

Blockchain and the Marine Corps

The argument for *Installations and Logistics 2030*

by Capt Josiah R. Irwin III

When we normally hear of blockchain, we think of what cryptocurrency is currently being bought and sold around the smoke pit. However, beyond the rise and fall of Bitcoin and the 1000s of Dogecoin that currently sit in my crypto wallet, blockchain has more applications than decentralized currencies. For those unfamiliar with what blockchain is, we can describe it as a tracking number that is unbreakable, a distributed ledger system that stores transactional data, or a compilation of records that is shared through parties that are grouped to create a historical record of unaltered data. Ultimately, it is a decentralized and distributed system that shares, records, and validates data by a network of computers called “nodes.” The mega-shipping company Maersk has been working in tandem with IBM to explore the technologies used to create realtime tracking of items to help all parties in the supply chain with accountability, speed, and security. Using blockchain technology perfectly aligns with the Marine Corps’ goals as outlined in *Installations and Logistics 2030*.

Our adversaries are already ahead of us in this realm. China is well versed in the technology’s uses. Back in 2019, China’s President Xi Jinping called for the acceleration of the technology’s use in all sectors of the country to become the leader in the next big technological leap. Since that time, 84 percent of the world’s patent applications with blockchains have come from China and helped solidify their role in utilizing legal and economic warfare to help secure their power.¹ Ultimately,

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this technology has found use in their data farming. The blockchain can help the end user collect all the data of an individual in one centralized location and be used to manage people in their everyday lives through denial or promise of services. Fortunately, the United States still has an advantage over authoritarian regimes. Our knack for innovation and exploration through decentralized systems can help us catch up to other countries who are capitalizing on the technology’s exploitation.

The first objective of *Installations and Logistics 2030* focuses on the global awareness of our supply chains while supporting our operations in a modern world. The core problem is the need for tools to allow “commanders to visualize logistics resources in space and time across the Joint Logistics Enterprise (JLEnt).”² Blockchain allows us to achieve that. The objective covers five topics that blockchain can solve: security, data-driven, interoperability, networked, and sensor-based.

Security

Imagine you win the lottery one week; you go back the following week and win it again, and again, and again, and again. This happens nine times. That is the same probability someone

has of cracking the code for a specific blockchain. The security of our digital footprint in the supply chain is critical to our future success. If the adversary can see where we are sending certain items, they can plan to circumvent our operations in remote locations. The security offered by this technology is unparalleled and its viewership is only available to those who have access to that specific blockchain. By having sole access to the viewership of the supply chain, we can fix aircraft, resupply units, and refuel weapon systems without adversary knowledge. This heightened ability to maintain operations security is a crucial tool for commanders.

Data-Driven

In September last year, there was a short pause on the production of the F-35 after they discovered a magnet used in the propulsion system had cobalt alloy from China; while the magnet’s alloy being of Chinese origin provided no risk to the security or integrity of the aircraft, it slowed our acquisition process. Blockchain technology enables the user to see where every component is manufactured and changes hands. Being a data-driven technology, it allows every party to view the supply chain digitally, which ultimately saves paper. Instead of the time it takes in the administrative side of aircraft parts to go from manufacturer to distribution center, to logistics squadron, to the operational squadron, and the shipping companies in between, we can now use that time in actual maintenance with better oversight, speed, and supply chain integrity. Now we can create an

electronic jacket that every member can view in the supply chain that contains secure historical data that the required parties can only view. With this technology, when a component is determined as being defective by engineers, instead

commander to make more informed decisions with rapidly ready information. In realtime, the commander and our joint partners will determine when humanitarian aid is expected to arrive, better track the inbound and outbound

to focus more on operations and have less worry about the integrity of supply chains.

This is a joint Service and private venture. For blockchain to work, we must have buy-in beginning with the acquisitions process. We must adopt our information technology systems to integrate it, our weapons systems and their manufacturers must make the technology cross-compatible, and we must improve Service representation with American Supply Chain businesses (FedEx, DHL, and Amazon for example) to make this possible. Blockchain technology is the new revolution in our globalized world and artificial intelligence may be the key we need to circumvent our adversaries in this realm.

Artificial intelligence helps explain blockchain more in the follow-on article.

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of downing the entire weapon system across the fleet, we can quickly pinpoint which components are defective. This data-driven technology would give commanders better oversight of their weapon systems than previous systems have.

of personnel, and more efficiently track the acquisition process across Services.

Sensor-Data

Using blockchain, we can track hours, rounds, and a plethora of other functions and have artificial intelligence order the parts and begin the supply chain. For example, an aircraft's phase maintenance is determined based on flight hours. After the aircraft has reached a certain number of flight hours, an automatic system should communicate to members of the supply chain to prep the package of parts to do the phase maintenance. Blockchain and artificial intelligence would make this process expedient and eliminate human error processes. It can determine, based on flight data, which parts may need to be replaced and which parts to order. This would allow commanders

Interoperability and Networked

The beauty of blockchain is it allows us to operate with everyone through the supply chain, including our partners in realtime. It is imperative to mission success that we can outmaneuver our adversaries in information operations. We can accomplish this through the interoperable networks provided by blockchains. Now our allies can view data to make informed decisions on movements, resupplies, and operational tempo. If our allied and joint partners can see the same data as us, it allows the

Notes

1. Mausam Jha, "Financialexpress," *The Financial Express*, September 23, 2022, <https://www.financialexpress.com/blockchain/china-accounts-for-84-of-all-blockchain-patent-applications/2688974>.
2. Headquarters Marine Corps, *Installation and Logistics 2030*, (Washington, DC: 2023).

