

## What is the Future of Fashion Retailing with Generative AI? Understanding Consumer Response through Twitter Data

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### Background and Objectives

With the advent of ChatGPT and DALL-E, conversation about generative artificial intelligence (AI) is heating up in every sector. Artificial intelligence and machine learning have been around for decades, but this new form of AI that generates novel content from specific prompts suggests many promising aspects, particularly for the fashion retail industry. Generative AI solutions are already being offered from clothing design to marketing by many start-up companies (Amed & Bain, 2023). For instance, Cala, an all-in-one platform for fashion designers, integrated a tool from OpenAI to generate new design ideas from natural text descriptions or reference images. Generative AI-powered platforms such as CopyAI, Jasper AI, and Writesonic, among others, are paving the way for large-scale personalized marketing (Harreis et al., 2023). However, since it is early in the stage, the practical ramifications of generative AI have not been extensively studied (Sohn et al., 2020). Therefore, this study aims to explore consumers' responses and expectations about how generative AI can shape the future of retail by applying the Technology Acceptance Model (TAM) and the data mining content analysis.

### Theoretical Background and Literature Review

To understand consumers' behavior toward generative AI, the TAM is adopted. The TAM, derived from the Theory of Reasoned Action to enhance understanding of user acceptance of information systems (Davis, 1985, 1989), is the most extensively used theoretical framework to explain consumer behavior regarding technology adoption (Lee et al., 2003). According to the TAM, perceived usefulness (PU) and perceived ease of use (PEoU) are significant predictors of behavioral intention (BI). The model was used to explain the acceptance of wearable devices (Chuah et al., 2016), mobile payment (Bailey et al., 2017), online customization for apparel shopping (Cho & Fiorito, 2009) and many others. This study uses TAM as a guideline to inductively interpret and explain the critical themes of consumers' responses toward generative AI as such. *RQ: How are consumers responding to the use of generative AI technology in fashion retail and what could be their future applications?*

### Methods

The study employed the text mining method because it ensures uniformity in findings and provides an impartial metric to evaluate the precision of a large-scale dataset (Li & Zhao, 2021). Moreover, tweets related to the research topic are used for data analysis because, on Twitter, information that is considered significant by the community tends to spread throughout the

network (Hong & Davison, 2010). By allowing users to search, organize, retrieve, and group related messages, the widespread use of hashtags (#) accelerates the dissemination of information (Chew & Eysenbach, 2010). A total of 1,612 tweets between December 1, 2022 and March 30, 2023 were scraped using Python. The time frame of collected data starts from December 2022 because ChatGPT was launched on November 30, 2022, and generative AI became a hot topic on social media since then. The extracted data includes the essential keyword *generative AI*, as well as one or more keywords related to *e-commerce*, *retail*, *consumer*, *customer*, *fashion*, and *design*. After removing duplicated tweets, a usable sample of 999 tweets was retained. This study used the Latent Dirichlet Allocation model which is a popular method in topic modeling to discover hidden semantic structures from the preprocessed text dataset.

### Results and Conclusion

Table 1 summarizes the 4 themes that were identified from the Twitter data, along with the top 5 most important keywords for each one. Most themes are related to how generative AI can be used in the consumer market. The first theme suggests that generative AI could be applied in art and game creation. More specifically, an immersive metaverse experience can be built through creating complex and realistic contents. The second theme shows that businesses can use this new technology to improve customer experience through hyper-personalization. For instance, Attentive AI allows brands to customize marketing imagery for different geographical regions. The last two themes explain specific applications of generative AI, such as innovative service (third theme), particularly related to the conversational features that the technology offers. The fourth theme suggests that future product development can benefit from generative

Table 1. Themes and keywords extracted from tweets

No.	Themes	Top 5 Keywords
1	Art & Game	art, create, AI art, metaverse, game
2	Personalized customer experience	new, technology, customer_experience, business, personalization
3	Innovative service tool	tool, service, marketing, innovation, conversation
4	Future product	new, product, service, future, company

AI, such as the recent case of Nike and Tiffany & Co collaboration where AI-generated images received more positive comments than the real product.

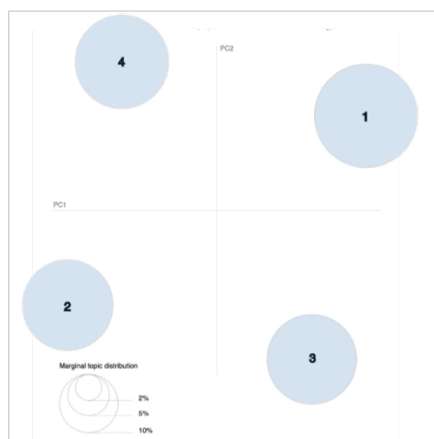


Figure 2. Intertopic Distance Map

Figure 1 visualizes the resulting themes from a topic model using PlyLDavis. The themes are plotted on a 2-dimensional plane representing the distance between each one. This figure ensures that the four themes are distinct from each other.

Interestingly, all of the themes included ‘help’, and ‘using’ as the top 10 keywords which implies the Perceived Usefulness (PU) of generative AI. PU is well represented in the themes that suggest a versatile use of the technology in retail. For instance, one tweet said “Generative #AI isn't only good for

helping you write a paper, it can transform retail businesses. Getting personalized product recommendations and managing inventory levels are just two ways.” As for the Perceived Ease of Use (PEoU), although tweets like “Within 15 minutes I was able to generate...”, “Women's fashion from 1910's-2010's in 30 seconds using #AI #AGI #chatgpt #GenerativeAI” supported the key construct of TAM, it did not emerge as a key theme. However, since most promising aspects of generative AI technology is known to be its ease of use (Amed & Bain, 2023), this area calls for further research. This study provides a unique combination of existing acceptance theory and text-mining approach to explain how consumers are responding to generative AI in fashion retail. This new approach and the findings establish a scholarly foundation for understanding consumer behavior toward generative AI. Fashion retailers should consider the identified application areas of generative AI and how it could be integrated into their existing business model. Future studies can also build on this proposed theme-oriented framework and validate the findings with quantitative and/or qualitative consumer data.

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