WHITE PAPER

SHIPCHAIN

Private Versus Public Blockchain: Separating Fact From Fiction

Blockchain is the latest hot topic in supply chain management and logistics. The technology rose to prominence with the power and value of Bitcoin, but since then, has proven itself as a huge asset to other industries.

More companies have begun to see its potential for tracking and tracing in supply chain management, and so we are witnessing a blockchain revolution in the industry. Blockchain is an incorruptible, decentralized ledger, that is able to provide much-needed visibility and traceability into supply chain processes.

The hype over blockchain has created some confusion, especially over the use of private versus public blockchains, and which is better for the industry. Today, companies across the globe are leveraging blockchain to improve visibility and hold one another accountable. Major shipping and technology companies have also dedicated vast resources to create company-owned-and-operated blockchains, also known as private blockchains. Public blockchains remain a topic of skepticism for supply chain leaders as well. The need to keep information secure confounds the issue.

The Value of Blockchain in Logistics and Supply Chain Management

As per Bernard Marr of Forbes magazine, modern supply chains are exceedingly complex, spanning hundreds of stages, different geographical locations, countless invoices and payments, cross-company partnerships, and extended periods of time. Such complexity leads to a lack of visibility in supply chain processes, and that, in turn, leads to more instances of lost or stolen product. Thankfully, blockchain is well-positioned to transform the industry by adding back the layer of visibility that is currently lacking.

Past supply chains were relatively simple: products were sent from the manufacturer to reseller. The rise of omnichannel shopping changed the narrative, and globalization continues to do so. At the same time, it is challenging to investigate potential areas of fraud or unethical practices when there is poor supply chain visibility. Even with advanced, connected systems that are leveraging the power of the Internet of Things (IoT), problems arise. Data is stored in silos and supply chain partners rely on the validity and accuracy of data from the originating company to make informed decisions. Data visibility by all partners in the supply chain is where blockchain proves its value.

Blockchain is a distributed, digital ledger. Each transaction is recorded on a block, and multiple copies of the ledger are distributed among data notes, such as individual computers and servers. Each block links to the one before and after it, producing the chain.

Since the blockchain does not have a central authority maintaining it, it is both efficient and scalable, as well as incorruptible. It is built with the chain of command in mind. All users of the blockchain can view information, which is compared to other blockchain nodes across the network to self-validate data, eliminating the ability to alter data after the fact.

Gaining this level of detail in supply chain management is valuable for both companies and their consumers. Information retained in the blockchain can be passed along to consumers to validate product history, manufacturing, authenticity, warranty details, and more.

Public Versus Private Blockchain Defined

The complexities and nuances surrounding blockchain continue through the binary terms of private and public blockchains, reports A Medium Corporation.

At present, without a public blockchain in use by a shipper, maintaining throughput can be challenging as current data may not necessarily reflect the most recent events, a problem deriving from substandard technologies among users or a failure to integrate the system with all existing systems. Public blockchains cut out the middleman in transactions, offering built-in flexibility and interoperability, getting the most recent data from all players in the supply chain much more quickly than disparate supply chain systems do today without a middleman throttling the data or in charge of the blockchain platform.

Private blockchains begin to let the middleman back into the equation. As transactions are limited to the privately held user group, transactions are processed faster. Unfortunately, creating a private blockchain means leveraging a central database to manage the system. Thus, the blockchain is not decentralized because an owner of the private blockchain still exists, leaving room for possible distrust by those who choose to utilize a private blockchain.

Another type of blockchain exists—consortiums. Consortiums sound great on the surface. They offer the promise of blockchain as a team effort through a decentralized source. The consortium blockchain approach uses a centralized system, resulting in the need for traditional cryptographic auditing versus a public or private blockchain that is already decentralized and has trust built in as no one can change the data entered. In other words, blockchain managers in the consortium have the ability to audit and change blockchain-held data as needed, rendering it meaningless.

Problems With Privately Held Blockchains

In recent months, major companies have risen to develop blockchain-based partnerships or consortiums. While new mergers have given birth to new private blockchains, they remain riddled with holes. As reported by Supply Chain Dive, the 2018 3PL Study found that a mere 2% of shippers are looking for blockchain solutions today, and only 7% are exploring their use. This issue's roots extend into the problems of private blockchain use, including:

- **Private blockchains may be developed or only used for a specific company.** Using a blockchain internally may improve visibility into a single company's operations, but that information is not accessible by other supply chain partners.

- **Private blockchain partnerships involve relinquishing data to the central company.** Control over data and its integrity are everything. The more prominent private blockchains in use today, used by some of the biggest shipping companies on earth, effectively require users to relinquish control over their data.

- **Private blockchains may be incompatible with existing systems.** The next issue goes back to the incompatibility that arises from existing systems and those designed to work with a primary company's data. For example, if Oracle uses an internal blockchain to track use of Primavera P6 for warehouse construction, the same data may only be used in Oracle-owned companies, not those in use by the company building the warehouse.

- **Private blockchains may offer grand promises with minimal results.** Since the goal is end-to-end visibility, supply chain partners that do not use the same blockchain create an area of poor visibility and opportunity for risk.

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These problems contribute to issues among shippers looking to invest in blockchain, including:

- Companies are suspicious of joining alliances or private consortiums due to an unwillingness to lose control and ownership of their data.
- Integration is almost impossible, and since companies have devoted significant resources to the IoT and real-time data tracking software, joining a blockchain seems like overkill.
- Data can still be changed without explanation, reflecting the power a centralized owner has over private blockchain participants.
- Blockchain's only as valuable as the number of companies using it, and with companies' past years' avoidance of significant blockchain partnerships, private blockchains are growing scarcer and less useful.

If Both Private and Public Blockchains Exist, Why Are Companies Forcing the Hand of Major Developers?

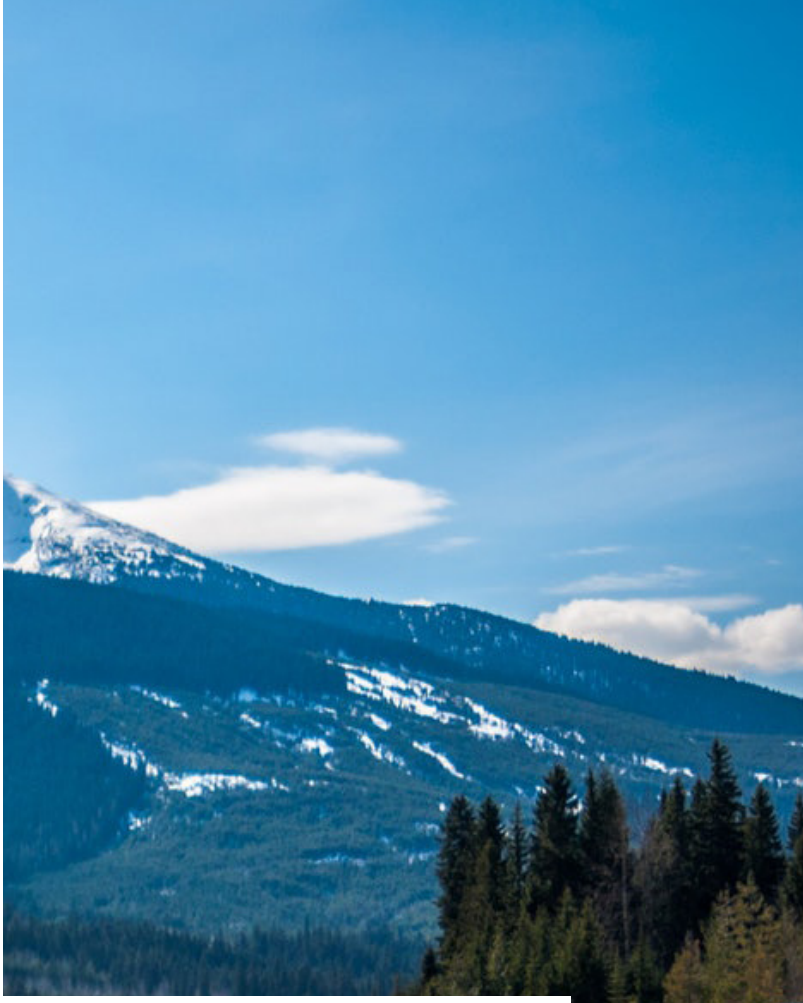
That's the million-dollar question. Blockchain is designed to provide an incorruptible, error-free roadmap for users to trace a single transaction throughout the network. In the supply chain, this means tracking products to their origin, including data on raw materials, production data, transit time, delays, and more. Shippers need a trustless, similar setup that is free from the strain of politics and economic interests.

With a significant company in control of the blockchain, they effectively take on the role of a data manager. Their decisions are final. They expect competitors to join the partnership and grow the technology.

Fortunately, supply chain leaders are not blind to the nature of larger corporations. The reality is that no corporation should pursue anything that is not beneficial in some way, and this includes joining a private blockchain or consortium when there are better options available. At ShipChain, with our experience in blockchain and building out our Track and Trace Platform, we know that we have a stake in developing the technology.

The difference between ShipChain and the major partnerships is that the system is designed as a true public blockchain, giving every user an equal opportunity to share data and avoid the risks associated with relinquishing control. More importantly, equal and trustless can be interpreted as easy-to-integrate and under-your-control.

It is this ease in joining the blockchain that attracts new users. Supply chain leaders have enough on their plates. Robotics are rising. Weather is changing. Suppliers and shippers are evolving. Everything is in a state of flux in the global supply chain, and it is not enough to trust that one of the largest shipping companies on the planning will abide by the rules set forth by blockchain.



> “Visibility unlocks efficiency, and trust unlocks visibility. ShipChain’s unified approach to provide both opens up a world of potential for a siloed industry to be able to work together for the benefit of everyone.”

That’s not necessarily a grim picture for the future of blockchain. It highlights the importance and value shippers and suppliers place on independence and strong relationships with business-to-business (B2B) partners.

They saw the writing on the wall, evidenced by reduced rates of competitors that joined last year's headline-dominating blockchain consortium.

Ultimately, the distrust and poor execution of private blockchains are where major companies went wrong. The costs of adopting the consortium's system could easily surpass any savings possible through adopting blockchain technology. Thus, companies need an alternative to major carrier-based blockchains. They need something independent.

Summary: Independent, Public Blockchains Will Continue to Increase in Use

Truly public blockchains offer increased visibility and accountability into the recording of supply chain transactions, tracking purchase orders and trade-related documents, assigning and verifying certifications and properties, linking physical goods to data, and sharing information. The use of public blockchains value continues to grow despite the setbacks created with major carrier consortium or private blockchains. Therefore, shippers and suppliers have turned to public blockchains.

On a final note, joining a public blockchain does not mean your data is available to the public. It's still limited to authorized users of the blockchain. It is the integration with your technologies, as well as the ability to share data freely among members, that creates the value of public blockchains. To sum it up nicely, let's rename public blockchains for the sake of clarity.

A public blockchain is an open architecture-based platform that puts your technology and skills to work, sharing data where appropriate yielding end-to-end visibility.

Ready to Implement Blockchain: Choose ShipChain

ShipChain has taken the time to create an open architecture-based platform that will work to provide the real-world benefits of blockchain technology without the hassle and stress of carrier-led private systems. A public blockchain offers the benefits of a private blockchain, but the public route evolves and is flexible enough to handle the needs of your company, not the other way around.

Find out how you can become a ShipChain user by visiting ShipChain online or requesting a demo today.

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