

Fashion Technology Trends-Review

Prof (Dr) Nemailal Tarafder

Ex-Emeritus Prof of Hetc,

Hooghly, West Bengal-712103,

Email: tarafdern.14@gmail.com

ABSTRACT

Innovation of fashion often synonymous with trends, but what truly defined it. As fashion brands and retailers race to adopt these innovations, the result will be a marketplace where digital and physical approaches seamlessly merge. Digital transformation also empowers fashion brands to deliver a cohesive omni the site uses cookies to ensure you get best experience on our website channel experience. Garments that measure biometric data such as heart rate, temperature and hydration bring fashion and science together. It began with objects created during the industrial revolution of the 18th and 19th centuries, when innovations in textile manufacturing revolutionized the fashion industry. The latest technology trends in the fashion industry are AI, 3D Printing, Synthetic media, Block chain, etc. Customers have been trained to expect instant access to the latest trends as soon as they hit the catwalks. A digital identifies gain prominence consumers are investing in clothing virtual avatars. The Border security forces utilize protective garments designed for comfort, functionality, and safety diverse operational environments. The new fashion technology opens up avenues for greater customization, environmental sustainability and creativity in fashion.

KEYWORDS: Customization, Specialized Gear, IoT, Algorithms analyze, Insta-age, Reshaping fashion, Fashion market, Sustainable brands.

INTRODUCTION

Smart textiles or e-textiles, are revolutionizing the fashion technology industry by embedding technology directly into fabrics, creating garments that are both functional and interactive.

This innovation is transforming how we think about clothing, blending style with tech in ways that range from fitness tracking to environmental responsiveness. According to an October 2024 report (<https://www.researchandmarkets.com/reports/5140157/smart-textiles>) some tech brands are now producing fabrics that monitor heart rate, respiration and even posture, providing real-time data without the need for a separate device. For instance, some sportswear can analyse an athlete's performance, offering insights on endurance and muscle exertion. This data driven approach to fitness apparel is a huge advantage for brands looking to capture the growing health conscious market. Smart textiles also open doors for adaptive fashion, allowing clothes to react to external stimuli. Imagine jackets that change colour based on temperature or fabrics that adjust insulation levels automatically. Beyond fashion, these conditions like diabetes with built-in sensors [1].

Offering excellent customer experience is a must. Digital transformation empowers fashion brands to deliver personalization and meet expectations. This keeps customers loyal. It also encourages them to make more purchases. With data analytics, fashion brands gain insights into customer preferences and purchasing habits. Then they can tailor their products and proportions accordingly. Research from McKinsey found that companies that excel at personalization generate 40% more revenue from those activities than average players. Digital transformation also empowers fashion brands to deliver a cohesive omnichannel experience. Customers can expect consistent branding when browsing online or via a mobile app. Through all their digital channels brands can build meaningful relationships. By delivering relevant content and personalized recommendation brands can also build trust with their customer base [2].

The need for sustainable fashion innovations is more pressing than ever due to the growing environmental and ethical challenges posed by the fashion industry. Traditional fashion production often involves water usage, harmful chemicals, and vast amounts of waste, contributing to pollution and greenhouse gas emissions. Additionally, the exploitation of workers in low-wage continues and opaque supply chains highlight the urgent need for change sustainable innovations such as eco-friendly fabrics, circular design, and improved manufacturing processes, are critical to minimizing these harmful impacts and creating a more responsible industry. Moreover, consumer demand is shifting towards conscious purchasing, with more people seeking out ethical and eco-friendly options. Fashion

innovations can address these changing needs by developing new technologies, materials, and business models that reduce waste, promote transparency and support labour practices. By adopting sustainable innovations, the fashion industry can significantly reduce its environmental footprint, improve social conditions and create a more sustainable future for both the planet and its people [3].

Stepping into the world of fashion can feel like riding a rollercoaster. But have you ever wondered how fashion evolves and how it is coming up with a nice blend of tradition and technology. For students pursuing B Des Fashion designing in Coimbatore, the journey is not just about making. It is about knowing the pulse of innovation and people wants. What if you can be a designer who not just designs clothes but every clothing piece that you design has a story to tell and a message to be delivered. Fashion technology now relies heavily on sustainability. New materials, like bio-fabricated leather, recycled fibres and biodegradable fabrics, have redefined all the existing design ideologies. For example, businesses are experimenting with materials created from algae and spider silk, providing eco-friendly alternatives without actually sacrificing quality. Digital fashion changing the way we used to perceive clothing. Designers are now designing virtual clothing for social media, gaining and the Meta Verse. The trend can be a real game changer for students studying B Des fashion designing in Coimbatore, who want to try things out with cutting edge technologies while not having to deal with any wastage issues [4].

Fashion and Technology explored the impact of emerging technologies on the nature of fashion design and production over the past 250 years. The exhibition focused on the innovations that have influenced the production, materials, aesthetic and function of fashion. It began with objects created during the industrial revolution of the 18th and 19th centuries, and innovations in textile manufacturing revolutionized the fashion industry. These innovations included the introduction of the spinning of the spinning Jenny, the Jacquard loom, and the sewing machine. The exhibition then continued chronologically to the present day. In the first decades the 20th century, technology rapidly transformed the urban landscape, exemplified by the tall building that began to rise, nicknamed skyscrapers. As a way to express these technological changes, the Art Deco movement introduced a heavily geometric aesthetic to art design, which crossed over into fashion in the form of decorative motifs, innovations in rubber and plastic also a variety of applications in fashionable items that

include athletic shoes and environment[5].

Top 9 technology trends reshaping fashion industry by tech packer mentioned in 2 January 2024 as follows. They have produced a list of the major tech breakthrough in fashion today, ranging from AI to the advent of mobile shopping, 3D printing, and others. People also ask the following: what is the future technology for clothing, which technology is very trending in fashion, what are the technological innovations in fashion, what is the new technology in fabrics, etc. Apparel industry is undergoing a significant transformation driven by technological advancements. Key trends include the integration of AI for design and demand forecasting, the rise of 3D printing for customized and on-demand production and the use of Augmented Reality (AR) for virtual try-ons and personalized shopping experiences. Furthermore, smart textiles with embedded sensors and block chain [6].

As one of the biggest industries in the world, projected to rack up 43.3 million by 2030, it's surprising to learn that the way fashion operates today hasn't changed that much in the past twenty years. This is in part, because it's still easy to source low-cost manual labour in many countries and to outsource any pricey production costs. However, the rising concerns about fair wages, pollution, as well as the need to satisfy the hyper-connected consumers of today, have given way to new exciting technologies. They do, indeed, live in the insta-age, of technology. Customers have been trained to expect instant access to the latest trends as soon as they hit the catwalks, thanks to social media. Simultaneously, younger generations seeking to stand from the crowd seek products that can be tailored to their specific needs and performances. Furthermore, mass-produced or fast fashion clothing appears to be losing favour. As customers' actual lives grow more entwined with the digital world, many designers and business of manufacturing, production, marketing, and wear ability. They have produced a list of the major tech breakthrough in fashion today, ranging, from artificial intelligence to the advent of mobile shopping, 3D printing and block chain [7].

As the global demand for personalized, immersive, and sustainable fashion intensifies, 2025 is expected to be a milestone year for fashion tech. Emerging platforms like Glance are already integrating real-time fashion recommendations, AR "try-ons", and AI-driven styling directly on to users' lock screens, giving fashion brands a futuristic interface to reach digital first consumers. The era of fashion being led solely by trends and designers is evolving into a

data powered, tech fuelled revolution. Fashion technology refers to the intersection of innovation and design, where digital tools and smart processes are integrated into every stage of the fashion value chain from ideation to consumer experience. The goal is to create fashion that is more intelligent, responsive, inclusive and efficient. The Key Components of Fashion Technology in 2025 includes the following: AI-Driven Design, Augmented Reality “Try-Ons” Digital Fashion for Avatars and Block-Chain for Authenticity [8].

Dive into the Future of Clothing Technology: 2025 & Beyond discover how clothing technology advancements transform the apparel industry with improved functionality, more specific personalization, and more. Learn about clothing solutions that use technologies like AI, IoT and robotics to tackle challenges in supply chain management. This site uses cookies to ensure us get the best experience on our website. For more information view our Data Protection Information. AI, IOT, 3D printing, AR, big data and block chain are making a paradigm shift in the garment industry. These developments in clothing technology reduce wastage and resolve labour shortages and inefficiencies in the supply chain. AI improves demand forecasting and inventory management and IoT develops supply chain visibility. 3D printing enables on-demand production with waste reduction and lead times. With virtual try-ons, AR and VR also improve the shopping experience, while block chain brings traceability and transparency. Leaders in the industry must use these technologies to increase productivity, sustainability, and responsiveness. Explore what’s coming up in clothing technology as you scroll down to learn more about the most recent developments that are changing the business [9].

Digital fashion is changing the way we used to perceive clothing. Designers are now designing virtual clothing for Social media, Gaming and the Meta verse. Smart clothes that come with health monitors elements or luminescent strips in fashion and utility, appealing to a society that values both style and practically. 3D printing helps designers to create detailed, custom places that produce the least waste. This trend, which covers access of clothing are a revolution for sustainable and personalized fashion. AI is transforming the design process. Designers can use AI-powered tools that pinpoint trends, automate patterns and give hyper personalized recommendations. Students doing B Des fashion designing in Coimbatore cause these tools to boost creativity and efficiency. Block chain technology builds openness throughout the supply chain, developing trust between brands and customers. This trend

encourages ethical behaviours and lets designers show their commitments to fair trade and sustainability [10].

Latest technology trends shaping the Fashion Industry how the state-of-the-art technologies, ranging from VR-enhanced shopping to AI-driven design solutions are revolutionising all facets of the fashion industry. They use cookies to improve our experience with our website. They assume us agree with our cookie policy by continuing to use the website. This outstanding performance positions medium-sized companies as the most sustainable brands, outperforming their larger competitors by a considerable margin. At the other end of the spectrum, major players like Zara, and Louis Vinton maintain their stronghold in shaping worldwide fashion and technology trends. Large companies are making sustainable investments in generative AI to create fresh designs, offer style advice and streamline the design process [11].

FUTURE OF FASHION TECHNOLOGY FOR SHAPPING AND SUSTAINABLE FUTURE

At its core, block chain technology creates a secure, decentralized record of transactions that's nearly impossible to alter. This feature is invaluable for an industry grappling with complex global supply chains and rising demands for ethical production. In fact, a recent survey revealed that over 70% of consumers want to know the origins of their purchases and block chain could be the tool that delivers this insight. By using block chain technology, fashion brands can improve overall traceability by documenting every step of a product's journey from raw materials to finished garments. Some companies have started integrating block chain to track luxury goods, safeguarding against counterfeits and building consumer confidence. This traceability could be a game-changer for addressing the \$450 billion annual counterfeit market, where one in four consumers is tricked into buying goods. Block chain authenticated digital records; consumers can confidently purchase second-hand luxury items, knowing they're genuine. This technology could help the booming resale market, projected to grow 127% by 2026, according to a 2024. Thread up report.

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with tech in ways that range from fitness tracking to environmental responsiveness. According to an October 2024 report some tech brands are now producing fabrics that monitor rate, respiration and even posture, providing real-time data without the need for a separate device. For instance, smart sportswear can analyse an athlete's performance, offering insights on endurance and muscle extension. This data driven approach to fitness apparel is a huge advantage for brands looking to capture the growing health conscious market. Smart textiles also open doors for adaptive fashion, allowing cloths to react to external stimuli. Image jackets colour based on temperature of fabrics that adjust insulation levels automatically. Beyond fashion, these applications could extend into medical wearable, helping manage conditions like diabetes with built in sensors [1].

Digital technologies are fundamentally reshaping fashion processes. Apparel design used to happen with sketches and physical prototypes. Now advanced design software can help to create virtual prototypes. That powers faster iterations and greater creativity. Manufacturing processes are also changing because of process automation, robotics, AI, and cloud software like ERP systems. That leads to increased efficiency and time to market. Every stage of fashion can benefit from digital transformation. Digital transformation does not just allow you to stay ahead of the curve. It provides tangible benefits for your brand. Let's explore how digital technologies can revolutionize operations and power better decision-making. Block chain technology can also support transparency. It makes it easier to manage issues like counterfeit products. This is important because sales losses from counterfeit goods worldwide cost billions of dollars. Digital transformation also empowers fashion brands to deliver a cohesive omni channel experience. Customers can expect consistent branding when browsing online via a mobile app [2].

Sustainable fashion refers to a movement within the fashion industry aimed at creating clothing, accessories, and footwear in ways that minimize environmental harm and promote ethical practices. This includes using eco-friendly materials like organic cotton, recycled fabrics, and innovative fibres, while ensuring ethical labour conditions, fair wages and safe working environment. Sustainable fashion also emphasizes reducing waste, lowering carbon footprints, and embracing circularity through practices like up cycling and promoting second hand clothing. As the fashion industry faces increasing pressure to address its environmental and ethical impacts, groundbreaking innovations are paying the way for a more sustainable

future. From eco-friendly materials and circular design practices to cutting-edge technologies that reduce waste and pollution, these innovations are reshaping how fashion is produced, consumed and disposed of. In 2025, a wave of sustainable fashion innovations promises to push the boundaries of creativity and responsibility, offering solutions that align with both style and sustainability. Here are 20 key innovations to watch out for this year [3].

Fashion technology now relies heavily on sustainability. New materials, like bio-fabricated leather, recycled fibres, and biodegradable fabrics, have redefined all the existing design ideologies. For example businesses are experimenting with materials created from algae and spider silk, providing eco-friendly alternatives without actually sacrificing quality. Digital fashion is changing the way we used to perceive clothing. Designers are now designing virtual clothing for social media gaming and the metaverse. This trend can be a real game changer for students studying B Des Fashion Designing in Coimbatore, who want to try things out with cutting-edge technologies while not having to deal with any wastage issue. Smart clothes that come with health monitors, heating elements, or luminescent strips are on the rise. Wearable technology combines fashion and utility, appealing to a society that values both to deal with wastage issues [4].

FASHION AND TECHNOLOGY

Fashion and Technology have a fast-paced and continually evolving relationship. Today, the term techno-fashion is used to refer to a predominantly 21st century phenomenon, but technological advancements were shaping fashion design and fabrication as early as the mid-eighteenth century. As fashion writer Bradley Quinn observes, Technology has always been the essence of fashion. The fast-paced progress of technology complements fashion's ever-evolving aesthetic and each gives the other a wider frame of reference and more scope to explore new horizons. Fashion and technology explored the impact of emerging technologies on the nature of fashion design and production over the past 250 years. The exhibition focused on innovations that have influenced the production, materials, aesthetic, and function of fashion. It began with objects created during the Industrial Revolution of the 18th and 19th centuries, when innovations in textile manufacturing revolutionized the fashion industry. These innovations included the introduction of the Spinning Jenny, the Jacquard loom, and the sewing machines, the exhibition then continued chronologically to the present day. In the first decade of the 20th century, technology rapidly transformed the urban landscape, exemplified

by the tall buildings that began to rise nicknamed skyscrapers. As a way to express these technological changes, the Art Deco movement introduced a heavily geometric aesthetic to art and design, which crossed over into fashion in the form of decorative motifs. Innovations in rubber and plastic also found a variety of application in fashionable items that include athletic shoes and evening wear [5].

Latest technological developments in 2Jan 2024, produced a list of the major tech breakthroughs in fashion today, ranging from Artificial Intelligence to the advent of mobile shopping, 3D printing. People also ask: what is the future for clothing, which technology is very trending in fashion today, what are the technological innovations in fashion, what is the new technology in fabric, etc. The apparel industry is undergoing a significant transformation driven by technological advancements. Key trends include the integration of AI for design and production forecasting, the rise of 3D printing for customized and on-demand production, and the use of Augmented Reality (AR) for virtual try-on and personalized shopping experiences. Furthermore, smart textiles with embedded sensors and block chain [6].

Top 9 technology trends reshaping the fashion industry in 2025. Contents are like, Artificial Intelligence, Innovative and sustainable fabrics, Internet of things, Rapid data analysis for quick adaption, Mobile commerce, The Meta verse and Virtual fashion, Online vector editors, etc. Top fashion tech as one of the biggest industries in the world, projected to rack up \$ trillion by 2030, it's surprising to learn that the way fashion operates today hasn't changed that much in the past twenty years. Free Chat GPT AI Assistant in part, because it's easy to source low-cost manual labour in many countries and to out sources any pricey production costs. However, the rising concerns about fair wages, pollution as well as the need to satisfy the hyper-connected consumers of today, have given way to new exciting technologies. They indeed, live in "insta-age" of technology. Customers have been trained to expect instant access to the latest trends as soon as they hit the catwalks. Thanks to social media. Simultaneously, younger generations seeking to stand out from the crowd seek products that can be tailored to their specific needs and preferences. Furthermore mass produced or fast fashion clothing appears to be losing favour [7].

NEW UPCOMING TECHNOLOGY IN FASHION INDUSTRY

The evolution of fashion tech into a digital first powerhouse is discussed below. Fashion has

evolved from simply aesthetic to becoming algorithmic. This shift can be seen across three stages. Early 2000s to 2015: Digitization of fashion started with the rise of e-commerce, influencer marketing, and online brand presence. 2016 to 2022: AI, AR and mobile-first apps transformed the consumer experience. Brands began using big data for product recommendations and inventory planning. 2023 and beyond: The focus is now on personalization at scale, digital ownership (via NFTs), immersive commerce, and sustainable production using technology. The new upcoming technology trends in fashion for 2025 are as follows: AI for fashion forecasting and hyper-personalization. AI is enabling fashion houses to analyze thousands of data points in real-time from social media sentiment to weather patterns to forecast. Additionally, AI algorithms personalize shopping journeys based on past behaviour, location, and preferences. Augmented reality-based shopping experiences AR allows customers to see how an outfit would look on them without entering a store. Major brands like Zara and Nike are already using AR-powered mirrors and mobile apps to influence customer engagement. Digital clothing and avatar fashion as digital identities gain performance, consumers are investing in clothing for virtual avatars. Platforms like Roblox, Zepeto and Meta are fuelling a new market where fashion is virtual ownership and exclusivity is real [8].

AI, IoT, 3D printing, AR, VR, big data and block chain are making a paradigm shift in the garment industry. These developments in clothing technology reduce wastage and resolve labour shortage and inefficiencies in the supply chain. AI improves demand forecasting and inventory management and IoT develops supply chain visibility. 3D printing enables on demand and production with waste reduction and lead times. With virtual try-ons, AR and VR also improve the shopping experience, while block chain brings traceability and transparency. Leaders in the industry must use these technologies to increase productivity, sustainability and responsiveness. Explore what's coming up in clothing technology as you scroll down to learn more about most recent developments that are changing the business. Dive into the future of clothing technology: 2025 & beyond means to discover how clothing technology advancements transform the apparel industry with improved functionality, more specific personalization, and more. Learn about clothing solutions that use technologies like AI, IoT, and robotics to tackle challenges in supply chain management, sustainable, and consumer engagement [9].

Fashion technology now rules heavily on sustainability, like bio-fabricated leather, recycled fibres, and biodegradable fabrics, have redefined all the existing design ideologies. Digital fashion is changing the way we used to perceive clothing. Designers are now designing virtual clothing for social media gaming, and the Meta Verse. Smart clothes that come with health monitors, heating element strips are the weaving technology coming as fashion and utility appealing to a society that values both style and practicality. 3D helps designers to create detailed, pieces that produce the least waste. This trend, which covers accessibility over clothing, is a revolution for sustainable and personalized fashion. AI is transforming the design process. Designers can use AI-powered tools that pinpoint trends, automate patterns, and give hyper personalized recommendations. Students doing B Des Fashion Designing in Coimbatore can use these tools to boost their creativity and efficiency [10].

CONCLUSION

Smart textiles or “e-textiles” are revolutionized the fashion industry by embedding technology directly into fabrics, creating garments that are both functional and interactive. Fashion brands, both established and emerging, are increasingly turning to 3D printing technology to explore its potential for on-demand manufacturing. Up cycling in fashion has taken a significant leap forward, with new technology enabling poly cotton to be broken down into its components in just 15 minutes, ready for reuse in new garments. Garments that measure biometric data as heart, temperature, and hydration bring fashion and science together. In the first decade of the 20th century, technology rapidly transformed the urban landscape, exemplified by the tall buildings that began to rise nicknamed skyscrapers. Latest technology trends in the fashion industry are Artificial Intelligence, 3D printing, Synthetic media, and block chain. In recent years, brands have used AI to improve the shopping experience of their customers, analyze data, increase sales, forecast trends, and provide inventory-related guidance. As digital identities gain prominence, consumers are investing in clothing for virtual avatars. With virtual try-ons, AR and VR also improve the shopping experience, while block chain brings traceability and transparency. 3D printing helps designers to create detailed, custom pieces the least waste

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