Transforming The Garment Industry: The Effect of Generative AI on Efficiency and Managerial Decision-Making

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ABSTRACT:

The fashion industry is changing quickly as Generative Artificial Intelligence (AI) becomes part of modern marketing practices. Today, brands are using AI not just as a tool, but as a strategic partner to better understand their customers and create more meaningful connections. This study looks at how Generative AI is reshaping fashion marketing by enabling personalized experiences, strengthening customer engagement, and supporting the creation of innovative and appealing content. By analyzing customer behavior and market trends, AI helps brands design targeted campaigns, anticipate fashion preferences, and offer customized solutions that match individual tastes.

In addition, the study highlights how Generative AI supports better decision-making and smoother coordination within garment organizations. Through survey responses and statistical analysis, the findings show that many respondents consider AI a valuable asset that improves marketing performance and enhances competitiveness. At the same time, the research acknowledges certain challenges, including concerns about data privacy and the cost of implementation. Overall, Generative AI is emerging as a powerful force that is shaping the future direction of fashion marketing.

Keywords: Generative Artificial Intelligence (AI), Fashion Marketing, Personalization, Customer Engagement, Trend Forecasting, Digital Marketing, Garment Industry.

INTRODUCTION OF THE STUDY

The garment industry is recognized as one of the most dynamic and highly competitive sectors across the globe. Continuous shifts in customer preferences, changing seasonal trends, and rapid technological advancements have compelled companies to adopt innovative solutions to sustain their market position. In this evolving landscape, Generative Artificial Intelligence (AI) has emerged as a valuable technological advancement for the industry. It enables companies to analyze customer behavior, forecast fashion trends, create personalized promotional content, and design effective marketing strategies that enhance customer engagement.

Beyond marketing improvements, Generative AI also contributes to better decision-making and improved coordination within the garment industry. By leveraging AI-driven insights, organizations can increase operational efficiency, promote creativity, and strengthen their competitive advantage. Nevertheless, certain challenges such as data privacy issues and high implementation costs must be addressed carefully. This study aims to evaluate the overall influence of Generative AI on the garment industry and examine its role in driving future industry growth.

STATEMENT OF THE PROBLEM

Even though Generative Artificial Intelligence (AI) is becoming more common in the garment industry, its real impact on marketing performance and overall industry efficiency is still not fully clear. Many companies are using AI to create personalized marketing content and predict upcoming trends, but there is still a need to understand how effective these tools truly are in practical situations.

At the same time, while AI offers several advantages, it also brings certain challenges, such as high implementation costs and concerns about data privacy. Because of these mixed outcomes, this study seeks to explore and understand the actual influence of Generative AI on the garment industry and evaluate whether its benefits outweigh its limitations.

SCOPE OF THE STUDY

This study aims to understand how Generative Artificial Intelligence (AI) is influencing marketing activities within garment industry. It looks at how AI helps companies create more personalized experiences, improve customer engagement, forecast fashion trends, develop creative content, and support better marketing decisions. The focus is mainly on how AI is used in day-to-day marketing practices and how it adds value to the organization.

The research is based on data collected through structured questionnaires and analyzed using statistical methods. It concentrates only on marketing-related functions and does not cover the technical or programming aspects of AI systems. In addition, the study discusses both the advantages and the challenges involved in adopting Generative AI in the garment industry, providing a balanced understanding of its overall impact.

OBJECTIVES:

- To study the role of Generative AI in a garment industry for personalized fashion marketing.
- To understand how generative AI improves internal coordination between design, merchandising, and marketing teams.
- To analyze the benefits of Generative AI, such as faster decision -making, improved efficiency, accurate trend forecasting, and better customer targeting.

RESEARCH METHODOLOGY

- **Research Design:** Descriptive Research
- **Area of the Study:** Coimbatore, Tamil Nadu
- **Sampling Size:** 68 respondents
- **Sampling Method:** cluster sampling
- **Sources of Data:** Primary data and secondary data
- **Data Analysis Tools:** Simple percentage analysis, chi square analysis and ANOVA.

REVIEW OF LITERATURE:

- **Yuan He (2025)** studied how generative AI chatbots influence online luxury fashion shopping among Chinese Generation Z consumers. Using semi-structured interviews and thematic analysis, the research found that the quality of the chatbot and its perceived intelligence played an important role in shaping customer engagement and emotional connection with the brand. However, the study also pointed out that slow responses or limited interaction capabilities could negatively affect the overall brand experience and the high service standards expected in the luxury fashion segment.
- **Kim (2025)** examined the use of generative AI in fashion design and introduced a practical workflow to support idea development and creative execution. The study highlighted how AI can improve efficiency, stimulate creativity, and encourage innovation in the design process. It also provided a structured framework to help professionals effectively integrate AI tools into real-world fashion design practices.
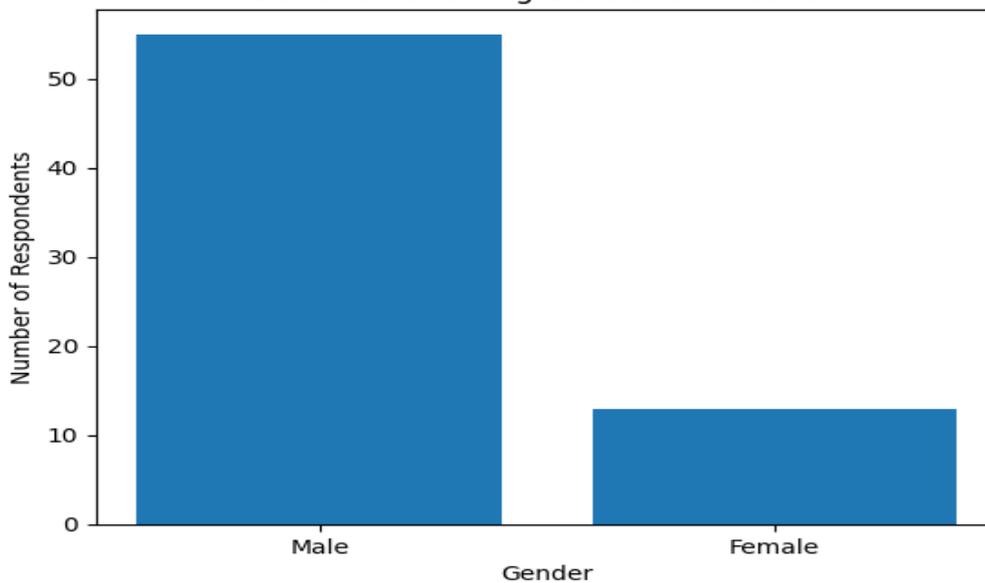
ANALYSIS AND INTERPRETATION

1.   PERCENTAGE ANALYSIS

TABLE: GENDER

CHART

S. No	Particulars	Respondents	Percentage (%)
1	Male	55	80.9%
2	Female	13	19.1%
	Total	68	100%

Bar Chart Showing Gender Distribution

INTERPRETATION

The table shows that among the 68 total respondents, 55 are male and 13 are female. In percentage terms, males account for 80.9% of the respondents, while females represent 19.1%. This clearly indicates that the majority of participants in the study are male. The proportion of female respondents is relatively low compared to males.

2. CHI SQUARE

GENDER AND DOES GENERATIVE AI HELP YOU TO GAIN DEEPER INSIGHTS INTO CUSTOMER FASHION PREFERENCES

H_0: There is no significant association between the two categorical variables being tested

H_1: There is a significant association between the two categorical variables.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.046ᵃ	3	.790
Likelihood Ratio	1.212	3	.750
Linear-by-Linear Association	.349	1	.555
N of Valid Cases	67		
a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .19.			

INTERPRETATION:

The chart shows the Pearson Chi-Square (1.046), Likelihood Ratio (1.212), Linear-by-Linear Association (0.349), and the significance level (0.05) for comparison. All observed values are well below the significance threshold (0.05).

3.   ANOVA

❖   **Gender and Have you observed the use of Generative AI to create personalized marketing content**

H_0: There is no significant difference in responses across the groups being compared

H_1: There is a significant difference in responses across the groups.

❖   **Gender and How accurate do you believe AI-based trend forecasts are**

H_0: There is no significant difference in perceived accuracy of AI trend forecasts across the groups being compared.

H_1: There is a significant difference in perceived accuracy across the groups.

ANOVA

		Sum of Squares	df	Mean Square
Have you observed the use of Generative AI to create personalized marketing content	Between Groups	.135	1	.135
	Within Groups	94.850	66	1.437
	Total	94.985	67	
How Accurate do you believe AI-based trend forecasts are	Between Groups	1.369	1	1.369
	Within Groups	111.513	66	1.690
	Total	112.882	67	

INTERPRETATION:

❖   Use of Generative AI to create personalized marketing content: F = 0.094, p = 0.760
❖   Accuracy of AI-based trend forecasts: F = 0.810, p = 0.371

There is no significant difference in perceptions or ratings across the groups (e.g., Gender, Age, or Education). The null hypotheses (H₀) for both questions are accepted, indicating that group membership does not affect responses.

FINDINGS:

- The majority of respondents expressed a positive attitude toward the use of Generative AI, believing that it contributes to the overall growth of the industry. Most of them showed fewer concerns about job displacement or major operational difficulties, indicating a generally optimistic outlook toward AI adoption.

- Respondents also felt that Generative AI plays an important role in strengthening personalized marketing efforts. They believe it helps organizations gain meaningful customer insights and provides reasonably accurate trend forecasts that support marketing activities.

- In addition, many participants agreed that adopting AI has improved efficiency within organizations. It has encouraged better teamwork and coordination while also supporting more informed strategic and operational decision-making.

SUGGESTIONS:

- Generative AI has the potential to boost design innovation in the garment business by helping designers quickly create new patterns, styles, and prototypes. By analyzing current trends and understanding customer preferences, AI can provide fresh ideas that support creativity and speed up the design process.

- It can also support better demand forecasting and inventory management. By carefully analyzing market data, Generative AI helps businesses avoid overproduction, reduce waste, and improve supply chain efficiency, leading to more organized and cost-effective operations.

- In addition, Generative AI can make personalized marketing more effective. It helps companies create targeted promotional content, anticipate customer behavior, and build stronger engagement, which can ultimately improve sales performance and customer satisfaction.

CONCULUSION:

Generative AI has become an important and transformative technology in the garment business, influencing both the creative side and the operational side of the industry. It helps designers develop new patterns and styles more quickly, makes trend forecasting more accurate, and allows brands to respond faster to changing customer preferences. By supporting better demand prediction and inventory control, AI also helps reduce overproduction, cut unnecessary costs, and encourage more sustainable practices.

At the same time, Generative AI strengthens personalized marketing efforts by providing deeper customer insights and enabling more data-driven decisions. This helps organizations plan their strategies more effectively and remain competitive in a fast-changing market. Although adopting AI requires proper planning, investment, and employee training, its overall contribution to innovation, efficiency, and long-term growth in the garment industry is highly significant and positive.

REFERRENCE:

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- **Judijanto et al. (2024):** AI enhances demand prediction and production planning in textile firms.

- **Seo & Koo (2024):** Generative AI boosts creativity and innovation in digital textile design.

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- **Bhargava (2024):** AI strengthens efficiency and sustainability in textile manufacturing.