THE FUTURE

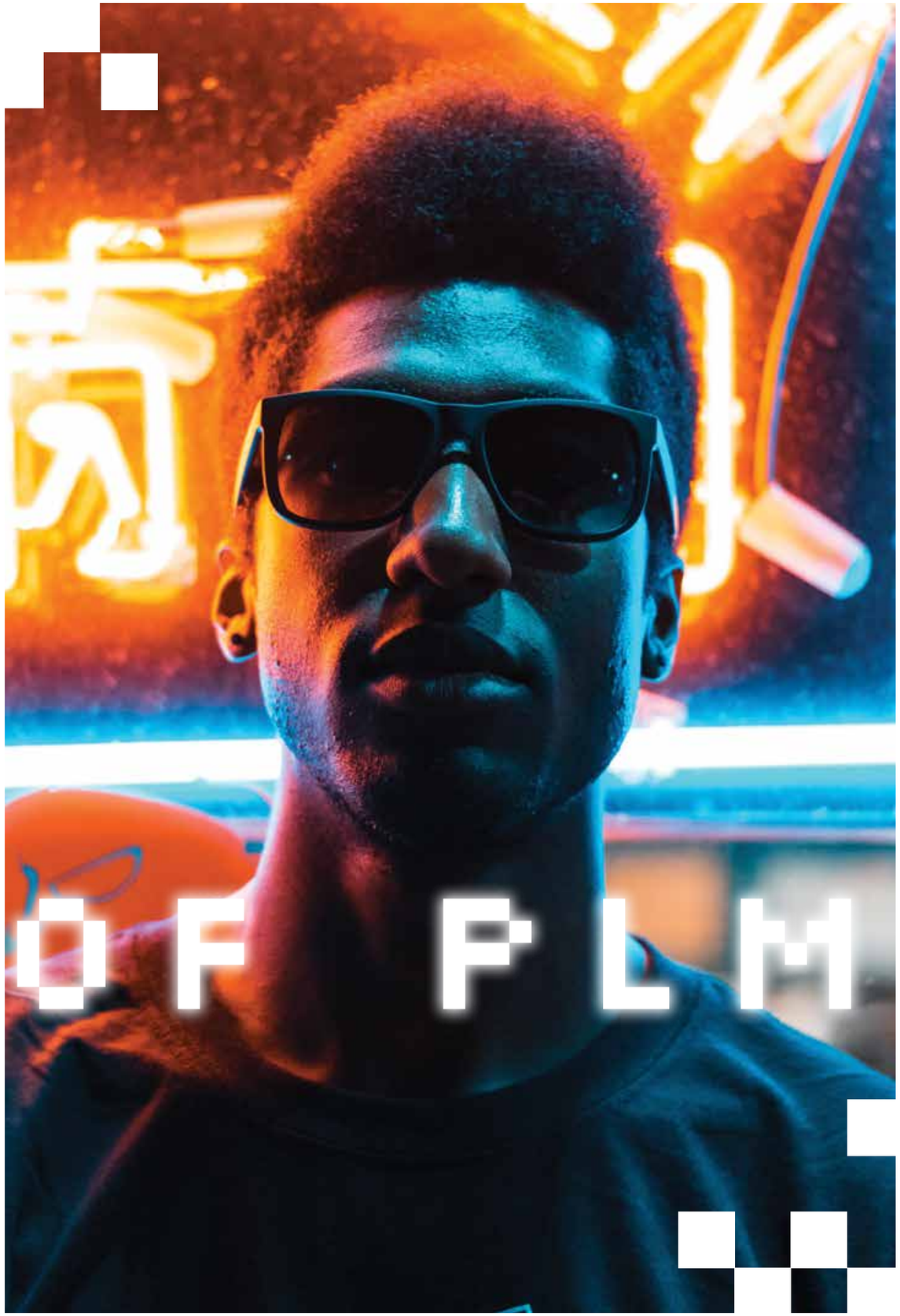
As the editorial features collected towards the beginning of this publication explain, fashion has well and truly entered the intelligence era. Second only to the products themselves, raw digital information (and the intelligence that can be gleaned from it) has become the major currency exchanged between retailers, brands, their supply chain partners, and consumers.

But while neural networks, bespoke analytical algorithms, and other methods of data analysis can sift through huge volumes of this information and serve up insights that can be trusted in the direct sense – i.e. their methods are clear and transparent - what they cannot do is tell us how trustworthy the sources of those data were to begin with.

This is not to downplay the importance of A.I. – which, as we've discussed earlier in this report, can transform everything from trend analysis to consumer engagement – but rather to draw attention to a missing piece of the intelligence puzzle: provenance.

Consider the current standard of supply chain information. Here in the UK, the Modern Slavery Act has recently come into effect, mandating that businesses with a turnover in excess of £36 million produce an annual audit statement, openly declaring that slavery – by the broad modern definition – is not present anywhere in their supply chains. That revenue threshold effectively covers all but the smallest companies, so today brands and retailers across the country are scrabbling to pull together supplier statements and establish concrete codes of practice to allow them to say, with some degree of confidence, that they are in compliance with the Act.

But while these business's intentions are good, is their confidence well-founded? They request code of practice statements from their suppliers, who promise not to use unpaid or low-pay labour. They take pains to obtain and archive testing certificates from raw material suppliers on the other side of the world. They track, as far as they can, prototype, sample, and product orders when they are loaded onto boats and arrive at distribution centres. But if we take a step back we can see that each of those pieces of evidence is only as trustworthy as the people signing their names to



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it – people who may have motive to tamper with it, or to get creative with its contents in the first place. So, when we aggregate this evidence and collect it in a single, centralised system – preferably PLM – we are, in effect, creating a chain where each individual link runs on faith.

And while the Modern Slavery Act is UK-only, similar (or much more prescriptive, punitive alternatives) are already being implemented in other production and consumption markets around the world. And at a global level, fashion is making bold claims – about product safety, product provenance, fair labour and sourcing practices - on the basis of digital information we cannot guarantee we can trust. Are we, as an industry, satisfied to settle in this way? More importantly, in a market where consumers increasingly buy with a conscience, how long will the court of public opinion accept plausible deniability when the tools for far greater transparency already exist?

"When you're talking about sharing and communicating intelligence, you need to be able to rely on a single source of information for the trinity of actors: brands, products, and consumers," says Emanuele Bertoli, Chief Marketing Officer at 1trueid, an Italian company focused on discovering applications for emerging blockchain technology in the fashion industry. "In a data-driven world, we often get so preoccupied with using and analysing information that we overlook our need to actually verify it."

It's a new word in fashion, but you may already be familiar with 'blockchain' in your personal life. If not, the odds are better that you've heard of the digital currency that led to its creation: BitCoin. A near-constant fixture in finance and investment headlines, BitCoin was the first of the so-called "cryptocurrencies," digital tokens that can be spent, stored, speculated upon, imbued with value, and traded the same way as traditional paper-backed money - but without the oversight of a single, central authority.

The vision for BitCoin came first. A democratic digital currency, free from the control of governments, where every individual is responsible for their own wallet, and value and applications are dictated by the open, global market. The technology to actually deliver on this promise came about out of necessity; there is no single BitCoin bank, so the blockchain was created to serve as a replacement, delivering a decentralised, constantly-reconciled, publically-accessible ledger of transactions that is incorruptible and effectively un-hackable. The titular blocks represent the immutable entries on that ledger.

Since then, blockchain has taken on a life of its own. There are now hundreds of competing cryptocurrencies of varying utility, and the best-performing in this new asset class have seen their values increase by more than 1,000% in the last year. Blockchains themselves now underpin everything from smart contracts (agreements which execute at set milestones, without human intervention) and distributed applications, to transparency in the energy and infrastructure markets, with exacting insight into every unit of electricity generated, sold and used. Blockchain technology also promises to be the lynchpin of the "sharing economy," bringing to life far-future ideas like the safe subcontracting of self-driving cars when their owners don't personally need them, or the hiring of compute power from a global decentralised pool, paid for with dedicated digital tokens.

In light of its potential, Blockchain has been called the 'second age of the internet', and WhichPLM feels that this is not too bold a claim, given how likely it is to transform entire industries and create totally new service economies. More practically and immediately for our purposes, though, blockchain promises to transform the way that product-oriented industries think about and track their products throughout their lifecycles.

"Blockchain usually hits the headlines for financial reasons, but we can apply the same ideas to products rather than units of currency," says Darioush Nikpour, whose New York City consultancy StycheCo is working with 1trueid in the United States. "It gives us a discreet channel of connection between the brand and the consumer, with no middle men. Without the need for any proprietary systems, the ownership status of a product can be transferred in a way that's transparent and totally accessible to everyone."

Although Nikpour is talking mainly about the transfer of ownership from retailer to consumer (and then perhaps to the second-hand market), blockchain principles are also easily applied to other stages of the product lifecycle. Today, proprietary systems or informal records, updated after the fact, are generally used to track changes in the state or location of materials, components, or finished products: from farm to mill, dye house to factory, distribution centre to retail outlet. Using a blockchain and some simple IoT sensors, the same information can be recorded at the instant a change occurs, with no chance of misinterpretation, creating true and total transparency – without a single link that hinges only on human-to-human trust.

As is often the case with new technologies, the CPG industries (where tight regulations mean that concrete knowledge of product origins is absolutely critical) have pulled ahead when it comes to deploying blockchain technologies. A Chinese company named veChain, launched by former members of IBM and Louis Vuitton, is tracking a variety of food and beverage products using blockchains, including wine bottles that carry a record of their vineyard of origin, bottling year, grape varietal and so on.

Another service business, appropriately called Provenance, is also making waves with its blockchain-based backend solution and consumer-facing mobile application. Although Provenance works in multiple sectors – and across retailers, producers, and partners – the company advertises a potent example that helps to articulate one of the core values of blockchain in a retail and brand setting. In-store, a consumer picks up a can of tuna, scans its unique label, and is able to see exactly where in the world – and by whom – the fish inside was caught. In principle, this is no different to today's world, where an eco-conscious shopper might choose one can of tuna over another because it bears a seal saying that the fish inside was line-caught, rather than captured with a net that risked ensnaring dolphins. In practice, there is a world of difference: while a formal 'line caught' body is likely responsible for accrediting fishing businesses that do not trawl for tuna with nets, the consumer is not privy to the inner workings of its auditing processes. In effect, the consumer trusts the 'line caught' label the same way they might an equivalent that says 'fair wages,' or 'made in Mexico.' Which is to say they believe in them without proof.

While we are certainly not suggesting that the bodies behind ethical and environmental food standards are lax in their duties, the important

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thing to realise is that a blockchain – unalterable, unimpeachable, and accessible to anyone – is simply a step beyond what has previously been possible in the area of transparency. With no hint of subjectivity or arbitration, a product whose lifecycle lives on a blockchain either is or is not from where it says it's from; it either is or is not made or sourced the way it claims to be. And, sooner rather than later, the tools could be in customers' hands to allow them to say with certainty one way or the other.

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Of course, the idea of substantiating what is behind a label takes a different aspect in the footwear, apparel, and accessories industries. While a food producer might take a chance and stake a claim to an accreditation they have not quite earned, fashion has a much more pressing problem when it comes to consumers' trusting the labels they see.

"The vision for blockchain in fashion is that for any product passing through our channels, we can know, without doubt, who its owner is, and that the product itself is authentic," explains Bertoli. "To put that into context, the international trade in counterfeit goods is currently worth around $460 billion, which is $100 billion more than drug trafficking. So using blockchain to secure the authenticity of products, particularly luxury goods, solves two problems: we save the luxury industry huge amounts of money that's currently lost to fake products, and we realise a new and unique connection between brand and consumer that was not possible until now."

While the immediate value of better securing intellectual property with blockchain is clear, we can also consider what the same technology might mean in a market where personalisation and mass customisation are more common. Where today's RFA blockchain entries might be thousands of instances of the same t-shirt, tomorrow's might be comprised entirely of one-offs, with consumers able to buy a garment that is not just physically but also digitally distinct from any other.

But while the potential applications of blockchain technologies in fashion are exciting and far-ranging, how imminent actually are they? Are we approaching a point where a shopper can use BitCoin or Ethereum to buy clothes from an eCommerce retailer and know instantly where they were cut, sewn, and shipped from? In the next three years, no. But all of the technical cornerstones of this vision are present, correct, and already proven in different industries. How far the use of cryptocurrencies or supply chain transparency become common in fashion is, instead, a question of preparation, market penetration, mindshare, and motivation.

It is important, too, to remember the short timescales we are working with; BitCoin first saw widespread use in 2011, and just six years later the planet's biggest technology businesses, financial gateways, infrastructure providers and others are all moving beyond the proof of concept stage and beginning to deploy blockchains in their essential business operations. Today, a single designer can create his or her styles in an affordable, subscription-based PLM solution, have their fabrics digitally printed around the corner, and then sell the resulting products on platforms like Open Bazaar, which accept all major cryptocurrencies and have few – if any – real barriers to entry. Products conceived digitally, manufactured digitally, and sold for digital money – with integrity of information at every step.

For fashion to make any further leaps, however, new fundamentals must be in place. From decentralised data storage and open systems, to improved data governance and mass roll-outs to supply chain users, WhichPLM will be watching to see how this foundational work is tackled in the very near future.

For more on the role of blockchain in the RFA industry, stay tuned for future WhichPLM coverage in print and online.