AYTAÇ AYDOĞDU
EXPLORING GENERATIONAL DIFFERENCES IN ELECTRIC VEHICLE ADOPTION WITHIN THE TURKISH CYPRIOT COMMUNITY
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NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
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Declaration

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

Aytaç Aydoğdu

22/01/2024

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Aytaç Aydoğdu

Abstract

Exploring Generational Differences in Electric Vehicle Adoption Within the Turkish Cypriot Community

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This study explores generational differences in electric vehicle (EV) adoption within the Turkish Cypriot community, focusing on understanding the preferences and factors influencing EV adoption across different age groups. The research aims to address the gap in knowledge regarding the specific context of the Turkish Cypriot community and provide insights for policymakers, industry stakeholders and researchers. A qualitative research approach is employed, including interviews with samples from each generation. The study investigates the awareness, perceptions, motivations and barriers to EV adoption among Turkish Cypriots of various age groups. The findings highlight the distinct preferences, concerns and factors shaping EV adoption within the community. The research contributes to the existing literature on generational differences in EV adoption, providing valuable insights specific to the Turkish Cypriot context. The study's outcomes offer practical recommendations for promoting sustainable transportation practices and accelerating the adoption of electric vehicles within the Turkish Cypriot community, ultimately contributing to a more sustainable and environmentally friendly future.

Keywords: electric vehicle adoption, generational differences, consumer behaviour, economic factors, sustainable transportation

Özet

Kıbrıs Türk Toplumunda Elektrikli Araçların Benimsenmesinde Kuşak Farklılıklarının Araştırılması

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Bu çalışma, farklı yaş gruplarında elektrikli araçların benimsenmesini etkileyen tercihleri ve faktörleri anlamaya odaklanarak, Kıbrıs Türk toplumunda elektrikli araçların benimsenmesinde nesiller arasındaki farklılıkları araştırmaktadır. Araştırma, Kıbrıs Türk toplumunun özel bağlamına ilişkin bilgi eksikliğini gidermeyi ve politika yapıcılara, sektör paydaşlarına ve araştırmacılara veri sağlamayı amaçlamaktadır. Her nesilden örneklerle yapılan görüşmeleri içeren nitel bir araştırma yaklaşımı kullanılmaktadır. Çalışma, çeşitli yaş gruplarındaki Kıbrıslı Türkler arasında elektrikli araçların benimsenmesine ilişkin farkındalığı, algıları, motivasyonları ve engelleri araştırıyor. Bulgular, toplum içinde elektrikli araçların benimsenmesini şekillendiren farklı tercihleri, endişeleri ve faktörleri vurgulamaktadır. Araştırma, elektrikli araçların benimsenmesinde kuşaklar arası farklılıklara ilişkin mevcut literatüre katkıda bulunarak Kıbrıs Türk bağlamına özgü değerli bilgiler sağlamayı amaçlamaktadır. Çalışmanın sonuçları, sürdürülebilir ulaşım uygulamalarını teşvik etmek ve Kıbrıs Türk toplumunda elektrikli araçların benimsenmesini hızlandırmak, sonuçta daha sürdürülebilir ve çevre dostu bir geleceğe katkıda bulunmak için pratik öneriler sunmaktadır.

Anahtar Kelimeler: elektrikli araçların benimsenmesi, nesil farklılıkları, tüketici davranışı, ekonomik faktörler, sürdürülebilir ulaşım

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List of Abbreviations

TRNC: Turkish Republic of Northern Cyprus

EV: Electric Vehicle

ICE: Internal Combustion Engine

SDG: Sustainable Development Goals

UN: United Nations

SIS: Small Island States

CHAPTER I
Introduction

Electric vehicles (EVs) have drawn a lot of attention recently as a result of rising environmental awareness and the push for renewable energy. To satisfy the rising demand, numerous automakers have increased the number of EV models they offer. Even while the advantages of EVs, such as their lower operating costs and decreased emissions are obvious, there is still substantial disagreement over consumer preferences for these cars.

It's important to take into account how different generations may approach this decision-making process in addition to the various elements that affect consumer preferences for electric vehicles. Each generation has its own distinct viewpoints and values, which may influence their preferences towards EVs. For instance, younger generations like the Millennials and Gen Z are more likely to emphasize environmental sustainability and may therefore be more inclined to explore EVs. Older generations, on the other hand, might place a different emphasis on factors like cost and dependability, which might affect their readiness to move to electric cars.

Adoption of EVs are also a factor that will greatly contibute to the SDGs developed by the UN. In a country like TRNC, which has a small population, it could easier to implement sustainable solution to comply SDGs and help transformation into green energy and sustainable cities. The possible effects of EV adoption in TRNC and related SDGs will also be delved into, in tis study.

Background

There are several factors playing crucial role in electric vehicle adoption. When we look at these factors from the perspective of Cyprus, the island has unique and characteristic potential to have an electrified transportation system.

Geographical Constraints

The geographical limitations of Northern Cyprus play a significant role in shaping electric vehicle preferences. With an area of approximately 3,355 square kilometers, the region's relatively small size allows for shorter commuting distances

compared to larger metropolitan areas. This characteristic may influence the need for extensive driving ranges or concerns about charging infrastructure accessibility.

Environmental Awareness

Environmental concerns are prevalent among Turkish Cypriots, as the region boasts stunning natural landscapes and a rich biodiversity. The desire to protect and preserve these natural resources may contribute to a heightened interest in electric vehicles due to their lower carbon emissions and reduced environmental impact.

Government Initiatives and Incentives

Government policies and incentives can significantly influence consumer preferences for electric vehicles. In Northern Cyprus, there has been a growing focus on sustainable energy and reducing carbon footprints. The government tries to implement various initiatives, such as tax incentives, subsidies and the development of charging infrastructure, which may encourage Turkish Cypriots to consider electric vehicles as a viable option.

Infrastructure Development

The availability and accessibility of charging infrastructure are crucial factors in electric vehicle adoption. In recent years, efforts have been made to expand the charging network across Northern Cyprus. While the infrastructure may not be as extensive as in some other regions, the progress in this area is gradually improving, potentially positively impacting the electric vehicle preferences of Turkish Cypriots. Additionally, new companies and start-ups which are into electric vehicles and EV charging stations are helping to grow interest in electric vehicles.

Economic Considerations

Economic factors, including purchase price, operating costs and potential savings, are significant influencers in the decision-making process for any vehicle purchase. Turkish Cypriots may evaluate electric vehicles based on their affordability, long-term cost savings and potential benefits from reduced dependence on imported fossil fuels.

Cultural and Social Factors

Cultural and social factors can also play a role in shaping preferences for electric vehicles among Turkish Cypriots. Attitudes towards new technologies, societal norms and the influence of peers and social networks can impact the acceptance and adoption of electric vehicles within the community.

Generational Differences

The Turkish Cypriot community, like many other societies, consists of individuals from different generations, each with unique perspectives, values and preferences. Understanding the generational differences in electric vehicle (EV) adoption within the Turkish Cypriot community is essential for developing targeted strategies and policies that cater to the specific needs and motivations of each generation. By exploring these generational differences, we can gain insights into the factors that influence EV adoption and identify potential barriers and opportunities for promoting sustainable transportation practices.

Research Problem

The adoption of electric vehicles (EVs) has gained significant momentum worldwide, driven by environmental concerns, technological advancements and government initiatives. However, there is a need to understand the preferences for electric vehicles within specific regional contexts. While research on electric vehicle preferences has been conducted in various Eastern and Western countries, there is a gap in knowledge regarding Turkish Cypriot preferences for EVs. Understanding the factors influencing the adoption of EVs in the Turkish Cypriot community is crucial for policymakers, industry stakeholders and researchers to develop targeted strategies that align with the specific needs and characteristics of this unique demographic group. By addressing this research problem, we can gain insights into the Turkish Cypriot community's perspectives, motivations and potential barriers towards electric vehicle adoption, while also drawing comparisons with existing research conducted in Western and Eastern countries.

By understanding the generational differences in electric vehicle adoption within the Turkish Cypriot community, policymakers and industry stakeholders can tailor their efforts to effectively target and engage each generation. This knowledge

can inform the development of marketing strategies, incentives and infrastructure plans that address the specific concerns, motivations and preferences of each generation, ultimately promoting sustainable mobility and increasing the adoption of electric vehicles within the Turkish Cypriot community.

Petrol-driven cars that are powered by internal combustion technology are more intensely used. In 2012, among EU-28 Member States, Cyprus shared the highest percentage of petrol-driven cars by 90%. It is followed by Sweden and Netherlands by 83% and 80%, respectively. (Eurostat, 2015) The contribution of alternative fuels in Cyprus was shared by diesel-driven passenger cars around 9% and the rest 1% was the other alternatives. Greenhouse gases abundance from exhausts have been triggered. Thereby, climate change effects can be felt during a year (Günsel, 2016).

According to Eurostat there were 629 passenger cars per thousand inhabitants in Cyprus (Eurostat, 2020).

Research Objectives

The primary objective of this study is to explore and understand the generational differences in electric vehicle (EV) adoption within the Turkish Cypriot community. To achieve this overarching objective, the following specific research objectives have been formulated:

1. To examine the awareness and perceptions of electric vehicles among different generations within the Turkish Cypriot community.
    - Identify the level of knowledge and understanding of electric vehicles across generations.
    - Explore the perceived advantages and disadvantages of EVs among different age groups.

2. To investigate the factors influencing electric vehicle preferences within each generation.
    - Determine the key motivators for EV adoption within each generational cohort.

- Explore the role of environmental concerns, cost considerations, technological features and other factors in shaping EV preferences.

3. To understand the potential barriers and challenges for electric vehicle adoption among different generations.
    - Identify the specific concerns and reservations that each generation may have towards EVs.
    - Investigate the perceived limitations, such as driving range, charging infrastructure and vehicle reliability, that may impact EV adoption within each generational group.

4. To compare and analyze the generational differences in electric vehicle preferences and adoption patterns within the Turkish Cypriot community.
    - Identify similarities and differences in EV preferences and adoption rates across different generations.
    - Explore the role of socio-cultural factors and generational values in shaping electric vehicle preferences.

5. To provide insights and recommendations for policymakers, industry stakeholders and researchers in promoting electric vehicle adoption across generations within the Turkish Cypriot community.
    - Develop targeted strategies to address the specific concerns and motivations of each generation towards EV adoption.
    - Suggest policy interventions, incentives and infrastructure improvements to facilitate electric vehicle adoption within the Turkish Cypriot community.

Significance of the Study

This study's significance lies in its ability to bridge the knowledge gap regarding generational differences in electric vehicle adoption within the Turkish Cypriot community. By understanding generational behavior in technology adoption, car manufacturers and stakeholders could develop strategies according to the demographics of the population. By providing valuable insights and

recommendations, this research aims to facilitate the transition to sustainable transportation practices, support policy development and foster a greater understanding of EV preferences and adoption dynamics within the unique context of the Turkish Cypriot community.

Generational differences in technology attitudes can reflect cultural shifts and societal values. Younger generations' preferences for sustainability and technological innovation are driving demand for electric vehicles (EVs) as a sustainable alternative to traditional vehicles. Small islands are crucial for transitioning to sustainable mobility due to their limited land area and easier implementation of EV incentives. They also have shorter distances, making charging infrastructure deployment easier and reducing range anxiety. This allows EV drivers to comfortably travel without worrying about battery levels, making small islands a model for larger countries and continents.

Small island states, which heavily rely on imported fossil fuels, can reduce their carbon footprint and enhance energy security by transitioning to electric vehicles (EVs) powered by renewable energy sources like solar or wind power. These states can implement supportive policies and regulations, offering incentives like tax breaks and subsidies. By promoting EVs and charging infrastructure, these destinations can attract environmentally conscious travelers, contributing to the local economy and preserving the natural beauty of the islands.

Another benefit of this study is that it can suggest cooperation ways to address political issues on Cyprus, focusing on the transition to electric vehicles (EVs) and renewable energy infrastructure. It suggests that investing in these technologies could stimulate economic growth and job creation, while addressing environmental challenges like reducing greenhouse gas emissions and promoting sustainability could foster environmental cooperation and build trust between Greek and Turkish Cypriot communities. This could help overcome political barriers and promote sustainable transportation.

To sum up, this endeavor could have a positive effect on the ongoing political conflicts on the island. The Turkish Republic of Northern Cyprus and Republic of Cyprus could cooperate to widen the usage of electric vehicles throughout the island of Cyprus. With this achievement, first steps into the resolution of political issues could be taken.

Structure of the Study

The study is structured into several key sections to systematically examine generational differences in electric vehicle (EV) adoption within the Turkish Cypriot community. The introduction provides the background, research problem and objectives of the study. The literature review explores existing research on EV adoption, generational differences in preferences (including examples from Eastern and Western countries). The methodology section outlines the qualitative research design, sample selection, data collection methods and analysis techniques employed in the study. The discussion section presents and analyzes the research findings, focusing on generational differences, factors influencing adoption and barriers specific to each generation. Implications and recommendations are provided for policymakers and industry stakeholders to promote EV adoption within the Turkish Cypriot community. The conclusion summarizes the key findings, emphasizes the significance of the study, acknowledges limitations and suggests avenues for future research. The study's structure ensures a comprehensive examination of generational differences in EV adoption, contributing to the existing knowledge and informing strategies to promote sustainable transportation practices in Northern Cyprus.

CHAPTER II

Literature Review

Introduction

This literature review provides an overview of existing research on parameters that have an impact on electric vehicle (EV) adoption. The review examines studies conducted in Eastern and Western countries and explores the factors that influence EV adoption across public people. By understanding the existing knowledge base, this literature review aims to identify gaps in research and highlight the need for a study focused on Turkish Cypriot preferences for EVs.

Consumer Behavior

Consumer behavior is a complicated and dynamic area of research that has drawn great interest from both academics and businesses. Businesses looking to effectively engage their target audience and increase sales must have a thorough understanding of the aspects that affect consumer decision-making processes. The important themes and discoveries in consumer behavior research are examined in this literature review, which covers a range of topics including decisions, perceptions, attitudes and motivations.

The widest definition for consumer behavior is as follows; Consumer behavior is the mental, emotional and physical activities that people engage in when selecting, purchasing, using and disposing of products and services to satisfy needs and desires (Wilkie, 1994).

Consumer behavior is frequently influenced by underlying desires and motivations. According to Maslow's hierarchy of requirements (Maslow, 1943), people should prioritize meeting their basic physiological needs as well as their safety, social, esteem and self-actualization needs. This paradigm emphasizes the necessity of comprehending the particular demands that products or services serve while highlighting the hierarchy of reasons that affect consumer choices. Decision-making by consumers is highly influenced by how they view products, brands and marketing communications. The Theory of Planned Behavior (Ajzen, 1991) and the Theory of Reasoned Action (Fishbein & Ajzen, 1975) by Fishbein and Ajzen place emphasis on the influence of attitudes, subjective standards and perceived behavioral control on customer intents and behavior. According to these

beliefs, advertisers can sway consumer behavior by focusing on and modifying attitudes and perceptions through clever messages and communication.

When choosing what to buy, consumers engage in a number of information processing tasks. In order to evaluate options, the information search process entails looking for information from both internal and external sources. Consumer preferences and choices are greatly influenced by cognitive processes such as selective attention, perception and interpretation (Engel et al., 1995). Tversky & Kahneman (1974) discussed the study of decision-making heuristics and biases, which further analyzes the psychological shortcuts consumers employ to streamline difficult judgments.

Consumer behavior is strongly influenced by the social environment. Consumer attitudes, tastes and buying decisions are influenced by social factors such as reference groups, families, cultures and social media. According to the social proof hypothesis (Cialdini, 1984), people are more likely to adopt habits or make purchases when they see other people doing the same. Online communities, influencers and peer recommendations all play a role in the decision-making of consumers on social media platforms (Hajli, 2014).

The experiences and actions consumers take after making a purchase have a significant impact on their future purchasing decisions and brand loyalty. Repeat business and word-of-mouth referrals are influenced by customer contentment, discontent and post-purchase dissonance (Oliver, 1980). According to Verhoef et al. (2009) idea of customer delight, exceeding customers' expectations can result in long-term patronage and favorable brand advocacy.

The Effect of Age in Consumer Behavior

The age of a person is a significant demographic characteristic that affects consumer behavior. The demands, tastes, attitudes, decision-making processes and purchasing habits of customers are significantly shaped by their age. It is essential for marketers to comprehend how consumer behavior changes with age in order to effectively target various age groups and adjust their methods. This portion of the literature review covers significant themes and study findings as it examines how age affects consumer behavior.

In a research, Jisana (2014) mentioned that the customer buying behavior could be influenced by age and life cycle. With time, consumers alter the products

and services they buy. The stages of the family life cycle, including childhood, bachelorhood, newly married couple, parenthood, etc., aid marketers in creating items that are suited for each stage. They also suggest that consumer behavior is influenced by culture, social class, family, roles and status, occupation, economic situation, lifestyle, personality, motivation, perception, beliefs and attitudes. Again, in another research, age is one of the characteristics impacting consumer purchasing behavior and attitudes about pricing (Slabá, 2020).

Each stage of the life cycle has a unique pattern of consumer behavior, which is strongly related to age. Young consumers, including teenagers and young adults, frequently exhibit exploratory behaviors, a desire for novelty and the development of brand preferences (Moschis, 1985). In contrast, middle-aged shoppers prioritize stability, family obligations and long-term financial planning (Kotler & Armstrong, 2013). Especially among retirees, older consumers may prioritize experiences over material things and display more leisure-oriented purchase behaviors (Mangleburg et al., 2004). Understanding these life cycle dynamics aids in the development of focused marketing campaigns for various age groups.

Generational cohorts, or groupings of people born around the same time, are strongly related to age. Each generational cohort shares several common experiences, attitudes and values, which have an impact on how they behave as consumers. For instance, Baby Boomers, those who were born between 1946 and 1964, frequently put quality and value first when making purchases (Schewe & Meredith, 2004). On the other side, because they were raised in the digital age, Millennials and Generation Z are more likely to want personalized experiences, online buying and social media influence (Pew Research Center, 2020). For marketers to successfully target and interact with particular age groups, they must take these generational variances into account.

Consumer behavior may be impacted by cognitive and information processing abilities that may decline with aging. Memory, attention and processing speed deficits may occur in older persons (Hess et al., 2005). These modifications may have an impact on how people search for information, make decisions and assess complex product information. Marketing professionals can appeal to older consumers by streamlining content, outlining the benefits of their products and using visual aids to improve comprehension (Madden et al., 2012).

Age influences technology adoption patterns, which in turn shape consumer behavior. Younger generations, such as Millennials and Generation Z, tend to embrace technology more readily and are more comfortable with online shopping, mobile apps and social media platforms (Anderson, 2019). Older generations may display varying degrees of technology adoption, with some embracing new technologies and others being more hesitant or requiring additional support. Understanding these technology adoption patterns among different age groups enables marketers to tailor digital marketing strategies and channels to reach their target audience effectively.

According to this research of Morris and Vankatesh, (2000), age has a significant impact on technology adoption choices since it has an impact on people's anticipated working lives. This discovery has repercussions for how technology is created, adopted and maintained within enterprises. Organizations can provide suitable support mechanisms geared to help users accomplish their jobs by having a clear understanding of who the user is. This study provides a critical first step in understanding how the aging process affects decisions about technology adoption in today's dynamic workforce.

In terms of understanding older adults' adoption of technology, this study indicated that prior life experience (such as education and work experiences) and agreeableness are the most significant personality traits. More positive views about technology are also influenced by perceived utility and self-efficacy, which in turn drive higher rates of technology adoption. Age and technological views both have an impact on adoption, with younger persons utilizing more technology. This work opens up a new area of unexplored land and makes a special contribution to the field of technology and aging research.

Market Diffusion of Electric Vehicles

The study of 40 articles on the international PEV market dissemination showed that key elements differ between nations and may predict future changes. PEV market penetration is influenced by a wide range of circumstances, hence models should not be used to interpret data outside the scope of their study topics. Future models should contain additional characteristics in addition to purchase price and running costs, such as limited range, infrastructure for charging and advancements in battery technology and cost. To predict how the market could react

to relevant regulations, like as CAFE (Corporate Average Fuel Economy) standards or CO2 limitations, models should incorporate both current and future policies. It's important to take indirect (non-monetary) incentives into account. When early markets are modeled, segmentation of specific makes or models should be used and authors should emphasize crucial elements for PEV market diffusion (Gnann et al., 2018).

A study (Kumar & Alok, 2020) created a nomological network by mapping all the variables included in the niche quality EV literature using an integrative literature review framework. It examined the effect of EV adoption at all three sustainability dimensions and identified a number of new antecedents, consequences, mediators and moderators. Both academics and policymakers can benefit from the findings, which direct academics to focus their study on a variety of topics such as marketing techniques, the durability of the charging infrastructure, the dealership experience, consequence variables, sustainability, etc. This evaluation is made more approachable to a wider segment of society by the particular policy level recommendations based on each of the categories. To determine the true benefits, future studies should concentrate on monitoring all three aspects of EV adoption. A hypothetically sophisticated model might be created by multidisciplinary researchers using input from a variety of transportation breakthroughs. These factors, which may differ geographically, should be coordinated to increase collaboration.

In order to ascertain whether P/H/EVs will be present in the US vehicle fleet, comprehend the role of policy in promoting P/H/EVs market diffusion and estimate the future number of P/H/EVs, this study (Al-Alawi & Bradley, 2013) evaluated and analyzed studies of P/H/EV market penetration. Improvements to the modeling-survey interface, modeling of vehicle supply and automakers' actions, modeling of federal and state policy and its impact on the automotive markets, modeling of technology competition, improved modeling of market volume and vehicle classifications and improved sensitivity analysis that can support and verify model results are just a few recommendations made in this study for future research.

In this article (Jochem et al., 2017), various forecasting techniques for the market penetration of electric drivetrains in the passenger automobile industry are analyzed. Microeconometric models and agent-based simulation models, which concentrate on modeling the user decision, are categorized as bottom-up and top-down models. The best methods for analyzing the market penetration of electric

drivetrains in the passenger automobile market appear to be hybrid ones that take into account both micro and macro factors. This is a logical outcome from the discovery that various social, economic and political considerations (top-down effect) as well as personal views (bottom-up effect) influence our decision to buy an automobile. Future models should differentiate between the three subgroups of fleet vehicles, company automobiles and individual cars because of the current growth in the number of transportation-related data.

Despite relatively high awareness of electric vehicles, according to the European-wide eMAP consumer study, prospective buyers have high standards for comfort and range (Bühne et al., 2015). The high cost of buying this new technology is one of the key obstacles to its widespread market adoption. Due in part to the present electrical mix in European nations, consumers are not persuaded of the environmental advantages of these new cars. Several private and governmental initiatives, including charging stations and financial incentives, can be utilized to increase the popularity of electric vehicles. The information gaps that consumers have regarding comfort, safety, range restrictions and operational costs can be filled in with test drives and more information.

National governments and the EU are the key actors in the promotion of electric vehicles. Government should ensure that there is a charging infrastructure and financial incentives, while customers need more information and a wider variety of car models. It has been demonstrated that the national government can significantly expand the market share of electric vehicles until 2030 by utilizing the resources of various promotion initiatives.

This study (Sierzchula et al., 2014) looked at the relationship between financial incentives and other socioeconomic factors and the uptake of electric vehicles in various nations. It was discovered that the availability of local EV production facilities, the quantity of charging stations and financial incentives were all helpful in predicting the adoption rates of EVs. However, country-specific elements like government procurement strategies or the intended beneficiary of subsidies may have a significant impact on a country's adoption rate. Furthermore, it was found that EV-specific parameters were significant, although broader socio-demographic indicators including income, education and environmentalism were poor predictors of adoption rates. This means that EV-specific parameters like the

quantity of charging infrastructure, the level of financial incentives for consumers and the number of locations that sell the cars are probably more accurate.

It has been discovered that customer emotion is a neglected factor in studies on consumer adoption of EVs. Proper communication memos, instruction and techniques to elicit specific intellectual and emotive responses from customers are required to improve this field. Marketing authorities and legal agencies can create and implement their communication, education and other initiatives to overcome barriers to EV adoption by accepting the reasoning and emotional responses (Adnan et al., 2016).

This analysis by Carley (2013) shows that few US urban drivers have shown a desire to buy plug-in cars. This is because buyers believe that electric vehicles have drawbacks including higher prices, restricted ranges and lengthy recharge times. Early adopters are likely to be highly educated, environmentally conscious people who already own a conventional hybrid and believe it is necessary to lessen dependence on foreign oil. The findings show that customer interest in various plug-in vehicle types is largely overlapping, with just a tiny subset of respondents expressing a strong preference for all-electric plug-in cars. The overlap shows that buyers do not yet view these automobiles as competitors.

In a research study conducted in Malaysia (Vafaei-Zadeh et al., 2022), results showed that since Generation Y is more technologically adept, their appreciation of the benefits of technology may outweigh its cost. Additionally, the findings indicate that there is no meaningful correlation between infrastructure barriers and intentions to buy electric vehicles. As a result, it is possible that other, more important influencing factors, such as attitude, price value, perceived risk and environmental self-image, are what really influence Generation Y's intentions to buy electric vehicles. Additionally, Malaysia's present EV population may not require more infrastructure than what is currently in place. As a result, the users are not yet concerned about the infrastructure barrier.

In relation to the EV resistance behavior of millennial customers, this study (Ju & Hun Kim, 2022) identified a relationship between consumer attributes (environmental concerns, ethnicity) and the characteristics of EVs perceived by consumers. It demonstrated that while designing EV-related laws, marketing plans and product development processes, nations and businesses should take culture and background into account. The advantages and hazards of EVs were viewed as high

by US millennials with strong environmental concerns and it was discovered that the perceived benefits of EVs reduced EV opposition. The likelihood of positive sentiments regarding EV purchases increased and technology uncertainty decreased when information about EVs was made available. In Korea, environmental concerns were not connected with millennials' perceptions of EV characteristics, therefore it is vital to reinforce the benefit of EVs by implementing laws and services to increase the practicality and convenience of use of EVs.

The literature (Maybury et al., 2022) highlights the economic barrier to EV adoption due to the lack of successful business models. Private sector support can facilitate the transition through research and development and infrastructure development. However, this requires a large upfront expense for users, as there is a limited second-hand EV market, and governments must invest in infrastructure to support EVs. The investment must be optimized to minimize costs while maximizing the payoff of EV adoption.

Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a set of 17 interlinked global goals established by the United Nations in 2015. These goals, also known as the Global Goals, are designed to address various social, economic, and environmental challenges faced by countries worldwide. The SDGs aim to promote sustainable development, eradicate poverty, foster social inclusion, and ensure environmental sustainability by the year 2030. The goals cover a wide range of issues, including poverty, hunger, health, education, gender equality, clean water, sanitation, affordable and clean energy, decent work, industry innovation, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice, strong institutions and partnerships for the goals. The SDGs provide a comprehensive framework for international cooperation and collective efforts to create a more equitable, just and sustainable world.

The technology adoption by elderly individuals holds profound implications for the achievement of Sustainable Development Goals (SDGs), offering a transformative avenue towards a more inclusive and sustainable future. The technology adoption by the elderly emerges as a catalyst for achieving multiple SDGs, significantly easing the path toward a more equitable, healthier, and sustainable global society.

The adoption of EVs by different age groups, especially Silent Gen and Baby Boomers, not only aligns with sustainable mobility goals but also amplifies the impact of technology adoption on SDGs. As older populations embrace electric vehicles, they contribute to multiple SDGs and they fill a big void.

The Dundee City Council's EV intervention, a clean energy initiative, has been praised for its equitability and viability. The scheme is a popular choice among the city's young working-class population, who are sensitive to environmental impacts. However, the efficacy of this approach in isolation is questionable. Some argue that active travel projects should be prioritized over the EV scheme. The sustainability of the EV scheme depends on various grant schemes, Dundee's physical context, affordability by residents, and the intervention's acceptability and focus in different sectors. The EV project aligns with many Sustainable Development Goals (SDGs), but it needs to be more equitable and viable from a localization perspective. The immediate needs of city-dwellers should be considered to ensure effective mapping of green policy interventions with SDGs. Access to low-income groups across the city and neighboring towns is also recommended to improve the alignment of the EV project in Dundee. (Asekomeh et al., 2021)

Shah et al. (2022) stated that island nations (SIS) are prime for national EV transitions due to their high reliance on imported fuels, potential for renewable energy, and low range anxiety. Transitioning from ICEs to EVs benefits both the island nations and the global community. Policy makers can manage the transition by setting goals, encouraging EV purchases through incentives and infrastructure, and ensuring the electricity grid can handle increased electricity use. This will help SIS transition from a carbon-based fossil fuel reliance to a cleaner, electricity-driven society, which will greatly help accomplishing the SDGs and if accomplished, they could be a great role model for other countries.

The integration of EVs into the lives of elderly individuals, coupled with broader technology adoption, emerges as a powerful driver toward achieving a multitude of SDGs, promoting cleaner, more accessible, and sustainable societies.

SDG 1: No Poverty

Goal: End poverty in all its forms everywhere.

Purpose: Eradicating poverty by addressing the multidimensional aspects of poverty and ensuring social protection for the vulnerable.

SDG 2: Zero Hunger

Goal: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

Purpose: Ensuring access to sufficient, safe, and nutritious food for all, while promoting sustainable farming practices.

SDG 3: Good Health and Well-being

Goal: Ensure healthy lives and promote well-being for all at all ages.

Purpose: Improve health outcomes, reduce mortality, and address various health challenges, including diseases and mental health.

SDG 4: Quality Education

Goal: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Purpose: Achieving universal access to quality education, fostering skills development, and reducing disparities in educational outcomes.

SDG 5: Gender Equality

Goal: Achieve gender equality and empower all women and girls.

Purpose: Eliminate discrimination, violence, and harmful practices against women and girls, and ensure equal opportunities in all spheres of life.

SDG 6: Clean Water and Sanitation

Goal: Ensure availability and sustainable management of water and sanitation for all.

Purpose: Achieve universal access to safe drinking water, sanitation, and hygiene to prevent waterborne diseases.

SDG 7: Affordable and Clean Energy

Goal: Ensure access to affordable, reliable, sustainable, and modern energy for all.

Purpose: Promote renewable energy sources, improve energy efficiency, and ensure universal access to reliable and clean energy.

SDG 8: Decent Work and Economic Growth

Goal: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

Purpose: Create job opportunities, improve labor rights, and foster economic growth that benefits all segments of society.

SDG 9: Industry, Innovation, and Infrastructure

Goal: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

Purpose: Develop sustainable and inclusive infrastructure, stimulate innovation, and promote sustainable industrialization.

SDG 10: Reduced Inequalities

Goal: Reduce inequality within and among countries.

Purpose: Address economic, social, and political inequalities, ensuring that no one is left behind in development processes.

SDG 11: Sustainable Cities and Communities

Goal: Make cities and human settlements inclusive, safe, resilient, and sustainable.

Purpose: Promote sustainable urbanization, improve access to basic services, and enhance resilience to environmental and social challenges.

SDG 12: Responsible Consumption and Production

Goal: Ensure sustainable consumption and production patterns.

Purpose: Promote efficient resource use, reduce waste, and encourage sustainable practices in consumption and production.

SDG 13: Climate Action

Goal: Take urgent action to combat climate change and its impacts.

Purpose: Mitigate climate change, adapt to its impacts, and promote sustainable practices to protect the planet.

SDG 14: Life Below Water

Goal: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

Purpose: Protect marine ecosystems, prevent pollution, and promote sustainable fisheries.

SDG 15: Life on Land

Goal: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt biodiversity loss.

Purpose: Preserve biodiversity, combat desertification, and ensure the sustainable use of terrestrial ecosystems.

SDG 16: Peace, Justice, and Strong Institutions

Goal: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.

Purpose: Foster peace, promote rule of law, and ensure access to justice, as well as build accountable and transparent institutions.

SDG 17: Partnerships for the Goals

Goal: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Purpose: Enhance global cooperation, support developing countries, and mobilize resources for sustainable development.

CHAPTER III
Methodology

This research is conducted according to a qualitative research method with a phenomenological science model. The purpose of the phenomenology research model is to reveal the individual's experience, ideas, and related meanings. (Yıldırım and Şimşek, 2013). The phenomenon to be examined here is to determine the opinions of participants from different age groups about electric vehicles and their behaviors towards owning an electric vehicle.

In this research, semi-structured interview technique, one of the qualitative research methods, was applied. Qualitative research; It is a study that uses qualitative data collection methods (such as observations, interviews, and document analysis) and then uses a qualitative process to reveal perceptions and events in a natural and authentic way (Yıldırım and Şimşek, 2011). Qualitative research focuses on qualities that are difficult to measure, such as words or observations, and is based on the interpretation and analysis of these qualities (Glesne, 2014). Qualitative research is a technique that offers participants many ways to use them and many other alternative ways to improve them. Qualitative research is the process of creating new concepts and theories to measure the characteristics of social life (Newman, 2003).

Sampling

. Participants in the study were determined by typical sampling, one of the purposeful sampling methods. Glesne (2011) pointed out that typical case sampling can be used in the study to determine what happens under normal conditions. In this context, participants from the researcher's close circle who met the criteria were identified and they were included based on convenience in the study. Participants have been selected based on their generations (Silent Generation, Baby boomers, Gen X, Gen Y, Gen Z) and they are among Turkish Cypriot community. 5 participants are selected from each generation stated in the study. There was no payment for the participants. Consent of the participants were obtained verbally in the beginning of the interview. Each interview took approximately 15 minutes.

Since the principle of confidentiality of identity of the participants is adhered to, the participants in the research report are referred to by codes such as Participant 1, Participant 2, Participant 3, etc., instead of their real names.

Silent Generation (Born: 1928-1945)

Members of the Silent Generation grew up during a time when electric vehicles were not prevalent. Their preferences for EV adoption may be influenced by factors such as cost, reliability and familiarity with conventional gasoline-powered vehicles. The Silent Generation may require more information and assurances regarding the performance, charging infrastructure and long-term cost benefits of EVs to consider making the transition.

Baby Boomers (Born: 1946-1964):

Baby Boomers represent a generation that witnessed significant societal changes and technological advancements. Their preferences for EV adoption may be influenced by environmental concerns, economic considerations and technological features. Baby Boomers may value the long-term cost savings, reduced carbon footprint and innovative features offered by EVs, while also considering factors such as driving range, charging infrastructure availability and vehicle reliability.

Generation X (Born: 1965-1980):

Generation X individuals may exhibit preferences for EV adoption influenced by a combination of environmental awareness, technological interest and economic considerations. They may prioritize factors such as vehicle performance, driving range, charging infrastructure availability and long-term cost savings. Generation X individuals may be more open to adopting EVs if they perceive them as reliable, technologically advanced and environmentally friendly options.

Generation Y (Born: 1981-1996):

Millennials are often characterized as environmentally conscious and technologically savvy. They may have a greater inclination towards EV adoption due to their emphasis on sustainability, innovation and reducing carbon footprints. Factors such as environmental benefits, technological features and access to charging infrastructure are likely to influence their preferences. Millennials may also value the social image associated with owning an EV and the opportunity to embrace cutting-edge technologies.

Generation Z (Born: 1997-Present):

The youngest generation, Generation Z, is growing up in a time of heightened environmental awareness and rapid technological advancements. Their preferences for EV adoption may align closely with those of Millennials, emphasizing environmental sustainability, advanced technology and the social image associated with EV ownership. Generation Z individuals may also have a higher level of acceptance and familiarity with EVs due to their exposure to these vehicles during their formative years.

Participants' Profiles

Every participant has been chosen according to their ages and occupations and from people around the researcher. This sampling is simply made because of the convenience and time limitations.

For silent generation, people between ages 78 and 95 had been targeted. People living in Gazimağusa and Lefkoşa had been considered. 5 people were selected among the acquaintances of the researcher. Their age had been asked and continued if it is appropriate for the group.

For baby boomers, eligible people close to researcher had been considered. Age range of boomers were between 59 and 77.

Generation X participants were again, selected among the close people to the researcher, between ages 43-58. Researcher tried to have a participant from every socio-economic background.

Generation Y and Z participants were selected among people that are acquaintances of the researcher. Age range for the Y generation was between 27 and 42, while the ages of the Gen Z participants were 26 at maximum an 18 at minimum.

Data Collection

As a data collection tool, answer sheets were used, in which the answers obtained by asking the participants the questions developed by the researcher were recorded by the researcher. The questions were presented to the opinion of two academicians who are experts in their field in terms of suitability, clarity, comprehensibility and clarity in line with the purpose of the research, and the answers received were then given their final form. With this method, the scope and

effectiveness of the measurement tools used are ensured. It is stated that the scope and appearance effectiveness of measurement tools can be evaluated based on expert opinions. (Büyüköztürk, 2012).

The data is collected throughout the late September and October 2023 and in Turkish Republic of Northern Cyprus. All participant answers are under record on personal computer. These data then, was used for graphs and analysis of EV adoption in TRNC based on generational differences.

Data Analysis

In this research, content analysis methods were used to reveal the basic concepts and the relationships between these concepts. The basic process of content analysis is to collect similar data within the framework of certain concepts and topics and to organize and explain them in a way that readers can understand (Yıldırım and Şimşek, 2013).

The codes obtained through content analysis are understood, classified, and codes similar to the same topics are written. Topics are categorized according to general meanings. Finally, categories are given based on each question, and categories are given quantitatively by frequency.

After writing down the data obtained in the research, themes and sub-themes were created through content analysis and analysis results. Category is the classification of concepts obtained by analyzing them under a certain subject (Yıldırım and Şimşek, 2013).

The frequency of quantitatively reflecting the categories of research results is not determined by the administrators of private educational institutions participating in the research but is presented according to the opinions expressed.

The content analysis method is used to obtain concepts, facts, and relationships that can explain the data. The data obtained within the scope of content analysis is examined in depth and the resulting concepts are defined and explained within a logical framework. The data obtained from content analysis is analyzed in three stages. These stages are as follows:

1. Coding of Data

In the first stage of the content analysis, a number was assigned to each participant and the notes of the interview was converted into text. Within the

framework of the research, the data obtained from the participants were analyzed, divided into meaningful parts. Clear views of the participants have been obtained this way.

2. Identification by organizing data according to themes

At this stage, the participants' opinions and answers are gathered and analyzed by the researcher. The researcher separated each answer as positive, negative or neutral opinion. The effect of each attribute is measured by these opinions.

3. Interpretation of Findings

The researcher explained the findings in detail and reached some conclusions and interpreted these results. The collected data went through a qualitative research phase, comments were made and some results were obtained (Yıldırım and Şimşek, 2013).

Ethical Considerations

Ethical guidelines have been followed throughout the research process. Informed consents were obtained from all participants, ensuring their voluntary participation and confidentiality. The participants' identities are anonymized in reporting and analysis, using pseudonyms or participant numbers to maintain privacy.

Content analysis methods are used to assemble the basic concepts of these concepts and the ones between these concepts. The basic process of content analysis is to collect similar data on certain concepts and topics within the framework and organize and conduct them in a way that readers can understand (Yıldırım and Şimşek, 2013).

Research Internal and External Validity

The findings obtained are based on the research sub-problems. These findings are basically related to the main theme of the research. The theoretical framework of the research was taken into consideration when creating data collection tools. A connection with the conceptual framework was established in the creation of

research questions, development of data collection tools, analysis and interpretation of data, and how to establish a connection within the scope of the research was explained in detail. The researcher adopted an objective and critical approach in the data collection and development process, and also checked whether the data obtained and the results obtained from these data reflected the reality of the working environment (Yıldırım and Şimşek, 2013). While the internal validity of this research is revealed, the external validity is explained as follows. The research has the necessary examinations and evaluations so that the results can be tested in other scientific studies. To ensure that the research results can be tested in different environments, the researcher explains all stages of the research in detail. People who will examine the subject of this research in the future can find working environments based on the results of this research, but it should be said that the results of this research cannot be generalized. If researchers rely on comparative case study models, they can evaluate the research process and transfer it to their own research (Yıldırım and Şimşek, 2013).

Research Internal and External Reliability

In this study, the researcher avoided guiding the participants through the interview process during the data collection process. The researcher's goal is to have participants express their opinions based on the research question. In the study, the researcher analyzed the data and determined positive, negative and neutral opinions. In order to determine the reliability of the data analysis in the study, the questions in the interview form were evaluated by two experts in the field. For the research topics, the titles of the topics were given and the consistency between the topics was examined. (Tavşancıl and Aslan, 2001).

The study clearly shows the characteristics of the participants. For this reason, people who will conduct similar studies in the future can take these features into consideration and compare them when giving examples. In addition, research data will be stored in accordance with ethical standards so that other researchers can evaluate them (Yıldırım and Şimşek, 2013).

Questions to be Asked

The aim of these questions is to examine the opinions of consumers in the Turkish Republic of Northern Cyprus (TRNC) regarding electric vehicles (EVs) and to determine how similar or dissimilar these opinions are to those of consumers in other parts of the world. Electric vehicles are increasingly gaining importance globally as a part of sustainable and eco-friendly transportation. Therefore, it is essential to assess the approach of TRNC consumers to this new technology, compare it with global trends and identify similarities and differences. This study seeks to contribute to international comparisons by evaluating the attitudes of TRNC consumers towards electric vehicles within a broader perspective.

Questions have been separated into 4 areas as there are 4 attribute areas that are being focused on; financial (price, operation & maintenance costs), technical (driving range, recharging time, performance, brand and diversity, warranty), infrastructure (charging infrastructure) and policy (purchase price, purchase tax, annual tax) attributes. There are 10 questions and they all represent an attribute. Each question is aimed to measure the influence level that every attribute has on the consumers from different generation.

Questions are created by the researcher with the help of the article "Consumer preferences for electric vehicles: a literature review". Researchers of this article has reviewed 26 articles related with electric vehicle consumer preferences and came up with the attributes that have the most influence in electric vehicle adoption.

The questions were written in English and asked in Turkish depending on the preference of the respondents. The original question list is in English, it has been translated into Turkish. All gathered data was again translated into English with the same process.

CHAPTER IV
Research Findings

Introduction

The present chapter constitutes a pivotal phase in the investigative pursuit of understanding the nuanced contours of electric vehicle (EV) adoption within the Turkish Cypriot population. A comprehensive dataset, emanating from systematically administered interviews, forms the substratum of this analytical endeavor. This qualitative inquiry unfolded within the environments of local coffee establishments.

The responses collected have undergone systematic processing, yielding substantive outcomes aimed at comprehending the patterns, determinants underlying the electric vehicle adoption trends among the Turkish Cypriot populace and the effect of generational distinctions.

Answers and Analysis

The questions asked were gathered under 4 topics. These topics cover financial attributes, technical attributes, infrastructure attributes and policy attributes.

Financial Attributes

Financial attribute questions tried to find out what participants are thinking about current prices, operation and maintenance costs of EVs. Views indicate that they would or would not buy an EV when they consider the corresponding code.

Table 1

Financial Attributes Views

Generation	Code	View	N
Silent Generation	Purchase Price	Negative	4
		Neutral	1
	Operation and Maintenance Costs	Negative	2
		Positive	3
Baby Boomers	Purchase Price	Negative	4
		Neutral	1
	Operation and Maintenance Costs	Positive	5
Generation X	Purchase Price	Negative	4
		Neutral	1
	Operation and Maintenance Costs	Negative	1
		Positive	4
Generation Y	Purchase Price	Negative	3
		Neutral	2
	Operation and Maintenance Costs	Positive	5
Generation Z	Purchase Price	Negative	4
		Neutral	1
	Operation and Maintenance Costs	Positive	5

When looked at this table, first thing that catches attention is general view about purchase prices being high. No matter the generation, almost 80% of participants think that electric vehicles are expensive to buy. 80% of silent generation, baby boomers, gen X and gen Z think EVs' purchase price are high while 60% of gen Y thinks they are expensive. 20% of silent generation, baby boomers, gen X and Z say they are not so expensive, but they are not that cheap too. 40% of gen Y think they are worth their values.

"Electric cars are beautiful, but they are too expensive for us. I wish I could use it too, but unfortunately this is impossible under these economic conditions."

Silent Gen, Participant 5 on purchase price

"Electric vehicles are more expensive than internal combustion vehicles. I guess it's more expensive because it's new technology. I don't think I'm going to buy it now, but I might consider buying it in the future if it's cheaper."

Boomer, Participant 6 on purchase price

"Electric vehicles are expensive right now. They say it will get cheaper in the future, but I haven't seen a car that gets cheaper. Currently, an ICE vehicle instead of an electric vehicle will do my job, so I don't see the need."

Gen X, Participant 11 on purchase price

"While the prices of electric vehicles are reasonable from the producer's point of view, they seem high from the consumer's point of view. These high prices can reach astronomical levels for a country with a fragile economy like ours. Prices vary depending on where you look from. It is expensive when viewed from the TRNC."

Gen Y, Participant 19 on purchase price

"Buying an electric car is not easier than buying an ICE vehicle. There are alternatives for gasoline engines, but there are currently no electric vehicles. The prices are high, not at a level I can afford."

Gen Z, Participant 21 on purchase price

As for operation and maintenance costs, participants think that they can buy an EV when considered this attribute. Operation and maintenance costs are lower when compared to ICE vehicles. 40% of silent gen and 20% of gen X say they would not prefer EVs, because they believe EVs are too complex and technologically advanced, meaning there are more things to break or malfunction. 100% of boomers, gen Y and Z say this factor helps them to think about buying an EV.

"From this point of view, it makes sense to choose an electric vehicle instead of ICE. I would do the same."

Silent Gen, Participant 4 on operation and maintenance costs

"Yes, it is possible. We have dealt with air filters, fuel filters, oil changes etc. of ICE vehicles in the past. The absence of these parts in electric vehicles is a great advantage."

Boomer, Participant 9 on operation and maintenance costs

"*I know that operating and maintenance costs are lower. From this point of view, electric vehicles should be used. From my point of view, it is very possible."*

Gen X, Participant 12 on operation and maintenance costs

"Yes, it is possible. This is perhaps one of the biggest factors that makes buying an electric vehicle tempting."

Gen Y, Participant 16 on operation and maintenance costs

"Yes, it is possible. An electric car may be preferred for this situation."

Gen Z, Participant 21 on operation and maintenance costs

Technical Attributes

Technical attributes questions consist of questions that asking whether the specs of driving range, charging time, performance, brand & diversity and warranty have any effect on EV adoption. Views show that participant thinks corresponding attribute is sufficient to justify buying an EV.

Table 2

Technical Attributes Views

Generation	Code	View	n
Silent Generation	Driving Range	Negative	1
		Positive	4
	Charging Time	Negative	1
		Positive	4
	Performance	Negative	3
		Neutral	2
	Brand and Diversity	Negative	4
		Positive	1
	Warranty	Positive	5
Baby Boomers	Driving Range	Negative	2
		Neutral	2
		Positive	1
	Charging Time	Negative	2
		Neutral	3
	Performance	Neutral	5
	Brand and Diversity	Negative	2
		Positive	3
	Warranty	Positive	5
Generation X	Driving Range	Negative	2
		Positive	3
	Charging Time	Negative	4
		Positive	1
	Performance	Neutral	3
		Positive	2
	Brand and Diversity	Positive	5
	Warranty	Positive	5

Table 2 (Continued)

Generation	Code	View	n
Generation Y	Driving Range	Neutral	2
		Positive	3
	Charging Time	Negative	3
		Positive	2
	Performance	Neutral	3
		Positive	2
	Brand and Diversity	Positive	5
	Warranty	Positive	5
Generation Z	Driving Range	Positive	5
	Charging Time	Negative	2
		Neutral	1
		Positive	2
	Performance	Neutral	4
		Positive	1
	Brand and Diversity	Neutral	1
		Positive	4
	Warranty	Positive	5

Technical attributes were measured with five questions. 80% of silent generation and 100% of gen Z think that ranges are sufficient to buy an EV. Baby boomers and gen X have more suspicions on ranges of EVs. 40% of baby boomers think ranges are not sufficient to own an EV while 20% of them think they are sufficient. The rest thinks ranges are not high but enough for them. 40% of gen X think ranges are not enough to buy an EV. 60% think the contrary. 40% of gen Y think ranges are somewhat enough but they should be higher. 60% think they are sufficient.

"I don't think anyone would want to drive a short-range car. But me, for example, I could go to the market or to the neighbors. Of course, I don't need very long ranges for this. It's a matter of need after all."

Silent Gen, Participant 4 on driving range

"The ranges are increasing day by day. I don't think this will be a big problem, especially in Cyprus. Range doesn't make me think that much anymore."

Boomer, Participant 9 on driving range

"As long as the range isn't too short, it's not too big of a problem. On the days I go to a place the most, I do a maximum of 100 km. There are vehicles within range that I may need, so it is not an issue that will have a negative impact on me."

Gen X, Participant 14 on driving range

"As the prices of vehicles increase, their range also increases. The 400-500 km range they currently have is sufficient for our needs. We see that it is increasing day by day. So, I'm thinking of buying it."

Gen Y, Participant 16 in driving range

"The range of electric vehicles is not much worse than ICE vehicles for now. It is sufficient especially for TRNC."

Gen Z, Participant 21 on driving range

Charging time is a subject on which opinions differ. 80% of silent generation think charging time is enough to own an EV. Yet baby boomers are not fully certain that charging time is enough. 60% says they are at home most of the time and they do not need shorter charging durations. 40% says they do not want to have a car that should be charged periodically, just like 80% of gen X. Only 20% of gen X participants thinks charging time is enough to buy an EV. 40% of gen Y and gen Z think charging time is sufficient and it will get better in the near future. 20% of gen Z think charging time needs to be faster and it will be soon. 60% of gen Y and 40% gen X say charging times are still too long for them.

"They charge in 8 hours at home and 30 minutes outside at the station. Long for home, but you're home after all. Charging for 8 hours at home is better than charging for 30 minutes or 1 hour outside."

Silent Gen, Participant 4 on charging time

"Of course, the charging time is long, but it will probably get shorter as the days go by. If we are going to talk for now, long or short charging time, I don't care much. I will probably always charge at home anyway."

Boomer, Participant 9 on charging time

"Unfortunately, the charging times are long. I think this is a big problem, especially for people whose house is not suitable for charging. It is not preferable to constantly try to charge a car outside and spend time on it."

Gen X, Participant 13 on charging time

"Durations are long. Charging vehicles will be a problem for some people. It is not possible at the moment, especially for people living in places such as apartments. Also, the times are too long. They solve this problem in Europe and America with fast charging stations, but I don't know how possible this is in our country."

Gen Y, Participant 16 on charging time

"Unfortunately, charging time is long. This always requires planning. In emergencies, charging possibilities are very limited."

Gen Z, Participant 25 on charging time

60% of silent generation say higher performance will deter them from buying an EV while 40% think performance is not so effective on their decision making. All of baby boomer participants say performance is not a thing they seek in a vehicle, but it is nice to have. No baby boomer, gen X, Y and Z members say performance would be a negative factor for them. 60% of gen X and Y, 80% of gen Z think they would not go for only performance, but it is nice to have, while the rest stated performance is important and higher performance helps with their decision to buy an EV.

"I don't expect performance. I expect calmness and security."

Silent Gen, Participant 4 on performance

"Even if it is already performing, we do not have roads suitable for speeding. There is no need for speed."

Boomer, Participant 10 on performance

"I don't have any expectations for performance. It does not affect my decision; I would like to travel quietly and safely."

Gen X, Participant 11 on performance

"As far as I know, electric vehicles can accelerate faster than an average ICE vehicle. This is enough for me. I don't want more."

Gen Y, Participant 17 on performance

"Comfort is more important to me than performance. An average electric vehicle performance is enough for me."

Gen Z, Participant 21 on performance

When it comes to diversity, 4 out of 5 silent generation members think having too many cars makes it harder to choose from and it is bad for life in the city due to crowdedness and traffic. The rest of them say variety is good for consumers to buy what they need exactly. 40% of baby boomers say too many cars and variety leads people to consumerism, which is not good in a small island like Cyprus. So many vehicles have been imported to Cyprus lately and this bothers some people. 60% of boomers mentioned that diversity is good because everyone's needs are different. On the other hand, all of gen X and Y say diversity is needed and it is a positive factor when consider buying an EV. Only 20% of gen Z think diversity and variety is good but leads companies to make more complex vehicles where simple is better. Companies spend a lot of resources to make cars different from each other and this triggers consumerism, they say.

"Variety is good, but I don't understand what they're going to do with all these cars. In my opinion, there is no need to produce such a variety of cars, but it means that there is a buyer. What a pity. We used to use a car for 20-30 years, now people change cars once a year. What is the need?"

Silent Gen, Participant 3 on diversity

"Just like the range issue, there needs to be variety. Everyone's needs are different and these needs should be addressed. I think this is also a good thing in terms of the competition it provides."

Boomer, Participant 8 on diversity

"Diversity is important in electric cars, as in any product. Everyone's budget and needs are different. Being able to reach the vehicle in the class I want increases my probability of buying an electric vehicle."

Gen X, Participant 12 on diversity

"Diversity is a very good thing for us consumers. I want a high-performance vehicle, someone else wants a safe vehicle, someone else wants a comfortable vehicle. Some people want it all. Determining prices accordingly is good for the consumer."

Gen Y, Participant 20 on diversity

"I support diversity. The more different and diverse cars there are, the more consumers can find vehicles that appeal to them and fit their budget."

Gen Z, Participant 24 on diversity

When warranty is considered, it has been seen that every single participant agreed that comprehensive warranty options significantly increase the chances to adopt EVs.

"I want it to have a warranty. After this time, vehicle manufacturers should not bother old people like us."

Silent Gen, Participant 4 on warranty

"I don't think there is anyone who wouldn't want a warranty. Such possibilities are essential for new technologies such as electric vehicles."

Boomer, Participant 8 on warranty

"Today, when you see how often electronic products break down and are changed, warranty is now a must. Considering that we wait for a long time for

transactions such as part replacement, especially in a country like Cyprus, the warranty and service network is very important."

Gen X, Participant 12 on warranty

"It affects positively. Warranty commitment is a must at this stage."

Gen Y, Participant 20 on warranty

"For example, the 10-year battery warranty life would have greatly influenced my decision. This is a very important factor."

Gen Z, Participant 21 on warranty

Infrastructure Attributes

Infrastructure attribute question asks about the availability of charging stations and the sufficiency of electricity in their areas. Their views show what they think about buying an EV in these infrastructure conditions.

Table 3

Infrastructure Attribute Views

Generation	Code	View	n
Silent Generation	Infrastructure	Neutral	3
		Positive	2
Baby Boomers	Infrastructure	Neutral	3
		Positive	2
Generation X	Infrastructure	Positive	5
Generation Y	Infrastructure	Positive	5
Generation Z	Infrastructure	Positive	5

The importance and effect of charging infrastructure when consider owning an EV had been asked to participants. 60% of silent generation say charging stations and infrastructure is not so important to them, because they would not use them. They added that they would charge their EVs at home since they are mostly at home and don't go to other places frequently. The rest think increase in the charging options is always nice and they prefer EVs if infrastructure is improved. Again, 60%

of boomers say improved infrastructure is nice to have but they will most probably charge their EVs at home. So, they say effect of infrastructure is negligible in their decision making. 40% say improved infrastructure is essential for EV owners. Sufficient charging stations and infrastructure would convince them to buy EVs. Gen X, Y and Z also think that charging infrastructure is one of the most important parameters when consider buying an EV. It would help them on their decision making to buy EVs, they add.

"The more places I can charge my car, the better. It has a positive effect on my decision making. Although I will mostly charge at home, there should be alternative charging stations just in case. Especially in this environment where the electricity is constantly cut off."

Silent Gen, Participant 4 on charging infrastructure

"I am self-sufficient. Since I have the opportunity, I can charge it at home. Charging network doesn't matter much to me. But the charging network must be widespread, the infrastructure must be strong."

Boomer, Participant 8 on charging infrastructure

"The charging network and infrastructure is perhaps the most important factor standing in front of us to buy an electric car. In regions that do not have a proper charging network and infrastructure -unfortunately we live in one of those regions- buying an electric car is no different than getting into trouble. It is very effective in my decision making."

Gen X, Participant 13 on charging infrastructure

"The charging network is important and its infrastructure is even more important. We are experiencing electricity problems in the TRNC and our infrastructure is not at a level to encourage our people to use electric vehicles. In this case, the infrastructure is very effective in my decision to buy a vehicle."

Gen Y, Participant 19 on charging infrastructure

"It is important. It is also very effective in my decision making. Driving an electric vehicle in a country with inadequate energy infrastructure feels like taking a serious gamble.'

Gen Z, Participant 24 on charging infrastructure

Policy Attributes

Policy attributes questions ask about the effect of price, tax discounts and annual tax reductions on decision to buy an EV. Participants' views show what they feel about the discounts and tax reductions.

Table 4

Policy Attributes Views

Generation	Code	View	n
Silent Generation	Purchase Price Discounts	Positive	5
	Annual Tax Reduction	Positive	5
Baby Boomers	Purchase Price Discounts	Positive	5
	Annual Tax Reduction	Positive	5
Generation X	Purchase Price Discounts	Positive	5
	Annual Tax Reduction	Positive	5
Generation Y	Purchase Price Discounts	Positive	5
	Annual Tax Reduction	Positive	5
Generation Z	Purchase Price Discounts	Positive	5
	Annual Tax Reduction	Positive	5

When it comes to incentives offered by governments or sellers, all members from all generations showed great interest. It has been found out that discounts on purchase prices and annual tax reductions have significantly positive effect on EV adoption for every generation.

"Purchase price is too much and it holds people back. Discount on the purchase price would be better. Both the price and the tax should be decreased."

Silent Gen, Participant 1 on purchase price

"Well, they should have already done that. In order to sell electric cars in a country without electricity, it is necessary to make a lot of discounts."

Boomer, Participant 9 on tax reduction

"Of course, both discounts are important. For me, the discount on the purchase price is more meaningful and effective. After buying the vehicle, you already save a significant amount of money compared to ICE vehicles. That's why the first purchase price creates a serious obstacle for most of us."

Gen X, Participant 12 on purchase price and tax reduction

"Yes, I support it. Electric vehicles are a new technology and people need to be accustomed to this technology with such incentives."

Gen Y, Participant 20 on tax reduction

"I would like to have a reduction in these taxes, but the production of electric vehicles also causes serious damage to the world and the environment. Since the taxes prevent this loss a little, it will be sufficient to reduce them in a small amount."

Gen Z, Participant 21 on tax reduction

CHAPTER V
Discussion

In the journey towards a sustainable transportation future, the adoption of electric vehicles (EVs) stands as a pivotal milestone. With the promise of reduced emissions, decreased reliance on fossil fuels and the potential for long-term economic benefits, EVs have garnered significant attention from policymakers, industries and consumers alike. Central to the decision to embrace this transformative technology are considerations of operation and maintenance costs, which not only impact individual choices but also influence the broader societal shift towards electrified mobility. This discussion section delves into the insights gleaned from interviews with members of the Silent Generation, Baby Boomers, Generation X, Generation Y (Millennials) and Generation Z in the Turkish Republic of Northern Cyprus (TRNC) and compares these findings with the broader body of research on EV adoption. By analyzing the perspectives of these diverse demographic groups, each characterized by their unique relationship with technology and preferences, we aim to deepen our understanding of the multifaceted dynamics surrounding EV adoption. As we navigate the complexities of economic considerations, technology trust and familiarity within these generations, we seek to illuminate pathways for effective policies and strategies to accelerate the transition to electric mobility within the TRNC and by extension, in similar regions and among diverse demographic groups worldwide.

In the study of Liao (2016), which formed the center of our study, every study that has been reviewed includes the purchase price. For this characteristic, pivotal design has been employed in many studies; price levels are customized and centered around the cost of a reference car that each respondent specifies. In every study, the purchase price was shown to have a negative and statistically significant impact on the EV utility.

Financial Attributes

Price preferences differ amongst groups as well. According to Rasouli and Timmermans (2013), heterogeneity is especially prominent when EV is significantly more expensive than ICE vehicles. According to a number of studies (Achtnicht et al., 2012; Hackbarth & Madlener, 2013; Hess et al., 2012; Mabit & Fosgerau, 2011;

Molin et al., 2012; Potoglou & Kanaroglou, 2007; Valeri & Danielis, 2015), there is an income effect; however, Jensen et al. (2013) found no evidence of this effect.

Our study aligns with most of the studies that has found purchase prices effective on EV adoption. Although there had been no identification of incomes of the participants, 100% of them agreed on the opinion that EVs are expensive and that reality makes it harder for them to own EVs.

Every study includes operation costs, although in slightly different ways. According to Musti and Kockelman (2011), the majority of research utilize energy cost as the attribute, either as cost per (100) km or as combined fuel efficiency and gasoline price. Regular maintenance expenses are also included in certain studies (Hess et al., 2012) or integrated with energy costs as an aspect of the overall operation cost (Mabit & Fosgerau, 2011). Due to the fact that EVs often have lower energy costs than ICE vehicles, these factors all have a detrimental impact on the decision to buy a car (Mock & Yang, 2014). According to Jensen et al. (2013), EVs have a substantially greater marginal utility of fuel expenditure than ICE vehicles.

Operation costs are lower for owners of EVs, and the participants of this study agreed with that idea and they stated that they can consider owning an EV because operations costs were lower, except the Silent Gen. Some of the silent generation members are suspicious of new technologies and they were afraid that they are much easier to be broken.

Technical Attributes

One of the main obstacles to the widespread adoption of electric vehicles is thought to be their relatively low driving range. The operationalization of driving range on a fully charged battery is the most prevalent. Bockarjova et al. (2014) is an exception, as they included range in both favorable and unfavorable conditions. In the great majority of research, range is found to have a favorable and statistically significant impact on EV adoption decisions. Hess et al. (2012), however, discovered that this effect was negligible, which could be attributed to the experiment's constrained range (30–60 miles).

Participants of this study, again, aligned with previous studies' participants, saying that EV ranges are enough, or it will be in the near future, so this helps them to decide to adopt an EV.

All of the studies that took it into account indicated that charging time is important. However, none of the research made a distinction between slow and quick charging, with the exception of Bockarjova et al. (2014). The battery capacity and the charging post's power determine how long a battery takes to recharge. Everyday EVs use slow charging, which requires 6-7 hours to fully charge at home or at work. Fast chargers are capable of charging a battery to 80% capacity in 15 to 30 minutes, which is useful for extended travel. Stated differently, the variability of "charging time" is contingent upon several factors.

In this study however, great portion of silent generation members think charging time is sufficient for them. It should also be added that they were saying these with the condition of them being at home all the time and have time to charge their vehicles at home. When we look at other age groups, some of them think fast charging duration is good enough and it will get better soon while some other were thinking that they do not think it is short enough to own an EV. So this topic aligns with other studies and remains controversial.

Typically, engine power, acceleration time, or maximum speed are used to describe performance. Better performance is typically preferred by customers. Although males have a significant preference for faster acceleration while females prefer slower acceleration, Mabit and Fosgerau (2011) find that acceleration time is not significant because heterogeneous preferences within the population may cancel each other out (Mabit & Fosgerau, 2011; Potoglou & Kanaroglou, 2007; Valeri & Danielis, 2015). Additionally, Potoglou and Kanaroglou (2007) discovered that single individuals place a higher value on shorter acceleration times.

In our study however, most of the participants think that EV performances are more than sufficient, and they would not look for extra performance. TRNC does not have high speed motorways, so, this could be another reason for performance not being a major attribute to consider.

When we look at brand and diversity, acccording to research by Helveston et al. (2015), people have different preferences for brands from different nations. The likelihood of selecting an EV rises with the number of EV models on the market, according to research by Chorus et al. (2013) and Hoen and Koetse (2014).

This outcome aligns with our research too. Most of the participants think that variability is good for customers and affordable options. Although a few of them, mostly silent generation members, think that higher variety and higher options makes

it harder to choose and provides lots of cars in their environment which makes them frustrated of the crowdedness and traffic.

According to Mau et al. (2008), warranties have a beneficial impact on EV adoption. According to Jensen et al. (2013), respondents who took part in an EV trial period of three months saw an increase in battery life; nevertheless, these results were not statistically significant. Because there are a lot of unknowns surrounding battery life and consumers might desire more assurance on these fronts, this issue is anticipated to be important. The impact of a warranty's significance is yet unknown based on the current data.

This research showed that participants expect to see warranty from the manufacturers or the dealers to own EVs, since it is a new technology, they would require a guarantee that their cars would be fixed and maintained in a case of error or mistake could be caused by the manufacturer. Warranty options improve the likeliness of owning EVs for all of the participants from all generations.

Infrastructure Attributes

The majority of research show a markedly favorable impact, presumably as a result of the fact that more charging stations reduce customers' search expenses and time while also allaying their range anxiety. According to Achtnicht et al. (2012), the effect has a declining marginal benefit and is non-linear. Certain groups have a preference for charging posts at specific activity areas. For instance, Jensen et al. (2013) discovered that long-distance commuters value chargers in work places much more than others and desire a higher density of charging stations (Potoglou & Kanaroglou, 2007).

In our research, silent generation and baby boomer members mentioned that they would not use any fast charging stations, they prefer house charging and charging infrastructure would not have significant effect on their decision-making. On the other hand, generation X, Y and Z members think that charging infrastructure is important attribute when deciding to own an EV. A reason for this could be that silent generation and baby boomers own houses with a garage to charge their vehicles while most of the X, Y and Z generation lives in apartments, where they do not have any locations to charge their vehicles at home. Generations X, Y and Z value charging infrastructure more in the TRNC.

Policy Attributes

Reducing purchase tax is important in every situation when it comes to one-time price reduction strategies, although lowering purchase price is only important in two of the four circumstances. The most striking discrepancy with Hess et al. (2012) is that a $1000 tax cut is positively significant, whereas a $1000 price drop is not. This can be because a more expensive car has a greater symbolic worth. Gallagher and Muehlegger (2011) also discovered that the kind of tax incentive provided matters just as much as its amount.

In our research, participants did not pay attention to any discrimination between tax and purchase price of the car. Any kind of reduction in price is good enough for them to consider EVs. The economic situation of the TRNC played a huge role in this attribute. People need price reduction of any kind to own EVs.

Annual tax reductions have significant effects throughout all studies and it, again, aligns with our research. Growing economic concerns are leading people to expect these kinds of policies to start adopting EVs all around the world.

Contribution of EV Adoption to SDGs

The adoption of EVs makes a substantive contribution to several SDGs, aligning with the global agenda for sustainable and inclusive development. Foremost, the transition to EVs significantly supports SDG 7 (Affordable and Clean Energy) by promoting the use of clean and sustainable energy sources, reducing dependency on fossil fuels, and mitigating the environmental impact associated with traditional vehicles. This shift also resonates with SDG 13 (Climate Action), as EVs contribute to diminishing greenhouse gas emissions and combating climate change. Furthermore, EV adoption addresses SDG 11 (Sustainable Cities and Communities) by fostering eco-friendly urban transportation, reducing air pollution, and enhancing the overall quality of urban living. Additionally, it aligns with SDG 9 (Industry, Innovation, and Infrastructure) by promoting innovative technologies in the automotive industry and SDG 8 (Decent Work and Economic Growth) by potentially generating employment opportunities within the burgeoning electric vehicle sector. The ripple effects of EV adoption extend to SDG 12 (Responsible Consumption and Production) by encouraging sustainable consumption patterns through the use of cleaner and more energy-efficient transportation options. In essence, the widespread adoption of electric vehicles serves as a catalytic force in achieving multiple SDGs,

embodying a transformative pathway towards a more sustainable and equitable future.

SDG 3 (Good Health and Well-being) is another goal that could be achieved by EV adoption. Reducing air pollution through the adoption of electric vehicles has direct implications for public health, aligning with the goals of ensuring good health and well-being. Lastly, SDG 17 (Partnerships for the Goals) will also be achieved greatly if the potential of EV industry can be reached. The studies in this area may contribute to building partnerships for sustainable development by providing insights into collaborative efforts between government, industry and communities in promoting EV adoption.

CHAPTER VI

Conclusion and Recommendations

The transition to electric vehicles (EVs) represents a pivotal juncture in the pursuit of sustainable transportation. As we embark on this transformative journey, the considerations of operation and maintenance costs emerge as critical determinants influencing the choices made by individuals and societies alike. In this study, we embarked on an exploration into the perceptions and preferences of different generations, including the Silent Generation, Baby Boomers, Generation X, Generation Y (Millennials) and Generation Z, within the Turkish Republic of Northern Cyprus (TRNC) concerning EV adoption. By comparing our findings with the broader body of research on this subject, several key insights have emerged.

Table 5

Percentage of positive effects of each

Gen	Att1	Att2	Att3	Att4	Att5	Att6	Att7	Att8	Att9	Att10
SG	0%	60%	80%	80%	0%	20%	100%	40%	100%	100%
BB	0%	100%	20%	0%	0%	60%	100%	40%	100%	100%
GX	0%	80%	60%	20%	40%	100%	100%	100%	100%	100%
GY	0%	100%	60%	40%	40%	100%	100%	100%	100%	100%
GZ	0%	100%	100%	40%	20%	80%	100%	100%	100%	100%

SG: Silent Generation
BB: Baby Boomers
GX: Generation X
GY: Generation Y
GY: Generation Z
Att1: Purchase Price
Att2: Operation and Maintenance Costs
Att3: Driving Range
Att4: Charging Time
Att5: Performance
Att6: Brand and Diversity
Att7: Warranty
Att8: Charging Infrastructure
Att9: Purchase Price and Tax Discount
Att10: Annual Tax Reduction

Conclusion

With this study, it has been discovered that older generations need more knowledge on EVs. The lack of general knowledge on EVs causes distrust to EVs and this leads to staying away from EVs. Gen X, Y and Z show more interest to EVs. Still their motivation towards EV adoption is due to economic situation. People need more knowledge and awareness on SDGs created by UN to see EVs are far more important than they seem now *for peace and prosperity for people and the planet, now and into the future*.

One recurring theme is the paramount role of economic considerations in steering the course toward electric mobility, against the backdrop of global economic challenges. In Table 5, it can be seen that participants from all generations do not think that EVs are affordable. The devaluation of the Turkish Lira and the broader global economic crisis have added an extra layer of complexity to decision-making.

Across generations, the recognition of lower operating and maintenance costs associated with EVs consistently emerges as a compelling motivator for adoption, particularly in the face of economic uncertainties. In relation to that, warranty, purchase price and tax discounts, annual tax reductions were received positively by participants from all generations, as expected.

The appeal of reduced energy expenses and minimized maintenance requirements resonates universally, transcending generational boundaries. Only Silent Generation participants had second thought about new technologies and some of them were afraid of the complexity of the technology in EVs.

It has been found out that most of generations except Baby Boomers think ranges could be enough for them. Gen Z is the only generation that each single participant thinks ranges are sufficient.

And once again, Baby Boomer participants thought that charging time is not short enough for them to own an EV. None were satisfied with the charging durations of EVs. Charging time attribute was mostly satisfying for the Silent Gen members, which was probably due to them being retired and at home most of the time.

Although EVs have outstanding performance advantages over ICE vehicles, participants from all generations did not show interest in performance. The reason for that could be the lack of availability of roads to perform high speeds in the TRNC.

Gen X, Y and Z participants thought diversity in EVs is beneficial for the people and is good while Silent Gen and Boomer participants thought there were too

many cars on the island and they were afraid that of the traffic getting crowded day by day.

Our exploration also uncovered a formidable challenge in the form of infrastructure, specifically the electricity supply. The prevalence of power cuts and electricity problems has left people in a dilemma between embracing EVs and questioning the practicality of doing so. This critical issue highlights that for widespread EV adoption to become a reality, addressing the electricity problem is paramount. Governments and stakeholders must prioritize enhancing the electrical grid's reliability and resilience to ensure that EVs can be a dependable and viable mode of transportation, particularly in regions with power supply concerns.

As it was mentioned in previous studies (Shah et al., 2022), many island states are transitioning to EVs on islands, with pilot projects increasing. However, policy frameworks are needed to ensure a faster upscale of EVs, reducing air pollution, alleviating congestion, and improving energy security. Targeted regulations, low-carbon infrastructure, and collective actions are recommended, along with stronger regional and SIS-SIS cooperation and scaling-up existing initiatives. TRNC and Republic of Cyprus should immediately start to solve their issues together and initiate a movement towards EV adoption. Cyprus has a lot of potential to be a pioneer island on recycling, sustainable energy and development. EV adoption will have the greatest impact, with the achievement of SDGs, on economy, sustainability, environment.

Suggestions for Future Studies

This study was conducted with the valuable input of 25 respondents spanning various generations, ensuring a comprehensive representation of our society's diverse perspectives. The sampling process was meticulously designed to encompass the Silent Generation, Baby Boomers, Generation X, Generation Y (Millennials) and Generation Z, offering a holistic understanding of generational differences in electric vehicle (EV) adoption. Our research aimed to shed light on the complex dynamics that influence the decision-making process of adopting EVs among these different age groups. The promising results gleaned from this study unveil opportunities for crafting inclusive policies and strategies to facilitate broader EV adoption across generations. These insights contribute to the ongoing discourse on sustainable

transportation, paving the way for more effective initiatives aimed at enhancing EV adoption and steering our society towards a greener more sustainable future.

EVs are a potential solution for decarbonizing transportation, but concerns arise about energy sources and renewable generation. Further research is needed to explore charging EVs from renewables. Recycling EV batteries could improve public perception and adoption, as some applications use second-hand batteries as stationary stations in charging stations. (Maybury et al., 2022)

To carry this study ahead, long-term longitudinal studies can be made to track the EV adoption journey of different generations over extended periods. This approach would provide insights into how attitudes and behaviors evolve as technology, infrastructure and economic conditions change.

Research can be conducted on the effectiveness of different educational and awareness campaigns targeting various demographic groups. Evaluate how these initiatives can enhance familiarity with EVs and address technology trust issues.

Investigation of the specific infrastructure challenges related to EV adoption, such as electricity supply problems, is another study that would give great results. Analyzing the impact of these challenges on the feasibility and acceptance of EVs and proposing solutions will surely be beneficial in the future. Collaboration with utilities and governments can be made to assess the resilience of electricity grids and their readiness for widespread EV adoption. Identify areas for improvement and evaluate the potential impact on the EV market. This issue is especially important in a country like the TRNC and EV market will possibly be shaped around this topic.

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APPENDICES

Appendix 1.

Ethics Committee Approval

Appendix 2.

Interview Questions

Appendix 3.

Originality Report

Appendix 1

NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF BUSINESS ADMINISTRATION

EXPLORING GENERATIONAL DIFFERENCES IN ELECTRIC VEHICLE ADOPTION WITHIN THE TURKISH CYPRIOT COMMUNITY

ETHICS COMMITTEE APPROVAL

Aytaç AYDOĞDU

Nicosia, 2024

NEAR EAST UNIVERSITY

SCIENTIFIC RESEARCH ETHICS COMMITTEE

04.09.2023

Dear Aytaç Aydoğdu

Your application titled **"Exploring Generational Differences in Electric Vehicle Adoption within the Turkish Cypriot Community"** with the application number NEU/SS/2023/1638 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Prof. Dr. Aşkın KİRAZ

The Coordinator of the Scientific Research Ethics Committee

Appendix 2

NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF BUSINESS ADMINISTRATION

EXPLORING GENERATIONAL DIFFERENCES IN ELECTRIC VEHICLE ADOPTION WITHIN THE TURKISH CYPRIOT COMMUNITY

INTERVIEW QUESTIONS

Aytaç AYDOĞDU

Nicosia, 2024

QUESTIONS

Demographic Questions

In the beginning of the interview, after getting their consent, participants' age and occupation was asked.

Questions (EN):

1. What is your age?
2. Are you actively working right now? What is your occupation?

Questions (TR:)

1. Kaç yaşındasınız?
2. Şu anda aktif olarak çalışıyor musunuz? Mesleğiniz nedir?

Financial Attributes

Purchase price was found to have a negative and highly significant influence on the EV utility in all studies.

Operation costs and maintenance costs negatively affect the decision to purchase a car, which gives EV an edge over conventional vehicles since electric vehicles generally have lower energy costs.

Questions (EN):

1. What do you think about the price of electric vehicles? Do you think the price of electric vehicles is enough to allow you to own one?
2. Electric vehicles have lower operating and maintenance costs than internal combustion engine vehicles. From this point of view, is it possible for you to buy an electric vehicle?

Questions (TR):

1. Elektrikli araçların fiyatı hakkında ne düşünüyorsunuz? Sizce elektrikli araçların fiyatı bir tane sahip olmanıza olanak verecek seviyede mi?
2. Elektrikli araçlar içten yanmalı motorlu araçlara göre daha az çalışma ve bakım maliyetlerine sahiptir. Bu açıdan bakıldığında elektrikli araç almak sizin için mümkün müdür?

Technical Attributes

A relatively short driving range is considered to be one of the biggest barriers to the widespread adoption of EV.

Recharging time depends on the power of the charging post and the battery capacity. “Charging time” varies greatly depending on the conditions.

Performance is usually represented by engine power, acceleration time or maximum speed. Consumers are generally found to prefer better performance.

Brand and diversity: People prefer brands from certain countries and the preference order differs between countries. Having more EV models available on the market increases the probability of choosing an EV.

Warranty is found to affect EV adoption positively. Based on the existing results the significance of a warranty’s effect remains unclear.

Questions (EN):

1. To what extent does the range of electric vehicles affect your view of them?
2. What do you think about the charging times of electric vehicles?
3. Do you have performance expectations from electric vehicles? To what extent does performance affect your decision?
4. How would you evaluate the fact that there are so many electric vehicle manufacturers and vehicle diversity in the market?
5. To what extent does warranty commitment in electric vehicles affect your decision?

Questions (TR):

1. Elektrikli araçların menzilleri onlara karşı bakışınızı ne derecede etkiliyor?
2. Elektrikli araçların şarj süreleri hakkında neler düşünüyorsunuz?
3. Elektrikli araçlardan performans beklentiniz var mı? Performans kararınızı ne derecede etkiler?
4. Piyasada çok fazla elektrikli araç üreticisinin ve araç çeşitliliğin fazla olmasını nasıl değerlendirirsiniz?
5. Elektrikli araçlarda garanti taahhüdü kararınızı ne derecede etkiler?

Infrastructure Attributes

Charging infrastructure has a significantly positive effect, possibly because more charging facilities save time and search cost for users as well as relieving their range anxiety as well.

Questions (EN):

1. Is the charging network and infrastructure important to you? How effective is it in your decision making?

Questions (TR):

1. Şarj ağı ve altyapısı sizin için önemli mi? Karar vermenizde ne kadar etkilidir?

Policy Attributes

Regarding one-time price reducing policies, reducing purchase tax is significant in all cases while reducing purchase price is only significant 2 out of 4 times.

As for usage cost reduction policies, annual tax reduction seems to be the only significant policy, while free parking and toll reduction are not significant in any of the studies that explored their effects.

Questions (EN):

1. Is the discount on the purchase price more meaningful for you when purchasing an electric vehicle, or is it a tax deduction?
2. Would you support annual tax breaks for electric vehicles after purchasing an electric vehicle? (Incentive discounts)

Questions (TR):

1. Elektrikli araç satın alırken satın alış fiyatı üzerinden indirim mi sizin için daha anlamlıdır yoksa vergi indirimi mi?
2. Bir elektrikli araç satın aldıktan sonra elektrikli araçlar için yıllık vergi indirimleri olmasını destekler misiniz? (Teşvik indirimleri)

Appendix 3

NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF BUSINESS ADMINISTRATION

EXPLORING GENERATIONAL DIFFERENCES IN ELECTRIC VEHICLE ADOPTION WITHIN THE TURKISH CYPRIOT COMMUNITY

ORIGINALITY REPORT

Aytaç AYDOĞDU

Nicosia, 2024

EXPLORING GENERATIONAL DIFFERENCES IN ELECTRIC VEHICLE ADOPTION WITHIN THE TURKISH CYPRIOT COMMUNITY by Aytaç Aydoğdu

ORIGINALITY REPORT

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