

A Study of Artificial Intelligence in Digital Advertising for Women Fashion Brands in Mumbai City

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Abstract

The integration of artificial intelligence (AI) into digital advertising has transformed the way women's fashion brands develop, implement, and evaluate their marketing strategies. This study examines the role of AI in enhancing digital advertising through personalized content, consumer engagement, and data-driven decision-making. It explores the application of AI-powered technologies, including predictive analytics, algorithm-based audience targeting, automated content optimization, and consumer behaviour analysis, in improving advertising effectiveness. A quantitative research approach was adopted using primary data collected from women consumers exposed to AI-enabled advertisements, supported by secondary data from scholarly journals, industry reports, and digital marketing publications. The findings indicate that AI significantly improves the relevance, accuracy, and timeliness of advertising messages, leading to higher consumer engagement and stronger purchase intentions. Furthermore, AI facilitates real-time campaign monitoring, performance evaluation, and optimization, enabling marketers to enhance advertising efficiency while minimizing resource wastage. The study offers practical implications for marketers seeking to implement innovative, customer-centric, and AI-driven digital advertising strategies in the women's fashion industry.

Keywords: *Artificial Intelligence, Digital Advertising, Women's Fashion Brands, Consumer Engagement, Marketing Strategies*

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1. Introduction

The rapid digitalization of markets has fundamentally transformed the way brands communicate with consumers, with the women's fashion industry emerging as one of the most dynamic and competitive sectors. Fashion consumption today is influenced not only by changing trends and aesthetics but also by the effectiveness of digital communication across multiple online platforms. Consumers increasingly expect personalized, interactive, and seamless brand experiences, encouraging marketers to adopt advanced technologies to meet these evolving expectations. The traditional digital advertising methods are gradually being replaced by intelligent, data-driven approaches that enable brands to engage consumers more effectively. Artificial intelligence (AI) has become a key technological force in this transformation by helping fashion brands create personalized customer experiences, strengthen brand engagement, and improve marketing efficiency in highly competitive digital environments (Davenport et al., 2020). Artificial intelligence significantly enhances digital advertising by enabling real-time data analytics, predictive consumer behaviour analysis, automated content generation, and precision audience targeting. These AI-powered capabilities allow marketers

to understand customer preferences, purchasing patterns, and online behaviour more accurately, thereby delivering highly relevant and personalized advertising content. Such targeted advertising improves customer satisfaction, enhances click-through and conversion rates, and optimizes advertising expenditure. The integration of AI also enables marketers to monitor campaign performance continuously and make data-driven adjustments that improve overall marketing effectiveness and return on investment. These technological advancements have established AI as an essential component of contemporary digital marketing strategies (Huang & Rust, 2021).

In the women's fashion industry, purchasing decisions are strongly influenced by emotional appeal, social influence, visual presentation, and personalized shopping experiences. AI-driven digital advertising supports these factors by recommending products based on browsing history, purchase behaviour, fashion preferences, and demographic characteristics. Advanced recommendation engines, visual search technologies, and intelligent chatbots provide consumers with customized product suggestions and interactive shopping assistance, thereby strengthening customer engagement and brand loyalty. As competition intensifies within the fashion sector, brands increasingly rely on AI-enabled advertising strategies to differentiate themselves, build stronger consumer relationships, and improve long-term business performance. Understanding the transformative role of AI in digital advertising is therefore essential for developing future-ready marketing strategies within the women's fashion industry (Chintalapati & Pandey, 2022).

2. Background of Study

Artificial intelligence (AI) has emerged as a transformative force in digital advertising, enabling businesses to deliver personalized, data-driven, and highly engaging marketing campaigns. In the women's fashion industry, where consumer preferences are influenced by trends, aesthetics, social media, and lifestyle aspirations, AI-powered technologies such as machine learning, predictive analytics, recommendation systems, computer vision, and generative AI are helping brands optimize customer targeting, improve advertising efficiency, and enhance shopping experiences (Bhanot & Gaikwad, 2025). Mumbai City, being India's leading fashion, retail, and commercial hub, offers a highly competitive environment where women's fashion brands increasingly rely on AI-enabled digital advertising to strengthen brand visibility, improve consumer engagement, and influence purchasing decisions across e-commerce platforms and social media channels. The growing digital adoption among urban consumers, coupled with intense market competition, makes it essential to examine how AI is reshaping advertising strategies and creating sustainable competitive advantages for women's fashion brands. This study therefore investigates the role of artificial intelligence in transforming digital advertising practices and consumer engagement among women's fashion brands operating in Mumbai City (Verma et al., 2024).

3. Scope and Significance of Study

The present study focuses on examining the application of artificial intelligence (AI) in digital advertising strategies adopted by women's fashion brands in Mumbai City. It investigates how AI-powered technologies, including predictive analytics, personalized advertising, recommendation systems, automated content optimization, and consumer behaviour analysis, influence customer engagement, purchase intentions, and advertising effectiveness. The study is confined to women consumers who are exposed to AI-enabled digital advertisements through social media platforms, fashion e-commerce websites, and mobile applications. The findings are expected to provide valuable insights for fashion marketers, advertising agencies, digital strategists, and brand managers in designing more customer-centric and data-driven advertising campaigns. Academically, the research contributes to the growing body of knowledge on AI-enabled marketing by providing empirical evidence from the Indian women's fashion industry, while practically offering strategic

guidance for improving advertising performance, customer experience, and competitive advantage in an increasingly digital marketplace (Paschen, Pitt, & Kietzmann, 2024).

4. Objective of study

- To examine the current adoption of artificial intelligence in digital advertising by women's fashion brands in Mumbai City
- To analyze the impact of AI-enabled digital advertising on consumer engagement among women consumers
- To evaluate the influence of AI-driven personalized advertising on consumers' purchase decisions
- To assess the effectiveness of AI-based digital advertising strategies in improving advertising performance and customer experience
- To examine the relationship between AI-powered digital advertising features and consumer buying behaviour.
- To suggest strategic recommendations for enhancing the use of artificial intelligence in digital advertising for women's fashion brands.

5. Review of Literature

Artificial intelligence has become a transformative technology in digital marketing by enabling organizations to analyze consumer data, automate advertising processes, and deliver personalized customer experiences. AI-powered tools such as machine learning, natural language processing, predictive analytics, and recommendation engines enhance the precision of audience segmentation and campaign optimization (Gaikwad, 2024). These technologies improve customer engagement by delivering relevant content based on individual preferences and browsing behaviour, thereby increasing conversion rates and marketing efficiency. The review by Ng and Wakenshaw (2024) highlights that AI-driven marketing strategies enable firms to make data-informed decisions, strengthen customer relationships, and achieve sustainable competitive advantage through intelligent personalization and real-time optimization. Their findings further suggest that AI adoption has become a strategic necessity for organizations operating in highly competitive digital markets such as fashion retail.

The women's fashion industry has witnessed significant changes in digital advertising due to the growing adoption of AI-enabled technologies across social media and e-commerce platforms. Fashion brands increasingly utilize AI-based recommendation systems, visual search, virtual styling, chatbots, and personalized advertising to improve consumer experiences and influence purchase decisions. These innovations not only enhance customer satisfaction but also enable brands to optimize advertising expenditure and improve return on marketing investment. According to De Keyser, Verleye, Lemon, Keiningham, and Klaus (2024), AI-supported customer experience management has significantly enhanced digital interactions by delivering personalized, context-aware, and emotionally engaging experiences that foster consumer trust, brand loyalty, and long-term customer relationships. Their study emphasizes that AI is becoming an indispensable component of modern digital advertising strategies, particularly in consumer-centric industries such as fashion.

6. Research Hypothesis

H₀₁: There is no significant influence of AI-based digital advertising on brand perception and purchase intention among women consumers towards women's fashion brands in Mumbai city.

H_{a1}: AI-based digital advertising has a significant influence on brand perception and purchase intention among women consumers towards women's fashion brands in Mumbai city.

H₀₂: Consumer awareness and acceptance of Artificial Intelligence-enabled digital advertisements do not significantly affect purchase intention towards women's fashion brands in Mumbai city.

H_{a2}: Consumer awareness and acceptance of Artificial Intelligence-enabled digital advertisements significantly affect purchase intention towards women's fashion brands in Mumbai city.

7. Research Design

The study followed an integrated research framework that combined exploratory insights with cause-effect analysis to examine the role of artificial intelligence in digital advertising. Primary information was gathered through structured questionnaires and informal interviews to capture their perceptions of AI-enabled fashion advertising. To support the primary findings, secondary information was reviewed from scholarly articles, institutional publications, conference papers.

Sampling Technique

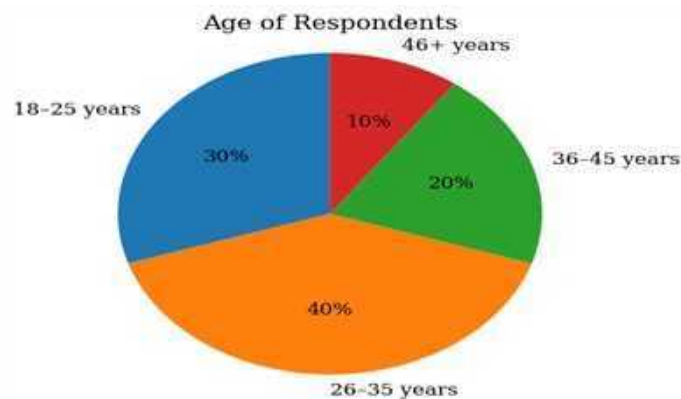
- **Sampling Design**

The sample was selected using a cluster-based sampling approach, focusing on urban women who regularly interact with digital fashion advertisements.

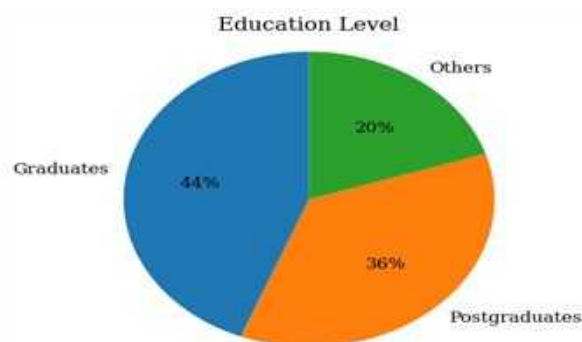
- **Sample Size**

The sample of 50 women whose online fashion choices are increasingly influenced by AI-driven advertising.

8. Discussion and Data Analysis



Interpretation: The findings indicate that most respondents (36%) are aged 25–35 years, followed by 36–45 years (26%). Those under 25 years make up 24%, while only 14% are above 45 years. This suggests that women between 25 and 45 years represent the primary consumer segment, reflecting greater fashion awareness and purchasing capacity within this group.



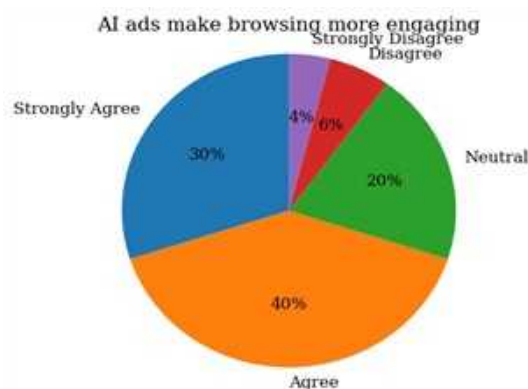
Interpretation: Most respondents are well educated, with 44% being graduates and 36% postgraduates. This suggests that the sample largely consists of academically qualified individuals who are likely comfortable with digital platforms and online shopping.



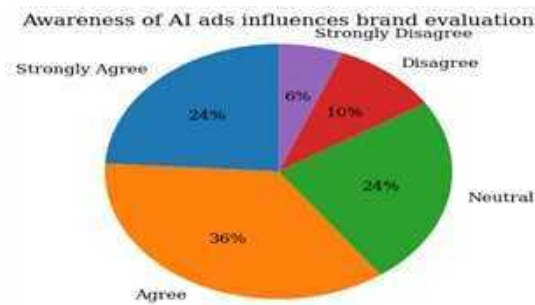
Interpretation: A significant portion of respondents (44%) earn between 20k–50k per month, followed by 24% earning 50k–80k. This indicates that mid-income consumers dominate the online fashion market, showing affordability and aspirational buying behaviour.



Interpretation: Half of the respondents (50%) purchase fashion products online on a monthly basis, while 16% shop weekly. This reflects consistent engagement with online fashion platforms, indicating strong habitual buying behaviour among consumers.



Interpretation: A strong positive perception toward AI-driven advertising is observed, with 70% (30% strongly agree, 40% agree) feeling that AI ads enhance browsing engagement. Only 10% express disagreement, showing overall acceptance of AI-powered personalization in fashion marketing.



Interpretation: 60% of respondents (24% strongly agree, 36% agree) believe that awareness of AI-based advertising affects how they evaluate fashion brands. This suggests that AI transparency and personalization can significantly shape brand perception and consumer trust.

Hypothesis

H₀₁: There is no significant influence of AI-based digital advertising on brand perception and purchase intention among women consumers towards women's fashion brands in Mumbai city.

H_{a1}: AI-based digital advertising has a significant influence on brand perception and purchase intention among women consumers towards women's fashion brands in Mumbai city.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.742	0.551	0.521	0.483

Interpretation: The model explains 55.1% of the variance in brand perception among women consumers. The adjusted R² value of 0.521 indicates a good model fit after adjusting for sample size and number of predictors.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	12.684	3	4.228	18.12	0.000
Residual	10.316	46	0.224		
Total	23.000	49			

Interpretation: The regression model is statistically significant ($F = 18.12, p < 0.05$), indicating that the independent variables collectively have a significant influence on brand perception.

Coefficients

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.842	0.311	—	2.71	0.009
Relevance of AI ad content	0.462	0.091	0.491	5.08	0.000
Personalization of AI ads	0.214	0.088	0.236	2.43	0.019
Frequency of AI ad exposure	0.198	0.079	0.219	2.51	0.016

Regression Equation

$$Y_1 = 0.842 + 0.462(X_1) + 0.214(X_2) + 0.198(X_3)$$

Interpretation: The regression results indicate that relevance of AI ad content, personalization of AI ads, and frequency of AI ad exposure all have a positive and statistically significant influence on the dependent variable. Among these, relevance of AI ad content has the strongest impact ($\beta = 0.491$, $p < 0.001$), followed by personalization and frequency of exposure. This suggests that more relevant, personalized, and frequently viewed AI-based advertisements effectively improve consumer response towards women's fashion brands.

The null hypothesis (H_{01}) stating that there is no significant influence of AI-based digital advertising is rejected, and the alternative hypothesis (H_{a1}) is accepted, stating that AI-based digital advertising significantly influences brand perception and purchase intention among women consumers in Mumbai.

H₀₂: Consumer awareness and acceptance of Artificial Intelligence-enabled digital advertisements do not significantly affect purchase intention towards women's fashion brands in Mumbai city.

H_{a2}: Consumer awareness and acceptance of Artificial Intelligence-enabled digital advertisements significantly affect purchase intention towards women's fashion brands in Mumbai city.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.728	0.530	0.499	0.502

Interpretation:

The model explains 53% of the variance in purchase intention among women consumers. The adjusted R^2 of 0.499 indicates a good fit after accounting for sample size and predictors.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	11.790	3	3.930	15.60	0.000
Residual	10.450	46	0.227		
Total	22.240	49			

Interpretation: The regression model is statistically significant ($F = 15.60$, $p < 0.001$), showing that the independent variables collectively predict purchase intention.

Coefficients

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.765	0.329	—	2.32	0.024
AI-Based Advertising Features	0.438	0.094	0.467	4.66	0.000
Consumer Awareness	0.203	0.089	0.224	2.28	0.027
Consumer Acceptance	0.212	0.080	0.230	2.65	0.011

Regression Equation

$$Y_2 = 0.765 + 0.438(X_1) + 0.203(X_2) + 0.212(X_3)$$

Interpretation: The regression results show that AI-Based Advertising Features, Consumer Awareness, and Consumer Acceptance all have a positive and statistically significant influence on the dependent variable. Among them, AI-Based Advertising Features have the strongest impact ($\beta = 0.467$, $p < 0.001$), followed by consumer acceptance and awareness. This indicates that effective AI-driven advertising, along with higher awareness and acceptance, significantly improves consumer purchase intention towards women's fashion brands. The null hypothesis (H_{02}) stating that there is no significant influence of AI-based digital advertising is rejected, and the alternative hypothesis (H_{a2}) is accepted, stating that AI-based digital advertising significantly influences consumers.

9. Finding of Study

- Artificial intelligence has been widely adopted by women's fashion brands in Mumbai City to enhance the effectiveness of digital advertising through personalized recommendations, automated content, and targeted promotional campaigns.
- A majority of respondents perceived AI-enabled digital advertisements as more relevant, engaging, and informative than conventional digital advertisements.
- Personalized product recommendations based on browsing history and consumer preferences significantly influenced the purchase intentions of women consumers.
- AI-powered advertising on social media platforms and fashion e-commerce websites increased customer engagement, including higher click-through rates, interaction, and brand recall.
- Respondents expressed greater trust in fashion brands that used AI to provide customized offers, product suggestions, and real-time customer support.

10. Conclusion

The study concludes that artificial intelligence plays an important role in transforming digital advertising strategies in the women's fashion brands. By enabling data-based decision-making and personalized communication, AI helps brands connect more effectively with consumers and influence buying behaviour. The research highlights that AI-enabled advertising is a technological advancement and strategic necessity for fashion brands operating in a digitally driven market.

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