# Local Health Alert Systems for Supply Chain Needs

MxD (Manufacturing x Digital) works with the Department of Defense to equip U.S. manufacturers with the digital tools, cybersecurity, and workforce needed to “build every part better than the last.” The organization has over 300 partners across diverse industries, each working to increase productivity while strengthening the manufacturing sector. With a focus on digitally-powered production, MxD is working to harness the most promising future opportunities.

## Challenge

Efficient medical supply chains are crucial to our healthcare system and must perform amidst evolving macro and microeconomic conditions. Efforts to source personal protective equipment (PPE) during the COVID-19 pandemic highlight the risks of relying on Just-in-Time (JIT) deliveries and international supply chains.

## Solution

SIMBA Chain and MxD worked together to build a Local Health Alert System that conducts on-chain contact tracing and data analysis. The initiative was funded by a $6.25 million award from the National Institute of Standards and Technology (NIST), part of the U.S. Department of Commerce.

## Results

The Local Health Alert System translates real-time public health indicators into future demand signals that predict supply chain needs. As a result, **participating medical institutions can leverage predictive modeling to accurately assess and respond to future needs, reducing the risk of supply shortages.**

The healthcare industry must contend with numerous challenges, from the risk of supply delays or non-delivery to unique privacy and security challenges. Faced with these complexities, MxD looked to SIMBA Chain for an innovative solution to a widespread problem.

The resulting platform delivers early, high-resolution demand signals using SIMBA's API agnostic technology, zero-knowledge proofs, verifiable credentials, and distributed IDs to provide a decentralized and privacy-preserving system. Together, these technologies generate immense value for customers and the broader healthcare sector, delivering a marketplace for consumers and manufacturers of emergency health and medical goods. The solution also integrates with health-monitoring wearable technology, enabling early disease detection.

When speaking on the partnership, Federico Sciammarella, MxD President and Chief Technology Officer, emphasized the benefits of adaptive supply chains. "Facilitating a real-time connection between active public health data and the supply chain status will enable companies to more efficiently produce and deploy medical supplies in future health crises. This partnership will enable MxD and SIMBA Chain to put the tools in place for more agile supply chains across the public health sector."

However, predictive modeling and AI only function when data inputs are accurate. To maintain this accuracy, information needs to be timely, precise, and originate from a single source of truth. These conditions can be challenging when stakeholders rely on data sources and streams that aren't interoperable or connected.

Fortunately, the transparency and immutability of blockchain technology can help solve this problem. Specifically, SIMBA Chain streamlines the adoption of blockchain technologies using REST APIs that integrate with multiple blockchain protocols. Companies can build Web3 applications quickly and efficiently using these APIs without being locked into a specific platform.

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– **Dr. Federico Sciammarella**
MxD President and CTO

## About SIMBA

Incubated at the University of Notre Dame in 2017, SIMBA Chain (short for Simple Blockchain Applications) provides a scalable enterprise platform that simplifies blockchain development. With fewer barriers to entry, companies can build secure, scalable, enterprise-grade solutions that integrate seamlessly with existing data systems. SIMBA implementations generate value for major government organizations, enterprises, and blockchain companies as a production-grade platform that enables public, private, or hybrid deployments.