

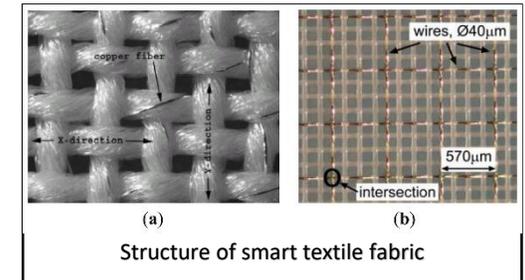
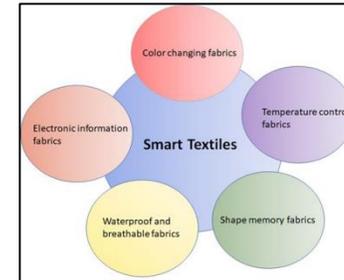
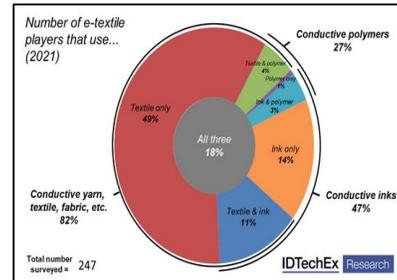
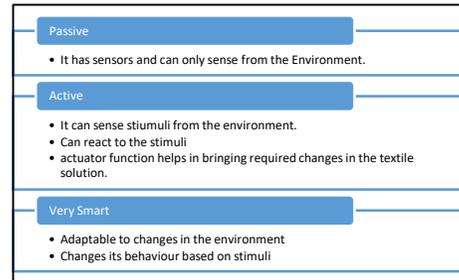
# Fast Fashion and Textile Waste Management in the UK: Role of Smart Textile

**Fast Fashion** is about the mass production of replicas of high fashion trends and selling the same to consumers at a low price. Fast Fashion has helped the global textile industry to grow rapidly over the last decades. The consumerism based business model has caused various ethical, social, and economic problems and destruction of the environment. As the demand for cheap garments increases, production has also increased. And it has led to cheaper materials, low-cost labour, and the use of harmful chemicals in the production process. Some direct results are, increased land use and deforestation, increased emissions of pollutants and GHG, and contribution to global warming. Fast fashion clothes are not intended for long term use. Due to poor quality, those are often disposable. In 2020, amidst the COVID-19 pandemic, and global economic turmoil, people in the UK spent more than £54 billion on clothing. Every week, more than 13 million items are sent to landfills in the UK. With the increasing trends in social media and influencer marketing, people are getting more included by media personalities. And it is triggering their buying choices. To meet the demand for low cost, the fast fashion brands keep pushing the cost of raw materials and labour.

**Smart textile** is a kind of textile able to sense stimuli from its environment, react to those or adapt the same into the integrated textile structure. There are different categories of smart textiles based on the kinds of stimuli it responds to.

## Smart Textile and Fast Fashion

Smart textiles are used purposefully to have more than one functional use. With the help of technology, it can be built to offer personalisation and customisation to a user. For example, depending on the environmental temperature, different fabrics are used in different areas. In tropical countries, summer is longer, and fabrics like cotton are more suitable. On the other hand, in wintertime, cotton is not useful. So, the smart textile can help to build a functional garment that will adapt to the temperature changes in the environment and regulate comfort levels for the wearer. Thus, it will reduce the need for different fabrics and more the number of garments per user. Eventually, it will lead to lesser production and lesser waste. Recycling is also more organised in the case of smart textile. The lifetime of a smart garment is more predictable and manageable. The global textile industry has different textile engineering solutions for the manufacturing and production of yarns, fabrics, garments and more. Smart fabric is woven by sensor arrays into a plastic optical fibre. It can be woven in different ways based on the purpose of use.



## Key Advantages of Smart Textile

Smart textile is either purposefully used for aesthetics or for performance enhancement. This is a relatively new concept in the fashion industry. Aesthetically it is different from traditional fabrics. For example, a dress that may lighten up by itself depending on stimuli from its environment is more aesthetically appealing to consumers. Colour changing fibre and emitters for data transmission are some widely accepted concepts for smart textile.

At the same time, performance enhancement is useful to deliver a more purpose-oriented user experience. For example, army people work in a difficult and challenging environment. The smart textile can help them to get some comfort while working in those extreme weather conditions and difficulties.

## Solving Fast Fashion Problem: Role of Smart Textile

As the technologies are advancing, it is opening possibilities to enhance and improve smart textile solutions. Low-cost wireless sensor networks, cloud computing, and mobile computing have become mainstream in most countries in the world. Thus, there is an increasing demand for smart textiles in Asian countries other than in western countries. It is creating opportunities for manufacturers. As more industries and people will accept it, more opportunities will be created.

With increasing demand, the cost of materials will be decreased as it's a technology-based solution, so modularity can help. For example, generic controllers can be used for the mass production of smart fabric.

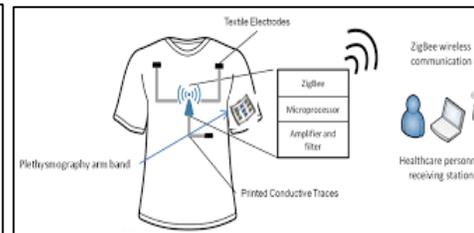
It can boost sustainability in different ways. The lifespan of smart textile products is easily predictable and longer than fast fashion products. At the same time, those are extremely customisable and versatile. Thus, people will be interested in it for the different types of work they perform in their daily lives.

## Conclusion

To reduce textile waste and meet the net-zero carbon initiative, the UK must focus on limiting its textile production and waste generation. If the demands in the market for cheap alternative solutions can be addressed, then it will reduce production. Thus, it will further reduce environmental impacts from the production and disposal of fast fashion textile waste. Even though smart textile is not mainstream yet, functionalities and cost-effectiveness can help it to get widespread adoption of the technology.

## References

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2015	The smart fabric became commercially available at stores under Hexoskin and Ralph Lauren's Polo Tech Shirt brand.
2016	The fashion-brand CuteCircuit launched SoundShirt. It had embedded haptics to allow a deaf person to feel music and vibrations.
2017	Levi® and Google collaborated to release Bluetooth enabled jackets. It was for bicyclists who are interested in hand-free communication.
2018	In Winter Olympics, the US team used self-heating jackets to keep athletes warm in freezing temperatures.
2019	Loomia released a winter coat with a heating system to make it lightweight and customised comfort setting.
2020	Biopotential monitoring, like an electrocardiogram, was possible by screen-print electrodes into garments.

