

How CIOs Should Think About Blockchain

A deep dive into the benefits of distributed ledger technology

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Blockchain, an innovative database for multi-party, decentralized applications, is known for offering enterprise-grade distributed ledger technology, but there are many more ways that this new architecture can create value.

Blockchain technology has the potential to transform entire industries. Consider the disruption of global financial markets being brought about by the digitization of assets and modernization of multi-party systems. In parallel, tremendous innovation is taking place in the decentralized finance space on public blockchains. Financial institutions and other financial-market service providers are turning to blockchain technology to address this once-in-a-generation disruption. But it cannot be a quick rip and replace. In the case of the financial services industry, there is a large, established ecosystem of parties interacting with each other with extremely complex interdependencies. This transformation will happen over time, starting with the substantial financial-market providers that play central roles, and subsequently cascading to other participants in the ecosystem.

The impact of blockchain

- Some blockchain proponents are projecting that it could account for as much as 10 percent of global GDP by 2025.¹
- IDC predicts that \$19.0 billion will be spent annually on blockchain by 2024.²

From a security standpoint, blockchain represents an opportunity to reinforce the foundation of your business, but it's important to look at the big picture when it comes to implementation. If you hang on to your current systems, but with a blockchain at the core, you may be missing out on additional revenue opportunities. Instead, do away with existing roles, processes and business models and embrace decentralized applications from the outset. Commit to a digital transformation strategy and think about blockchain in ways that create organic value.

1. World Economic Forum. "Building Block(chain)s for a Better Planet." September 2018.

2. IDC. "Worldwide Blockchain Spending Guide." 2021 V1.

A deeper dive into blockchain technology

A blockchain network, also called a distributed ledger, is a network of multiple nodes, where all the nodes share the same state. A process of consensus is used for the nodes to agree on the order in which commands will be processed and all nodes process commands in the same order, and state is maintained.

Nodes use cryptographic techniques to verify the commands, and the combination of cryptography and consensus enables the blockchain network to be a trusted and shared source of truth, with high data integrity and inbuilt defense to malicious threats. When you layer smart contracts onto a blockchain network, you can empower business networks with multiple parties that interact with each other, because smart contracts enable shared and standardized business processes. Moreover, the processes can be automated, and crucially, enforced throughout the blockchain. This drives a lot of efficiency, lowers risk in multi-party processes and generates value for the entire ecosystem.

Enable new possibilities

Creating a blockchain doesn't have to mean complete reinvention, but you need to make sure you don't slip into familiar ways of doing things. New ways of thinking and operating will be required.

Because blockchain refers to a single, shared source of truth between two business partners, errors and disputes on either side of a transaction are eliminated. It improves liquidity, as transactions are settled in real time. Audits are reliable and easy to uncover.

Key benefits of blockchain:

- Single, shared source of truth
- Transactions settled in real time
- Increased liquidity
- Verifiable and easy to audit
- Less errors and disputes
- Reduced risk

The Australian Securities Exchange (ASX) was relying on a 25-year-old system called CHESS that, while stable, was inefficient, expensive and relied on antiquated technology. They moved to a blockchain-based distributed ledger technology that gave them a single source of truth in real time, allowing them to provide better service to their customers. The performant platform is scalable, enabling the ASX to accommodate increasing trading volumes in the future.

By shedding their antiquated, 25-year-old system, and going all in on blockchain, ASX is now better able to support the \$2 trillion in trades they process annually, as well as the customers who make those trades. So while blockchain may require a paradigm shift, the benefits justify the organizational overhaul.

KEY TAKEAWAY

Blockchain technology drives a lot of efficiency, lowers risk in multi-party processes and generates value for the entire ecosystem.

Frame the problem and solution

Why do you need a blockchain? It's crucial that your blockchain project be supported by a strategy. What problem are you trying to solve, and what are the ways in which blockchain will help? The answer might be different for everyone. Perhaps you're after more liquidity, maybe you want to reduce errors, or maybe you want to eliminate disputes.

One VMware customer, Broadridge Financial Solutions, used blockchain to streamline the core of their business—processing repurchase agreements (repos). They built their system on the VMware Blockchain™ platform, running Digital Asset Digital Asset Modeling Language smart contract language.

Repo transactions require high degrees of manual reconciliation and intervention, creating significant operational overhead and capital usage, due to asynchronous settlement of cash and securities. High market volumes and multiple participants result in fragmentation, fails and disputes because, with legacy systems, there is no single source of truth for the lifecycle of the trade.

By moving to a blockchain-based system, they were able to fully automate their repo service and support the simultaneous settlement of cash and securities, removing risk from the process and significantly decreasing capital costs. They also achieved significant new blockchain-based revenues. By isolating the challenges they needed to overcome, Broadridge was able to target the technology they needed to get there, and implement it efficiently.³

Start smart, then expand

Once you know why you need blockchain, and are prepared to embrace major organizational change, how do you implement it? Start smart. Make sure you know where blockchain will fit in your business environment, and start by addressing a small area of your business.

As you learn from your experience with that deployment, you can fine-tune issues and move on to other business needs. But stay focused on the long-term value: an external shared resource that makes new scale economies possible.

KEY TAKEAWAY

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3. VMware. "Broadridge Adopts VMware Blockchain and Daml to Digitize Infrastructure in Repo Market." June 14, 2021.