

UNLEASHING THE POWER OF BLOCKCHAIN IN THE ENTERPRISE

**BLOCKCHAIN IS EMERGING AS A FOUNDATIONAL
TECHNOLOGY, BUT THERE IS STILL GROUNDWORK TO
BE DONE ON STANDARDS DEVELOPMENT AND THE
GOVERNANCE OF CHANGE — AND DOING THAT WORK IS
CRITICAL TO ENTERPRISE STRATEGY.**

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Too many of us take for granted how well the internet worked for business in the early 1990s. By the time the National Science Foundation lifted commercial restrictions on internet use, Tim Berners-Lee had already launched the World Wide Web, and Marc Andreessen had developed the Mosaic web browser.¹ Andreessen's startup Netscape took about a minute to raise \$2.7 billion, which was jaw-dropping at the time for an initial public offering.² Thus began the dot-com boom, 30 years in the making.

In contrast, blockchain technology was born commercial, in the sense that it was minting scarce units of digital value from the beginning with cryptocurrency. As of this writing, the market cap of the Bitcoin blockchain hovers around \$180 billion. In 2018, blockchain-based startup Block.one raised a record-breaking amount through its initial coin offering (ICO), whereas corporate cracks at ICOs such as Overstock's tZERO and KodakCoin have largely fallen flat.³

Blockchain will work much better for enterprise strategy implementation when enterprise leaders work together on blockchain — specifically on blockchain governance, meaning the stewardship of this distributed ledger technology through its phases of development. They must reach consensus on several types of issues — such as systems integration and scalability — but two in particular are critical to adoption: standards and the governance of change. Enterprise executives exploring blockchain can't leave these solely to the technologists; these issues require industry expertise from stakeholders around the world

The Hard Work of Creating Open Standards

Developing standards requires industry or ecosystem collaboration, and this work is not intuitive for executives. Consider FedEx: As part of its strategy, the company has joined the Blockchain in Transport Alliance (BiTA), and Dale Chrystie, FedEx's business fellow and blockchain strategist, was recently elected chair of its standards council.⁴ BiTA is a member-driven standards organization unique among consortia in its focus on the "digitization of freight and transport."⁵ In a phone interview with the Blockchain Research Institute, Chrystie used the term *coopetition* to describe what BiTA members do: cooperating on technical standards but competing on everything else — applications, products, and services.⁶

Without cooperation, the technology will stall. Professor Marek Laskowski, co-founder of the blockchain.lab at York University in Toronto, Canada, agrees. He has written on the limitations of the enterprise mindset when it comes to shared semantics, and it starts with the default assumption that companies ought not

share their data except through web services and APIs.⁷

But with blockchain, we're not talking about communicating between our respective data silos through APIs. We're talking about bulldozing some boundaries of the organization and sharing an unprecedented amount of data about the movement of assets on a distributed ledger across global supply chains. For this, companies need to agree on which data is most important and how to define it in the universal language of code, agnostic of industry or geolocation. If we want the ability to deploy smart contracts to govern assets and minimize paperwork, then we must agree on the types of data and data formats these distributed applications must access or contain.

The challenge is sizeable, as Dale Chrystie puts it: "We're all standing on this side of the canyon, looking through our telescopes to the other side, and seeing the promised land, the pot of gold. We need to design a bridge to the other side. It will take a global village to build it."

The Need for a Process to Manage Change

Scientists at MIT Sloan are looking to understand the economic design choices encoded in software by the creators at the protocol level, relative to their stated goals (for example, "solving for trust") and the economic choices of the people actually using it. Creators are witnessing unexpected user behaviors that, unlike a corporate or city charter and bylaws, become difficult to address without robust governance.

A well-known example of governance in action was the hack of the decentralized autonomous organization known as The DAO, a distributed application launched on the Ethereum blockchain in May 2016.⁸ The DAO operated as an investment fund that gave each token holder a say in the allocation of its assets. In June 2016, an attacker exploited a bug in The DAO's code and siphoned off about \$50 million from the organization's holdings.⁹ Ethereum governance kicked in, giving stakeholders 28 days to debate, vote on, and execute a plan of counteraction. By an 89% majority vote, stakeholders decided to reverse the funds by altering the Ethereum blockchain, thereby undoing The DAO. But few were happy about fixing an application-level problem with a protocol-level solution.

So, we need to think about the different layers of blockchain governance — protocol, application, and ecosystem. Enterprise stakeholders need a mechanism for agreeing on which changes need to be made, when, how, and by whom. Do we need on-chain rules — that is, rules coded directly into the software protocols and running autonomously — or off-chain rules implemented by members of a governance body like the Ethereum Foundation, or some combination of the

two?

According to the Coalition of Automated Legal Applications, the operations of a blockchain system are defined not solely by these on-chain and off-chain rules but also by the underlying layers of internet infrastructure. Here we see some features of a decentralized system, but they are often centrally controlled or administered by an internet service provider, government authority, or other intermediary.¹⁰ Getting these parties to the table may be worthwhile, too.

A Reluctance to Participate

By our count, only 20 of the Fortune 500 corporations are considering governance issues through their participation in two of the largest blockchain consortia, Enterprise Ethereum Alliance (EEA) and Hyperledger. (See “Fortune 500 Companies Participating in Blockchain Consortia.”) Why is there not greater involvement?

“The problem with blockchain is that it’s boring. It’s not fast. It’s not the only database. It’s not the best database,” said Chrystie of FedEx. “But where authenticity is important, where legitimacy matters, it’s a game changer.”¹¹

At its core, blockchain technology provides transparency for proving claims of identity, origin, custody, and ownership in a variety of applications. That information is critical for, say, ingredients used in pharmaceuticals and precision parts used in military aircraft. It may become critical to more types of marketing claims and product labels, particularly those involving health, environmental impact, fair trade, and ethical sourcing. But it requires everyone in an ecosystem to participate end to end. Walmart, for instance, has asked all its leafy green suppliers to participate in IBM’s Food Trust, which uses blockchain technology.¹²

To those enterprise executives interested in joining a blockchain consortium but reluctant to do so because of antitrust concerns, Chrystie was emphatic: As with trade and industry association gatherings, BiTA begins every meeting with the reading of an antitrust statement, which proscribes any discussion of pricing, products, or customers.

Blockchain governance is the unfinished business of industry. It is a prerequisite to designing and delivering strategies that depend on blockchain’s ability to provide single, shared, and immutable source of the truth. Those who claim their seat at the table and contribute to data standards and the rules of change will be laying the groundwork and preparing their organizations to build on it. There’s still time to be in the room where it happens, and executives need to get there.

Fortune 500 Companies Participating in Blockchain Consortia

REVENUES (IN MILLIONS)	COMPANY	MEMBERSHIP
\$113,899	JPMorgan Chase	Hyperledger and EEA
\$89,950	Microsoft	EEA
\$87,966	Citibank	Hyperledger
\$79,139	IBM	Hyperledger
\$78,660	Dell (Boomi) Technologies	EEA
\$78,330	State Farm	Hyperledger
\$62,761	Intel	EEA
\$60,535	Aetna	Hyperledger
\$60,319	FedEx	Hyperledger
\$52,546	Pfizer	EEA
\$48,005	Cisco	Hyperledger and EEA
\$40,534	Honeywell	Hyperledger
\$37,728	Oracle	Hyperledger
\$35,583	American Express	Hyperledger
\$28,871	Hewlett Packard Enterprise	EEA
\$22,871	Eli Lilly	Hyperledger
\$16,621	BNY Mellon	EEA
\$14,024	Marsh & McLennan	EEA
\$6,022	Conduent	EEA
\$5,834	Intercontinental Exchange	EEA

Sources: Fortune 500 list and membership rosters of Enterprise Ethereum Alliance and Hyperledger, as of April 30, 2018.

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