

MOVING TO DISTRIBUTED SYSTEMS: BLOCKCHAIN AND THE STANDARDS OPPORTUNITY

With the growing popularity of blockchain technology, days of the static, offline ledger are numbered. In this article, we examine the enthusiasm towards its adoption and the importance of standards in ensuring its hassle-free, global implementation.



Standards sit at the core of every aspect of a business, a technology, and a heavy industry. Without standardization, we would not be able to run trains across borders, as rail spacing and thickness would not be uniform. We would have much wider disparities in power voltages and mains plugs, severely impacting manufacturers of electronic goods. Without standardization, it would be impossible to reliably source components like nuts, bolts, and screws to assemble everything from a laptop to a suspension bridge. Standards bring order to chaos and nurture industry-wide development of

systems and platforms, discouraging myriad individual directions, creating incompatible variations on the same theme.

IT systems are no different. Standards have helped define everything from the web and email to programming languages as well as ensuring interoperability of systems and networks. It is hard to believe, today, that we would build applications and operating systems that differ from the current accepted practice. However, before clear industry standards emerged, it was a very different, incompatible world.



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The case for the distributed ledger technology

At the center of digitized ledgering efforts is the distributed ledger technology (DLT) — the notion of a trusted, electronic ledger platform that can be shared by organizations as well as an entire sector.

Right now, we are witnessing an explosion of innovation in this space, led by efforts based on the blockchain. The technology could prove to have the capacity to deliver a whole new level of trust to a wide range of services, based on open standards. Open data has fundamentally changed public and enterprise relationships, with each other and with the government. The same approach can reform our financial markets, supply chains, consumer and business-to-business services, and publicly-held registers.

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Delivering a trusted, hardened, and interoperable platform is essential — it does not work if groups go their own unique ways. Sectors need to settle on a single, standards-based approach. This is why blockchain is increasingly being seen as the solution. It overcomes key inefficiencies in the market, allowing organizations and bodies to scale a platform without requiring an equally significant increase in staff numbers.

Why blockchain?

A blockchain distributed ledger is essentially an asset database that can be shared across a network of multiple sites, geographies, or institutions. Any changes can be replicated to all copies of a ledger quickly, ensuring that no participant is left working on outdated information. The security and accuracy of data within the ledger is maintained cryptographically through the use of 'keys'

and 'signatures'. These not only control who can edit the ledger, but also curtail retrospective tampering.

Additionally, it removes the need for a centralized body to reconcile and adjudicate over transactions while building security. Each record is interlinked with the one before and after it, making retrospective tampering and hacking impossible to achieve without detection.

Haruhiko Kuroda, governor of the Bank of Japan, made the point about the potential of a distributed ledger technology like blockchain when he recently said, "The development of financial services has been supported by ledgers as the basic infrastructure for information. The dramatic changes in how ledgers are kept may have the potential of significantly changing the structure of financial services."

In short, shared protocols enable the collaborative creation of digital distributed ledgers with properties and capabilities that go far beyond traditional paper-based ledgers, removing the need for clearing, reconciliation, and other translating middleware. When combined with

standardised, computer-readable semantics for contracts, distributed ledgers also open up the possibility of automating the processing and execution of contracts – resulting in so-called 'smart contracts'.

Standards take time to agree

Any standards-driven approach to platform development takes time. Agreements about data interoperability, policy interoperability, and the effective implementation of international standards is time-consuming, requires negotiation, and involves many stakeholders. After all, we did not settle on standardized railroads or shipping containers overnight - it took many decades for such standards to emerge, and it was a process driven largely by the demand of international business.

Similarly, with blockchain, businesses have a pivotal role to play in tackling issues of security, privacy, and the development of standards — all areas where industrial advantage will be gained by cooperation rather than competition. Furthermore, governments need to work with academia and the industry to ensure that standards are correctly enshrined in the legislation, and that these are deemed as an industry best practice, and elaborated upon through education.

For example, UBS, Deutsche Bank, Santander, and the Bank of New York Mellon are teaming up to develop a new form of digital cash to clear and settle financial trades using blockchain technology. This is just one of the several initiatives that could ultimately breed the next industry-wide platform. Without standards, fragmentation and technology forking inhibit adoption, adding complexity and cost.

Furthermore, many bodies and influential standards groups are already conforming, in support of blockchain-based technologies. For example, the Linux Foundation is backing Hyperledger, while the W3C, R3 group, and other bodies are actively collaborating with enterprise stakeholders to ensure that distributed ledgers built with different technologies will be able to interoperate on a basic level.

Love open data, love standards

For Infosys and other champions that are working with blockchain, the opportunities and flexibility offered by the technology are varied and motivating. As an underlying platform, blockchain lends itself to everything from land registries and tax payments, to bank account transactions and social security payments. For anything that needs accurate, legally robust recordkeeping that can withstand attempts to tamper with the flow of information, blockchain is a viable standards-based option. Moreover, the standardization required to maximize value from DLT would have a ripple effect of improving and standardizing some of the contracts and instruments around this workflow, such as supply chain documents, financial instruments, and other components of the process.

However, while most industry players agree that standardization will add value, we are some time away from knowing which of the various proposals will emerge as the true standard. The success of standards should not emerge from another 'VHS vs. Betamax' battle, where market forces settle the argument after years of confusion. The best standards are those that emerge from stakeholders sitting down together and agreeing on an approach that meets their collective needs. When laying down the pipework of the next generation of financial infrastructure, the stakes are too high to do it any other way.

About the Author



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Peter Loop brings to the table his vast expertise in the banking industry and over 30 years of engineering experience at Intel and Microsoft. He is an innovative senior leader with a long career of transforming the enterprise system ecosystem. He has developed solutions to accelerate innovation and reduce disruption, cloud migration of banking solutions, API management and integrations, user experience strategy, mobility, and BI strategies. Peter is leading efforts in the field of cryptocurrency / distributed ledger technologies (Blockchain) for global financial services markets and their potential applications to banking, and also in driving evangelism and adoption of new technologies.

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