Strategic and Behavioral Drivers of Consumer Adoption of Electric Vehicles in Selangor, Malaysia: A Qualitative Study Using Diffusion of Innovation Theory

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ABSTRACT

Electric vehicle (EV) adoption in Malaysia has increased in recent years, yet market penetration remains below national transition ambitions. This study examines the strategic and behavioral drivers influencing consumer adoption of EVs in Selangor, Malaysia, using Diffusion of Innovation Theory as the guiding lens. A qualitative research design was employed to capture the lived experiences, expectations and concerns of multiple stakeholders in the EV ecosystem. Data were collected from 44 participants comprising EV owners, prospective buyers, EV dealers and charging infrastructure operators. Semi-structured interviews, focus group discussions and document analysis were analysed using thematic coding in NVivo 14. The analysis produced 171 coded references across five themes: consumer attitudes and motivation, risk perception and barriers, charging infrastructure awareness, social influence and peer effects, and policy awareness and adoption enablers. Charging infrastructure emerged as the strongest adoption determinant, accounting for 53 coded references or 31.0 percent of all references, followed by consumer attitudes, risk perception, policy awareness and social influence. The findings show that charging cost, coverage, reliability and station-user behaviour remain central concerns, especially among consumers without access to home charging. Risk perception is also influential, with resale value uncertainty becoming more prominent than traditional range anxiety. EV ownership experience appears to reduce perceived risk, while social influence remains relatively weak due to the early-stage diffusion of EVs in Malaysia. The study contributes to the EV adoption literature by showing that infrastructure readiness alone is insufficient unless supported by risk-reduction communication, dealer capability and consumer education. The paper recommends integrated policy, industry and charging-operator interventions to accelerate mainstream EV adoption in Malaysia.

Keywords: electric vehicles; consumer adoption; Diffusion of Innovation; charging infrastructure; Malaysia

INTRODUCTION

The transition from internal combustion engine vehicles to electric vehicles (EVs) has become a central component of sustainable mobility policy. Globally, governments and industry actors are promoting EVs to reduce transport-related emissions, improve energy security and support low-carbon economic development. However, EV adoption does not occur through technological availability alone. It depends on the interaction between policy, infrastructure, market conditions and consumer readiness.

Malaysia has introduced several measures to support EV adoption, including tax incentives, import duty exemptions and charging infrastructure expansion. These initiatives are consistent with the national direction reflected in the Low Carbon Mobility Blueprint and the National Energy Transition Roadmap. Nevertheless, adoption remains at a developing stage. The research problem is therefore not whether EVs are technologically viable, but why many consumers still hesitate despite visible policy and market support.

Selangor provides a useful context for examining this issue. As one of Malaysia's most urbanised and economically active states, Selangor has high private vehicle ownership, relatively stronger exposure to EV-related initiatives and greater access to urban charging infrastructure compared with many other states. Yet, favourable structural conditions do not automatically translate into mass adoption. Consumers continue to evaluate EVs through practical, financial and psychological lenses, including concerns about charging convenience, battery life, range, resale value, purchase price and technology familiarity.

Prior studies on EV adoption commonly emphasise cost, infrastructure and environmental awareness. While these factors are important, a narrow focus on economic and technical barriers risks overlooking behavioural realities. Consumers do not make EV adoption decisions based solely on rational cost-benefit calculations. Their decisions are shaped by uncertainty, perceived complexity, trust in technology, advice from dealers, peer narratives, visibility of EV use and confidence in after-sales support.

This article therefore examines strategic and behavioral drivers of EV adoption in Selangor, Malaysia. It focuses on how consumers and key EV ecosystem actors interpret adoption barriers and enablers. The study is guided by Diffusion of Innovation Theory, which explains how innovations are adopted over time through perceived relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003).

LITERATURE REVIEW

EV adoption in Malaysia is gradually expanding, supported by government incentives, improvements in charging infrastructure and increasing public attention to sustainable mobility. Existing Malaysian studies indicate that affordability, charging access, consumer awareness and perceived technology reliability are major determinants of adoption intention (Hamzah et al., 2022; Tanwir & Hamzah, 2020). However, the Malaysian EV market remains comparatively young, and adoption is still concentrated among more innovation-oriented and urban consumers.

Strategic drivers refer to external and institutional factors that can encourage or constrain adoption. These include government policy, fiscal incentives, vehicle pricing, infrastructure development, dealer readiness and charging-service quality. Government incentives can reduce the effective cost of ownership and increase the perceived relative advantage of EVs. Infrastructure development can reduce range anxiety and increase perceived practicality. However, infrastructure must not only exist; it must also be visible, reliable, affordable and accessible.

Behavioral drivers include attitudes, perceived risk, social influence, familiarity and trust. Positive attitudes may arise from perceived technological superiority, lower operating cost, environmental values and government incentives. However, these positive attitudes can be weakened by perceived barriers such as high purchase price, battery uncertainty, range anxiety, limited charging confidence and unclear resale value (Asadi et al., 2022; Muzir et al., 2022).

Diffusion of Innovation Theory identifies five innovation attributes: relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003). These attributes are directly relevant to EV adoption because consumers evaluate EVs against conventional vehicles, assess fit with daily mobility routines, judge perceived complexity, seek opportunities to experience EVs, and observe whether other consumers benefit from the technology.

METHODOLOGY

This study adopted a qualitative interpretive design to examine how different stakeholders understand EV adoption in Selangor. A qualitative design was selected because EV adoption involves subjective perceptions, practical experiences and social meanings that cannot be fully captured through numerical measurement alone. The design enabled the researcher to explore motivations, concerns and contextual explanations behind adoption decisions.

The study involved 44 participants from four stakeholder groups: EV owners, prospective EV buyers, EV dealers and charging infrastructure operators. Purposive sampling was used to select participants with relevant knowledge or experience, while snowball sampling supported access to EV owners and charging-related participants. The sample was considered adequate based on the principle of qualitative data saturation.

Table 1. Participant profile and data collection approach

Participant group	Number	Data collection mode	Rationale
EV owners	25	Semi-structured interviews	To capture lived ownership experience and post-adoption barriers
Prospective EV buyers	7	Focus group discussion	To understand pre-purchase expectations and hesitations
EV dealers	6	Focus group discussion	To examine market-facing perceptions and customer objections
Charging operators	6	Focus group discussion	To understand charging demand, pricing and reliability issues
Total	44	Interviews and focus groups	To obtain multi-stakeholder evidence across the EV ecosystem

Data were collected through semi-structured interviews, focus group discussions and document analysis. The protocols covered consumer attitudes, risk perception, familiarity with EVs, charging infrastructure awareness, social influence, policy awareness and perceived adoption enablers. The qualitative data were analysed using thematic analysis in NVivo 14 following the six-stage logic of familiarisation, initial coding, theme development, theme review, theme definition and reporting (Braun & Clarke, 2006).

Credibility was strengthened through methodological triangulation across interviews, focus groups and documents. Consistency was supported through structured interview protocols, field notes and systematic coding procedures. Participants were informed about the purpose of the study, voluntary involvement and confidentiality procedures. Personal identifiers were not reported in the findings.

RESULTS AND FINDINGS

The thematic analysis produced five major themes: consumer attitudes and motivation, risk perception and barriers, charging infrastructure awareness, social influence and peer effects, and policy awareness and adoption enablers. Charging infrastructure awareness was the strongest theme, with 53 coded references or 31.0 percent of all coded references. It was also the only theme showing strong cross-stakeholder saturation across charging operators, EV owners and prospective buyers.

Table 2. NVivo thematic coding results by participant group

Theme	Charging operators	EV dealers	Prospective buyers	EV owners	Total
T1 Consumer attitudes and motivation	0	0	6	33	39
T2 Risk perception and barriers	0	24	5	8	37
T3 Charging infrastructure awareness	21	0	6	26	53
T4 Social influence and peer effects	0	0	4	10	14
T5 Policy awareness and adoption enablers	0	0	9	19	28
Total	21	24	30	96	171

Consumer attitudes and motivation accounted for 39 coded references. The theme was concentrated among EV owners and prospective buyers, indicating that attitudes are closely related to personal engagement with EVs. EV owners expressed positive attitudes based on government incentives, technological appeal, driving experience and long-term cost savings. Prospective buyers expressed interest but with weaker conviction, suggesting that positive attitudes may remain fragile before direct exposure.

Risk perception and barriers accounted for 37 coded references. This theme was strongly dominated by EV dealers, who contributed 24 references. The dominance of dealer responses is important because dealers act as front-line interpreters of consumer anxiety. Resale value uncertainty emerged as the most notable risk sub-theme, suggesting that residual value uncertainty is becoming a sharper pre-purchase barrier than traditional range anxiety.

Charging infrastructure was evaluated through four related dimensions: station availability, charging speed and reliability, pricing and user behaviour at stations. Home charging was perceived as economical, while public fast charging was viewed as comparatively expensive. This creates an uneven adoption experience between consumers with home charging access and apartment or high-rise residents who depend more heavily on public charging.

Social influence and peer effects produced only 14 coded references, the lowest among the five themes. This suggests that social influence is present but not yet strong enough to drive mainstream adoption. Policy awareness and adoption enablers accounted for 28 coded references and revealed an awareness gap between EV owners and prospective buyers. Owners generally had clearer knowledge of incentives and ownership benefits, while prospective buyers displayed less certainty.

Table 3. Summary of research proposition support

Proposition	**Linked theme**	**References**	**Verdict**
P1 Positive consumer attitude supports EV adoption intention	T1	39	Supported
P2 Perceived risk negatively affects EV adoption	T2	37	Supported
P3 Charging infrastructure awareness supports adoption intention	T3	53	Strongly supported
P4 Social influence supports EV adoption intention	T4	14	Partially supported
P5 Experience or familiarity supports adoption intention	T5	28	Supported

DISCUSSION

The findings show that EV adoption in Selangor is shaped by a layered interaction between infrastructure, risk perception, policy awareness and direct experience. Charging infrastructure is the most empirically supported determinant, but its influence is not merely technical. Consumers do not only ask whether chargers exist; they ask whether chargers are conveniently located, reasonably priced, functioning, available when needed and protected from misuse.

The dominance of charging infrastructure also reveals a potential adoption inequality. Consumers with access to home charging experience EV ownership more favourably because they benefit from lower charging cost and routine convenience. Consumers living in high-rise or shared residential settings face higher dependency on public charging, making them more exposed to pricing, reliability and availability concerns.

Risk perception remains a major behavioural barrier. The emergence of resale value uncertainty suggests that the next stage of EV adoption will require stronger secondary-market transparency, battery health certification, warranty communication and residual-value assurance. Dealers are strategically positioned to mediate this risk but require stronger training, consistent messaging and tools to explain total ownership cost and long-term value.

The study also identifies a policy communication gap. Incentives are effective among owners who understand and use them, but prospective buyers appear less certain. This means that incentives should not only be announced at policy level; they must be translated into consumer-facing decision tools. A buyer should be able to clearly compare purchase price, tax exemption, charging cost, maintenance savings, warranty protection and resale considerations.

The weak role of social influence supports the interpretation that the Malaysian EV market is still in an early diffusion stage. Social media and online reviews provide awareness, but mass normalisation is limited because

many consumers do not yet have close peers with long-term EV ownership experience. Trialability and observability should therefore be strengthened through test-drive programmes, workplace EV exposure, community demonstrations and owner-led sharing sessions.

Infrastructure, Experience and Decision Sequencing

The discussion suggests that EV adoption in Selangor follows a practical decision sequence. Consumers do not begin with a stable attitudinal position and then simply decide whether to purchase; instead, many first assess whether EV ownership is feasible in their daily context. Charging accessibility, expected charging cost and the practicality of home or workplace charging operate as gateway conditions. Only after these conditions appear manageable do other evaluations, such as long-term savings, technological appeal or environmental meaning, become persuasive. This helps explain why charging infrastructure emerged as the strongest theme across stakeholder groups. It functions not only as a logistical issue but as the central filter through which the EV value proposition is interpreted (Asadi et al., 2022; Mohd Noor et al., 2025).

This decision sequence further reveals an adoption inequality between households with convenient access to home charging and those who rely primarily on public charging. For the first group, EV ownership is more easily associated with convenience, routine charging and lower running costs. For the second group, the ownership experience is shaped by concerns about pricing, station availability, queueing, reliability and time cost. The implication is that the same EV may be perceived as economically rational by one consumer and operationally burdensome by another, depending on charging arrangements. In dense urban environments such as Selangor, this divide is particularly important because apartment living, shared parking and variable charging access can materially alter the adoption calculus. The findings therefore point to infrastructure equity as an adoption issue, not merely infrastructure quantity.

The secondary role of environmental motivation can also be better understood through this sequencing logic. The findings do not suggest that consumers reject sustainability goals. Rather, they indicate that environmental considerations are frequently subordinated to practical certainty at the point of purchase. Consumers appear willing to value environmental benefit, but usually after the technology has met threshold expectations regarding affordability, reliability and usability. This pattern is consistent with previous studies showing that pro-environmental attitudes alone seldom produce adoption when consumers still perceive strong operational risk (Pang et al., 2024; Teoh & Khoo, 2021). In emerging EV markets, sustainability messages may therefore be more effective when linked to concrete everyday benefits rather than presented as isolated moral appeals.

The findings on reduced risk among EV owners likewise strengthen the case for structured exposure strategies. If familiarity lowers perceived risk, then policy and industry actors should expand opportunities for consumers to experience EVs before purchase through extended test-drive programmes, workplace demonstration fleets, pop-up charging demonstrations, short-term subscription models and community-led ride-and-drive events. Such mechanisms convert abstract unfamiliarity into experiential understanding. They are especially relevant in markets where secondary information, online debate and informal narratives strongly influence pre-purchase perceptions. Trialability should therefore be treated as an adoption infrastructure in its own right, alongside chargers, incentives and product availability (Rogers, 2003; Zailani et al., 2019).

From Information Deficit to Confidence Architecture

Another important insight from the study is that Malaysia's EV transition requires more than incentives and physical infrastructure; it requires a coherent confidence architecture. Consumers need a stable informational environment in which charging cost, battery warranty, expected maintenance, resale pathways, incentive eligibility and charger availability are explained consistently across government channels, dealers, charging operators and digital media. The present findings show that this informational environment is still fragmented. Owners are relatively better informed, whereas prospective buyers often encounter partial or inconsistent messages. As a result, uncertainty persists even when policy support exists. In practice, this means that adoption can stall not because the technology is unavailable, but because consumers cannot confidently evaluate its consequences.

The role of dealers is especially significant in this architecture. Dealers emerged as the most visible mediators of customer anxiety, yet they were less prominent as communicators of policy meaning and long-term ownership logic. This creates a missed opportunity. In the purchase journey, dealers occupy the point at which curiosity, hesitation and decision pressure converge. When dealer capability is limited to product description, major consumer concerns remain unresolved. When dealer capability includes battery education, cost-of-ownership framing, warranty explanation, charging guidance and policy translation, the same interaction can become a decisive trust-building moment. This reframes the dealer from a sales channel into a confidence intermediary, an institutional role that deserves greater attention in EV adoption research and practice.

Theoretical Contribution to Diffusion of Innovation

Beyond its practical relevance, the study extends the application of Diffusion of Innovation Theory to an emerging-market EV context by showing that innovation attributes are not experienced in isolation. Relative advantage, compatibility, complexity, trialability and observability are interpreted through institutional touchpoints such as dealer explanations, charging-station experience, policy communication and peer demonstration. Adoption is therefore shaped not only by what the vehicle is, but also by how the ecosystem makes the vehicle understandable, visible and usable. This gives empirical depth to Rogers' (2003) framework by showing that the diffusion of EVs in Selangor is mediated by a network of actors rather than by consumers alone.

The findings also show that social influence should not be treated as uniformly weak or strong across all adoption stages. In this study, social influence was present but not yet dominant. That pattern does not contradict diffusion theory; instead, it reflects a market that is still located closer to the early-adopter phase than to the early-majority phase. Digital word-of-mouth, owner communities and informal peer education have begun to normalise EV ownership, but observability remains too limited for social proof to outweigh practical concerns. This helps explain why social influence in Malaysia currently plays a reinforcing role rather than a decisive one, consistent with the broader Malaysian EV literature (Hamzah et al., 2022; Tanwir & Hamzah, 2020).

A further theoretical implication is that perceived risk in EV adoption is dynamic rather than fixed. The study demonstrates that risk is reinterpreted through ownership, trial and repeated exposure. Concerns that are salient before adoption, particularly resale value, battery uncertainty and charging inconvenience, do not disappear automatically, but they become more manageable when consumers gain concrete experience. This suggests that trialability in the EV context should be understood not merely as a marketing feature, but as a mechanism of risk conversion. When consumers move from abstract assumptions to direct interaction, perceived uncertainty can be reclassified into manageable operational knowledge. Such a reading enriches Diffusion of Innovation Theory in settings where technology adoption is constrained by both infrastructure readiness and market ambiguity.

Structured Diffusion of Innovation Mapping of Findings

A more explicit mapping of the findings to Diffusion of Innovation Theory also helps address the study's theoretical contribution. Table 4 links each major empirical insight to the innovation attributes of relative advantage, compatibility, complexity, trialability and observability. Presenting the results in this structured way makes the explanatory logic of the study clearer and provides a more transferable model for future EV adoption research in Malaysia and other emerging markets.

Table 4. Structured mapping of qualitative findings to Diffusion of Innovation attributes

Key finding	Dominant DoI attribute(s)	Interpretation in this study	Adoption implication
Charging cost, coverage, reliability and misuse of bays	Compatibility; Complexity	Consumers judge EVs against everyday mobility routines. When charging is difficult, uncertain or expensive, EV ownership appears less compatible and more complex.	Infrastructure quality must be treated as a consumer-experience issue, not only an engineering target.

Government incentives and long-term running-cost appeal	Relative advantage	Owners interpret EVs as financially attractive when incentives and lower operating costs are clearly understood.	Incentives need stronger consumer-facing translation to influence prospective buyers earlier in the decision process.
Resale value uncertainty and battery concerns	Complexity; Relative advantage	Perceived ambiguity about future value weakens the net advantage of EV ownership and raises decision difficulty.	Dealers, warranties and certified used-EV mechanisms can reduce perceived downside risk.
Ownership experience reduces perceived risk	Trialability	Direct exposure helps consumers replace abstract fears with practical knowledge about charging, range and maintenance.	Extended test drives, short-term subscriptions and workplace demonstrations can accelerate adoption.
Social influence remains present but limited	Observability	EV benefits are not yet sufficiently visible in daily peer networks to generate strong mainstream social proof.	Owner communities, peer sharing and visible demonstration programmes can normalise EV adoption.

The structured mapping strengthens the paper's theoretical contribution because it makes the role of each Diffusion of Innovation attribute explicit. Relative advantage is most visible in long-term savings and incentive value; compatibility is linked to charging routines and residential context; complexity appears in uncertainty about charging logistics and resale outcomes; trialability is reduced when consumers lack direct EV exposure; and observability remains limited because the EV user base is still relatively small. This matrix therefore translates the thematic findings into a clearer explanatory model for emerging-market EV adoption.

Conceptual Integration Framework

Figure 1 consolidates the qualitative interpretation into an integrative framework. It shows that strategic drivers such as incentives, dealer readiness and charging quality, together with behavioural drivers such as risk perception, familiarity and social influence, are translated into adoption intention through the five attributes of Diffusion of Innovation Theory. The framework also highlights charging-access inequality as a contextual moderator because the same EV can be perceived very differently depending on whether consumers have routine access to home or workplace charging.

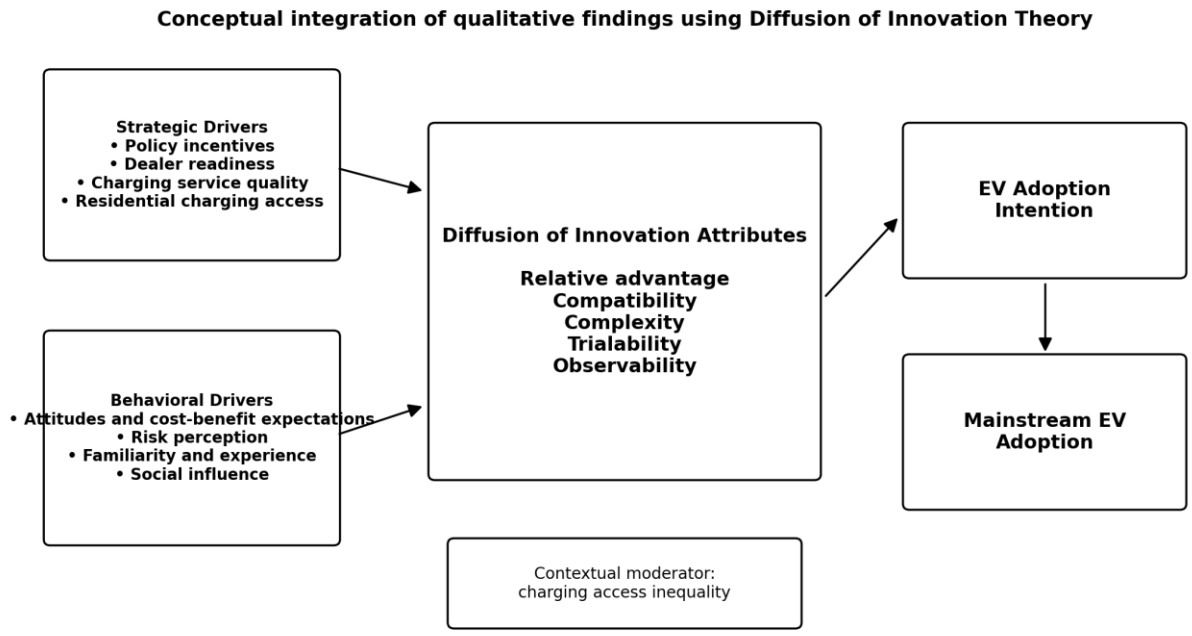

Figure 1. Conceptual integration of strategic and behavioral drivers through Diffusion of Innovation Theory

Taken together, the table and framework show that EV adoption in Selangor is not shaped by a single barrier. Instead, strategic conditions and behavioural interpretations converge through the five Diffusion of Innovation attributes. This structured view clarifies why charging access, dealer communication and ownership experience are so influential: each of them changes how consumers interpret advantage, fit, complexity, trialability and observability at the point of decision.

IMPLICATIONS AND RECOMMENDATIONS

For policymakers, the findings suggest that EV policy should move beyond incentives and charging-point targets toward consumer confidence architecture. This includes clearer communication of incentives, stronger enforcement against charging-bay misuse, minimum charging-readiness requirements for new residential developments and more transparent public reporting on charging availability and reliability.

For EV dealers and manufacturers, the key implication is that sales staff should be trained as risk educators, not merely product promoters. Dealers should be equipped with standardised explanations on battery warranty, charging cost, range realism, resale-value considerations and total cost of ownership. Manufacturers may also consider certified pre-owned EV programmes and trade-in assurance schemes to address residual value anxiety.

For charging operators, service quality is central to adoption confidence. Operators should prioritise reliability, transparent pricing, real-time station status, responsive maintenance and stronger collaboration with property managers. Enforcement mechanisms against misuse of charging bays should also be improved through clearer signage, penalties and integrated reporting features.

Stakeholder Action Matrix

Table 5. Stakeholder action matrix for accelerating mainstream EV adoption

Stakeholder	Immediate priority	Medium-term priority	Expected adoption effect
Policymakers and regulators	Clarify the post-2026 incentive direction and publish consumer-friendly guidance on eligibility, charging pathways and total cost of ownership.	Develop standards or guidance for high-density residential charging, public-station reliability and transparent pricing disclosure.	Reduces policy uncertainty, improves confidence and broadens adoption beyond early adopters.
Local authorities and property developers	Support residential and workplace charging access in apartments, offices and mixed-use developments.	Integrate EV-readiness into building and parking planning requirements where feasible.	Narrows the home-charging access gap and improves everyday usability.
EV dealers and manufacturers	Train sales staff to explain battery health, resale issues, warranty terms, charger use and ownership cost clearly.	Create longer test-drive, subscription or demonstration programmes to increase trialability.	Converts curiosity into informed adoption and reduces perceived risk.
Charging operators	Improve uptime, pricing transparency, live availability information and customer support response.	Coordinate interoperable user experience, enforcement of charging-bay use and service-level performance reporting.	Strengthens trust in public charging and reduces operational frustration.
Owner communities and consumer groups	Share practical experiences, route planning tips and ownership realities through credible peer channels.	Partner with dealers, employers and local events to expand peer-led demonstration and education activities.	Increases observability, normalisation and social proof for mainstream buyers.

The stakeholder matrix below translates the qualitative findings into a coordinated adoption roadmap. It shows that the most immediate gains are likely to come from actions that reduce uncertainty at the point of evaluation: clearer policy communication, more accessible charging options, stronger dealer education and more reliable public charging services. Over the medium term, these measures can reinforce one another by making EV ownership more visible, more routine and less dependent on high individual tolerance for uncertainty. This is especially important if Malaysia aims to move from an early-adopter market to broader mainstream diffusion.

LIMITATIONS AND FUTURE RESEARCH

This study is limited to a qualitative sample in Selangor and focuses on private passenger EV adoption. The findings are not intended for statistical generalisation across Malaysia. Future research should therefore extend the analysis beyond Selangor to include rural and semi-urban settings, where charging access, housing form and mobility routines may differ substantially. Comparative state-level research would be especially useful for examining how infrastructure inequality shapes adoption behaviour across different social and geographical contexts.

A mixed-methods design would further strengthen this evidence base by quantitatively validating the qualitative relationships identified in this study. Survey-based modelling could test the relative influence of charging perception, risk perception, policy awareness, familiarity and dealer trust on adoption intention, while follow-up interviews could explain why these effects vary across groups. Future studies should also incorporate demographic segmentation, including age, income, household type, dwelling type and commuting profile, in order to generate more policy-relevant targeting strategies for Malaysian EV adoption.

Future research should also move beyond cross-sectional perception studies toward process-oriented and visually integrated designs. Longitudinal work could track how ownership experience, policy changes, charger reliability and used-EV market development reshape perceived risk over time. More focused studies on apartment residents, younger first-time buyers, second-car households, organisational fleets and workplace charging contexts would refine the adoption model further. Finally, future articles could strengthen readability and academic impact by using visual summaries such as framework diagrams, attribute-mapping models and comparative charts to present complex adoption dynamics more clearly.

CONCLUSION

This article examined strategic and behavioral drivers of consumer adoption of electric vehicles in Selangor, Malaysia. Using Diffusion of Innovation Theory and qualitative thematic analysis, the study found that charging infrastructure is the most powerful adoption determinant, followed by consumer attitudes, risk perception, policy awareness and social influence.

The study contributes to EV adoption literature by demonstrating the importance of multi-stakeholder perspectives. EV owners, prospective buyers, dealers and charging operators occupy different positions in the adoption ecosystem, and each reveals different adoption barriers. Charging operators expose service and infrastructure constraints, dealers reveal consumer risk narratives, owners demonstrate the confidence-building effect of experience, and prospective buyers reveal information gaps.

To accelerate EV adoption in Malaysia, policymakers and industry actors should treat adoption as a behavioural transition as much as a technological transition. Stronger infrastructure, clearer consumer communication, dealer-mediated risk reduction and better charging governance are required to move EVs from early adoption toward mainstream acceptance. The structured Diffusion of Innovation mapping proposed in this article also offers a clearer basis for future comparative and mixed-method EV adoption research in Malaysia.

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