Block-chain Solutions

OPPORTUNITY

ITM Group's IMPEER is an innovative, data-driven, asset-tracking system that offers customers with full visibility and oversight across entire supply chains. By leveraging proprietary blockchain technology and artificial intelligence (AI), IMPEER offers an interoperable solution that can support incoming data via API endpoints from multiple procurement systems. By relying on trusted data sources, IMPEER provides customers with a more cohesive picture of their entire supply chain. Government entities (e.g., DOD, DISA, DLA, NASA, HHS, FDA) that rely on supply chain providers (e.g., OEMs, manufactures, parts providers) would benefit from IMPEER as a fully automated solution that tracks asset through a real-time, systemized approach utilizing QR codes and edge devices. With IMPEER, our clients' risks of counterfeit parts infiltrating their system, as well as misrepresented identities/pedigrees of manufactured parts, would be reduced. In return, IMPEER would improve cost savings, productivity, and time efficiency to customers while reducing human error and logging of inaccurate data.

The innovation was originally developed in 2019 in collaboration with NASA to fabricate a customized solution to track and organize high volumes of parts and components for various multi-year NASA projects. The resulting IMPEER platform was well received by NASA project managers who had expanded its application towards other projects. ITM Group's future efforts would be dedicated towards developing IMPEER as an add-on extension to enable customers to acquire and procure parts through on-demand services within their manufacturing ecosystem.

PROBLEM STATEMENT

US governmental entities are demanding for better solutions to improve the visibility and oversight across entire supply chains to reduce risks of counterfeit parts, as well as misrepresented identities/pedigrees of manufactured parts. Currently, the infiltration of counterfeit parts from international sources is disrupting the governmental supply chain, particularly for the DOD and aerospace. For example, foreign countries, particularly Russia and China, converted e-waste to develop counterfeit semiconductors supplied to US manufactures to be integrated into weapons, electronics, sensors, tools, etc. Consequently such events would compromise credibility and trust within the governmental supply chain, the production of unreliable tools and devices (e.g., weapons, automatics, missions, navigation systems, etc.), mission interruptions, and higher risks of jeopardizing the safety of military troops and US citizens.

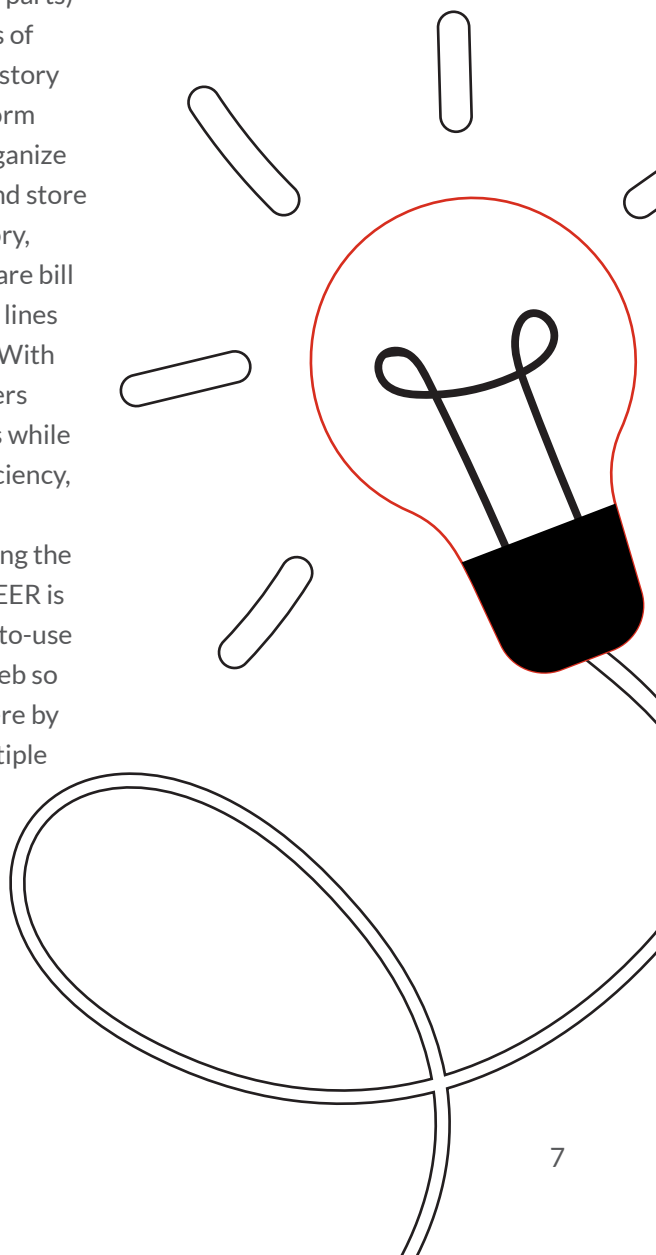
The number of counterfeit incidents has also doubled within the past decade , particularly in the electronic military systems, due to the rapid growth of e-commerce, expanded foreign supply chains, and increased dependence on overseas manufacturing. As a result, supply chain networks are becoming more complex, vulnerable, and expensive to manage. Massive volume of data must be spread around various processes, sources, and siloed networks, causing most supply chains and asset-tracking systems to suffer. For instance, hardware manufacturers are required to keep track and monitor many moving parts throughout production lines to ensure all tools, components, and assets are accounted for. Yet, current asset-tracking systems are time-consuming, expensive, and ineffective. Most processes are done with manual “paper and pen” databases or spreadsheets and must rely on many employees across different departments - and even locations - to continually update these records. Thus, current solutions are ineffective and highly prone to mistakes as these outdated systems lead to high risks for human error, theft, waste, and wrong inventory estimations. Due to inaccurate, incomplete and unorganized data from these solutions, operations cannot be properly streamlined or forecasted and related data analytics are usually inaccurate. Other issues of outdated asset-tracking systems also include risks for siloed data; lack of asset organization; inconsistencies between different employees, departments, and locations; and, inaccurate recording of assets.

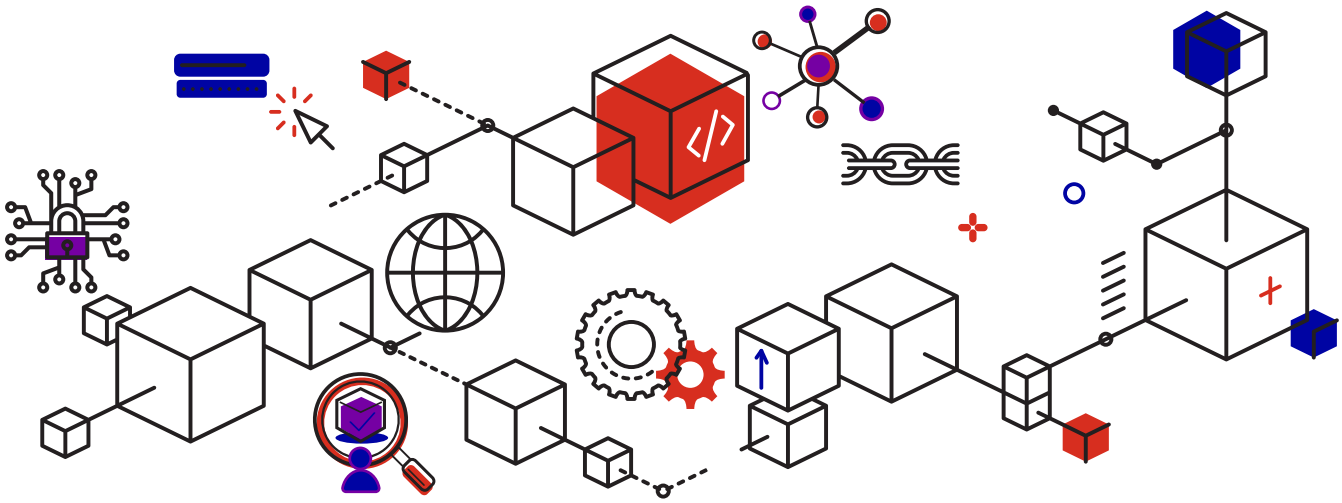
Thus, governmental entities are demanding for an agile, high-performing asset-tracking system that can be implemented across entire supply chains. Since most current systems lack the real-time end-to-end visibility and automation, governmental entities would benefit from a digital solution that can automatically streamline and expedite asset-tracking (for assets and inventory) through a real-time, systemized approach. In return, this would reduce the need to rely on employees and risks for inaccurate data logging while improving cost savings, productivity, security and efficiency.

INNOVATION

IMPEER is a data-driven system that leverages proprietary blockchain technology and Artificial Intelligence (AI) to facilitate and streamline the tracking of parts and assets. IMPEER helps customers establish end-to-end visibility
with an interoperable system that connects data across multiple siloed systems. Using correlated data from both internal and external sources, IMPEER's AI enables for the analysis of unstructured data so that customers can identify and evaluate relevant events within and outside their supply chain. IMPEER seeks to address software architecture, interoperability, and organizational challenges in data definition, acquisition, verification, and sharing. Importantly, our system also 'future-proofs' organizations by automating compliance monitoring for supply chain transactions based on upcoming regulations. For instance, the state senate of California recently introduced a bill to make use of blockchain technologies for corporate records. This would expand their use of decentralized systems to store "mathematically verifiable" data and use distributed ledgers "to store specialized data in the permanent order of transactions recorded." IMPEER is adaptable to these types of new regulations and legal changes.

More specifically, the IMPEER platform automatically keeps track of assets (e.g., tools, components, parts) through detailed checkout logs of each asset and records their history of changes. The IMPEER platform enables enterprise users to organize datasets to intelligently sort and store inventory, receive new inventory, track assets, and helps to prepare bill of materials across production lines via API from existing systems. With the IMPEER platform, customers can reduce their carrying costs while boosting their operational efficiency, increasing profits, improving productivity levels, and elevating the user's overall experience. IMPEER is also aggregated into one easy-to-use product for both mobile and web so that it can be assessed anywhere by different users and across multiple locations on a real-time basis.





ITM Group's IMPEER asset tracking platform delivers the following advantages:

- A validated asset tracking solution already being used by NASA across multiple projects
- Can be purchased directly from NASA SEWP V
- Critical metadata storage on a distributed ledger
- Chain of custody of parts and assemblies
- Enabling continuity between departments by allowing assets and data to move freely/securely across a geographically dispersed/ siloed organization
- Improves access levels and security through blockchain technology
- Allows for real-time, supply chain provenance tracking integration
- User logs tracking, forecasting, and data analytics features
- Proprietary software technology protected by IP
- Improves supply chain safety, trust, integrity and sustainability for US governmental entities
- Automated compliance for easy reporting during audits