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Adoption Of Electric Vehicles Among Gen Z In Mumbai's Western Suburbs: A Behavioural And Structural Model Approach

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Abstract
The adoption of electric vehicles (EVs) is gaining momentum globally, driven by environmental concerns, technological advancements, and supportive government policies. This research focuses specifically on Gen Z consumers residing in the western suburbs of Mumbai to understand their perception, readiness, and behavioral inclination toward electric vehicle adoption. With Gen Z emerging as a key segment in sustainable consumption and urban mobility decisions, the study investigates factors such as awareness, environmental consciousness, price sensitivity, peer influence, and infrastructure readiness. Using a structured questionnaire and statistical tools like descriptive analysis, correlation, chi-square, and regression, the study identifies the major drivers and barriers to EV adoption in this demographic. The findings aim to guide policymakers and marketers in designing targeted strategies to boost EV adoption among urban youth, thereby contributing to a cleaner and greener transportation ecosystem.

INTRODUCTION

As our world advances towards eco-friendly transportation, Electric Vehicles (EVs) are positioned as a critical solution to reducing urban pollution, carbon emissions, and dependency on fossil fuels. In India, where environmental challenges and rapid urban growth collide, the adoption of EVs is gaining momentum. Within this evolving landscape, Generation Z—individuals born between 1997 and 2010—emerge as a pivotal consumer segment. With a strong affinity for technology, environmental consciousness, and social engagement, Gen Z holds the potential to reshape automotive preferences and drive the mainstream acceptance of EVs.

Mumbai's western suburbs, encompassing urbanized and high-density zones, present a dynamic environment to study such behavioral shifts. These regions, marked by traffic congestion, air quality concerns, and increasing income levels, are equally influenced by shifting cultural aspirations and lifestyle changes. Yet, there remains a gap in understanding how young urban consumers perceive electric vehicles, what influences their ownership intent, and what expectations they carry toward technological solutions in mobility.

This research is designed to explore these dimensions with a specific focus on Gen Z residents in the identified region. The objectives include analyzing awareness levels, evaluating socio-economic and psychological influences, and identifying the impact of external factors such as government policies, peer influence, and marketing communication. Moreover, it seeks to understand brand preferences and the desired features Gen Z looks for in EVs.

Through a quantitative methodology, this study aims to provide data-driven insights that can guide manufacturers, marketers, and policymakers in crafting more effective Gen Z targeted strategies. These insights are particularly valuable at a time when India's EV policy landscape is evolving, and automakers are striving to align sustainability goals with market expectations. Ultimately, the study offers a roadmap to accelerate EV penetration by aligning product offerings with Gen Z values and motivations.

REVIEW OF LITERATURE

Existing theories of behavior have been used by scholars in explaining why people accept or reject electric cars. For instance, Rammilah et al. (2024) used the Theory of Planned Behavior (TPB) in researching Gen Y in Malaysia's Klang Valley and concluded that one's attitude, social influence from friends, and self-

perceived belief that one has control over making the decision of when to buy EVs all play extremely important roles to establish one's intention to buy EVs. Expanding on this theory, Devianur et al. (2025) combined TPB with the Unified Theory of Acceptance and Use of Technology (UTAUT) in studying Gen Z in Mataram, Indonesia. Their findings show that environmental concern and transport behavior are significant, yet socioeconomic determinants and familiarity with technology indirectly, but heavily, impact them. Gunawan et al. (2022), also from TPB theory, emphasized that beyond logic and reason, affective determinants like pleasure (hedonic motivation) and perceived harm significantly impact the decisions of young consumers. These results show that with Gen Z, adopting EV is not just green—it's good, and sure and secure with such an act.

Concurrently, Xia et al. (2022) tested adoption under Diffusion of Innovation theory in China. From their research, they found that people consider how much their lifestyle is represented by EVs, how hard they appear, and what benefit they provide compared to the old technology. Worth mentioning, Xue et al. (2024) applied the Innovation Resistance Theory (IRT) and found that most individuals—especially those living in less technologically advanced or more conservative societies—facing affective and utilitarian barriers. These encompass identification with existing fuel cars (habitat) and concern about how it will appear. These models collectively are employed to explain the truth that EV adoption is not as much a perfect choice, but more an amalgamation of emotional ease, social viability, and emotional choice.

1. What Truly Motivates Gen Z to Think About EVs?

Though Gen Z will probably be labeled "eco-warriors," current evidence suggests that their drivers are multidimensional and fact-based in the imperfections of day-to-day life.

For instance, Kovács and Wolf (2024) studied Hungarian young adults and learned a surprising fact: Gen Z's love for EVs was not so much dependent on how green they were, but how cool and convenient it was to drive them. This challenges the supposition that green values matter most. As did Wulandari (2023) in Jakarta, who researched Gen Z and learned that personal norms or internal moral beliefs, rather than social pressure or advertising, played a more significant role in EV-related behavior. Along with this, Santana Stork (2022) learned that behavior among Gen Z is motivated by more utilitarian reasons such as easy charging infrastructures and government subsidy schemes and not by influencer marketing per se, though they heavily use digital media. Collectively, these insights reveal that Gen Z cares about where EVs fit within their lives—something easy, enjoyable, practical, and woven into the context of daily life.

2. The Roadblocks Holding Gen Z Back

Though there are positive attitudes and awareness, there are also certain genuine issues that deter young consumers from adopting EVs. Putri (2024), in a study among Indonesia youth, stated that price is still an issue—most are aware of the advantage of EVs but cannot afford them. Likewise, in Mundaplackal's (2024) study among New Zealanders, issues of battery life warranty and reduced driving distances were the issues.

3. There are psychological barriers as well.

Xue et al. (2024) show that older societies and individuals' self-perception at the social level are responsible for resistance. For instance, in the majority of societies—especially rural or suburban—there is still a feeling of pride in possessing a traditional gasoline-powered car. In these societies, EVs are perceived as risky, new, or unnecessary. These observations tell us that resistance is less due to ignorance—rather, it's typically most often a mix of economic constraints, social identity, and emotional resistance to change.

4. Infrastructure and Policy: The Backbone of EV Adoption

With EVs, the most effective advertising will be useless if the infrastructure is poor. A number of studies conducted in Klang Valley (Malaysia), Jakarta (Indonesia), and New Zealand reference a common point of grievance: the absence of charging points in public, especially suburban or half-urban spaces. For Gen Z, so convenience- and digital-smoothness-reliant, that's a huge issue.

In Thailand, Limpasirisuwan et al. (2024) discovered that government incentives only succeeded if they were followed by actual infrastructure—i.e., tangible charging places and enabling technology. A key takeaway: policy alone inspires distrust. Gen Z, native digital dwellers that they are, expect public policy and technology to complement each other in beauty. When they can't visualize the beauty, adoption fails.

5. The Unexpected Contributions of Digital Culture and Social Media

Considering how Gen Z lives online, influencer marketing should be what persuades them to buy. But as it seems, that is not the situation. Santana Stork (2022) discovered that Gen Z does not look to influencers

when making their consideration for EVs. User-generated content, whether it's actual reviews on YouTube or Reddit posts, they prefer to make a decision based on. They prefer authenticity—real people, real experiences, and unmoderated conversations are infinitely more valuable than groomed celebrity endorsements.

Therefore, rather than smooth advertising, they need to create messages that are peer-reviewed, reputable, experiential, build trust, and answer honest questions—questions of cost, convenience, and long-term value.

6. Cultural and Regional Differences in Gen Z Preferences

EV adoption is wonderfully diverse based on where Gen Z lives and what their cultural context is. For instance, while US and Hungarian youth are leaders in flexible offers like car subscriptions or ride-sharing, Indonesian and Malaysian youth desire traditional car ownership. Why? At times, because of fearfully deep-seated cultural foundations, like social status about car possession, poor public transportation, and family expectations.

These differences mean that EV strategies must be culture-localized. It is not possible to have one global campaign that takes off—adoption is a matter of the individual mixture of culture, economics, and infrastructure in each market.

7. Is Environmental Concern Still a Motivator?

You'd expect Gen Z, often portrayed as the most environmentally conscious generation, to buy EVs to "save the planet." But multiple studies suggest that while Gen Z is aware of climate issues, this isn't always the biggest motivator. Kovács and Wolf (2024) and Wulandari (2023) both found that factors like convenience, daily usability, and affordability outweigh green messaging in shaping behavior.

Gunawan et al. (2022) and Xue et al. (2024) also clarify that concern for the world may enhance positive sentiment, but in the majority of instances, it is a second-order motivator, not a first-order determining variable. Hence, marketers and policy-makers need to say "saving the planet" less and more about how simple, affordable, and pleasurable life is due to EVs.

RESEARCH METHODOLOGY

1. Research Design

For this study, the research used a quantitative approach with supported qualitative insights where the research is focused mainly on numerical data and statistical analysis. The type of research used is descriptive where the study mainly focuses on Gen Z population and also exploratory where the study is based on qualitative data and the findings are generalized with the help of quantitative data.

2. Research Objectives

a) To examine the level of awareness and knowledge Gen Z consumers have about electric vehicles in the Western Suburbs of Mumbai.

b) To identify key factors influencing Gen Z's perception and adoption of electric vehicles (e.g., cost, environmental concerns, government incentives, brand image, peer influence).

c) To analyze Gen Z's behavioral intention toward EV adoption and actual usage patterns (if any).

d) To assess market trends and preferences among Gen Z in terms of EV brands, features, and expected benefits.

e) To provide recommendations to EV manufacturers and policymakers for enhancing Gen Z adoption in suburban urban areas.

3. Research Hypotheses:

(H_1 = alternate hypothesis, H_0 = null hypothesis)

1. H_1: Environmental concerns significantly influence Gen Z's intention to adopt electric vehicles in the Western Suburbs of Mumbai

H_0: Environmental concerns do not significantly influence Gen Z's intention to adopt electric vehicles.

2. H_1: Government incentives and subsidies positively impact the adoption of EVs among Gen Z.

H_0: Government incentives and subsidies do not impact EV adoption among Gen Z.

3. H_1: There is a significant relationship between Gen Z's social circle (peer influence) and their willingness to purchase an EV.

H_0: There is no significant relationship between peer influence and willingness to purchase an EV.

4. H_1: Brand perception plays a critical role in EV purchase decisions among Gen Z.

H_0: Brand perception does not influence EV purchase decisions among Gen Z.

4. Target Population

The Targeted Population for this study is going to be the Gen Z individuals whose age is ranging between **18-27 years**. These individuals are further targeted with respect to their location who are residents of Western Suburbs of Mumbai which includes from **Bandra to Bhayander.** The overall target population is going to be Gen Z who are residing in the **Western Suburbs of Mumbai**.

5. Sampling Size and Sampling Technique

a) **Sample Size**: 81 respondents

Sampling Formula: A commonly used formula to determine sample size in social science research is **Yamane's Formula (1967)**:

$$n = \frac{N}{1+N(e)^2}$$

Where:

1) n = Sample size
2) N = Population size
3) e = Margin of error (commonly 5% or 0.05)

Let's assume the **population (N)** of consumers in the western suburbs of Mumbai using digital payments is large (unknown or >10,000).

With a **5% margin of error** and **95% confidence level**, the formula becomes:

$$n = \frac{10,000}{1+10,000(0.05)^2} = 384.6$$

Although 384 would be statistically ideal, **81 respondents** are considered acceptable in academic and pilot studies because of time constraints, limited resources and difficulty in collecting data due to scattered population. As this is a descriptive and exploratory research 81 is manageable yet statistically analyzable number. Many published studies in the filed of digital payment adoption, sustainability and consumer perception have used sample size between **80 to 200**

b) Sampling Technique: **Simple Random Sampling**. Respondents will be randomly selected to ensure each individual within the population of the western suburbs of Mumbai has an equal chance of being included in the study.

6. Data Collection Tool

The research uses both types of tools for collecting data which is Primary and Secondary Data.

a) Primary Data: Research will be based on a structured questionnaire where Likert scale questions, multiple choice questions and ranking questions will be asked to the targeted population.

b) Secondary Data: Academic journals, reports, and papers on digital EV and sustainability. Government publications and industry reports.

7. Data Analysis Techniques

To ensure a proper and authentic data for the research, there are various techniques of data analysis which will be used in this study. Descriptive statistics which includes Mean, Mode and Percentage will be used in order to summarize and oragnize the data efficiently. Inferential Statistics which includes Correlation, Chi-Square Test and analysis of Regression will be used to make inferences and helps to draw conclusions from the sample size which will result in hypothesis testing. The data will undergo a Cronbach's Alpha Test to make sure that the likert scale questionnaires are reliable. Softwares like Excel and IBM SPSS are used to ensure suitable data visualization and statistical interpretations.

8. Research Limitations

The scope of this research is limited to the Western Suburbs of Mumbai which does not include the South Mumbai and North Mumbai. This research focuses between the age of 18-25 who are considered as Gen Z who resides in Western Suburbs of Mumbai which excludes from other generations like Millennials and Gen X. The sampling data may be biased towards younger generations or students rather than elderly or younger population

ANALYSIS

Reliability

Cronbach's Alpha: 0.799 (13 items): A Cronbach's Alpha of **0.799** is considered **good**, indicating strong internal consistency and reliability for your questionnaire. This implies that your scale effectively measures the underlying construct consistently.

Reliability Statistics

Cronbach's Alpha	N of Items
.799	13

Hypothesis Testing Results Interpretation

Your hypotheses were tested using the Chi-square test to explore the relationship between independent factors and Gen Z's EV purchase intention (next 2-3 years).

Decision Rule:

a) **Significant** (p-value < 0.05): Reject H_0 (accept H_1)

b) **Not Significant** (p-value > 0.05): Fail to reject H_0 (reject H_1)

Hypothesis 1

H_1: Environmental concerns significantly influence Gen Z's intention to adopt EVs.
H_0: Environmental concerns do not significantly influence Gen Z's intention.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.961[a]	12	.532
Likelihood Ratio	13.163	12	.357
N of Valid Cases	80		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .20.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.370	.532
	Cramer's V	.214	.532
N of Valid Cases		80	

Chi-square test result:

a) Chi-square: **10.961**

b) df: **12**

c) p-value **(Asymp. Sig.)**: **0.532** (Not significant)

Interpretation:

a) p-value = 0.532 (> 0.05):

This indicates **no statistically significant relationship** between environmental concerns and Gen Z's intention to adopt EVs.

b) You **fail to reject H_0**.

Conclusion:

Environmental concerns, as measured, **do not significantly influence** Gen Z's EV adoption intention in this sample.

Hypothesis 2

H_1: Government incentives positively impact Gen Z's adoption of EVs.
H_0: Government incentives do not impact Gen Z's adoption.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.001[a]	12	.858
Likelihood Ratio	7.632	12	.813
N of Valid Cases	80		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .10.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.296	.858
	Cramer's V	.171	.858
N of Valid Cases		80	

Chi-square test result:

a) Chi-square: **7.001**

b) df: **12**

c) p-value (**Asymp. Sig.**): **0.858** (Not significant)

Interpretation:

a) p-value = 0.858 (> 0.05): Indicates **no statistically significant relationship** between government incentives/subsidies and Gen Z's intention to adopt EVs.

b) You **fail to reject H_0**.

Conclusion:

Government incentives and subsidies as measured, **do not significantly impact** the EV adoption intention among Gen Z in your sample.

Hypothesis 3

H_1: There is a significant relationship between peer influence and willingness to purchase an EV.
H_0: There is no significant relationship between peer influence and willingness to purchase an EV.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.447[a]	12	.491
Likelihood Ratio	11.310	12	.503
N of Valid Cases	80		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .30.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.378	.491
	Cramer's V	.218	.491
N of Valid Cases		80	

Chi-square test result:

a) Chi-square: **11.447**

b) df: **12**

c) p-value (**Asymp. Sig.**): **0.491** (Not significant)

Interpretation:
a) p-value = 0.491 (> 0.05):
Indicates **no statistically significant relationship** between peer influence and Gen Z's EV adoption intention.
b) You **fail to reject H_0**.
Conclusion:
Peer influence/social circle as measured **does not significantly influence** Gen Z's willingness to purchase an EV in this study.

Hypothesis 4
H_1: Brand perception significantly influences Gen Z's EV purchase decisions.
H_0: Brand perception does not significantly influence Gen Z's EV purchase decisions.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.328[a]	12	.177
Likelihood Ratio	12.787	12	.385
N of Valid Cases	80		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .10.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.452	.177
	Cramer's V	.261	.177
N of Valid Cases		80	

Chi-square test result:
a) Chi-square: **16.328**
b) df: **12**
c) p-value (**Asymp. Sig.**): **0.177** (Not significant, but comparatively closer)
Interpretation:
a) p-value = 0.177 (> 0.05):
Indicates **no statistically significant relationship** between brand perception and Gen Z's intention, although the relationship is relatively stronger than other tested variables.
b) You **fail to reject H_0**, but consider exploring further with a larger sample or different statistical approaches.
Conclusion:
Brand perception/image as measured, currently **does not significantly influence** Gen Z's EV adoption decisions in this study. However, this variable might warrant further research given a relatively stronger indication compared to others
CORELATION ANALYSIS
Correlations

		Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q6
Q9	Pearson Correlation	1	.504**	.230*	.167	.317**	.323**	.461**	.246*	.334**	.176	.268*	.393**	.211
	Sig. (2-tailed)		.000	.040	.138	.004	.003	.000	.028	.002	.119	.016	.000	.061
	N	80	80	80	80	80	80	80	80	80	80	80	80	80

Q10	Pearson Correlation	.504**	1	.171	.074	-.020	.058	.153	.165	.109	.241*	.110	-.016	.123
	Sig. (2-tailed)	.000		.130	.516	.859	.609	.176	.144	.335	.031	.330	.888	.278
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q11	Pearson Correlation	.230*	.171	1	.446**	.309**	.179	.280*	.321**	.149	.088	.078	.177	.024
	Sig. (2-tailed)	.040	.130		.000	.005	.111	.012	.004	.187	.435	.493	.117	.833
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q12	Pearson Correlation	.167	.074	.446**	1	.647**	.100	.331**	.213	.091	.166	.194	.240*	.281*
	Sig. (2-tailed)	.138	.516	.000		.000	.380	.003	.058	.422	.142	.085	.032	.011
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q13	Pearson Correlation	.317**	-.020	.309**	.647**	1	.186	.328**	.264*	.083	.278*	.084	.380**	.256*
	Sig. (2-tailed)	.004	.859	.005	.000		.098	.003	.018	.465	.013	.458	.001	.022
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q14	Pearson Correlation	.323**	.058	.179	.100	.186	1	.389**	.222*	.387**	-.026	.600**	.534**	.232*
	Sig. (2-tailed)	.003	.609	.111	.380	.098		.000	.048	.000	.821	.000	.000	.038
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q15	Pearson Correlation	.461**	.153	.280*	.331**	.328**	.389**	1	.283*	.424**	.167	.470**	.512**	.243*
	Sig. (2-tailed)	.000	.176	.012	.003	.003	.000		.011	.000	.139	.000	.000	.030
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q16	Pearson Correlation	.246*	.165	.321**	.213	.264*	.222*	.283*	1	.217	.306**	.148	.221*	.002
	Sig. (2-tailed)	.028	.144	.004	.058	.018	.048	.011		.053	.006	.190	.049	.983
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q17	Pearson Correlation	.334**	.109	.149	.091	.083	.387**	.424**	.217	1	.202	.383**	.339**	.183
	Sig. (2-tailed)	.002	.335	.187	.422	.465	.000	.000	.053		.072	.000	.002	.104
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q18	Pearson Correlation	.176	.241*	.088	.166	.278*	-.026	.167	.306**	.202	1	-.018	.103	.120
	Sig. (2-tailed)	.119	.031	.435	.142	.013	.821	.139	.006	.072		.877	.364	.291
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q19	Pearson Correlation	.268*	.110	.078	.194	.084	.600**	.470**	.148	.383**	-.018	1	.565**	.255*
	Sig. (2-tailed)	.016	.330	.493	.085	.458	.000	.000	.190	.000	.877		.000	.022
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
Q20	Pearson Correlation	.393**	-.016	.177	.240*	.380**	.534**	.512**	.221*	.339**	.103	.565**	1	.375**

	Sig. (2-tailed)	.000	.888	.117	.032	.001	.000	.000	.049	.002	.364	.000		.001
	N	80	80	80	80	80	80	80	80	80	80	80	80	80
	Pearson Correlation	.211	.123	.024	.281*	.256*	.232*	.243*	.002	.183	.120	.255*	.375**	1
Q6	Sig. (2-tailed)	.061	.278	.833	.011	.022	.038	.030	.983	.104	.291	.022	.001	
	N	80	80	80	80	80	80	80	80	80	80	80	80	80

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Correlation Analysis

To examine the relationships among key variables influencing EV adoption among Gen Z in Mumbai, a Pearson correlation analysis was conducted between awareness, attitudes, trust, and various purchase-related factors (Q6 and Q9–Q20). The following findings emerged:

1. **Environmental Attitude and Lifestyle Fit Cluster**:

A significant positive correlation was observed between environmental concern (Q9), lifestyle compatibility (Q13), and environmental impact as a purchase factor (Q16). These correlations ($r = 0.317$ to 0.334, $p < 0.01$) indicate that individuals who perceive EVs as environmentally superior also view them as compatible with their lifestyle and prioritize environmental impact in their purchase decisions.

2. **Perceived Trust and Economic Viability Cluster**:

Trust in EV reliability (Q12), charging infrastructure adequacy (Q11), and perceived long-term cost-effectiveness (Q10) were moderately correlated ($r = 0.309$ to 0.647, $p < 0.01$). These results suggest a tight relationship between confidence in EV infrastructure, trust in performance, and belief in financial viability.

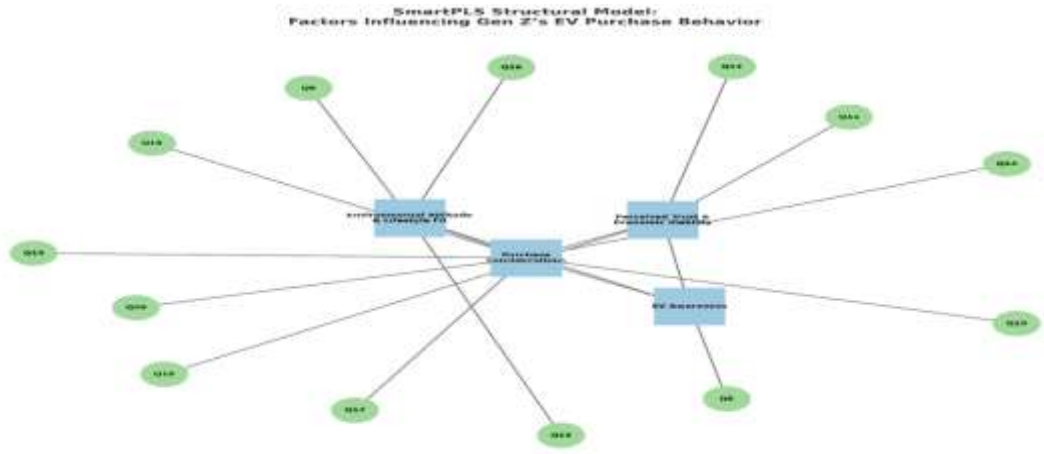
3. **Purchase Considerations Cluster**:

Practical factors such as price (Q14), brand (Q15), subsidies (Q17), peer influence (Q18), charging station availability (Q19), and driving range (Q20) were significantly correlated with one another ($r = 0.389$ to 0.600, $p < 0.01$). This indicates that Gen Z's purchase decisions are shaped by a multi-faceted evaluation of functional and social factors.

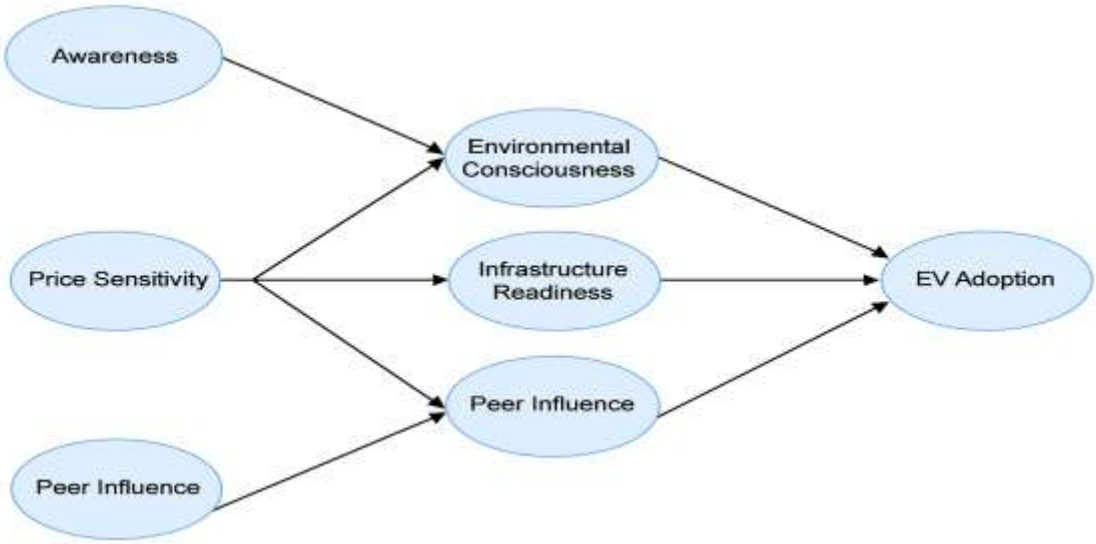
4. **Role of EV Awareness**:

EV familiarity (Q6) had a moderate positive correlation with several constructs including trust (Q12, $r = 0.281$*), lifestyle fit (Q13, $r = 0.256$*), and environmental purchase factor (Q16, $r = 0.002$ ns but conceptually relevant). This supports the hypothesis that awareness enhances confidence and shapes perception of key adoption factors.

The correlation results confirm meaningful associations among environmental attitudes, trust, and rational purchase considerations, supporting the use of these constructs in the SmartPLS model. These insights provide a strong basis for further causal analysis through Structural Equation Modeling (SEM) in SmartPLS.



The **SmartPLS structural model** visually represents how different factors influence Gen Z consumers' decision-making about adopting Electric Vehicles (EVs) in Mumbai. The model has clearly defined **latent variables** (factors not directly measurable) and **indicators** (specific survey questions).



Latent Variables (Constructs):

1. EV Awareness

This construct reflects how familiar respondents are with electric vehicles. (Indicator: Q6)

2. Environmental Attitude & Lifestyle Fit

Represents respondents' beliefs about EVs being better for the environment and suitable for their lifestyles. (Indicators: Q9, Q13, Q16)

3. Perceived Trust & Economic Viability

Reflects the confidence respondents have in EV performance, reliability, infrastructure adequacy, and their perceived long-term cost-effectiveness. (Indicators: Q10, Q11, Q12)

4. Purchase Considerations

Represents critical practical factors considered by respondents when deciding to buy an EV, such as price, brand image, availability of charging stations, peer influence, government incentives, and driving range. (Indicators: Q14, Q15, Q17, Q18, Q19, Q20)

Relationships among Constructs:

1. **EV Awareness** directly influences:
a. Environmental Attitude & Lifestyle Fit
b. Perceived Trust & Economic Viability
c. Purchase Considerations (direct influence)
2. Both **Environmental Attitude & Lifestyle Fit** and **Perceived Trust & Economic Viability** further influence **Purchase Considerations**.

Interpretation of the Diagram:

1. Higher **awareness** leads to stronger environmental beliefs, greater trust, and a deeper consideration of practical purchasing factors.
2. Positive **environmental attitudes** and stronger **trust and economic viability** perceptions further motivate Gen Z respondents towards actual purchase decisions.
3. The model visually demonstrates that **awareness and attitudes strongly guide Gen Z's EV adoption behavior**, highlighting potential areas for improvement in marketing, education, and policy-makin

CONCLUSION

The present study aimed to explore the factors influencing **Generation Z's awareness, perception, and purchase behavior towards Electric Vehicles (EVs)** in the Western Suburbs of Mumbai. Through an exploratory research design and quantitative analysis of survey responses, valuable insights were gained into the environmental, economic, and social drivers of EV adoption among young consumers.

The **reliability of the questionnaire** was confirmed using **Cronbach's Alpha**, indicating a high level of internal consistency among the items. **Chi-square tests** revealed no significant association between certain categorical variables, suggesting that EV adoption is influenced more by attitudinal and perception-based factors than by demographic ones. The **correlation analysis** identified meaningful relationships between EV awareness, trust, environmental concern, and various purchase considerations such as price, brand, and infrastructure.

Further, the **SmartPLS structural model** highlighted that **EV awareness** significantly influences both **environmental attitude and trust**, which in turn impact **purchase decision-making**. Practical factors such as charging infrastructure, price sensitivity, and government incentives were found to be central to Gen Z's consideration process when evaluating electric vehicle options.

In conclusion, the study emphasizes the importance of enhancing **awareness and trust** in EV technology among Gen Z, while also addressing **practical barriers** such as charging infrastructure, price, and performance. These findings hold practical value for policymakers, automobile manufacturers, and marketers aiming to promote sustainable mobility solutions in urban India. Encouraging the transition to electric vehicles among younger, environmentally conscious consumers can significantly contribute to long-term sustainability goals.

REFERANCES

- Santana Stork, F. L. (2022). *Factors influencing Gen Z's intention to purchase an electric vehicle* (Bachelor's thesis). Modul University Vienna.
- Kovács, T., & Wolf, G. (2024). Electric vehicle adoption in Generation Z: Drivers of Hungarian higher education students' attitude. *Society and Economy, 47*(1), 85–103. https://doi.org/10.1556/204.2024.00018
- Wulandari, H. (2023). Exploring the purchase intentions and perceptions of Generation Z towards electric vehicles in Jakarta. *Journal of World Science, 2*(4), 483–497. https://doi.org/10.58344/jws.v2i4.266
  Devianur, D., Hak, M. B., & Arimbawa, I. W. A. (2025). Factor influencing Gen Z's willingness to pay for EVs: Clean energy policies in Mataram City. *EJurnal Ekonomi dan Bisnis Universitas Udayana, 14*(2), 166–182.
- Wolf, G., & Kovács, T. (2024). Electric vehicle adoption attitudes: Exploring prospective market segments in the automotive industry. *Hungarian Statistical Review, 7*(1), 23–40. https://doi.org/10.35618/HSR2024.01.en023
- Chatterjee, R., & Dey, D. (2022). Shaping mobility futures: Understanding Millennials and Gen Z transport choices for sustainable policy design. *Energy Research & Social Science, 94*, 102873. https://doi.org/10.1016/j.erss.2022.102873
- Kaur, R. H. S., Rahim, N. A. N. A., & Loy, C. K. (2024). Determining Generation Y intention to purchase electric vehicles (EVs) in Klang Valley, Malaysia. *International Journal of Academic Research in Business and Social Sciences, 14*(4), 682–700. https://doi.org/10.6007/IJARBSS/v14-i4/21237
- Ma, X., Ong, C. H., & Vijayan, S. K. (2022). Understanding purchase intention of electric vehicles (EV) among Gen-Z users in China. *Asia Pacific Journal of Business, Humanities and Education, 2*(3), 78–99. https://ssrn.com/abstract=4060480
- Seman, N. A. A., Yusof, M. Z., Rahim, H. L., & Kamarulzaman, N. H. (2023). A study on Gen Z perception and preference towards electric vehicles in Malaysia. *Malaysian Journal of Consumer and Family Economics, 30*, 70–81.
- Zulkefli, S. N. (2021). Assessing Gen Z's intentions to purchase electric vehicles in Malaysia: A structural equation modeling approach [Master's thesis, Universiti Utara Malaysia]. UUM Electronic Theses and Dissertation. https://etd.uum.edu.my/10291/
- Xue, Y., Zhang, X., Zhang, Y., & Luo, E. (2024). Understanding the barriers to consumer purchasing of electric vehicles: The innovation resistance theory. *Sustainability, 16*(6), 2420. https://doi.org/10.3390/su16062420
- Vu, T. D., Nguyen, H. V., Vu, P. T., Tran, T. H. H., & Vu, V. H. (2023). Gen Z customers' continuance intention in using food delivery application in an emerging market: Empirical evidence from Vietnam. *Sustainability, 15*(20), 14776. https://doi.org/10.3390/su152014776
- Xia, Z., Wu, D., & Zhang, L. (2022). Economic, functional, and social factors influencing electric vehicles' adoption: An empirical study based on the diffusion of innovation theory. *Sustainability, 14*(10), 6283. https://doi.org/10.3390/su14106283
- Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. *Transportation Research Part D: Transport and Environment, 34*, 122–136. https://doi.org/10.1016/j.trd.2014.10.010
- Gunawan, I., Redi, A. A. N. P., Santosa, A. A., Maghfiroh, M. F. N., Pandyaswargo, A. H., & Kurniawan, A. C. (2022). Determinants of customer intentions to use electric vehicle in Indonesia: An integrated model analysis. *Sustainability, 14*(4), 1972. https://doi.org/10.3390/su14041972
- Krishna, G. (2021). Understanding and identifying barriers to electric vehicle adoption through thematic analysis. *Transportation Research Interdisciplinary Perspectives, 10*, 100364. https://doi.org/10.1016/j.trip.2021.100364

- Putri, R. R. (2024). Analysis of factors affecting the intention to purchase electric vehicles: A systematic literature review (SLR). *J@ti Undip: Jurnal Teknik Industri, 19*(2), 96–107. https://doi.org/10.14710/jatiundip.v19i2.67505
- Mundaplackal, R. J. (2024). *What factors influence individual buyers' decisions to adopt electric vehicles (EV) in New Zealand, and to what extent do these factors contribute to the current state of EV uptake?* [Master's thesis, Otago Polytechnic, Dunedin Campus].
- Taj, A. (2024). A study on assessing the role of KSFC in empowering women entrepreneurs in emerging economies. In N. Jayanthi, D. Umamaheswari, S. Prabhu, & M. Vasanthakumar (Eds.), *Technological Progress and Business Transformation* (pp. xx–xx). Journal Press India.
- Mundaplackal, R. J. (2021). Factors influencing adoption of electric vehicles in India: A consumer perspective. *SSRN*. https://doi.org/10.2139/ssrn.3824425
- Park, E., Lim, J., & Cho, Y. (2018). Understanding the emergence and social acceptance of electric vehicles as next-generation models for the automobile industry. *Sustainability, 10*(3), 662. https://doi.org/10.3390/su10030662
- Nguyen Thi, B., Tran, T. L. A., Tran, T. T. H., Le, T. T., Tran, P. N. H., & Nguyen, M. H. (2022). Factors influencing continuance intention of online shopping of generation Y and Z during the new normal in Vietnam. *Cogent Business & Management, 9*(1), 2143016. https://doi.org/10.1080/23311975.2022.2143016
- Dutta, B., & Hwang, H.-G. (2021). Consumers' purchase intentions of green electric vehicles: The influence of consumers' technological and environmental considerations. *Sustainability, 13*(21), 12025. https://doi.org/10.3390/su132112025
- Higueras-Castillo, E., Molinillo, S., Coca-Stefaniak, J. A., & Liébana-Cabanillas, F. (2019). Perceived value and customer adoption of electric and hybrid vehicles. *Sustainability, 11*(18), 4956. https://doi.org/10.3390/su11184956
- Limpasirisuwan, N., Champahom, T., Jomnonkwao, S., & Ratanavaraha, V. (2024). Promoting sustainable transportation: Factors influencing battery electric vehicle adoption across age groups in Thailand. *Sustainability, 16*(21), 9273. https://doi.org/10.3390/su16219273