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A study on the determinants of consumer purchase intention on electric vehicles

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Abstract: The purpose of this research was to examine the variables that influence customer purchase intentions for electric vehicles (EVs), with a focus on electric cars in Malaysia. Four independent factors, namely social media, Perceived Usefulness, Subjective Norm, and Government Policy were examined to determine their impact on customer purchase intention. The study used a descriptive correlation design where respondents completing a questionnaire provided via Google Forms using a 5-point Likert scale. The Theory of Planned Behaviour (TPB) serves as the underpinning foundation for this research. The convenience sampling technique was used in collecting responses from 385 samples. The data collected is analysed using SPSS Version 29 including descriptive and inferential statistics. The findings seek to fill the knowledge gaps in Malaysian consumers' EV purchasing intentions and what are the influential variables. Findings provide policymakers and industry stakeholders with more information into the way to successfully plan and promote EV adoption in Malaysia's automotive sector.

Keywords: *Consumer behaviour, Electric vehicles, Electric car, Purchase intention, Theory of planned behaviour.*

1. Introduction

Malaysians have a deep-rooted love for cars which has become an integral part of their culture and daily lives. The increasing number of private cars in Malaysia has led to a significant increase in CO_2 emissions that attributable to the inefficiency of internal combustion engines (Kosai et al., 2022). According to Alam et al. (2016), private companies own around 84% of the total vehicles in 2012. Malaysia had set the target at the 2009 UNFCCC conference in Copenhagen, a reduction of 40% in annual carbon emissions by 2020. This has not been achieved. One reason for this is because there are not enough regulations and practices that promote sustainability (Sang & Bekhet, 2015). It seems like a good idea to integrate electric vehicles (EVs) into Malaysia's economy. The transportation sector is responsible for most of the country's greenhouse gas emissions each year. The challenge now is to encourage widespread use of EVs. Customers in Malaysia are hesitant to switch to EVs due to a number of factors. The factors including high initial investment, ongoing maintenance costs, unclear regul and inadequate road infrastructure.

The government is facing challenges in its attempt to achieve its ambitious but attainable target of 125,000 electric vehicles on the road by 2030. This goal may be achieved with the correct policies and incentives. In order for Malaysia to achieve its objective of being a carbon-neutral nation by 2050, it is imperative that there is a substantial transition to electric vehicles. The operating and maintenance costs of electric cars (EVs) are lower than those of ICE vehicles since EVs typically need less frequent maintenance (Teng, 2023). Those who are in favour of electric vehicles stress the need of meticulously

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planning one's routes to ensure consistent access to charging stations. Around 900 electric vehicle charging stations are now available in Malaysia. In contrast, Singapore has 3,600 charging stations (Aiman, 2023), while having a smaller population and a smaller overall area. The Klang Valley, which encompasses Kuala Lumpur and other Selangor cities, together with key west coast urban areas, is home to the vast bulk of Malaysia's charging stations. The east coast of Peninsular Malaysia and the Malaysian states on Borneo Island, however, have a very deficient charging infrastructure (MGTC, 2023). With the use of the PlugShare app, Eco-Business was able to find fifteen stations in Sarawak, but just one in Sabah.

Price is still an issue for many people in Malaysia, even though the country is working towards becoming a high-income nation and the government is offering tax benefits for electric automobiles. Most people can't afford the cheapest electric vehicles on the market, which are models built in China and cost about RM100,000 (Lee, 2023). There are less incentives for the people to migrate to EVs in Malaysia because to the country's historically low petrol prices, which are a result of its fuel subsidies (Picodi, 2023). The national car manufacturers of Malaysia, Proton and Perodua, are planning to produce electric vehicles locally in an effort to lower prices and increase consumer choice. The local auto industry is still in the early phases of electrification; however, hybrid models are presently on the market. Working with global automakers to lower the price of electric vehicles, Proton is speeding up its plans to release the first Proton-branded EV by 2025 (Wong, 2023). Unveiled at the 2023 Malaysia Autoshow as the Electric Motion Online EV concept, Perodua has not specified specific goals for an all-electric model (Chapree, 2023), although the company does seem interested in electric vehicles.

By 2050, 76% of Malaysia's road automobiles would be powered by electricity, according to the International Renewable Energy Agency's (IRENA) Malaysia energy transition outlook research. With this anticipation comes the need for 1.3 million charging stations by 2050 to support the estimated 38 million electric vehicles in Malaysia. However, IRENA projects that a whopping 150,000 public charging stations would be required by 2030, necessitating an expenditure of $3.7 billion. The government of Malaysia intends to build 10,000 charging stations by 2025 and make sure that electric vehicles and hybrids make up 15% of the industry's total volume by 2030, all in accordance with the Low Carbon Mobility Blueprint (NRECC, 2023). There will be over 15,000 plug-in hybrids, hybrids, and all-electric vehicles operating in Malaysia by the year 2022. There is cause for worry about whether or not Malaysian consumers fully grasp electric cars' (EVs) potential as environmentally friendly transportation options. Research on the factors that influence the intention to buy electric vehicles (EVs) among Malaysian consumers is limited (Afroz et al. 2015).

From the literature search, below are some of the research gaps.

This study provides a detailed demographic profile of EV buyers, there's a need for deeper qualitative research exploring the motivations, attitudes, and perceptions of these specific demographic groups towards EV adoption. This could involve in-depth interviews or surveys to grasp the underlying reasons behind their interest in EVs, beyond the provided demographic data. Secondly, there's a gap in understanding the barriers faced by potential buyers, particularly from less affluent or rural backgrounds, who might be interested in EVs but face financial constraints or lack adequate infrastructure. Thirdly, there's limited exploration into the cultural, social, or psychological factors influencing gender disparities in EV adoption, necessitating research focused on understanding these nuances to bridge the gender gap. Lastly, the study could benefit from a comparative analysis with countries experiencing similar slow EV adoption phases and not just experienced countries moving fast with EV adoption. This is to extract valuable lessons and best practices applicable to Malaysia's context. Closing these gaps can provide a more holistic understanding of EV adoption trends and consumer purchase intentions, facilitating targeted strategies for policymakers and industry players to further promote EV uptake in Malaysia.

The main purposes of this research questions are to examine the factors influencing Malaysian consumers' purchase intention of Electric Cars. The research questions are constructed based on the research objectives being discussed. The dependent variable is defined as Consumer Purchase Intention

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of Electric Cars in Malaysia, and the independent variables are social media, Perceived Usefulness, Subjective Norm & Government Policy.
Thus, the research questions are:
RQ_1: Is there significant relationship between social media and Consumer Purchase Intention of Electric Cars?
RQ_2: Is there significant relationship between Perceived Usefulness and Consumer Purchase Intention of Electric Cars?
RQ_3: Is there significant relationship between Government Policy and Consumer Purchase Intention of Electric Cars?
RQ_4: Is there significant relationship between Government Policy and Consumer Purchase Intention of Electric Cars?
RQ_5: Are the social media, Perceived Usefulness, Subjective Norm and Government Policy significant predictors of Consumer Purchase Intention of Electric Cars?

This paper started with the background of study and problem statement. Next the search of literature will be presented and followed by the methods of carrying out this study. The data collected with be tested using software to determine the significant of the variables. Lastly, the conclusion of the paper will be presented.

2. Literature Review

2.1. Consumer Purchase Intention of Electric Cars

Electric vehicle (EV) purchasing intentions are a critical component of consumer demand since customer preferences greatly influence the market's trajectory (Li et al., 2017). In order to promote sustainable mobility, it is essential to understand the elements that impact the purchasing of electric vehicles. By exploring the elements that influence customers' choices to acquire electric vehicles and the reasons that motivate them to do so, this paper provides stronger insights into their intents to buy EVs. According to Brescia et al. (2023) one of the important ways to develop sustainable mobility is to understand why people buy electric cars (EVs). This will help identify the factors that influence customer behaviour. Secinaro et al. (2022) identified a number of important factors that customers consider when deciding whether or not to purchase and use electric vehicles. These decisions are favourably influenced by six main reasons namely technical innovation, environmental awareness, policy-driven incentives and a focus on the environment. The customer choices are negatively impacted by factors like price, charging model difficulties and energy efficiency. According to Huang et al. (2018), green production restrictions and incentives are part of the government's strategy to encourage sustainable consumption and production. These policies place an emphasis on consumer subsidies or tax exemptions for their ecologically friendly behaviours.

2.2. Social Media

Digital platform like social media is where users may create, share and communicate various types of material. The interactive aspects encourage the involvement via likes, comments and private messaging (Mu. 2023). It has a large user base that includes people from many walks of life and influences consumer choices. By compiling user evaluations, the social media platforms help consumers better understand businesses and products offered.

According to Shrestha et al. (2023), consumers are swayed by the favourable views voiced by other experts when they engage in social media interactions and opinion exchanges. This phenomenon is known as "social evidence," and it impacts prospective purchasers' purchase choices. Firms may use this platform to promote their goods, particularly those that are eco-friendly and influence customer sentiment and behaviour. According to Li et al. (2023), in order to close the gap between the real and ideal purchasing experiences for requires an in-depth knowledge of their demands. Using social media to promote electric vehicles may raise consumers' awareness in their purchasing choices (Abbasi, Shaari & Moughal. 2021). It is worth noting that social media may influence product awareness and customer

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references on a worldwide scale and in turn can influence consumer behaviour.

2.3. Perceived Usefulness

Perceived usefulness is a crucial component in determining EV acceptability since it impacts customers' decision-making (Kelecsenyi et. al. 2022). Rachmi, Asta and Kartiko (2023) state that "perceived usefulness" is the subjective impression that people have of how much an electric vehicle may improve their commuting experience and provide real advantages over regular cars. The environmental benefit that EVs provide is fundamental to their perceived utility. According to Alanazi (2023), the impression that EVs greatly aid in environmental conservation has been fueled by the urgent worldwide concern for climate change and the need to decrease carbon footprints.

The zero emissions of these cars can help reduce greenhouse gas emissions. This enables the consumers to see it as a way to fight environmental deterioration. This advantage is in line with the increasing social focus on environmentally aware decisions, making EVs a tempting option for those who want to make sustainable mobility choices. Electric vehicles are seen as practical not just for the environment, but also for the economy. The possible financial benefits of EV ownership are attracting consumers. Electric vehicles are more appealing because of the potential for cheaper fuel costs, less maintenance costs due to fewer moving parts, and financial incentives or tax cuts offered by the government (Lashari, Ko & Jang, 2021). Among customers who are mindful of their budgets, the idea of long-term cost efficiency makes electric vehicles more appealing and increases their perceived utility.

2.4. Subjective Norm

Hoang et al. (2023) suggested that a person's subjective norm is their own sense of how much societal pressure there is to act in a certain way. People are susceptible to the influence of groupthink and the priorities of their contemporaries as claimed by Krishnan and Koshy (2021). People are more likely to acquire BEVs after hearing positive recommendations from friends and family (Du et al., 2023). The authors contended that there is a considerable social effect and suggesting that the inclination to buy BEVs is influenced by herd mentality or peer pressure.

Safian et al. (2023) investigates subjective norms in Malaysia. They revealed that a reflection of how people feel pressured to behave by their peers. Peers and elders have a disproportionately large impact on the conduct of young people. This study set out to investigate these norms of thought in an effort to better understand how respondents' significant others' views influenced their choices in acquisition of environmentally friendly cars. According to the result, many people are strongly inclined to purchase an environmentally friendly car since it caters to the interests of their significant others. People often worry that they would encourage their loved ones to do the same thing if they do it. The thoughts and actions of these important individuals have a considerable effect on the choices made by others. This shows the importance of external influences play in influencing their behaviours.

2.5. Government Policy

Shaiba, Wilson and Cochrane (2023) highlighted the need for an indirect strategy that raises public understanding of the environmental risks associated with EV projects. Khandakar et al. (2020) found that informed customers are more likely to buy electric vehicles and that the government of Malaysia may need to step in at this early stage to create the good factors for both supply and demand. Government may lack of reliable statistics indicating the penetration of the electric vehicle industry and favourable developments in environmental protection. Thus, it is necessary to gather detailed information on various vehicle types as well as EV imports sales in the market.

For infrastructure development, knowing how people now and in the future use public charging stations for electric vehicles (EVs) is crucial. It helps meet the demand for charging, which is particularly helpful for electric vehicle users who don't have driveway access or specific parking spots with chargers. Potoglou, Song, and Santos (2023) state that this understanding is crucial for many reasons, including but not limited to: figuring out where to put chargers, how fast they need to charge,

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designing the infrastructure, setting prices, estimating when to deploy, and giving consumers important information. Providers are better able to plan for future infrastructure expenditures, government policymakers are better able to craft successful laws, and car manufacturers are better able to create models that meet consumer desires. With everyone's help, we can build a public charging infrastructure that will meet our current and future demands.

2.6. Underpinning Theory

According to Ajzen (1991), the TPB is a crucial socio-cognitive paradigm for purposeful behavioural changes. Ajzen added "perceived behavioural control" (PBC) to this model (Yazdanpanah et al., 2021). Fielding et al. (2008) define perceived behavioural control as "an individual's perception of the ease or difficulty in performing a particular behaviour". PBC is "the perceived control over executing a behaviour" (Ajzen, 2002). EV adoption gender gaps are little studied, thus study on cultural, social, and psychological variables is needed to narrow the gap (Arifin, 2023). Closing these gaps will help policymakers and industry stakeholders develop focused strategies to increase EV adoption in Malaysia by providing a more complete picture of EV adoption trends and consumer purchasing intentions.

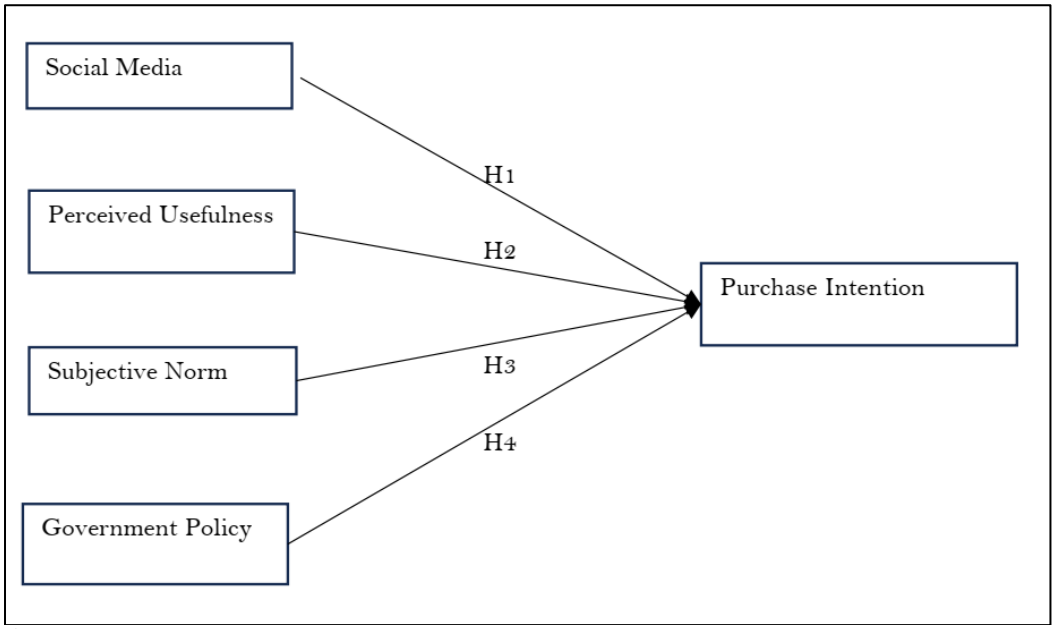

Figure 1.
Conceptual framework
Source: Yap (2024).

2.7. Hypothesis

The hypothesis statements presented below are to examine the relationship between independent variables such as social media, Perceived Usefulness, Subjective Norm and Government Policy with dependent variable, purchase intention towards electric cars.

H_1: There is significant relationship between social media and Consumer Purchase Intention of Electric Cars

H_2: There is significant relationship between Perceived Usefulness and Consumer Purchase Intention of Electric Cars

H_3: There is significant relationship between Subjective Norm and Consumer Purchase Intention of Electric Cars

H_4: There is significant relationship between Government Policy and Consumer Purchase Intention of Electric Cars

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H₅: social media, Perceived Usefulness, Subjective Norm & Government Policy are significant predictors for Consumer Purchase Intention of Electric Cars

3. Methodology

3.1. Research Design

This study is conducted in a non-contrived setting, which ensures that data collecting happens organically and without deliberate manipulation, interference, or controlled samples (Saunders, Lewis, & Thornhill, 2023). The research takes a descriptive, quantitative approach, focusing on understanding the phenomena of customer purchase intentions in Malaysia's electric vehicle industry, as well as the relevant elements.

The quantitative approach is the most appropriate method in achieving the research objectives. This study is unique in as car industry is very important to the income of the country and Malaysia has one of the highest selling prices in the world on imported cars due taxes.

3.2. Technique

Due to time restrictions and limited resource availability in this research, a non-probability sampling approach, namely convenience sampling is used to collect the data. While admitting the approach has limitations such as a lack of representation of the whole population but it allows for the gathering of data from people who are most conveniently available and accessible.

Participants

The study's targeted respondents consist of Malaysian car owners and actively use their cars. They aged 18 and above that is strongly correlated with automobile ownership and driving behaviours. This makes their insights very important for this study. Thus, the unit of analysis are the individuals having intention to purchase EV and they are car owners in Malaysia.

3.3. Data Collection Tool

Sections A and B of the survey created for this research are as follows. Section A intends to collect demographic information from respondents, including gender, age, educational achievement, and acquaintance with e-cars or EVs. Meanwhile, Section B has 16 items scored on a 5-point Likert scale. These questions are designed to investigate the links between the dependent and independent variables, such as social media influence, perceived utility, subjective norms, and government policy. This study will use SPSS Version 29 to conduct these analyses. SPSS is a powerful statistical approach that will help the research accomplish its goals by extensively investigating the correlations between variables and confirming the offered hypotheses.

4. Findings

Malaysia has almost one million registered automobile drivers, making non-response a major concern. Thus, this research will deliver 385 questionnaires to selected people to get a representative sample for analysis. Based on Krejcie and Morgan's (1970) sample size table, this method balances survey response rate practicality with statistical robustness.

4.1. Profile of the Population

The study provides respondent information and general replies. The data is shown in tables below. The survey questions cover demographics, purchase intention and the four variables. The questionnaire was successfully completed by 385 participants.

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Table 1.
Demographic profile of respondents.

Gender	Frequency	Percentage
Male	208	54%
Female	177	46%
Age		
18 - 29 years old	66	17%
30-39 years old	126	33%
40-49 years old	61	16%
50 years old and above	132	34%
Occupation type		
Private sector employee	168	44%
Self-employed	87	23%
Professional (Lawyer, accountant, etc)	40	10.4%
Student	21	6%
Government sector	13	3%
Retired	28	7%
Others	28	7%
Household monthly income level		
RM3,000 and below	81	21%
RM3,001 - RM6,000	98	26%
RM6,001 - RM9,000	63	16%
RM9,001 - RM12,000	49	13%
RM12,001 and above	94	24%
Education level		
Highschool and below	62	16%
Diploma	72	19%
Bachelor degree	184	48%
Postgraduate	67	17%

Source: Yap (2024).

From the total of 385 samples, 208 are male responders representing 54%. 177 are women, make up the remaining 46%. The study divided respondents into four age groups. Demographics show a broad age distribution among respondents. 17.1% of responders, 66, are 18–29. The 30-39 age group dominates with 126 replies, 32.7% of the total. 61 people aged 40–49 make up 15.8% of the sample. The largest group, 50 years and older, had 132 responders, 34.3% of the total. Diverse age groups are represented in the research. The poll also grouped respondents by profession. Most responders (43.6%) are private sector workers. Self-employed people (22.6%) follow closely. Law and accounting professionals make up 10.4%, while students make up 5.5%. Government workers, retirees, and others make up 3.4%, 7.3%, and 7.2% of the occupational distribution. This diversity allows for a full study of occupational viewpoints. About 21% of respondents had a monthly income of RM3,000 or less, while 25.5% had RM3,001–RM6,000. RM6,001–RM9,000 had 16.4% of responders, while RM9,001–RM12,000 had 12.7%. 24.4% of the sample earned RM12,001 or more. This diversified representation across economic levels helps comprehend customer viewpoints, taking into account financial capacity and goals. The sample's intellectual variety is shown by respondents' educational backgrounds. The poll divided respondents by education. A significant fraction of the sample (184) has a Bachelor's degree, 47.8%. 72 or 18.7% had a Diploma, while 67 or 17.4% had a Postgraduate degree. 62 (16.1%) respondents were high school graduates or less. This diverse representation across educational levels provides nuanced insights into the viewpoints of people with varying academic backgrounds.

Table 2.

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Reliability analysis: Cronbach's alpha of variables.

Variables	Cronbach's alpha
INT	0.812
SM	0.895
PU	0.85
SN	0.816
GP	0.874

Source: Yap (2024).

Cronbach's Alpha measures internal consistency and rates survey or questionnaire item reliability and conformance. It measures how similar these items are and how well they measure the same concept. This research uses Cronbach's Alpha to examine replies' internal relaibility and trustworthiness across five variables: Purchase Intention (INT), social media (SM), Perceived Usefulness (PU), Societal Norm (SN) and Government Policy (GP). Cronbach's Alpha values over 0.7 indicate strong internal consistency. All variables in this research exceed this criterion with ranging from 0.812 to 0.895. Thus, the reliability of the data had been established and further data analysis is permissible.

4.2. Inferential Analysis

Pearson Correlation coefficient ('r') (-1 to 1) is essential for analysing the strength and direction of linear correlations between variables (Shchober & Boer, 2018). The first step is to use Pearson Correlation to see whether there is a significant link between independent variables (social media, Perceived Usefulness, Subjective Norm, and Government Policy) and the dependent variable. The quantitative representation and p-value will reveal the relationship between these factors. Nevertheless, correlation does not prove causality. On the other hand, Multiple Linear Regression (MRA) will be used to examine the independent variables' influence on Consumer Purchase Intention.

Table 3.
Pearson correlation coefficients.

Variable	Pearson correlation	Significance (2-tailed)	Sample size
SM - INT	0.391**	<.001	N=385
PU - INT	0.769**	<.001	N=385
SN - INT	0.458**	<.001	N=385
GP - INT	0.525**	<.001	N=385

Note: **. Correlation is significant at the 0.01 level (2-tailed).
Source: Yap (2024).

Table 3 shows a Pearson Correlation coefficient of 0.391 between social media (SM) and Consumer Purchase Intention (INT). This data shows a modest positive link between Social Media involvement and Consumer Purchase Intention. The proximity of 0.391 to 1 suggests a higher positive connection, emphasising its importance. Thus, H1 is supported. Perceived Usefulness (PU) and Consumer Purchase Intention (INT) have a strong Pearson Correlation coefficient of 0.769. This suggests a substantial positive link between Perceived Usefulness and Consumer Purchase intention. The result of 0.769 is near to 1 and indicates a strong positive relationship. In short, H2 is supported.

Subjective Norm (SN) and Consumer Purchase Intention (INT) have a Pearson Correlation coefficient of 0.458. The modest positive connection suggests that Consumer Purchase Intention rises as Subjective Norm perception rises. As 0.458 approaches 1, it indicates a moderate positive correlation. Thus, H3 is supported. This correlation's p-value, less than 0.001, emphasises its statistical significance. This suggests that the observed association is unlikely to be random, confirming a population correlation. Government Policy (GP) and Consumer Purchase Intention (INT) have a 0.525 Pearson Correlation coefficient. The modest positive connection suggests that Consumer Purchase Intention rises as Government Policy views improve. 0.525's location between -1 and 1 emphasises its relevance,

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with a modest positive connection closer to 1. In summary, H4 is supported. This correlation's p-value, less than 0.001, shows its statistical significance.

This suggests that the observed association is unlikely to be random, confirming a population correlation.

Pearson correlation studies show substantial and meaningful correlations between social media (SM), Perceived Usefulness (PU), Subjective Norm (SN), and Government Policy (GP) and Consumer Purchase Intention (INT). The statistically significant correlations support Hypotheses 1 to 4 (H1-H4), demonstrating favourable connections between social media, Perceived Usefulness, Subjective Norm, and Government Policy on Malaysian Electric Car Purchase Intention. These data provide light on consumer intention influences, but correlation does not indicate causality. Further analysis, notably Multiple Linear Regression, will be needed to understand the complex interaction of these factors and customer purchase intention for electric automobiles in Malaysia.

4.3. Multilinear Regression

Multiple Linear Regression (MLR) is a statistical approach for unravelling complicated correlations between several independent factors and a dependent variable (Tranmer, Murphy, Elliot & Pampaka, 2020). MLR is vital to this research because it examines the factors such as social media (SM), Perceived Usefulness (PU), Subjective Norm (SN) and Government Policy (GP) affect consumers' purchase intentions (INT). This is crucial for understanding individual predictor impacts and their overall impact on customer purchase intentions. As mentioned in H5, this hypothesis examines factors like social media, Perceived Usefulness, Subjective Norm, and Government Policy influence on Purchase Intention.

Table 4.
Model summary.

	R	R Square	Adjusted square	Rstd error of the estimate
	0.779a	0.607	0.602	1.85095

a. Predictors: (Constant), GP, SM, SN, PU

Source: Ng (2024).

Model summary gives a complete picture of Multiple Linear Regression (MLR) model performance. Table 13 shows a substantial association (R = 0.779) between social media, Perceived Usefulness, Subjective Norm, and Government Policy and Consumer Purchase Intention. The modified R Square of 60.2% indicates that the model explains 60.2% of Consumer Purchase Intention variability.

Table 5.
ANOVA

	Sum of squares	Df	Mean square	F	Sig.
Regression	2007.165	4	501.791	146.465	<0.001b
Residual	1301.884	380	3.426		
Total	3309.049	384			

a. Dependent Variable: INT

b. Predictors: (Constant), GP, SM, SN, PU

Source: Yap (2024).

ANOVA's statistical gatekeeping strengthens the model. See Table 5. The F-statistic (146.465) and p-value below 0.001 demonstrate the predictors' cumulative effect on Consumer Purchase Intention. This statistical significance strengthens the regression model in this context, highlighting its importance in understanding consumer decision-making.

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Table 6.
Coefficient results.

	Unstandardized coefficients		Standardized coefficients		
	B	Std. error	Beta	T	Sig.
(Constant)	-0.160	0.525		-0.305	0.761
SM	-0.057	0.033	-0.073	-1.727	0.085
PU	0.602	0.038	0.695	15.867	<0.001
SN	0.085	0.036	0.099	2.333	0.020
GP	0.096	0.037	0.106	2.627	0.009

a. Dependent variable: INT

Source: Yap (2024).

Table 6 shows that SM (social media) is not significant (p = 0.085). This result exceeds the standard significance level of 0.05, making it non-significant. Social media may not predict Malaysian electric vehicle buyers' intentions statistically. Perceived Usefulness (PU) was shown to be a significant predictor (p < 0.001) for customer purchase intentions of electric automobiles in Malaysia. Subjective Norm is positive (p = 0.020). The score is below 0.05, indicating that Subjective Norm predicts Malaysian electric vehicle buyers' intentions. Government Policy was extremely significant (p = 0.009). Government policy boosts consumer purchase intent. The coefficient shows the degree and direction of this influence, demonstrating that Government Policy predicts Malaysian electric vehicle buyers' intentions.

Conclusion: Multiple Linear Regression somewhat supports Hypothesis 5. It shows that Perceived Usefulness, Subjective Norm, and Government Policy predict Malaysian Electric Car Purchase Intention. It seems that social media does not forecast Consumer Purchase Intention of Electric Cars in Malaysia. This implies that social media may not directly affect buying intentions. In order for social media to be a successful marketing tool for electric automobiles, customer interest must be fostered elsewhere.

Table 7.
Summary of hypothesis, assessment & results.

Hypothesis	Assessment	Result	Remark
H1: There is significant relationship between social media and consumer purchase intention of electric cars	Pearson correlation (SM)	Supported (Positive correlation of 0.391, p < 0.01)	Positive correlation suggests that as engagement with Social Media increases, consumer purchase intention tends to rise. The p-value is less than 0.01, indicating statistical significance.
H2: There is significant relationship between perceived usefulness and consumer purchase intention of electric cars	Pearson Correlation (PU)	Supported (Strong positive correlation of 0.769, p < 0.001)	Strong positive correlation indicates that as perceived usefulness increases, consumer purchase intention significantly rises. The p-value is less than 0.001, demonstrating high statistical significance.
H3: There is significant relationship between subjective norm and consumer purchase intention of electric cars	Pearson Correlation (SN)	Supported (Moderate positive correlation of 0.458, p < 0.001)	Moderate positive correlation suggests that as subjective norm perception increases, consumer purchase intention tends to rise significantly. The p-value is less than 0.001, indicating high statistical significance.
H4: There is significant relationship between government policy and consumer purchase	Pearson correlation (GP)	Supported (Moderate positive correlation of 0.525, p < 0.001)	Moderate positive correlation indicates that as positive perceptions of government policy increase, consumer purchase intention tends to rise

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intention of electric cars			significantly. The p-value is less than 0.001, showing high statistical significance.
H5: social media, perceived usefulness, subjective norm & government policy are significant predictors for consumer purchase intention of electric cars	Multiple Linear Regression	H5 partially supported, SM is not a significant predictor with p = 0.085). PU, SN & GP are significant predictors with PU (p= <0.001), SN (p= 0.020), GP (p= 0.009)	H1-H4 are fully supported as each independent variable shows a positive association with Consumer Purchase Intention. H5 is partially supported since SM is not a significant predictor with a p-value more than 0.05. PU, SN & GP are significant predictors with p-value less than 0.05. Possible reasons for SM need further exploration.

Source: Yap (2024).

5. Discussion

5.1. Social Media

Multiple Linear Regression research shows that social media (SM) did not predict Consumer Purchase Intention (INT) among Malaysian consumers, with a p-value of 0.085. Before implementing social media marketing, policymakers should address charging station concerns, reduce purchase barriers, promote domestic EV development, and emphasise EV's effectiveness in the automotive market, according to Mandys (2021). These regions may increase buying intention before social media. In line findings with Senyapar et al. (2023) note that although charging station availability may hinder electric vehicle (EV) adoption, positive variables like fuel savings increase customer intentions to buy EVs. According to Öztürk et al. (2021), government backing and increased consumer awareness have led to a steady rise in the intention to buy electric cars. Social media may not directly affect purchasing intention, but it may help spread innovations, fill knowledge gaps, and raise awareness of future advances. Thus, government, legislators, and corporations must take steps before social media can forecast Malaysian electric vehicle buyers' intentions. Tan et al. (2024) found that social media improves employee mental health and organisational performance.

5.2. Perceived Usefulness

The unstandardized coefficient (B) for PU is 0.602, with a standard error of 0.038, yielding a significant t-value of 15.867 ($p < 0.001$). This large positive correlation predicts that Consumer Purchase Intention will grow by 0.602 units per unit of PU. The standardised coefficient (Beta) of 0.695 shows that PU strongly predicts INT. Pearson Correlations show a strong positive correlation (0.769, $p < 0.001$) between Perceived Usefulness and Consumer Purchase Intention. In line with Mastoi et al. (2021), sophisticated charging stations are vital to supplying economical and eco-friendly power from the grid and renewable energy sources, which affects electric car perceived usefulness. This boosts electric car buying intent and adoption. An effective charging station network answers owners' worries, enabling electric cars to outperform internal combustion engines. Recharging technology must improve to increase electric car market share. Consumers anticipate superior charging infrastructures to provide smooth travels with low or no charging delays. Investors are waiting until enough electric cars are on the road to make charging infrastructure economical (Greene et al., 2020). Government policies help solve these issues (Wolbertus et al., 2020). Thus, Malaysian respondents understand that electric vehicle advantages depend on their perceived utility. This link strongly influences customer sentiments towards electric cars and buying intentions.

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5.3. Subjective Norm

Pearson correlation findings show a substantial positive link between Subjective Norm (SN) and Consumer Purchase Intention (INT) ($r = 0.458$, $p < 0.001$). The multiple regression analysis shows that SN's unstandardized coefficient (B) is 0.085 and standardised coefficient (Beta) is 0.099. The positive Beta value suggests SN somewhat predicts INT. SN is a significant predictor with $p= 0.020$. Consumer Purchase Intention rises dramatically when Subjective Norm perception increases, according to the Pearson correlation. Findings in line with Ruslim et al. (2023) suggest using subjective norm to promote electric vehicle adoption via targeted marketing and awareness efforts to change social attitudes. Important to emphasise good recommendations from significant persons. A favourable subjective norm may also be created by supporting electric car ownership via social events, forums, and testimonials. Electric vehicle industry stakeholders may boost customer purchase intentions and promote sustainable mobility by proactively addressing and changing these societal impacts. Ivanova & Moreira (2023) noted that social norms and influence affect EV buying inclinations. The writers emphasise the need of understanding generational effects. Millennials, generations X and Y, and green activists are expected to react differently to environmental developments. Understanding age-specific EV buying intentions requires understanding generational views. Abdullah et al. (2023) found that subjective norm on online experience affects the propensity to purchase green online travel things.

5.4. Government Policy

A Pearson correlation of 0.525 ($p < 0.001$) indicates a favourable relationship between Government Policy (GP) and Consumer Purchase Intention (INT). This indicates a statistically significant association, indicating that good government policy opinions influence customers' electric car purchases. GP's significant prediction of INT is supported by the MLR model's Beta of 0.106 ($B = 0.096$, $SE = 0.037$, $p = 0.009$). The significance value of 0.009 suggests that positive opinions on government policies considerably increase customer purchase intentions for electric automobiles in Malaysia. Findings is in line with the idea of financial (purchase subsidies, tax exemptions, toll waivers) and non-financial (charging and free parking in public spaces, electronic platforms) incentives are provided by governments for EVs (Asgarian, Hejazi & Khosroshahi, 2023). Recognising the importance of government support policies, governments must continue to develop a variety of incentives to accelerate EV market penetration and boost EV purchasing intentions. Malaysia's various income ranges support Linn (2022)'s suggestion that income-based incentives should improve government policy. Governments should consider family incomes when awarding subsidies to EV buyers, providing financial incentives for low-income users.

6. Implications

The study's findings shows that perceived usefulness and government policy are crucial factors. These implications are crucial for stakeholders like governments and marketers in providing strategic insights that might help Malaysians embrace electric cars (EVs). In conclusion, EVs can succeed in Malaysia by maintaining and adjusting government policies to income levels and strategically emphasising electric vehicle utility. These strategic initiatives might fasten Malaysia's transition to sustainable and environmentally friendly transportation.

7. Limitations

The TAM model is commonly used to anticipate consumer adoption of new technology. TAM may have offered a full theoretical basis to analyse consumer acceptability of electric automobiles. The absence of TAM hampers understanding of cognitive processes and attitudes that influence electric car customer decision-making. TAM is not included since this study focuses on buying intention and not adoption. This is due to research examines the inclination to purchase rather than post-purchase use behaviour. The research provides significant insights but noting these limitations is essential for a detailed interpretation. Future research could address this limitation by using comprehensive theoretical

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frameworks to better understand consumer behaviour in the rapidly changing Malaysian electric car market.

8. Future Research Suggestions

The Malaysian electric vehicle (EV) industry is dynamic, and future study should examine regulatory frameworks, technical advances, and the influence of government programmes like the National Electric Mobility Blueprint and others. Urban planning, infrastructural development, and community-based efforts may illuminate consumer preferences. Researchers should also examine economic diversity. EV adoption should be examined in relation to income-based incentives, affordability, and socioeconomic factors. This would need automative industry participants to offer more affordable and practical EV models to give more possibilities. Future study might compare Malaysia to worldwide EV trends to discover best practices and problems. To predict customer preferences, automotive research should include new technologies like autonomous driving and smart infrastructure.

9. Conclusion

Perceived Usefulness (PU) predicts electric vehicle purchase intention in Malaysia best, followed by Government Policy. Consumers prefer electric cars when they see environmental advantages, fuel savings, and road efficiency. This knowledge helps stakeholders prioritise electric car usefulness initiatives.

Businesses can benefit from marketing EVs' perceived usefulness in line with positive government policies. The report emphasises the need for government incentives, infrastructure, and communication to promote EV adoption. These findings can help researchers explore multifaceted aspects and add or refine variables. The study provides an important finding in EV research and providing actionable insights for a sustainable future.

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