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# The Acceptance Technology of E-Vehicles in Medan City

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**ABSTRACT**
The purpose of this study is to investigate the acceptance of electric vehicle (EV) technology in Medan City, focusing on aspects that drive public adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) and Lazy User (LUM) models are used to understand these dynamics. A survey was conducted with 411 respondents from several sub-districts in Medan City. The questionnaire included demographic information, driving habits, electric car expectations, purchase intentions, and Likert scale items related to the UTAUT constructs. Data analysis was performed using Structural Equation Modeling (SEM) with the PLS method. Effort Expectancy and Facilitating Conditions significantly influenced Behavioral Intention and Use Behavior, while Performance Expectancy and Social Influence showed inconsistent effects. LUM was supported, indicating that Effort Expectancy influenced the preference for the behavior with the least effort.

**Keywords :** Technology Acceptance, UTAUT, E-Vehicles, Lazy User Model

## INTRODUCTION

The global energy crisis is unfolding at an accelerating rate, marked by a discernible sequence that predictively indicates a 45% surge in energy demand by 2030, significantly surpassing the current energy requirements. This condition is compounded by the fact that 80% of this required energy is sourced from fossil fuels (Başak, 2018). If this trend remains unchanged, the direst possibility that looms is an energy shortage unable to meet the future needs of the world's population. This energy crisis is an inevitable certainty. Referring to Robert Malthus in his book “An Essay on the Principle of Population”, the exponential growth in exploiting fossil fuels to meet energy needs is bound to collide with the reality of arithmetic growth in demand . Ultimately, a pivotal portion of this book is dedicated to what is now known as z, where Malthus was concerned that sustained population growth would lead to poverty due to an inevitable spike in prices (Malthus, 1798).


Source: processed data

**Figure 1**
**Global Fossil Fuel Index Performance**

This energy crisis in Indonesia is being addressed by reducing subsidies for fossil fuels distributed to the public and promoting the use of electric vehicles (Andrei, 2019); (Padhilah, 2023). This is based on the recognition that the fluctuations in fossil fuel prices are highly unpredictable and could become an unavoidable burden on the state budget (KESDM, 2021); (Wahyuni, 2022). A release by S&P Global, cited by the Centre for International Environmental Law, acknowledges that financial risks associated with carbon-intensive investments will continue to rise, prompting major global financial institutions to divest from fossil fuels. This trend indicates that the medium-term recovery of these revenue sources remains uncertain, and may not even materialize. The substantial burden of energy subsidies, coupled with stagnant growth in Indonesia's per capita income, is poised to create an extraordinary crisis in the future (Erdiwansyah, 2021); (Wahyuni, 2022). The populace will be burdened with excessively high costs for daily energy consumption, which would take up a larger share than other expenses, eventually leading to a domino effect on the increase in basic needs costs like food and shelter (Erdiwansyah, 2021); (KESDM, 2021).

The call for a shift to electric energy-based vehicles is seen as a solution to minimize the energy crisis surge (Langer, 2021); (Wahyuni, 2022). Despite being regarded with scepticism by a majority of society, where carbon emission reduction campaigns are seen as benefiting only the global elite, this approach is, in fact, the only viable way to break free from the fossil energy crisis trap (Kennedy, 2018). This trap is economically mitigated by introducing vehicle modes that rely on renewable energy. Electricity is a popular choice as an energy source, alongside hydrogen power, which is also being developed by German and Japanese vehicle manufacturers. Research conducted by Frost & Sullivan in ASEAN reveals the electric vehicle trend in Indonesia in 2021, with 1 in 2 surveyed conventional vehicle owners considering switching to electric vehicles within the next 3 years. Additionally, the survey reports that 44% of Indonesian respondents view electric vehicles as stylish and trendy. Furthermore, the survey underscores that 58% of respondents state that in terms of maintenance costs, electric vehicle-based transportation is more cost-effective than conventional vehicles. Given the global energy crisis and Indonesia's reliance on fossil fuels, there is an urgent need for alternative solutions. Electric vehicles (EVs) present a promising option to mitigate these challenges, making the study of their acceptance in Medan City crucial. The urgency lies in the potential of EVs to provide a sustainable and environmentally friendly solution, helping to reduce dependence on fossil fuels and decrease pollution levels.

*Literature Review*

*Technology Acceptance Behavior: A Comprehensive Analysis*

Model of technology acceptance, rooted in consumer behavior, emphasizes the role of intention as a fundamental factor for consumers when deciding to adopt or reject something (Alotaibi, 2017); (Giovanis, 2012). Generally, acceptance is defined as a positive inclination toward adopting an innovation, in contrast to rejection. Decision-makers need to understand the influencing factors behind users' decisions to adopt a specific system so that these factors can be considered during development (Cho, 2020). A common question for practitioners and researchers is why people embrace new technology or why they antagonistically reject it without attempting it. In certain cases, moral norms can be a crucial variable in predicting the willingness to share knowledge, where consumers who have tried a technology may provide testimonials about their experience (McMillan, 2003).

Furthermore, the concept of desire fully mediates the relationship between cognitive attitude and intention, even mediating the relationship between affective attitude, self-efficacy, moral norms, and intention. Technology acceptance theories founded on the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) predominantly revolve around the assumption of rational individuals. An individual's attitudes and behaviors toward adopting or rejecting technology are substantially influenced by cognitive mental aspects, which simultaneously perceive behavioral control (Balconi, 2017); (Kahneman, 1984). Rejecting the introduction of pagers, Microsoft Zune, and various other technological innovations fundamentally involves rational considerations. In the complex communication ecosystem, markets are formed based on the discursive power of media, wherein consumers consume news and information before deciding to consume a commodity product (Galbraith, 1938); (Krestyanpol, 2022); (Reisch, 2017). The dissemination of information shapes premises that eventually control consumer behavior.

However, Trafimow criticizes this technology acceptance behavior by suspecting limitations in Ajzen's theories in predicting behavior, primarily pointing to the factor of boundless desire rather than just attitudes and subjective norms (Trafimow, 2009). There's potential to retain the concept of perceived behavior control by treating it as a superordinate concept, incorporating control components with the challenges faced by new technology users (Trafimow, 2009). These difficulties could stem from an immeasurable reluctance in the form of perception or other technical knowledge about the offered technology, fundamentally impacting the control of adopting or rejecting behavior. As a popular theory, Ajzen's framework has also drawn criticism for its exclusivity in rational reasoning (Ajzen, 2011);(Hagger, 2019). Psychoanalysis acknowledges behavior rooted in all three aspects simultaneously: preconscious thoughts, conscious thoughts, and unconscious thoughts. Preconscious thoughts encompass all elements that have the potential to be brought into conscious thought. Behavior based on cognition doesn't solely originate from conscious, rational thoughts, as it can introduce biases to the understanding of behavior. Freudian researchers perceive behavior through a detailed lens of deconstructing actions (De Sousa, 2011); (Zhang, 2023). Instead of being autonomous, they prefer to elaborate extensively based on the three aspects of human thought. The debate between psychoanalysts and those grounded in behaviorist studies essentially pertains to psychological issues, even though it affects managerial policy determination and corporate responses to market reasoning.

Behavioral intention also emerges from irrational conditions or motives, such as subjective likes and dislikes (Krestyanpol, 2022); (Wang, 2018). If cognition determines the intention aspect of behavior, theorists might misapprehend how aspects of liking and disliking emerge and are represented in human brain cognition. The presence of brainware in offered technology is an autonomous facet (Huang, 2014); (Huh, 2021); (Williamson, 2018). To this day, only humans have developed technology to manipulate and dominate their environment, and they are free to choose tools, when, and where without coercion (Ezdina, 2017); (Veselkin, 2018); (Williams, 2022). Some tools even exist and are used as ornamentation, far from the original purpose they were created for. The utilization of sports shoes for style, outdoor equipment as fashion accessories, and even essential off-road vehicle gear installed on vehicles primarily intended for city streets exemplify how humans engage in purchasing goods without solely focusing on the technical aspect of the technology (Goudey, 2013); (Mäntymäki, 2014). This reality demonstrates that consumers are not entirely rational; they shape irrational behavior just as frequently as rational behavior when consuming a product. The research objectives are: To analyze public acceptance and perceptions of electric vehicles in Medan City, identify the aspects that encourage people to use electric vehicle technology and evaluate the influence of different constructs, based on the UTAUT model, on the Behavioral Intention and Use Behavior related to electric vehicles.

*UTAUT: Exploring User Behavior*

The initial formulation of the Unified Theory of Acceptance and Use of Technology (UTAUT) model was introduced by Venkatesh and his colleagues in 2003. This model aims to elucidate users' intentions to adopt specific information systems or technologies and their subsequent usage behaviors (Venkatesh, 2003). Grounded in the social cognitive theory, UTAUT amalgamates the process of individual learning with the influence of the environment in which one grows up (Bandura, A, 1976). This theory explains how individuals acquire knowledge by observing others and their behaviors, with cognition serving as the primary factor influencing the development of triadic reciprocal relationships (Bandura, A, 1976); (Bandura, A, 2012). Each observed behavior can alter an individual's thinking (cognition). Similarly, the environment in which a person is raised can influence their behavior later in life. For example, caregivers' mindsets (also cognition) shape the environment in which their children are brought up. Bandura's core concept is conveyed through the triadic reciprocal causation scheme (Bandura, A, 1976). This scheme also illustrates how the reproduction of observed behavior is influenced by a specific catalyst that fosters an individual's belief in their own abilities. Behavior itself can be construed as the response individuals receive after engaging in an action, providing them with an opportunity to successfully learn from their actions. In this context, the environment is defined as all aspects or arrangements influencing an individual's ability to successfully complete a behavior, such as establishing a conducive environment to enhance self-efficacy through support and suitable materials (Bandura, A, 1969).

The Theory of Reasoned Action (TRA) describes behavioral intention by predicting the performance of behavior under an individual's volition. Intention is modeled as a function of attitude

(Attitude) toward the behavior, representing an individual's positive or negative feelings (evaluative influence) about performing the targeted behavior (Ajzen I. &., 1974). Subjective norms play a role by shaping an individual's perception that most important people to them think they should or should not perform the behavior (Fishbein, M., & Ajzen, I, 1975); (Fishbein, M., & Ajzen, I, 2011). Within the social cognitive theory, elaborates with a slightly contrasting model that encompasses human agency and human capability (Bandura, A, 1976). He explains how from an agent's perspective, individuals develop, self-regulate, reflect, and are proactive, instead of merely being shaped by the environment or internal forces (Bandura, A, 2012). Bandura also proposes the progression of individuals over time. Humans are believed to possess an intricate nervous system, enabling them to acquire knowledge and skills both directly and symbolically (Bandura, A, 1969); (Compeau, 1999). Four key capacities are discussed as pivotal in social cognitive theory: symbolic representation, self-regulation, self-reflection, and self-representation (Bandura, A, 2012).

The UTAUT model evolved from various prior models, such as Igbaria's heavily criticized model (Igbaria, 1990), the increasingly doubted Technology Acceptance Model (Davis, 1989), and even the less popular HMSAM (Lowry, 2013). These models collectively strive to explain how acceptance behavior plays a significant role in shaping technological trends. Albert Bandura tested whether the same applies to models presented through media by conducting the Bobo Doll Behavior experiment (Bandura, A, 1969). This experiment exposed a group of children to a video depicting violent and aggressive actions. Subsequently, the children were placed in a room with a Bobo doll to observe their behavior. Through this experiment, Bandura found that children who had viewed the violent video exhibited more aggressive and rougher behavior towards the dolls, while those who didn't watch the video did not (Bandura, 1963). This experiment embodies social cognitive theory by illustrating how individuals replicate behaviors they see in media (Bandura, A, 1976).

The electric vehicle campaign also employs media to channel issues and shape collective knowledge. Deliberation over electric vehicle production processes and whether coal still influences electricity generation in certain countries is avoided. In reality, the reproduction of electric vehicle usage experiences flourishes across digital media for accessibility. This process serves as an essential form of education before a product is launched en masse. The repetition of the same experiential process influences behavior to accept or reject a genuinely innovative entity (Fishbein, M., & Ajzen, I, 1975); (Venkatesh, 2003); (Venkatesh, V., & Davis, F. D, 2000). Rogers proposed that five main elements influence the spread of new ideas: the innovation itself, adopters, communication channels, time, and the social system (Rogers, 1962). This process heavily depends on social capital. For an innovation to sustain itself, widespread adoption is essential. At the point of adoption, there's a threshold where an innovation reaches critical mass (Rogers, 1962). Diffusion manifests differently and is highly contingent upon adopter types and the innovation decision process. The criteria for categorizing adopters are defined by the innovation itself, representing the extent to which an individual adopts a new idea (Rogers, 1962). Complementing the diffusion framework, behavior models like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) are frequently employed to gain a deeper understanding of individual technology adoption decisions.

A potential adopter of a new idea may evaluate an innovation based on its relative advantage (perceived efficiency gained by the innovation relative to current tools or procedures), compatibility with pre-existing systems, complexity or difficulty to learn, trialability, potential for reinvention (using tools for unintended purposes), and observed effects (Rogers, 1962). These qualities interact and are evaluated holistically. For instance, an innovation might be highly complex, reducing its likelihood of adoption and dissemination, yet it may be highly compatible and offer significant benefits compared to existing tools. The ambiguity of innovation boundaries can impact the adoption process (Taherdoost, 2018). Particularly, innovations with a small core and large periphery are more easily adopted (Dequanter, 2022). Less risky innovations are easier to adopt due to lower potential losses from failed integration. Innovations that disrupt routine tasks, even if they bring substantial relative advantages, are less likely to be adopted due to added instability. Similarly, innovations that simplify tasks are more likely to be adopted. Closely related to relative complexity, knowledge requirements act as a barrier to utilizing innovation due to the difficulty in using it. Even when there's a high knowledge requirement, support from prior adopters or other sources can enhance adoption prospects.

*Lazy User Model*

The Lazy User Model (LUM) emerges from the observation of "user needs". The term "user needs" refers to the requirements users have for a service, which must be fulfilled by the service in order to provide them with relevant outcomes (Kunene, 2018); (Vassileva, 1996). Services designed around users and tailored to their needs are more likely to be utilized effectively (i Cancho, 2002). User needs define a range of potential solutions, which could be in the form of products, goods, or even services that satisfy users' requirements (Kunene, 2018). Logically, it can be understood that needs define potential satisfyingsolutions provided within a set of solutions (various products/services) that all cater to users' needs. This model is not restricted to examining individual solutions in isolation; it introduces a comprehensive comparative perspective for an adopter of solutions to assess and select from. The Lazy User Model (LUM) delves into the behavior of technology adopters as they navigate the spectrum of accepting and rejecting options based on a notion of "laziness" (Tétard, 2007). The concept of the Lazy User Model (LUM) centers on the trade-offs made during the learning process and how these align with the framework related to mobile device and service contexts, subsequently addressing the implications of this theory on product and service design. This theory operates on the premise that what constitutes the path of least resistance in physics or even the theory of how minimal effort in the realm of information technology can also apply to users' selection of solutions to fulfill a need from a set of potential solutions (Tétard, 2007). The hypothesis proposed suggests that individuals might desire different solutions when those solutions encompass a combination of effort and difficulty. This hypothesis, when tested, revealed inaccuracies in taken-for-granted ordering due to the possible absence of a viable transformational function, or even worse, the potential lack of utility due to the ever-changing (dynamic) nature of things.

Studies concerning technology adoption are inherently beneficial for technology gatekeepers. The term "technology gatekeepers" describes institutions or organizations concentrated on developing, marketing, selling, and providing access to technology on a large scale (Hayes, 2012). They offer users of technology a glimpse into future convenience. The benefits of these technology adoption studies enable them to make more informed decisions regarding technology development, marketing, and sales (Hayes, 2012). The Lazy User Model (LUM) heavily relies on the Occam's razor theory, which advocates for the selection of fewer entities or types of entities as explanations, rather than complex and convoluted ones (Hayes, 2012); (Tétard, 2007). This model underscores that technology users tend to be inherently lazy, often opting for the simplest solutions to their problems (Hayes, 2012); (Tétard, 2007). This perspective emphasizes parsimony and the need to simplify the multi- variable acceptance process. Solution selection is viewed from a user-needs perspective. User needs are defined as "explicitly determinable desires", whether tangible or intangible, that can be fully satisfied (Tétard, 2007).

Technology users are those individuals who opt for minimal effort with identical outcomes, whether in terms of quantity or quality. For instance, when dealing with flight schedules, users without internet access are compelled to exclude the option of checking online. Similarly, this applies to older individuals with limited internet experience; for them, employing the mentioned solution requires significantly more effort than using a telephone directory (to call the airport). Conversely, for those adepts at using the internet and having access to it, the solution of calling the airport actually demands much more effort (Hayes, 2012).

The literature used as a reference to see the construct of technology acceptance behavior will refer to the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) (Fishbein, M., & Ajzen, I, 1975) and combine it with Diffusion Theory (Rogers, 1962) to see behavior in society comprehensively.

External and Internal Factors based on Diffusion Theory (Rogers, 1962) to see the latent variables that shape technology acceptance behavior in rural communities consisting of:

1. External Factors which consist of:
   a. Facilitating Conditions in the form of; rural connectivity and access time, technological infrastructure, quality and availability of support services.
   b. Tech-service Attributes refer to the properties or characteristics of a particular technology, system, or service that distinguish it from other technologies, systems, or services.
   c. Tech-service Promotions refers to the form of awareness and also the level of alertness and ability of individuals to draw conclusions in a certain time and space towards an object or

situation. Lack of awareness of technology service promotions is one of the main reasons rural communities do not adopt new technologies.

2. Internal Factors which consist of:
   a. Social influence which refers to the formation of a person's behavioral intention which is influenced by subjective norms which in turn are also influenced by the perceived significance of references (or normative beliefs) and the motivation to comply with these references.
   b. Demographic factors in the form of; age, gender, culture and ethnicity, income and household expenses and education level.

Technology acceptance model taken from Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) (Fishbein, M., & Ajzen, I, 1975). The construct model used to look at technology acceptance behavior consists of 19 items that have been proposed previously and expanded. Tests that have been conducted to see the technology acceptance model show that this behavior has alternative symptoms which are then concluded to have the best model to see this behavior consisting of constructs: a) Descriptive Norms; b) Attitudes technology acceptance; c) Capacity to Shelter; d) Behavioral Intentions; and e) Technology acceptance

The novelty of this paper lies its application of the Unified Theory of Acceptance and Use of Technology (UTAUT) model to the context of electric vehicles (EVs) in Medan City. Unlike previous studies that often focus on general factors influencing EV adoption, this paper specifically explores how constructs like Effort Expectancy, Performance Expectancy, Social Influence, and Facilitating Conditions impact the acceptance and use behavior of EVs in a developing country context. The integration of the Lazy User Model further adds a unique dimension to understanding user behavior, emphasizing the preference for solutions that require the least effort.

## METHODS

Quantitative methods are characterized by a strong sense of objectivity. This implies that research can be conducted independently of the researcher's personal views, resulting in more neutral and reliable data and findings. This approach focuses on collecting quantifiable data, such as statistics, figures, or scores, enabling researchers to generate objective and in- depth analyses. Structural Equation Modelling (SEM) with Partial Least Squares (PLS) is a statistical analysis method used to test complex relationships between variables within a conceptual model. It allows researchers to test hypotheses, model causal relationships, and identify factors influencing variables within a framework. The city of Medan was chosen as one of the largest urban centers within the archipelago, boasting a substantial population estimated at around 2.5 million residents as of 2021. This significant demographic size inherently implies a vast market potential for a wide array of products and services. With such a sizable populace, businesses operating within Medan can tap into a diverse consumer base, catering to various needs and preferences prevalent within the community.

Furthermore, Medan boasts well-developed infrastructure, including an international airport and a comprehensive road network. These infrastructural assets play a vital role in bolstering the city's connectivity and accessibility. The presence of such modern transportation facilities streamlines business operations and expedites product distribution processes. Businesses can capitalize on this robust infrastructure to effectively reach consumers and suppliers, thereby enhancing their competitive edge in the market. The economic landscape of Medan is characterized by its diversity, encompassing various sectors such as trade, manufacturing, agriculture, and tourism. This multifaceted economic structure creates a fertile ground for a wide range of business opportunities to thrive. Entrepreneurs and investors can explore diverse industries and niches within Medan, tapping into different sectors to capitalize on emerging trends and consumer demands. Moreover, the burgeoning population and economic growth in Medan signify a market with unsaturated demand. Despite the existing business landscape, there are still unmet needs and underserved segments within the community. This presents ample opportunities for new businesses to enter the market and address these gaps, offering innovative solutions and tailored offerings to meet the evolving demands of Medan's populace. As such, entrepreneurs keen on establishing ventures in Medan can capitalize on this untapped potential, paving the way for sustainable growth and success in the dynamic urban environment.

**Table 1**
**Research Respondents**

| Gender | Q | % |
|---|---|---|
| Male | 195 | 47,45 |
| Female | 216 | 52,55 |
| Desire to try driving an electric vehicle | | |
| Yes | 299 | 72,75 |
| No | 112 | 27,25 |
| N | 411 | 100,00 |

Source: processed data

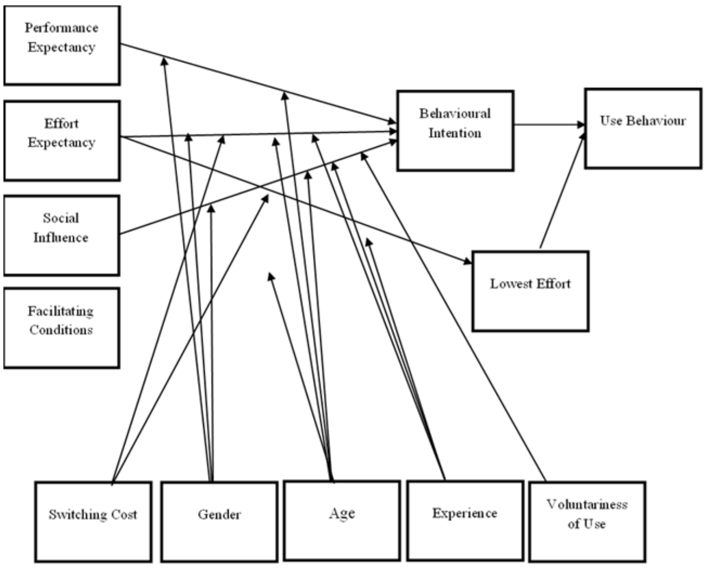
The research location will take place in Medan City and involve the people of Medan City as the research sample. The total population in Medan City is 2,435,252 people. The method of drawing the research sample size uses the Slovin formula with an error value of 5%. The research sample size obtained is 399.9343 or can be rounded up to 400 research samples used as respondents in this study. The entire research sample was then purposively distributed into Nielsen's classification of the Indonesian socioeconomic segments with the following target numbers:

**Table 2**
**Research Respondent Status**

| Segment | *Monthly Household Expenditure* | Proportions | n |
|---|---|---|---|
| A | ≥ 3.000.000,- | 13% | 52 |
| B | 2.000.000 – 3.000.000 | 27% | 108 |
| C1 | 1.500.000 – 2.000.000 | 28% | 112 |
| C2 | 1.000.000 – 1.500.000 | 21% | 84 |
| D | 700.000 – 1.000.000 | 8% | 32 |
| E | ≤ 700.000 | 3% | 12 |

Source: processed data

The target screening of the research sample based on socio-economic status aims to achieve a diversity of opinions from various economic and social classes so as to collect more holistic answers.




Source: processed data

**Figure 2**
**Research Design**

Variables are described and categorized based on their relevance to the UTAUT model and other theoretical frameworks:

1. Behavioral Intention (BI)

- Definition: The intention of respondents to use electric vehicles.
- Measurement: Likert scale items assessing willingness and planned future use.

2. Effort Expectancy (EE)
   - Definition: The perceived ease of use associated with electric vehicles.
   - Measurement: Items evaluating the simplicity and user-friendliness of EVs.
3. Facilitating Conditions (FC)
   - Definition: The availability of resources and support for using electric vehicles.
   - Measurement: Items related to the infrastructure, support systems, and resources available for EV users.
4. Performance Expectancy (PE)
   - Definition: The perceived benefits and performance advantages of electric vehicles.
   - Measurement: Items assessing the effectiveness and efficiency of EVs compared to conventional vehicles.
5. Social Influence (SI)
   - Definition: The impact of social norms and peer influence on the intention to use electric vehicles.
   - Measurement: Items evaluating the influence of family, friends, and social circles on the decision to adopt EVs.
6. Use Behavior (UB)
   - Definition: The actual use of electric vehicles by the respondents.
   - Measurement: Frequency and patterns of EV usage.
7. Lowest Effort (LE)
   - Definition: The preference for solutions that require the least effort.
   - Measurement: Items assessing the tendency to choose the simplest and least demanding options.

## RESULT

HTMT (Heterotrait-Monotrait Ratio) serves as a method employed in Confirmatory Factor Analysis (CFA) to assess construct validity within research. The primary function of HTMT is to gauge construct validity within confirmatory factor testing by comparing the correlation between constructs that are meant to be correlated with those that should not exhibit correlation within the model.

**Table 3**
**Heterotrait-Monotrait Ratio (HTMT)**

| | Behavioral Intention | Effort Expectancy | Facilitating Conditions | Lowest Effort | Performance Expectancy | Social Influence | Use Behavior |
|---|---|---|---|---|---|---|---|
| Behavioral Intention | | | | | | | |
| Effort Expectancy | 0,521 | | | | | | |
| Facilitating Conditions | 0,568 | 0,850 | | | | | |
| Lowest Effort | 0,569 | 0,695 | 0,818 | | | | |
| Performance Expectancy | 0,542 | 0,818 | 0,753 | 0,752 | | | |
| Social Influence | 0,534 | 0,875 | 0,813 | 0,757 | 0,777 | | |
| Use Behavior | 0,461 | 0,721 | 0,805 | 0,887 | 0,710 | 0,774 | |

Source: processed data

The HTMT (Heterotrait-Monotrait Ratio) value ranges from 0 to 1. Values lower than 0.85 indicate satisfactory construct validity, while values exceeding 0.85 suggest potential multicollinearity or significant overlap among the constructs. If the HTMT value between two constructs is substantially below 0.85, it signifies robust construct validity, implying that these constructs effectively measure distinct concepts. However, if the HTMT value approaches or surpasses 0.85, this may imply notable overlap among the considered constructs. Following the removal of indicators BI1 and EE1 from the research model, an improved model fit condition was achieved.

**Table 4**
**Fit Summary**

| | Saturated Model | Estimated Model |
|---|---|---|
| SRMR | 0,077 | 0,118 |
| d_ULS | 1,921 | 4,523 |
| d_G | 0,625 | 0,740 |
| Chi-Square | 1439,487 | 1584,572 |
| NFI | 0,778 | 0,755 |

Source: processed data

The Fit Summary provides information on how well your model fits the available data. This entails assessing how effectively the model predicts or explains variations observed in the data. SRMR (Standardized Root Mean Square Residual) is a measure used in Confirmatory Factor Analysis (CFA) or structural models in path analysis to evaluate how well the tested model aligns with empirical data. It aids in assessing the extent to which the proposed model aligns with the observed data. SRMR quantifies the discrepancy between the observed covariances or correlations in the data and those generated by the model. As the SRMR value approaches 0, your model fits the data better. Lower values indicate a strong fit of the model with empirical data. However, there is no universally accepted threshold value for SRMR, but generally, the closer it is to 0, the better. In the test results, an SRMR value of 0.077 was obtained, which is very close to 0. This suggests that the research model is well-fitted to the empirical data collected.

**Table 5**
**Total Effects**

| | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|
| Behavioral Intention -> Use Behavior | 0,040 | 1,284 | 0,199 |
| Effort Expectancy -> Behavioral Intention | 0,075 | 1,385 | 0,166 |
| Effort Expectancy -> Lowest Effort | 0,040 | 14,851 | 0,000 |
| Effort Expectancy -> Use Behavior | 0,041 | 10,398 | 0,000 |
| Facilitating Conditions -> Behavioral Intention | 0,080 | 2,398 | 0,017 |
| Facilitating Conditions -> Use Behavior | 0,010 | 1,038 | 0,299 |
| Lowest Effort -> Use Behavior | 0,037 | 18,899 | 0,000 |
| Performance Expectancy -> Behavioral Intention | 0,061 | 3,481 | 0,001 |
| Performance Expectancy -> Use Behavior | 0,009 | 1,200 | 0,230 |
| Social Influence -> Behavioral Intention | 0,081 | 1,515 | 0,130 |
| Social Influence -> Use Behavior | 0,008 | 0,846 | 0,398 |

Source: processed data

The table is discussing statistical analysis results, particularly related to the relationships between different constructs within a research study. The standard deviation is a measure of how spread out numbers are from the mean, providing an indication of the variability within the data set. T statistics or t values are used in hypothesis testing to determine whether to reject or not reject a null hypothesis. Larger absolute T values suggest a stronger evidence against the null hypothesis. The P value is a statistical concept that measures the strength of the evidence against the null hypothesis in a statistical test. A P value less than 0.05 is often used as the threshold for statistical significance. This means if the P value is less than 0.05, the relation between the variables is considered statistically significant. P-values are employed to test the null hypothesis, which posits no influence or relationship between independent and dependent variables. The commonly used threshold criterion for the p-value is 0.05, with an interpretation that p-value $< 0.05$ signifies a statistically significant influence.

P-values in Total Effects within Structural Equation Modeling (SEM), including the Partial Least Squares (PLS) method, are statistical metrics used to assess the significance of both direct and indirect effects of independent variables on dependent variables. When this threshold is met, we have sufficient evidence to reject the null hypothesis of no influence between the independent and dependent variables. Conversely, if the p-value is $\geq 0.05$, the influence is considered statistically insignificant. In the example given, the relationship between Effort Expactancy and Lowest Effort has a P value of

0.000, which is less than 0.05, indicating that the impact between these two variables is highly statistically significant.

**Table 6.**
**Average Variance Extracted (AVE)**

| | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|
| Behavioral Intention | 0,024 | 29,619 | 0,000 |
| Effort Expectancy | 0,020 | 37,746 | 0,000 |
| Facilitating Conditions | 0,021 | 34,276 | 0,000 |
| Lowest Effort | 0,022 | 30,733 | 0,000 |
| Performance Expectancy | 0,020 | 32,490 | 0,000 |
| Social Influence | 0,021 | 31,927 | 0,000 |
| Use Behavior | 0,020 | 36,691 | 0,000 |

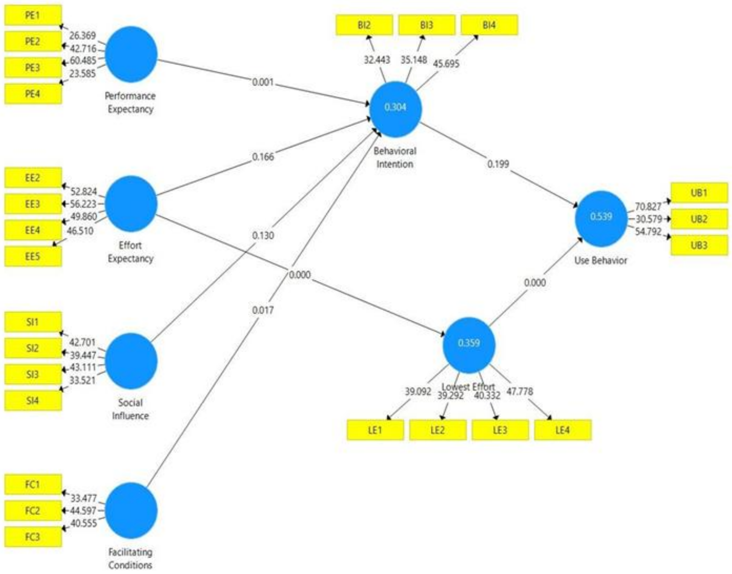
Source: processed data

AVE (Average Variance Extracted) is a measurement employed in Structural Equation Modeling (SEM), including the Partial Least Squares (PLS) method. It gauges the extent to which a construct or factor, measured by a set of variables, accounts for the variation in the data explained by that very construct. The AVE value equal to or exceeding 0.5 signifies robust construct validity, indicating that the construct effectively captures and portrays the variation present within the variables measured by the construct itself. This level of validity suggests that the construct provides a reliable representation of the underlying theoretical concept it seeks to measure. When the AVE value reaches this threshold, it demonstrates a strong alignment between the construct and its constituent variables, bolstering confidence in the accuracy and fidelity of the measurement model. Constructs with AVE values meeting or surpassing 0.5 are considered to possess a solid foundation for interpretation and analysis, providing researchers with confidence in the validity of their findings and conclusions. In summary, AVE serves as a significant tool in assessing construct validity in SEM, providing insights into the extent of the construct's representation of the variance within its measured variables. Different threshold values of AVE guide the interpretation of construct validity, ensuring a comprehensive understanding of the construct's reliability and appropriateness.

The findings of this research elucidate scenarios in which Behavioral Intention does not exert an influence on Use Behavior. This phenomenon becomes evident when individuals possess the intention or desire to engage with a technology or system, yet ultimately fail to utilize it as intended. Other factors, such as situational influences, constraints, or external variables, may also impact usage behavior. Thus, even with a strong intention to use, external or situational factors might impede or diminish the opportunity for individuals to actualize the use of the technology. From the perspective of the Expectancy Disconfirmation Theory, it is explained that the decision to adopt a technology is influenced by the comparison between an individual's expectations and the actual performance of the technology after use. If the actual experience falls short of expectations, it can lead to disconfirmation, subsequently diminishing the Behavioral Intention for future use.

Empirical research in the field of technology adoption has delved into instances where the intended behavioral outcomes, as indicated by Behavioral Intention, do not necessarily translate into actual Use Behavior. This phenomenon, observed across various studies, underscores the complexity inherent in the adoption process and the multitude of factors that can influence user behavior. One key finding is that factors beyond mere intention play a pivotal role in shaping actual usage patterns. For example, the usability of a technology, encompassing aspects such as ease of use, user interface design, and navigation, can significantly impact users' ability and willingness to engage with the system effectively.

Furthermore, environmental aspects, including the context in which the technology is used, can exert a substantial influence on user behavior. Factors such as the availability of supportive infrastructure, social norms, organizational policies, and cultural factors can either facilitate or impede the adoption and usage of a technology. Technical issues, such as system glitches, compatibility issues with existing hardware or software, and reliability concerns, can also pose barriers to effective usage, regardless of users' initial intentions. Moreover, unmet expectations regarding the performance, functionality, or utility of the technology can lead to discrepancies between intention and behavior. If users perceive that the technology does not meet their needs, fails to deliver the promised benefits, or falls short of their expectations, they may be less inclined to use it, despite expressing a strong intention to do so. Overall, these findings underscore the importance of considering a broad array of factors beyond Behavioral Intention when studying technology adoption and usage behavior. By understanding the interplay between usability, environmental context, technical considerations, and user expectations, researchers and practitioners can develop more nuanced models and interventions to promote successful technology adoption and enhance user engagement.




Source: processed data

**Figure 3**
**Output PLS Algorithm**

The research conducted further uncovers specific situations and circumstances where Effort Expectancy does not have a significant influence or effect on Behavioral Intention. This is particularly interesting as it challenges commonly held assumptions and opens new avenues for further exploration and understanding within the field. In some instances, individuals might perceive a technology as user-friendly, yet fail to perceive significant benefits in its use. As a result, even with a high perception of ease, the intention to use may remain low due to the perceived lack of appealing benefits. Context of use can also influence how Effort Expectancy interacts with Behavioral Intention. For instance, in certain situations, despite the ease of use, other factors like task demands or stronger habits can overshadow usage intentions. The perceived compatibility between the new technology and its usage context can impact the intention to use. If users feel that the technology is not fully aligned with their needs or environment, the intention to use may not correlate with perceived ease.

## CONCLUSION

The results of this study reveal that Effort Expectancy and Facilitating Conditions significantly influenced Behavioral Intention and Use Behavior, while Performance Expectancy and Social Influence showed inconsistent effects. LUM was supported, indicating that Effort Expectancy influenced the preference for the behavior with the least effort.

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