BER www.berjournal.com ISSN: 2619-9491 BUSINESS AND ECONOMICS RESEARCH JOURNAL

Business and Economics Research Journal Vol. 17, No.1, 2026 pp. 55-79 doi: 10.20409/berj.2026.487

What Factors Influence the Adoption of Electric Vehicles? A Study in Türkiye Using the Extended Car Technology Acceptance Model (CTAM)

Şafak Altay [1]

Abstract: *This study investigates the factors influencing the adoption of electric vehicles (EVs) in Türkiye using an extended car technology acceptance model (CTAM). Data was collected from 416 respondents via an online survey and analysed using partial least-squares structural equation modelling (PLS-SEM). The model encompasses variables such as performance expectancy, effort expectancy, social influence, facilitating conditions, price value, perceived risk, environmental concern, policy measures, mass media, attitude towards technology, and experience. The findings indicate that behavioural intention is highly influenced by attitude towards technology, price value, perceived risk, and policy measures, with mass media exerting both direct and moderating impacts. In contrast, environmental concern and the traditional constructs of the unified theory of acceptance and use of technology (UTAUT)—performance expectancy, effort expectancy, and social influence—were not deemed significant. The findings emphasise the need to consider contextual factors, demonstrating that media initiatives and governmental incentives are essential for expediting the adoption of electric vehicles in developing countries.*

Keywords: Electric Vehicles, CTAM, UTAUT, Behavioural Intention, Attitude Towards Technology

JEL: M30, M31, M39

Received : 01 October 2025
Revised : 21 November 2025
Accepted : 26 December 2025

Type : Research

1. Introduction

In accordance with advancements in the current century and mandates like sustainability, certain paradigm shifts have become unavoidable. Recently, electric vehicles (EVs) have emerged prominently among these breakthroughs. Electric vehicles represent a key technological advancement in reducing carbon emissions in road transportation, which accounts for about one-sixth of global emissions (International Energy Agency [IEA], 2025). Electric vehicles offer significant advantages over conventional vehicles in terms of being environmentally friendly, using sustainable energy sources with high efficiency, having lower costs throughout their life cycle, not causing noise pollution, having a long service life, having low acquisition costs, and promising high safety for users (European Commission, 2024). Indeed, according to the results of a survey conducted with wide participation from many parts of the world (n=27,869), 42% of the participants want their next vehicle to be an electric vehicle, which supports the advantages offered (McKinsey, 2024).

As of the first 8 months of 2025, 12.5 million electric vehicles were sold worldwide. These sales were 7.6 million for China, 2.6 million for Europe, and 1.3 million for North America (Rho Motion, 2025). According to a report by the International Energy Agency (IEA), it is estimated that in 2025, the share of electric vehicle

Cite this article as: Altay, Ş. (2026). What factors influence the adoption of electric vehicles? A study in Türkiye using the extended car technology acceptance model (CTAM). *Business and Economics Research Journal, 17*(1), 55-79. http://dx.doi.org/10.20409/berj.2026.487

[1] Asst. Prof, PhD., Ardahan University, Faculty of Economic and Management Sciences, Department of Business Management, Ardahan, Türkiye, safakaltay@ardahan.edu.tr

sales among the vehicles sold in the world will rise to 25%. In the same report, it is seen that China is the leader in electric vehicle sales in 2024 with a 40% share of electric vehicles among the vehicles sold in the country, followed by the European Union (EU) countries with a share of nearly 20%. The United States of America (USA) follows the EU countries with a share of 10%. Nevertheless, in most countries, as in the rest of the world, the sales trend for electric vehicles has been positive in the past five years, and the share of electric vehicles in total car sales is projected to exceed 40% by 2030 (International Energy Agency [IEA], 2025).

A comparable trend in electric vehicle usage is evident in developing nations, such as Türkiye. From January to July 2025, electric vehicles totalled 103,310 units, accounting for 18.1% of all cars sold, a substantial rise relative to the prior period (Automotive Distributors and Mobility Association [ODMD], 2025). Tax advantages in Türkiye, along with investments in domestic production and technological advancements, have increased the popularity of electric vehicles. Moreover, we expect regional infrastructure differences and evolving policies to shape demand and consumer preferences for electric vehicles (EY Parthenon, 2025). Within the scope of the European Green Deal, EU countries envision banning the sale of internal combustion vehicles by 2035 (European Commission, 2023), while Türkiye has set a target of 2053 (EY Parthenon, 2025). In general, despite the incentives for electric vehicles in Türkiye, high taxes on vehicles sold have a negative impact on sales (Ökde, 2022), while investment and sales incentives for electric vehicles have positive effects (EY Parthenon, 2025). Moreover, the active role of the state-backed domestic start-up TOGG brand and its ecosystem in Türkiye's EV transformation demonstrates the country's desire to gain a share in both production and sales (Altay, 2023). Given Türkiye's recent economic fluctuations, the fact that vehicles sold in Türkiye are also considered investment instruments makes it inevitable to examine the vehicle purchasing behaviour in Türkiye (Uluscul & Demir, 2023).

The adoption of these technologies by consumers is the main premise for electric vehicles to reach a higher market volume compared to other vehicle types (Schneider et al., 2014). Customers' sensitivity to innovative products determines the widespread adoption of electric vehicles (Wang et al., 2017). Understanding the psychological processes that drive people's behavioural intention to accept and adopt innovative products such as electric vehicles is therefore crucial (Curtale et al., 2021). The extensive acceptance and deployment of electric vehicles (EVs) rely on technological maturity as well as a complex interaction of socio-economic, psychological, cognitive, environmental, political, and technological aspects (Shetty et al., 2020). Consumers may exhibit aversion to unverified new technologies. Consequently, if manufacturers and politicians do not recognise and address consumers' difficulties, low acceptance of electric vehicles may ensue, notwithstanding the resolution of technological problems (Egbue & Long, 2012). Understanding what motivates individuals' intentions towards EVs is therefore crucial (Yu et al., 2023).

There are many recent studies addressing individuals' intentions and acceptance of electric vehicles (Ahmad et al., 2024; Jaiswal et al., 2025; Shanmugavel & Balakrishnan, 2023; Yu et al., 2023). Research has been conducted on different samples using different models to determine the perceptions of individuals towards the adoption of electric vehicles. The theory of planned behaviour (TPB) (Buranelli de Oliveira et al., 2022; Shanmugavel & Balakrishnan, 2023; Yeğin & Ikram, 2022), the unified theory of acceptance and use of technology (UTAUT) (Chaveesuk et al., 2023; Chen et al., 2024; Manutworakit & Choocharukul, 2022), the car technology acceptance model (CTAM) (Osswald et al., 2012; Sithanant et al., 2024), the technology acceptance model (TAM) (Abudayyeh et al., 2023; Globisch et al., 2018), the autonomous vehicle acceptance model (AVAM) (Hewitt et al., 2019), and the unified technology acceptance model (UTAM) (Huang & Ge, 2019) are prominent frameworks utilised to assess intentions and acceptance of electric vehicles.

Numerous research studies investigating the adoption of electric vehicles indicate that consumers in Türkiye face various motives and obstacles. Key factors positively influencing consumers' purchase intent include perceived usability, innovativeness (Efendioğlu, 2024), performance and effort expectations (Akın, 2025), perceived price value (Bozkurt, 2024; Efendioğlu, 2024; Kocagöz & İğde, 2022), and battery charging power (Bozkurt, 2024). Moreover, psychological factors such as social influence, hedonistic motivation, and personal innovativeness positively affect usage and purchase intention. Although environmental concern and the perception of being environmentally friendly are generally considered important motivators (Akın, 2025;

Kocagöz & İğde, 2022; Yılmaz & Kasapoğlu, 2025), some studies indicate that environmental awareness does not have a direct, meaningful effect on purchase intention among Turkish consumers (Bozkurt, 2024). High purchase costs (Yılmaz & Kasapoğlu, 2025) and inadequate charging infrastructure, particularly the lack of fast charging infrastructure and long charging times (Kırmızıgül & Baykal, 2023; Yaprak et al., 2024; Yılmaz & Kasapoğlu, 2025), are highlighted as the most significant barriers to adoption. Researchers have even discovered that these perceived deficiencies in facilitating conditions negatively impact consumers' attitudes. However, the domestic electric vehicle brand TOGG is viewed positively by automotive executives and consumers due to its potential to add value to market dynamics, advance infrastructure, and lead to increased incentives for other brands (Acar & Taşkın, 2024; Kocagöz & İğde, 2022; Köksal et al., 2024). Finally, it has been found that among consumers with low ethnocentric tendencies, the effect of EVs' performance and effort expectations on usage intention is stronger than among those with high ethnocentric tendencies (Akın, 2025).

This study seeks to examine the primary dynamics influencing the adoption of electric vehicles in Türkiye from a multidimensional viewpoint. Thus, the study took the frequently used UTAUT in the literature on electric vehicle acceptance as a reference and considered CTAM appropriate by incorporating some characteristics specific to electric vehicles. In this context, the study aims to determine how various variables, including performance and effort expectations, social impacts, perceived risks, environmental concerns, facilitating conditions, mass media, attitudes towards technologies, charging infrastructure, and price value, influence individuals' intentions to adopt electric vehicles. Nonetheless, it is imperative to acknowledge that additional variables may exert moderating influences on the adoption and acceptance of various new technologies (Chen et al., 2024; Sithanant et al., 2024). The study hypothesises that using purpose/style and mass media has moderating effects on electric vehicle adoption.

Numerous studies examine the adoption and acceptance of electric vehicles across several countries, including the USA, China, Canada, the Netherlands, the United Kingdom, Germany, France, South Korea, Thailand, and Malaysia (Ahmad et al., 2024; Hafeez et al., 2024; Liu et al., 2025; Yu et al., 2023). It can be seen that various studies have recently been conducted on the Turkish sample in this field (Durmuş Şenyapar & Akıl, 2023). However, among the studies on the acceptance and intention of electric vehicles (Yeğin & Ikram, 2022), there are no studies that consider the effects of the CTAM approach and the regulatory variables mentioned in this study (Bektaş & Akyıldız Alçura, 2024; Efendioğlu, 2024; Kocagöz & İğde, 2022; Öztürk, 2022; Yeğin & Ikram, 2022). In some studies, electric vehicles are treated as a technological element by using a different theoretical model (i.e., TAM) (Pala & Mola, 2022). However, the aforementioned studies evaluate consumers' perceptions of vehicles, specifically electric ones, without taking into account the characteristics specific to the vehicle or the sample.

This study represents the premier use of the CTAM technique in Türkiye. The unique characteristics of electric vehicles (usage, charging, risk, cost, incentive, technology, etc.) suggest that they may be adopted differently from other technological elements (i.e., phones, smart devices, robots, etc.) (Hilmersson & Lindhe-Rahr, 2019; Osswald et al., 2012; Öz et al., 2025; Sithanant et al., 2024). From this perspective, rather than general models related to technology acceptance (i.e., TPB, UTAUT, TAM, etc.), it is necessary to consider models aimed at accepting the technology in question (i.e., CTAM). Conversely, the study includes characteristics specific to its sample from Türkiye, such as viewing vehicles as an investment, the media's influence on perceptions, high automobile costs and taxes, and patterns of commercial and private vehicle usage. Additionally, it incorporates adaptations to CTAM based on the literature, including factors like risk perception, price value, mass media influence, usage purpose, environmental concern, and policy measures. In this context, the study attempts to determine perceptions regarding the adoption of electric vehicles in Türkiye using the CTAM approach. Its findings address issues that studies using other approaches have not yet covered (i.e., how do UTAUT variables interact with certain CTAM-specific variables? Which variables are more predictive of intentions in Türkiye? What impact do usage purpose, policy measures, sustainability concerns, and sample-specific risk perceptions have on electric vehicles? In what ways does the efficacy of mass media influence perceptions?) The study's conclusions seek to offer strategic suggestions for

policymakers, automotive industry stakeholders, and energy providers by leveraging new research derived from relevant literature.

The structure of the study is as follows: In the second section, the theoretical background and hypotheses are discussed; in the third section, the research methodology is presented; in the fourth section, the findings are presented; and in the last section, the discussion and conclusions are presented.

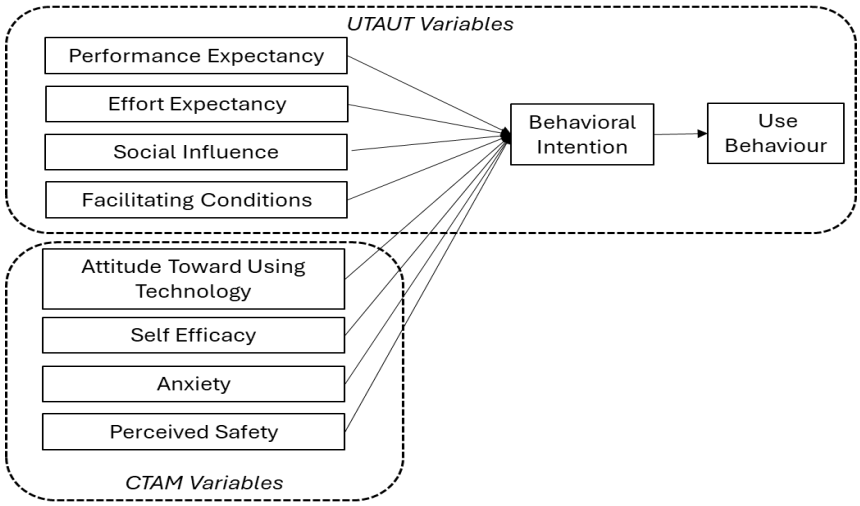
2. Theoretical Background and Hypothesis Development

2.1. Theoretical Background

Electric vehicles are categorised into three primary forms, each providing distinct benefits regarding fuel efficiency, expenses, and ecological consequences. Hybrid electric automobiles (HEVs) use both an internal combustion engine and an electric motor, resulting in enhanced fuel efficiency and reduced emissions relative to traditional automobiles. Plug-in hybrid electric vehicles (PHEVs) possess a small internal combustion engine and an expansive rechargeable battery, enabling prolonged electric operation and enhanced versatility in fuel options. They are more efficient and environmentally friendly than HEVs and conventional cars. Battery electric vehicles (BEVs) rely entirely on electric power from on-board batteries that can be charged via a plug. Using no liquid fuel, BEVs produce zero exhaust emissions and are the most cost-effective of all electric vehicle types to operate (Egbue & Long, 2012). Therefore, BEV vehicles are considered fully electric in terms of their characteristics in this study.

Osswald et al. (2012) developed the car technology acceptance model (CTAM), aiming to provide a theoretical framework tailored to the automotive context (Figure 1). Unlike general technology acceptance models, CTAM specifically addresses the factors influencing user interaction with and adoption of in-vehicle information technologies. By focusing on the unique environment of car usage, the model provides instructive information about how drivers perceive, engage with, and ultimately accept technological innovations integrated into modern vehicles. CTAM is valuable as it incorporates factors unique to electric vehicles, such as anxiety, perceived safety, and user attitude, along with the principal variables of the UTAUT model, which include performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioural intention (Dautzenberg et al., 2022; Sithanant et al., 2024). Since electric vehicles are the subject of research, they have a high level of compatibility compared to other theoretical models (such as TPB, TAM, and UTAUT) (Hilmersson & Lindhe-Rahr, 2019). CTAM differs by considering some of the concerns (i.e., safety and anxiety) associated with driving (Mason et al., 2020). Due to these aspects, CTAM has gained a place in the literature on electric vehicles (Gordon, 2019; Helgath et al., 2018; Hilmersson & Lindhe-Rahr, 2019; Nguyen et al., 2023; Seuwou et al., 2020; Won & Lim, 2024; Zmud & Sener, 2017).

Figure 1. Car Technology Acceptance Model (CTAM)



2.2. Hypothesis Development

CTAM provides a very useful background for determining users' behavioural intentions and acceptance of electric vehicles. But because electric vehicle technology is new in the world and in Türkiye, the reference country in this study, some factors that may affect usage and intentions must be considered. Some studies have used CTAM to take into account the effects of various factors in the specific country under consideration (Mason et al., 2020; Sener et al., 2019; Sithanant et al., 2024). In this study, the extended CTAM proposed by Sithanant et al. (2024) is taken as a reference, considering some differences specific to Türkiye regarding electric vehicles (Figure 2). In the model, this study assumes that variables such as policy measures, use purpose/style, mass media, and experience have indirect effects. Certain variables, such as experience, were identified as components of models derived from UTAUT (Chen et al., 2024; Hafeez et al., 2024; Venkatesh et al., 2012). Conversely, it is stated that variables such as policy measures (Jain et al., 2022), usage purpose (Wolff & Madlener, 2019), and mass media (Buranelli de Oliveira et al., 2022) may have moderating effects. In the model, this study does not directly include usage behaviours and self-efficacy variables because electric vehicles are not yet as widespread and used as desired. For a technology that has not yet been fully used, individuals' self-evaluation of themselves as adequate and their behaviours to use it may not be fully formed. In the CTAM model, behavioural intention can be considered a direct antecedent to current use (Gordon, 2019; Zmud & Sener, 2017). Furthermore, the current study does not directly include concerns or security variables. We believe that perceived risks in general are similar to these variables in the context of EVs, as are facilitating conditions and charging infrastructure variables.

Behavioural Intention (INT): Intention is defined as the antecedents of a conscious decision and behaviour to make an effort to perform a specific action (Ajzen, 1991). In this context, behavioural intention reveals the relative strength of the individual's intention to perform the behaviour (Fishbein & Ajzen, 1977). In the case of electric vehicles, intention to use is important, as the technology is not widespread enough (Sener et al., 2019). Although the use of new technology is difficult to understand, behavioural intentions will play a key role in the acceptance of electric vehicles (Chen et al., 2024).

Performance Expectancy (PE): Performance expectancy is known as “the degree to which using a technology will provide benefits to consumers in performing certain activities” (Venkatesh et al., 2012). In this respect, electric vehicles can be expected to increase the performance of individuals and make positive contributions to them in many ways. Therefore, the evidence indicates that performance expectations can play a role in predicting behavioural intentions. It is worth noting that there are studies supporting this in the literature (i.e., Abbasi et al., 2021; Wang et al., 2023; Yu et al., 2023). Therefore, the following hypothesis is proposed:

H_1: Performance expectancy predicts behavioural intentions.

Effort Expectancy (EE): Effort expectancy can be described as “the degree of ease associated with consumers' use of technology” (Venkatesh et al., 2012). Consequently, the ability to use new technologies without difficulty and hassle directs individuals' behavioural intentions (Yu et al., 2023). Findings reveal that the effort expectancy perceptions of individuals toward using electric vehicle technology may play a role in explaining the behavioural intention towards electric vehicles. There are studies supporting this theory in the literature (i.e., Hafeez et al., 2024; Jain et al., 2022; Jaiswal et al., 2025). Therefore, the related hypothesis is recommended:

H_2: Effort expectancy predicts behavioural intentions.

Social Influence (SI): Social influence is defined as “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh et al., 2003). Social influence comes from individuals (such as family and environment) who are likely to influence users' decisions (Manutworakit & Choocharukul, 2022). Families and others are likely to shape an individual's behavioural intentions towards EVs. There is evidence to support this proposition various studies (i.e., Alwadain et al., 2024; Chaveesuk et al., 2023; Curtale et al., 2021). The pertinent hypothesis is formulated based on the literature:

H_3: Social influence predicts behavioural intentions.

Facilitating Conditions and Charging Infrastructure (FC&CI): Facilitating conditions can be explained as "consumers' perceptions of the resources and support available to perform a behaviour" (Venkatesh et al., 2012). For EVs, batteries, learning, service and after-sales services come to mind as facilitating conditions (Ahmad et al., 2024). Since charging infrastructure is most strongly linked to EV adoption, it should be regarded as a facilitating factor alongside other conditions (Sierzchula et al., 2014). Facilitating conditions and charging infrastructure should therefore be combined when assessing behavioural intentions. In the literature, it is suggested that this factor predicts behavioural intentions toward electric vehicles (i.e., Ahmad et al., 2024; Chen et al., 2024; Sithanant et al., 2024). Therefore, the relevant hypothesis is proposed:

H_4: Facilitating conditions and charging infrastructure predict behavioural intentions.

Attitude Towards Technology (AT): Positive or negative individual evaluations towards performing a behaviour indicate an individual's attitudes (Ajzen, 1985). While attitudes towards technology are at the forefront in CTAM compared to the UTAUT model, it is clear that functional (such as infotainment, range, quietness, etc.) and emotional (such as pleasure, enjoyment, comfort, etc.) functionality specific to electric vehicles, which are not yet widespread, are necessary to understand their possible effects on intentions (Osswald et al., 2012). In various studies on electric vehicles, it has been understood that attitudes are an important factor in explaining behavioural intentions (i.e., Deka et al., 2023; Nguyen et al., 2023; Yu et al., 2023). For this reason, the following hypothesis is proposed:

H_5: Attitude toward technology predicts behavioural intentions.

Mass Media (MM): Mass media refers to the dissemination of information, experiences, and content through traditional and digital means (Spitulnik, 1993). Research shows that content in the media influences consumers' awareness, interest, and purchasing behaviour (Tewari et al., 2023). It is stated that the role of mass media is highly decisive in the adoption of electric vehicles (Zhao et al., 2024). The literature indicates that information disseminated, whether consciously or unconsciously, through mass media influences individuals, hence shaping attitudes towards electric vehicles (Broadbent et al., 2021; Mourtzouchou et al., 2025). In this context, there are studies examining the role of mass media in the acceptance of electric vehicles (Buranelli de Oliveira et al., 2022; Dutta & Hwang, 2021; Moons & De Pelsmacker, 2015). This study posits that mass media can exert direct influence on intents and attitudes, as seen in the research. This indicates that it exerts both direct and moderating impacts owing to its value-enhancing characteristics concerning electric vehicles (Simanihuruk et al., 2024; Zhao et al., 2024; Zhou et al., 2024). It is suggested that specific channels such as social media can have a multifaceted impact on individuals' acceptance of electric vehicles (i.e., posts related to electric vehicle fires) (Öz et al., 2025) and can produce indirect effects in conjunction with other variables (Gupta et al., 2024; Singh & Biswas, 2025). Therefore, the following hypotheses are proposed:

H_6: Mass media predicts behavioural intentions.

H_7: Mass media predicts attitude toward technology.

H_8: Mass media predicts price value.

H_9: Mass media has a moderating effect between behavioural intentions and price value.

Price Value (PV): The low or high prices of electric vehicles have a decisive role in their adoption. Consumers are highly sensitive to the balance between the performance of electric vehicles and their price (Mashrur & Mohamed, 2025). In economic terms, it is stated that while offering price value to consumers is effective in gaining consumer trust, price value is the main driving factor (Su & Wan, 2024). The effects of price value have also been considered in studies on the acceptance of electric vehicles, and it has been determined that it drives intentions (i.e., Ahmad et al., 2024; Manutworakit & Choocharukul, 2022; Wang et al., 2023). In this respect, the following hypothesis is proposed:

H_{10}: Price value predicts behavioural intentions.

Perceived Risks (PR): The use of electric vehicles may pose certain inherent dangers. Within the realm of electric vehicles, consumer expectations regarding the disadvantages of driving represent perceived risks (Wang et al., 2023). Range, battery, performance, and financial concerns (e.g., depreciation) are elements influencing the risk perceptions of electric vehicles (Jain et al., 2022). High costs and expectations for electric vehicles can deepen risk perceptions (Su & Wan, 2024). Some studies reveal that risk perceptions have a predictive effect on intentions (Jain et al., 2022; Wang et al., 2023). Therefore, the following hypothesis is proposed:

H_{11}: Perceived risk predicts behavioural intentions.

Environmental Concern (EC): It can be expressed as an individual commitment to reducing or eliminating damage to the environment and atmosphere and to protecting nature (Shanmugavel & Balakrishnan, 2023). This literature indicates that environmental concerns influence purchasing behaviours due to global warming (Manutworakit & Choocharukul, 2022). Electric vehicles are highly environmentally sustainable, as they produce no carbon emissions (Sithanant et al., 2024). Research on the acceptance of electric vehicles considers the impact of environmental concerns (i.e., Ahmad et al., 2024; Shanmugavel & Balakrishnan, 2023; Sierzchula et al., 2014). Based on the literature, the current study proposes the following hypothesis:

H_{12}: Environmental concern predicts behavioural intention.

Policy Measures (PM): Electric vehicles are beneficial for the environment, but they need government incentives to be widely accepted in the markets where they are sold (Sithanant et al., 2024). In this context, governments can apply monetary and non-monetary incentives. Incentives such as discounted loans, subsidies, discounted vehicle promotions, tax exemptions for new vehicle registrations, discounted parking fees, free charging, special licence plates, etc. can be given as examples. Given the high cost of electric vehicles compared to conventional vehicles, various policy incentives can have positive effects on intentions and adoption (Chen et al., 2025; Manutworakit & Choocharukul, 2022; Sang & Bekhet, 2015). It can be said that a similar situation applies to Türkiye (Acar & Taşkın, 2024; Öz et al., 2025; Yaprak et al., 2024). Policies and incentives pursued for the adoption of electric vehicles can accelerate the rate of adoption (Öztürk, 2022; Yılmaz & Kasapoğlu, 2025). It is known that electric vehicle sales have increased in countries such as Norway due to the incentives provided (Cincotta & Thomassen, 2025). Furthermore, it can be said that policy measures play an important role in the long-term adoption and widespread use of EVs (Durmuş Şenyapar & Akıl, 2023). Therefore, the following hypotheses are proposed:

H_{13}: Policy measures predict behavioural intentions.

H_{14}: Policy measures predict attitude toward technology.

Experience (Exp): Despite the benefits that electric vehicles offer and their growing market shares, limited user awareness of these experiences is suggested (Cui et al., 2025). Due to the lack of technical knowledge and driving experience of electric vehicles among individuals, the inability to manage the factors associated with the use of electric vehicles, such as range, battery, charging, usage, and performance, in the desired way may negatively affect consumers' attitudes towards electric vehicles (Jiang et al., 2025). Studies indicate that experiences generally have positive effects on the adoption of electric vehicles (Daramy-Williams et al., 2019). Thus, it has been determined that experiences guide attitudes (Jiang et al., 2025; Liu et al., 2020).

H_{15}: Experience predicts attitude toward technology.

Using Purpose/Style (Up/s): Intentions to accept electric vehicles for commercial or private purposes may vary (Kaplan et al., 2016). In this context, issues such as the distribution of charging stations, charging duration, battery management, and the availability of charging stations significantly impact the commercial or private utilisation of electric vehicles (Vertgewall et al., 2022). The use of electric vehicles for commercial reasons may be influenced by the opinions of business owners, managers, and employees regarding electric vehicles (Illahi et al., 2024). From this perspective, it can be stated that certain non-functional factors

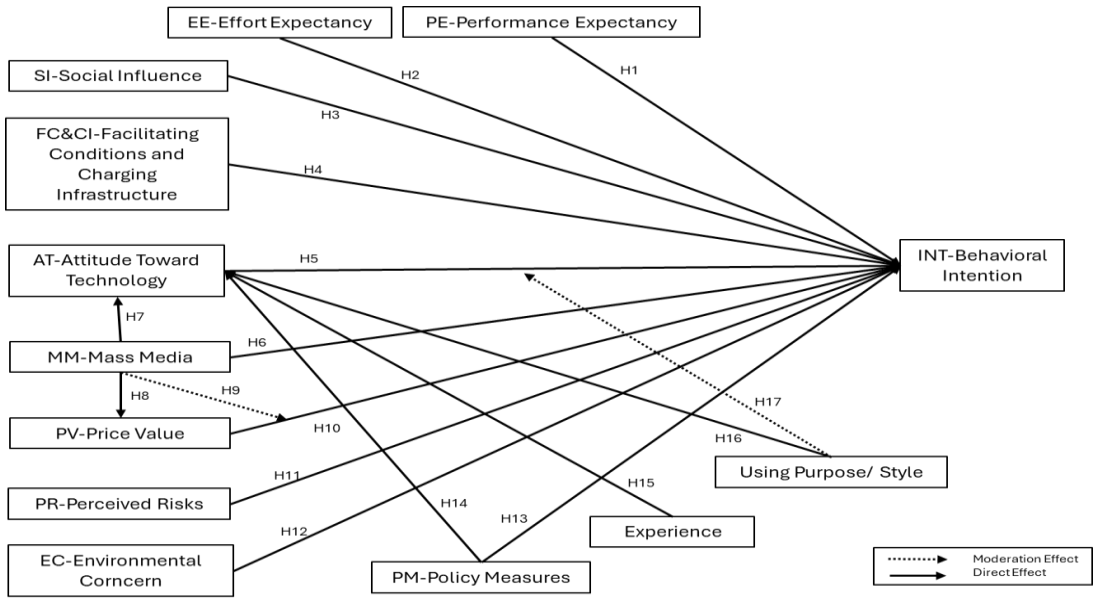
(emotional, social, etc.) (Han et al., 2017), vehicle types (cars, pickups, SUVs) (Champahom et al., 2025), and commercial usage (Kaplan et al., 2016) concerns may have indirect effects. This situation may generate moderating effects between attitudes and intentions due to reasons such as range, service, cost, and time loss of EVs expected to be used for commercial (i.e., filo, commerce) or private purposes. (Kuppusamy et al., 2017; Lebeau et al., 2019). In this study, we believe that the purpose or type of use of electric vehicles influences attitudes and also moderates the relationship between attitudes and intentions. Consequently, we propose the following hypotheses:

H_{16}: Using purposes/styles predicts attitude toward technology.

H_{17}: Using purposes/styles has a moderating effect between attitude toward technology and behavioural intention.

The research model, which includes the hypothesis representations developed based on the literature, is as shown in Figure 2.

Figure 2. Research Model



3. Methodology

3.1. Sample and Measurement

The population for the current study has been defined as individuals in Türkiye. The electric vehicle market in Türkiye differs from those in developed countries due to its population (85 million) (Turkish Statistical Institute, 2025), economy, consumer characteristics, and potential. Furthermore, the charging infrastructure specific to electric vehicles, government incentives, and individuals' varying risk perceptions are considered noteworthy factors. Considering that individuals aged 18 and above are legally permitted to drive electric vehicles, it is expected that individuals meeting this criterion will participate in the research. However, due to various barriers such as cost, time, and accessibility, it is not expected that everyone will participate in the research.

This study is based on positivist philosophy (Kelly et al., 2018). They used quantitative approaches that require the collection and analysis of numerical data to test their theories and reach conclusions. A survey was used to collect data for this study. The prepared surveys were shared as online forms via various social media platforms, and participants were asked to respond on a voluntary basis. 416 people participated in the survey shared between 5 February and 21 August 2025. Ethics committee approval was obtained

before data collection. A sample size of 200 or more is considered sufficient for structural equation modelling (Kline, 2015). The expected effect size of the participant population (anticipated effect size = 0.1, desired statistical power = 0.8, significance level = 0.05) surpassed the expected number (>200) based on the observable and latent variables (Soper, 2024; Westland, 2010).

The scales used in the study were adapted from studies with proven validity and reliability (Table 1). To measure the statements, participants were asked to respond on a seven-point Likert scale *("1-Strongly Disagree-….7-Strongly Agree").* We would like to point out that some scales are nominal scales consisting of a single statement. These scales are variables of purpose/form of use (private or commercial) and experience (yes or no). A step-by-step evaluation was conducted to determine the clarity of the statements before the research began. To evaluate the clarity of the scale statements, an expert researcher was first asked to review them. In the next stage, a pre-test group consisting of 15 participants with different demographic characteristics was formed, considering the results of the initial evaluation. After this stage, all statements considered understandable were presented to the participants via an online survey.

Table 1. Measures

Variables	Codes	Items	Adapted From	Measured
Performance Expectancy	PE	3	Fleury et al. (2017), Venkatesh et al. (2012)	Ordinal
Effort Expectancy	EE	3		
Social Influence	SI	3	Hewitt et al. (2019), Venkatesh et al. (2003)	
Facilitating Conditions & Charging Infrastructure	FC&CI	6	Ahmad et al. (2024), Manutworakit & Choocharukul (2022)	
Policy Measures	PM	2	Huang & Ge (2019), Manutworakit & Choocharukul (2022)	
Attitude Toward Technology	AT	3	Davis (1989), Hewitt et al. (2019)	
Mass Media	MM	3	Buranelli de Oliveira et al. (2022), Moons & De Pelsmacker (2015)	
Perceived Value	PV	3	Venkatesh et al. (2012)	
Perceived Risks	PR	4	Jain et al. (2022), Wang et al. (2023)	
Environmental Concern	EC	2	Manutworakit & Choocharukul (2022)	
Behavioural Intentions	INT	3	Buranelli de Oliveira et al. (2022), Venkatesh et al. (2012)	
Using Purpose/Style	UP/S	1	Developed by authors	Nominal
Experience	Exp	1		

3.2. Data Analysis

In this study, a two-stage Structural Equation Modelling (SEM) approach is appropriate for determining the relationships between variables and observed statements (Gerbing & Anderson, 1988). Due to the measurement of some constructs with a single statement and the non-normal distribution of scale statements (kurtosis= 6.98/-1.31 & skewness= 2.36/-2.48), the PL (Partial Least Squares)-SEM algorithm was used to examine the reliability and validity of all constructs (Hair et al., 2016).

The data in the study were obtained from a single sample group. For this, common variance bias (CVB) must be tested. This bias occurs when the true variance in the population is not equal across all groups or conditions being compared. Common method bias will first be addressed using the multicollinearity method. Finally, the results will be analysed to determine whether CVB is present in the data. According to the inner model test results, it was determined that the VIF values of all latent variables except for two variables (AT and INT) remained below the critical threshold of 3.3 (Kock, 2015). For this reason, it was deemed appropriate to review other CVB test results. Harman's one-factor test was used for this. A one-factor analysis was performed using IBM SPSS. The first eigenvalue (42%) did not explain most of the total

variance, and there was no CVB problem. Instead, the factor loadings showed a clear and strong relationship with the variables (Fuller et al., 2016).

Table 2. Inner Model VIF Values

	AT	EC	EE	EXP	FC&CI	INT	MM	PE	PM	PR	PV	SI	UP/S	UP/S xAT	MM x PV
AT						3.76									
EC						2.09									
EE						2.20									
EXP	1.01														
FC&CI						2.03									
INT															
MM	1.42					2.53					1.00				
PE						3.15									
PM	1.45					2.08									
PR						1.31									
PV						1.44									
SI						2.34									
UP/S	1.01					1.05									
UP/SxAT						1.08									
MMxPV						1.09									

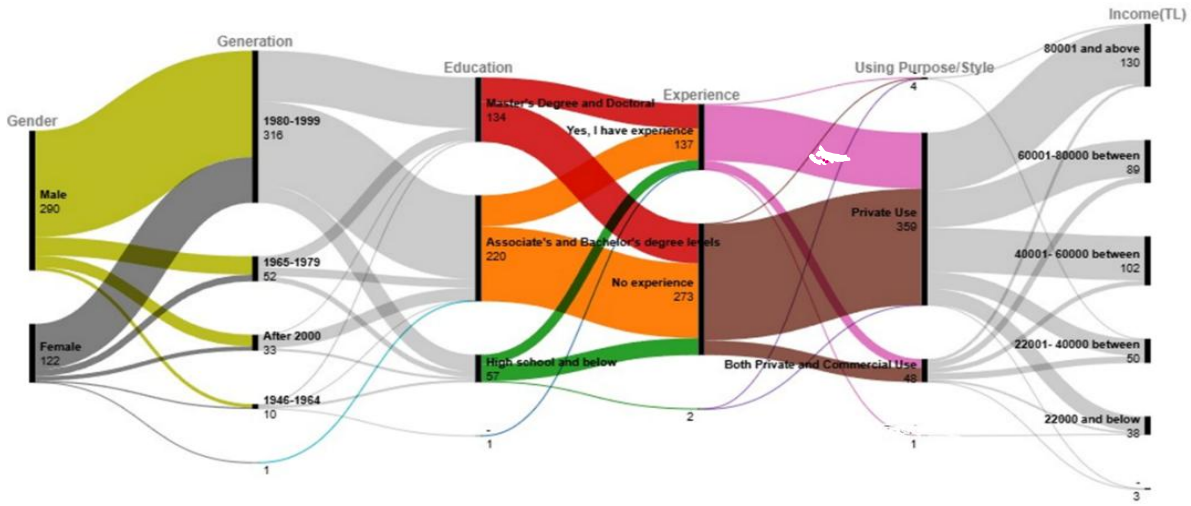
Inner model collinearity (VIF) <3.3 (Knock, 2015)

4. Findings

4.1. Demographics

Demographic data on the study participants are shown in Figure 3. Most participants were male (n=290), born between 1980 and 1999, and held associate and bachelor's degrees (n=220). Similarly, it can be stated that individuals with no experience with electric vehicles (n=273) and those who use vehicles for private purposes (n=359) stand out. In addition, it was observed that many participants had incomes above the minimum wage (20,000 Turkish Lira (TL) and above).

Figure 3. Demographics



4.2. Measurement Model Test

The Smart PL-SEM software programme was chosen for conducting factor and path analyses in this study. The analysis of the research model was performed using a two-stage procedure based on the methodological framework proposed by Hair et al. (2016). First, criteria related to the measurement model were considered to evaluate the model's properties. The average variance extracted (AVE) was evaluated for convergent validity. Composite reliability criteria (CR; Rho_A, Rho_C) were used to verify the internal consistency of the

constructs. Finally, the Fornell-Larcker (FL) and the heterotrait-monotrait (HTMT) criteria were considered for discriminant validity.

Confirmatory factor analysis (CFA) for the measurement model was conducted using the PLS algorithm. All latent variables are in reflective form. The factor weighting scheme setting was used for the measurement model of latent variables with reflective indicators. In the evaluations, the VIF values of the statements (VIF<5) were first examined. Only the INT3 statement's VIF value (5.32) did not meet the criteria at this stage and was therefore excluded from the analysis. Convergent validity and reliability were examined (C. Alpha ≥ 0.70, CR ≥ 0.70, AVE > 0.50, and discriminant validity values) and were considered (Fornell & Larcker, 1981; Hair et al., 2016; Henseler et al., 2015; Hu & Bentler, 1999). As shown in Table 2, the Cronbach's alpha, Rho_a, Rho_b, and AVE values for the variables meet the specified criteria, indicating that convergence and reliability validity have been established.

Table 3. Convergent Validity and Reliability

	Cron. Alpha	CR (Rho_a)	CR (Rho_c)	AVE	Loadings
AT	0.919	0.920	0.949	0.861	0.90-0.93
EC	0.871	0.884	0.939	0.885	0.93-0.95
EE	0.825	0.833	0.894	0.737	0.80-0.88
FC&CI	0.856	0.902	0.897	0.640	0.61-0.90
INT	0.920	0.921	0.962	0.926	0.96-0.96
MM	0.851	0.866	0.910	0.771	0.83-0.92
PE	0.831	0.844	0.899	0.749	0.79-0.89
PM	0.868	0.871	0.938	0.883	0.93-0.94
PR	0.751	0.781	0.840	0.571	0.60-0.81
PV	0.855	0.890	0.909	0.770	0.86-0.89
SI	0.749	0.818	0.851	0.657	0.73-0.81

The heterotrait-monotrait (HTMT<0.90) and Fornell-Larcker (FL>below) criteria were considered to test the discriminant validity. Discriminant validity at an acceptable level has been considered appropriate within the limits of HTMT. All HTMT values are less than 0.90. In an FL assessment, the average variance extracted (AVE) for all constructs must exceed the square root of the correlation with other constructs to establish robust discriminant validity. According to the test results (Table 3-4), the variables were found to comply with the specified discrimination criteria. It has been understood that the diagonal values are higher than the square correlation values. It was determined that discrimination validity was achieved for the current study.

Table 4. HTMT (Heterotrait-Monotrait Ratio)

	AT	EC	EE	Exp	FC&CI	INT	MM	PE	PM	PR	PV	SI	Up/S	UP/Sx AT	MMx PV
AT															
EC	0.703														
EE	0.642	0.487													
Exp	0.226	0.021	0.134												
FC&CI	0.441	0.484	0.622	0.088											
INT	0.869	0.645	0.612	0.208	0.460										
MM	0.797	0.645	0.562	0.065	0.519	0.764									
PE	0.849	0.762	0.748	0.136	0.489	0.779	0.732								
PM	0.621	0.526	0.585	0.113	0.698	0.685	0.637	0.627							
PR	0.452	0.199	0.196	0.269	0.167	0.405	0.225	0.338	0.143						
PV	0.561	0.378	0.465	0.253	0.244	0.550	0.459	0.515	0.357	0.276					
SI	0.702	0.699	0.645	0.136	0.393	0.665	0.778	0.790	0.458	0.247	0.389				
Up/S	0.058	0.046	0.090	0.037	0.163	0.014	0.045	0.066	0.123	0.049	0.066	0.035			
UP/SxAT	0.139	0.164	0.168	0.109	0.234	0.050	0.137	0.123	0.132	0.073	0.112	0.089	0.111		
MMxPV	0.203	0.204	0.220	0.155	0.245	0.243	0.194	0.201	0.221	0.026	0.045	0.141	0.090	0.004	

HTMT *values <0.90, Exp: Experience, Up/S: Using Purpose/Style*

Table 5. Fornell-Lacker

	AT	EC	EE	Exp	FC&CI	INT	MM	PE	PM	PR	PV	SI	Up/S
AT	0.928												
EC	0.631	0.941											
EE	0.584	0.428	0.859										
Exp	-0.216	-0.020	-0.125	1,000									
FC&CI	0.405	0.418	0.526	-0.093	0.800								
INT	0.802	0.581	0.549	-0.199	0.426	0.962							
MM	0.709	0.561	0.483	-0.056	0.449	0.682	0.878						
PE	0.746	0.642	0.643	-0.126	0.434	0.684	0.616	0.865					
PM	0.557	0.458	0.500	-0.107	0.618	0.613	0.547	0.532	0.940				
PR	-0.387	-0.152	-0.140	0.248	0.070	-0.350	-0.189	-0.273	-0.119	0.755			
PV	0.516	0.336	0.420	-0.243	0.235	0.510	0.409	0.447	0.321	-0.240	0.877		
SI	0.629	0.583	0.554	-0.034	0.340	0.586	0.639	0.660	0.398	-0.181	0.348	0.811	
Up/S	-0.056	-0.042	-0.082	-0.037	-0.145	-0.003	-0.040	-0.060	-0.114	0.045	0.043	-0.017	1.000

The diagonal elements indicate the square roots of the AVE values. The other elements are the correlation coefficients between the variables.
Exp: Experience, Up/S: Using Purpose/Style

4.3. Structural Model Test

In this section, the structural model will be tested. The PL-SEM algorithm was used to determine the relationships between variables. The sample was bootstrapped (n=2000), and the analyses were performed. The results of the structural model test analysis are shown in Table 6 and Figure 5. The results indicated that the performance expectation (PE) variable (β=0.058; t=1.064; p=0.288), the effort expectation (EE) variable (β=0.018; t=0.387; p=0.699), the social influence (SI) variable (β=0.041; t=0.971; p=0.331), and the facilitating conditions and charging infrastructure (FC&CI) variable (β=0.007; t=0.174; p=0.862) did not predict behavioural intention (INT). The current lack of prediction also applies to the environmental concerns (EC) variable (β=0.046; t=1.003; p=0.316).

It has been determined that the mass media (MM) variable (β=0.578; t=13.598; p=0.000), the policy measures (PM) variable (β=0.221; t=4.688; p=0.000), and the experience (Exp) variable (β=-0.161; t=4.704; p=0.000) are significant predictors of attitudes toward technology (AT) included in the research model. However, the using purpose/style (UsP/S) variable (β=-0.013; t=0.336; p=0.737) was not found to be a significant predictor of attitudes toward technology use (AT).

Table 1. Structural Test Results

Hypotheses	Path	Beta	M	STDEV	T	P	Result
H_1	PE -> INT	0.058	0.057	0.054	1.064	0.288	Not supported
H_2	EE -> INT	0.018	0.017	0.047	0.387	0.699	Not supported
H_3	SI -> INT	0.041	0.040	0.042	0.971	0.331	Not supported
H_4	FC&CI -> INT	0.007	0.004	0.043	0.174	0.862	Not supported
H_5	AT -> INT	0.401	0.398	0.064	6.305	0.000	Supported
H_6	MM -> INT	0.134	0.138	0.045	2.995	0.003	Supported
H_7	MM -> AT	0.578	0.580	0.043	13.598	0.000	Supported
H_8	MM -> PV	0.409	0.408	0.048	8.588	0.000	Supported
H_9	MM x PV -> INT	-0.052	-0.052	0.023	2.264	0.024	Supported
H_{10}	PV -> INT	0.102	0.101	0.034	3.020	0.003	Supported
H_{11}	PR -> INT	-0.087	-0.089	0.026	3.295	0.001	Supported
H_{12}	EC -> INT	0.046	0.048	0.046	1.003	0.316	Not supported
H_{13}	PM -> INT	0.193	0.195	0.055	3.488	0.000	Supported
H_{14}	PM -> AT	0.221	0.221	0.047	4.688	0.000	Supported
H_{15}	Exp -> AT	-0.161	-0.162	0.034	4.704	0.000	Supported
H_{16}	UP/S -> AT	-0.013	-0.013	0.040	0.336	0.737	Not supported
H_{17}	UP/S x AT -> INT	-0.056	-0.056	0.023	2.504	0.012	Supported
Adjusted R^2 values: INT=0.719; PV=0.165; AT=0.565							

The mass media (MM) variable predicts the intention (INT) variable (β=0.134; t=2.995; p=0.003) and the perceived value (PV) variable (β=0.409; t=8.588; p=0.000), in addition to attitudes toward technology. Furthermore, it has been determined that mass media has a significant moderating effect (Figure 4) between perceived value and behavioural intention (β=-0.052; t=2.264; p=0.024).

Figure 4. Moderation Slopes

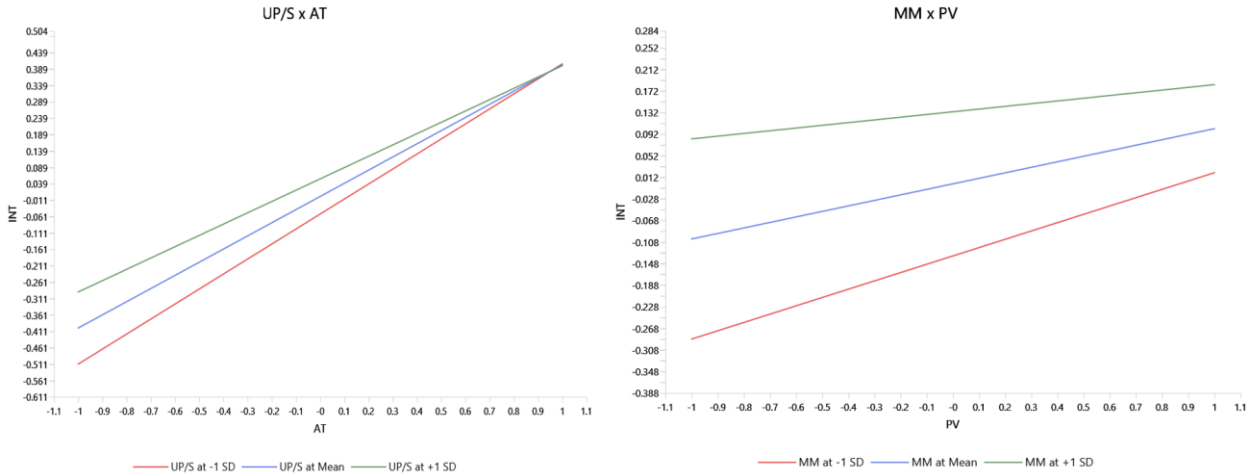
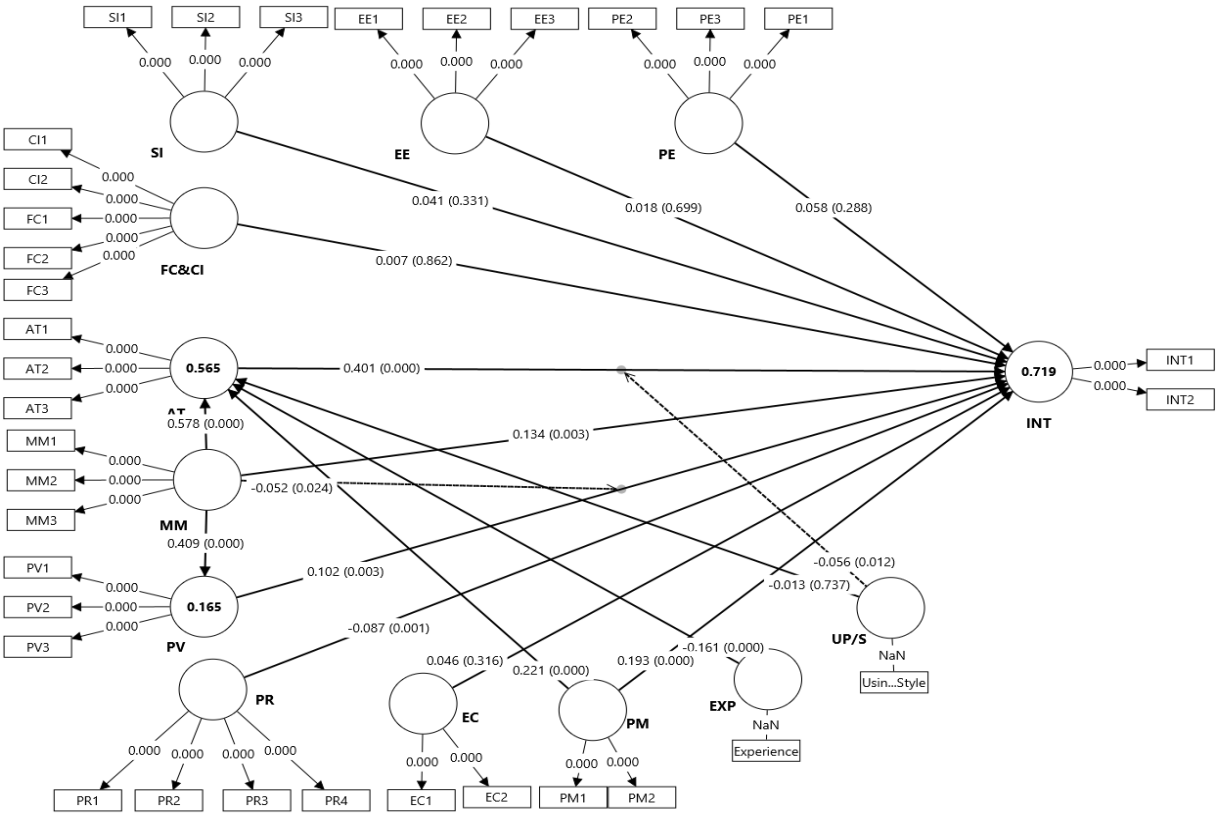


Figure 5. Structural Model



Finally, it was determined that the attitudes towards technology (AT) variable (β=0.401; t=6.305; p=0.000), the perceived value (PV) variable (β=0.102; t=3.020; p=0.003), the perceived risks (PR) variable (β=-0.087; t=3.295; p=0.001), and the policy measures (PM) variable (β=0.193; t=3.488; p=0.000) significantly influenced behavioural intentions. The analysis revealed that the environmental concern (EC) variable (β=0.046; t=1.003; p=0.316) exerted no influence on behavioural intentions (INT). Additionally, it was established that the utilising purpose/style (UP/S) variable (β=-0.056; t=2.504; p=0.012) exerted a moderating influence (Figure 5) on the relationship between behavioural intentions (INT) and attitudes towards technology (AT).

The variable representing attitudes toward technology use in the model is explained by mass media (β=0.578), policy measures (β=0.193), and experience (β=-0.161) at a rate of 56%. Conversely, it was observed that 16% of the perceived value variable is explained by mass media (β=0.409). Finally, 71% of behavioural intentions are explained by policy measures (β=0.193), attitudes toward technology (β=0.401), mass media (β=0.134), perceived value (β=0.102), and perceived risks (β=-0.087) (Figure 5). The predictive power of the variables in the analyses (Q^2 prediction) has been determined. The predictive power of all variables was found to be at a normal level (0.161-0.609) and significant (p=0.000).

5. Discussion

This study investigates the factors influencing the intention to use electric vehicles in Türkiye, employing an enhanced CTAM framework. The results demonstrate that the choice to adopt electric vehicles in emerging markets diverges from the cognitive processes anticipated by conventional technology acceptance models, especially since factors like performance expectancy, effort expectancy, and social influence—central to UTAUT based on technological rationality—did not produce significant outcomes. These findings underscore the theoretical constraints of the models by demonstrating that electric vehicle adoption in markets characterised by elevated risk and uncertainty perceptions, such as Türkiye, is influenced by contextual (policy measures, mass media) and individual (perceived risk, price value) factors rather than rational and functional expectations.

The findings reveal that attitudes toward technology (i.e., Curtale et al., 2021; Moons & De Pelsmacker, 2015; Yaprak et al., 2024), perceived value (i.e., Efendioğlu, 2024; Kocagöz & İğde, 2022; Manutworakit & Choocharukul, 2022), perceived risks (i.e., Yılmaz & Kasapoğlu, 2025), and policy measures (i.e., Chen et al., 2025; Gupta et al., 2024; Huang & Ge, 2019) are statistically significant and strong predictors of behavioural intention toward electric vehicles, similar to the literature. These results highlight the socio-psychological and economic motivations underlying EV adoption. It is clear that attitudes and perceptions of value are decisive in the adoption of electric vehicles. This suggests that the prevailing belief in the future role of electric vehicles in the market influences adoption. Conversely, it has been understood that individuals' risk perceptions regarding electric vehicles have a negative impact (i.e., Han et al., 2017; Wang et al., 2023). This may stem from issues such as battery explosions, range anxiety, charging, and service networks (i.e., Kizilkaya, 2024). Minimising or eliminating risks may positively influence behavioural intentions.

Mass media has significantly influenced positive attitudes. It is possible to state that individuals' attitudes are directly influenced by the content featured in the media. In particular, mass media directly and positively affects behavioural intention, confirming that the level of knowledge and awareness plays a critical role in the market entry of a new technology. Studies confirm this (i.e., Acar & Taşkın, 2024; Buranelli de Oliveira et al., 2022; Dutta & Hwang, 2021; Moons & De Pelsmacker, 2015). Furthermore, it has been determined that mass media strengthens the relationship between prices and behavioural intentions. It is clear that MM has generated excitement and a positive perception at the national level, particularly through domestic initiatives such as TOGG. Conversely, the excessive positive expectations created by the media may lead to disappointment when confronted with high prices and perceived risks, potentially resulting in negative moderation of intentions. In this regard, the study suggested that positive content shared in the media about electric vehicles will support the positive relationship between the price value of electric vehicles and intention.

One of the most striking findings of the study is that variables frequently highlighted in the UTAUT model, such as performance expectancy (i.e., Garidis et al., 2020), effort expectancy (i.e., Y. Chen et al., 2024; Wei et al., 2024), social influence (i.e., Alwadain et al., 2024; Hafeez et al., 2024; Jain et al., 2022), and facilitating conditions & charging infrastructure (i.e., Chaveesuk et al., 2023; Khazaei, 2019; Yaprak et al., 2024), do not significantly predict behavioural intention. This result generally contradicts the literature (i.e., Gordon, 2019; Jaiswal et al., 2025; Seuwou et al., 2020; Wei et al., 2024). It should be noted that the basic variables of the UTAUT model may not have a significant effect in Türkiye and countries with similar characteristics. This situation can be attributed to the market's level of technological maturity. This indicates that these variables apply to mature technologies, while EVs are still perceived as an “under-tested” technology in Türkiye. Consumers in a developing market such as Türkiye place more importance on perceptual (risk and value) and political (incentives) factors rather than technological features or infrastructure. Conversely, it can be associated with users not having real knowledge about products that are not as widespread in the market as expected, thus giving rise to various uncertainties about the technology (Sener et al., 2019). Nguyen et al. (2023) additionally addresses common problems, like not being able to receive clear advice from car experts and having to learn on your own. The social influence variable did not demonstrate a significant effect, likely due to EVs being a nascent technology with a low market penetration in Türkiye. When there are not enough EV owners among consumers (family, friends, colleagues), social influence remains weak as a purchasing motivation in the decision-making process. A lack of guidance, the confusion experienced by older drivers, and a lack of knowledge can cause them to experience confusion regarding expectations and performance. The fact that facilitating conditions and charging infrastructure do not have a significant effect may indicate that this variable, rather than being a direct obstacle, can influence intentions as perceived risks that already exist and are known.

Conversely, the absence of a statistically significant effect of environmental concerns on behavioural intent suggests that consumers focus on concrete and individual benefits (low cost, high performance, etc.) rather than eco-friendly motivations. Although this result contradicts the main arguments in the literature (Chaveesuk et al., 2023; Yaprak et al., 2024; Yeğin & Ikram, 2022), it is consistent with previous studies (Egbue & Long, 2012; Soares Filho et al., 2024; Yaprak et al., 2024) that point to the importance of motivational diversity in the adoption of environmentally friendly technologies. This finding should not be overlooked, as it may be directly related to Türkiye's current economic conditions (high inflation, vehicles being considered an investment tool). It demonstrates that consumers prioritise selfish motivations (i.e., low operating/usage costs, investment value) over altruistic (i.e., environmental) motivations, and that this is consistent with market studies that consider certain developmental differences in the literature (i.e., Karaca, 2012). The current result indicates that other factors, such as price value, have a dominant effect in explaining the environmental concerns of individuals in Türkiye regarding their intentions toward electric vehicles.

The current study found that the experience variable has a significant effect on attitudes. There is evidence in the literature to support this (Rauh et al., 2015). However, this effect is negative. Supporting evidence for this situation in the literature (Mashrur & Mohamed, 2025). It indicates that the attitudes of experienced individuals toward electric vehicles have developed negatively. This situation may be due to reasons such as testing processes, insufficient charging infrastructure, private usage incompatibility, and the rapid consumption of batteries by first users during testing processes. The negative impact may be amplified by the difficulties experienced by early adopters (range anxiety, charging time/infrastructure issues) and the negative perception these issues create in mass media. This situation also indirectly supports the findings related to perceived risks.

Furthermore, it reveals that the purpose/style variable does not have a direct effect on attitudes towards technology, but it negatively moderates the relationship between attitudes and behavioural intentions. This situation can be attributed to the fact that electric vehicle features suitable for commercial and private purposes are not fully available in the market. Although the operating cost of electric vehicle technology is low, it may not meet expectations in terms of range and performance, which may be a contributing factor. It is possible that differences in sectoral needs have led to this situation (Illahi et al., 2024; Kaplan et al., 2016). Additionally, commercial activities and requirements within the city and between cities

may have influenced this situation (Lebeau et al., 2019). Conversely, the fact that the use of electric vehicles for private purposes is not as widespread as expected may have made it difficult to distinguish between commercial and private use benefits, thereby preventing it from directly influencing attitudes. No studies in the literature currently support these findings.

5.1. Theoretical and Practical Implications

This study makes a significant contribution to the theoretical literature by demonstrating that traditional technology acceptance models such as CTAM and UTAUT are limited in explaining the unique cognitive structures and adoption dynamics of emerging markets affected by high uncertainty, such as Türkiye. The significant explanatory potential of contextual and economically orientated variables (such as price value, perceived risks, policy measures, and mass media), as opposed to traditional model variables, represents a theoretical constraint, indicating that electric vehicle adoption in economically challenged societies prioritises cost and risk management over rational decision-making. Recent studies provide an alternative viewpoint to the technology acceptance literature, indicating that factors such as mass media and the purpose/style of use modify the links among attitudes towards technology, perceived value, and behavioural intention.

The findings show that government incentives and tax advantages are effective tools in increasing the intention to adopt electric vehicles. Therefore, it is critical for policymakers to maintain such incentives and accelerate infrastructure investments for market growth.

Marketers, taking into account the strong negative effect of the perceived risk variable, should base their communication strategies not only on positive features but also on managing the negative experiences of early adopters and balancing the negative spread of these experiences in mass media. Government agencies, beyond tax exemptions, should further support self-interested motivations with long-term guarantees that reinforce the perception of vehicles as investment tools, risk-reducing policies, such as battery insurance, and low-interest loan programmes. Advertising and communication campaigns should manage perceived risk by accurately informing consumers about issues such as range anxiety and battery life. Furthermore, to maximise the positive impact of media, focus should be placed on realistic yet incentivising campaigns that manage price and risk perception through local success stories and national brands (i.e., TOGG).

The fact that charging infrastructure is not a direct determinant indicates that infrastructure deficiency alone is not a deterrent factor, but it does negatively affect attitudes toward the technology. In this context, energy providers should offer widespread and accessible charging solutions to help consumers develop positive attitudes. Society lacks sufficient information about EVs, as they are still new. Proper perception management can be effective. Preparing relevant laws and regulations at the state level for EVs in a way that takes current concerns into account can prevent potential negative outcomes that may arise in the early stages of adoption.

5.2. Limitations and Future Studies

This study, while offering useful data, has limitations regarding its approach and scope. The online survey methodology may result in a sample that is not representative of the general population of Türkiye. The generalisability of the findings must be evaluated by a study involving other populations with comparable socio-demographic variables. The cross-sectional design used may limit the establishment of causal relationships between variables. Furthermore, a large proportion of participants having no experience with electric vehicles poses the risk that perceptual variables (risk and value) may be based on assumptions.

Longitudinal studies to track the development of the electric vehicle market and changes in consumer perceptions over time could yield positive results. Qualitative methods such as focus group discussions or in-depth interviews could be used to understand the underlying motivations and concerns driving consumers' adoption of electric vehicles.

Findings from Türkiye can be compared with other developing countries with similar socio-economic characteristics to examine the effects of cultural and contextual differences on adoption. Future studies could examine how variables that are not found to be significant, such as environmental concerns, affect behavioural intention through different regulatory or mediating variables (i.e., income, age).

Declarations and Disclosures

Ethical Responsibilities of Authors: The author of this article confirms that her work complies with the principles of research and publication ethics.

Ethical Approval: Ethical approval was obtained from Ardahan University Scientific Publication and Ethics Committee, dated 31/01/2025, and Decision Number E-67796128-819-2500004307.

Conflicts of Interest: No potential conflict of interest was reported by the author.

Funding: The author received no financial support for the preparation and/or publication of this article.

Author Contributions: The author confirms sole responsibility for conceptualization and design, data collection, analysis of data and interpretation of results, writing the first draft of the manuscript, and review and editing.

Plagiarism Checking: This article was screened for potential plagiarism using a plagiarism screening program.

References

Abbasi, H., Johl, S., Shaari, Z., Moughal, W., Mazhar, M., Musarat, M., … Borovkov, A. (2021). Consumer motivation by using unified theory of acceptance and use of technology towards electric vehicles. *Sustainability*, *13*(21), 12177. https://doi.org/10.3390/su132112177

Abudayyeh, D., Almomani, M., Almomani, O., Jaber, D., & Alhelo, E. (2023). Examining the determinants of electric vehicle acceptance in Jordan: A PLS-SEM approach. *World Electric Vehicle Journal*, *14*(11), 304. https://doi.org/10.3390/wevj14110304

Acar, O., & Taşkın, Ç. (2024). Türkiye'de elektrikli otomobillerin benimsenmesi sürecinin değerlendirilmesine yönelik nitel bir araştırma. *Anadolu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *25*(1), 205-241.

Ahmad, S., Chaveeesuk, S., & Chaiyasoonthorn, W. (2024). The adoption of electric vehicle in Thailand with the moderating role of charging infrastructure: An extension of a UTAUT. *International Journal of Sustainable Energy*, *43*(1). https://doi.org/10.1080/14786451.2024.2387908

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control: From cognition to behavior* (pp. 11-39). Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Akın, M. S. (2025). Elektrikli otomobil kullanım ve satın alma niyetinin birleştirilmiş teknoloji kabul ve kullanım teorisi ile incelenmesi: Tüketici etnosentrizminin düzenleyici rolü. *Pazarlama ve Pazarlama Araştırmaları Dergisi*, *18*(1), 169-212. https://doi.org/10.15659/ppad.18.1.1434007

Altay, Ş. (2023). Considering an enterprise from u-commerce perspective: TOGG-use case mobility assessment. *2nd International Congress on Economics and Administrative Sciences*, 3-26. Bingöl-Turkey: Bingöl University.

Alwadain, A., Fati, S. M., Ali, K., & Ali, R. F. (2024). From theory to practice: An integrated TTF-UTAUT study on electric vehicle adoption behavior. *PLOS ONE*, *19*(3), e0297890. https://doi.org/10.1371/journal.pone.0297890

Automotive Distributors and Mobility Association [ODMD]. (2025, August 4). Otomobil ve hafif ticari araç pazarı. https://www.odmd.org.tr/folders/2837/categorial1docs/5932/ODMD%20Bas%C4%B1n%20Bulteni%204%20A%C4%9Fustos%202025.pdf (Access Date: 24.08.2025).

Bektaş, B. C., & Akyıldız Alçura, G. (2024). Understanding electric vehicle adoption in Türkiye: Analyzing user motivations through the technology acceptance model. *Sustainability*, *16*(21), 9439. https://doi.org/10.3390/su16219439

Bozkurt, M. E. (2024). Çevresel farkındalık, bilgi düzeyi, fiyat algısı, batarya şarj gücünün elektrikli araç satın alma niyeti üzerine etkisi: Nicel bir araştırma. *Journal of Economics, Business and Information*, *1*(1), 21-23.

Broadbent, G. H., Wiedmann, T. O., & Metternicht, G. I. (2021). Electric Vehicle Uptake: Understanding the Print Media's Role in Changing Attitudes and Perceptions. *World Electric Vehicle Journal*, *12*(4), 174. https://doi.org/10.3390/wevj12040174

Buranelli de Oliveira, M., Moretti Ribeiro da Silva, H., Jugend, D., De Camargo Fiorini, P., & Paro, C. E. (2022). Factors influencing the intention to use electric cars in Brazil. *Transportation Research Part A: Policy and Practice*, *155*, 418-433. https://doi.org/10.1016/j.tra.2021.11.018

Champahom, T., Wisutwattanasak, P., Chonsalasin, D., Se, C., Jomnonkwao, S., & Ratanavaraha, V. (2025). Comparing electric vehicle adoption intentions across vehicle types in Thailand: An extended UTAUT2 model with government participation. *Transport Policy*, *163*, 408-435. https://doi.org/10.1016/j.tranpol.2025.01.033

Chaveesuk, S., Chaiyasoonthorn, W., Kamales, N., Dacko-Pikiewicz, Z., Liszewski, W., & Khalid, B. (2023). Evaluating the determinants of consumer adoption of autonomous vehicles in Thailand—An extended UTAUT model. *Energies*, *16*(2), 855. https://doi.org/10.3390/en16020855

Chen, P., Selamat, M. H., & Lee, S.-N. (2025). The impact of policy incentives on the purchase of electric vehicles by consumers in China's first-tier cities: Moderate-mediate analysis. *Sustainability*, *17*(12), 5319. https://doi.org/10.3390/su17125319

Chen, Y., Khan, S. K., Shiwakoti, N., Stasinopoulos, P., & Aghabayk, K. (2024). Integrating perceived safety and socio-demographic factors in UTAUT model to explore Australians' intention to use fully automated vehicles. *Research in Transportation Business & Management*, *56*, 101147. https://doi.org/10.1016/j.rtbm.2024.101147

Cincotta, C., & Thomassen, Ø. (2025). Evaluating Norway's electric vehicle incentives. *Energy Economics*, *146*, 108490. https://doi.org/10.1016/j.eneco.2025.108490

Cui, Q., Zhang, Y., Ma, H., Zhang, K., Peng, J., Chen, Z., … Lin, Z. (2025). How about electric vehicle? Sensing owners' experiences and attitudes through online short video. *Transport Policy*, *167*, 1-15. https://doi.org/10.1016/j.tranpol.2025.03.012

Curtale, R., Liao, F., & van der Waerden, P. (2021). User acceptance of electric car-sharing services: The case of the Netherlands. *Transportation Research Part A: Policy and Practice*, *149*, 266-282. https://doi.org/10.1016/j.tra.2021.05.006

Daramy-Williams, E., Anable, J., & Grant-Muller, S. (2019). A systematic review of the evidence on plug-in electric vehicle user experience. *Transportation Research Part D: Transport and Environment*, *71*, 22-36. https://doi.org/10.1016/j.trd.2019.01.008

Dautzenberg, P. S. C., Voß, G. M. I., Plant, K., & Praetorius, G. (2022). A theoretical framework for trust in automation considering its relationship to technology acceptance and its influencing factors. *AHFE International Conference*, *27*.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

Deka, C., Dutta, M. K., Yazdanpanah, M., & Komendantova, N. (2023). Can gain motivation induce Indians to adopt electric vehicles? Application of an extended theory of Planned Behavior to map EV adoption intention. *Energy Policy*, *182*, 113724. https://doi.org/10.1016/j.enpol.2023.113724

Durmuş Şenyapar, H. N., & Akıl, M. (2023). Analysis of consumer behavior towards electric vehicles: Intentions, concerns, and policies. *Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji*, *11*(1), 161-183. https://doi.org/10.29109/gujsc.1232071

Dutta, B., & Hwang, H.-G. (2021). Consumers purchase intentions of green electric vehicles: The influence of consumers technological and environmental considerations. *Sustainability*, *13*(21), 12025. https://doi.org/10.3390/su132112025

Efendioğlu, İ. H. (2024). Elektrikli araç satın alma niyetini etkileyen faktörler. *İstanbul Gelişim Üniversitesi Sosyal Bilimler Dergisi*, *11*(1), 106-122. https://doi.org/10.17336/igusbd.1124491

Egbue, O., & Long, S. (2012). Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions. *Energy Policy*, *48*, 717-729. https://doi.org/10.1016/j.enpol.2012.06.009

European Commission. (2023, March 28). *Fit for 55: EU reaches new milestone to make all new cars and vans zero-emission from 2035*. https://climate.ec.europa.eu/news-your-voice/news/fit-55-eu-reaches-new-milestone-make-all-new-cars-and-vans-zero-emission-2035-2023-03-28_en (Access Date: 16.08.2025).

European Commission. (2024, May 14). *5 things you should know about electric cars*. https://climate.ec.europa.eu/news-your-voice/news/5-things-you-should-know-about-electric-cars-2024-05-14_en (Access Date: 12.08.2025).

EY Parthenon. (2025). *Türkiye elektrikli araç ekosistemi ve dönüşümü: Elektrikli araç pazarı*.

Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric*, *2*(10), 130-132.

Fleury, S., Tom, A., Jamet, E., & Colas-Maheux, E. (2017). What drives corporate carsharing acceptance? A French case study. *Transportation Research Part F: Traffic Psychology and Behaviour*, *45*, 218-227.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39. https://doi.org/10.2307/3151312

Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, *69*(8), 3192-3198. https://doi.org/10.1016/j.jbusres.2015.12.008

Garidis, K., Ulbricht, L., Rossmann, A., & Schmäh, M. (2020, January). *Toward a user acceptance model of autonomous driving* (pp.1381-1390). Hawaii: Proceedings of the 53rd Hawaii International Conference on System Sciences. https://doi.org/10.24251/HICSS.2020.170

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, *25*(2), 186-192.

Globisch, J., Dütschke, E., & Schleich, J. (2018). Acceptance of electric passenger cars in commercial fleets. *Transportation Research Part A: Policy and Practice*, *116*, 122-129. https://doi.org/10.1016/j.tra.2018.06.004

Gordon, L. (2019). *A Quantitative analysis of factors affecting U.S. Drivers' intentions to use autonomous vehicles: Using the car technology acceptance model* (Doctoral Dissertation). Capella University.

Gupta, S., Bansal, R., Bankoti, N., Kar, S. K., Mishra, S. K., Kaur, P., & Harichandan, S. (2024). Factors affecting consumer's intention to use electric vehicles: Mediating role of awareness and knowledge. *Journal of Advanced Transportation*, *2024*(1). https://doi.org/10.1155/2024/5922430

Hafeez, F., Mas'ud, A. A., Al-Shammari, S., Sheikh, U. U., Alanazi, M. A., Hamid, M., & Azhar, A. (2024). Autonomous vehicles perception, acceptance, and future prospects in the GCC: An analysis using the UTAUT-based model. *World Electric Vehicle Journal*, *15*(5), 186. https://doi.org/10.3390/wevj15050186

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice*, *103*, 185-197. https://doi.org/10.1016/j.tra.2017.05.033

Helgath, J., Braun, P., Pritschet, A., Schubert, M., Böhm, P., & Isemann, D. (2018). Investigating the effect of different autonomy levels on user acceptance and user experience in self-driving cars with a VR driving simulator. *International Conference of Design, User Experience, and Usability*, 247-256. Springer.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hewitt, C., Politis, I., Amanatidis, T., & Sarkar, A. (2019). Assessing public perception of self-driving cars. *Proceedings of the 24th International Conference on Intelligent User Interfaces*, 518–527. New York, NY, USA: ACM. https://doi.org/10.1145/3301275.3302268

Hilmersson, L., & Lindhe-Rahr, I. (2019). *Perceptions of vehicle autonomy: A technology acceptance study* (University of Boras). University of Boras. https://www.diva-portal.org/smash/get/diva2:1572388/FULLTEXT01.pdf (Access Date: 02.07.2025).

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55.

Huang, X., & Ge, J. (2019). Electric vehicle development in Beijing: An analysis of consumer purchase intention. *Journal of Cleaner Production*, *216*, 361-372. https://doi.org/10.1016/j.jclepro.2019.01.231

International Energy Agency [IEA]. (2025). Electric vehicles. https://www.iea.org/energy-system/transport/electric-vehicles (Access Date: 08.08.2025).

Illahi, U., Pramod Choudhari, T., Charly, A., O'Mahony, M., & Caulfield, B. (2024). Driving green change: Commercial sector adopting electric vehicles in Ireland. *Transportation Research Part D: Transport and Environment*, *135*, 104398. https://doi.org/10.1016/j.trd.2024.104398

Jain, N. K., Bhaskar, K., & Jain, S. (2022). What drives adoption intention of electric vehicles in India? An integrated UTAUT model with environmental concerns, perceived risk and government support. *Research in Transportation Business & Management*, *42*, 100730. https://doi.org/10.1016/j.rtbm.2021.100730

Jaiswal, D., Kant, R., & Mehta, B. (2025). Consumer adoption of battery electric cars: Analyzing techno-psychological perception-attitude-intention linkage perspective and gender effects. *International Journal of Energy Sector Management*, *19*(4), 820-840. https://doi.org/10.1108/IJESM-04-2024-0009

Jiang, Y., Fu, Q., Thomopoulos, N., & Chen, J. L. (2025). Understanding the influence of past driving experience on electric vehicle purchase intention in China. *Transport Policy*, *162*, 270-282. https://doi.org/10.1016/j.tranpol.2024.11.025

Kaplan, S., Gruber, J., Reinthaler, M., & Klauenberg, J. (2016). Intentions to introduce electric vehicles in the commercial sector: A model based on the theory of planned behaviour. *Research in Transportation Economics*, *55*, 12–19. https://doi.org/10.1016/j.retrec.2016.04.006

Karaca, C. (2012). Ekonomik kalkınma ve çevre kirliliği ilişkisi: gelişmekte olan ülkeler üzerine ampirik bir analiz. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *21*(3), 139-156.

Kelly, M., Dowling, M., & Millar, M. (2018). The search for understanding: The role of paradigms. *Nurse Researcher*, *25*(4), 9-13. https://doi.org/10.7748/nr.2018.e1499

Khazaei, H. (2019). The influence of personal innovativeness and price value on intention to use of electric vehicles in Malaysia. *European Online Journal of Natural and Social Sciences*, *8*(3).

Kizilkaya, Y. M. (2024). Entropı destekli copras yönteminin elektrikli otomobil seçiminde uygulanması. *Üçüncü Sektör Sosyal Ekonomi Dergisi*, *59*(3), 1939-1951. https://doi.org/10.15659/3.sektor-sosyal-ekonomi.24.09.2406

Kırmızıgül, İ. E., & Baykal, B. (2023). Elektrikli araç tercihinde tüketici motivasyonu. *Sosyal Bilimler Metinleri*, *2023*(2), 223-241. https://doi.org/10.56337/sbm.1352994

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.

Kocagöz, E., & İğde, Ç. S. (2022). Elektrikli araç satın alma niyetini hangi faktörler etkiler? Bir tüketici araştırması. *Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi*, *19*(21. Uluslararası İşletmecilik Kongresi" Özel Sayısı), 104–120.

Kock, N. (2015). Common method bias in PLS-SEM. *International Journal of E-Collaboration*, *11*(4), 1-10. https://doi.org/10.4018/ijec.2015100101

Köksal, E., Ardıyok, Ş., & İkiler, B. (2024). Türkiye'de elektrikli araçlar için şarj altyapısı nasıl yaygınlaşır? *Ekonomi-Tek*, *13*(1), 84-121.

Kuppusamy, S., Magazine, M. J., & Rao, U. (2017). Electric vehicle adoption decisions in a fleet environment. *European Journal of Operational Research*, *262*(1), 123-135. https://doi.org/10.1016/j.ejor.2017.03.039

Lebeau, P., Macharis, C., & Van Mierlo, J. (2019). How to improve the total cost of ownership of electric vehicles: An analysis of the light commercial vehicle segment. *World Electric Vehicle Journal*, *10*(4), 90. https://doi.org/10.3390/wevj10040090

Liu, F., Wei, Z., Lin, Y., Huang, X., Li, Y., Huang, Y., & Lim, M. K. (2025). Vehicle-to-grid technology acceptance for electric vehicle users: A systematic literature review and future research agenda. *International Journal of Consumer Studies*, *49*(3). https://doi.org/10.1111/ijcs.70065

Liu, R., Ding, Z., Jiang, X., Sun, J., Jiang, Y., & Qiang, W. (2020). How does experience impact the adoption willingness of battery electric vehicles? The role of psychological factors. *Environmental Science and Pollution Research*, *27*(20), 25230-25247. https://doi.org/10.1007/s11356-020-08834-w

Manutworakit, P., & Choocharukul, K. (2022). Factors Influencing battery electric vehicle adoption in Thailand—Expanding the unified theory of acceptance and use of technology's variables. *Sustainability*, *14*(14), 8482. https://doi.org/10.3390/su14148482

Mashrur, Sk. Md., & Mohamed, M. (2025). Uncovering factors affecting consumers' decisions for pre-owned electric vehicles. *Transportation Research Part D: Transport and Environment*, *139*, 104555. https://doi.org/10.1016/j.trd.2024.104555

Mason, J., Classen, S., Wersal, J., & Sisiopiku, V. P. (2020). Establishing face and content validity of a survey to assess users' perceptions of automated vehicles. *Transportation Research Record: Journal of the Transportation Research Board*, *2674*(9), 538-547. https://doi.org/10.1177/0361198120930225

Mckinsey. (2024). *Spotlight on mobility trends*. McKinsey Center for Future Mobility. https://www.mckinsey.com/~/media/mckinsey/industries/automotive%20and%20assembly/our%20insights/spotlight%20on%20mobility%20trends/spotlight-on-2023-the-trends-transforming-mobility.pdf (Access Date: 05.09.2025).

Moons, I., & De Pelsmacker, P. (2015). An extended decomposed theory of planned behaviour to predict the usage intention of the electric car: A multi-group comparison. *Sustainability*, *7*(5), 6212-6245. https://doi.org/10.3390/su7056212

Mourtzouchou, A., Marin, A. L., Laveneziana, L., Tansini, A., Suarez, J., Garus, A., … Ciuffo, B. (2025). Comparative analysis of public and expert perceptions of electrified vehicles in the European Union. *Scientific Reports*, *15*(1), 21695. https://doi.org/10.1038/s41598-025-06071-0

Nguyen, H., Coxon, K., Brown, J., Neville, N., Di Tanna, G. L., Hsieh, Y.-W., & Keay, L. (2023). Older drivers in Australia and advanced vehicle technologies: What are their opinions? A qualitative study. *Journal of Transport & Health*, *31*, 101646. https://doi.org/10.1016/j.jth.2023.101646

Ökde, B. (2022). Differences between Turkey and EU countries on taxation policy for electric vehicles. *Muhasebe ve Vergi Uygulamaları Dergisi*, *15*(2), 415-435. https://doi.org/10.29067/muvu.1005088

Osswald, S., Wurhofer, D., Trösterer, S., Beck, E., & Tscheligi, M. (2012). Predicting information technology usage in the car. *Proceedings of the 4th International Conference on Automotive User Interfaces and Interactive Vehicular Applications* (pp.51-58). New York, NY, USA: ACM. https://doi.org/10.1145/2390256.2390264

Öz, A., Demirel, O., & Hatırlı, S. A. (2025). Elektrikli otomobil tercihini etkileyen faktörler. In: *İktisadi Ve İdari Bilimlerde Araştirma, Yöntem ve Analiz 2025-Ii* (p. 1). Livre de Lyon.

Öztürk, N. Ö. (2022). Yenlikçi tüketici davranışları: Türkiye ve Almanya'da elektrikli araçların kabulü üzerine karşılaştırmalı bir araştırma. (*Doctoral Thesis).* Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü.

Pala, Ü., & Mola, M. (2022). Perception and technology acceptance of electric cars by potential users in Türkiye. *Endüstri Mühendisliği*, *33*(2), 265-288.

Rauh, N., Franke, T., & Krems, J. F. (2015). Understanding the impact of electric vehicle driving experience on range anxiety. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *57*(1), 177-187. https://doi.org/10.1177/0018720814546372

Rho Motion. (2025, September 12). Global EV sales grow by 5% m-o-m and by 15% y-o-y in August 2025. https://rhomotion.com/news/global-ev-sales-grow-by-5-m-o-m-and-by-15-y-o-y-in-august-2025/ (Access Date: 06.09.2025).

Sang, Y. N., & Bekhet, H. A. (2015). Modelling electric vehicle usage intentions: an empirical study in Malaysia. *Journal of Cleaner Production*, *92*, 75-83. https://doi.org/10.1016/j.jclepro.2014.12.045

Schneider, U., Dütschke, E., & Peters, A. (2014). *How does the actual usage of electric vehicles influence consumer acceptance?* https://doi.org/10.1007/978-3-642-37558-3_4

Sener, I. N., Zmud, J., & Williams, T. (2019). Measures of baseline intent to use automated vehicles: A case study of Texas cities. *Transportation Research Part F: Traffic Psychology and Behaviour*, *62*, 66-77. https://doi.org/10.1016/j.trf.2018.12.014

Seuwou, P., Chrysoulas, C., Banissi, E., & Ubakanma, G. (2020). Measuring consumer behavioural intention to accept technology: Towards autonomous vehicles technology acceptance model (AVTAM). *World Conference on Information Systems and Technologies*, 507–516. Springer.

Shanmugavel, N., & Balakrishnan, J. (2023). Influence of pro-environmental behaviour towards behavioural intention of electric vehicles. *Technological Forecasting and Social Change*, *187*, 122206. https://doi.org/10.1016/j.techfore.2022.122206

Shetty, D. K., Shetty, S., Raj Rodrigues, L., Naik, N., Maddodi, C. B., Malarout, N., & Sooriyaperakasam, N. (2020). Barriers to widespread adoption of plug-in electric vehicles in emerging Asian markets: An analysis of consumer behavioral attitudes and perceptions. *Cogent Engineering*, *7*(1). https://doi.org/10.1080/23311916.2020.1796198

Sierzchula, W., Bakker, S., Maat, K., & van Wee, B. (2014). The influence of financial incentives and other socio-economic factors on electric vehicle adoption. *Energy Policy*, *68*, 183-194. https://doi.org/10.1016/j.enpol.2014.01.043

Simanihuruk, P., Munthe, K., Sitinjak, C., & Ober, J. (2024). Navigating the roadblocks: Media's role in overcoming barriers to electric vehicle adoption in Medan. *Journal of Infrastructure, Policy and Development*, *8*(8), 5871. https://doi.org/10.24294/jipd.v8i8.5871

Singh, A., & Biswas, A. (2025). Join the 'EV'olution: The interplay of mass media awareness, politics of environmentalism, and social perception in driving public EV usage intention. *Smart and Sustainable Built Environment*, 1-27. https://doi.org/10.1108/SASBE-04-2025-0172

Sithanant, T., Sukphisal, B., & Kamales, N. (2024). *An acceptance model for the adoption of battery electric vehicles in Thailand*. https://doi.org/10.1007/978-981-97-0996-0_13

Soares Filho, F. G. de O., Figueiredo, P. S., Coelho, R. S., Bernardino, L. L., & Travassos, X. L. (2024). A aceitação de veículos elétricos: um modelo derivado da TAM. *ReMark - Revista Brasileira de Marketing*, *23*(4), 1377-1427. https://doi.org/10.5585/remark.v23i4.24015

Soper, D. (2024). A-priori sample size calculator for structural equation models [Software]. https://www.danielsoper.com/statcalc/references.aspx?id=89 (Access Date: 12.09.2025).

Spitulnik, D. (1993). Anthropology and mass media. *Annual Review of Anthropology*, *22*, 293-315. http://www.jstor.org/stable/2155850

Su, H., & Wan, Y. (2024). Revealing the way to buying new energy vehicles: green perceived value, green perceived risk, environmental awareness, and green trust. *World Electric Vehicle Journal*, *15*(11), 499. https://doi.org/10.3390/wevj15110499

Tewari, M., Upadhyay, A., & Pant, A. (2023). *The impact of media on consumer behavior: An examination of the role of cinema, newspaper, theater, internet, and television*. https://doi.org/10.1007/978-3-031-40439-9_10

Turkish Statistical Institute. (2025). Adrese dayalı nüfus kayıt sistemi sonuçları, 2024. https://data.tuik.gov.tr/Bulten/Index?p=Adrese-Dayal%C4%B1-N%C3%BCfus-Kay%C4%B1t-Sistemi-Sonu%C3%A7lar%C4%B1-2024-53783&dil=1 (Access Date: 02.09.2025).

Uluscul, C., & Demir, A. O. (2023). Consumer tendency in car preference, the decision of buying a new or used car in Turkiye. *İstanbul Ticaret Üniversitesi Girişimcilik Dergisi*, *7*(13), 64-86. https://doi.org/10.55830/tje.1242186

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425-478.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 157-178.

Vertgewall, C. M., Trageser, M., Kurth, M., & Ulbig, A. (2022). Modeling probabilistic driving and charging profiles of commercial electric vehicles. *Electric Power Systems Research*, *212*, 108538. https://doi.org/10.1016/j.epsr.2022.108538

Wang, D., Ozden, M., & Tsang, Y. P. (2023). The impact of facilitating conditions on electric vehicle adoption intention in China: An integrated unified theory of acceptance and use of technology model. *International Journal of Engineering Business Management*, *15*. https://doi.org/10.1177/18479790231224715

Wang, F. P., Yu, J. L., Yang, P., Miao, L. X., & Ye, B. (2017). Analysis of the barriers to widespread adoption of electric vehicles in Shenzhen China. *Sustainability*, *9*(4), 522. https://doi.org/10.3390/su9040522

Wei, W., Sun, J., Miao, W., Chen, T., Sun, H., Lin, S., & Gu, C. (2024). Using the extended unified theory of acceptance and use of technology to explore how to increase users' intention to take a robotaxi. *Humanities and Social Sciences Communications*, *11*(1), 746. https://doi.org/10.1057/s41599-024-03271-3

Westland, J. C. (2010). Lower bounds on sample size in structural equation modeling. *Electronic Commerce Research and Applications*, *9*(6), 476-487. https://doi.org/10.1016/j.elerap.2010.07.003

Wolff, S., & Madlener, R. (2019). Driven by change: Commercial drivers' acceptance and efficiency perceptions of light-duty electric vehicle usage in Germany. *Transportation Research Part C: Emerging Technologies*, *105*, 262-282. https://doi.org/10.1016/j.trc.2019.05.017

Won, Y.-S., & Lim, J.-B. (2024). A study on the impact of autonomous bus experience on acceptance of autonomous vehicle technology. *Journal of Korea Planning Association*, *59*(1), 73-87. https://doi.org/10.17208/jkpa.2024.02.59.1.73

Yaprak, Ü., Kizir, E., & Yaşin, B. (2024). Tüketicilerin elektrikli otomobilleri benimsemesinde rolü olan faktörler: Birleştirilmiş teknoloji kabul modeli çerçevesinde bir araştırma. *Gümüşhane Üniversitesi Sosyal Bilimler Dergisi*, *15*(1), 117-136.

Yeğin, T., & Ikram, M. (2022). Analysis of Consumers' Electric vehicle purchase intentions: An Expansion of the theory of planned behavior. *Sustainability*, *14*(19), 12091. https://doi.org/10.3390/su141912091

Yılmaz, K., & Kasapoğlu, C. (2025). Z kuşağının elektrikli otomobil algısı: Sürdürülebilir kalkınmaya yönelik bir gelecek perspektifi. *İşletme Araştırmaları Dergisi, 17*(3), 1868-1894. https://doi.org/10.20491/isarder.2025.2069

Yu, T., Zhang, Y., Teoh, A. P., Wang, A., & Wang, C. (2023). Factors influencing university students' behavioral intention to use electric car-sharing services in Guangzhou, China. *Sage Open*, *13*(4). https://doi.org/10.1177/21582440231210551

Zhao, X., Li, X., Zhao, Z., & Luo, T. (2024). Media attention and electric vehicle adoption: Evidence from 275 cities in China. *Transportation Research Part A: Policy and Practice*, *190*, 104269. https://doi.org/10.1016/j.tra.2024.104269

Zhou, Y., Li, J., Adel, G., & Liu, C. (2024). Examination of the adoption intention of new energy vehicles from the perspective of functional attributes and media richness. *Heliyon*, *10*(4), e25897. https://doi.org/10.1016/j.heliyon.2024.e25897

Zmud, J. P., & Sener, I. N. (2017). Towards an understanding of the travel behavior impact of autonomous vehicles. *Transportation Research Procedia*, *25*, 2500-2519. https://doi.org/10.1016/j.trpro.2017.05.281

Appendix 1: Measures (Turkish)

Performans Beklentisi (Performance Expectancy)
PE1-Elektrikli araçları ulaşımım için genel olarak faydalı buluyorum. *PE2-Elektrikli araçların ulaşımı daha rahat hale getireceğini düşünüyorum.* *PE3 - Elektrikli araç kullanmanın enerji maliyetini azaltacağını düşünüyorum.*
Çaba Beklentisi (Effort Expectancy)
EE1-Elektrikli araçların kullanımını kolay buluyorum. *EE2-Kolay ve hızlı bir şekilde elektrikli araç kullanmayı öğrenebilirim.* *EE3 Elektrikli araçları kullanma becerisi kazanmam kolay olacaktır.*
Sosyal Etki (Social Influence)
SI1- Diğer insanların eğilimleri elektrikli araç satın alma kararımı etkiler. *SI2-Çevremdeki insanlara elektrikli aracımı göstermekten mutluluk duyarım.* *SI3-Çevremdeki insanlar elektrikli araç için beni teşvik ederler.*
Algılanan Riskler (Perceived Risks)
PR1-Elektrikli araçta maddi kayba uğramaktan korkuyorum. *PR2-Elektrikli araç kullandığımda kendimi tamamen güvende hissetmem.* *PR3-Elektrikli araçların dezavantajları (menzil, şarj süresi, vb. gibi) göz önünde bulundurulduğunda, önemli zaman kayıplarına yol açabileceğini düşünüyorum.* *PR4-Elektrikli araçların geleneksel araçlar kadar iyi performans gösterip göstermeyeceği konusunda endişeliyim.*
Teknolojiye Yönelik Tutumlar (Attitude Toward Technology)
AT1-Elektrikli araç kullanmak iyi bir fikirdir. *AT2-Elektrikli araç, sürüşü daha zevkli hale getirir.* *AT3-Elektrikli araç kullanmak eğlenceli olabilir.*
Çevresel Endişe (Environmental Concern)
EC1- Hava kirliliği gibi çevresel konular nedeniyle elektrikli araç satın almak istiyorum. *EC2- Elektrikli araçların çevrenin korunmasına katkıda bulunacağını düşünüyorum.*
Kolaylaştırıcı Koşullar ve Şarj Altyapısı (Facilitating Conditions and Charging Infrastructure)
FC1- Elektrikli araçlar için şarj istasyonları ve servis merkezlerinin olması önemlidir. *FC2- Elektrikli araçlar için uzaktan bağlantı ve güncelleştirmenin olması önemlidir.* *FC3- Elektrikli araçları kullanmada bireysel/şahsi şarj olanağının bulunması önemlidir.* *CI1- Elektrikli araçlarda kesintisiz yolculuk için çok sayıda şarj istasyonuna ihtiyaç vardır.* *CI2- Şarj istasyonları elektrikli araçları günlük kullanımda daha pratik ve kullanımı kolay hale getirir.*
Fiyat Değeri (Price Value)
PV1- Elektrikli aracın fiyatı satın almak için uygundur. *PV2- Diğer araçlara kıyasla elektrikli araçlar makul fiyatlıdır.* *PV3- Elektrikli araçlarda bakım ve kullanım maliyetleri düşüktür.*
Politika Önlemleri (Policy Measures)
PM1- Elektrikli araçlara yönelik vergi muafiyeti, vergi indirimleri vb. gibi parasal teşviklerden memnuniyet duyarım. *PM2 - Elektrikli araç için egzoz muayenesine girmeme, özel şarj alanlarına park edebilme gibi uygulamalardan memnuniyet duyarım.*

Appendix 1: Measures (Turkish) (Continued)

Niyet (Intention) *INT1-Yakın gelecekte elektrikli araç kullanmayı planlıyorum.* *INT2-İlerleyen zamanlarda elektrikli araç kullanmayı öngörüyorum.* *INT3 - Yakın gelecekte elektrikli bir araç kullanmak istiyorum.*
Kitle İletişim (Mass Media) *MM1 – Medya (internet, sosyal medya, TV, vb.), elektrikli araç kullanma konusunda olumlu ipuçları verir.* *MM2 – Medya (internet, sosyal medya, TV, vb.), elektrikli araç kullanmaya başlamam için beni etkiler.* *MM3 – Elektrikli araç almadan önce medyadaki (internet, sosyal medya, TV, vb.) ilgili bilgileri dikkate alırım.*
(1-Kesinlikle Katılmıyorum….7-Kesinlikle Katılıyorum)

This Page Intentionally Left Blank