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Research Article

Development of a conversion interest model from conventional motorcycles to electric motorcycles in surakarta city

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Abstract
The city of Surakarta, a major urban center in Central Java Province, has around 391,000 motorcycles in circulation, contributing to an increase in CO_2 emissions. Electric vehicles have emerged as a potential solution to reduce excessive carbon pollution. A technological breakthrough allows Internal Combustion Engine (ICE) motorcycles to be converted into electric motorcycles by replacing the engine with several conversion components, such as a Brushless DC Motor (BLDC), a controller, Battery Management System (BMS), a battery, and steel to replace the motorcycle's swing arm. This study aims to integrate several research models, namely the Technology Acceptance Model, Theory of Planned Behavior, and the Norm Activation Model, which are analyzed using Structural Equation Modeling. A questionnaire survey involving 100 respondents revealed that only 45% expressed interest in conversion. Environmental factors and the influence of close social circles were found to have a significant impact, as few people currently own converted electric motorcycles. Several factors contributing to this low interest include a lack of government outreach on the conversion process and the limited availability of conversion workshops. Additionally, the small amount of government subsidies further reduces public interest in conversion. Despite this, public awareness and concern for the environment remain high.

Keywords: Technology Acceptance Model (TAM); Theory of Planned Behavior (TPB); Norm Activation Model (NAM); Structural Equation Modeling (SEM); Surakarta City

1. Introduction
The increasing number of Internal Combustion Engine motorcycles significantly contributes to carbon emissions, while many countries, including Indonesia, are striving to reduce emissions from the transportation sector (Bonilla & Merino, 2010). In 2022, the Indonesian Central Statistics Agency reported that the rise on the number of vehicles in a region corresponds to the population growth in that area. Surakarta, one of the major cities in Central Java province, has recorded the presence of over 391,000 motorcycles (Waluyo et al., 2022). The Indonesian government has issued Presidential Regulation Number 61 of 2011, outlining a plan to reduce CO_2 emissions by up to 0.056 gigatons per year by 2020, compared to the 2010 baseline, with international support. Additionally, based on the regulation of president number 55 year 2019 was introduced to accelerate and promote the transition to electric vehicles in Indonesia. Globally, the transportation sector remains one of the largest sources of pollution (Carruthers & Lawson, 2012), with ICE motorcycles being

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a significant contributor within this sector (Habibie et al., 2021). Motorcycles using Internal Combustion Engine technology derive their power from the expansion of high-pressure hot gases produced by the combustion of a fuel and air mixture. However, ICE technology generates exhaust gases that pollute the air (D. Anair, J. Martin, M. C. P. de Moura, J. Goldman, 2020). Electric motorcycles present a viable solution to reduce carbon pollution (Habibie et al., 2020). These vehicles utilize electricity as their primary power source (Ahmad et al., 2018). Compared to ICE-powered motorcycles, electric motorcycles offer numerous advantages, including low noise levels and the absence of carbon gas emissions.

Electric motorcycles greatly support the development of future technologies, particularly in terms of environmentally friendly energy advantages (Pratiwi et al., 2020). However, the emergence of electric motorcycle (EM) technology is not without challenges. Research by (Yuniaristanto et al., 2022) highlights that the price of electric motorcycles, compared to conventional motorcycles, is often beyond consumers' budgets. Additionally, the cost of replacing batteries every three years is seen as burdensome. Therefore, purchase price and battery costs are the main obstacles for Indonesian society in adopting electric motorcycles. To address this issue, a breakthrough technology has emerged in the form of electric motorcycle conversion, where gasoline-powered motorcycles with Internal Combustion Engines are transformed into electric motorcycles. The conversion manner involves changing the primary engine with several electric powered automobile components, including a controller, steel for the bike's swingarm, battery, Brushless Direct cutting-edge motor, and a Battery management machine (Nizam, 2019)(Habibie & Sutopo, 2020). The Directorate wellknown of latest and Renewable power and strength Conservation (Ditjen EBTKE) of the Ministry of electricity and Mineral assets (ESDM) claims that the fee of converting a bike into an electric motorcycle is lower than the value of purchasing a new electric powered motorcycle purchasing new electric powered motorcycles, way to authorities subsidies that considerably reduce the charge (Firda Dwi Muliawati, 2023). past decreasing air pollution, converting conventional motorcycles to electric ones pursuits to scale down the increasing population of gas-powered automobiles (Kristyadi et al., 2021). As electric powered motorbike conversion is a new technology in Indonesia, right commercialization techniques need to be applied (Sutopo et al., 2018).

Over time, the breakthrough in electric motorcycle conversion technology has faced challenges due to low public interest. Public perception of electric motorcycle conversions remains limited. Generally, the public tends to deliberate longer before deciding to adopt new products and technologies (Habibie & Sutopo, 2020). According to government data from 2023, the target for electric motorcycle conversions was set at 50,000 units. However, only 181 units were realized, which is far from meeting the target. Additionally, the Secretary General of AISI, Hari Budianto, stated that several factors contribute to the low public interest in electric motorcycles. One of the main issues is public hesitation to switch to electric vehicles (Hartawan, 2024). Converted electric motorcycles have not yet gained public trust, as their range is still limited to only 60-100 km per charge. Charging times are also lengthy, and prices remain high. In this study, we aim to identify and analyze the factors influencing the low demand for conventional motorcycle conversion. This will be achieved by developing a research model that integrates several models commonly used to study the adoption of new technologies, models to control behavioral perceptions, and models for studying pro-environmental attitudes.

2. Literature Review

The technology acceptance version is one of the maximum widely used decision-making frameworks in studies at the adoption of new technology, mainly self sufficient vehicles (AVs), among most of the people (Rejali et al., 2023). The unique version of this model (Davis,

F.D., 1985) predicts that attitude (an emotional country regarding the use of era) (Fishbein, M., Ajzen, I., 1977)and Perceived Usefulness (the extent to which a gadget can assist individuals) (Bertagnolli, 2011) influence users' intentions. In different words, tremendous attitudes and excessive perceived usefulness boom the likelihood of adopting a generation. (T. Zhang et al., 2020)carried out an prolonged TAM to look at the responses of drivers in China to the presence of independent cars. in addition to the notion elements from the original TAM, this have a look at explored the direct and oblique effects of preliminary trust, social influence, the large 5 character trends, and sensation-looking for dispositions. The findings discovered that social influence and preliminary accept as true with had been the maximum giant factors in explaining whether or not customers would accept the presence of independent motors. different studies have also utilized TAM and associated models to investigate and observe public attractiveness of recent automobile technology. as an example, (Taylor et al., 2014) used TAM to provide an explanation for motive force popularity of in-car navigation systems by way of incorporating extra constructs. in addition, (Wu et al., 2015) illustrated the effect of photo, danger, and value on clients' buy intentions for electric powered motorcycles. regarding independent motors, (Choi & Ji, 2019) investigated the elements that impact user adoption of self sustaining automobiles the use of TAM. They concluded that perceived usefulness and agree with have a robust impact on user adoption.

The theory of planned behavior (Netemeyer & Ryn, 1991) is an extension of the concept of Reasoned movement (TRA) (Fishbein, M., 1979),together with three primary additives. these additives consist of mind-set (similar to the application of the TAM version), Subjective Norms (the perception that influential human beings in a single's surroundings will either approve or disapprove of a selected behavior) (Fishbein, M., 1979), and Perceived Behavioral manage (the perception of the ease or problem in acting a selected conduct) (Netemeyer & Ryn, 1991). those three additives immediately have an impact on Behavioral Intentions (BI). positive attitudes, ideals in favorable social norms, and robust volitional manipulate are the primary factors using the purpose to have interaction in wonderful conduct (BI), especially inside the adoption of latest era (Rahman et al., 2017).

In keeping with the TPB model, goal serves as the number one determinant of behavior, that's shaped by means of the three center components: attitude, subjective norms, and perceived behavioral manipulate. studies with the aid of (Mohamed et al., 2016) shows that both mind-set and perceived behavioral manage have a widespread and significant impact on people's willingness to purchase electric powered motors (EVs). several research have explored the mindset factor, inclusive of factors which includes using experience, social messages, EV usage, focus, social needs, carbon emissions, fuel consumption, and pro-environmental behavior. those elements were confirmed to play a crucial position in the adoption of electrical motors (Krishnaswamy et al., 2015)(Kaplan et al., 2016).

The Norm Activation model developed via Schwartz within the Nineteen Seventies, presents a framework for translating ethical norms into environmental conduct. This model has been broadly implemented inside the context of seasoned-social behavior, consisting of seasoned-environmental conduct (Groot & Judith, 2009). NAM encompasses three key variables: personal norms, awareness of consequences, and attribution of duty. personal norms are described as "a moral duty to refrain from or perform sure movements" (Schwartz, S.H., Howard, J.A., 1981), which play a essential role in NAM and are used to without delay expect pro-social conduct. several research have hired NAM in mediator or moderator fashions to provide an explanation for one of a kind seasoned-environmental attitudes. as an instance, (Hopper & Nielsen, 1991) carried out NAM as a moderator version

to take a look at recycling conduct. (Y. Zhang et al., 2013) tested strength-saving attitudes amongst personnel the use of NAM's mediator interpretation. (Groot & Judith, 2009) explored each interpretations via five unique studies on pro-social behavior and recommended that NAM is better understood as a mediator model. different research have also utilized NAM's mediator model to investigate seasoned-environmental behavior, inclusive of attitudes closer to purchasing organic meals (Klo, 2009) and using public transportation (Bamberg et al., 2007).

Considering that environmentally friendly actions may require a combination of technology acceptance, pro-social reasons, and personal interests, the integration of the TPB, NAM, and TAM theories is used as complementary perspectives for analysis. This study develops a model to analyze factors affecting the low demand for converted electric motorcycles. Structural Equation Modeling analysis is applied to investigate records gathered from respondents through personal interviews the use of questionnaires. This study is expected to assist the government and electric motorcycle conversion workshop operators in determining appropriate efforts to increase public interest in converted electric motorcycles, which will have a positive impact on air pollution reduction.

3. Methodology

3.1. Conceptual Framework and Research Hypotheses

This observe targets to combine numerous research models, namely the technology reputation version, the idea of planned behavior, and the Norm Activation model, which will then be analyzed using Structural Equation Modeling. The look at assumes that factors inclusive of the recognition of recent generation, perceived behavioral manage in the use of technology, and ethical concerns in pro-environmental actions may be included to produce a comprehensive version for analyzing the hobby and call for for transformed electric powered motorcycles in the town of Solo. furthermore, this research assumes that it is going to be capable of discover and examine the factors that have an effect on the interest and demand for conversion. The effects of this look at are predicted to provide tips for improvements that stakeholders could make to enhance the aim and call for for changing conventional motorcycles. primarily based at the conceptual framework discussed above, the research hypotheses are summarized in table 1.

Table 1: Hypotheses and Expected Results

Code	Hypotheses
H1	The Environmental Concern variable has an indirect effect on Electric Motorcycle Conversion Intention through the Perceived Usefulness variable.
H2	The Environmental Concern variable has an indirect effect on the Electric Motorcycle Conversion Intention through the Perceived Ease of Use variable.
H3	The Perceived Usefulness variable indirectly influences Conversion Intention of electric motorcycles through the Mitigation Attitude variable.
H4	The Perceived Ease of Use variable has an indirect effect on Conversion Intention of electric motorcycles through the Mitigation Attitude variable.
H5	The Mitigation Attitude variable has a direct influence on the Conversion Intention of electric motorcycles.
H6	The variable of Subjective Norms has a direct impact on the Conversion Intention of electric motorcycles.
H7	The Perceived Behavioral Control variable has a direct effect on the Conversion Intention of electric motorcycles.
H8	The Personal Norms variable directly influences the Conversion Intention for electric motorcycles.
H9	The Perceived Consumer Effectiveness variable directly influences the Conversion Intention for electric motorcycles.

H10	The Perceived Price and Perceived Complexity variables indirectly influence the Conversion Intention for electric motorcycles through the mediating variable of Personal Norms.
H11	The variable Awareness of Consequences indirectly influences the Conversion Intention of electric motorcycles through the variable Personal Norms.
H12	The variable Awareness of Consequences indirectly influences the Conversion Intention of electric motorcycles through the variables Ascription of Responsibility and Personal Norms.
H13	The variable Ascription of Responsibility indirectly influences the Conversion Intention of electric motorcycles through the variable Personal Norms.
H14	The variable Perceived Consumer Effectiveness indirectly influences the Conversion Intention of electric motorcycles through the variable Personal Norms.

Figure 1 illustrates the conceptual framework of the research.

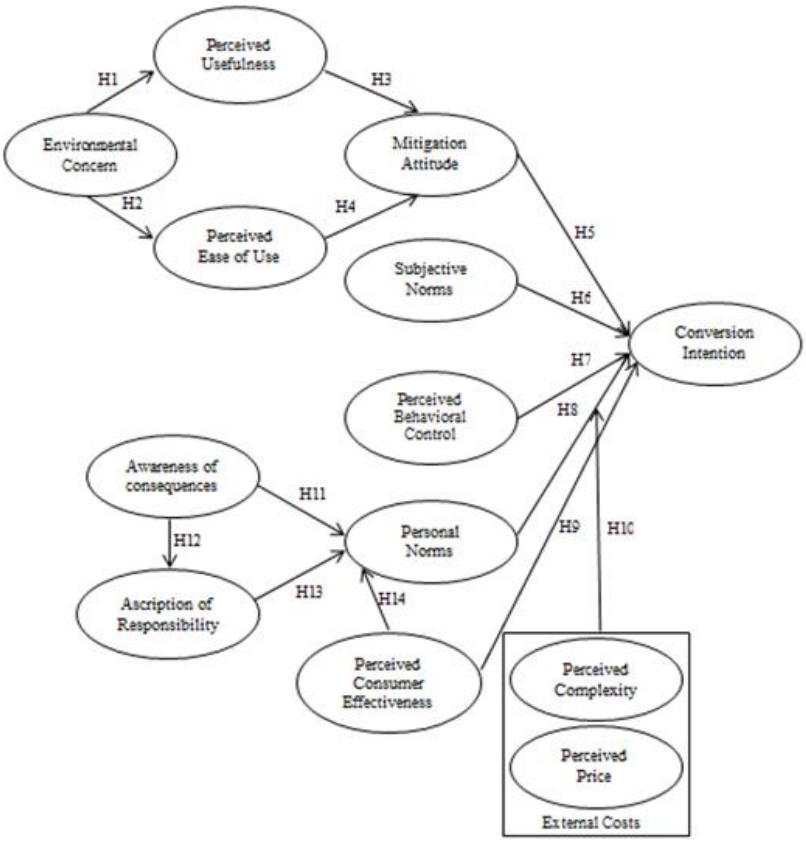

Figure 1. Conceptual Framework

3.1.1. Theory of Planned Behavior

According to the idea of planned behavior, conduct is decided through the attractiveness of intentions towards a selected machine, wherein conduct is motivated by intention, subjective norms, and perceived behavioral manage. TPB is an extension of the idea of Reasoned action, which become evolved to cope with the limitations of TRA in explaining behavior where individuals do now not have complete manipulate over their actions (Netemeyer & Ryn, 1991). TPB has typically been identified as an crucial framework for explaining behavioral intentions. Behavioral selection-making is the end result of a rational reasoning process, which incorporates:

a. Attitude Mindset plays a important function in shaping behavioral intentions. it's far intently associated with an person's belief of the outcomes of a positive behavior. for example, the goal to simply accept or use a specific system is frequently influenced by way of this perception. individuals with a more high quality mindset are more likely to engage

inside the conduct. The quantity to which a person perspectives a conduct as appropriate or terrible is contemplated in their mindset.

b. Subjective Norms Subjective norms are related to the social strain appeared to perform a specific behavior. human beings tend to recollect and, to a point, be prompted by way of the views of others (e.g., friends, colleagues, and circle of relatives) while figuring out the behavior they pick to adopt.

c. Perceived Behavioral Control Perceived behavioral control refers to an man or woman's self assurance or capacity to perform a specific conduct. This control is prompted by using their belief of the possibilities and resources to be had to carry out the behavior.

The utility of TPB in investigating the commercialization of transformed electric bikes is crucial, because the procedure of choosing a method of transportation commonly follows a rational decision-making process stimulated by using social elements (Fu, 2021). TPB is one of the maximum often used frameworks for reading the selection-making process in selecting new or electric modes of transportation.

3.1.2. Norm Activation Model

Norm Activation Model was initially proposed by Schwartz in the context of altruistic behavior (Schwartz, 2017). Personal norms form the core of this theory and are used to explain behavioral intentions determined by awareness of the consequences of performing or not performing a specific behavior, as well as a sense of responsibility to engage in certain behaviors. NAM explains altruistic and pro-environmental behavior and can be applied to the commercialization and adoption of EVs, as it involves setting aside personal interests for the benefit of the environment and the greater good (Gulzari et al., 2022). From the NAM perspective, individuals' environmentally friendly behavior can be predicted through three key components:

a. Personal Norm Represents a sense of commitment regarding unfavorable outcomes if one fails to engage in pro-social behavior. Personal norms reflect an individual's moral obligation to perform or abstain from pro-social actions.

b. Awareness of Consequences Refers to an individual's awareness of the consequences of engaging in or refraining from environmentally friendly behavior. Societal acceptance of changes to improve environmental quality leads to pro-environmental actions or disapproval of conventional behaviors that harm the environment. c. Ascription of Responsibility Reflects an individual's awareness of the negative impact of not engaging in pro-social behavior. It also relates to awareness of existing problems.

3.1.3. Technology Acceptance Model

The technology recognition model, delivered via (Bertagnolli, 2011), is an extension of the concept of Reasoned action mainly designed to model person reputation of statistics structures and technology. The primary purpose of TAM is to offer a general evaluate of the elements that determine the attractiveness of a technology, capable of explaining user attitudes both among stop-customers and within a broader user population. To account for the capacity effect of technology characteristics on behavioral goal, TAM introduces two key variables as follows:

a. Perceived Usefulness Perceived usefulness is defined because the quantity to which an individual believes that a selected era can enhance their performance. This variable is based totally on the anticipated benefits that a person anticipates from using the era and directly impacts their conduct concerning the usage of the era.

b. Perceived Ease of Use Perceived ease of use refers back to the quantity to which an individual believes that the usage of a selected technology could be loose from effort or difficulty. not like perceived usefulness, the relationship among perceived ease of use and the purpose to adopt the era isn't constantly direct.

Table 2: Explanation and Sources of Screening Variables

Indicator	Code	Scale	Sources
Selection Criteria	S	Ordinal	(Wu Jingwen et al 2019; Chen Fang et al 2016)
Gender	D1		(Wu Jingwen et al 2019; Chen Fang et al 2016)
Age	D2		(Wu Jingwen et al 2019; Chen Fang et al 2016)
Type of Ocupation	D3		(Wu Jingwen et al 2019; Chen Fang et al 2016)
Type of Electric Vehicle Owned	D4		(Wu Jingwen et al 2019; Chen Fang et al 2016)
The number of motorcycles owned	D5		(Wu Jingwen et al 2019; Chen Fang et al 2016)

Table 2 shows the indicators used as references for the source of the screening variables, with 5 indicators being utilized using an ordinal scale.

Table 3: Explanation and Sources of NAM Variables

Indicator	Code	Description	Scale	Sources
Awareness of Consequences	AOC1 AOC2 AOC3	Stating that gasoline motorcycles will pollute the environment. Stating that gasoline motorcycles will deplete non-renewable fuel resources. Stating that gasoline motorcycles will negatively impact air quality.	five-point likert scale	He Xiuhong et al (2017)
Ascription of Responsibility	AOR1 AOR2 AOR3	Taking responsibility for environmental pollution caused by CO_2 emissions. Taking responsibility for the depletion of fossil energy resources. Taking responsibility for the degradation of air quality in the environment.		He Xiuhong et al (2017)
Perceived Consumer Effectiveness	PCE1 PCE2 PCE3	Confidence in the ability to reduce negative environmental impacts by converting ICE motorcycles. Confidence in improving air quality by converting ICE motorcycles. Confidence in effectively solving the problem of excessive CO_2 emissions by converting ICE motorcycles.		He Xiuhong et al (2017)
Personal Norm	PN1 PN2 PN3	An individual's perception of moral commitment to converting motorcycles. An individual's perception of converting motorcycles due to the negative impacts of using non-environmentally friendly vehicles. An individual's perception of converting motorcycles as a responsibility to reduce carbon emissions and improve air quality.		Chen Fang et al (2016), He Xiuhong et al (2017)
Perceived Price	PP1 PP2 PP3	The cost of converting motorcycles is relatively affordable. The cost of converting motorcycles is proportional to the positive environmental impacts generated. Government subsidies have been sufficient to assist the process.		He Xiuhong et al (2017)
Perceived Complexity	PC1 PC2 PC3	Ease of understanding innovations in eco-friendly electric motorcycle conversions. Ease of understanding the mechanisms and steps involved in converting motorcycles. Ease of understanding and accessing information about the motorcycle conversion process.		He Xiuhong et al (2017)
Intention Conversion	CI1 CI2 CI3	Willingness to convert a motorcycle. Intention to convert a motorcycle. Desire to recommend others to convert their motorcycles.		He Xiuhong et al (2017)

Table 3 shows the scale for NAM, and table 4 provides explanations and sources for the TBP variables.

Table 4: Explanation and Sources of TPB Variables

Incicator	Code	Description	Scale	Sources
Mitigation Attitude	MA1	Stating that converting motorcycles is a good decision.	five-point likert scale	Wu Jingwen et al (2019), Chen Fang et al (2016)
	MA2	Stating that converting motorcycles is the right decision.		
	MA3	Stating that converting motorcycles is a necessary behavior.		
Subjective Norms	SN1	Stating that support from close individuals influences the behavior of converting motorcycles.		Chen Fang et al (2016)
	SN2	Stating that approval from close individuals influences the behavior of converting motorcycles.		
	SN3	Stating that suggestions from close individuals influence the behavior of converting motorcycles.		
Perceived Behavioral Control	PBC1	Referring to a person's ability to convert motorcycles.		Chen Fang et al (2016)
	PBC2	Stating a person's confidence in converting motorcycles.		
	PBC3	Referring to a person's decision to convert motorcycles.		
Personal Norm	PN1	A person's perception of their moral commitment to convert motorcycles.		Chen Fang et al (2016), He Xiuhong et al (2017)
	PN2	A person's perception of converting motorcycles due to the negative impacts of using environmentally unfriendly vehicles.		
	PN3	A person's perception of converting motorcycles as a responsibility to reduce carbon emissions and improve air quality.		
Intention Conversion	CI1	A person's willingness to convert motorcycles.		He Xiuhong et al (2017)
	CI2	A person's intention to convert motorcycles.		
	CI3	A person's desire to recommend others to convert motorcycles.		

Table 5 provides explanations and sources for the TAM variables.

Table 5: Explanation and Sources of TAM Variables

Indicator	Code	Description	Scale	Sources
Mitigation Attitude	MA1	Stating that converting a motorcycle is a good decision.	five-point likert scale	Wu Jingwen et al (2019), Chen Fang et al (2016)
	MA2	Stating that converting a motorcycle is the right decision.		
	MA3	Stating that converting a motorcycle is a necessary action to take.		
Environmental Concern	EC1	Stating someone's perception of being concerned about the current unhealthy environmental conditions.		Wu Jingwen et al (2019)
	EC2	Stating someone's perception of being concerned about the importance of maintaining air quality by reducing carbon emissions.		
	EC3	Stating someone's perception of being concerned about environmental sustainability by adopting eco-friendly behavior.		
Perceived Ease of Use	PEU1	Stating someone's perception that learning how to operate a converted electric motorcycle is easy.		Wu Jingwen et al (2019)
	PEU2	Stating someone's perception that a converted electric		
	PEU3	Motorcycle is easy to use. Stating someone's perception that using a converted electric motorcycle will not cause any problems.		
Perceived Usefulness	PU1	Stating someone's perception that using a converted electric motorcycle can be beneficial in daily life.		Wu Jingwen et al (2019)
	PU2	Stating someone's perception that owning a converted electric motorcycle will enhance their productivity.		
	PU3	Stating someone's perception that owning a converted electric motorcycle can save costs.		

3.2. Questionnaires and Surveys

The data collected in this study consists of questionnaire results obtained through both online and offline surveys aimed at identifying interest in converted electric motorcycles. The identification process was conducted to determine opportunities and the factors influencing the lack of interest in converted electric motorcycles. The questionnaire was divided into several sections, including screening questions to ensure respondents met the eligibility criteria, questions and statements related to demographic factors, and statements regarding respondents' understanding of converted electric motorcycles. The questionnaire was designed as a closed-ended survey using a Likert scale ranging from 1 to 5 (1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree, and 5 for strongly agree). The respondents in this study included electric vehicle enthusiasts, electric vehicle users, individuals who do not yet own an electric vehicle, and companies reliant on motorcycle-based mobility, such as couriers and online ride-hailing services.

3.3. Structural Equation Model

Structural Equation Modeling is a statistical method used to construct and test statistical fashions, usually within the form of causal models. it's also called latent variable analysis or linear structural relationships. There are methods to estimating SEM: the covariance-based approach, usually referred to as Covariance-based SEM (CB-SEM), and the variance-based totally approach, called Partial Least Squares SEM (PLS-SEM). CB-SEM is hired to validate theories, at the same time as PLS-SEM is used for exploratory concept development. in this look at, we advanced a theoretical version to investigate the factors influencing the low interest in conversion electric bikes a few of the Solo community. The theories used to expand this model have been tailored from preceding studies, including those by way of (Xuan et al., 2023), and (Nguyen-phuoc et al., 2024). consequently, the theoretical version applied in this take a look at is grounded in sturdy theoretical foundations which have been proven in prior studies and can be in addition tested in this example observe. especially, the take a look at goals to increase a Conversion aim model for traditional motorcycles to decorate demand in Solo town. To obtain the studies objectives, the authors adopted the PLS-SEM technique as the analytical technique.

4. Results and Findings

The distribution of the Google Form questionnaire was conducted over one month, from October to November 2024. Specific respondent criteria were selected, and a total of 100 responses were obtained after the survey period.

4.1. Descriptive Statistics

Table 6 offers the demographic statistics of the respondents who finished the questionnaire, wherein the general public of the respondents are folks who do now not yet very own electric vehicles, followed by those who already very own electric powered automobiles. most of the respondents fall in the productive age range of 17-30 years, followed by the ones inside the center age institution of 31-forty five years. most people of respondents work as personal-sector personnel, with the most usually owned electric vehicle being electric powered bikes. furthermore, maximum respondents very own one traditional motorbike, accompanied by means of folks that personal traditional motorbikes.

Table 6: Respondent Demographics.

Demographics	Item	Number	Persentase
Criteria	Online motorcycle taxi drivers or couriers	21	21%
	Electric vehicle enthusiasts	23	23%
	Already own an electric vehicle	26	26%
	Do not own an electric vehicle yet	30	30%
Age	17-30	67	67%
	31-45	21	21%
	46-60	11	11%
	>60	0	0%
Work	Entrepreneur	18	18%
	Private sector employee	37	37%
	Government employee	0	0%
	Package courier	9	9%
	Online motorcycle taxi	12	12%
	Others	18	18%
Electric Vehicles Owned	Bicycle	16	16%
	Motorcycle	50	50%
	Car	0	0%
	Do not own yet	34	34%
The Convertional Motorcycle Owned	0	0	16%
	1	40	40%
	2	34	34%
	> 2	22	22%

Table 7 shows that EC2 (concern for air quality and carbon emissions) has the highest average, followed by AOC1 (use of conventional dirty bicycles that cause air pollution), and third is MA1 (environmentally friendly technology will reduce negative environmental impacts). This indicates that most respondents are highly concerned about the current environmental conditions, which have been increasingly polluted by air pollution, leading to poor air quality in the surrounding area.

Table 7: Descriptive statistics of environmental concern level.

Indicator	Mean	Min	Max	Indicator	Mean	Min	Max
EC2 (Environmental Concern)	4.5714	1	5	PN1 (Personal Norm)	4.1531	1	5
AOC1 (Awareness of Consequences)	4.5102	1	5	PP1 (Perceived Price)	4.1122	1	5
MA1 (Mitigation Attitude)	4.2245	1	5	PEU2 (Perceived Ease of Use)	4.0918	1	5
PU3 (Perceived Usefulness)	4.1837	1	5	PBC3 (Perceived Behavioral Control)	4.0306	1	5
PCE1 (Perceived Consumer Effectiveness)	4.1633	1	5	AOR1 (Ascription of Responsibility)	4.0204	1	5

Table 8 reveals that it is unfortunate that, although the respondents have a high level of concern for the current environmental conditions, a lack of socialization from the

government has resulted in many respondents being unaware of the mechanisms or processes for conversion, with 55% indicating so. Additionally, the limited number of conversion workshops has made it difficult for respondents to find conversion facilities in the city of Solo, with 66% citing this challenge. The amount of subsidy provided by the government is still considered insufficient by most respondents, with 70% indicating this, which has led to low interest in conversion, with only 45% expressing interest. The influence of the environment or community plays a less significant role, with 41% reporting this, due to the limited number of converted electric motorcycles owned or distributed among the respondents' close acquaintances. As a result, the level of recommendation remains low, at just 42%.

Table 8: Descriptive statistics of factors related to converted electric motorcycles.

	1:strongly unwilling	2:unwilling	3:doubt	4:willing	5:strongly willing
Feels unsure about the conversion mechanism	1%	19%	25%	28%	27%
Feels it is difficult to find an official conversion workshop	0%	3%	31%	27%	39%
Feels the government subsidy is insufficient	0%	4%	28%	34%	34%
Interest in performing the conversion	2%	18%	35%	18%	27%
Interest in recommending it to others	1%	12%	45%	22%	20%
Influence of individuals or groups on conversion	2%	21%	36%	22%	19%

4.2. Measurement Model

Before performing calculations, a validity check have to be performed to decide whether or not the studies signs inside a aspect set can accurately represent what's being measured. If the check effects show that the calculated r price is extra than the important r value, the announcement is considered valid (I. Ghozali, 2006). With a importance degree of 5% or zero.05 and N=100, the important r cost is 0.1946. primarily based at the effects of the validity check, it can be concluded that each one statements within the questionnaire are legitimate because the calculated r values exceed 0.1946, as shown in table 9.

Table 9: Validity Test Results

Variable	Calc. r Value	Table r Value	sig. Value	Decision
EC1	0,266	0,1946	0,008	Valid
EC2	0,318	0,1946	0,001	Valid
EC3	0,310	0,1946	0,002	Valid
AOC1	0,541	0,1946	0,000	Valid
AOC2	0,450	0,1946	0,000	Valid
AOC3	0,282	0,1946	0,005	Valid
AOR1	0,498	0,1946	0,000	Valid
AOR2	0,423	0,1946	0,000	Valid
AOR3	0,508	0,1946	0,000	Valid
PCE1	0,668	0,1946	0,000	Valid
PCE2	0,561	0,1946	0,000	Valid
PCE3	0,460	0,1946	0,000	Valid
PC1	0,682	0,1946	0,000	Valid
PC2	0,682	0,1946	0,000	Valid
PC3	0,683	0,1946	0,000	Valid
PP1	0,521	0,1946	0,000	Valid
PP2	0,691	0,1946	0,000	Valid
PP3	0,662	0,1946	0,000	Valid
PU1	0,623	0,1946	0,000	Valid

Variable	Calc. r Value	Table r Value	sig. Value	Decision
PU2	0,733	0,1946	0,000	Valid
PU3	0,641	0,1946	0,000	Valid
PEU1	0,606	0,1946	0,000	Valid
PEU2	0,549	0,1946	0,000	Valid
PEU3	0,516	0,1946	0,000	Valid
MA1	0,633	0,1946	0,000	Valid
MA2	0,574	0,1946	0,000	Valid
MA3	0,573	0,1946	0,000	Valid
SN1	0,616	0,1946	0,000	Valid
SN2	0,695	0,1946	0,000	Valid
SN3	0,690	0,1946	0,000	Valid
PBC1	0,613	0,1946	0,000	Valid
PBC2	0,499	0,1946	0,000	Valid
PBC3	0,392	0,1946	0,000	Valid
PN1	0,634	0,1946	0,000	Valid
PN2	0,610	0,1946	0,000	Valid
PN3	0,546	0,1946	0,000	Valid
CI1	0,634	0,1946	0,000	Valid
CI2	0,669	0,1946	0,000	Valid
CI3	0,585	0,1946	0,000	Valid

Then, a reliability check is performed to decide whether or not the questionnaire can be used a couple of times with the same respondents, yielding regular information. decision-making is based totally on the Alpha fee. If the Alpha cost is greater than 0.60, the variable statement is taken into consideration reliable or consistent; if the Alpha price is less than 0.60, the variable declaration is taken into consideration unreliable (J. Nunnally, 1994). primarily based at the reliability check outcomes, the Cronbach Alpha price in this examine is extra than 0.60, particularly 0.975, as proven in table 10. therefore, it is able to be concluded that the responses from the variables are reliable or consistent, and the variables can be used for subsequent research.

Table 10: Reliability Test Results

Cronbach's Alpha	N of Items
0,975	39

Figure 2 shows the path analysis results. There are two types of model evaluations conducted: outer model evaluation and inner model evaluation. Model evaluation can be performed after the initial estimation. The inner model evaluation can be conducted once the model is deemed fit based on the outer model evaluation. The outer model evaluation can be carried out using the following four criteria.

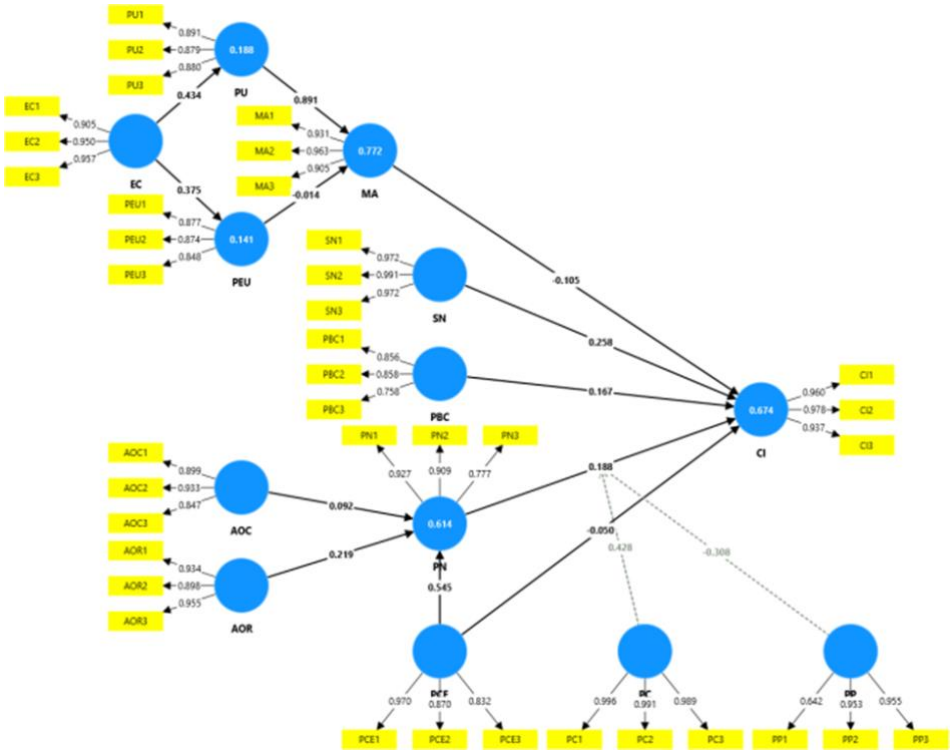

Figure 2. Path Analysis Results of Conversion Intention

4.2.1. Indicator Reliability

A model can be considered valid if its measurement indicators are valid, which is indicated by an outer loading value > 0.50 for research models that are newly developed (A. M. Musyaffi, H. Khairunnisa, D. K. Respati, 2022). Table 11 presents the indicator reliability by displaying the outer loading values. It is observed that all outer loading values for each indicator variable in this research model exceed 0.50.

Table 11: Outer Loading

Variable	AOC	AOR	CI	EC	MA	PBC	PC	PCE	PEU	PN	PP	PU	SN
AOC1	0.899												
AOC2	0.933												
AOC3	0.847												
AOR1		0.934											
AOR2		0.898											
AOR3		0.955											
CI1			0.96										
CI2			0.978										
CI3			0.937										
EC1				0.905									
EC2				0.95									
EC3				0.957									
MA1					0.931								
MA2					0.963								
MA3					0.905								
PBC1						0.856							
PBC2						0.858							
PBC3						0.758							
PC1							0.996						
PC2							0.991						
PC3							0.989						
PCE1								0.97					
PCE2								0.87					
PCE3								0.832					
PEU1									0.877				
PEU2									0.874				
PEU3									0.848				
PN1										0.927			
PN2										0.909			
PN3										0.777			

Variable	AOC	AOR	CI	EC	MA	PBC	PC	PCE	PEU	PN	PP	PU	SN
PP1											0.642		
PP2											0.953		
PP3											0.955		
PU1												0.891	
PU2												0.879	
PU3												0.88	
SN1													0.972
SN2													0.991
SN3													0.972

4.2.2.Discriminant Validity

Based on the cross-loading table 12, it is evident that all indicator variables have cross-loading values that are higher for their respective latent variables than for other latent variables.

Table 12: Cross Loading

Variable	AOC	AOR	CI	EC	MA	PBC	PC	PCE	PEU	PN	PP	PU	SN
AOC1	0.899	0.642	0.46	0.36	0.582	0.337	0.473	0.631	0.429	0.534	0.478	0.499	0.361
AOC2	0.933	0.696	0.38	0.435	0.608	0.391	0.329	0.653	0.446	0.59	0.365	0.498	0.345
AOC3	0.847	0.594	0.248	0.336	0.548	0.316	0.257	0.55	0.362	0.546	0.26	0.438	0.035
AOR1	0.677	0.934	0.368	0.501	0.612	0.574	0.511	0.65	0.472	0.662	0.537	0.494	0.416
AOR2	0.662	0.898	0.35	0.241	0.557	0.533	0.457	0.572	0.514	0.565	0.478	0.477	0.262
AOR3	0.672	0.955	0.366	0.37	0.624	0.61	0.475	0.672	0.48	0.597	0.508	0.51	0.438
CI1	0.394	0.42	0.96	0.24	0.552	0.594	0.731	0.542	0.53	0.628	0.701	0.636	0.652
CI2	0.416	0.415	0.978	0.261	0.568	0.608	0.73	0.499	0.575	0.66	0.727	0.657	0.642
CI3	0.355	0.28	0.937	0.235	0.516	0.497	0.738	0.408	0.532	0.619	0.705	0.616	0.51
EC1	0.366	0.347	0.267	0.905	0.365	0.187	0.357	0.444	0.334	0.43	0.317	0.41	0.194
EC2	0.41	0.38	0.218	0.95	0.41	0.194	0.323	0.508	0.348	0.457	0.329	0.401	0.207
EC3	0.414	0.415	0.237	0.957	0.428	0.23	0.32	0.53	0.372	0.476	0.345	0.409	0.245
MA1	0.536	0.532	0.561	0.349	0.931	0.69	0.575	0.772	0.705	0.816	0.625	0.819	0.585
MA2	0.633	0.669	0.573	0.445	0.963	0.733	0.626	0.799	0.76	0.854	0.676	0.882	0.617
MA3	0.654	0.601	0.45	0.406	0.905	0.514	0.567	0.813	0.63	0.76	0.573	0.752	0.376
PBC1	0.461	0.654	0.536	0.299	0.636	0.856	0.668	0.711	0.653	0.692	0.693	0.631	0.503
PBC2	0.38	0.535	0.493	0.304	0.665	0.858	0.559	0.516	0.689	0.658	0.572	0.621	0.251
PBC3	0.087	0.303	0.43	-0.109	0.407	0.758	0.326	0.222	0.557	0.402	0.414	0.49	0.406
PC1	0.391	0.517	0.757	0.354	0.628	0.636	0.996	0.626	0.636	0.706	0.948	0.718	0.579
PC2	0.391	0.517	0.757	0.354	0.628	0.636	0.991	0.626	0.636	0.706	0.954	0.718	0.579
PC3	0.388	0.512	0.762	0.349	0.624	0.632	0.989	0.622	0.63	0.707	0.924	0.715	0.609
PCE1	0.675	0.688	0.562	0.525	0.81	0.616	0.682	0.97	0.733	0.776	0.69	0.762	0.459
PCE2	0.581	0.702	0.399	0.406	0.774	0.659	0.547	0.87	0.623	0.646	0.595	0.67	0.459
PCE3	0.572	0.409	0.365	0.478	0.686	0.316	0.426	0.832	0.505	0.587	0.418	0.631	0.312
PEU1	0.489	0.473	0.547	0.293	0.608	0.639	0.569	0.634	0.877	0.624	0.623	0.722	0.415
PEU2	0.323	0.489	0.418	0.297	0.636	0.731	0.486	0.561	0.874	0.609	0.575	0.701	0.434
PEU3	0.392	0.406	0.514	0.375	0.698	0.63	0.598	0.631	0.848	0.774	0.627	0.8	0.22
PN1	0.56	0.648	0.605	0.434	0.825	0.712	0.653	0.736	0.755	0.927	0.669	0.777	0.563
PN2	0.646	0.669	0.598	0.503	0.827	0.599	0.649	0.761	0.604	0.909	0.665	0.732	0.573
PN3	0.397	0.351	0.535	0.309	0.595	0.571	0.562	0.437	0.708	0.777	0.593	0.725	0.335
PP1	0.34	0.449	0.403	0.15	0.547	0.577	0.464	0.465	0.624	0.51	0.642	0.623	0.428
PP2	0.361	0.483	0.727	0.339	0.607	0.614	0.944	0.598	0.626	0.7	0.953	0.7	0.568
PP3	0.379	0.509	0.73	0.375	0.61	0.624	0.949	0.609	0.621	0.683	0.955	0.696	0.545
PU1	0.527	0.464	0.499	0.376	0.852	0.59	0.596	0.769	0.75	0.756	0.607	0.891	0.36
PU2	0.437	0.523	0.638	0.406	0.779	0.633	0.658	0.594	0.687	0.798	0.723	0.879	0.677
PU3	0.45	0.417	0.633	0.367	0.681	0.659	0.67	0.682	0.853	0.684	0.717	0.88	0.48
SN1	0.282	0.401	0.606	0.252	0.549	0.477	0.565	0.446	0.398	0.574	0.56	0.548	0.972
SN2	0.252	0.378	0.616	0.217	0.571	0.475	0.593	0.466	0.411	0.57	0.596	0.568	0.991
SN3	0.284	0.407	0.623	0.208	0.556	0.428	0.586	0.45	0.378	0.546	0.596	0.558	0.972

A version may be considered legitimate if the move-loading fee of a hallmark variable is better for its respective latent variable compared to other latent variables, and the Fornell-Larcker fee for each latent variable is greater than the correlation among latent variables . Discriminant validity, which includes cross-loading values, is presented in table 12, while the Fornell-Larcker values are shown in table 13. Additionally, all Fornell-Larcker values are greater than the correlations between latent variables.

Based on the cross-loading table 12, it is observed that all indicator variables have cross-loading values that are higher for their respective latent variables compared to other latent variables. Additionally, all Fornell-Larcker values are greater than the correlations between latent variables.

Table 13: Fornell-Larcker

Constructs	AOC	AOR	CI	EC	MA	PBC	PC	PCE	PEU	PN	PP	PU	SN
AOC	0.894												
AOR	0.722	0.929											
CI	0.405	0.389	0.958										
EC	0.423	0.406	0.256	0.938									
MA	0.648	0.644	0.569	0.428	0.933								
PBC	0.391	0.616	0.592	0.218	0.698	0.826							
PC	0.393	0.519	0.765	0.355	0.632	0.64	0.992						
PCE	0.685	0.681	0.505	0.527	0.849	0.605	0.63	0.892					
PEU	0.462	0.525	0.57	0.375	0.751	0.769	0.639	0.704	0.866				
PN	0.624	0.657	0.663	0.485	0.869	0.719	0.712	0.757	0.779	0.873			
PP	0.41	0.548	0.742	0.352	0.672	0.688	0.95	0.647	0.704	0.735	0.863		
PU	0.536	0.532	0.664	0.434	0.878	0.708	0.723	0.774	0.859	0.847	0.769	0.883	
SN	0.278	0.404	0.629	0.23	0.571	0.47	0.594	0.464	0.404	0.576	0.597	0.57	0.979

4.2.3.Internal Consistency

A model can be taken into consideration appropriate for exploratory research if the composite reliability price is greater than 0.70 (Lee et al., 2005). Composite reliability is used to measure the true reliability of a assemble. Table 14 offers the composite reliability values to assess inner consistency. it's far observed that all composite reliability values for every latent variable are greater than 0.70. primarily based on those values, it can be concluded that the variables inside the adoption version are considered reliable.

Table 14: Composite Reliability

Construct	Composite Reliability
AOC	0.877
AOR	0.927
CI	0.957
EC	0.932
MA	0.935
PBC	0.777
PC	0.992
PCE	0.906
PEU	0.837
PN	0.877
PP	0.906
PU	0.865
SN	0.978

4.2.4. Convergent Validity

A model may be taken into consideration suitable for exploratory studies if the AVE (common Variance Extracted) cost is extra than 0.50 (Lee et al., 2005). Table 15 offers the convergent validity measured by way of the AVE. it's far found that each one latent variables have AVE values more than 0.50, indicating that the variables within the adoption version are valid. consequently, the evaluation can proceed to check the structural version.

Table 15: Average Variance Extracted

Variable	AVE
AOC	0.799
AOR	0.863
CI	0.919
EC	0.879
MA	0.871
PBC	0.682
PC	0.984
PCE	0.796
PEU	0.750

Variable	AVE
PN	0.763
PP	0.744
PU	0.780
SN	0.958

Figure 3 demonstrates the bootstrapping analysis results.

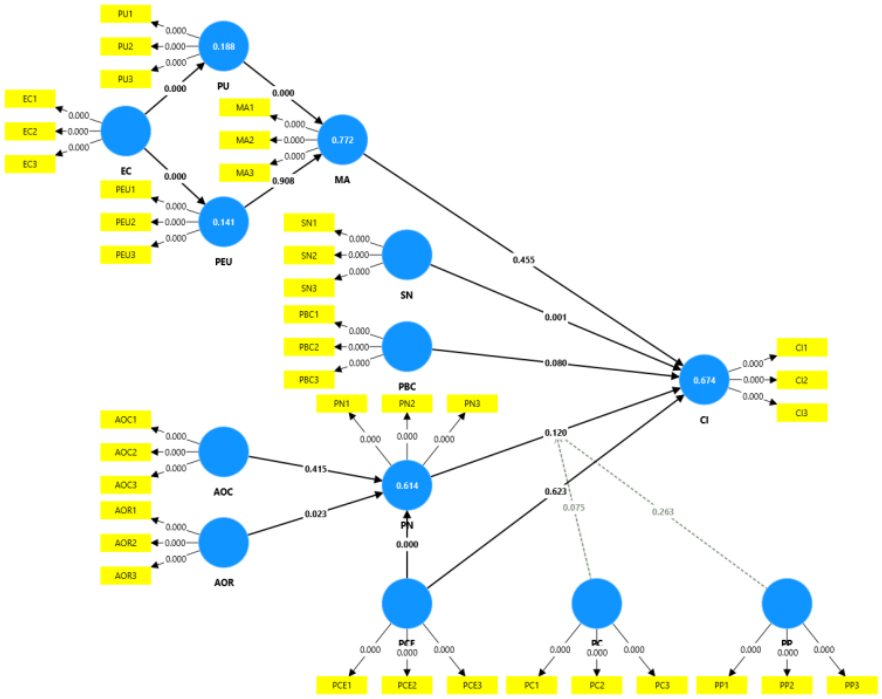

Figure 3. Bootstrapping Analysis Results

Table 16: Path Coefficients

Hypotheses	Path	Path Coefficient	p-Value	Results
H1	AOC → PN	0.113	0.415	Rejected
H2	AOR → PN	0.096	0.023	Accepted
H3	EC → PEU	0.089	0.000	Accepted
H4	EC → PU	0.074	0.000	Accepted
H5	MA → CI	0.140	0.455	Rejected
H6	PBC → CI	0.095	0.080	Rejected
H7	PC → CI	0.201	0.134	Rejected
H8	PCE → CI	0.103	0.623	Rejected
H9	PCE → PN	0.092	0,00	Accepted
H10	PEU → MA	0.124	0.908	Rejected
H11	PN → CI	0.121	0.120	Rejected
H12	PP → CI	0.212	0.603	Rejected
H13	PU → MA	0.100	0.000	Accepted
H14	SN → CI	0.079	0.001	Accepted
H15	PP X PN → CI	0.240	0.075	Rejected
H16	PC X PN → CI	0.275	0.263	Rejected

Table 16 shows the results of the hypothesis test using the bootstrapping method. The hypothesis is accepted or rejected based on the significance value of the path coefficients. If the p-value is less than 0.05, the hypothesis is accepted, and conversely, if the p-value is greater than 0.05, the hypothesis is rejected. Meanwhile, if the original sample value is positive, it indicates a positive effect of the factor (J. F. Hair Jr, 2014). As a result of the

hypothesis test using the bootstrapping method, 6 hypotheses are accepted, and 10 hypotheses are rejected.

5. Discussion

H1. The Environmental Concern variable indirectly influences Conversion Intention of electric motorcycles through the Perceived Usefulness variable. Based on the bootstrapping data analysis, it was found that the hypothesis stating EC indirectly influences CI through PU is accepted. EC has a positive and significant effect on PU. EC refers to the concern for maintaining a healthy environment. PU refers to the belief that a technology or product will enhance performance or provide benefits. In practice, the value of concern for creating a healthy environment significantly influences the community's intention to derive benefits through electric motorcycle conversion technology.

H2. The Environmental Concern variable indirectly influences Conversion Intention of electric motorcycles through the Perceived Ease of Use variable. Based on the bootstrapping data analysis, it was found that the hypothesis stating EC indirectly influences CI through PEU is accepted. EC has a positive and significant effect on PEU. EC refers to the concern for maintaining a healthy environment. PEU refers to the ease of using new technology. In practice, concern for a healthy environment significantly motivates the community to learn new technology that is easy to use.

H3. The Perceived Usefulness variable indirectly influences Conversion Intention of electric motorcycles through the Mitigation Attitude variable. Based on the bootstrapping data analysis, it was found that the hypothesis stating PU indirectly influences CI through MA is accepted. PU has a positive and significant effect on MA. PU refers to the belief that a technology or product will enhance performance or provide benefits. MA refers to the belief in deciding to use new technology to reduce negative environmental impacts. In practice, the usefulness and benefits of this product are not widely believed by many, and it has a less significant influence on public belief that this new technology can reduce negative environmental impacts.

H4. The Perceived Ease of Use variable indirectly influences Conversion Intention of electric motorcycles through the Mitigation Attitude variable. Based on the bootstrapping data analysis, it was found that the hypothesis stating PEU indirectly influences CI through MA is rejected. PEU has a positive but insignificant effect on MA. PEU refers to the ease of using new technology. MA refers to the belief in deciding to use new technology to reduce negative environmental impacts. In practice, the ease of using new technology has a less significant influence on public belief in deciding to use this new technology to reduce negative environmental impacts.

H5. The Mitigation Attitude variable directly influences Conversion Intention of electric motorcycles. Based on the bootstrapping data analysis, it was found that the hypothesis stating MA directly influences CI is rejected. MA has a positive but insignificant effect on CI. MA refers to the belief in deciding to use new technology to reduce negative environmental impacts. CI refers to the extent to which efforts are made to try conversion. In practice, the belief in using new technology to reduce negative environmental impacts has an insignificant influence on the community's intention to try electric motorcycle conversion.

H6. The Subjective Norms variable has an instantaneous effect at the Conversion aim of electrical motorcycles. primarily based at the consequences of the bootstrapping facts analysis, it become determined that the speculation pointing out that SN without delay influences CI is universal. SN has a high-quality and giant effect on CI. SN refers to the impact of people or agencies on the resulting conduct or the selections made. CI refers back to the effort individuals are inclined to make to attempt conversion. In practice, the

influence of the surroundings, businesses, and people performs a massive role in convincing society to try conversion.

H7. The Perceived Behavioral control variable has an immediate effect on the Conversion aim of electric bikes. based totally at the effects of the bootstrapping information evaluation, it turned into observed that the hypothesis mentioning that % directly affects CI is rejected. p.c has a superb however not enormous effect on CI. % refers to an person's capacity or level of self belief in acting a behavior and making choices. CI refers back to the effort people are willing to make to attempt conversion. In practice, self belief in decision-making capacity has a much less big impact in convincing individuals to attempt conversion.

H8. The personal Norms variable has an immediate impact on the Conversion intention of electric bikes. based on the outcomes of the bootstrapping records evaluation, it was observed that the speculation stating that PN at once impacts CI is rejected. PN has a effective however now not massive impact on CI. PN refers to behaviors that replicate an man or woman's dedication to moral responsibilities. CI refers to the attempt people are willing to make to try conversion. In exercise, person dedication to environmental obligation has a much less vast have an effect on on their perception in trying conversion.

H9. The Perceived consumer Effectiveness variable has an immediate impact on the Conversion purpose of electric motorcycles. based totally on the results of the bootstrapping statistics analysis, it was found that the speculation mentioning that PCE without delay impacts CI is rejected. PCE has a nice but no longer huge impact on CI. PCE refers back to the notion that one's efforts could make a full-size effect in solving environmental problems. CI refers back to the effort individuals are willing to make to strive conversion. In exercise, the belief that decisions can substantially cope with environmental issues has a less large impact on individuals' perception in attempting conversion.

H10. The Perceived charge and Perceived Complexity variables have an indirect impact at the Conversion aim of electric bikes through the personal Norms variable. based totally on the consequences of the bootstrapping statistics evaluation, it was located that the hypothesis stating that PP and pc have an oblique effect on CI via PN is rejected. PP and computer have a fine but no longer giant effect on PN. PP refers to the have an impact on of price on an environmentally friendly innovation product, even as computer refers back to the complexity of know-how or using environmentally friendly improvements. PN refers to behaviors showing an person's dedication to moral responsibilities. In exercise, fee and complexity in expertise environmentally pleasant innovations have a much less substantial effect on the dedication to environmental obligation.

H11. The Awareness of Consequences variable has an indirect effect on the Conversion intention of electric motorcycles via the personal Norms variable. based totally at the outcomes of the bootstrapping records analysis, it changed into observed that the hypothesis stating that AOC has an oblique effect on CI via PN is rejected. AOC has a high quality but now not substantial effect on PN. AOC refers to an individual's attention of the negative impacts of environmentally dangerous behaviors that may damage themselves and others. PN refers to behaviors displaying an person's commitment to ethical obligations. In exercise, awareness of the poor affects of environmentally dangerous behaviors has a much less substantial have an effect on on people' dedication to environmental safety.

H12. The Awareness of Consequences variable has an oblique impact at the Conversion aim of electric bikes thru the Ascription of responsibility variable. based on the outcomes of the bootstrapping information analysis, it become observed that the hypothesis mentioning that AOC has an indirect impact on CI via AOR is rejected. AOC has

a tremendous but not large effect on AOR. AOC refers to an man or woman's awareness of the negative impacts of environmentally dangerous behaviors. AOR refers to the duty one feels to interact in environmentally pleasant conduct to protect the surroundings by lowering carbon emissions and enhancing air nice. In practice, cognizance of the bad outcomes of dangerous behaviors has a less substantial impact on the experience of obligation to guard the environment.

H13. The Ascription of Responsibility variable has an oblique impact at the Conversion aim of electric bikes through the personal Norms variable. based totally on the results of the bootstrapping statistics analysis, it become observed that the speculation mentioning that AOR has an indirect impact on CI thru PN is ordinary. AOR has a nice and tremendous impact on PN. AOR refers back to the feel of responsibility in environmentally friendly behavior to protect the environment by means of lowering carbon emissions and enhancing air best. PN refers to behaviors reflecting an man or woman's commitment to moral duties. In practice, the feel of responsibility for environmentally pleasant actions appreciably impacts the commitment to environmental health.

H14. The Perceived Consumer Effectiveness variable has an indirect effect on the Conversion intention of electric bikes through the non-public Norms variable. based on the effects of the bootstrapping data evaluation, it turned into observed that the hypothesis stating that PCE has an oblique effect on CI via PN is common. PCE has a fantastic and good sized effect on PN. PCE refers back to the perception that individual efforts can substantially make a contribution to solving environmental troubles. PN refers to behaviors reflecting an person's dedication to moral obligations. In practice, the perception that one's moves can drastically effect environmental troubles has a great impact on the commitment to environmental health.

6. Policy Recommendations

This section will explain the policy recommendations based on data processing and the interpretation of results to support the increase in public interest in converted electric motorcycles. The significant factors affecting the interest in converted electric motorcycles, as identified by the research, represent the ideal conditions desired by the public who want to use converted electric motorcycles. These factors can serve as references for policy and decision-making for the government, online transportation companies, package delivery services, and electric motorcycle conversion workshops. The collaborative role between policymakers, entrepreneurs, and the public has a significant impact on the success of the electric motorcycle conversion program. This collaboration ensures that the product innovation is accepted by the public and its quality is tested. This study will provide recommendations based on factors influencing public interest in converted electric motorcycles, with the hope that these recommendations can support efforts to increase the adoption of converted electric motorcycles in society. The policy recommendation for the government is to evaluate the regulations related to the conversion process of gasoline motorcycles into electric motorcycles. Specifically, the issue of type testing, which has not been implemented in some areas despite the presence of conversion workshops that already have official government licenses. Additionally, the process of creating the necessary documents or certificates for converted motorcycles is perceived as burdensome for consumers who must handle it themselves.

Therefore, it is hoped that in the future, the type testing process can be conducted in areas with licensed conversion workshops, and a system can be created that integrates with these workshops, allowing them to issue certificates directly to consumers. Furthermore, the government subsidies for individuals who wish to convert their motorcycles are still considered insufficient, and the remaining costs for conversion are

relatively high. Thus, it is hoped that in the future, there can be an evaluation or the creation of a credit mechanism through banks. In addition to written policies, the government, together with conversion workshop entrepreneurs, can engage in joint branding efforts to increase interest in converted electric motorcycles among the public. This can be achieved by raising awareness about the benefits of using converted electric motorcycles, including the ease of conversion and the advantages it brings. Information about the positive environmental impact of converted electric motorcycles and the financial benefits associated with their use should be communicated to influence public perception and encourage the conversion of gasoline motorcycles. This can be done through information dissemination, advertising, exhibitions, and demonstrations, highlighting how converted electric motorcycles contribute to environmental sustainability by reducing fuel emissions and offering benefits to society. Additionally, the government and package delivery service companies need to collaborate more in efforts to increase the adoption of converted electric motorcycles among businesses. The involvement of these companies can also serve as live advertisements, providing a real-world demonstration of the quality and capabilities of converted electric motorcycles. It is hoped that in the future, the public will become more familiar with and interested in converted electric motorcycles, alongside the acceleration of conversion service providers in major cities, including Surakarta.

7. Conclusion

The development of the conversion interest model incorporates several references to consider factors that can evaluate the acceptance of converted electric motorcycles in society. These factors include Perceived Usefulness (PU), Environmental Concern (EC), Perceived Ease of Use (PEU), Mitigation Attitude (MA), Subjective Norms (SN), Perceived Behavioral Control (PBC), Awareness of Consequences (AOC), Ascription of Responsibility (AOR), Perceived Consumer Effectiveness (PCE), Personal Norm (PN), Perceived Price (PP), Perceived Complexity (PC), and Conversion Intention (CI). There are 13 variables with 36 indicators for the independent variables and 3 indicators for the dependent variable.

The analysis was conducted using the Partial Least Square-Structural Equation Model (PLS-SEM). Based on the hypothesis testing results, 6 hypotheses were accepted and 10 hypotheses were rejected. The accepted hypotheses consist of variables that directly influence conversion interest and variables that indirectly influence it.

a. Hypotheses of variables that directly affect Conversion Intention (CI) accepted, including Subjective Norms (SN) which has a positive and significant direct effect on CI.

b. Hypotheses of variables that indirectly affect CI accepted, including Ascription of Responsibility (AOR) having a positive and significant indirect effect on CI through Personal Norm (PN). Environmental Concern (EC) has a positive and significant indirect effect on CI through Perceived Ease of Use (PEU). EC also has a positive and significant indirect effect on CI through Perceived Usefulness (PU). Perceived Consumer Effectiveness (PCE) has a positive and significant indirect effect on CI through Personal Norm (PN). PU has a positive and significant indirect effect on CI through Mitigation Attitude (MA).

This research provides recommendations for actions that can be taken to increase interest and demand, aimed at the government, motorcycle workshop owners, and transportation service entrepreneurs.

a. The government needs to evaluate regulations regarding the conversion process of gasoline motorcycles to electric motorcycles. Some considerations include: First, the process of creating the required documents or certificates for converted motorcycles should be handled directly by official conversion workshops with government licenses. Second, type testing should be conducted in areas where official conversion workshops are located. Third, an integrated system should be created with workshops so that conversion

workshops can issue vehicle certificates directly to the public or consumers. Fourth, the payment system could include credit options.

b. The government, along with conversion workshop entrepreneurs, can carry out several initiatives, including first, co-branding efforts to increase public interest in converted electric motorcycles. Second, improving public knowledge about the benefits of using converted electric motorcycles through advertisements and exhibitions.

c. The government and companies that provide vehicle services and package delivery services should cooperate in the use of converted electric motorcycles as a way to increase the adoption of converted electric motorcycles by companies. The involvement of these companies can serve as mobile advertisements, providing the public with a clear picture of the quality and capabilities offered by converted electric motorcycle products.

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Conceptualization, Faizal Ahmat Khomarul and Muhammad Hisjam); methodology, Faizal Ahmat Khomarul; software, Muhammad Hisjam; validation, Wahyudi Sutopo; formal analysis, Muhammad Hisjam; investigation, Faizal Ahmat Khomarul; data curation, Muhammad Hisjam.; writing—original draft preparation, Faizal Ahmat Khomarul; writing—review and editing, Muhammad Hisjam; supervision, Muhammad Hisjam project administration, Muhammad Hisjam. All authors have read and agreed to the published version of the manuscript.

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None.

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