Saying farewell to a throwaway fashion industry

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Credit: Ksenia Chernaya from Pexels

Fast fashion is a lucrative business model offering trendy, mass-produced replica catwalk trends and haute couture designs at bargain prices. While enticing consumers to spend, it has paved the way for a

throwaway culture in the clothing industry characterized by overconsumption and single-use purchases. But things are changing thanks to innovations in technology coupled with a shift in consumers' expectations—ushering in a new must-have trend: sustainable fashion.

New fashion fads have always resulted in a large surplus as new styles are produced at low prices and then disposed of when the next trend arrives. While consumer wallets are not usually hit hard, it is the environment that pays the price. The industry contributes about 10% of all global greenhouse gas emissions and 20% of global wastewater, and up to 85% of textiles make their way to landfills or are incinerated if not reusable. In the European Union, each person is said to consume 26 kg of textiles each year, with a staggering 11 kg of this being discarded per person, per year.

Just like plastics, the fashion industry is now undergoing a much-needed makeover.

"Sustainability in fashion has become an emerging trend in the past few years with companies trying to find innovations to reduce their waste and consumers are being socially conscious about the environmental impact their shopping habits have," said Spiros Nikolopoulos, from the eTryOn project. "At the same time, the COVID-19 pandemic, as many refer to it, was fashion's biggest reset."

This was because it boosted online shopping and urged brands to take steps towards a more digitalised future. "There is an increasing number of fashion brands that are interested as well as investing in new technologies and incorporating them into their product design and e-commerce workflow to meet the new expectations," added Nikolopoulos.

The dawn of extended reality

Extended reality (XR), an umbrella term covering augmented reality (AR), virtual reality (VR) and mixed reality, is one such technology that will play a significant part in reforming the industry towards sustainability. "In the next years there will be a huge renovation in the way people try on and buy or even design new clothes.

AR try-ons and makeup, VR catwalk shows, virtual fitting rooms, augmented clothing are only a few of the fields that constantly show new developments," highlighted Nikolopoulos. Using XR technologies, eTryOn is developing a solution for human–fashion interaction. "We are working towards modernizing the way people create, consume and experience fashion through a set of AR and VR technologies. More especially, we are currently working on three apps."

The Designer app will provide fashion designers with an immersive VR environment for garment testing and visualization during the designing process. Its environment represents a virtual fitting room where designers can work and design new clothes, check the results using a virtual avatar, inspect garments' quality and make any changes. The DressMeUp app will allow users to digitally change their outfit and share it on social media. "A user will take a photo or video of themselves through a smartphone and upload it into the application, where a 3D avatar of themselves will be created and the app will return their own image or video wearing the selected garment. The results can then be shared through social media accounts," outlined Nikolopoulos.

Another app, the Magic Mirror, provides AR try-ons of clothes. Users will be able to scan themselves at home using their phone's camera, browse through an online store and see in real time how a particular garment fits their body, all before deciding on making a purchase. This will not only improve the shopping experience, it will also help reduce returns.

Promoting sustainability and a circular economy, these apps will provide a more personalized shopping experience while reducing waste and related transportation and production expenses. "In addition, there is a plethora of influencers and fashion lovers in general who buy clothes for a just-one-time show, which creates a significant amount of fabric waste," added Nikolopoulos.

With the DressMeUp app, fashion lovers can try out and get 'photographed' with as many clothes as they want without the need to have them physically. This can significantly reduce fabric waste in the fashion industry.

Physical to digital: redesigning the future of fashion

A sustainable and digitalised fashion industry, where garment production starts only when clients give the green light is also the goal of the [AVATAR](#) initiative.

Initially set on developing a 3D body scanning app, the research team changed course after identifying several challenges in the apparel industry. "There is demand for sustainability, corporate responsibility and transparency. There are also concerns from younger consumers, particularly generations Z and Y, about social and environmental causes," said Kateřina Čihařová, project coordinator.

"Consumers' expectations and demands have also changed, striving for more personalized or individualized fashion instead of mass-produced goods." From these challenges, AVATAR identified up-and-coming opportunities connected to the digitalisation of the fashion industry: the creation of patterns and virtual avatars libraries and 3D virtual fashion presentations.

As part of digitalising fashion, moving from 2D to 3D garment design

can help shorten time and costs as well as help businesses be more sustainable. "Therefore, the creation of the patterns library is a must in the 2D to 3D transformation process," said Čihařová. As for the library of avatars, it is expected that it will allow customers to try on clothes of different sizes.

"By using the avatars, fashion designers will prevent materialized modifications as well as the shipment of samples from Europe to Asia and back, in which case if not used will be thrown out," noted Čihařová. "Moreover, models will not need to travel overseas to try the garments designed by fashion studios as their avatar will be available for virtual fittings and also for catwalks." The other opportunity, 3D virtual fashion presentations, will showcase goods as well as provide fascinating videos on them.

A new dimension for fashion is here

Work on the digital library has been completed recently. "It is an online collection of basic patterns in 3D serving small companies and individual fashion designers. They can easily remodel these patterns according to their style or their clients' wishes and print immediately the respective pattern," explained Čihařová. "We have established a start-up called OFFORM3D which is now involved in several activities in the 2D to 3D transformation process and in 3D visualization including video presentations."

Digitalisation can help reverse the enormous impact the fashion industry has on the environment. "By using PCs instead of paper, pencils, scissors and prototyping fabric, this is a huge step towards an environmentally friendly approach in the industry," concluded Čihařová. Also, as the modifications to garments are performed digitally, instead of using real fabrics, and only the final version of a garment is created, this is a great stride towards a sustainable future.

More information: eTryOn

AVATAR

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