

Digital vs physical – which anti-counterfeiting technology is best?

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by Fin Slater



The global counterfeiting market is booming. Unfortunately for organisations across the value chain, the implications of such practices can be severe – health-related incidents, revenue-loss, lawsuits, and damage to a brand can all occur if parties fail to remain vigilant. Luckily though, sophisticated anti-counterfeiting measures are constantly being designed, refined, and implemented.

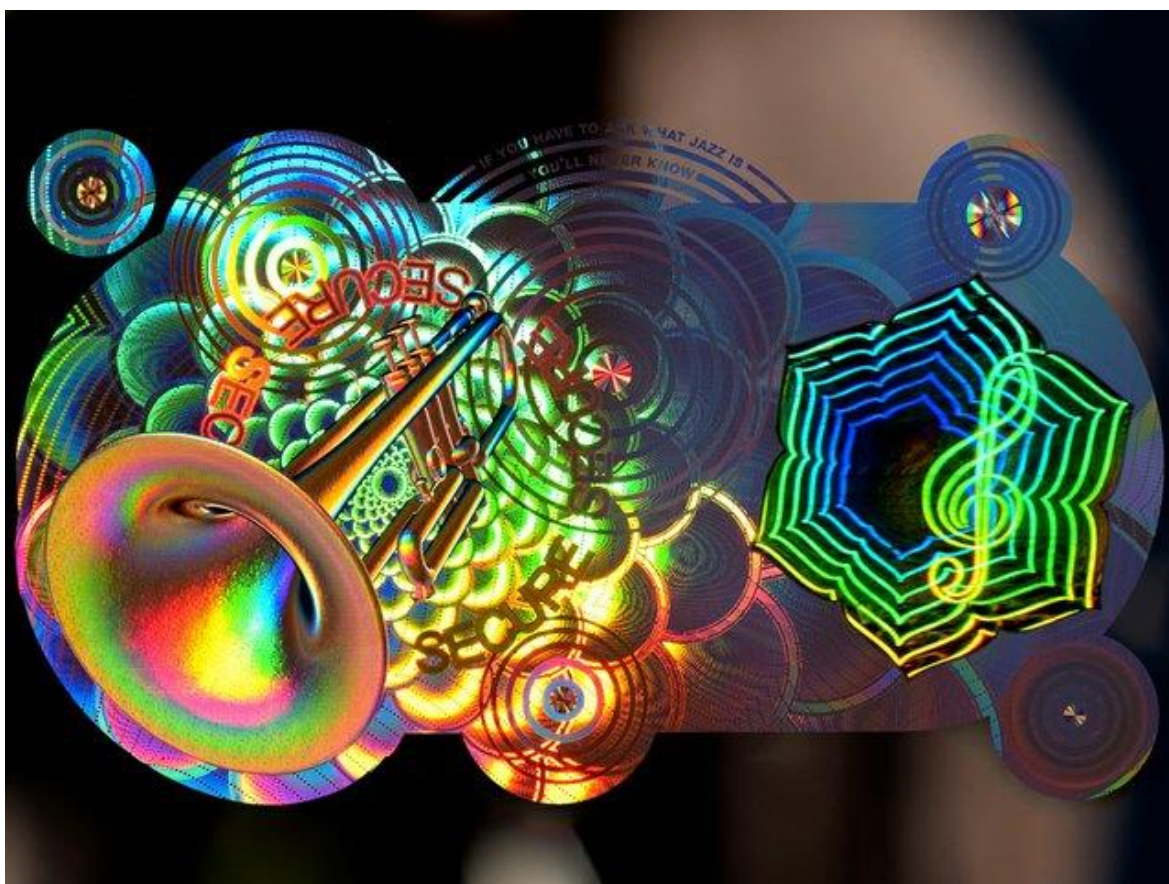
Fin Slater talked to experts from across the anti-counterfeiting industry to explore the currently available options and look to the future of the fight against fakes.

Holograms

In constant use since the mid-20th century, holograms rank as one of the oldest anti-counterfeiting solutions on the market. But could this technology have some advantages over its digital counterparts?

Simplicity is key, argues Peter Franc, Director of Security Division at IQ Structures. “Holographic technology isn’t dependent on anything else, like a database – you simply pick the package up and look at it,” he says. “This makes holograms the strongest element of visual protection.”

That’s not to say, however, that all holograms are created equal. “The right hologram needs to be applied. The most effective holograms use striking visual effects that can be easily identified and are extremely difficult to imitate. The current market is flooded with cheap holograms that can be imitated by every more sophisticated student. Their protection strength is close to zero,” Franc continues.



And, due in part to the longevity of the technology, holograms have a varied range of applications. “We focus on products that are either expensive or critical for life, health and operation costs. This means drugs, food, beverages, tobacco products, and important machine components,” concludes Franc.

Luminescent topcoats

Another analogue solution to the problem of anti-counterfeiting is luminescent topcoating which, like holographic technology, prides itself on its ease of use.

As Carolina Svensson, Product Manager Brand Protection and Security at Avery Dennison says, “seal labels can be combined with luminescent topcoats, in any colour or with a custom brand logo. The product itself is invisible to the naked eye in natural daylight but reveals its fluorescent colour and pattern under UV light.”

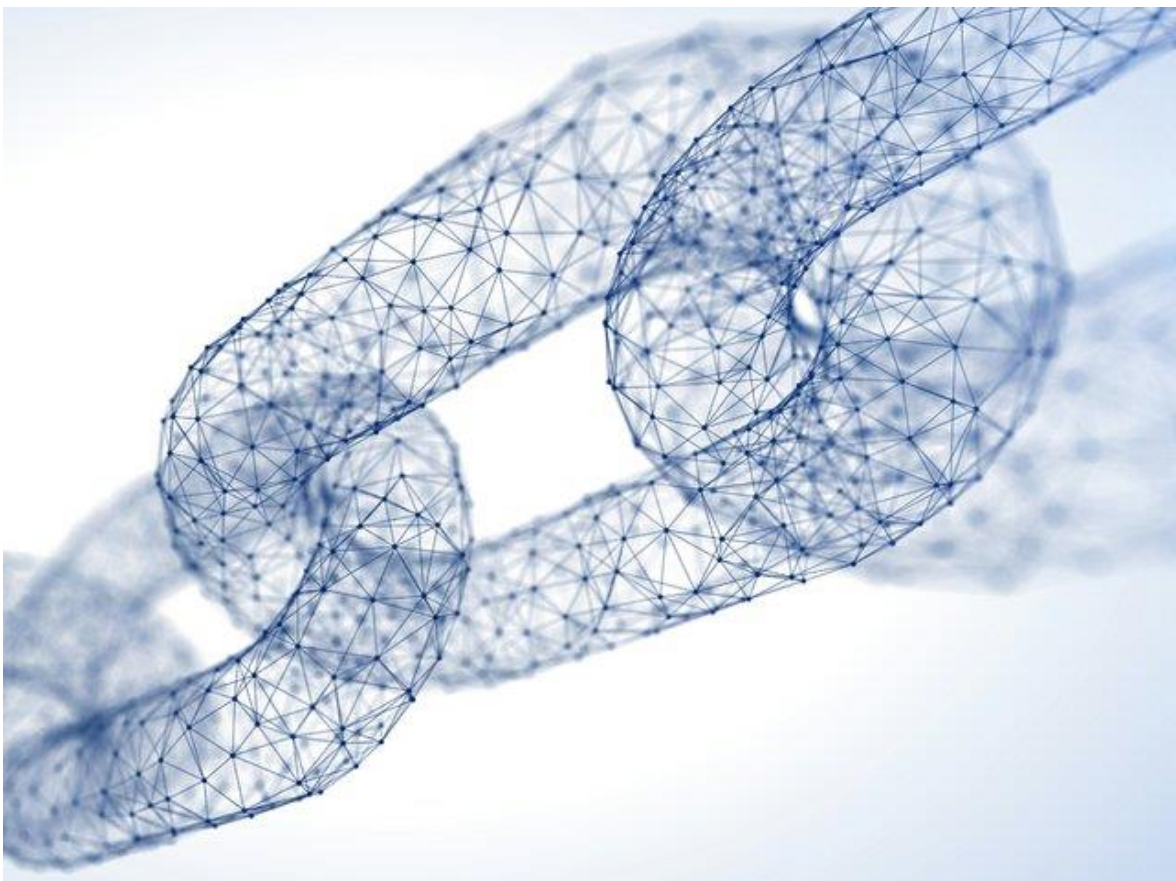
The solution is covert and customizable - any colour and logo is possible, reportedly making it hard for counterfeiters to copy.

This technology, Svensson says, is aimed at “securing items throughout the value chain, especially pharmaceuticals, electronics, and luxury goods.” In fact, Avery Dennison reports that “up to 60% of search engine results for medicines yield counterfeit drugs.”

According to Svensson, while consumers might willingly purchase counterfeit shoes, “the majority of consumers will not take the risk of deliberately purchasing a fake pharmaceutical product.” This leads counterfeiters to produce products “that are so similar to the originals that the consumers believe they are genuine.”

All of this, she continues, “creates a need for anti-counterfeit solutions can be easily authenticated by multiple parties (brand owners, customs officials, consumers) in the value chain.”

In addition to luminescent topcoats, Avery Dennison offers materials containing taggants, readable with IR-readers. In the company’s view, “taggants offer a higher level of security compared to luminescent topcoats because the readers are custom made and therefore only authorized parties can authenticate the goods.”



Blockchain

While many industry professionals will have heard of blockchain technology, most of us can be forgiven for not knowing what it precisely is. Thankfully, this technology is not as complicated as it might at first appear

to be. According to Clearmark Solutions, “blockchain is essentially a way of storing and sharing information across a network in an open, virtual digital space.”

In terms of anti-counterfeiting, blockchain’s primary asset is complete visibility. “All the information from across the value chain is linked cryptographically, which is a deterrent against attempts at falsification. The information stored can include timestamps, allowing full traceability from the source,” says Clearmark.

The meat & poultry and pharmaceutical industries are key markets for blockchain, the company continues, because blockchain’s “source-to-consumer traceability allows it to allay fears about contamination and legitimacy that have previously dogged both industries.” Clearmark argues these assets could help brands in these industries restore consumer confidence following a recent spate of food and pharmaceutical scandals. And, in light of recent legislation such as Natasha’s Law and the Falsified Medicines Directive, organizations in many territories now have a greater interest in “accurately tracing their products down the supply chain”, an issue which blockchain’s inherent assets might be able to help with.

Track and Trace (and more)

Steve Tallant, Senior Director at Systech, describes track and trace as a technology that “captures and stores location information of products through its supply chain journey.” This data can then be interrogated for point-in-time verification, and pre- and post-delivery data analytics.

Rather than being a purely digital or physical solution, track and trace blends the two. As Tallant says: “the simplest method utilizes serialized 1D and 2D package barcodes that are scanned at physical locations along the supply chain. Some companies have deployed higher-tech electronic sensor tags that can automatically record location information without scanning.”

Systech argues that also delivering a unique authentication solution makes its product stand out from the crowd. “We can evaluate micro-variations in the printing of barcodes to derive a digital e-fingerprint for the item,” Tallant says. “This means that Systech can individually identify each and every one of possibly millions of items with the same UPC code on the package,” he continues.

Much like Avery Dennison, Systech is keen to stress the practicality of its own technology. Products that use its solutions can be tracked and traced, as well as authenticated using a smartphone app in a move that, in Tallant’s view, essentially crowdsources the anti-counterfeiting process.

Track and trace products are primarily focussed on sectors in which the health of the consumer can be at risk, such as the pharmaceutical industry. However, Systech’s Brand Protection Suite, which includes these authentication capabilities, is also “actively marketed to cosmetics, wine, spirits, e-cigarettes, nutraceuticals, and other consumer products.”

What does the future hold?

Figures across the anti-counterfeiting industry agree that product counterfeiting will continue to grow over the coming years, and that futureproofing is a key way in which the industry can protect itself. Petr Franc argues that rather than asking if products can be counterfeited today, the industry should instead ask if products can be counterfeited in three years’ time. It is critical, he says, that protection producers continue to innovate in order to keep their technological advantage.

Looking ahead, it also shouldn’t be assumed that anti-counterfeiting measures are only suitable for high-value goods. Avery Dennison’s Carolina Svensson says that these solutions “will also start to be used on low-value consumer goods”.

Consumers themselves are also driving change in the supply chain. According to Avery Dennison: “Consumers are becoming more interested in and critical of the origin of packaging, leading to a need for enhanced accountability.” And, in a trend that Steve Tallant calls ‘democratization’, the industry is increasingly giving consumers greater power to authenticate their own purchases independently and simply – through the use of readily available technology such as smartphones.

The question remains though: which solutions perform better – digital or physical? The answer is, perhaps, neither – might a combination of the two provide the ultimate security guarantee? Svensson certainly thinks so, arguing that a combination of physical solutions, such as labels and seals, with digital solutions like smart labels, QR, NFC, blockchain and RFID might be the future of anti-counterfeiting.

It’s clear then that while counterfeiting threats are evolving, anti-counterfeiting solutions – both digital and physical – are rising to meet these challenges.

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