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Beyond Financial Incentives: Exploring the Lived Experience of EV Adopters in an Urban Context

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Abstract

Electric vehicles (EVs) are promoted in many countries as a sustainable option to internal combustion vehicles (ICEVs). In Nepal, where such promotion is done through measures such as supportive tax, the uptake of private electric passenger vehicles (PEPVs) is a major concern. This study examines the motivations and challenges related to EVs adoption in a capital city of Nepal, Kathmandu, with the aim of capturing how consumer perceptions and experience shape adoption dynamics. A descriptive phenomenological design was adopted for the study. Five participants, comprising both adopters and potential adopters, were selected through purposive sampling, and structured interviews were conducted. The participants' responses were transcribed and analyzed using Giorgi's phenomenological method. Findings highlight financial pragmatism as the dominant driver of adoption, particularly long-term savings on fuel and maintenance. However, these incentives are offset by persistent anxieties about high battery replacement costs, uncertain resale value, and long-term depreciation. Infrastructural gaps, such as unreliable charging networks, reinforce emotional strain and consequently discourage broader use. Policy volatility and weak communication of incentives undermine consumer confidence, while safety perceptions remain ambivalent, balancing recognition of advanced features with concern about malfunctions and fire risks. The study concludes that financial incentives alone are insufficient; sustainable EV adoption requires stable policies, reliable infrastructure, and proactive public engagement to build consumer trust and confidence.

Keywords: electric vehicles, EV adoption, consumer perception, financial incentives, battery replacement cost, charging infrastructure, policy volatility

Introduction

Electric vehicles (EVs) have a technological lineage dating back to the early 19th century (Hosseinpour et al., 2015). Despite early promise, EVs experienced a decline by the early 20th century due to technical challenges such as frequent battery failures, high operational costs, limited driving range, and costly battery replacements, which culminated in the collapse of major EV manufacturers between 1907 and 1911 (Hosseinpour et al., 2015). A resurgence

in EV interest emerged post-2011, particularly in countries such as the United States, Norway, China, and members of the European Union, driven by advancements in battery technologies and more stringent environmental regulations (Coffman et al., 2017). Environmental concerns and energy conservation have surfaced as key motivators for consumer adoption (Hu et al., 2024; Vassileva & Campillo, 2017). Furthermore, integration with energy systems has given rise to innovative concepts like Vehicle-to-Grid (V2G) technology, facilitating bidirectional energy transfer between EVs and the grid (Kempton & Tomić, 2005).

Globally, the EV adoption trajectory varies. Developed countries like Sweden initiated EV adoption as early as the 1970s (Vassileva & Campillo, 2017), while developing nations such as Nepal have demonstrated a more recent surge in EV interest, albeit confronted by structural (e.g., insufficient charging infrastructure, high upfront costs) and behavioral challenges (Paudel et al., 2019). International literature identifies range anxiety, slow charging infrastructure, and inconsistent government policy as prevalent barriers to EV adoption (Vassileva & Campillo, 2017; Goncearuc et al., 2024), while battery performance remains a prominent consumer concern (Ha et al., 2023; Wang et al., 2017).

Despite these challenges, several factors foster EV assimilation, including lower operational costs, governmental policy support, and heightened environmental awareness among consumers (Sah, 2023). Emerging smart charging technologies, Internet of Things (IoT) integration, and advancements in battery technology are expected to accelerate EV market penetration (Wang et al., 2017). Strong global EV sales have stimulated automobile manufacturers to enhance EV promotion efforts (Haddadian et al., 2015). Notably, Paudel et al. (2019) project that with continued infrastructural development and supportive policies, Nepal could exceed one million EVs in the near future.

In urban centers such as Kathmandu Valley, rapid EV growth evidences promising market potential (Ghimire & Kim, 2023; Paudel et al., 2019). Nonetheless, a smooth transition is impeded by financial, infrastructural, technical, and policy-related challenges, particularly the high initial cost of EVs (Egbue & Long, 2012; Hu et al., 2024; Li et al., 2025). Battery degradation, which typically reduces performance markedly within 7–10 years, further complicates consumer investment decisions, as EVs depreciate approximately 13.9% annually, exceeding depreciation rates of internal combustion engine vehicles (Schlöter, 2022).

Infrastructural deficits, including lack of widespread charging stations and inadequate maintenance workshops, exacerbate consumer hesitancy and range anxiety (Anastasiadou & Gavanas, 2022; Ha et al., 2023). Compounding these are frequent policy shifts and insufficient long-term governmental planning, which undermine private sector confidence and investment (Anastasiadou & Gavanas, 2022; Jha et al., 2025). Furthermore, limited consumer knowledge regarding EV reliability and quality perpetuates distrust and delays adoption (Ha et al., 2023; Haddadian et al., 2015; Hu et al., 2024).

In Nepal, despite multiple government initiatives encompassing fiscal incentives, infrastructure support, and public transport reforms, potential and current EV users exhibit reluctance towards adoption though aiming to develop new domain as grren bond under sustainable condition makes EV as compulsory (Celestin & Mishra, 2024; Mishra, 2024). Without comprehensive research unveiling consumer experiences and perceptions, the EV transition risks stagnation, inhibiting private sector engagement and perpetuating reliance on fossil fuel-powered transportation.

Problem Statement

While government initiatives have spurred EV promotion efforts, adoption remains hindered by multifaceted challenges. High upfront costs and the prospect of battery degradation raise concerns over return on investment for potential buyers (Egbue & Long, 2012; Schloter, 2022). Inadequate charging infrastructure amplifies range anxiety, a psychological barrier discouraging consumers (Ha

et al., 2023; Hu et al., 2024). Moreover, inconsistent policy frameworks and lack of sustainable long-term planning diminish market confidence and deter private investment (Anastasiadou & Gavanas, 2022; Jha et al., 2025). Consumer misinformation and limited understanding of EV performance further perpetuate resistance to adoption. These combined financial, technical, infrastructural, and behavioral barriers create an environment where EV growth lags despite evident market potential and government support.

Research Objectives

This study aims to comprehensively explore the factors influencing the adoption of private electric passenger vehicles (PEPVs) in Nepal. It focuses specifically on:

- Investigating the lived experiences, perceptions, and challenges faced by consumers regarding the adoption of electric vehicles.
- Examining critical barriers and facilitators related to infrastructure, financial considerations, policy frameworks, and vehicle safety as perceived by current and potential EV users.

Literature Review

Since EVs proliferated since the past one and half decade, most of the literature on them are written within this span. Hence, we reviewed relevant literature published after 2010 AD; and the findings of the studies are organized thematically and theoretically. The four themes include infrastructure, policy related to EV adoption, financial factor concerning EV adoptions, and safety concern.

Infrastructure

There are some barriers to EV adoption, such as the lack of proper charging infrastructure, high initial investment required to establish the infrastructure, and the absence of clear government policies related to EV adoption and usage. Balasubramanian et al. (2024) address range anxiety as one of the negative factors for EV adoption in developing countries. Adhikari et al. (2020), suggest that the major barriers to EV use are the lack of charging stations, and weak government planning. Lack of infrastructure is often perceived as a barrier, especially in urban areas with limited home-charging options (Anastasiadou & Gavanas, 2022). Bauer et al. (2015) which allows for consistency in vehicle parameter settings and consideration of future technological progress. Conventional and hybrid gasoline, diesel and natural gas cars as well as battery and fuel cell electric vehicles (BEV and FCV further emphasize that vehicle energy consumption and range must be assessed based on realistic driving conditions to understand infrastructure needs effectively. It can be concluded from the above mentioned studies that infrastructure is understood as the most influential factor for EV use.

Policy Related to EV Adoption

One of the crucial variables presented in available literature is EV policy and incentives available while buying an EV. Subsidies, tax reduction, charging stations have been considered as the major facilitator of EV adoption (Anastasiadou & Gavanas, 2022). Under favorable conditions and proper policy intervention, there is a good chance of proper EV diffusion with the prediction of EV rise up to 1 million in 3 years' time in Nepal. An article by Rahman (2024) emphasizes the need for strong government support to enhance the rate of EV adoption in Nepal. Electric vehicles offer a competitive cost advantage compared to traditional vehicles due to the support from government policies in Nepal (Sah, 2023). Currently, EVs have relatively lower tax rates compared to internal combustion engine vehicles (ICEVs) in Nepal (Paudel et al., 2019). Earlier adjustments in Nepal's EVs policy, which include decreased financing limits facilities while buying EVs along with up warding custom duties, which demonstrate instability which is going to hinder sustainable EV adoption (Jha et al., 2025). The present tax brackets for EVs in Nepal differs as per the capacity of motor. EVs having capacity of 50 kW are compulsion to pay 15% customs duty and a 5% excise duty. For vehicles capacities

in between 51 kW and 100 kW are taxed at 20% customs duty and 15% excise duty, for those vehicles which comes in the range of 101 kW and 200 kW face 30% customs duty and 20% excise duty respectively. For EVs with motor capacities ranging from 201 kW to 300 kW, the applicable rates increase to 60% customs duty and 35% excise duty. The highest tax bracket applies to electric cars exceeding 301 kW, which are charged 80% customs duty and 50% excise duty (Nepal Drives Team, 2025).

Financial Factors

A study conducted in Vietnam on EV adoption among motorcyclists by Ha et al., (2023) suggests that safety features and environmental concerns are not as influential as ease of use and financial incentives. Another study (Egbue & Long, 2012) points that environmental factor is in favor of EV adoption but it comes next to performance and economic factor (Wang et al., 2017). Economic concerns, particularly the high upfront cost and uncertainty over battery replacement and resale value, are major barriers. Anastasiadou and Gavanas (2022) observe that consumers remain cautious due to long-term cost uncertainties. Insufficiency of perception toward EV benefits is another important resistance for electric vehicle adoption (Wang et al., 2017). Anyone with previous experience in EVs or those who are conscious about their friends and family using EVs are supposed to be switching into EV adoption (Anastasiadou & Gavanas, 2022).

Safety Concern

Fires caught by EV batteries are less common compare to ICEV but they burn hotter and for longer duration due to thermal runaway (Rao et al., 2025). Elements like safety, usefulness, ease of use, technological appeal, and social influence substantially impact the adoption intention for EVs (Balasubramanian et al., 2024; Ha et al., 2023). Bhatt et al. (2024), report 8% of American respondents recognized own safety concerns at public charging stations as a barrier to EV adoption especially among women and minority groups. It demonstrates that EVs reach the threshold of 4 MW heat-release at roughly 15 minutes, while ICE vehicles reach the same level at about 19 minutes confirming the 4-minute earlier escalation in EV fires.

Reviewing the relevant theories, we found a few appearing prominently; particularly, Diffusion of Innovation Theory, Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Value-Belief-Norm (VBN) Theory, and Behavioral Economics Theory are used prominently in the available literature. Among them, we found diffusion of innovation more suitable for the current study.

Diffusion of Innovation Theory

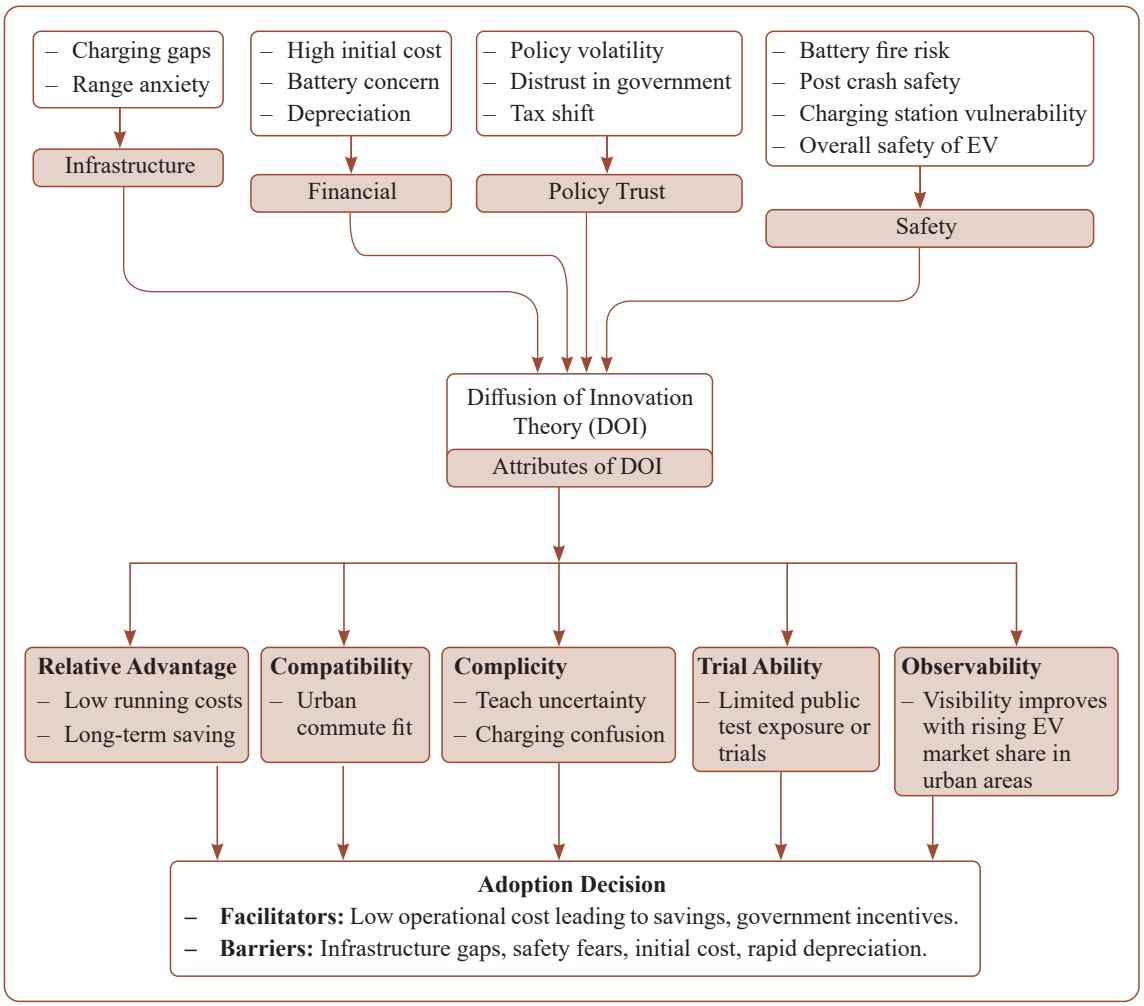
This study is backed by the Diffusion of Innovation (DOI) theory developed by Rogers (2003), and later widely applied for communication, marketing, public health and information technology (Greenhalgh et al., 2004). The attributes in the theory reflect the aspects such as relative advantage and compatibility, suggesting that innovations in general are adopted more quickly when considered economically fruitful and aligned with current needs. The theory postulates how, why, and at what speed new technologies disperse through cultural or social systems in a period of time. According to Rogers (2003), diffusion is "the steps by which innovation is interacted through certain medium over the period of time among the representatives of a social system" (p. 5). The theory mentions five major attributes that influence adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage means perceived dominance of the innovation when it is compared with the existing innovation. Compatibility determines how nicely the innovation adjusts with the needs of the prospective adopters. Complexity means the perceived hurdles in using the innovation; and trialability addresses the extent to which innovation can be tested or experimented on a limited level. Observability reveals the visibility of the innovation's results. As the theory postulates,

innovations having a high intensity of relative advantage and compatibility are adopted more instantly.

The DOI theory has been extensively utilized across various areas to get insights on how new innovations are adopted in societies. In the context of technology adoption, DOI brings a directive framework for assessing the spread for innovations. Studies by Meade and Islam (2006) stresses how the theory helps to deal with the aspects that impact approval and use of the modern system or technologies in a social setting. The theory also ensures that the stakeholders identify potential hurdles and facilitators which influence the effective adoption for any innovations within a complex healthcare setup (Greenhalgh et al., 2004). In marketing discipline, this theory acts as a strategic tool for segmenting or subdividing consumer target markets, on the basis of adopter group such as innovators, early adopters, early majority, late majority, and laggards. This partition permits business or marketers for developing customized marketing strategies which align along with the features and prospect of each respective group (Mahajan et al., 1990). The following figure (Fig 1) summarizes the theory.

Figure 1

Theoretical Framework Used to Study Private Electric Passenger Vehicles Adaptation



While the theory has enhanced our knowledge of how any new innovation and technological system diverse, yet it is not without critics. One of the major limitations is its application at individual-level. It often neglects the broader layout, organizational, and systemic impact which can potentially influence the diffusion of innovation process for new technologies (Greenhalgh et al., 2004). Moreover, this theory considers adopters as someone who make rational and logical decisions. This premise ignores the responsibilities that emotion, culture, or any other external factors might play in impacting adoption behavior of consumers (Karahanna et al., 1999). In between these limitations, this theory stays a useful model for evaluating the adoption pattern of electric vehicles (EVs) in Nepal, in the context of the passenger vehicle segment, in which knowing consumer behavior is most effective factor for effective policy and marketing strategies for marketers and business.

Methodology

Research Paradigm and Design

This research is guided by post-positivist paradigm (Henderson, 2011), which is about connecting empirical observation with subjective, and the socially prepared knowledge. Aligning with this paradigm, descriptive phenomenological design that grounds on Edmund Husserl's phenomenological studies (Giorgi, 2016) is used. This approach is appropriate to explore lived experiences of the people by carefully explaining the essence of the phenomenon under observation (Giorgi, 2012). Giorgi's method adapts Husserl's broader philosophical framework for human scientific inquiry, specifically focusing on examination of actual human consciousness and aiming to discover typical psychological essences.

The Context and Participants

The study was conducted in an urban setting, *i.e.,* the capital city, Kathmandu. This metropolitan city has the highest EV adoption rate compared to other urban locations in Nepal, making it a suitable area to explore the experience of EV adoption. Following Giorgi (2009), and Englander (2012) who suggested selecting three and not more than ten, we selected five participants. This number adheres to the standards mentioned in the past literature, which suggest that phenomenological study should get in-depth insights and views of the participants focusing on their' lived experiences instead of trying to achieve large data (Pietkiewicz & Smith, 2014). The sampling which is supported by the DOI theory (Lee, 2024) represents different categories of EV adopters and non-adopters, including early adopters, potential adopters, and laggards. Their selection was to ensure an acquisition of nuanced, contextually grounded insights into the dynamics of EV adoption.

Data Collection and Analysis

Structured interview questions were used to systematically gather the participants' experience related to EV adoption (Egbue & Long, 2012). The interview questions were prepared on the basis of the previous literature; they had questions related to government policies, infrastructure and charging stations, EV safety and financial factors. Nepali as well as English language based on the convenience of the respondents was used during the interview. The interviews lasted for around 30–40 minutes.

Reflective notes were taken during the interview by the first author as they allowed to record the participants' emotional reactions to the questions. This act made the researchers reflectively conscious of their own influence while gathering the data and analyzing it (Shaw, 2010). Further, the researchers could bracket (Giorgi, 2016) their presumptions.

To get insight into the essence of participant lived experiences from the data, we used the method suggested by Giorgi (2016). The method involves bracketing, which is a withdrawal of researchers from all the pre occupied assumption to remain open and balanced toward the research process (Tufford & Newman, 2012; Fischer, 2009). The entire interview data was read thoroughly by

the first author after transcribing verbatim to gain an understanding of the participants' account. The second author was involved in the analysis process while identifying meaning unit from those transcriptions. These meaning units are then transformed into psychological expressions, where the participant's descriptions are rephrased using terminology relevant to the field of psychology or behavior. Finally, the researchers synthesized a general structure or essence by integrating these transformed meaning units into a coherent narrative.

Results and Discussion

From the study of the five participants' responses, we figured out eight themes. All the themes and excerpts supporting the themes are presented below:

Theme 1: Financial Pragmatism

The study participants consistently cited cost-efficiency as the most important motivator for considering or adopting EVs. This theme was evident among adopters (Participants I, II) and one potential adopter (Participant V). Participants I, a 25-year-old MBA student working in the construction sector, shared, *"Yes, I am using an EV. The major factor was cost. The service cost is low, and it is trending in the market."* Echoing this voice, Participant II, a 35-year-old Operations Head at an institution, noted, *"Yes, I currently use an EV. The major factor influencing my decision was cost. EVs are also more environmentally friendly, but for me, cost was the main driver."* Participant V, a 45-year-old faculty member and potential adopter, stated *"Considering time value of money, the fuel savings over 10 years (around NPR 20 lakhs) are substantial."* All these responses indicate a prevailing psychological orientation toward long-term financial pragmatism in the decision-making process.

Theme 2: Unease about Long-term Asset Depreciation and Hidden Ownership Costs

Apprehension regarding battery longevity and uncertain resale value emerged as a deterrent to adoption or reinvestment. This concern was prevalent among both adopters (Participants I, II, IV) and potential adopters (Participants III, V). Participants I remarked, *"The resale value is not determined yet. It depends on battery performance."* Participants II said, *"Resale value is still uncertain and largely dependent on battery performance."* Participants IV, a first-time car owner, acknowledged, *"Yes, I have heard that battery replacement can cost nearly half the price of the vehicle."* Participant IV also noted that battery costs of up to NPR 12 lakhs could outweigh perceived fuel savings. These findings highlight a psychological unease about long-term asset depreciation and hidden ownership costs.

Theme 3: Infrastructure Gaps and Emotional Strain

Concerns over charging station availability, range limitations, and technological reliability were expressed by all five participants. Adopters recounted specific incidents; Participants I reported, *"Yes, I have waited in a long queue to plug in my EV,"* while Participants II noted, *"Although DC charging stations on highways charge vehicles quickly, waiting in line is still common."* Participant II described the need to opt for an ICEV for long trips due to limited infrastructure. Potential adopters raised similar concerns; for instance, Participants IV stated, *"I find it uncomfortable to wait outside the car during charging, particularly when taxis form long lines."* Participant IV mentioned the discrepancy between claimed and real-world range, compounding anxiety. This theme underscores how infrastructural insufficiency imposes emotional strain, hindering full user confidence.

Theme 4: Psychological Distrust toward Institutional Reliability

All participants articulated concerns about policy instability and limited awareness of government incentives. Participants I expressed skepticism, stating that frequent policy changes discouraged investment. Participants II stressed, *"Government instability leads to frequent policy*

changes. There needs to be a stable and fixed EV policy to promote long-term confidence," and admitted a *"complete lack of awareness about available subsidies."* Participants IV said, *"I am not well-informed about government incentives or subsidies,"* and Participants V recalled, *"Initial policies were liberal and environmentally driven; tightening could reduce consumer interest."* These responses reflect a pervasive psychological distrust toward institutional reliability and a perceived lack of state support.

Theme 5: Tension between Perceived Technological Advancement and Safety Concerns

Participants exhibited varied perceptions regarding EV safety, balancing recognition of advanced features with concerns about malfunctions and risks. Participants I who works in construction line and frequently travels noted, *"Features like automatic braking and ADAS are good. But sometimes the braking happens when it's not needed,"* and was concerned that disabling such features might affect airbag deployment. Participants IV expressed unease about charging at home due to limited electrical load capacity. Participants IV described, *"Currently, I turn off all other electrical appliances while charging the car because my home has a single amplifier."* Potential adopter, Participants V, added, *"I've heard of issues like EV doors not opening during emergencies and battery fires during crashes. These might be rumors, but they do create concern."* These findings reveal an underlying tension between perceived technological advancement and practical safety concerns.

Theme 6: Peer Influence and Observational Learning

Peer experiences and social modeling emerged as influential factors in adoption decisions. Participants I admitted *"It is trending in the market"* and that growing prevalence among peers influenced his decision. Participants II also cited peer adoption as a motivator. Participants V, as a potential adopter, observed and said, *"Lately, more and more people in my circle have adopted EVs,"* while Participant IV, who is 23 years old young female, acknowledged being *"the first in her circle to own an EV, most of her peers still drive ICEVs, though some are beginning to consider EVs"*. Most of these accounts, except the experience of Participant IV, acknowledge the role of peer in EV adoption.

Theme 7: Urban Compatibility Versus Rural Infeasibility

All participants agreed that EVs are more suitable for urban environments like Kathmandu. Participant II observed, *"EVs are perfect for daily city travel, such as within Kathmandu. However, they are not ideal for long-distance travel yet."* Participant IV stated, *"Yes. EVs are ideal for daily use within Kathmandu and well-suited for navigating traffic."* Participant I emphasized infrastructure disparities, stating, *"In general, the valley lacks significant charging infrastructure, but highways have more facilities"*. Except Participant I, all the participants pointed to the compatibility of EV and urban location.

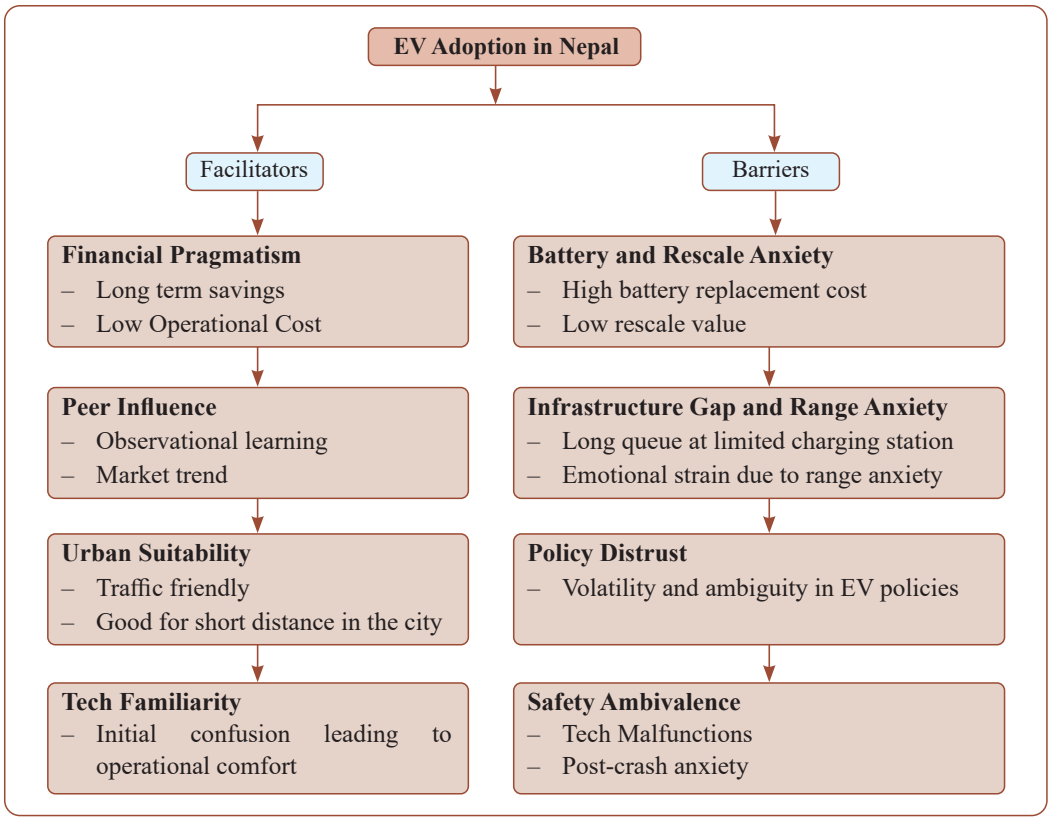
Theme 8: Temporary and Surmountable Complexity

Both adopters and potential adopters described initial uncertainty regarding EV technologies but reported eventual ease with usage. Participant I explained, *"Not necessarily; feels unusual at first but users adapt."* Participant II found the vehicle easy to operate after limited use, while Participant III indicated that technical knowledge was not a barrier to driving. Participant V, a potential adopter who is a Ph.D. scholar commented, *"EV technology is not too hard to understand. While it's new, it's not particularly complex."* Participant IV, an adopter reflected, *"At first, EV technology may seem complex, but I find it intuitive. With regular use, people easily learn what each button does."* All these accounts suggest that perceived complexity is temporary and surmountable.

The following figure (Fig. 2) summarizes the result of the present study:

Figure 2

Empirical Framework of EV Adoption



Discussions

Examining EV adoption in Nepal through the lens of descriptive phenomenology, we drew some inferences that broadly align with existing literature. Similar to Egbue and Long (2012) and Ha et al. (2023), participants in this research described long-term cost savings, particularly reduced fuel and maintenance expenses, as the central motivator for adoption. However, while much of the prior literature positions financial incentives alongside environmental benefits (Vassileva & Campillo, 2016; Sah, 2023), participants in this study often prioritized cost-efficiency over ecological concerns, treating environmental benefits as tertiary. This prioritization to financial pragmatism reflects a unique local emphasis in the studied area, revealing that economic rationality appears to outweigh environmental consciousness in motivating adoption.

Battery replacement costs and uncertain resale value emerged as significant deterrents in the reviewed literature as well as in the finding of this study. The reviewed literature acknowledges such anxieties as barriers (Anastasiadou & Gavanas, 2022; Wang et al., 2017), but participants of this study experienced them as deterrents in repeat purchase as the cost of replacement is up to half the vehicle's purchased price. This study thus deepens understanding by revealing how these apprehensions are not abstract but concretely calculated, integrated into household financial decision-making, and capable of negating perceived purchase intention.

Infrastructure limitations and range anxiety were identified in the reviewed literature as pervasive barriers, echoing findings by (Adhikari et al., 2020). Adding to that, the findings of this

study provide richer detail on the lived experience of these deficits, including long queues, app failures, and avoidance of EVs for long-distance or uphill travel. While the available literature notes the psychological effect of range anxiety, this study uniquely documents preventive behaviors, such as compulsive top-ups and opting for ICEVs for certain trips, that concretely demonstrate how infrastructure gaps translate into constrained mobility.

Policy instability and limited awareness of incentives were also consistent in this study and prior research (Rahman, 2024; Jha et al., 2025). Nonetheless, participants in this study displayed a notable distrust toward government reliability, with some entirely unaware of existing subsidies despite it being offered to the target demographics. This reality extends the existing literature by highlighting an awareness gap alongside policy inconsistency, suggesting that policy design and dissemination are equally important for market confidence.

On safety, both literature and field data point to ambivalent perceptions. Consistent with Rao et al. (2025) long life cycle, minimal self-discharge (SD and Bhatt et al. (2024) particularly regarding fair access to charging infrastructure. This perspective synthesizes evidence on how access to, and experience of, charging infrastructure may differ across socio-economic groups across North America. We present a framework for assessing charging infrastructure equity that includes: (i, concerns centered on battery fires, post-crash safety, and charging-related risks. The finding of this study expands this by capturing micro-level anxieties, such as avoiding concurrent home appliance use during charging, and skepticism about advanced driver assistance systems triggering unnecessarily. These all foresights bring particularity to a field in which the literature usually sums up issues related to safety perceptions in EVs and not differentiating particularly among fundamental hazards and everyday operational issues.

Another finding, friends' and society's influence, has strong empirical evidence in EV adoption, which matches with the study of (Anastasiadou & Gavanas, 2022). This study highlights that knowing how trends within individual circles and test drives before adoption positively shaped the adoption decision for EV. Peer references have been seen to surpass formal policy benefits from the government or marketing done by businesses in the sense of EV adoption.

In urban society, EVs have been taken as a suitable mode of commute, and this finding is persistent in global studies (Vassileva & Campillo, 2017). But the data coming from this study is shaped differently; this study addresses the issue as a psychological limitation of users who keep categorizing the EV as a city commute vehicle, which may limit the utilities of EVs in the future despite infrastructural and technological development.

This research tends to suggest that technological complexity, especially for urban commute users is not supposed to be a barrier for adoption, whereas Wang et al. (2017) suggest technological complexity is a barrier for EV adoption. It seems that participants usually have unfamiliarity at the beginning of adoption to the EV system, but within a very short period of time, they adapted very quickly to it. Complexity is a short-lived barrier for EV adoption and not a major one, unlike infrastructural barriers.

Conclusion

This study explored various facets of the lived experience of EV users and potential EV users. Financial factors emerged as one of the major themes for facilitating the EV adoption process, where the adopters were motivated to buy an EV due to its long-term savings in fuel and maintenance services in comparison to ICEV vehicles. However, these economic benefits are usually compromised by emotional strain coming out of the high cost of battery replacement, a lack of a proper resale market for an EV in comparison to ICEV, faster depreciation of EVs, unreliable charging infrastructure, and range anxiety. Along with that, volatile government policy, frequent changes in excise duties, and lack of policy and

benefit awareness of EVs to the target market is where the authoritative bodies need to look at seriously. Safety concerns are responded with mixed answers, as users appreciate the automatic braking and airbags but note technical malfunctions of brakes and sensors in EVs along with battery fires post-crash. Amid these barriers, social and peer influence are the major motivators of EV adoption. References coming from friends, family, observational learning, and test drives work as the external information sources for evaluating the alternatives in the adoption process. Tech familiarity is a bit difficult in the initial stage of user experience, but eventually it will not be an issue, and users will get operational ease very quickly.

While the study provides rich and qualitative insights into the lived experiences of both adopters and potential adopters, it contains some limitations. Geographically, the research is confined to one urban hub with relatively high EV adoption; it limits the generalizability of findings to other areas with different infrastructural and socio-economic realities. The use of a small, purposive sample typical of descriptive phenomenological studies prioritizes depth of understanding over statistical representation. The study's reliance on the Diffusion of Innovation (DOI) theory also introduces limitations, as the framework emphasizes individual-level adoption, rational decision-making, rather than systemic, cultural, or long-term discontinuance factors.

Despite these limitations, the study provides meaningful insights for policymakers, marketers, and infrastructure planners by highlighting that while financial rationality fuels adoption, long-term success in Nepal's EV market depends on addressing infrastructural gaps, policy instability, and persistent consumer anxieties. In a context where EVs are considered as city commute, enhancement of overall EV system, infrastructure improvement, policy stability, and building public trust are the major areas to work on to accelerate EV adoption.

Author Contribution

The second author supervised the research work from its inception to editing; and the first author conducted the research exclusively.

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