CUSTOMER INTENTION TO PURCHASE ELECTRIC VEHICLE: AN EXPLORATORY STUDY IN KATHMANDU

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ABSTRACT

This report is based around the purchase intention of consumer to purchase electric vehicle within Kathmandu valley. The aim of the study was to find purchase intention with relation to socio-economic factors, technological factors and environmental concerns. To complete the objective total of 500 questionnaire were distributed to six different showrooms of Bhaktapur, among which 351 were answered through offline. There were total of 20 questions. The importance of each variable in connection to the dependent variable, i.e., purchase intention, is examined using the multiple regression analysis, Pearson correlation analysis, normality, reliability analysis, and descriptive analysis. In order to examine the data, correlation analysis and an ANOVA test were constructed. It was determined that all of the variables are positively correlated.

Key Words: Customer Intention, Electric Vehicle, Purchase in Kathmandu

1 Introduction

Electric cars are powered wholly or partially by energy produced by the electric grid. battery powered The bulk of EVs are automobiles and plug-in electric vehicles. BEVs are electric cars that can be charged by connecting to the power grid or an electrical socket. Batteries, which don't utilize any fuels derived from petroleum, store energy. Seventy-five percent of transportation-related carbon dioxide emissions come from the road transportation industry. This has increased

worries about the environmental impact of our present modes of road mobility. As a result, utilizing cleaner, more energy-efficient, and environmentally friendly solutions is becoming increasingly popular as a way to cut carbon emissions. (Adhikari et al., 2020).

There are severe issues with traffic congestion and vehicle pollution in Kathmandu, the capital of Nepal. As a result, research into alternate forms of transportation, especially electric vehicles, has become more important. However, a number of obstacles prevent EVs from being widely used in cities, which prevents the development of a green and sustainable transportation system (Neupane, S. ,2022).

Electric cars (EVs) run on energy stored in rechargeable batteries or fuel cells, as opposed to traditional internal combustion engines, which depend on fossil fuels. Electric motors, which convert electrical energy into mechanical energy, propel the wheels of EVs. The widespread use of electric vehicles (EVs) is a crucial step towards creating sustainable transportation networks and reducing carbon emissions globally. Despite the numerous benefits they provide, the usage of electric cars has been relatively slow in many places, including the city of Kathmandu (Paudel, S. et al., 2019).

To reduce greenhouse gas emissions, air pollution, and dependence on fossil fuels, the transportation sector must change on a global scale. Electric vehicles (EVs) may soon provide environmentally friendly travel choices and be a useful form of transportation. An electric vehicle, in its most basic definition, is a kind of car that is entirely powered by electricity and can travel without the assistance of fossil fuels or internal combustion engines. An essential characteristic of Electric cars (EVs) is their capacity to be fully charged by plugging them into an off-board electric power source as opposed to a typical petrol station utilized by fossil fuel cars (Lashari, Z. et al., 2021).

This study report aims to comprehensively investigate the barriers that prevent the use of electric cars in Kathmandu. We seek to gain insight into the unique challenges the city faces and offer workable ideas to promote their widespread usage by examining the obstacles to EV adoption and use. The project will integrate primary and secondary research, including surveys, interviews, and literature analysis, in order to gather relevant data and reach significant findings.

2 Objectives

1. To determine whether there is relationship between socio-economic factors and customer intention to purchase electric vehicles.
2. To determine whether there is relationship between environmental concerns and customer intention to purchase electric vehicles.
3. To determine whether there is relationship between technological factors and customer intention to purchase electric vehicles.

3 Research Questions

1. Is there relationship between socio-economic factors and customer intention to purchase Electric vehicles?
2. Is there relationship between environmental concerns and customer intention to purchase electric vehicles?
3. Is there relationship between technological factors and customer intention to purchase electric vehicles?

4 Research Hypothesis

1. H1: There is relationship between socio-economic factors and customer intention to purchase Electric vehicles.
2. H2: There is relationship between environmental concerns and customer intention to purchase electric vehicles.
3. H3: There is relationship between technological factors and customer intention to purchase electric vehicles.

5 Significance of Study

1. These results might be used to solve environmental issues, encourage energy efficiency, investigate economic prospects, influence policymaking, and broaden public understanding and acceptance.

2. This study can help Kathmandu move toward a sustainable and environmentally friendly future by helping to evaluate the possibilities of electric cars in the city.

6 Scope of Study

1. A study on the opinions, perceptions, and attitudes of Kathmandu's general population toward electric automobiles.

2. A review of the financial and economic viability of electric cars, taking into account their cost of ownership, operating expenses, and potential cost savings.

3. Assessment of the current electric vehicle situation in Kathmandu, including the number of electric cars, the availability of charging stations, and market developments.

4. Identification and evaluation of the major issues and challenges preventing Kathmandu from adopting electric cars.

7 Limitations

The study only includes 350 respondents, has a relatively small sample size, and believes the responders' data is accurate.

The survey was conducted in Kathmandu, where the results were recorded.

It was done in limited time period.

8 Key words

Socio-Economic Factors: In this it takes both societal and individual aspects in decision making processes such as, income level, cost of ownership, availability of charging Infrastructure, social norms and values and education.

Technological Factors: It includes specific features advancement and innovation related to electric Vehicle for example, range and battery performance, charging infrastructure, charging speed, performance, safety features.

Environmental Factors: it refers to the level of importance given to environment. Such as, climate change mitigation, air quality improvements, reduction of noise pollution, renewable energy integration, sustainable transportation.

Customer intention to purchase electric vehicle: it refers to motivation and desires to purchase electric vehicle.

10 Literature Review

Socio-economic Factors

When it comes to influencing consumers' decisions to buy electric cars (EVs), socioeconomic variables are crucial. Affordability is frequently determined by income levels, with higher-income people being more likely to adopt EVs since they can afford the somewhat higher initial expenditures. While the availability and accessibility of charging infrastructure reduces range anxiety and increases confidence in EV adoption, government incentives and regulations, like as tax incentives and subsidies, can have a considerable impact on consumer decisions. The complicated socioeconomic environment surrounding EV adoption is further influenced by social pressure, information accessibility, urban planning and transportation policy, peer pressure, and total cost of ownership (Sobiech-Grabka et al., 2022).

Technological Factors

Electric vehicles (EVs) are becoming increasingly popular due to technological developments. One of the main obstacles to adoption has been removed thanks to advancements in battery technology, which have boosted EV range and shortened charging times. The performance and utility of EVs have also been improved through the creation of more effective electric drivetrains, regenerative braking systems, and creative energy storage options. The usefulness and comfort of EVs are further increased by the development of intelligent charging infrastructure and vehicle-to-grid (V2G) technologies. Furthermore, continued research into connection and autonomous driving technologies continues to influence how appealing and competitive electric vehicles are in the current automobile industry (Xu, Y. et al., 2019).

Environmental Factors

Electric cars (EVs) are becoming more popular as a result of environmental concerns. Demand for greener, more sustainable transportation solutions is growing as people become more conscious of how traditional internal combustion engine cars affect air quality and climate change.EVs are seen as a feasible solution to these environmental problems. EVs are an enticing alternative to cut carbon emissions and help create a more sustainable future as

consumers increasingly look for transportation options that support their environmental beliefs(Rezvani, Z. et al., 2015).

Purchase Intention of Consumer

There are several factors to buy electric cars (EVs). First and foremost, socioeconomic factors, such as income levels and governmental incentives, are crucial in determining how consumers behave. EVs are in line with sustainability objectives since environmental concerns and the need to minimize carbon footprints are strong motivators. EVs' popularity is further increased by technology developments like smart charging systems and enhanced range. By dispelling myths, information accessibility and awareness campaigns also influence purchasing intent. Consumers' desire to adopt electric vehicles as a more environmentally friendly, economically viable, and futuristic mode of transportation is influenced by the convergence of socioeconomic, environmental, and technical variables (Riverso, R. et al., 2023).

10.1 Empirical Studies

The study was carried to find out the intention to buy electric car based on different factors such as financial, infrastructure, environmental, price and performance. It only give very limited snap shot of intention of costumer. Companies' advertisement campaign may affect intention of customer (Thananusak, T. et al.,2017). The goal of the study is to understand why individuals prefer to purchase electric vehicles. They employed some sophisticated techniques, such as neural networks and structural equation models. They didn't examine a lot of diverse factors that may have an impact on their purchase decision. According to the work of Xu et al. from 2019, the study was conducted in the province of Zhejiang. To explain why people desire to use electric automobiles, Gunawan and colleagues in 2022 employed ideas including the theory of planned behavior and the unified theory of adoption and usage of technology. They only looked at a tiny subset of electric car owners, though. It turns out that there is a correlation between price value and the determinants of financial risk.

The study did not focus on the role of customer in terms of intension and preferences to buy electric vehicle. The study is conducted to find out intention to buy electric vehicle using tree regression and survey (Lashari, Z. et al., 2021).

The study is conducted to study factors influencing consumer to purchase electric vehicle.The study only focuses on small respondent in small area of India (Bhalla, P. et al.,2018).

Discussion on consumer lifestyle is not discussed. This study only studied single electric vehicle type. The study was conducted in Beijing and Shanghai only (Xie, R. et al.,2022). The research was carried out using single database. Choice of word in study was characterized in only two category (Ivanova, G. et al., 2023).The study was conducted to find out intention to buy electric vehicles when electric car was given solar power and financial incentive in single package. The research was conducted in very small no. of German population. The collected data were self-reported. Financial incentive was not properly explained (Stauch, A. 2021).

The study was conducted to find out intention of consumer to buy electric vehicle, to know barriers to adopt electric vehicle and adoption behavior towards electric vehicle. The respondent did not have direct experience of electric vehicle. The respondent did not proper financial skills (Rezvani, Z. et al., 2015).The study was conducted to find out intention of consumer to buy electric vehicle through different influencing factors. Some family factors were not included in data collection. Researchers were less concerned with psychological factors. More dynamic research is needed (Rezvani, Z. et al., 2015).

The study was conducted to find out intention of consumer to buy electric vehicle focusing on different value creation and car attribute using theory of reasoned action. The survey was conducted through online only (Nosi, C. et al., 2017).

The study was conducted to find out intention of consumer to purchase electric car based on environmental performance, range confidence and price value based on structural equation

modeling. The study was conducted to very small sample size i.e. n=40 (Degirmenci, K., & Breitner, M. H. 2017).

The study was mainly focused on urban area of Pakistan (Shakeel, U., 2022). The survey was only conducted through online media only. It also did not include behavioral measures (Riverso, R. et al., 2023).

Sample size was limited to Beijing. The approach was non-random intercept.The study was conducted to find out intention of consumer of Beijing, China through vehicle purchasing decision model, data collection, car choice model (Ling, Z. et al.,2021).

The research is conducted through online platform only. The research is carried out with all type of electric vehicle. The study was conducted to find out customer intention to buy electric vehicle through computational intelligence and expert interview (Higueras-Castillo, E. et al.,2021).

The study was conducted to find out intention to buy electric vehicle in China, Brazil and Russia which might help in technology adoption from gasoline vehicle to electric vehicles (Habich-Sobiegalla, S. et al., 2018).

The study was conducted to find out intention to buy electric vehicle in Pakistan through theory of planned behavioral. It also discussed electrical vehicle technology and automobile industry. This research paper small sample size. The study is focused on automobile consumers of Pakistan. The impact of government incentive and reliability should be analyzed (Bhutto, M. H. et al., 2021). The study was conducted in Macau to find out consumer acceptance in electric vehicle in relation with environmental concern and environmental policy. The study was conducted in small group of electric vehicle users in Macau. The study Only included four positive psychological factors (Lai, I. K. et al., 2015). The study was limited to target customer of wealthy and highly educated. Most of respondent did not have prior experience of electric vehicle. It is mainly focused on electric vehicles (Febransyah, A., 2021).

The study was conducted in Poland to find out intention to purchase electric vehicles with relation to experience with Electric vehicles, Personal beliefs and values and Government Policy through different machine learning methods. The study was carried out in account to Russian invasion in Ukraine. More effective approach must be taken other than random forest for accurate result (Sobiech-Grabka et al., 2022).

The study was conducted in China to find out purchase intention of consumer in relation with customer attitude through structural equation model. The study was carried out with perspective of consumer only. The study did not analyze samples with respect to social and financial factors. The study did not corelate different dimensions. The research was focused on constructive model without any discussion on cost, price and preference (Yang, C. et al., 2020).

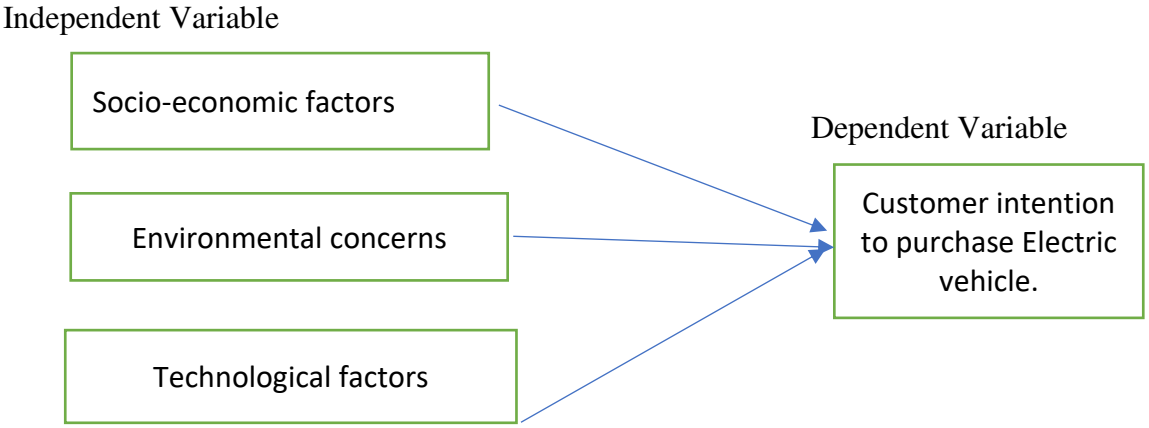
The study was conducted to find out purchase intention of consumer based on Consumer beliefs; perceived risks; perceived benefits and new technology. Consumers looked at two vendor production facilities, statistics on product consumption and categories, and entry-level EV product options. The participants discussed their perceptions of the effects that an EV purchase might have (Featherman et al., 2021).

The study was based on hybrid car in Jordon. There was also very few sample size (Abu-Alkeir et al., 2020).

The study was based on purchase intention of customer to buy electric vehicle based on Travel behavior of consumer, EV infrastructure, cost factor, environmental concerns and demographic factors. The survey's findings are relevant to a certain population group, particularly those who reside in big metropolitan areas like Athens. The study is based on topic which is not fully developed in Greece (Mpoi, G. et al.,2023). The study was conducted in Malaysia to find out purchase intention of consumer based on Effort expectancy, performance expectancy, social influence, technology, environmental concern.

11 Research Framework

The research report intends to analyze the link between issues like environmental concerns, socioeconomic concerns, and technological considerations on electric cars with utilization of electric vehicles in Kathmandu by taking independent and dependent variables into account. The combination of these theoretical viewpoints will provide a thorough understanding of the variables influencing the adoption of electric cars and contribute to the development of insights and suggestions for fostering the widespread use of electric vehicles in Kathmandu.



(source: Author's own)

Figure 1. Conceptual Framework

12 Reliability Analysis

This section evaluates the validity of the survey that was disseminated to the intended audience. Items with a Cronbach's alpha of less than.5 are poor and unreliable, whereas those that are near to 1 are very dependable.

Table 11: Reliability Analysis

Variables	Cronbach's alpha	No. of item
Socio-economic Factor	0..816	5
Environmental Factor	0.797	5

Technological Factor	0.789	5
Purchase Intention	0.816	5

Here all of the data are greater than .75 so the data is highly reliable.

13 Multiple Regression Analysis

The arithmetic tool is what makes it possible to determine the relationship between a single independent variable and several dependent variables. It will be useful to determine if the hypothesis is valid or not. In order to better understand how one dependent variable—purchase intention—relates to three independent variables—socioeconomic factors, technical considerations, and environmental concerns.

The influence of an independent variable on a dependent variable can be predicted using multiple regression analysis. Finding the effects of the independent variables (socioeconomic, technical, and environmental concerns) on the dependent variable (buying intention) is the study's main goal. ANOVA and the coefficient table are used to get the summary of the result model.

14 Evaluation

The main goal of the study is to identify and examine the factors influencing customers' buying intentions in the Kathmandu Valley. The primary goal of the study is to identify the independent variables that have a significant impact on the dependent variable. The socioeconomic and environmental attitudes of consumers regarding electric vehicles, out of the three independent variables included in the study, had the greatest impact on the dependent variable.

The research primarily examines socioeconomic, technical, and environmental concerns that influence consumers' buying intentions. A hypothesis was generated in chapter 1, and it was tested and evaluated in chapter 4. The conclusion is that every hypothesis development has backed up the independent variable (socioeconomic variables, technical advancements, and environmental concerns). Chapter 2 offers a literature study that aids in understanding various theories and information about the topic in question. In order to determine the

importance of each variable in connection to the dependent variable (the desire to acquire an electric car), the study used multiple regression analysis, Pearson correlation analysis, normality, reliability analysis, and descriptive analysis. All independent variables were shown to be very important in terms of consumers' purchasing intentions.

The results also show that the dependent variable (purchase intention of an electric car) is directly influenced by independent variables (socioeconomic considerations, technical advancements, and environmental concerns). The results of the multiple regression analysis also indicate that the environmental concern and the desire to buy an electric car account for 40% of the independent variables that influence the dependent variable, with the remaining 60% being occupied by other variables that were not examined in this study. The results of the ANOVA test demonstrate that socioeconomic, technical, and environmental concerns have a favorable impact on consumers' purchasing intentions. The significant P-value for the relationship between the independent and dependent variables is 0.000, which is less than 0.05.

The purchase intention dependent variable's skewness, as determined by the normality test, is -.104, and its kurtosis is 1.310. Kurtosis should be between the range of -10 to +10, and Skewness should be within the range of -3 to +3.

Finally, it can be deduced from the results of the sig-value and correlation analysis that technical advancements, environmental concerns, and socio-economic variables have a substantial positive link with consumers' purchase intentions.

The results revealed that socioeconomic conditions, technical advancements, and environmental concerns had a favorable direct effect on customers' buying intentions. The Kathmandu valley seems to be the sole place where the assertion gained its foundation. However, the study by Lashari, Z. et al. (Lashari, Z. et al., 2021) found that in addition to these three factors, which are socioeconomic factors, technological factors, and environmental concerns, there are other factors, such as environmental knowledge and societal issues, that are significant factors that influence the customers' purchase intentions.

According to the evidence gathered, there is no question that technology advancements, environmental concerns, and socioeconomic considerations positively affect customers' intentions to make purchases. It is crucial to educate customers about the advantages of utilizing electric vehicles since doing so will alter their attitudes and increase the price at which they are willing to purchase them. By properly labeling products with information about their environmental benefits and by running marketing campaigns that inform consumers of the benefits of driving electric vehicles, it is possible to raise consumer awareness. Socioeconomic variables, technical advancements, environmental concerns, perceived behavioral control, and reasonable pricing all have a direct impact on a customer's desire to make a purchase, according to study by (Habich-Sobiegalla, S. et al., 2018). The study also discovered that a customer's environmental concern is directly affected by the environmental information provided to them on the advantages of utilizing an electric car.

According to the research done by (Xu, Y. et al., 2019), socioeconomic, technical, and environmental concerns do affect the customer's buying intention. The current study only examines a small number of factors, which is insufficient to examine client purchasing intentions. The impact of the dependent component, which is customer purchase intention, should be increased in future research.

15 Conclusion

The goal of the study was to investigate the relationship between the influencing factors (Purchase intention) and the independent variables (socio-economic factors, technological factors, and environmental concerns). Chapters 1 through 5 of the research are necessary to finish the research procedure. These chapters aid in the completion of the research project by providing a deeper grasp of the theories and factors. The research procedure aids in achieving the study goal and providing answers to the research questions. The study's findings demonstrate a clear positive association between all of these characteristics and purchasing intention. So, out of the three variables, the socioeconomic and environmental influences on purchase intention had the most impact. Additionally, the study's limitations and recommendations were presented.

References

Thananusak, T., Rakthin, S., Tavewatanaphan, T., & Punnakitikashem, P. (2017). Factors affecting the intention to buy electric vehicles: Empirical evidence from Thailand. *International Journal of Electric and Hybrid Vehicles*, *9*(4), 361-381.

Xu, Y., Zhang, W., Bao, H., Zhang, S., & Xiang, Y. (2019). A SEM–neural network approach to predict customers' intention to purchase battery electric vehicles in china's Zhejiang province. *Sustainability*, *11*(11), 3164.

Gunawan, I., Redi, A. A. N. P., Santosa, A. A., Maghfiroh, M. F. N., Pandyaswargo, A. H., & Kurniawan, A. C. (2022). Determinants of customer intentions to use electric vehicle in Indonesia: An integrated model analysis. *Sustainability*, *14*(4), 1972.

Lashari, Z. A., Ko, J., & Jang, J. (2021). Consumers' intention to purchase electric vehicles: Influences of user attitude and perception. *Sustainability*, *13*(12), 6778.

Bhalla, P., Ali, I. S., & Nazneen, A. (2018). A study of consumer perception and purchase intention of electric vehicles. *European Journal of Scientific Research*, *149*(4), 362-368.

Xie, R., An, L., & Yasir, N. (2022). How Innovative Characteristics Influence Consumers' Intention to Purchase Electric Vehicle: A Moderating Role of Lifestyle. *Sustainability*, *14*(8), 4467.

Ivanova, G., & Moreira, A. C. (2023). Antecedents of Electric Vehicle Purchase Intention from the Consumer's Perspective: A Systematic Literature Review. *Sustainability*, *15*(4), 2878.

Stauch, A. (2021). Does solar power add value to electric vehicles? An investigation of car-buyers' willingness to buy product-bundles in Germany. *Energy Research & Social Science*, *75*, 102006.

Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. *Transportation research part D: transport and environment*, *34*, 122-136.

Nosi, C., Pucci, T., Silvestri, C., & Aquilani, B. (2017). Does value co-creation really matter? An investigation of Italian millennials intention to buy electric cars. *Sustainability*, *9*(12), 2159.

Degirmenci, K., & Breitner, M. H. (2017). Consumer purchase intentions for electric vehicles: Is green more important than price and range? *Transportation Research Part D: Transport and Environment*, *51*, 250-260.

Shakeel, U. (2022). Electric vehicle development in Pakistan: Predicting consumer purchase intention. *Cleaner and Responsible Consumption*, *5*, 100065.

Riverso, R., Altamura, C., & La Barbera, F. (2023). Consumer Intention to Buy Electric Cars: Integrating Uncertainty in the Theory of Planned Behavior. *Sustainability*, *15*(11), 8548.

Ling, Z., Cherry, C. R., & Wen, Y. (2021). Determining the Factors That Influence Electric Vehicle Adoption: A Stated Preference Survey Study in Beijing, China. *Sustainability*, *13*(21), 11719.

Higueras-Castillo, E., Guillén, A., Herrera, L. J., & Liébana-Cabanillas, F. (2021). Adoption of electric vehicles: Which factors are really important? *International Journal of Sustainable Transportation*, *15*(10), 799-813.

Habich-Sobiegalla, S., Kostka, G., & Anzinger, N. (2018). Electric vehicle purchase intentions of Chinese, Russian and Brazilian citizens: An international comparative study. *Journal of cleaner production*, *205*, 188-200.

Bhutto, M. H., Shaikh, A. A., & Sharma, R. (2021). Factors Affecting the Consumers' Purchase Intention and Willingness-to-Pay More for Electric-Vehicle Technology. In *Proceedings of the International Conference on Electronic Business*. International Consortium for Electronic Business.

Lai, I. K., Liu, Y., Sun, X., Zhang, H., & Xu, W. (2015). Factors influencing the behavioural intention towards full electric vehicles: An empirical study in Macau. *Sustainability*, *7*(9), 12564-12585.

Febransyah, A. (2021). Predicting purchase intention towards battery electric vehicles: A case of indonesian market. *World Electric Vehicle Journal*, *12*(4), 240.

Sobiech-Grabka, K., Stankowska, A., & Jerzak, K. (2022). Determinants of electric cars purchase intention in Poland: personal attitudes v. economic arguments. *Energies*, *15*(9), 3078.

Yang, C., Tu, J. C., & Jiang, Q. (2020). The influential factors of consumers' sustainable consumption: A case on electric vehicles in China. *Sustainability*, *12*(8), 3496.

Featherman, M., Jia, S. J., Califf, C. B., & Hajli, N. (2021). The impact of new technologies on consumers beliefs: Reducing the perceived risks of electric vehicle adoption. *Technological Forecasting and Social Change*, *169*, 120847.

Abu-Alkeir, N. I., Area, S., & Jordan, A. (2020). Factors influencing consumers buying intentions towards electric cars: the Arab customers' perspective. *International Journal of Marketing Studies*, *12*(2), 127-127.

Jiang, Q., Wei, W., Guan, X., & Yang, D. (2021). What increases consumers' purchase intention of battery electric vehicles from Chinese electric vehicle start-ups? taking Nio as an example. *World Electric Vehicle Journal*, *12*(2), 71.

Bennett, R., & Vijaygopal, R. (2018). Consumer attitudes towards electric vehicles: Effects of product user stereotypes and self-image congruence. *European Journal of Marketing*, *52*(3/4), 499-527.

Mpoi, G., Milioti, C., & Mitropoulos, L. (2023). Factors and incentives that affect electric vehicle adoption in Greece. *International Journal of Transportation Science and Technology*.

Abbasi, H. A., Johl, S. K., Shaari, Z. B. H., Moughal, W., Mazhar, M., Musarat, M. A., ... & Borovkov, A. (2021). Consumer motivation by using unified theory of acceptance and use of technology towards electric vehicles. *Sustainability*, *13*(21), 12177.

Huang, X., Lin, Y., Lim, M. K., Tseng, M. L., & Zhou, F. (2021). The influence of knowledge management on adoption intention of electric vehicles: perspective on technological knowledge. *Industrial Management & Data Systems*, *121*(7), 1481-1495.

Higueras-Castillo, E., Molinillo, S., Coca-Stefaniak, J. A., & Liebana-Cabanillas, F. (2020). Potential early adopters of hybrid and electric vehicles in Spain—Towards a customer profile. *Sustainability*, *12*(11), 4345.

Neupane, S. (2022). *SOCIO-TECHNICAL ANALYSIS TOWARDS THE ADAPTATION OF ELECTRIC VEHICLE IN KATHMANDU* (Doctoral dissertation, Lincoln University College).

Paudel, S., Pokharel, G. R., Bhattarai, N., & Shrestha, S. (2019). Evaluating the Effect of Policies, Vehicle Attributes and Charging Infrastructure on Electric Vehicles Diffusion in Kathmandu Valley of Nepal. In *Proceedings of IOE Graduate Conference*.

Adhikari, M., Ghimire, L. P., Kim, Y., Aryal, P., & Khadka, S. B. (2020). Identification and analysis of barriers against electric vehicle use. *Sustainability*, *12*(12), 4850.