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Individual Research

Technology works with sustainability to improve brands while providing innovation, better production processes, and safer work environments

Thesis Question

Can Artificial Intelligence make a change in the fashion industry by providing new sustainable practices in the production process, safer work environments, and implementing new retail and online shopping experiences for the consumer?

Thesis Statement

Artificial intelligence can make a change in the fashion industry by providing new sustainable practices in the production process, safer working environments, and implementing new retail and online shopping experiences for the consumer.

Executive Summary

For this research, three specific brands were selected to interview and survey their consumers. The point of carrying out these methodologies is to understand how they are using technology and how it helped them. This way we will help other brands that want to make a shift to sustainability on how to implement technology, how they should do it, how much are they going to invest and how would it help their production, provide safer work environments and implement new retail and online experiences to the consumer.

After choosing three main brands that follow sustainability to research, we will select another brand that does not follow any type of sustainable practices. We will then research their

current state, what they are doing, the target market, and their plans. After conducting this research we would have a good way to start thinking about how they can use technology to their advantage in any of the areas previously mentioned. Researching the other three brands is going to help us generate and complement ideas on how they can join the list of sustainable brands in the industry. Other than doing this for a good cause, it would also increase their community, give their brand more value, provide exclusivity to consumers and change their brand's image. Brands need to grow, keep up with trends, create a brand persona, and implement innovation to keep their consumers and create new communities.

How AI is the future of sustainability?

AI helps brands to reduce waste by predicting trends. This type of forecasting eliminates some of the uncertainty and human error currently derailing trend forecasting. It helps brands to understand the target market, which gives them more clarity and understanding on which clothing concepts they should invest in that will sell and attract consumers. AI also is speeding up 3D modeling, before an item of clothing is sold, it goes through many stages of sampling, which causes a huge amount of waste. However, 3D modeling samples create digital models to wear clothes that have not been manufactured yet, making the review process less wasteful. As of now, this type of advance is still being perfected. An increase in customer satisfaction is another factor AI helps with. It's offering the opportunity for increased customization of clothes by AI body scans of customers, which helps the brand make clothes that fit body measurements that exist in the real world, rather than making clothes that fit an average assumed body type. AI also offers virtual fitting rooms, which reduces the number of clothes that are returned while at the same time providing new shopping experiences to the consumer. Lastly, it ensures

sustainable supply chains by analyzing information about a brand's suppliers to examine their sustainability practices. Prewave, a company that focuses on AI, has created a tool that uses artificial intelligence and machine learning to search the internet for any mention of a brand's suppliers, and alert them of possible sustainable violations.

Abstract

Motivation

Researching artificial intelligence and sustainability is extremely important for brands and the consumer to understand how the fashion industry can eventually fully shift into promoting and conducting sustainable practices. AI is becoming more present every day with the advances in technology which is why taking advantage of and merging it with sustainability is creating a big change in the industry. However, this research wants to focus on investigating how brands are making a change and how they can be improved to provide responsible practices, safer work environments, and innovative shopping experiences.

Problem statement

It is hard aspect to forecast long-term success due to the early stages of AI and its relationship with sustainability, which is why researching brands that have started implementing such practices would help to get a broader and better understanding of the concept. The fashion industry is one of the main contributors to environmental contamination. Many researchers have found certain ways the industry can implement more sustainable practices but they are hard to implement and follow due to the big monetary investments that need to be made. Another big factor is the law regulations certain countries have for the production and workers' process. These aspects make it very difficult to change how the industry works. However, brands are

starting to make a change by implementing certain practices in production and retail. For example, recycling and reusing old, and using eco-friendly materials in the making of products, among others.

Approach

This research will explore three brands that are making a change and how they can be improved to provide responsible practices. How consumers would approach and support brands that follow along with sustainability while implementing technological advances in the production and retail process and how brands are affording these practices and if they've seen a higher rate in profit. This would be conducted by researching three brands and taking a look at their financials after these implementations. Focusing on the qualitative method, a questionnaire would be provided to a group of fashion enthusiasts to better understand the decision-making process of buying and supporting brands that have implemented AI and promote sustainability and brands that haven't. Lastly, interviews will be held with certain brands that have or will implement sustainable practices, to understand how they have shifted or how they are planning to shift into an eco-friendly production.

Target market

Researchers collected responses from Vogue internal databases, WeChat, and third-party panels. Consumers surveyed represent a global audience from regions including China, France, Germany, India, Italy, Japan, Mexico, Russia, Spain, Taiwan, the US, and the UK. The research showed an increase in consumers who say sustainability is an important factor when making a fashion purchase, from 65% in October 2020 to 69% in May 2021. In October 2020, 36% of consumers bought as much sustainable fashion as possible, while in May 2021 38% did so as

well. A 2% percent increase was seen which is not a scaled difference but we can see that consumers are considering sustainable brands. Another observation was that in October 2020 and May 2021 consumers that “sometimes buy” sustainable fashion have a percentage between 44% - 46%. While the rest of the consumers only ranging between 3% - 12% either are unaware, not interested in buying, or are aware of the options but don't buy any. These results can help us see and understand that there's a large number of consumers who are more aware of the garments and apparel they buy than those who aren't. They've found that consumers want the brands they love to shop from, to become more sustainable. They explain that they prefer to keep shopping from their favorite brands, rather than alternating with other brands that practice sustainability. This study shows that established brands should start investing and taking into consideration sustainable practices to keep their customers and their loyalty. Certainly shifting to sustainability it's not an easy process, however, if consumers see that brands are at least making an effort to improve, they'll most likely keep their loyalty.

Current studies

H&M, Farfetch, and Stella McCartney are three big brands that have implemented sustainability along with technology in their supply chain. H&M, for example, has created an AI department in the company that helps the brand to implement more sustainable business decisions, and from then until now it is studying and building new AI strategies. The brand also uses AI to match accurate demand with production and data analytics also allows for placing the right product at the right time and place with an accurate forecast, which helps to avoid unsustainable overproduction. Moreover, Farfetch released the Farfetch fashion footprint tool on its website. This tool helps AI to build interactivity with online users, attracting them to a

participatory attitude towards sustainability, calculating and showing data about how much specific materials impact the environment. Stella McCartney has implemented The Environmental Profit and Loss tool, which finds the environmental valuation coefficient for 6 impact areas, greenhouse gas emissions, water use, water pollution, land use, air pollution, and waste. Like these brands, many other big and small companies have started to implement certain sustainable practices whether it is on production, shipping, store elements, etc.

Supreme

Supreme is the brand we have selected to work with to consult and advise how they can improve their technology and sustainability innovations. Supreme is a very popular streetwear brand known for its exclusive and limited edition drops that generate a lot of hype among its consumers. It was founded by James Jebbia in New York City in April 1994, but what many people don't know is that it was a multi-brand store before it developed into the brand it is today. It all started as a skate shop, which dragged the customers' eye due to its minimalistic look. The small inventory has always been around since James didn't have the financial funds to purchase a large number of goods. It also scared him to have tons of inventory that didn't sell. The small numbers helped create an interest among his customers, but this also became a problem when people went into the store being almost empty. The solution the owner came up with is what we know today, to release the apparel every Thursday. By doing this, he managed to keep up the hype, and people understood if something was sold out and then waited for the next release. Supreme has always been, and will always be a skate brand. It was designed based on inspiration from what was cool on the market, based on art, the music scene, or in the movies. To ensure that the products were good from the very start, he focused a lot on quality. His strategy was to make

clothes that would be at least of the same quality as the customers already got elsewhere. Definitely, for James, it was a surprise to see the success of the brand that it has today. However, he worries about keeping to the exclusive strategy and not over-exposing the brand. The brand has never made big efforts in marketing. The mystery of Supreme's marketing is that the brand is known for not marketing itself. The strength and advantage come from the community that has been created around the brand.

Current State of Brand

Global net sales of Supreme have gone up to 354.9M in 2021, making that year the highest in sales. In 2022, as of now, they have 291.8M in sales. That number will change in the remaining time of the year. They ranked number 496 in the US in 2021. As for their employees, they have around 2,000 who range from sales associates, cinematographers, production directors, retail sales associates, and project managers. The pay range is between \$39,456 being the lowest and \$94,560 being the highest.

One of their successful strategies is scarcity which heightens demand. The demand for Supreme's drops greatly outstrip supply with merchandise often selling out within seconds. The drops have created a habit that keeps customers coming back to Supreme each week to see what new merchandise is up for sale. They have created a community among this exclusivity. Their collaborations with other brands have created a bigger audience for them. These collaborations helped them to elevate their status while giving the brands it partnered with more street credibility. Lastly, resales on social media have provided free marketing and more exposure for the brand. Many of the customers that are driving products to sell out on Supreme's website or in-store are only buying these products so that they can make a profit in the resale market. Social

media has been an enabler for the resale market as it makes it easier to market exclusive merchandise.

Sustainability Assessment

Supreme doesn't seem to have any ambition to work towards transparency and sustainable practices in its production, they have never spoken or come forward about this issue in the past. As of now, there is no sustainability report and the brand doesn't provide any information about its carbon footprint, material origins, or whether human rights and animal welfare are being respected in its supply chain. The brand has been rated "We avoid". When a brand doesn't offer transparency about its products they're putting its consumers at risk. This is because of the harmful materials or chemicals they might use in their production.

Supply Chain Map

From manufacturing to transportation and nearly every aspect of the supply chain, have suffered and been disrupted by the pandemic causing product delays and price increase. Manufacturing hiccups have interfered with Supreme's drop model, which arrives almost weekly on Thursdays. Their inventory has dropped nearly 30%. Production delays have struck the company's logistics and organization. Despite the delays, cancellation rates have remained low, which reflects high demand and limited inventory across distribution channels. They have seen a strong interest opportunity for the brand to continue its growth. However, these supply chain disruptions show the benefits of integrating Supreme into the VF model, which is Supreme's parent corporation, truly diversifying its footprint and focusing on areas where it can help the brand maintain a better product flow.

Problem Identification

In the US about 11.3 million tons of textiles get thrown away each year, this makes around 2,150 pieces of clothing each second. The fashion industry accounts for up to 10% of global carbon dioxide output. This is more than international flights and shipping combined, according to the United Nations Environment Programme. Also, it accounts for a fifth of the 300 million tons of plastic produced globally each year. Clothing is being produced greater than ever, while only a fraction of what's manufactured gets recycled.

Sustainability has become a major priority focus for brands in the past decade. However, Supreme as mentioned earlier doesn't provide a sustainability report which indicates they are not following along with practices to better their supply chain, production, and manufacturing process. With this being the problem, not only with Supreme but also with other brands, we've decided to create and identify different approaches that can help brands to come forward with sustainability improvements.

Recommendations

Technology is one of the biggest contributors to sustainability and its improvements. Combining both provides innovation to the industry and helps with sustainability practices. After the research conducted on three selected brands, it led as an example to come up with four recommendations for Supreme to start following and implementing eco-friendly practices both in production and in retail.

First, it is key to define and establish a sustainability goal and mission. They need to understand consumer needs, and 55% of fashion customers consider sustainability to be an

important factor when deciding on a new fashion purchase. This leads to identifying suppliers which meet the brand's code of ethics.

Secondly, implementing AI to improve quality control of the materials used in production. This helps to increase cost and more precise gradings of the fundamental materials used in apparel manufacturing. This type of implementation can uphold a more consistent standard for materials than humans can alone, which raises the average quality of finished garments and products. This tool will also be helpful to gather data and provide transparency to consumers about the material their clothes are made up of. Which decreases the uncertainty of how they handle and work the supply chain.

Third, Supreme is a brand that rules and it's known for its exclusivity. This being the brand's main strength, they can provide new shopping experiences to consumers by joining the Metaverse, not only with NFTs but also with a digital store in the virtual world. They can build up a store that enables customers to shop exclusive products only sold in the digital world but that can be transferred to the physical world too. When the customer enters the meta-store they can buy the product, use it digitally and also have the option to have it produced in reality, have it shipped or picked up in the physical store. This tactic can evolve their exclusivity, implement technology and help with sustainability by producing the exact amount of products sold, which helps with the reduction of waste in landfills.

Lastly, create a platform for Supreme and their resellers in which they implement virtual fitting rooms either on their app or website to ensure the pieces customers are buying fit their exact measurements. This way they can see how it looks on them, how it fits, and if they like it, which will help to prevent the return of products. With this, the brand will make sure that even

though their products are sold, people who resell them carry the same sustainable responsibility to keep the brand's mission and ethics by also ensuring customer satisfaction. This tool will also enable the brand to keep track of consumer data, measurements, and trend forecasts for future drops and collections.

Conclusion

With the recommendation made for the selected brand, many more come to mind on how to improve the brand and others to come to help along their sustainability and technology process. After conducting plenty of research on how AI works along with sustainability, how brands are implementing it, and how they could also improve and become part of a sustainable community, certainly, technology can make a big change in the industry. Will it fix the contamination problem of the industry completely? probably not because it requires plenty of factors that go beyond what brands can do. However, the more brands that start to make a change and are conscious of the situation and how they can contribute, the more improvements we will see over the years. Consumers demanding transparency and better practices in production and retail help brands listen to their needs and wants and work towards bettering the industry. We can say that even though the help technology is providing to sustainability is in its early to mid stages, it has started to make great changes. This means that in the coming years the changes and effects will be greater and will provide better practices and innovations to improve the fashion industry and its eco-friendly production processes.

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