

# Impact of Digital Marketing on the Preference to Purchase Electric Vehicles in Chhattisgarh

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## Abstract

*This study investigates the impact of digital marketing on consumer preferences for purchasing electric vehicles (EVs) in Chhattisgarh, India. Focusing on how online marketing initiatives influence buyer behavior, the research aims to understand the role of digital campaigns—such as social media promotions, online advertisements, and sponsored content—in increasing consumer awareness about the environmental and economic advantages of EVs. The study also explores key factors affecting consumer responses, including environmental attitudes, perceptions of long-term value, future-oriented thinking, and the influence of government incentives. A structured survey was conducted among 385 electric vehicle users across Chhattisgarh. The data collected was analyzed using structural equation modeling via AMOS software. Findings indicate a strong correlation between exposure to digital marketing and heightened awareness, which positively influences the decision to purchase electric vehicles. The results emphasize that digital marketing is a powerful tool in encouraging EV adoption by effectively communicating their benefits and aligning with consumers' sustainability goals. This research provides valuable insights for marketers, policymakers, and automotive firms looking to boost electric vehicle sales in emerging markets through targeted digital strategies tailored to consumer expectations and environmental priorities.*

**Keywords** – Digital marketing; consumer awareness; advertising campaigns; environmental attitude; future orientations

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## INTRODUCTION

The automotive industry today is among the most advanced and rapidly evolving sectors. With a growing global focus on sustainability and environmental consciousness, electric vehicles (EVs) are gaining widespread popularity. A central concern in this shift is understanding the driving forces behind changing consumer behavior. In this regard, studying how digital marketing influences consumers' willingness to adopt EVs becomes highly relevant. Prior research suggests that digital marketing—including social media, email campaigns, targeted advertisements, and dedicated websites—can significantly shape consumer choices. However, a more focused examination is needed to explore the specific impact of these tools on consumer behavior.

The concept of consumption based on alternative energy sources (Ozaki and Sevastyanova, 2011) has garnered significant attention in recent years. With the rise in environmental awareness and the need to reduce carbon emissions, electric vehicles (EVs) have emerged as a key solution and are gradually establishing their presence in new and developing markets. Business leaders are adopting innovative strategies to promote the usage and adoption of electric vehicles (Silaen and Windasari, 2022). In this context, digital marketing has become a powerful tool for reaching and engaging potential consumers, particularly before entering untapped markets. Consequently, consumer purchasing behavior has started to shift in response to increased exposure to digital content and awareness campaigns (Lodhi and Shoailb, 2017). Crafting diverse marketing strategies based on pivotal factors—such as environmental consciousness, innovation, and emission reduction—has become essential for influencing consumer preferences (Stephen, 2016).

Marketers now rely heavily on digital networks to promote products and services through platforms such as websites, social media, mobile applications, emails, and online communities (Dahiya and Gayatri, 2018). The Indian automobile industry, especially in emerging states like Chhattisgarh, is witnessing increased digital engagement and optimism regarding the role of digital marketing in boosting awareness about electric vehicles (Charan and Dahiya, 2015). Social media, in particular, significantly shapes consumer decision-making, making digital marketing not just a promotional tool, but also a vital communication channel (Albarq, 2022). It helps companies showcase their offerings, build customer loyalty, reduce marketing costs, and improve return on investment. As firms transition from traditional

to digital marketing approaches, they benefit from broader reach and cost-effectiveness (Alanmi and Alharthi, 2023; Al-Haraizah et al., 2020). The convenience and efficiency of digital platforms have made online shopping preferable over conventional methods, further strengthening the case for digital outreach (Al-Azzam and Al-Mizeed, 2021).

This research aims to explore the relationship between digital marketing campaigns and consumers' preference for purchasing electric vehicles in Chhattisgarh. It focuses on how digital marketing can enhance consumer awareness and influence purchase decisions. The study uses structured questionnaires to collect data from current and potential EV users in Chhattisgarh, and applies advanced statistical tools, including structural equation modeling, for data analysis. The goal is to provide insights into the effectiveness of digital marketing strategies in promoting electric vehicles and to offer a strategic framework that car manufacturers can use to refine their marketing efforts in a rapidly evolving market landscape.

The findings of this study are expected to serve as a valuable guide for automobile manufacturers, marketers, and policy planners by delivering practical recommendations to improve marketing approaches and increase electric vehicle adoption. This research also has the potential to inform industry-wide shifts towards sustainable mobility solutions and enhance consumer engagement with environmentally responsible technologies. The significance of this study lies in its timely relevance—given the rising penetration of digital technology and social media in India—and its contribution to environmental sustainability. By understanding how digital marketing and awareness influence consumer preference for electric vehicles, manufacturers can align their offerings with consumer expectations and accelerate the transition towards a greener future.

## REVIEW OF LITERATURE

A wide range of studies has explored the relationship between digital (e-) marketing and consumer behavior from different perspectives. Ellitan (2022) analyzed the fundamental characteristics of consumer behavior in the context of e-marketing, with a specific focus on consumers in Jaipur. The study found that e-marketing significantly influences purchasing decisions across demographic groups, as online shopping is widely viewed as more convenient and time-saving, with credit cards being the preferred payment mode. This study offers useful insights for enhancing the digital delivery and advertising strategies of products and services to meet long-term marketing goals. Other scholars have also examined the correlation between e-marketing and consumer behavior using advanced methodologies. Studies (Al Adwan, 2019; Wang, et al., 2016) employed Structural Equation Modeling (SEM) and Analytic Hierarchy Process (AHP) to establish a strong positive relationship between e-marketing practices and online consumer purchasing patterns.

From an environmental perspective, Dilotsotlhe (2022) investigated consumer attitudes toward eco-friendly products, particularly focusing on hybrid vehicle adoption. Based on a 2009 questionnaire study conducted in collaboration with Toyota UK, the findings showed that policy support and consumer motivation significantly shaped hybrid vehicle adoption. Similarly, Ju et al., (2021) examined Korean consumers' perceptions of hybrid vehicles and found that they were appreciated for their fuel efficiency and quiet operation, though battery reliability and safety concerns persisted.

In terms of awareness, Long et al., (2019) conducted a comparative analysis of consumer familiarity and experience with electric vehicles (EVs), revealing a surprisingly low and stagnant level of awareness. This insight suggests that insufficient awareness could hinder EV market growth and the potential for reducing environmental impact, as highlighted by Kowalska-Pyzalska et al., (2021). Furthermore, Nirmala and Dsouza (2023) explored the deterrents and motivators behind consumers transitioning from fossil fuel-based cars to electric vehicles. Their findings showed that although awareness is often cited as a key determinant in the literature, factors like fuel prices and environmental consciousness had a more statistically significant influence on consumer choices.

The current study aims to analyze how e-marketing influences consumer preferences for electric vehicles in Chhattisgarh, with awareness acting as a mediating variable. In contrast to much of the existing research that has focused on non-Indian or vehicle-producing countries, this study provides a localized perspective

within a developing region of India, contributing new insights into consumer behavior in a rapidly growing EV market.

## METHODOLOGY

This study adopts a quantitative field-based research design to examine the impact of digital marketing on consumer preference for purchasing electric vehicles (EVs) in Chhattisgarh, with consumer awareness serving as a mediating variable. The primary objective is to assess how digital marketing strategies—such as social media marketing, email promotions, and online advertisements—influence consumer awareness and ultimately shape their purchasing decisions. Data collection was conducted through a structured questionnaire distributed to 385 individuals, selected using purposive sampling. The target respondents included existing EV users and potential buyers across urban and semi-urban areas of Chhattisgarh. The questionnaire comprised four sections: demographic details, exposure to digital marketing, awareness of electric vehicles, and consumer preferences. The survey items were adapted from established studies to ensure relevance and accuracy. To ensure reliability and validity, a pilot test was conducted, and internal consistency was assessed using Cronbach's Alpha. Data analysis was performed using Structural Equation Modeling (SEM) via AMOS software to explore both direct and mediated relationships among the variables. Confirmatory Factor Analysis (CFA) was applied to validate the constructs, and bootstrapping was used to test the mediation effect of consumer awareness. This methodological approach allows for a comprehensive analysis of how digital marketing influences EV adoption by enhancing consumer awareness. The findings aim to provide valuable insights for marketers, policymakers, and manufacturers to design targeted campaigns that effectively promote electric vehicles and encourage sustainable consumer behavior.

This study is grounded in a theoretical framework that connects digital marketing with consumers' preference to purchase electric vehicles, with consumer awareness serving as a mediating variable, as depicted in Figure 1.

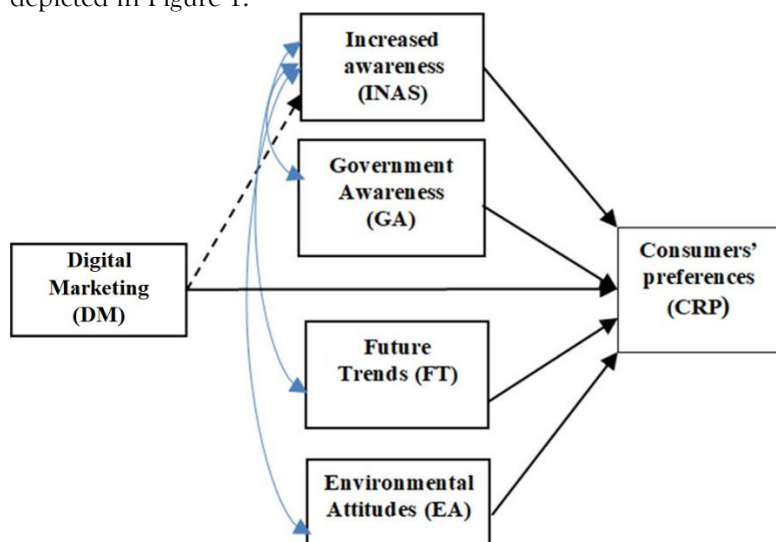


Figure 1: Conceptual framework

Based on the proposed theoretical framework, the following hypotheses are formulated to examine the relationships among digital marketing, consumer awareness, and consumer preferences for electric vehicles:

**H1:** Digital marketing has a significant positive effect on consumers' preferences for purchasing electric vehicles.

**H2:** Consumer awareness has a significant positive effect on consumers' preferences for purchasing electric vehicles.

**H3:** Consumer awareness mediates the relationship between digital marketing and consumers' preferences for purchasing electric vehicles.

## RELIABILITY

The results presented in Table 1 indicate that the reliability coefficient for each item is 0.80, surpassing the commonly accepted threshold of 0.70 (Bonett and Wright, 2015). This suggests that the instrument demonstrates satisfactory internal consistency and is suitable for use in scientific research.

Table 1: Reliability coefficient

Variable	N	Cronbach's alpha
DM	8	0.934
INAS	12	0.895
GA	4	0.807
FT	4	0.883
EA	4	0.897
CRP	8	0.883

## Analysis and Result

This section presents the statistical results derived using SPSS and AMOS software. The initial hypothesis posits that respondents' attitudes are positively aligned with the key variables under investigation. To assess this, descriptive statistics—specifically, mean values—were calculated.

Table 2: Descriptive statistics

Variable	Min	Max	Mean	St. Dev
DM	2.4	5	4.0667	0.04640
INAS	2.5	5	4.3433	0.07540
GA	2.4	5	4.5833	0.93788
FT	2.3	5	3.9468	0.84350
EA	2.9	5	4.5000	0.94387
CRP	2.0	5	4.3397	0.76804
N	385			

As shown in Table 2, the arithmetic mean for the level of importance assigned to each variable was notably high, suggesting that respondents, on average, demonstrated strong awareness of electric vehicles and their associated benefits. Additionally, the standard deviation values were generally low, indicating a high level of consensus among respondents and reflecting limited variability in their perceptions.

### H1: Digital marketing has a significant positive effect on consumers' preferences for purchasing electric vehicles.

According to the data presented in Table 3, the Pearson correlation coefficient is 0.677, which is greater than zero and indicates a moderate positive correlation (Akoglu, 2018) between digital marketing and consumers' preference for purchasing electric vehicles. This suggests that as exposure to digital marketing increases, consumer preference for electric vehicles also tends to rise.

Table 3: Correlations Between Variables

		DM	CRP
DM	Pearson correlation	1	0.677
	Sig. (2-tailed)		0.000

Table 4: Coefficients of Determination

Correlation coefficient (R)	Coefficient of determination (R <sup>2</sup> )	Adjusted coefficient of determination (R <sup>2</sup> )	Standard error
0.677	0.458	0.442	0.479

The adjusted coefficient of determination ( $R^2$ ) was calculated to be 0.442, indicating that the independent variable—digital marketing—collectively explains 44.2% of the variance in the dependent variable, which is consumers' preference for purchasing electric vehicles.

Table 5: Analysis of Variance (ANOVA)

	Sum of Squares (SS)	Mean Square (MS)	F-value	Significance level
Regression	6.422	6.422	27.902	0.000
Residual	0.23	7.595		
Total	14.016			

Analysis of Variance (ANOVA), as shown in Table 5, revealed that the estimated F-value was 27.902 with a corresponding significance level of 0.000. Since the p-value is less than the standard threshold of 0.05, the F-value is considered statistically significant. This result leads to the rejection of the null hypothesis, which posits no significant effect of digital marketing on consumers' preference for purchasing electric vehicles within the study sample. Consequently, the alternative hypothesis (H1) is accepted, confirming that digital marketing has a statistically significant impact on consumers' purchasing preferences for electric vehicles.

**H2: Consumer awareness has a significant positive effect on consumers' preferences for purchasing electric vehicles.**

The results in Table 6 indicate that the Pearson correlation coefficient between increasing awareness and consumers' preference for purchasing electric vehicles is 0.778, which reflects a strong positive correlation (Akoglu, 2018). This suggests that higher levels of awareness are associated with greater consumer preference for electric vehicles.

Table 6: Correlations Between Variables

		CRP
INAS	Pearson Correlation	0.778
	Sig. (2-tailed)	0.000
GA	Pearson Correlation	0.746
	Sig. (2-tailed)	0.000
FT	Pearson Correlation	0.823
	Sig. (2-tailed)	0.000
EA	Pearson Correlation	0.687
	Sig. (2-tailed)	0.000

Further analysis in Table 7 reveals that the adjusted coefficient of determination ( $R^2$ ) is 0.756, indicating that increasing awareness explains 75.6% of the variance in consumer preference. This substantial proportion highlights the critical role awareness plays in influencing purchase decisions.

Table 8: Coefficients of Determination

Correlation coefficient (R)	Coefficient of determination ( $R^2$ )	Adjusted coefficient of determination ( $R^2$ )	Standard error
0.778	0.758	0.756	0.443

The ANOVA results in Table 8 show that the F-value is 8.586 with a significance level of 0.000, which is below the conventional threshold of 0.05. This indicates that the model is statistically significant, leading

to the rejection of the null hypothesis. Therefore, the alternative hypothesis is accepted, confirming that increasing awareness has a significant effect on consumers' preference for electric vehicles.

Table 9: ANOVA

	Sum of Squares (SS)	Mean Square (MS)	F-value	Significance level
Regression	81.261	81.261	8.586	0.000
Residual	25.96	0.195		
Total	107.221			

Additionally, the T-test result in Table 9 shows a T-value of 2.074 and a p-value of 0.000, confirming the statistical significance of the relationship between growing awareness (GA) and consumer response preferences (CRP). This further supports the hypothesis that awareness is a key driver in shaping consumer attitudes and decisions regarding electric vehicle adoption.

Table 9: Significance of Regression Coefficients

	$\beta$	Std. err	BETA	T	SIG
C	0.431	0.449		1.103	0.000
GA	0.327	0.096	0.891	2.074	0.000
FT	0.822	0.108	0.831	9.214	0.000
EA	0.407	0.108	0.689	5.856	0.000

Similarly, the T-value for FT (Functional Traits) is 9.214, with a corresponding significance level (SIG) of 0.000, which is well below the accepted threshold of 0.05. This result confirms a statistically significant effect of functional traits on consumers' response preferences (CRP) for electric vehicles. In addition, a statistically significant relationship is also observed between EA (Environmental Awareness) and CRP. This is evidenced by a T-value of 5.856 and a SIG value of 0.000, further reinforcing the conclusion that environmental awareness plays a critical role in influencing consumer preferences for purchasing electric vehicles.

**H3: Consumer awareness mediates the relationship between digital marketing and consumers' preferences for purchasing electric vehicles.**

Table 10 presents the regression weights for the default model and discloses the following relationships:

- INAS ← DM: The estimate for this relationship is 0.846, indicating a strong positive association between the variables INAS and DM. The standard error is 0.022, and the critical ratio is 37.960, which is highly significant (\*\*\*)
- GA ← DM: The estimate for this relationship is 0.673, implying a positive association between GA and DM. The standard error is 0.035, and the critical ratio is 13.425, which is highly significant (\*\*\*)
- FT ← DM: The estimate for this relationship is 0.720, displaying a positive association between FT and DM. The standard error is 0.019, and the critical ratio is 9.032, which is highly significant (\*\*\*)
- EA ← DM: The estimate for this relationship is 0.479, showcasing a positive association between EA and DM. The standard error is 0.025, and the critical ratio is 22.681, which is highly significant (\*\*\*)
- CRP ← INAS: The estimate for this relationship is 0.688, exhibiting a positive association between CRP and INAS. The standard error is 0.022, and the critical ratio is 3.970, which is highly significant (\*\*\*)
- CRP ← DM: The estimate for this relationship is 0.328, showcasing a positive association between CRP and DM. The standard error is 0.010, and the critical ratio is 22.909, which is highly significant (\*\*\*)

Therefore, H3 is confirmed

Table 10: Regression Weights (Default Model)

			Estimate	S.E.	C.R.	P	Label
INAS	←	DM	0.846	0.022	37.960	***	par_1

GA	←	DM	0.673	0.035	13.425	***	par_5
FT	←	DM	0.720	0.019	9.032	***	par_6
EA	←	DM	0.479	0.025	22.681	***	par_2
CRP	←	INAS	0.688	0.022	3.970	***	par_3
CRP	←	EMG	0.328	0.010	22.909	***	par_4

Table 11 presents the indirect effects of various forms of e-marketing on consumers' preference for purchasing electric vehicles, mediated by increasing awareness. The results indicate that both CRP (Consumer Response Preference) and INAS (Increasing Awareness) exhibit a positive association with DM (Digital Marketing), with a p-value of 0.000, confirming that these relationships are statistically significant.

Table 11: Indirect Effects (Default Model)

	CRP	INAS	p-value
EMG	0.475	0.353	0.000

## DISCUSSION

### A. Hypothesis 1 (H1)

This hypothesis sought to examine the impact and statistical relationship between digital marketing and consumers' preferences for purchasing electric vehicles in Chhattisgarh. The results revealed a positive and statistically significant relationship between digital marketing activities and consumer purchasing preferences. This finding supports existing literature (Hamzah et al., 2022; Qtaishat, 2022), affirming that digital channels such as social media, online advertisements, and email marketing effectively influence consumer attitudes and behavior in the context of eco-friendly transportation.

### B. Hypothesis 2 (H2)

The findings of the present study align with those of Zamil et al., (2023), which highlighted the importance of positive word-of-mouth (WOM) in shaping consumer intent to adopt environmentally sustainable products. In this study, it was observed that increasing awareness, particularly through digital marketing efforts, significantly influenced consumer preferences toward electric vehicles. This suggests that when consumers are more informed about the benefits, incentives, and technologies associated with EVs, their likelihood of preferring them over conventional vehicles increases accordingly.

### C. Hypothesis 3 (H3)

The third hypothesis proposed that consumer awareness mediates the relationship between digital marketing and consumer preference for purchasing electric vehicles. The results confirm this mediating effect, which is consistent with prior research such as Dilotsotlhe (2022), which emphasized the role of environmental concern in shaping hybrid vehicle adoption. Similarly, Arifin and Rahmat Syah (2023) found that increased awareness generated through digital marketing initiatives can serve as a crucial mediator, enhancing the effectiveness of marketing strategies in influencing consumer decisions regarding electric vehicle adoption.

## CONCLUSION

The present study investigated the impact of digital marketing on consumers' preference to purchase electric vehicles (EVs) in Chhattisgarh, with a particular focus on the mediating role of consumer awareness. Based on a comprehensive analysis of empirical data and relevant literature, several key conclusions were drawn. First, digital marketing activities—such as online advertisements, social media engagement, and informative websites—were found to have a significant positive influence on consumer preferences toward purchasing electric vehicles. These findings are consistent with existing research, which highlights the effectiveness of digital outreach in shaping consumer attitudes toward environmentally friendly technologies.

Second, the study confirmed that increased awareness serves as a mediating factor between digital marketing and consumer preference. Digital marketing efforts significantly enhance consumer awareness regarding the environmental, economic, and technological benefits of electric vehicles. This heightened awareness, in turn, plays a critical role in influencing purchase decisions. Thus, the findings reinforce the

idea that digital marketing can indirectly affect consumer behavior by educating potential buyers and enhancing their understanding of EVs.

Overall, this study underscores the crucial role of digital marketing in promoting electric vehicle adoption in emerging markets like Chhattisgarh. It contributes valuable insights into consumer behavior in a regional context and suggests several directions for future research. Specifically, further studies should analyze the effectiveness of individual digital marketing channels—such as email campaigns, social media platforms, and dedicated EV websites—to identify the most impactful communication mediums. Additionally, it is recommended to assess how different communication strategies and message framing influence consumer awareness and preferences. Lastly, comparative research across various demographic groups can uncover important variations in consumer behavior, providing marketers and policymakers with nuanced strategies for targeted engagement. These recommendations aim to enrich the understanding of how digital marketing, through increased awareness, drives the growing preference for electric vehicles in India.

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