Artificial Intelligence in Fashion: How AI is Changing Retail

The impact of artificial intelligence in industry is becoming increasingly clear to those who pay attention. Estimates indicate that AI is likely to contribute up to $15.7 trillion to the global economy in 2030, "more than the output of China and India combined." AI in the fashion industry will certainly play a key role in contributing to this massive impact.

The fashion retail industry has undergone a digital transformation in the past number of years. The traditional way of thinking about online shopping has grown so much that it is almost indistinguishable from what has now become the norm. Artificial intelligence has made it possible for online fashion retail customers to experience things like virtual fitting rooms and personalized shopping experiences which have reduced returns by 30 to 50 per cent and increased conversions by 94 per cent.

AI powered chat bots are being used by an increasing number of online retailers to answer consumer questions. In fact, "chat bots currently handle 70 per cent of all conversations between retailers and customers." This has allowed retailers to take a significant number of their human workers out of customer relations roles and put more of them into inventory management positions.

These changes and others such as supply chain optimization and trend forecasting are certainly revolutionizing the digital fashion industry. However, in addition to the opportunities they present, these changes also come with ethical challenges. The positive and negative aspects of these changes will be explored in this essay.

The Role of AI in Personalization

Fashion retailers can create personalized shopping experiences for customers with the help of AI algorithms. These algorithms track customer browsing habits, analyzing their past purchasing behaviors and their preferences. According to Research Nester, the current projection for the 2025 industry revenue of AI in fashion is assessed at USD 2.8 billion. It is anticipated to increase to USD 170.62 billion by 2037, demonstrating a Compound Annual Growth Rate of around 39.8 per cent.

With the stakes so high, it is no wonder that companies are looking to AI for help with customer personalization. Product recommendations are personalized when companies avail themselves of the customer's demographic and purchasing history data. AI can generate blog posts, product descriptions, and images based on customer data to create a shopping experience that is aligned with the customers preferences. Likewise, marketing campaigns are more targeted when email campaigns, promotions and offers are based on individual customer preferences. These are key selling points companies can capitalize on that will increase customer engagement and lead to higher rates of conversion and loyalty.

In the past, fashion trends were dictated by designers or celebrities, but more recently, they're being driven by consumers who want to express their individuality through personalized styles. In fact, up to 80% of shoppers state that they favor retailers who provide personalized options. Despite this growing demand, many fashion brands find it difficult to implement personalization effectively—especially if they're unsure of how or where to begin.

Recommendation engines also known as virtual assistants, make this task easier for retailers. A recommendation engine is a tool that can easily be integrated into a brands website in minutes to personalize a customer's shopping experience. By analysing customer behaviour and history, recommendation engines can filter out, predict and display items a shopper is most likely to buy.

Three examples of successful recommendation engines are Zalando, ASOS and Stitch Fix. To begin, Zalando is a European based engine. It is a one-stop shop, featuring a vast selection of fashion for women, men and children from well-known brands. Zalando has built a reputation for offering a smooth shopping experience and prioritizing customer satisfaction. A unique feature of Zalando is its category dedicated to sustainable fashion, where brands dedicated to social and environmental issues are highlighted.

ASOS is known for the affordability of its fashion. It frequently runs promotions and discounts, making them a popular choice for budget-conscious shoppers. Their "Style Match" feature allows customers to upload a picture of an outfit, and ASOS will suggest similar items from their inventory. By featuring some clothing made with recycled materials and sustainably sourced fabrics, ASOS tries to incorporate sustainability into its

recommendations. They have also set targets to reduce their carbon footprint, minimize waste, and improve the social impact of their supply chain.

Stitch Fix is another fashion recommendation engine. It uses AI, particularly generative AI, to personalize styling recommendations, create content for marketing, and improve inventory management. In collaboration with AI, a human fashion expert uses the information generated to choose fashion in keeping with a customer preference. AI is revolutionizing the fashion retail industry, providing a more personalized shopping experience with the help of recommendation engines.

AI in Design and Trend Forecasting

There are many ways in which artificial intelligence helps fashion brands come up with new designs and forecast trends. One way is by using what's known as predictive analytics. This term refers to an AI model that uses data drawn from sources like the social media pages of customers. By using fashion shows and customer satisfaction surveys it can predict the styles and designs that are likely to form the newest fashion trend a retailer would want to take advantage of.

Fashion brands can also use AI tools to help create new designs or patterns for their products. One of these tools is Fashwell, a visual search and image recognition platform that allows users to "search for clothing items using images." This makes it easy for fashion companies to identify trends. There is also StyleGAN, a generative adversarial network that "generates new fashion designs based on input data." It uses this data to create realistic fashion images which provide inspiration for designers.

Another useful tool for fashion companies is DALL·E, a model that generates photos. A user simply needs to describe the photo they wish to create in the greatest detail possible and the model will create it for them. For fashion designers, DALL-E is useful because it enables them to see a picture of the exact garment that came out of their imagination and refine and review it before they begin the process of physical creation.

Artificial intelligence is contributing considerably to reducing the design to shelf timeline for fashion brands. One way this is being done is by having a tool like Runway sift through many “patterns styles and runway archives” to find the ideas best suited to the designer's wishes. This has helped reduce the time it takes to brainstorm designs and by extension the time it takes to get clothing from the beginning of the design process to a store shelf.

Supply Chain and Inventory Management

There are several ways artificial intelligence is helping the fashion industry with supply chain and inventory management. One of the things it's helping with is demand forecasting. In the fashion industry, as in other industries, artificial intelligence models can help prevent overproduction and under stocking. They do this by predicting future demand for products and services. To make these predictions accurately, it “uses existing product data to model demand as long as there is a sales history.” This process makes data processing faster, uncovers hidden problems and creates more detailed forecasts than those that can be made by traditional methods.

Optimizing logistics is another way artificial intelligence is making a difference in the digital, retail fashion industry. Algorithms do this by considering factors like traffic conditions, delivery schedules and transportation costs. This makes distribution of products more efficient and transportation less expensive. It also “enhances the overall logistics performance.” AI models are used in the retail fashion industry to automate warehouses. They also “streamline warehouse operations.” This means that picking and packing processes are automated and that inventory is tracked using drones or robots. This reduces labour costs and improves efficiency.

Perhaps the most important way artificial intelligence is helping the fashion industry with its inventory and supply chain management is by reducing its waste and carbon footprint. This accomplished through smart resource allocation. The most notable way this is achieved is by optimizing production, minimizing excess inventory and enhancing recycling. AI models can also forecast demand which leads to less overproduction which in turn leads to less waste. These examples along with optimization of energy use and the development of more stainable materials show how AI is helping clean up an industry that has long been known for a clear lack of environmental consciousness.

Virtual Shopping and Customer Experience

Artificial Intelligence is revolutionizing the way we view the fashion industry and online shopping. AI has given us “try before you buy tools” that, through a combination of augmented reality and artificial intelligence, allow us to virtually try on an item of clothing before deciding if we should buy it. Customers upload digital clothing onto their personal photos or videos allowing them to be certain whether a specific item of clothing suits them without having to go to the store during business hours. In a survey, 71 per cent of customers said they were willing to pay when a product had any kind of augmented reality experience like a virtual try on available. This is a clear demonstration of the impact this technology is having on the industry.

Another method the fashion industry is using to improve its customer service is chat bots. Companies like Levis and H&M use these bots to provide 24/7 customer support which frees up a considerable portion of their workforce to concentrate on areas other than customer service. Chat bots provide customers with immediate answers to their questions meaning customers can avoid the inconvenience of going to the store.

Perhaps the most innovative and advanced way artificial intelligence is assisting the fashion industry is voice and visual search. On platforms such as Pinterest Lens or Google Shopping, customers can do a search by voice dictation to an AI chat bot or simply input a photograph. The platform will then search for the specific item described or shown in the photograph. It's been shown that these voice or visual searches allow the platforms using them to retain 98 per cent of their customers and thus significantly boost their revenue. These are just some of the methods of virtual shopping that are moving the fashion industry into the future.

Ethical and Practical Challenges

As with any industry considering the use of artificial intelligence, there are ethical and practical issues that need to be taken into account. First, data privacy and surveillance. Businesses need to be transparent with their customers on the data they use and how they use it. They also need to be transparent about whether their artificial intelligence models might be surveying their customers in any way. Some practical steps for businesses to follow that would ensure their client's information is being kept safe would be to incorporate multi-factor authentication, not clicking on suspicious links and educating all

employees on the importance of using strong passwords. Businesses should also only collect data that is absolutely necessary, encrypt sensitive information and ensure they have a transparent data privacy policy that they share with their customers.

Like other industries, a key concern when implementing AI in the fashion industry is bias. The model is only as good as the people who designed it. Therefore, if the person who made the AI model has a specific bias, that bias will be reflected in the answers or results it is if a model refuses to provide clothing or other fashion accessories tailored to certain body types, skin tones or cultural identities. To avoid the potential for biases like this, businesses must be aware of how their AI model has been trained, making sure it gives fair results to everyone and does not discriminate against any demographic or group.

Another concern that comes with integrating artificial intelligence into the fashion industry is of course job displacement. In the retail sector, self-checkouts will gradually replace cashiers, robots will stock shelves and machine learning will predict customer demand. This will result in a decline in the availability of manual and customer service jobs in the retail sector.

Meanwhile, in the design sector, AI is taking the "hard labour" out of a designer's job allowing human designers to concentrate on fine-tuning the work of the AI design. Designers are becoming, "creative leaders and design makers rather than just implementers." This means that before implementing AI, a retail or fashion business needs to decide what approach it wants to take, does it want more manual labour for customer service workers or designers, or does it want the human focus to be on the ideas rather than the process of making those ideas come to life?

The Future of AI in Fashion Retail

The field of AI in the digital, retail, fashion industry is bursting with exciting possibilities. So, what innovations can we expect to see on the horizon? Metaverse is one. When used in retail, it refers to the integration of virtual reality (VR), augmented reality (AR), and other immersive technologies. With the use of virtual reality headsets, consumers can try on virtual clothing, test products virtually, and interact with virtual sales assistants, making it a truly immersive experience.

Another innovation reshaping the fashion industry is that of blockchain. The fashion industry can be plagued by a lack of transparency making it vulnerable to counterfeits. By incorporating a digital ledger system, blockchain can track the manufacturing progression of a product from its source to its final form. This tracking ability is invaluable in ensuring the products authenticity and traceability.

Currently, there are several Startups and innovations to look out for in the fashion industry. THE YES is one of these. This AI powered shopping platform provides an adaptive shopping experience for women geared towards their size, fashion preferences and budget. THE YES was acquired by Pinterest in 2022 and is the fastest growing fashion app.

Another innovative platform, Vue.ai, is a platform that helps businesses utilize AI to automate processes, improve data accuracy, and achieve measurable business outcomes. In the fashion industry more particularly, it allows consumers to try products on-models and test them online. It allows for the flexibility of mixing and matching items and curating outfits, all without the chaos of photographing them together.

AI in the fashion industry can provide game-changing benefits. However, it is not without challenges. When design and marketing is largely generated by AI, the risk is there that fashion may become homogenous, less individual and less creative. This, in turn can lead to a decline in the quality of fashion products, as well as the popularity of the overall industry. It is up to the industry to ensure that AI is used in collaboration with and with human oversite to ensure creativity is maintained.

In conclusion, it is clear that artificial intelligence has been the catalyst for significant change in the fashion industry. It's personalizing items for customers, forecasting trends, facilitating inventory management and making virtual shopping more innovative. However, like any use of artificial intelligence there are ethical challenges that must be addressed to ensure that the model being used is transparent and unbiased and transparent and that sensitive customer data is secure.

Artificial intelligence models are removing the hard labour from the job of a fashion designer. Fashion designers are becoming less focused on the labour of design and more on the ideas that go into the design and businesses considering the implementation of AI models must decide whether they want their designers to be predominantly laborers or thinkers. AI is also leading to changes in the retail sector with machine learning predicting customer demands and the potential for robots to soon stock shelves. So, businesses must decide whether they want humans or computers to serve their customers.

In short, there's a positive side and the negative side to the changes artificial intelligence is making to the fashion industry. Whatever side you take on this issue, you can't deny that artificial intelligence is redefining fashion.