FASHION ISSUE

INTERNATIONAL TRADEMARK ASSOCIATION

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COMMENTARY

THE BLOCKCHAIN IS IN FASHION

By Rosie Burbidge[*]

Blockchain is "the new black"—at least as far as the technology community is concerned. It has been described as the biggest societal change since the Internet. In our new age of cyber threats, blockchain is seen as the solution to many security problems. But what exactly is blockchain and what could it mean for trademarks and the fashion industry?

I. BLOCKCHAIN: AN INTRODUCTION

Blockchain is a new way of organizing digital information. It is the technology that underlies cryptocurrencies such as Bitcoin, but its potential applications are much broader than digital currencies. Blockchain is a ledger (i.e., a record of events such as currency changing hands) that is replicated across a large network. In other words, blockchain is a type of distributed ledger technology, or "DLT."[1] Although it is trendy to refer to all DLT as "blockchain," there is other DLT that works in a way that is different from the way blockchain works[2] but achieves a similar outcome: a secure and indisputable record of events. This record includes the nature of the event (e.g., a change of ownership) and the order in which the events occurred. Knowing the precise sequence of events is very important for determining who owns (and who no longer owns) something such as money or a trademark.

The big difference between records stored in a distributed ledger and the more common centralized records and databases is that for a centralized database there is one single "true" copy to which everyone in the system refers. Where the records are decentralized, there can be a near-infinite number of copies, each of which is identical and "true" (i.e., accurate), at least in the long run. This is very useful from a security point of view, because even if you are able to change a large number of the records in one decentralized ledger, changing them all is so challenging as to be essentially

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1. You can find out more about blockchain basics on its very comprehensive Wikipedia page: https://en.wikipedia.org/wiki/Blockchain.

2. *See, e.g.*, the Radix DLT, at https://www.radix.global/.

impossible. This makes distributed ledgers far more secure than centralized databases.

The records that are stored in a distributed ledger can be kept anonymously and only made available to people who have the correct digital "key" for access. Because distributed ledgers build newer records on top of earlier records, once a record has been added to the database (the "ledger") and accepted as the "correct" record by the rest of the network, the record cannot be removed in the future (i.e., the addition is irreversible). The digital key is essentially a very long sequence of numbers that is unique to the owner and is so long as to be impossible to duplicate in any currently known way.

Distributed ledgers can be private or public. A private distributed ledger is one where only a few people have access and permission to add new events to the ledger. It is possible to have a private distributed ledger where only one person has permission to add to the ledger. This is a hybrid model where the database itself is decentralized but the authority over what can be added is centralized. Private distributed ledgers have lots of potential for use within governments, large organizations, and industry groups. Public distributed ledgers such as Bitcoin, which is used as a currency substitute,[3] are entirely open databases that anyone can add to at any time.

In both instances, the ledger is available only to those who are designated to have access to it. For example, on the Bitcoin distributed ledger, everyone has access to the ledger, but unless someone reveals his or her cryptographic key while the record is public, the real world identity of the person relating to the entry is unknown. The person's digital "key" is required in order to unlock that record. To date, the weak link in the security of the Bitcoin ecosystem has been the hacking of individuals' digital wallets that are used to store those keys through traditional cyber-breach methods such as phishing. The Bitcoin ledger itself, however, has remained secure despite frequent attempts by third parties to assert malicious control over it.

It is important to understand that even if a ledger is public, the information stored in the ledger can remain confidential. In a public blockchain, the ledger is available to everyone, but the content recorded in the ledger is not. In other words, the actual record (e.g., a design drawing or a trademark license) does not have to be publicly shared, but when relying on the record in the future it may be considered in terms of its relationship to other records in the ledger to prove provenance. It is this relationship to other records

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3. You can find out more about Bitcoin here: https://www.theguardian.com/technology/ 2017/nov/11/everything-you-ever-wanted-to-know-about-bitcoin-but-were-to-afraid-to-ask-cryptocurrencies.

that can prove whether a record is still current or whether an asset in question has been "spent" (i.e., transferred or otherwise used up). This means that proprietary information can be stored in a blockchain to prove timing and provenance without publicly sharing the information itself. The situation is similar in a private blockchain, but security is potentially stronger, since permission levels to even anonymized data can be more tightly controlled.

II. "SMART CONTRACTS"

It is also possible to execute what are confusingly known as "smart contracts" via blockchain. These are not necessarily contracts in the legal sense, but predetermined actions to be carried out as soon as one or more conditions are fulfilled. For example, when money is received in an account, ownership of a trademark transfers from A to B, or when someone dies, ownership of one or more of that person's assets transfers to X. In time, these "smart contracts" could potentially include more complex actions such as an automated filing at a trademark office to record a transfer. These "contracts" have particularly transformative opportunities in the copyright arena, where ownership of a digital product can be limited to one person at any one time (in the same way as their real-world equivalents).

The music recording industry is looking at using smart contracts to track and pay royalties via IBM's open-source blockchain.[4] Similar opportunities arise in merchandising and licensing agreements.

III. BLOCKCHAIN AND THE FASHION INDUSTRY

This technology is still in its infancy. To date, blockchain has mostly been used for "crypto currencies" such as Bitcoin, but the potential uses are nearly limitless.

Before going into the details of how blockchain could work for the fashion industry, it is worth considering how blockchain is already working in a particularly sensitive industry: diamonds.[5] Diamonds are high value and very small, which means that they can be easily hidden, transported, and used to pay for criminal activity. There have been various international efforts to introduce paper documents to certify a diamond's provenance, but document tampering and forgery are still possible.

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4. *ASCAP, SACEM, and PRS for Music Initiate Joint Blockchain Project to Improve Data Accuracy for Rightsholders*, ASCAP (Apr. 7. 2017), https://www.ascap.com/press/2017/04-07-ascap-sacem-prs-blockchain.

5. Gian Volpicelli, *How the blockchain is helping stop the spread of conflict diamonds*, Wired (Feb. 15, 2017), http://www.wired.co.uk/article/blockchain-conflict-diamonds-everledger.

The blockchain solution for diamonds (developed by the company Everledger) has three stages: (1) each diamond is assigned an electronic identity, digitizing the diamond's physical attributes including the laser-inscribed serial number, which is added to the Everledger blockchain; (2) a digital passport is assigned to the diamond to record its travel, transaction history, and provenance in the ledger; and (3) all transactions regarding the diamond (including insurance policies, financing, and changes in ownership) are compared against the ledger. The ledger is available to the participants in the diamond industry, governments, consumer markets, border control, and law enforcement to ensure authenticity. The combination of authenticating the transaction and being able to provide immediate evidence of the diamond's authenticity will provide a vital trail for law enforcement and traders alike.

Given their high value, it makes sense to make the effort to digitally protect diamonds in this way. Where diamonds are used in high-end fashion items, digital protection can be applied in the same way. But even lesser-value items can be tracked. With economies of scale and familiarity, it is conceivable that, in time, all components of many different types of products could be recorded in this way.

The opportunities include the following use cases for the fashion industry:

1. control of the distribution chain;
2. combating counterfeits and tracking parallel imports and second-hand goods;
3. real-time evidence of use; and
4. indisputable records of the design process.

IV. THE DISTRIBUTION CHAIN

Monitoring the distribution chain is essential for ensuring compliance with distribution agreements, preventing unauthorized parallel imports, and proving country of origin for all parts of a product. Distributed ledgers can be used in conjunction with unique identifiers such as QR codes or RFID chips[6] for each product, to track the entire manufacturing process, making a clear and immutable audit trail. Many items include security tags as a standard part of the manufacturing process, so adding some form of

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6. QR (Quick Response) codes are static barcodes that consist of a series of small black boxes within one larger box. They are sometimes referred to as 2D barcodes and are commonly added to product packaging and care labels. When scanned by a smartphone, QR codes provide the user with access to data, e.g., product care information or a link to a website or video. RFID (Radio Frequency Identification) chips use radio waves to automatically identify and track tags attached to objects (e.g., clothing or accessories). RFID chips can be passive (i.e., they respond only when scanned) or active (i.e., they constantly send out information—in this case they need to be battery-powered).

unique identifier or token would be fairly simple to achieve. It is possible for a counterfeiter to reproduce the unique identifier, but the associated data with that fake identifier will not correlate, since it is not the genuine article. It therefore may look genuine but it can be unmasked as a fake.

Tracking the supply chain is also important from a reputational perspective. The fashion industry is gaining notoriety as one of the most polluting industries in the world and is also often linked to low levels of pay and poor working conditions for its international workforce. Consequently, the fashion industry is increasingly the target of criticism for its failure to follow ethical and sustainable business practices. With appropriate infrastructure in place, blockchain technology can be used to monitor and demonstrate that manufacturing procedures meet ethical guidelines by documenting every step in the article's manufacture. Blockchain technology can also help ensure compliance with important international obligations around bribery, factory conditions, and modern slavery. Although adopting blockchain technology will involve significant upfront investment, the long-term savings in compliance and audit control should eventually lead to significant savings and enable much greater transparency. Unlike a traditional centralized database, because the records in a blockchain are essentially fixed, any amendments to the audit trail will be very difficult to achieve, resulting in a much more trustworthy record of the distribution chain.

V. COMBATING COUNTERFEITS

One challenge in the battle against counterfeit goods is being able to quickly identify goods that might at first appear to be counterfeit but are not—in other words, legitimate parallel imports and secondhand goods. The same principles that enable tracking the authenticity and licensing of an e-book or digital download can apply to physical items using blockchain, ensuring that genuine items can be tracked across their life cycle. Again, this is achieved by adding some form of unique physical identifier to the physical item.

If a cryptographic key has to be provided to authenticate a fashion item as genuine before it can be sold secondhand, then verifying goods sold everywhere—from Sotheby's and eBay to Craigslist and Facebook—can be achieved with clear and accurate precision. This will enable third-party seller platforms to take a more active part in the monitoring of products sold on their sites (if the product's tag doesn't match up to the key, it can't be listed) and buyers can be sure that they are buying the real deal.

VI. EVIDENCE OF USE

DLT can be linked to advertising and sales to create real-time and undisputed evidence of where and when a trademark is used. This would save significant time and costs in trademark disputes and invalidity actions. This could also eventually be linked to Trademark Offices, who could use the information to ensure that marks that are not used are removed from the registers, perhaps generating a notice to the trademark owners to submit further evidence to prove ownership.

VII. RECORDING THE DESIGN PROCESS

Finally, a clear and indisputable record of the design process is essential in copyright and design disputes, whether bringing or defending against a claim. For example, DLT could be used to track the design process to prove precisely when a feature was added to a design and by whom. Even if this information is stored on a public blockchain, the data itself can be encrypted so designers do not need to worry about their designs entering the public domain before they are comfortable doing so, but they can be assured that they have undisputed proof regarding the timing of their designs' creation. Again, although the design process can be recorded in an existing centralized database, the difference with blockchain is that the sequence of events and associated timeline is much more reliable and consequently much better evidence for court or registry proceedings.

Many various other opportunities are barely understood at this early stage of the implementation of the technology, such as the fast and efficient auditing of licensing agreements. Governments are already looking at ways to use DLT in areas such as taxation, particularly sales tax (or "Value Added Tax," as it is known in Europe). Alignment of all VAT transactions could include smart contracts to ensure immediate payment of the tax and, where appropriate, the repayment to businesses.

VIII. THE FUTURE

These are exciting times. DLT is still in its infancy, but it has the potential to transform the way in which the fashion and IP communities work. Now is the time to start thinking about how DLT can shape the future of fashion.