AI is poised to radically disrupt the fashion industry landscape

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Fashion is a dynamic business. Most apparel brands make at least two to four collections per year. While selling current seasonal collections, brands plan for the next ones at least a year in advance, identifying

market trends and materials. The selling window is around three months, and unsold inventories represent financial loss.

Fast fashion companies introduce new lines even more frequently, reducing the amount of time needed to design, produce and market new items.

Tech and fashion

The fashion industry is familiar with experimenting with technological frontiers. Some of the most significant technological breakthrough are laser cutting, computer-aided design and more recently, the use of 3D printing in early 2010.

The fashion industry has experimented with basic AI and other cutting-edge technologies. One example is the Gucci Garden, the label's collaboration with virtual world platform Roblox in May 2021 to celebrate the brand's centennial.

Non-fungible tokens (NFTs) are another area of innovation, as seen with the Dolce & Gabbana Genesi Collection in collaboration with UNXD, a digital luxury marketplace. This collection sold for US$6 million, setting a record for NFT sales.

Fashion companies also use blockchains for product authentication, traceability and digital IDs, including those integrated by LVMH/Louis Vuitton, product authentication and traceability.

Additionally, companies have incorporated augmented reality into marketing and retail strategies to create immersive and interactive customer experiences.

Game-changing technology

In 2021, fashion companies invested between 1.6 and 1.8% of their revenues in technology. By 2030, that figure is expected to rise to between three and 3.5%.

Generative AI could become a game-changer for the fashion industry, adding between US$150 and US$250 billion to operating profits within three to five years. While the fashion sector has only started integrating AI, the opportunities and challenges it presents are evident across all business processes.

Generative AI could help fashion companies improve their processes, bring their products to the market faster, sell more efficiently and improve customer experience. Generative AI could also support product development by analyzing large social media and runway show datasets to identify emerging fashion trends.

Estée Lauder Companies and Microsoft have teamed up to open an in-house AI innovation lab for identifying and responding to trends, informing product development and improving customer experiences.

Designers could use AI to visualize different materials and patterns based on past consumer preferences. For example, the Tommy Hilfiger Corporation is collaborating with IBM and the Fashion Institute of Technology in New York on the Reimagine Retail project, which uses AI to analyze consumer data and design new fashion collections.

Designers can also convert sketches and mood boards into 3D designs and 3D print them to speed up prototyping. Iris van Herpen, a Dutch fashion designer, used AI to imagine and execute the visuals of her fall/winter 2023 collection.

AI and sustainability

AI helps in creating more sustainable fashion practices by optimizing the use of resources, recycling materials and reducing waste through more precise manufacturing processes and efficient supply chain and inventory management. For example, H&M uses AI to improve its recycling processes, sort and categorize garments for recycling and promote a circular fashion economy.

AI can improve operations and supply chain processes by optimizing inventory management, predicting sales based on historical data, and reducing overstock and stock-outs. Brands like Zara and H&M already use AI to control supply chains, promoting sustainability by optimizing stock levels and reducing waste. Zara also introduced AI and robotics into their retail stores to speed up online order pick-ups.

AI-powered virtual try-on solutions allow customers to see how clothes will look on them without physically trying them, enhancing the online shopping experience and reducing return rates. Virtual try-ons are already a reality in digital companies, such as prescription eyewear retailer Warby Parker and Amazon.

Another example is Modiface, acquired by French multinational personal care company L'Oréal in 2018, which provides AR-based virtual try-ons for makeup and fashion accessories.

Effective campaigning

AI can also deliver customized customer experiences. Some brands, such as Reebok and Versace, invite their customers to use AI tools to design products inspired by the brand's feel and look.

AI-powered tools can help marketing teams target and maximize the impact of their communication campaigns, potentially reducing marketing costs.

The fashion business includes everything from small companies to global chains, haute couture to ready-to-wear, mass market and fast fashion. Each brand must understand where AI could generate value for their business without diluting their brand identity.

The biggest challenge, however, is to avoid homogenization. Generative AI should not replace human creativity but create new spaces and processes.

Creativity and innovation remain the soul and heart of any fashion brand, and AI should be a tool to enhance and support them. As fashion designer Hussein Chalayan has said, "fashion will renew itself through technology, new fibers, new ways of making clothes."

AI pitfalls

Fashion companies should be prepared to manage the associated risks with new technologies, particularly regarding intellectual property, creative rights and brand reputation. One of the primary issues is the potential infringement of intellectual property related to training data.

GenAI models are trained on vast design datasets, often containing copyrighted works. This can lead to legal disputes over originality and ownership. A related risk is bias and fairness in generative-AI systems, which may present reputational challenges for brands that rely on the technology.

The ambiguity surrounding creative rights in the age of AI is another concern. It's challenging to determine who holds the creative rights to a

design, whether it's the designer who conceptualized the idea, the developer who built the AI or the AI itself. This ambiguity can dilute the authenticity of a brand's creative expression, potentially harming its reputation if consumers perceive the brand as less innovative or authentic.

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