Revolutionizing DoD Financial, Logistics, and Audit Capabilities Using Blockchain Technology

by Brian A. Smith and Derek Claiborne

Most people associate the concept of a blockchain with cryptocurrency. Department of Defense financial and logistics experts should consider blockchain for its potent capabilities to support audit readiness throughout the DoD financial, logistics, materiel, and real estate communities.

The U.S. Department of Defense (DoD) and the military services program, budget, execute, and account for hundreds of billions of dollars annually. In Fiscal Year 2024, the Department received $841B in appropriated funds from the U.S. Congress. The DoD uses those funds to pay for operations, equipment, logistics, training, medical, payroll, maintenance, base operations, recruiting, and every other activity required to raise, train, maintain, and employ the military arms of the United States as well as further support national objectives overseas with partner nations or forces.

Complying with the Law and Secretary of Defense Guidance:

Beginning in 1994, the Congress required all U.S. government agencies to conduct and pass an audit that affirms the status of their balance sheets and account for those funds and nearly all assets. The DoD began to conduct full audits in 2018 and has yet to pass. In general, the DoD is the only agency in the U.S. government that is unable to pass an audit by an Independent Public Accounting firm. (The Marine Corps did gain a clean opinion in 2024 – congratulations to the Marines!)

Secretary of Defense Austin issued specific guidance in his *"Expectations for Supporting Department of Defense Financial Statement Audits"* memorandum dated 13 October 2023 that directed that *"Components will work to identify opportunities for DoD-wide solutions to simplify the DoD's financial management systems environment."*

A Bridging of Disparate Systems:

The Services use various and disparate systems and processes spanning financial management, personnel, logistics, foreign military sales, and equipment to conduct their day-to-day operations and administrative functions. Total systems integration is complex when the services are 'at peace'. When conducting combat and expeditionary operations spanning conventional, joint, and special operations globally, that task becomes exponentially more difficult as demonstrated by over 20 years of persistent operations in Iraq, Afghanistan, Syria, and Africa.

Beyond 'Internal' Requirements for Accountability:

Further complicating the task, the Services may pay for 'nation building' or 'stability' activities such as reconstruction, disaster relief, and humanitarian assistance. DoD also pays and supplies material for training, outfitting, and arming partner forces as demonstrated in Iraq, Afghanistan, and Ukraine with billions of dollars' worth of funds, ammunition, and equipment being transferred to the Iraqi, Afghan, and Ukrainian militaries to train, sustain, pay, and employ those nascent military capacities.

Lethal Aid:

Support of Ukrainian, Iraqi, and Afghan forces also introduces the transfer of lethal aid to foreign entities. Items in the lethal aid category include major weapons systems, aircraft, vehicles, small arms, sensitive items, munitions, and

night vision devices. These items are normally subject to end use monitoring to prevent abuse or misuse. While the intent is for the partner force to employ and use or consume the aid, there are many opportunities for this equipment to end up in the wrong hands via loss during combat operations, graft, corruption, or outright theft.

A Herculean Task:

Passing an audit and maintaining accountability for all entrusted resources – whether funding, equipment, ammunition, weapons, or property – revolves around an organization's ability to follow its resourcing and procurement cycles from cradle to grave. Activities spanning the reception of resources, expenditure, reconciliation, and proving where the resources went, what they were expended upon and by whom, require quick access to key supporting documents spanning the enterprise. In accounting terms, do the 'books' match what is on 'the shop floor' – and vice versa. An independent auditor must be able to expediently sample and test all processes and gain confidence that the processes and systems employed are consistent, repeatable, and uncorruptible. The global and operational nature of military operations severely complicates the auditor's mission.

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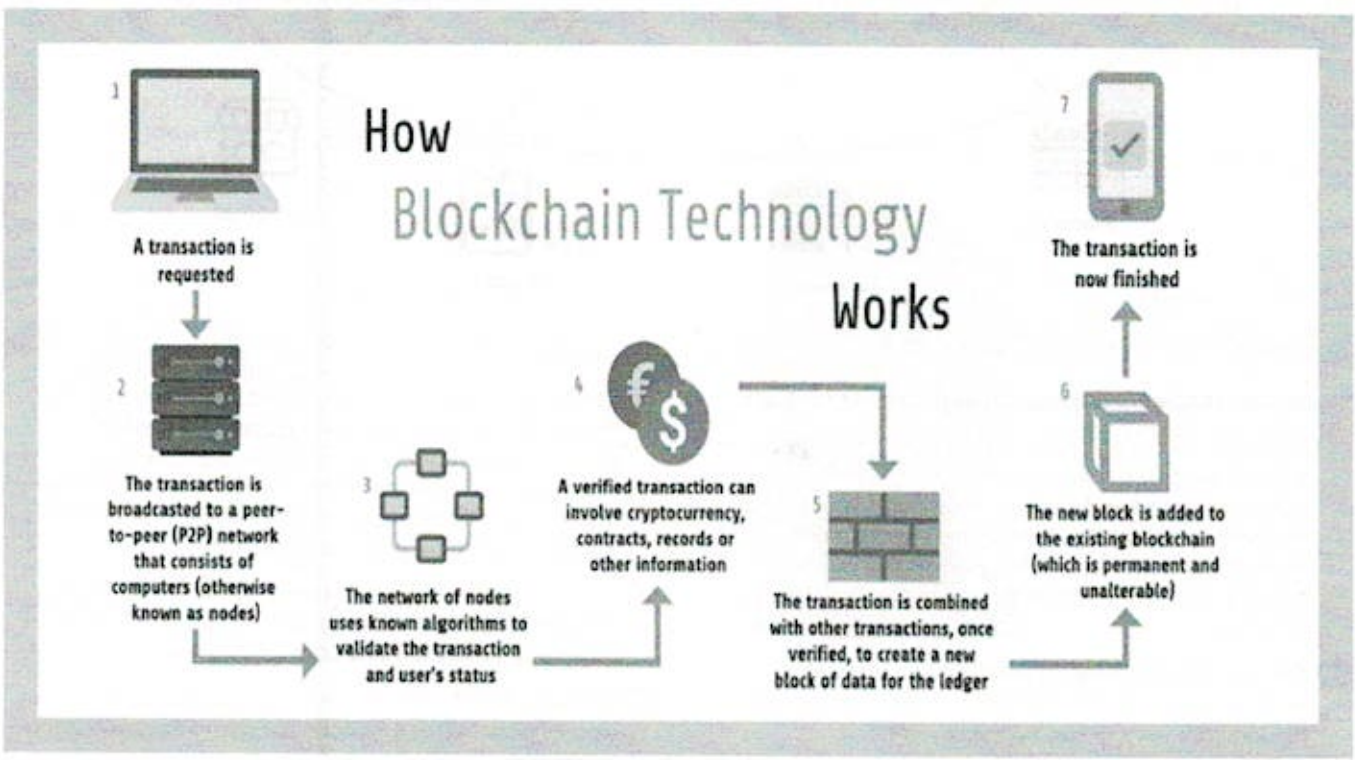
The Need for a Single System or Capability to Track and Report:

Therein lies the problem for the DoD and Services. With so much equipment, personnel, munitions, weapons, and vehicles shipped , and personnel and equipment constantly on the move, the problems are both complex and many. Among these are: missing documents, price mismatches between systems, and equipment that is either destroyed, misplaced, consumed, deployed, or even provided to partner forces. Further exacerbating these challenges are characteristics of military life: regular rotations of personnel through units (and the resultant loss of continuity), documentation stored in disparate locations, and activities responsible for audit readiness being located in different geographic areas. Combined, all contribute to a gap in the ability of the services to account for entrusted resources.

A Solution Worthy of Developing – Blockchain:

The case for blockchain to facilitate financial management and auditability within the DoD.

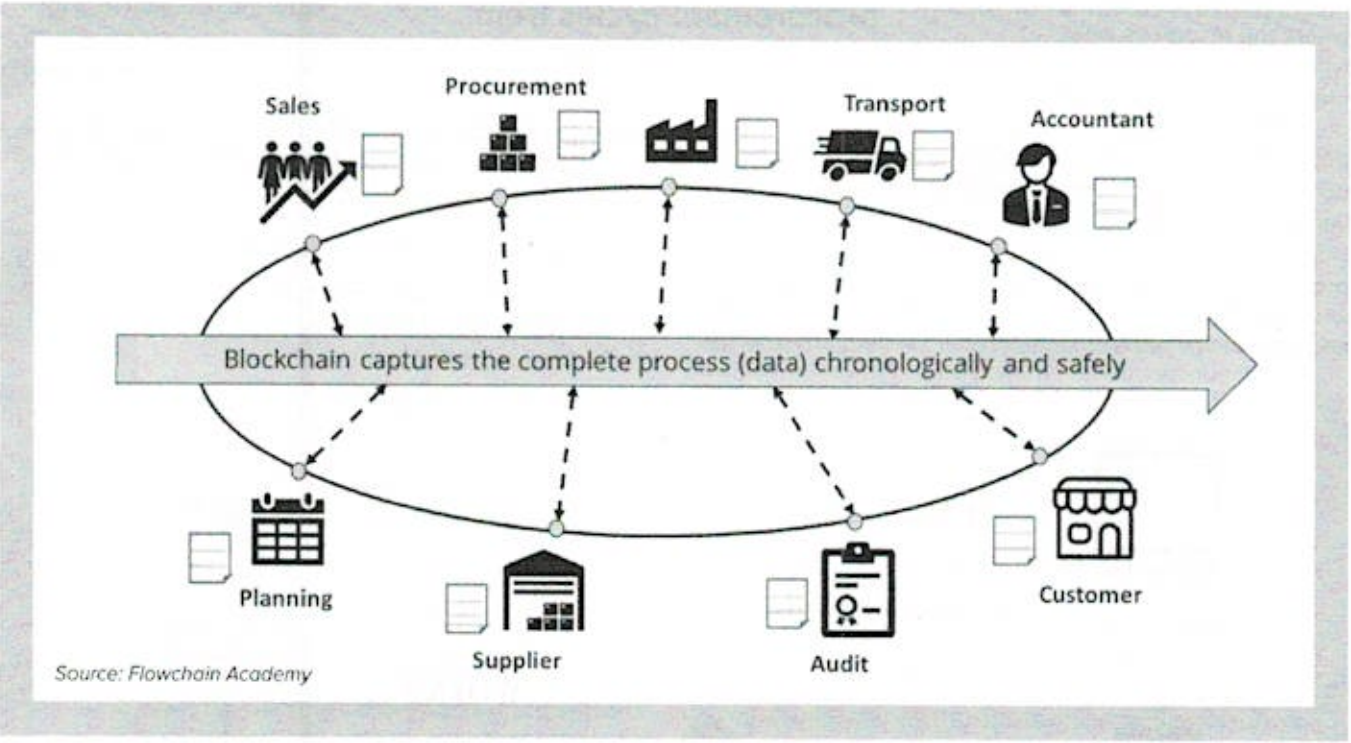


Blockchain technology is commonly associated with its application to supporting cryptocurrencies such as Bitcoin or Ether. How it works and the further applications and capabilities to do so much more are not well known but offer key capabilities to assist the DoD in its auditability and accountability quests. Incorporation of blockchain systems into global supply chain management, logistics, financial management, contracting, foreign military sales, foreign aid, and records management are but a few of the common applications in the civilian and private industry worlds.

So, What is a Blockchain?

International Business Machines defines it as a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. The purpose of the blockchain, defined by Price Waterhouse Cooper, is to share information among all parties that access it via an application. Access to this ledger in terms of reading and writing may be unrestricted ('permissionless'), or restricted ('permissioned'). A blockchain can be either 'public' – meaning that it is out on the general Internet for anyone to view, or 'private' meaning that only the owning organization can use, view, contribute to, or glean information from it. For example, Bitcoin runs on a public blockchain while many private companies use a private one that only they can access.

The key capability of the 'blocks' in blockchain is that nearly any type of record, document, photo, or other piece of information can be attached to it, or tokenized. Once attached to the block and incorporated into the overall block chain, the records are permanently affixed and can be quickly referenced by an authorized user of the private system. In concept, all key supporting documents for a major piece of equipment, vehicle, weapon, munition, financial transaction, personnel action, pay record, or real estate can be permanently emplaced on a system and quickly accessed globally for audit purposes.



Source: Flowchain Academy

Blockchain (and cryptocurrency) applications for DoD:

1. Major end items and systems tracking: The location of a tank, weapon system, or other equipment can be quickly updated and tracked from one owner to the next with great fidelity. Procurement documents demonstrating the acquisition, original cost, and provenance of the system or vehicle can be stored here too.
2. Spare parts and repair system status: The status, location, and sale price of spare or repair parts within the logistics system can be quickly verified.
3. Lethal aid or other items provided to partner nation forces can be permanently documented further providing provenance of the items, assisting with inventory adjustments and showing the accountable organization if the equipment shows up in an different location or with an unauthorized entity.
4. Resource and funds management controls spanning the Planning, Programming, Budgeting, and Execution process – to include disbursing functions.
5. Medical records can be tokenized for worldwide access or to follow a Service member from one station to another.

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⑥ Financial records and contract payment data can be attached for consolidated storage and reference.

⑦ Logistics shipments of equipment

⑧ 'Smart' contracting

⑨ Payroll documentation

⑩ Cryptocurrency employment by DoD activities.

⑪ Intelligence exploitation

Blockchain capabilities address the key gaps that cause financial and audit problems: fungibility, centralization of key supporting documents, speed of reference, worldwide access, and alignment of DoD capabilities with civilian industry/systems.

Blockchain Capabilities and Potential Beyond Audit Requirements Include Cryptocurrency Applications and Exploitation.

Cryptocurrency to Support Operations:

Any discussion of blockchain must include the opportunity for DoD disbursing, contracting and special operations to gain an important capability to move 'value' around the world, provide a novel contracting mechanism to pay for bespoke requirements, and provide capabilities for sensitive activities to make payments that support unique requirements. It will prepare the DoD to interface with a rapidly changing world in which virtual assets such as cryptocurrency may be the only way (or most effective) to pay for operational requirements.

Blockchain for Intelligence:

Conversely, teaching Intelligence personnel and agencies how to exploit public blockchains and cryptocurrency employment globally offers powerful opportunities to understand networks, key players, and connections between adversarial activities. Cryptocurrency is commonly used by adversaries as a way to move their value to support their operations.

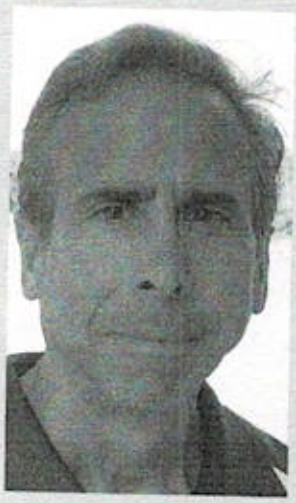
Key Organizations for Blockchain Implementation:

Instrumental organizations that facilitate and drive experimentation and implementation of blockchain will need to drive policy, provide senior leader emphasis and motivation across multiple military systems and provide resources to implement. A suggested start-point would be to begin with the financial, materiel, and logistics systems and expand from there in a phased approach.

Blockchain offers a new-to-the-DoD capability to resolve many challenges with expedient and accurate audit, records keeping, and accountability spanning a global network of activities. Adoption and incorporation of the technology follows best practices within civilian industry, enables centralized collection of key supporting documents, and enables near-real time input, collaboration, and reference of financial records and provenance of material items that support auditability.

Derek Claiborne

Derek Claiborne served as a Marine company grade officer with combat deployments to Afghanistan. He currently serves within the cryptocurrency industry with a leading company that supports burgeoning DoD efforts to use blockchain technology.



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Brian Smith is a retired Army Financial Management Colonel who served nearly 29 years in units spanning conventional and special operations capabilities. He maintains a keen interest in Emerging Value Transfer Systems and their implications to DoD. He currently resides in Southern Pines, NC.