

## The Impact of Green Marketing and Perceived Usefulness of AI-based features on Interest in Using the Grab Indonesia Application

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### ABSTRACT

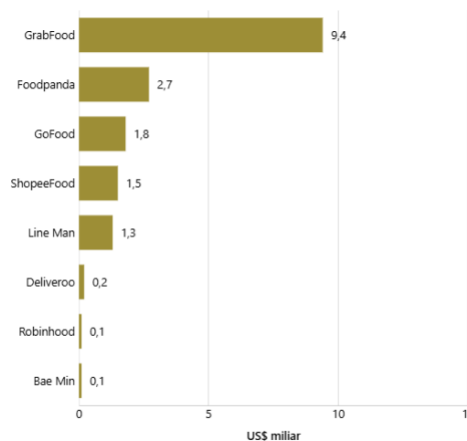
It is impossible to stop advances in technology; instead, they should be improved to make things easier for those who use technology. The quick rise of digital technology has caused big changes in many fields, like transportation and delivery services that use application. In Indonesia, Grab is one of the first companies to offer transportation, food delivery, and digital payment services. This research looks at how green marketing and artificial intelligence affect people's interest in using the Grab Indonesia application. People who had used Grab in the last 30 days made up the study group, with an unknown number, and a sample of 120 people was taken using Hair et al.'s method. The study's findings show that green marketing has some effect on people's interest in using Grab. According to the study's findings, using artificial intelligence has a partial impact on people's interest in using Grab. The research also shows that green marketing and artificial intelligence together affect people's interest in using Grab.

**Keywords:** artificial intelligence, Grab, green marketing, intention to use, technology.

### INTRODUCTION

It is impossible to stop advances in technology; instead, they should be improved to make things easier for those who use technology. The quick rise of digital technology has caused big changes in many fields, like transportation and delivery services that use application. The most commonly used services provide consumers with comfort and efficiency. Marketing goods or services must be focused to attract as many potential customers as possible who desire to make a purchase (Manik et al., 2022). Grab is one of the first companies to offer transportation, food delivery, and digital payment services in Indonesia. Grab is always coming up with new ideas to keep up with the changing wants and tastes of its customers.

Grab first appeared in Indonesia in May 2014 as a taxi booking application, but it has since grown into a transportation platform with options like GrabCar and GrabBike. Grab Holdings Ltd. (Grab) was able to register an unaudited profit of 15 million dollars, or 236 billion rupiah, in the third quarter of 2024 (Hakim, 2024). According to Annur (2024), Grabfood was the online food delivery application/service with the largest gross transaction value in ASEAN, at 9.4 billion dollars, as shown in Figure 1.1.



**Figure 1.** Online Food Delivery Application/Services with the Largest Gross Transaction Value in ASEAN (2023)

Source: <https://databoks.katadata.co.id/teknologi-telekomunikasi/statistik/1d7108abadc99cc/grab-kuasai-pasar-online-food-delivery-di-asia-tenggara-kalahkan-gojek-hingga-shopee>

As the public becomes more conscious of ecological matters, individuals are now making choices about services based not just on cost and ease, but also on a company's dedication to environmental protection. This trend has driven businesses to adopt ecological marketing approaches. Pratama & Sarudin (2023) explain that ecological marketing includes a wide array of actions, like changing products, making packages from eco-friendly stuff, producing ads that highlight environmental awareness, and altering how things are made. Grab Indonesia has started various environment-focused projects like using electric vehicles (GrabElectric) since 2020, cutting down on throw-away plastics, and running ecological campaigns. This plan is meant to not only boost the company's good image, but also make more people want to use Grab's services.

In contrast, using Artificial Intelligence (AI) is also really important for making things better and more convenient for users. Siahaan et al. (2020) describe artificial intelligence as adding smarts to a system that can be managed. AI helps businesses work better when providing services. Some AI-powered features are recommending products or services, figuring out when something will arrive, changing service prices based on weather and traffic, and having a customer service chatbot in the Grab application. The goal of artificial intelligence is to make things easier and more efficient for users, which in the end, can make them more loyal and interested in using the service.

Although artificial intelligence (AI) itself is a technological system rather than a marketing phenomenon, consumers often evaluate its outcomes through their perceptions of usefulness, convenience, and satisfaction. In the context of AI-based features in applications such as Grab, users tend to perceive these technologies not by their technical complexity but by the benefits they provide—such as more accurate route recommendations, faster service, and personalized offers. According to Davis's Technology Acceptance Model (TAM), perceived usefulness significantly influences user attitudes and behavioral intentions toward technology adoption (Davis, 1989). Similarly, recent studies from Sucidha (2025) and Nugroho et al. (2024) show that AI-driven personalization and service efficiency positively affect consumer satisfaction and loyalty in digital platforms. Thus, consumer perception of AI's usefulness becomes a relevant variable in marketing management, as it directly impacts brand experience and continued usage intentions.

## LITERATURE REVIEW

### Green Marketing

Executing marketing communications correctly can sway possible customers to buy things, which then makes sales go up (Hendra & Nainggolan, 2020). As stated by Thoibah et al., (2022), the concept of green marketing includes a wide array of actions like modifying products, changing how they are made, altering packaging, and even revising how they are advertised. As stated by Rizal & Harsono (2022), green marketing serves as a promotional tactic aimed at achieving advantages rooted in claims about environmentally safe products and sustainable manufacturing methods.

As stated by Amrita et al. (2024), key aspects of green marketing include:

1. Green consumer  
These customers prioritize the environment and their concerns impact their buying decisions when looking to buy a product. Environmental considerations significantly impact purchasing behaviors of these shoppers.
2. Green consumerism  
Environmentally responsible purchasing can be described as leveraging specific consumer choices to support goods and services that reduce environmental harm. The desire of individuals to support less environmentally damaging options fuels environmentally responsible purchasing, which stems from knowledge and the development of personal preferences regarding products they wish to acquire.
3. Green product  
An environmentally friendly product, also known as a green product, is designed and produced in a manner that minimizes environmental pollution.

### Perceived Usefulness of AI-based features

Artificial intelligence is frequently employed as a means of finding and resolving complicated issues across different sectors, including business, corporate environments, and governmental bodies (Wahyudi, 2023). As Sutrisno et al. (2023) suggest, artificial intelligence represents a field within computer science focused on developing intelligent systems capable of replicating human thought processes. AI personalization uses extensive consumer data to develop tailored experiences, potentially boosting involvement and contentment. AI systems examine data like online activity, buying habits, and social media use to anticipate what customers want and provide suitable material, suggested items, and specific offers. This personalization approach boosts marketing relevance and cultivates a stronger bond between customers and companies (Leghemo et al., 2024).

According to Santoso (2023), artificial intelligence is measured by these aspects:

1. Emulating Human Behavior  
A computer emulating human actions is most evident in the Turing Test, where success is achieved when differentiating between a computer and a human becomes impossible.
2. Total turing test  
The initial Turing Test did not consider physical interaction. The extended version now requires the system to include perceptual skill evaluations through physical interaction, obligating the system to integrate computer vision and robotics to be successful.
3. Cognitive simulation  
When a computer is behaving with human-like thought processes, it accomplishes tasks requiring intellectual capabilities of a human, like operating a vehicle, rather than simply repeating set procedures.

4. Rational thinking  
 Examining how humans process information using predetermined criteria provides standards for characterizing typical human actions.
5. Acting rationally  
 Examining human behavior in various situations and under certain constraints allows identifying efficient and effective strategies.

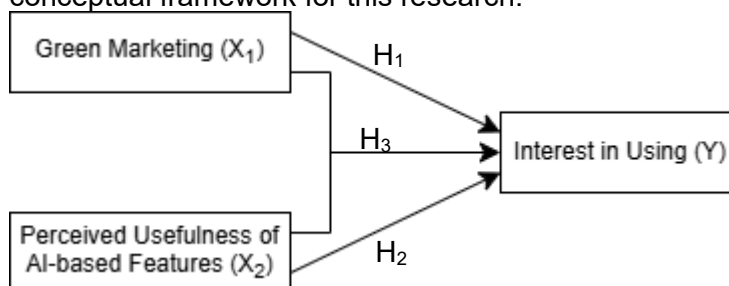
### Interest in using

Generally, if customers find the service they receive to be straightforward and simple, they tend to be pleased, and their satisfaction with the service grows swiftly (Manik, Gultom, et al., 2022). Abrilia (2020) states that interest represents a behavior characterized by fulfilling wants that are dynamic, with the ability to evolve over time. In addition, Nursiah et al (2022) describe interest in using as a strong inclination, a powerful desire, a deep sense of enthusiasm, or a feeling of being drawn towards something, along with a voluntary intention originating internally, free from external influence.

According to Yulianti (2023), factors that show interest in using include:

1. Infrastructure and resources  
 Talents that show potential need nurturing with adequate resources and infrastructure. Differences in available resources and infrastructure impact each person's talent development.
2. Time availability  
 Developing talent and interest via practice and learning takes time. Experience plays a vital role in helping students build up their talents and interests.
3. Emotional backing  
 Encouragement given to students can act as a motivator for developing their interests and talents. This help can be given by friends, family, or the school.
4. Surrounding environment  
 The surrounding community helps shape people's interests. Interests are not just personal, coming from the student, but are also shaped by circumstances formed by regular exposure to the environment.

Based on the above literature review and background, the following represents the conceptual framework for this research:



**Figure 2.** Conceptual framework

The hypotheses for this research are:

- H<sub>1</sub>: The use of green marketing has an effect on intention to use.  
 H<sub>2</sub>: The presence of perceived usefulness of AI-based features affects intention to use.  
 H<sub>3</sub>: The combination of green marketing and perceived usefulness of AI-based features impacts intention to use.

## RESEARCH METHOD

The research was conducted in Medan. The study spanned from June 2025 to August 2025. This study utilized quantitative data. Syamsuddin et al. (2023) explain that a quantitative method is a research method that largely depends on numerical data. The type of data collected will greatly guide the chosen data analysis (processing) method. A study's population is the total count of individuals or inhabitants being analyzed. Amruddin et al. (2022) define a population as the comprehensive group from which the research subjects are drawn, located within a specific location and time frame, as defined by the researcher's criteria. This study's population included Grab users within a 30-day timeframe, with an undefined count.

A sample comprises a segment extracted from the broader populace or community under examination. As per Sugiyono (2022), a sample is a smaller group taken from the complete population. The most desirable sample effectively mirrors the features found in the overall population. The specific group targeted in this research includes individuals who have engaged with Grab within the last month, with the exact size of this group not precisely known. Consequently, to make the population size more manageable, the researcher used the sampling approach (Hair et al., 2017) applying the following calculation: the smallest acceptable sample size equals the number of indicators multiplied by 5, and the largest acceptable sample size equals the number of indicators multiplied by 10. Given that the research involves 12 indicators, the researcher opted for the maximum sample formula, which yielded a figure of 120 participants, with a margin of error capped at 5%. Therefore, this study will utilize a sample size of 120 participants, all of whom have used Grab within the past 30 days, although the total number of such users is not specified. In terms of the method for selecting participants, random sampling was employed; as described by Situmorang & Pane (2024), "random sampling involves selecting participants at random, ensuring every individual has the same chance of being included in the sample."

## RESULTS

### Validity test

According to Syamsuddin et al. (2023), validity is achieved when an assessment tool precisely gauges what it aims to measure. Furthermore, according to Syamsuddin et al. (2023), reliability refers to the stability of multiple measurements or the consistency of a collection of measurement tools.

The data from the validity assessment across all variables revealed that the calculated  $r$  values were higher than the corresponding  $r$  values in the table. In accordance with the standards for validity testing, this suggests that every statement relevant to each variable has been shown to be valid. Additionally, the Cronbach's Alpha score for each variable was found to be above 0.6, indicating that all variables under investigation can be deemed reliable.

### Normality test

According to Ghozali (2021), The purpose of the normality test is to check if the residuals or any confounding factors present in the regression model adhere to a normal distribution.

**Table 1.** Results of the One-Sample Kolmogorov-Smirnov Test

Unstandardized Residual	
N	120
Asymp.sig (2-tailed)	0.200

Source: research results, 2025

The significance level reported in Table 2 is 0.200, which exceeds the threshold of 0.05 (with a Significance F surpassing 5%), leading to the conclusion that the data under examination follows a normal distribution.

### Multicollinearity test

As stated by Ghozali (2021), the purpose of the multicollinearity test is to identify if there is any degree of association between the independent variables included in the regression model.

**Table 2.** Multicollinearity test results

Coefficients <sup>a</sup>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Green marketing (X <sub>1</sub> )	0.956	1.046
	Perceived usefulness of AI-based features (X <sub>2</sub> )	0.956	1.046

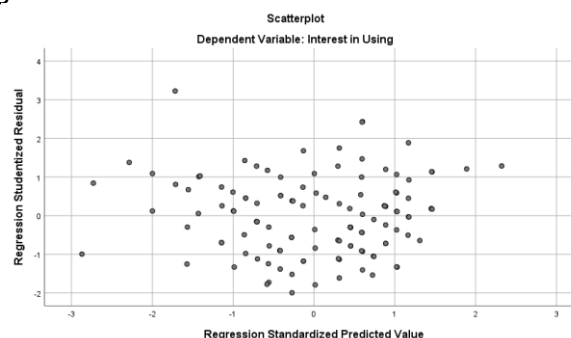
a. Dependent variable: intention to use

Source: research results, 2025

Based on the data presented in Table 5, the variables' correlation values demonstrate tolerance levels exceeding 0.1 and VIF values below 10, signaling that none of the variables exhibit indications of multicollinearity.

### Heteroscedasticity test

As stated by Ghozali (2021), the goal of the heteroscedasticity test is to ascertain whether the residuals exhibit non-uniform variance from one observation point to another within the regression model.



**Figure 3.** Heteroscedasticity test results / Scatterplot Graph

Source: research results, 2025

In the scatterplot depicted in illustration 4, the data points appear randomly scattered and distributed both above and below the 0 mark on the Y-axis, without forming any recognizable pattern. Therefore, it is reasonable to infer that heteroscedasticity is not present.

### Multiple Regression Analysis

According to Sahir (2022), the method of multiple regression involves an analysis that includes more than a pair of variables: specifically, a minimum of two independent variables and a single dependent variable. The equation representing multiple regression can be formulated as such:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n$$



**Table 3.** Multiple Regression Analysis

Coefficients <sup>a</sup>			
Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	0.607	3.132
	Green marketing (X <sub>1</sub> )	0.291	0.067
	Perceived usefulness of AI-based features (X <sub>2</sub> )	0.572	0.069

a. Dependent variable: intention to use

Source: research results, 2025

$$\text{Intention to Use} = 0,607 + 0,291 \text{ Green marketing} + 0,572 \text{ Perceived usefulness of AI-based features} + e$$

From this equation, we can infer the following:

The constant value derived is 0.607, indicating that if both the green marketing and artificial intelligence variables are assigned a value of 0, the intention to use remains at 0.607. The green marketing variable's regression coefficient is positive (+), registering at 0.291, which implies that each unit increase in the green marketing variable corresponds to a 0.291 increase in the intention to use. The perceived usefulness of AI-based features variable's regression coefficient is also positive (+), with a value of 0.572, suggesting that for each unit increase in the perceived usefulness of AI-based features variable, the inclination to use it will rise by 0.572.

#### Partial Significance Test

As stated by Ghozali (2021), the t-statistic test essentially reveals the extent to which a specific explanatory/independent variable impacts the fluctuations in the dependent variable. The null hypothesis (H<sub>0</sub>) that needs assessment is whether a parameter (b<sub>i</sub>) equals zero, indicated as:

H<sub>0</sub>: b<sub>i</sub> = 0; This suggests the independent variable doesn't significantly explain the dependent variable. Conversely, the alternative hypothesis (H<sub>A</sub>) posits that a variable's parameter isn't zero, shown as:

H<sub>0</sub>: b<sub>i</sub> ≠ 0; This indicates that the variable acts as a significant explanatory factor for the dependent variable.

**Table 4.** t test results

Coefficients <sup>a</sup>			
Model		T	Sig
1	(Constant)	0.194	0.847
	Green marketing (X <sub>1</sub> )	4.324	0.000
	Perceived usefulness of AI-based features (X <sub>2</sub> )	8.232	0.000

a. Dependent variable: intention to use

Source: research results, 2025

Regarding the green marketing variable, its computed t<sub>value</sub> of 4.324 surpasses the t<sub>table</sub> value of 1.980. The variable's significance registers at 0.000, which is less than 0.05. This signifies the green marketing variable notably impacts the inclination to utilize the Grab Indonesia application. Further, for the perceived usefulness of AI-based features variable, the derived t<sub>value</sub> stands at 8.232, exceeding the t<sub>table</sub> value of 1.980. The variable's significance is 0.000, below 0.05. This points to the perceived usefulness of AI-based features variable significantly affecting interest in using the Grab Indonesia application.

#### Simultaneous Significance Test

As per Ghozali (2021), the ANOVA significance test is utilized for this type of hypothesis test, demonstrating if Y has a linear relationship with X<sub>1</sub>, X<sub>2</sub>, and X<sub>3</sub>. The presence of a significant F-value, or H<sub>A</sub>: b<sub>1</sub> ≠ b<sub>2</sub> ≠ . . . ≠ b<sub>k</sub> ≠ 0, indicates that one or

all the independent variables hold significance. Contrarily, if the F value lacks significance, it implies  $H_0: b_1 = b_2 \dots = b_k = 0$ , suggesting that none of the independent variables are significant.

**Table 5.** F test results

ANOVA <sup>a</sup>			
Model		F	Sig
1	Regression	53.030	0.000
a. Dependent Variable : intention to use (Y)			
b. Predictors: (Constant), green marketing (X <sub>1</sub> ), perceived usefulness of AI-based features (X <sub>2</sub> )			

Source: research results, 2025

The df value of 1 = 127, df 2 = 2, is known, as is the  $F_{table}$  value of 3.07.

The computed F value is 53.030, surpassing the  $F_{table}$  value of 3.07. The variable's significance is 0.000, which is less than 0.05. This indicates that the green marketing and perceived usefulness of AI-based features variables concurrently exert a significant influence on the interest in utilizing the Grab Indonesia application.

### Coefficient of Determination ( $R^2$ )

According to Ghozali (2021), the coefficient of determination serves to gauge the model's proficiency in elucidating changes within the dependent variable

**Table 6.** Coefficient of Determination test results

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.690	0.475	0.467	2.110
a. Predictors: (Constant), green marketing (X <sub>1</sub> ), perceived usefulness of AI-based features (X <sub>2</sub> )				
b. Dependent Variable : intention to use (Y)				

Source: research results, 2025

The computations yielded an R-square value of 0.475, revealing that the intention to use is impacted by the green marketing and perceived usefulness of AI-based features variables by 47.5%, while the remaining 52.5% is shaped by other variables not explored in this study, encompassing aspects like price, promotion, marketing strategies, and similar factors.

## DISCUSSION

Based on the research findings and the outcomes of testing our assumptions, the subsequent phase involves elaborating on the research discussion in the following manner:

The first hypothesis was tested and revealed that the green marketing variable yielded a t-value of 4.324 in calculations, along with an alpha ( $\alpha$ ) value of 0.000. Upon comparing these values, the calculated  $t_{table}$  of 4.324 exceeded the  $t_{table}$  value of 1.979, and the  $\alpha$  value of 0.000 was less than 0.05. Considering this comparison, the study's hypothesis is deemed acceptable, suggesting that green marketing substantially impacts the likelihood of using Grab. To put it differently, initiatives by Grab focusing on environmental friendliness, such as the adoption of GrabElectric, can significantly boost user interest in the Grab application. Supporting these findings are similar results from studies such as those conducted by Majeed et al. (2022), Nekmahmud & Fekete-Farkas (2020) and Sharma (2021)

The second round of hypothesis testing demonstrated that the perceived usefulness of AI-based features variable produced a  $t_{table}$  of 8.232 when calculated, along with an  $\alpha$  value of 0.000. When these figures were compared, it was observed that the calculated  $t_{table}$  of 8.232 was greater than the  $t_{table}$  value of 1.979, and the  $\alpha$  value of 0.000 was



less than 0.05. With this comparison in mind, the hypothesis for this part of the study is accepted, indicating that artificial intelligence greatly affects users' inclination towards Grab. To clarify, the artificial intelligence systems implemented by Grab are instrumental in assisting customers with their choices, thereby reinforcing their preference for using Grab. Other researchers, including An et al. (2023), Chakim et al. (2023) and Roy et al. (2022)

The outcomes of the third hypothesis test indicated that the combined variables of green marketing and perceived usefulness of AI-based features produced a calculated  $F_{\text{value}}$  of 53.030, accompanied by an  $\alpha$  value of 0.000. Following a comparison, the calculated  $F_{\text{value}}$  of 53.030 was found to be higher than the  $F_{\text{table}}$  value of 3.07, while the  $\alpha$  value of 0.000 was lower than 0.05. Based on this comparison, the hypothesis test in this study is deemed valid. In this study, the determination coefficient also demonstrated that green marketing and perceived usefulness of AI-based features together account for around 47.5% of the factors influencing the intention to use. The outcomes of this research are consistent with those documented by An et al. (2023), Chakim et al., (2023), Majeed et al. (2022), Nekmahmud & Fekete-Farkas (2020), Roy et al. (2022) and Sharma (2021)

## CONCLUSION

The research outcomes suggest, in part, that green marketing has a partial impact on user interest in Grab. The results also show that artificial intelligence also partially influences Grab user interest. This study's outcomes collectively imply that user interest in Grab is influenced by both green marketing and artificial intelligence.

In light of the research findings, it can be inferred that improving green marketing strategies and utilizing artificial intelligence have the potential to increase user interest in Grab. It is advisable for Grab to broaden its green marketing efforts beyond the scope of Grab Electric and enhance the current fleet of Grab Electric vehicles to ensure passenger comfort. Furthermore, Grab should focus on developing artificial intelligence solutions that guide customers in selecting the most suitable Grab services for their requirements.

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