Motivational configurations driving electric vehicle adoption in urban India: evidence from Mumbai using empirical strategic analysis

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Abstract
The phenomenon of electric vehicle adoption in metropolitan settings is an important juncture for sustainable business strategies, consumer behaviour, and new forms of entrepreneurial development. Though government incentives and green consciousness have helped boost adoption, the pattern is inconsistent and warrants an in-depth analysis of the underlying motivational structures. This research aims to explore the hierarchical dominance of consumer motivations for electric vehicle adoption in the metropolitan city of Mumbai, particularly focusing on the role of infrastructure readiness. The research design is based on a cross-sectional quantitative method of data collection from primary data of 312 urban respondents and analysis of data through descriptive statistics, exploratory factor analysis, and multiple regression analysis. The results showed that economic motivation is the most dominant factor for electric vehicle adoption, followed by environmental concern. Technological perception and social influence are relatively less important factors for adoption. Most importantly, infrastructure readiness is a significant moderator of the relationship between key motivations and adoption behaviour. The research contributes to the sustainable business and entrepreneurship literature by providing a framework for understanding the underlying dynamics of electric vehicle adoption in an emerging economy. It also emphasises how consumer motivation patterns can be utilised to inform strategic decision-making, policy-making, and entrepreneurial opportunity recognition within the EV ecosystem. The findings of this research will be beneficial to firms and sustainable mobility ventures looking to drive EV growth within densely populated urban areas.

Keywords: Electric vehicle adoption, Sustainable entrepreneurship, Consumer motivation, Infrastructure readiness, Urban mobility

1. Introduction

It also illustrates the role that patterns of consumer motivation play in strategic decision-making, policy formation, as well as the identification of opportunities for entrepreneurship within the ecosystem of electric vehicles. The present study offers important findings that can guide businesses, policymakers, as well as sustainable business ventures aiming to drive the adoption of electric vehicles in densely populated metropolitan cities worldwide. Sustainable business strategy is now an era where intention related to the environment is no longer adequate to ensure market adoption. The most visible examples of such tensions include the global drive towards the adoption of electric vehicles. While electric vehicles are well-suited for the strategy aimed at creating low-carbon economies, the actual adoption of electric vehicles by the consumer in densely populated metropolitan cities worldwide reveals that the strategic issue is far more complicated than initially perceived (Patel et al., 2024; Li et al., 2017).

From a business strategy point of view, EV adoption is not just a technology substitution; rather, it is a decision characterised by high degrees of involvement in which several determinants play a crucial role in decision-making, including cost structure, infrastructural availability, risk perception, and behavioural trade-offs. Consumers in metropolitan cities make decisions in a decision-making context characterized by traffic density, charging uncertainty, price sensitivity, and expedited policy signals. These elements emphasize the need to understand what drives decision-making in EV adoption rather than what is normatively desirable (Deka et al., 2023; Rezvani et al., 2015).

Beyond consumer adoption, the shift towards electric mobility has also emerged as a critical area of sustainable entrepreneurship in which new ventures, startups, and innovative business models are actively contributing towards the evolution of mobility systems in cities around the world. In the context of India, the emergence of EV startups and ventures in infrastructure and mobility services is a critical indicator of the growing importance of green venture creation in an evolving innovation ecosystem in cities in India. Entrepreneurial activities play a critical role in "transforming sustainability aspirations into realities by bridging the gaps between policy ambitions, innovation potentials, and consumer acceptance" (Sierzchula et al., 2014; Egbue & Long, 2012).

Significantly, there has been a tremendous increase in studies on EV adoption over the last five years, from 2020 to 2025, which has led to a surplus of literature on EVs, covering environmental, social, and innovation diffusion issues. However, this has resulted in conceptual saturation, where many studies published in recent times assume, either explicitly or implicitly, the assumption of motivational symmetry, which implies that economic, environmental, technological, and social factors are equal in their influence, regardless of the domain, or infrastructure readiness as a secondary factor, rather than a critical factor (Shalender & Sharma, 2021; Hardman et al., 2015). This leaves firms with average advice and a lack of information on critical issues in real-world urban contexts (Chatterjee et al., 2024).

Despite these developments, there has been little attention given to the relationship between consumer motivation for EV adoption and opportunity structures for sustainable businesses and entrepreneurial initiatives in the context of emerging Asian economies. There is a significant under-explored relationship between consumer decision-making and entrepreneurial initiatives, especially in urban contexts where infrastructure constraints are a reality (Singh & Paul, 2025).

This research follows a break from predictive or theory-inflationary approaches and, instead, takes on an explanatory and strategy-oriented research role. Specifically, this research poses a unique, unanswered, and unsettled question: What are those configurations of consumer motivation with dominant influence over EV adoption decisions in metropolitan markets, where infrastructural readiness is modelled as a constraint? By empirically determining these configurations through factor analysis and regression modelling, this research explains, as opposed to predicts, decision hierarchies with implications for sustainable business strategy.

This research also contributes to the discourse on sustainable entrepreneurship, as it discusses the role of hierarchies of consumer motivation in opportunity recognition for EV-related businesses, infrastructure developers, and innovators in the Asian region.

Significantly, this research makes no pretence at contributing to any grand theory of behaviour, nor any prediction of adoption rates. Rather, it contributes more in its discussion of how innovations in line with sustainability are mediated through economic rationality and infrastructure in terms of consumer decision-making. In this sense, it follows recent discussions in the sustainable business literature in its attempt at providing a methodologically rigorous, yet contextual, discussion aimed at highlighting strategy development, as opposed to theory building, per se (Rezvani et al., 2015; Li et al., 2017).

2. Literature review & research gap

2.1 EV Adoption in Sustainable Business Strategy

In the context of sustainable business strategy, the adoption of EVs is seen as a way for businesses to address the tension between environmental responsibility and sustainable business competitiveness. Previous studies on EVs adoption were centered on the role of different enablers, including the reduction of carbon dioxide emissions, compliance with government regulations, and brand legitimacy (Gupta et al., 2023). From this perspective, the adoption of EVs is seen as a rational response to the call for change towards sustainability, considering the markets and the policies. However, recent studies on the role of strategy in EVs adoption serve as a warning against excessive trust in normative narratives on sustainability. Indeed, the empirical evidence shows that alignment with sustainability is not spontaneous and is dependent on the presence of compelling business value and operational viability (Bhat et al., 2022). As such, the focus of innovation adoption studies shifted from the linear model of the diffusion process to the strategic interplay between businesses, consumers, and infrastructural systems. Nevertheless, most of the studies are descriptive and centred on the role of different adoption drivers without considering their strategic significance. As a result, there is uncertainty regarding what matters most to firms in selecting between different pricing strategies, technology adoption, and communication when developing their portfolios in sustainability.

Furthermore, there is a recognition in the recent discourse that EV adoption is not limited to the demand side; rather, there is a supply side of entrepreneurship in which firms play a significant role in shaping markets. Sustainable business strategies in EV are closely related to sustainable entrepreneurship due to the necessity of innovation in business models in enabling EV adoption in emerging markets in Asia (Randolph & Dewan, 2025).

2.2 Consumer Motivation and Green Innovation

Consumer motivations have been extensively researched for green innovation adoption. Environmental concern, perceived benefits for the environment, and moral obligation are positive motivators for EV adoption (Yadav & Yadav, 2024). Social influence and peer adoption have also been shown to influence the decision-making process for green innovation adoption, particularly for urban consumers. However, economic motivations have also been shown to be a key driver for green innovation adoption. Recent studies have also shown that economic motivations are taking precedence over the desire to understand the environment better in the case of trade-offs (Bhat et al., 2024). Technological perceptions have also been shown to influence decision-making for green innovation adoption, particularly for those who are not early

adopters (Murugan & Marisamynathan, 2024). While these studies have provided some insights into green innovation adoption, they have also been conducted by keeping motivational variables independent of each other and assuming a cumulative effect of these variables. Such studies have been conducted to take attention away from and conceal the reality that motivations may not work symmetrically but in a hierarchical fashion – a drawback that has direct implications for decision-making strategies.

However, in the existing literature, consumer motivation has been considered a standalone behavioural factor, with little emphasis on its impact on entrepreneurial decisions, recognitions, and innovation in the context of the EV market. In the context of emerging economies such as India, where the market environment is in a state of flux, such a consideration is of prime importance.

2.3 Infrastructure Readiness as a Strategic Constraint

The aspect of infrastructure readiness has emerged as a significant context in the studies on the adoption of EVs. Charging has been frequently mentioned in the context of infrastructure readiness, its availability, dependability, and accessibility, particularly in metropolitan regions. However, the aspect of infrastructure readiness has been treated more as a situational factor rather than a core aspect in the motivation of consumers. Recent discussions have indicated that infrastructure readiness functions more as a strategic constraint, influencing the balance of other motivational factors. For instance, high levels of environmental concern do not necessarily translate into adoption, considering the readiness of the charging infrastructure for electric vehicles. Similarly, economic incentives are not necessarily effective in motivating consumers in the context of high levels of uncertainty. Although these discussions have provided significant qualifications on the aspect of infrastructure readiness, there is a scarcity of empirical research on the explicit motivational models of consumers, considering the connection to other motivational factors.

From an entrepreneurial viewpoint, these gaps also create opportunities for new ventures in the charging infrastructure space, battery services, and mobility solutions. In the context of the Asian region, which is characterized by a number of challenges in the institutional and urban planning environment, infrastructure development is a function of a combination of policy and innovation-based approaches, which is relevant to the link between infrastructure preparedness and venture creation (Bose et al., 2025).

2.4 Sustainable Entrepreneurship and EV Ecosystem

However, the transition towards electrical mobility is increasingly being driven by sustainable entrepreneurship activities, wherein new ventures have a key role to play in driving green innovation and market transformation (Schaltegger et al., 2018). The new ventures in electrical mobility and charging infrastructure are playing a key role in the development of integrated urban mobility systems. Not only are these new ventures driving technological innovations in electrical mobility, but they are also experimenting with new forms of sustainable entrepreneurship activities such as battery swapping and leasing (Lüdeke-Freund et al., 2018).

In the emerging economies of Asia, such as India, the electrical vehicle ecosystem is characterised by strong interrelations between entrepreneurs and government policies and market demand. The electrical vehicle ecosystem is being driven by entrepreneurship activities, which are playing a key role in the development of new ventures in electrical mobility. The new ventures are driving market creation activities by reducing uncertainty and enhancing accessibility in the electrical vehicle market (Farla et al., 2010).

Despite this rising importance, little research has attempted to integrate the role of sustainable entrepreneurship with the adoption process. Most studies have addressed the adoption process as if it is a behaviour without considering the role played by entrepreneurs in responding to, shaping, and magnifying the adoption behaviour.

Although the existing research has extensively studied the factors behind the adoption behaviour of EVs, there are several important gaps to be addressed. First, the usual reviews of the existing research rarely try to verify the dominance of consumer motivations within one empirical framework. Second, readiness in terms of infrastructure is rarely addressed as a strategic constraint deforming the motivational logic. Third, the recent research is largely focused on the predictive clarity of the model, not the explanation clarity.

Fourth, and most importantly, there is no link between consumer behaviour and sustainable entrepreneurship. The current literature rarely seeks to understand the relationship between the motivational factors behind EV adoption and the resultant entrepreneurship and business creation in emerging markets. Moreover, the relationship between the motivational factors behind EV adoption and entrepreneurship in the Asian urban ecosystems is yet to be fully explored (Bocken et al., 2014).

In this context, this current study seeks to address the gap by not only empirically determining the motivational dominance in EV adoption behaviour but also by linking it to the entrepreneurship and business creation perspectives.

Thus, this study helps fill an important gap in the existing body of knowledge by explaining the

dominance of motivation in the adoption behavior of metropolitan markets for EVs, with infrastructure readiness as a constraining variable in the model. By adopting a strategy-oriented approach, the study aims to contribute to the advancement of the sustainable business strategy literature beyond the descriptive accumulation stage.

3. CONCEPTUAL FRAMEWORK & HYPOTHESES

It is not only the factor analysis but also the motivation configuration logic involved in understanding the motivations behind the purchase of electric vehicles by metropolitan consumers. The motivation behind the purchase is not just one factor but a set of factors, including the economic, environmental, technological, social, and infrastructural aspects, which are mutually interactive in a hierarchy that influences the strategic decision-making process involved in the adoption (Sarkar & Sheth, 2023).

The framework suggests that the decision on the adoption of EV is determined by the dominance of the following five motivational dimensions, which are all quantitatively measurable:

1. Economic Motivation (EM): Includes purchase affordability, operating costs, and perceived financial incentives.
2. Environmental Concern (EC): Perceived environmental benefits and moral alignment with sustainability.
3. Technological Perception (TP): Range confidence, reliability perception, and ease of use.
4. Social Influence (SI): Peer adoption, normative pressure, and aspirational signaling.
5. Infrastructure Readiness (IR): Availability, accessibility, and reliability of charging infrastructure.

This is evident in the conceptual framework of the study, which shows the linkages between the factors of economic motivation, environmental concern, technology perception, social influence, and infrastructure readiness in shaping the adoption decision for EVs, as depicted in Figure 1.

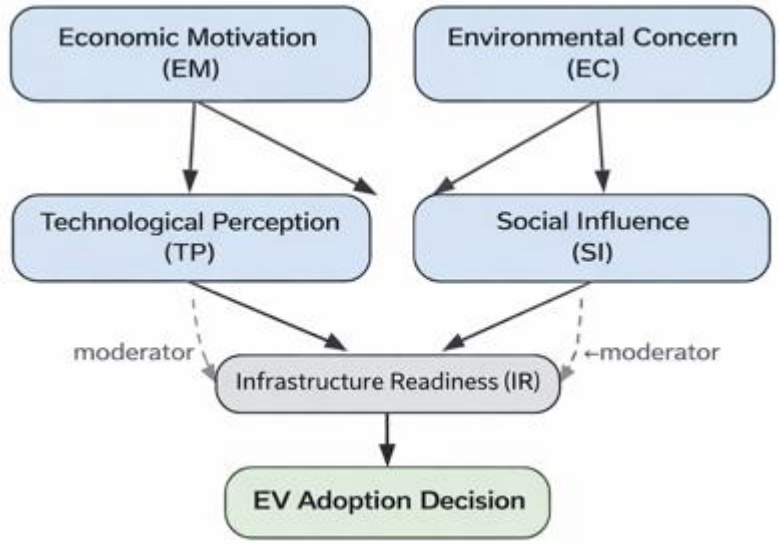

Figure 1. Conceptual Framework: Motivational Configuration and EV Adoption

Hypotheses:

H1: Economic motivation positively influences metropolitan consumers' EV adoption decisions.

H2: Environmental concerns positively influence metropolitan EV consumers' EV adoption decisions.

H3: Technological perception has a positive impact on EV adoption decisions among metropolitan consumers.

H4 Social influence has a positive relationship with EV adoption decisions among metropolitan consumers.

H5: Infrastructure readiness positively moderates the relationship between other motivational factors and EV adoption, thereby increasing the role of economic and environmental motivations.

4. Research methodology

A cross-sectional quantitative approach was utilised to empirically examine the motivational dominance of EV adoption for urban consumers in Mumbai. The traffic conditions, the roaming nature of charging infrastructure, and the dynamic trend of policy developments encouraging EV adoption create an appropriate context for a strategic laboratory to explore EV adoption in metropolitan areas (Khan et al., 2024). This approach enables the execution of an explanatory analysis without overly complicating model assumptions.

Furthermore, the methodological approach enables the creation of insights that not only contribute to consumer behaviour analysis but also inform entrepreneurial decision-making within the EV environment. Through the identification of the dominant motivational factors, the research offers an

opportunity to inform entrepreneurial decision-making, business modeling, and strategic positioning for sustainable mobility ventures and startups within urban areas.

The data collection instrument used was a structured questionnaire, with 350 people being the target in various metropolitan areas. Out of the 350 people, 312 responses were found to be valid after checking the questionnaire for completeness, with the response rate standing at 89 %. The data collection process was carried out with caution, observing the ethics of research. Table 1 illustrates the demographic profile of the respondents, including the distribution according to various factors such as gender, age, education level, and income level.

Table 1. Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage
Gender	Male	178	57.1%
	Female	134	42.9%
Age Group	18–25	64	20.5%
	26–35	112	35.9%
	36–45	88	28.2%
	46+	48	15.4%
Education	Undergraduate	102	32.7%
	Graduate	158	50.6%
	Postgraduate & above	52	16.7%
Income (INR/month)	<50,000	78	25.0%
	50,001–100,000	146	46.8%
	>100,000	88	28.2%

Table 1 presents the demographic characteristics of respondents, including age distribution across categories (see Figure 2).

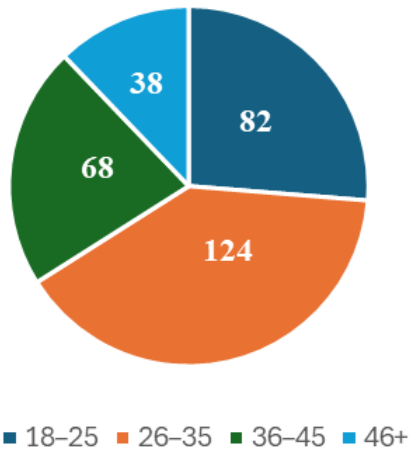

Figure 2. Age distribution of survey respondents

Additionally, the constructs were validated using the ideas developed through the previous assessment studies carried out between 2020 and 2025. The respondents rated the constructs using the 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Table 2 shows the constructs used in the study, the measurement items, the number of indicators, and the sources.

Table 2. Constructs and Measurement Items

Construct	No. of Items	Sample Item	Source
Economic Motivation (EM)	4	"EV purchase offers cost savings over time."	[14]
Environmental Concern (EC)	4	"Choosing EVs contributes to environmental well-being."	[15]

Technological Perception (TP)	3	"I trust EVs to perform reliably for my daily travel."	[16]
Social Influence (SI)	3	"People important to me would approve of my EV purchase."	[17]
Infrastructure Readiness (IR)	4	"Charging stations are conveniently located and functional."	[18]

Cronbach's alpha and KMO tests ensured internal consistency and sample adequacy. Table 3 presents the reliability analysis, indicating strong internal consistency across all constructs based on Cronbach's alpha values.

Table 3. Reliability Statistics (Cronbach's Alpha)

Construct	No. of Items	Cronbach's Alpha
EM	4	0.861
EC	4	0.882
TP	3	0.847
SI	3	0.839
IR	4	0.874

Table 4 reports the KMO and Bartlett's test results, confirming sampling adequacy and the suitability of the data for factor analysis.

Table 4. KMO and Bartlett's Test Results

Test	Value	Interpretation
KMO Measure of Sampling Adequacy	0.812	Adequate
Bartlett's Test of Sphericity	χ^2=1023.45, df=66, p<0.001	Significant

A combination of factor analysis and regression analysis techniques has been employed in the present research for examining the latent structure of motivational factors and the relative dominance of these factors in the context of EV adoption decisions. First, descriptive statistics have been employed for understanding the profile of the data. Then, exploratory factor analysis has been employed by applying principal component analysis along with varimax rotation. In addition, factors have been extracted based on eigenvalues greater than 1. Further, the items have been considered significant based on factor loadings greater than 0.50. Finally, regression analysis has been employed for examining the relative impact of motivational factors on EV adoption decisions. In this context, the EV adoption decision has been considered a dependent variable. At the same time, Economic Motivation (EM), Environmental Concern (EC), Technological Perception (TP), and Social Influence (SI) have been considered independent variables. Infrastructure Readiness (IR) has been considered a moderating variable in the context of examining the relative impact of significant motivational factors on EV adoption decisions. The application of these analysis techniques not only helps in identifying the decision hierarchies of consumers but also helps entrepreneurs in deriving insights to align their strategies with the demands of consumers in a changing environment.

5. Results & analysis

For defining the center line and spread of responses, descriptive statistics were used for all constructs. The results indicate the occurrence of all motivational drivers, with a bias towards economic and infrastructural drivers, which are in line with the antecedent studies on metropolitan adoption (Agarwal et al., 2023). Table 5 indicates the descriptive statistics of key constructs, which include the mean, standard deviation, skewness, and kurtosis for all variables.

Table 5. Descriptive Statistics of Key Constructs

Construct	N	Mean	Std. Deviation	Skewness	Kurtosis
Economic Motivation (EM)	312	4.12	0.68	-0.42	0.15
Environmental Concern (EC)	312	3.89	0.71	-0.15	-0.24
Technological Perception (TP)	312	3.76	0.73	0.05	-0.31
Social Influence (SI)	312	3.54	0.79	0.12	-0.17
Infrastructure Readiness (IR)	312	3.68	0.75	-0.08	-0.12

EM has the highest means, suggesting that economic considerations are most important. Also, skeleton and kurtosis statistics are within the range of (± 1), substantiating acceptable normality for both factor and regression

analyses [20]. Among the five constructs, Economic Motivation (EM) had the highest mean score (4.12), followed by Environmental Concern (EC) (3.89), Technological Performance (TP) (3.76), Infrastructure Readiness (IR) (3.68), and Social Influence (SI) (3.54) (see Figure 3).

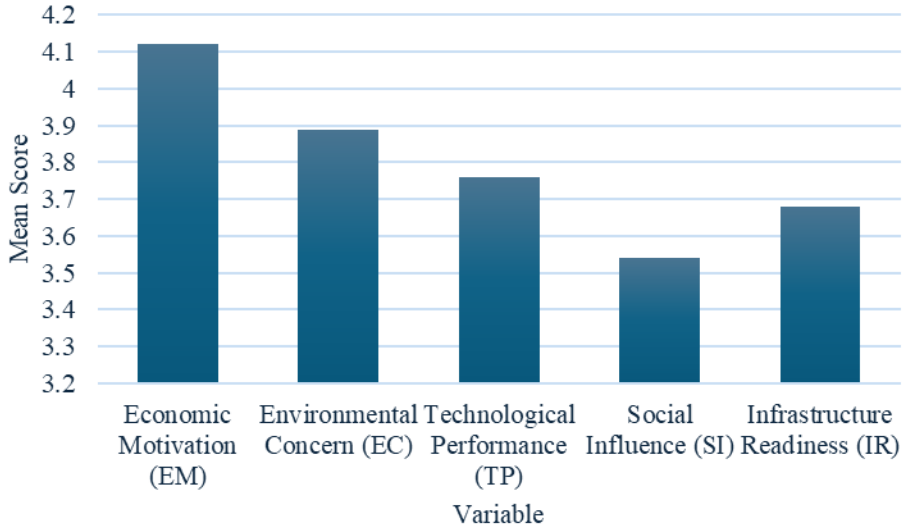

Figure 3. Mean scores of key factors influencing EV adoption

From the entrepreneur's point of view, the dominance of the factor related to the economic motivation indicates the importance of cost competitiveness, the financial model, and the value-based pricing model to suit the metropolitan consumer.

An exploratory factor analysis using principal component analysis with varimax rotation was carried out to determine the construct's dimensionality. The Kaiser-Meyer-Olkin measure (0.812) and Bartlett's test (χ^2=1023.45, p<0.001) were used to test the adequacy of the sample and the suitability of the data for factor analysis, respectively. Table 6 presents the factor loadings of all measurement items across constructs, confirming clear construct validity and strong item associations.

Table 6. Factor Loadings and Explained Variance

Item	EM	EC	TP	SI	IR
EM1 – Cost Savings	0.812				
EM2 – Financial Incentives	0.793				
EM3 – Long-term Value	0.775				
EM4 – Price Competitiveness	0.798				
EC1 – Environmental Benefit		0.826			
EC2 – Moral Responsibility		0.812			
EC3 – Sustainability Alignment		0.801			
EC4 – Eco-conscious Image		0.788			
TP1 – Reliability Confidence			0.803		
TP2 – Ease of Use			0.791		
TP3 – Performance Expectation			0.785		
SI1 – Peer Approval				0.772	
SI2 – Normative Pressure				0.759	
SI3 – Aspirational Signaling				0.748	
IR1 – Station Accessibility					0.805
IR2 – Station Reliability					0.798
IR3 – Convenience					0.782
IR4 – Network Adequacy					0.791

Explained Variance - EM: 26.3%, EC: 21.4%, TP: 14.2%, SI: 12.1%, IR:13.6%. Explained variance was highest for Economic Motivation (26.3%), followed by Environmental Concern (21.4%), Technological Performance (14.2%), Infrastructure Readiness (13.6%), and Social Influence (12.1%) (see Figure 4).

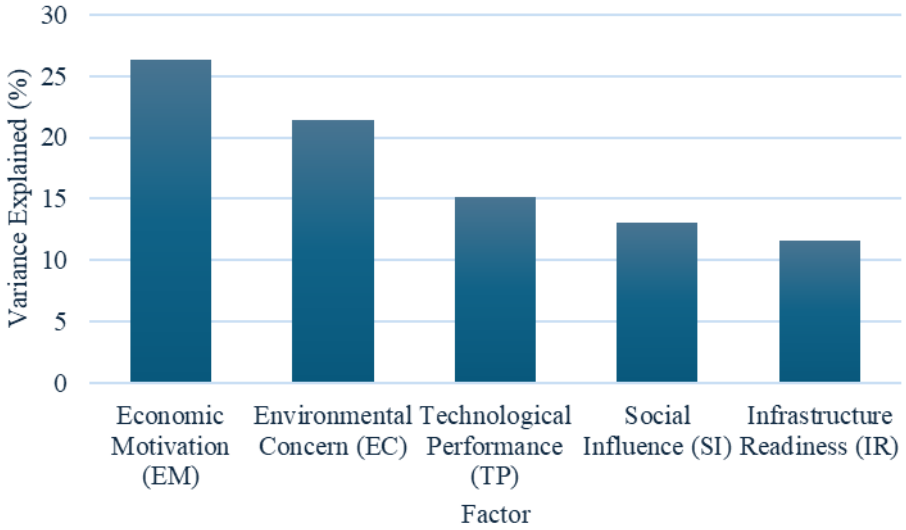

Figure 4. Percentage of variance explained by each factor

Hence, total variance explained: 87.6%. The factors are well-defined, which confirms construct validity. EM and EC are dominant factors, reflecting metropolitan consumer interests. The factor structure is clear, offering useful insights for entrepreneurs since it reveals which aspects of consumer perception can be exploited for the development of products/services in the context of the EV ecosystem. A hierarchical multiple regression analysis was carried out to investigate the relative dominance of motivational factors in the context of decisions related to the adoption of electric vehicles, considering the moderating role of infrastructure readiness. Table 7 reveals the results of the regression analysis.

Table 7. Regression Results for Motivational Dominance and Moderation Effects

Predictor	B	SE	β	t	p
Economic Motivation (EM)	0.412	0.052	0.351	7.92	<0.001
Environmental Concern (EC)	0.298	0.047	0.249	6.34	<0.001
Technological Perception (TP)	0.172	0.045	0.142	3.82	<0.001
Social Influence (SI)	0.114	0.041	0.096	2.78	0.006
Infrastructure Readiness (IR)	0.234	0.049	0.198	4.78	<0.001
IR × EM (Moderator)	0.083	0.031	0.072	2.68	0.008
IR × EC (Moderator)	0.077	0.029	0.068	2.66	0.009

Model Fit:

- $R^2 = 0.61$, Adjusted $R^2 = 0.59$
- $F(7,304) = 62.83$, $p < 0.001$

The major factor affecting the level of adoption of metropolitan electric vehicles is economic motivation, followed by environmental concern, which is statistically significant. Economic motivation is the major factor for the level of adoption of metropolitan electric vehicles, followed by environmental concern, then infrastructure readiness, as shown by the standardized regression coefficients in Figure 5.

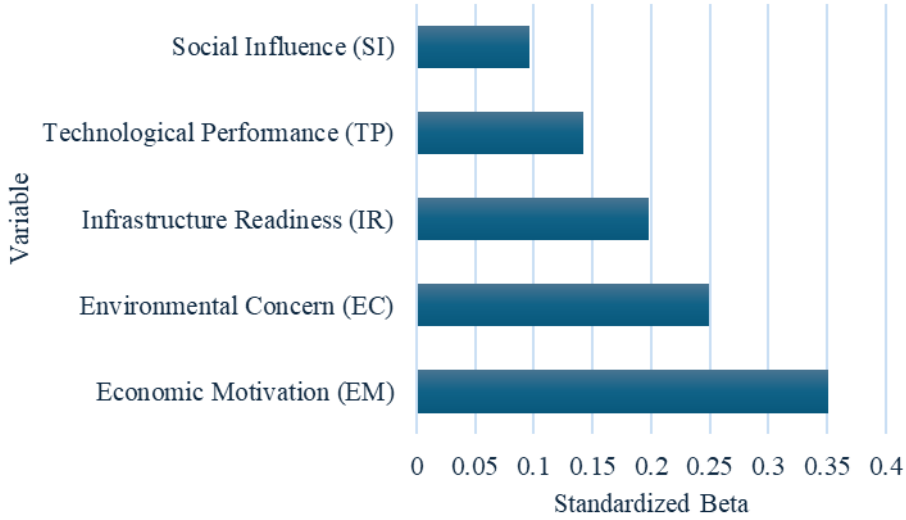

Figure 5. Standardised regression coefficients (β) for EV adoption determinants

The preparedness of the infrastructure increases the impact of the economic and environmental motivations, such that it can be perceived as the strength of the infrastructure in the role of a moderating variable. The antecedents of technological perception and social influence play a less significant role but still positively contribute to the result; the latest scientific studies on metropolitan electric vehicle uptake support the result.

From the sustainable entrepreneurship perspective, the results imply that infrastructure preparedness not only influences the adoption decision among consumers but also determines the opportunities for new entrepreneurial ventures, especially in the areas of electric vehicle charging infrastructure, battery-related services, and mobility platforms. The moderating role of the infrastructure preparedness also suggests that entrepreneurial success in the electric vehicle market is dependent on the alignment with the infrastructure preparedness.

The less significant role of the antecedents of technological perception and social influence suggests that the entrepreneurs should especially focus on the role of the economic value proposition as the primary means to ensure market penetration in the metropolitan ecosystem.

6. Discussion

The current analysis has offered some insight into the hierarchical motivational construct for the use of electric vehicles in metropolitan environments, in which intrinsic motivation factors such as those identified in the current analysis compete for prominence with infrastructural constraints. An understanding of such motivational constructs offers insights into why certain motivation factors are beneficial or preferred over others, in addition to how infrastructural provisions can shape the logic of consumers in practical strategic environments (Wicki et al., 2023).

The economic motivation factor was found to be the key factor in metropolitan environments, in accordance with the postulate that money is a vital consideration in decisions related to metropolitan environments. Such considerations of money are more salient in metropolitan environments compared to environmental considerations in a metropolitan environment, in which the logic of economics overshadows the intent of sustainability (Jaiswal & Kant, 2018). Environmental concerns, although statistically significant, are relegated to the background in favour of other considerations in a repeat of a pattern observed in other metropolitan environments (Lavee & Parsha, 2021). Technological perception and social influence are positive but weak in their influence and suggest that peer norms and technological familiarity act as facilitative but not decisive influences (Liao et al., 2017).

Moreover, infrastructure preparedness is seen to moderate the influence of economic and environmental motivations on adoption. This finding is a confirmation of the significance of the availability and accessibility of charging stations in actualising economic and environmental motivations into actual purchasing decisions. In other words, infrastructure does not only influence but also changes the logic of consumers' motivations by either enhancing or reducing the influence of such motivations. Without such an infrastructural fit, economic and environmental motivations may not be enough to actualise a purchasing decision (Saxena, 2022).

Further, these findings are also supported by a comparison of recent literature. Indeed, past literature is clear about the dominance of economic motivations over environmental motivations in densely populated urban environments (Maybury et al., 2022). Further, past literature is also clear about the significance of infrastructural constraints in actualising purchasing decisions. This study extends such knowledge by empirically showing the moderating influence of infrastructure on the

influence of motivations (Rohit & Verma, 2025). Additionally, literature identifies social influence as a secondary yet persistent factor, which is consistent with its facilitative but subordinate role observed in this analysis (Sharma et al., 2022).

The results underscore a nonlinear logic in the adoption process, which indicates that firms cannot assume that motivational factors are equally significant in their influence. Strategic interventions, therefore, need to focus on aligning economic incentives with infrastructural availability, followed by environmental and social positioning. By operationalising these results, firms can sequence their investments in pricing, communication, and infrastructure to maximise adoption outcomes while minimising potential misallocations of resources (Joshi et al., 2022).

From a sustainable entrepreneurship perspective, these results reveal that consumer motivation patterns have a direct impact on opportunity recognition in the EV ecosystem. The emphasis on economic considerations reveals a high potential for entrepreneurial ventures in areas related to cost-efficient mobility, innovative financing, and value-based service delivery. Similarly, infrastructural gaps reveal a high potential for entrepreneurial opportunities in areas such as charging infrastructure, battery services, and mobility platforms (Zapata et al., 2024). From a sustainable entrepreneurship perspective, these results reveal that consumer motivation patterns have a direct impact on opportunity recognition in the EV ecosystem. The emphasis on economic considerations reveals a high potential for entrepreneurial ventures in areas related to cost-efficient mobility, innovative financing, and value-based service delivery. Similarly, infrastructural gaps reveal a high potential for entrepreneurial opportunities in areas such as charging infrastructure, battery services, and mobility platforms (Zapata et al., 2024).

Moreover, the moderating factor of infrastructure implies that the success of entrepreneurs in the domain of EV is heavily dependent on the ecosystem in which the entrepreneurs need to strategically place themselves at the nexus of consumer demand, governmental support, and infrastructural development. In the context of Asia, specifically in countries such as India, which are in the midst of rapid urbanisation, such a strategy would prove to be beneficial for entrepreneurs.

7. Managerial & policy implications

7.1 Managerial Implications:

The implications of the current research for management practices in the context of the EV market, specifically in metropolitan areas, can be summarised as follows: First, in terms of the logic of pricing, the emphasis should be on cost-effectiveness through customised financial offers, focusing on saving costs in the long term, and combining incentives to increase the overall perception of value. Economic arguments should be given priority over environmental arguments in metropolitan campaigns because consumers are more sensitive to economic arguments. Secondly, in terms of the framing of communications, there should be a clear emphasis on linking sustainability benefits to specific economic benefits to increase the perception of value among consumers. Instead of environmental arguments, there should be a clear emphasis on linking sustainability benefits to specific economic benefits to increase the perception of value among consumers. Thirdly, in terms of the overall product, there should be emphasis on high levels of reliability, convenience, and compatibility with the current infrastructure. The marketing strategies should highlight the overall cost of ownership, combining economic and environmental benefits, to influence consumer adoption.

7.2 Policy Implications:

The implications of the results of this study have important policy implications for the promotion of EVs in metropolitan cities. Firstly, in terms of infrastructure sequencing, it is recommended that metropolitan cities should focus on deploying infrastructure in areas of high density to maximize the outcomes of EV adoption. Secondly, in terms of incentives, it is important to ensure that there is alignment between economic incentives and infrastructure availability, failing which there could be underutilization of the policy. Thirdly, in terms of urban sustainability, it is recommended that urban sustainability missions should include EV adoption. This could be achieved by integrating EV initiatives with urban transport and environmental missions, while ensuring alignment with long-term infrastructure development.

8. Conclusion

The study contributes to the understanding of the adoption of Electric Vehicle (EV) in metropolitan areas by exploring the hierarchical structure of consumers' motivations and infrastructure readiness. The results indicate that economic motivation is the most dominant factor in driving consumers to adopt EVs, followed by environmental concern, while technology perception and social influence have secondary effects. Notably, infrastructure readiness is revealed to be an important moderating factor in converting consumers' motivations into adoption behaviour. The study contributes to the existing literature by moving beyond descriptive and predictive approaches to an explanatory and strategy-oriented approach to understanding consumers' motivations in driving the adoption of EVs. The study, in this context, sheds light on the nonlinear and context-dependent nature of sustainable adoption

behaviours in emerging markets like India. From a practical point of view, the results offer important implications for firms, policymakers, and entrepreneurs. Firms must consider the importance of cost competitiveness and align their offerings with infrastructure readiness, while policymakers should consider infrastructure development and alignment of incentives. The study, in this context, sheds light on the role of sustainable entrepreneurship in utilizing consumers' demand patterns to identify and develop new market opportunities. While the study's contribution is recognized, the limitation is also acknowledged as the study is cross-sectional in nature, focusing on the geographical location of Mumbai. The study can be further taken forward by conducting longitudinal studies on the subject, comparing the adoption process in different cities.

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