |
| | | Total | 22 | | 138 | |
| | | | 13,75% | | 86,25% | |
| | | Mean | 3,26 | | | |
| PU4 | I think activities become more efficient by using electric motorbike | fi | 1 | 24 | 264 | 239 |
| | | ∑ Wifi | 528 | | | |
| | | % | 0,63% | 7,50% | 55,00% | 36,88% |
| | | Total | 13 | | 147 | |
| | | | 8,13% | | 91,88% | |
| | | Mean | 3,30 | | | |
| PU5 | I think the electric motor is easy to learn | fi | 2 | 8 | 261 | 268 |
| | | ∑ Wifi | 539 | | | |
| | | % | 1,25% | 2,50% | 54,38% | 41,88% |
| | | Total | 6 | | 154 | |
| | | | 3,75% | | 96,25% | |
| | | Mean | 3,36 | | | |
| PU6 | I think using an electric motorbike is very practical and hassle-free | fi | 1 | 24 | 255 | 248 |
| | | ∑ Wifi | 528 | | | |
| | | % | 0,62% | 7,50% | 53,13% | 38,75% |
| | | Total | 13 | | 147 | |
| | | | 8,12% | | 91,88% | |
| | | Mean | 3,30 | | | |
| **Percentage Mean** | | | **6%** | | **94%** | |
| **Mean** | | | **3,30** | | | |

Perceived usefulness has an average percentage value of answers agreeing and strongly agreeing of 94%, when compared to the weighted criteria score, it is in a very high category (76%-100%), supported by statement number two, namely 96.88% with 'I think electric motors are useful for daily activities'. In addition, statement number five is 96.25% with 'I think electric motors are easy to learn'. Based on the average calculation approach, perceived usefulness has a value of 3.30 which can be concluded from the interval scale range score, this value lies in the scale range (3.26-4.00) which is in the 'Strongly Agree' category. These findings illustrate the perceived usefulness variable that the majority of

respondents tend to strongly agree that electric motors are useful for daily activities and electric motors are easy to learn.

**Table 4 Descriptive Statistical Analysis Perceived Ease of Use**

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| PEOU1 | I think operating an electric motorbike is easy | fi | 0 | 12 | 234 | 304 |
| | | ∑ Wifi | 550 | | | |
| | | % | 0,00% | 3,75% | 48,75% | 47,50% |
| | | Total | 6 | | 154 | |
| | | | 3,75% | | 96,25% | |
| | | Mean | 3,43 | | | |
| PEOU2 | I found the instructions for using the electric bike easy to follow | fi | 0 | 14 | 249 | 280 |
| | | ∑ Wifi | 543 | | | |
| | | % | 0,00% | 4,38% | 51,88% | 43,75% |
| | | Total | 7 | | 153 | |
| | | | 4,38% | | 95,63% | |
| | | Mean | 3,39 | | | |
| PEOU3 | I accept the presence of electric motorbike | fi | 0 | 8 | 282 | 248 |
| | | ∑ Wifi | 538 | | | |
| | | % | 0,00% | 2,50% | 58,75% | 38,75% |
| | | Total | 4 | | 156 | |
| | | | 2,50% | | 97,50% | |
| | | Mean | 3,36 | | | |
| PEOU4 | I think electric motors are flexible to use fi | fi | 0 | 24 | 252 | 256 |
| | | ∑ Wifi | 532 | | | |
| | | % | 0,00% | 7,50% | 52,50% | 40,00% |
| | | Total | 12 | | 148 | |
| | | | 7,50% | | 92,50% | |
| | | Mean | 3,32 | | | |
| PEOU5 | I feel the value of the electric motor | fi | 0 | 24 | 237 | 276 |
| | | ∑ Wifi | 537 | | | |
| | | % | 0,00% | 7,50% | 49,38% | 43,13% |
| | | Total | 12 | | 148 | |
| | | | 7,50% | | 92,50% | |
| | | Mean | 3,35 | | | |

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| **Percentage Mean** | | | **4,3%** | | **95,7%** | |
| **Mean** | | | **3,37** | | | |

Perceived ease of use has an average percentage value of 'agree' and 'strongly agree' answers reaching 95.7%, and when compared to the weighted criteria score, this value is included in the very high category (76%-100%). Supported by statement number one, 97.50%, with 'I accept the presence of electric motors'. In addition, statement number two is 96.25% with 'I think operating an electric motorbike is easy'. Based on the average calculation approach, perceived ease of use has a value of 3.37, it can be concluded from the score of the high interval scale range, this value lies in the scale range (3.26-4.00) which is included in the 'Strongly Agree' category. These findings illustrate the perceived ease of use variable that the majority of respondents tend to strongly agree, because respondents accept the presence of electric motors and in operating electric motors it is easy to understand.

**Table 4 Descriptive Statistical Analysis Attitude**

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| A1 | I am enthusiastic about the presence of electric motorbike | fi | 2 | 20 | 222 | 296 |
| | | ∑ Wifi | 540 | | | |
| | | % | 1,25% | 6,25% | 46,25% | 46,25% |
| | | Total | 12 | | 148 | |
| | | | 7,50% | | 92,50% | |
| | | Mean | 3,37 | | | |
| A2 | I am interested in owning an electric motorbike | fi | 0 | 6 | 279 | 256 |
| | | ∑ Wifi | 541 | | | |
| | | % | 0,00% | 1,88% | 58,13% | 40,00% |
| | | Total | 3 | | 157 | |
| | | | 1,88% | | 98,13% | |
| | | Mean | 3,38 | | | |
| A3 | I feel the benefits of an electric motorbike | fi | 0 | 12 | 252 | 280 |
| | | ∑ Wifi | 544 | | | |
| | | % | 0,00% | 3,75% | 52,50% | 43,75% |
| | | Total | 6 | | 154 | |
| | | | 3,75% | | 96,25% | |
| | | Mean | 3,40 | | | |

| No | Statement | Description | SD | D | A | SA |
|---|---|---|---|---|---|---|
| A4 | I have good experience using an electric motorbike | fi | 0 | 24 | 237 | 276 |
| | | ∑ Wifi | 537 | | | |
| | | % | 0,00% | 7,50% | 49,38% | 43,13% |
| | | Total | 12 | | 148 | |
| | | | 7,50% | | 92,50% | |
| | | Mean | 3,36 | | | |
| **Percentage Mean** | | | **5,1%** | | **94,9%** | |
| **Dimension Mean** | | | $\frac{94\% + 95,7\% + 94,\%}{4}$ = **94,6%** | | | |
| **Mean** | | | **3,38** | | | |

Attitude has an average percentage value of 'agree' and 'strongly agree' answers of 94.9%, and when compared to the weighted criteria score, this value is included in the very high category. (76%-100%). Supported by statement number two, which is 98.13%, with 'I am interested in owning an electric motorbike'. Attitude has a value of 3.38 which can be concluded from the interval scale range score, this value lies in the scale range (3.26-4.00) which is in the 'Strongly Agree' category. This finding shows that the majority of people who answered were very optimistic and enthusiastic about the presence of electric motorbikes, because they felt the benefits significantly.

After each point in TAM (Perceived Usefulness, Perceived Ease of Use, Attitude) After knowing the average number, the next step is to calculate the overall value (Perceived Usefulness, Perceived Ease of Use, Attitude) to obtain the final average.

**Average Score Table *Technology Accaptence Model* (TAM)**

| **Dimensi TAM** | | |
|---|---|---|
| ***Perceived Usefulness*** | ***Perceived Ease of Use*** | ***Attitude*** |
| 3,304 (Strongly Agree) | 3,375 (Strongly Agree) | 3,378 (Strongly Agree) |
| **Mean** = $\frac{3,304+3,375+3,378}{3}$ = **3,352** | | |

Based on the calculated values of the three TAM dimensions above, the average value of the Technology Acceptance Model (TAM) is 3.352, in the 'very high' category. This

value is on the interval scale of 3.26-4.00, so it can be concluded that public acceptance of electric motorbikes based on the TAM model is in the 'very high' category.

## 5. Conclusion, Implication, and Recommendation

### Conclusion

Based on the results of data analysis, the interest in buying an electric motorbike is categorised as 'Very High' and 'Strongly Agree'. This is supported by: Perceived usefulness, measured by the number of Jakarta people who often use personal transportation that supports their daily activities, reflects the significant benefits that people feel from the existence of electric motorbikes. From the results of the Perceived Usefulness data, electric motorbikes are useful for daily activities. This is in accordance with the electric motorbike is considered very useful in supporting the needs and activities of the people of Jakarta. Perceived ease of use, measured by perceived value and the presence of electric motorbikes as vehicles that help reduce pollution. From the results of Perceived Ease of use, the majority of respondents strongly agree that accepting the presence of electric motorbikes and operating electric vehicles is easy. Electric motors are very easy to use and maintain, and help reduce air pollution making them well accepted by the majority of respondents as an efficient and environmentally friendly vehicle solution. This gives the result that the people of Jakarta are able to accept the existence of electric motorbikes. Attitude, measured by the benefits of electric motors and having an interest in electric motors. From the attitude data results, the majority of respondents strongly agree to own an electric motorbike. In this case, there are tangible benefits, such as cost efficiency and better environmental impact, and electric motorbikes have attracted the interest of the public and are considered an effective and environmentally friendly transport solution.

### Implication

This study analyses the Technology Acceptance Model (TAM) on the purchase intention of electric motorbikes. Future research can incorporate digital techniques to deepen the theory of digital marketing and social media. Thus, the focus can be directed at the interaction between digital marketing and social media in influencing purchase intention, especially in the electric motorbike industry. This can help in developing more effective and innovative marketing strategies. This approach will help develop more effective and innovative marketing strategies, which can ultimately increase the adoption

of electric motorbikes among consumers. This study analyses the impact of motor vehicle sales in Jakarta, focusing on perceived usefulness, perceived ease of use, and attitude. The study found that manufacturers can improve the quality of motorised vehicles by using digital media such as video tutorials and infographics. In addition, they can provide motor vehicle programmes and user guides for free. In addition, they should also increase information on the positive impacts of motorised vehicle use and engage with social media influencers to increase consumer satisfaction and promote environmental conservation.

**Recommendation**

The research recommends businesses to focus on the benefits of electric vehicles, such as operational efficiency, cost savings and better customer service, through promotional campaigns, free ride programmes and mobile app development. In addition, companies should also promote the positive environmental and social aspects of electric vehicles through social media and influencers.

Future research is recommended to not only focus on the purchase intention of electric motorbikes in Jakarta, but also expand the coverage to the Greater Jakarta area or even the whole of Indonesia. This is important given the rapid development of technology and infrastructure in various regions, which can provide a more comprehensive and representative picture of the interest in buying electric motorbikes in various regions and support more effective policy making. In addition, involving a larger sample size will increase the reliability and validity of the research results, as well as allow for more in-depth analyses of various subgroups within the population. Research also needs to consider additional variables such as environmental factors and government policies related to electric vehicles to get a more comprehensive picture of the purchase intention of electric motorbikes.

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