INNOVATION SPOTLIGHT:

DUST IDENTITY

Anti-Counterfeit Technology

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Report Code: SAS029A

Anti-Counterfeit Tech

The reach and secrecy of the internet make it possible to sell just about anything to anybody whenever, wherever. This creates a great breeding ground for counterfeiters to sell a knock-off of virtually any good or service at a much lower price. And it isn't just consumers who are being misled. Counterfeit sites target businesses just as much as individual buyers.

Aside from the harm this causes authentic business, some counterfeit items present a genuine risk to human health and safety. Poor treatment of workers and tax evasion are additional outcomes that arise from this market.

Authentication is key to protection; especially as counterfeit items are getting harder and harder to discern. Not only that, but scammer organizations' use of online advertisements mean their reach is far and deep.

Despite the overwhelming growth of counterfeit organizations, there are companies out there combatting the problem with unique technology—like quantum engineered diamonds.

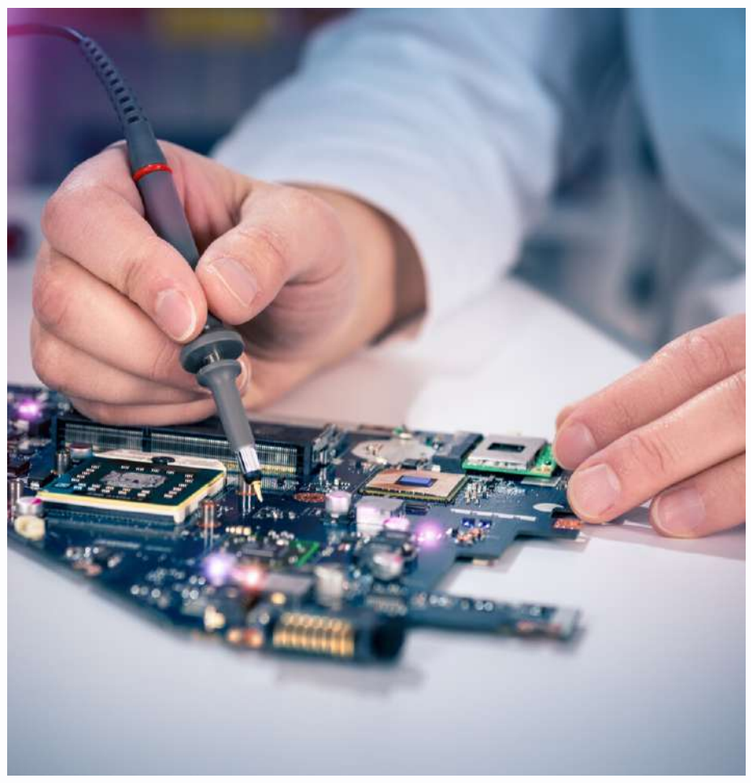
The quantum engineered diamonds solution was created by one of the most innovative businesses in the anti-counterfeit space, DUST Identity, headquartered in Framingham, MA. We sat down with DUST Identity's CEO and co-founder Ophir Gaathon to tackle the questions of the trajectory of the anti-counterfeit field and how the company is disrupting the industry.

SUMMARY TABLE

Global Anti-counterfeiting, Authentication and Verification Technologies Market, by End-Use Industry, Through 2023 ($ Billions)

End-Use Industry	2017	2018	2023	CAGR% 2018-2023
Healthcare and pharmaceuticals	44.4	49.1	86.1	11.9
Automotive and industrial	20.0	22.2	39.7	12.3
Consumer products, clothing and accessories	17.6	19.3	32.6	11.1
Food and beverage	13.9	15.3	26.2	11.4
Total	95.9	105.9	184.6	11.8

BCC's Interview With Dust Identity



BCC: DUST Identity is a unique company in the anti-counterfeit market. Could you briefly explain what it is and what motivated you to start the company?

Ophir G: My co-founders (Dirk Englund and Jonathan Hodges) and I met at Columbia University while studying the quantum characteristics of diamonds. A few years later at MIT, DARPA [Defense Advanced Research Projects Agency] approached us with a critical problem in modern supply chains: a trusted physical identity for critical components did not exist. We recognized that the quantum properties of nanoscale diamonds made them uniquely suited for creating physical fingerprints for product and component traceability. And that's how DUST (Diamond Unclonable Security Tag) was born.

DUST is made out of engineered diamond crystals that we apply onto objects. The random orientation of the diamonds applied to a surface creates a fingerprint or snowflake -- it is unique and unclonable, offering an extremely high-level of security.

We quickly realized that supply chain security concerns go beyond defense platforms. Across industries (from aerospace to automotive to industrial to medical to consumer and luxury goods), we saw the challenge of identifying physical objects and being able to determine whether a physical object has the right attributes -- from cybersecurity, safety, and quality standpoints.

Whether it’s an aircraft’s landing gear, an autonomous vehicle’s imaging sensor, or an electronic component in a data center, you must have a high-level of confidence that the item or part does in fact function as intended and that the data (e.g. certification data) correlates with that part. There are also compliance, regulations, and sourcing requirements to consider. How do you ensure that a part or product goes through the right hands, and the right parties at the right time? DUST solves that problem by connecting data to physical objects.

DUST is first and foremost a security-focused traceability company: our technology lets us track individual parts for quality control, compliance validation, and to prevent counterfeits from entering the supply chain. Counterfeits are one of the pain points, or symptoms, of the broader problem of identifying objects. This is why we created identity management for physical objects.

BCC: How is DUST Identity disrupting the industry?

Ophir G: Anti-counterfeit is a symptom of the bigger problem: object identification. We are disrupting the industry by providing a tool that provides better sourcing, better quality control, greater transparency and more accountability. We allow organizations to build resilience into their supply chain and be in control of a rich dataset. The output is the ability to displace unauthorized copies, circumvent unauthorized distribution channels, and prevent product diversions and leakage--all which stem from the lack of knowledge of products' provenance.

Traditional anti-counterfeit tools are often incompatible with the ability to scale and are typically focused on brand protection. DUST, on the other hand, accommodates large-scale deployment at the unit-level (with zero-day deployment) and helps organizations remain resilient and effective over time. It's also more cost effective (at less than $0.01 per object), and the tag can be applied on the smallest of components (the footprint is as small as .0025^2 mm).

BCC: Has COVID19 affected DUST both in day-to-day activities and with the company focus?

Ophir G: Like other companies across the globe, we're responding to the pandemic by adjusting our workflow to keep our employees and customers safe. Our day-to-day operations, however, have been less impacted compared to other organizations. As an essential business supporting government agencies, we have a small team working in the office and in our facilities (following social distancing guidelines, of course). The rest of our team works remotely. As a company with employees based across the nation, we're accustomed to working remotely and can still meet our customers' needs and support their activities.

From a business perspective, we have not shifted our focus in any way, but rather, are accelerating based on customer demand. Our mission is to support our customers in these difficult times as they experience new and different challenges across their value chains.

In times of crisis like COVID, current tools are proving inadequate when the ability to verify products is much more challenging. For instance, there has been a significant rise in the prevalence of counterfeit medical equipment and supplies when traditional audit measures collapse under the pressure. Many supply chains aren't agile enough or able to adapt to sourcing surges.

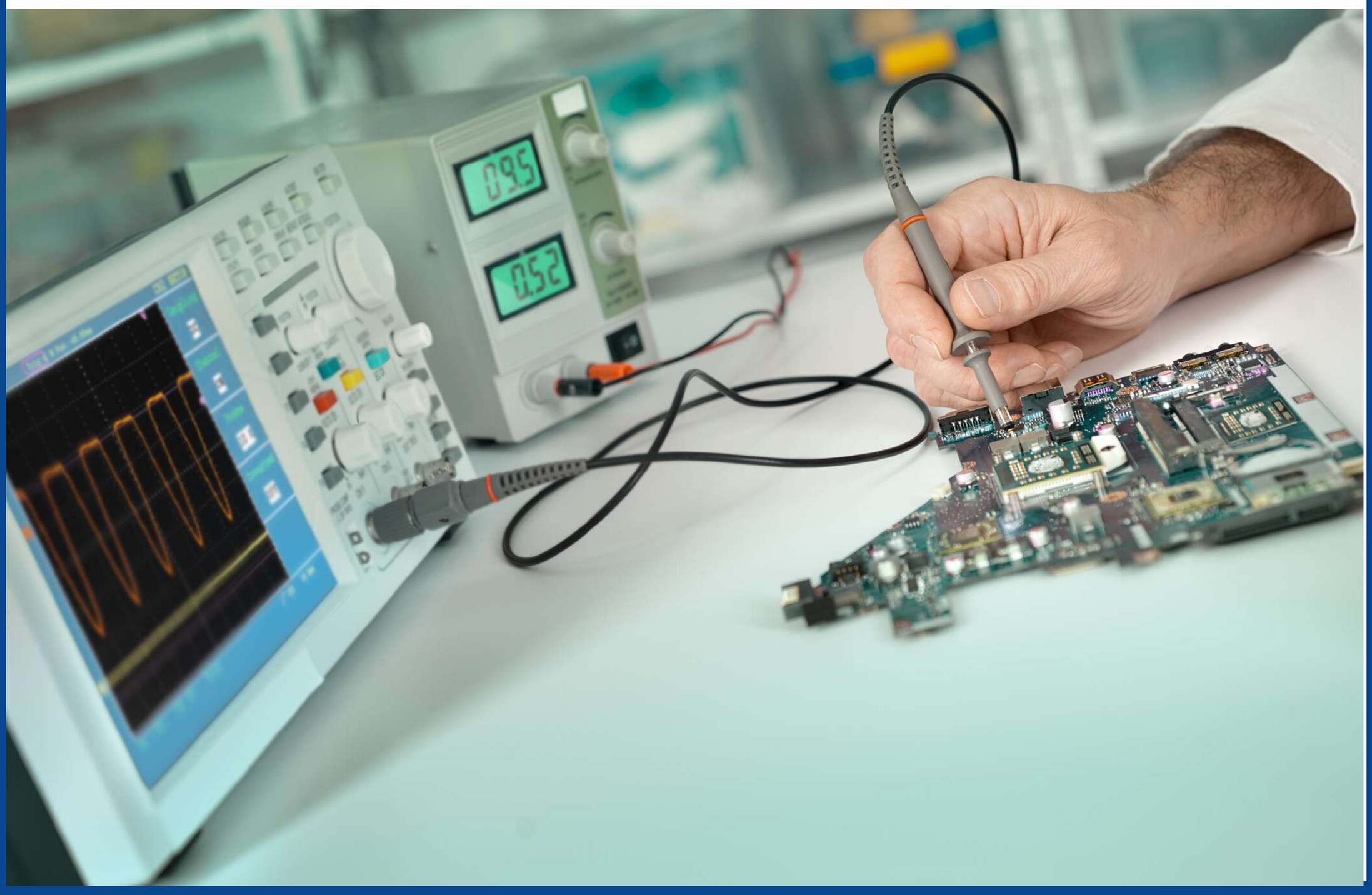
There is a growing demand for technologies like DUST. Not only within the medical sector, but C-19 is also driving the need for other industries to build long-term resilience. By harnessing the power of digital transformation coupled with strong operational know-how, supply chain practitioners are leading organizations through this crisis by designing more resilient strategies for the Post-Pandemic World.

BCC: DUST Identity incorporates blockchain. Could you talk about how it's being utilized and why it's helpful?

Ophir G: DUST Identity does not provide its own blockchain, but rather serves as an enabler for our customers' blockchains to securely connect to the physical world. We see great utilization of blockchains across different types of supply chains. Typically, the incorporation of blockchain into supply chains is driven by the desire to digitize supply chain transactions in a secure, shareable, and efficient manner.

As a solution provider, we support these transformations. Blockchain is one of the ways that organizations can have better assurance that the data associated with the supply chain is trustworthy and tamper-resistant. DUST provides an anchor to the blockchain, connecting data with the physical items moving through the supply chain. Put another way, DUST allows the creation of the first block in the blockchain, a birth certificate that all other data can be connected to. This creates a secure physical-digital binding and also ensures that the person consuming the data is authorized with the right viewing privileges.

For more information on DUST Identity, check out their website here.



What Does BCC See Ahead?

Technological innovation within the anti-counterfeiting, authentication and verification technologies market is a major factor contributing to the growth of the market. Market players and government organizations look forward to continuous development of new and advanced technologies in anti-counterfeiting. Companies like DUST Identity will play a huge role in the way the counterfeit market is combated.

Upcoming trends you can bank on:

- North America is expected to dominate the anti-counterfeiting, authentication and verification technologies market in the upcoming years in terms of revenue and investment.

- Growing drug development and investment in drug discovery is expected to influence market growth. Increased adoption of digital platforms for the sale of drugs and medication is also a key trend in the market.

- Organizations are working to create layered defenses to enhance the security of existing anti-counterfeit solutions. A good example is DUST, which will be deployed on commercially available and cloneable technologies like anti-tamper stickers and RFID tags in order to serialize them in a secure and cost effective manner.

For more information on the anti-counterfeit technology market, read BCC's full report here.

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