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# Beyond the Seams: Advanced Technology and Fashion

Fashion and technology often have a lot in common. Like fashion, technology always seems to be changing, always evolving. Like fashion, early technology adopters embrace cutting-edge trends while others take a little longer to adjust to the new possibilities. Like fashion, technology's

new trends typically emerge, like clockwork, at specific times of the year. Fashion has Fashion Week; technology has its Consumer Electronics Show and major smartphone unveilings. When fashion and technology come together, as they increasingly do nowadays, truly interesting, innovative change can take flight.

The marriage of fashion and technology brings us innovations like 3D-printed clothing—some almost space-age in their construction and pattern, some seamless, woven, and cloth-like, some works of art strutted down the runways of haute couture. This marriage also enables us to use connected, smart technologies such as the Internet of Things (IoT) to power wearables such as fitness trackers, and even couture connected dresses. Using nanoparticles, some researchers are exploring ways to print conductive fabrics and textiles, making it possible to imagine a day when we can wear clothing that is both 3D-printed and connected.



Mark  
Cottelee  
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Beyond the nifty gadgets and trendy clothes that always seem to make headlines, however, are the impacts of these advanced technologies on the nuts and bolts of fashion: the ways in which apparel is designed, produced, shipped, marketed and sold. They may not be as glamorous as the runway, but they arguably serve as the engine behind moving goods from the runway to the closet. Using connected technology and the data it generates to power customer outreach—in-store beacons, mobile apps and consumer behavior—fashion brands can foster more efficient and effective interactions, streamline their planning, design and buying processes, and even reduce waste.

## Customized Designs

Taking customization to its furthest extent, some brands are looking forward to a future in which it is possible to 3D-print bespoke clothing on demand. Sure, there is the idea of printing clothes at home, to reflect one's personal tastes, measurements, and needs. But beyond that, technologies like additive manufacturing (AM) can be used to 3D print custom-fit shoes and jewelry. It can also bring a fashionable edge to other types of wearables, such as prosthetics and braces for the injured and disabled. AM can also be used to prototype new designs, not just create customized, end-use products. Some jewelers use 3D printing to test new designs and create intricate molds for pieces.

## Customized Experiences

IoT-driven fashion can help designers and retailers create and sell products customized for consumers' individual tastes. By tracking their purchases, measurements, use of apps and even pathway through a store, they can help to provide the specific item that may interest a customer.



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Beyond customized products, the IoT can help to drive connected experiences tailored to customers' previous purchases, interactions with the brand, and real-time, physical proximity to a store. Using real-time and historical shopper information, retailers can offer an array of options targeted to demonstrated personal tastes. These can include beacons that trigger a welcome message on a retailer's digital app via a customer's smartphone when he or she enters the store, along with personalized offers, coupons and maps to new

items in the store he or she might like—and even provide personalized pricing based on purchase history. These types of IoT-connected experiences can also help higher-end fashion brands maintain powerful relationships with their clientele, by equipping salespeople with customer data they can use to foster more personal, tailored interactions.

### **More Efficient Production**

Gathering data regarding customers' behavior—purchases, preferences and movement throughout a store—can help retailers become better at anticipating styles that customers might gravitate toward, and thus plan accordingly. This can, in turn, help alleviate inventory challenges such as overstocking or shortages, possibly making the supply chain more efficient. Anyone who knows fashion knows that accuracy and efficient response have long been watchwords in the fashion industry, in which trends cycle through quickly and, at times, unexpectedly. The ability to more accurately monitor the movements of goods along the supply chain, between the front and back of a store, and through checkout, offers the potential for fashion merchants to become more responsive to their customer needs.

### **Increased Transparency and Authenticity**

Connected fashions can also help brands and their clientele to trace and authenticate goods, addressing challenges related to counterfeiting through RFID tags, Near Field Communication (NFC) and other technologies. A garment or accessory that has been connected throughout its journey from factory to shipment to warehouse to store can also tell a story for the customer: where it's been, how it was made, and how best to wash and care for it. For conscious consumers concerned with ethical purchases, this can be an important feature. And that connection can continue past the point of purchase, allowing brands to engage with customers, and customers to easily reorder things they like.

Advanced technologies like AM and IoT aren't just changing

manufacturing and IT—they can have a huge impact on style, fashion and how they evolve. It’s an area that intrigues many in the fashion industry, and it’s one that may very well allow us to express our own individual style, while helping retailers and designers better plan their designs, in the future.

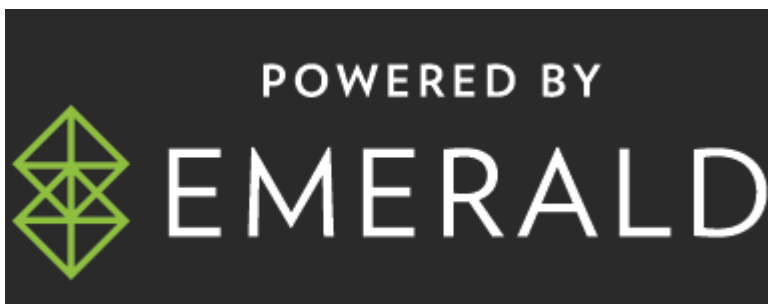
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