

Risk Management – The Risks and Rewards of Blockchain Technology

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At a conference in New York City in October, tech experts and business executives from the United States and Europe came together to talk about the “disruptive,” “transformative” and even “revolutionary” power of blockchain technology, with enthusiasm for its potential reaching a fever pitch.

Surprisingly, one term that popped up far less frequently at the gathering was “bitcoin,” even though blockchain—a technology that can be used to build a crowd-sourced and highly secure database system—underpins and facilitates the virtual currency’s very existence.

But as many blockchain enthusiasts are quick to point out, the paths of the two technologies have started to diverge. Particularly in the financial industry, established businesses have begun to assess and, in some instances, fully embrace blockchain and the wide range of activities the technology can empower, especially its ability to bring greater transparency and efficiency to transaction activity.

Indeed, in the past year, major corporations such as IBM and Samsung have begun to test and work with blockchain technology. Bank of America has filed or is in the process of drafting 35 blockchain-related patents. Thirty investment banks including Barclays, Citigroup, Goldman Sachs and UBS formed the R3 CEV consortium to explore the technology's potential to reduce business costs. The NASDAQ stock exchange also partnered with a Visa-backed startup called Chain to launch Linq, a new exchange for trading private company shares that is powered by blockchain technology.

What all these organizations have discovered is that, apart from its role in bitcoin, blockchain can be used more broadly to create a tamper-proof, cryptographically-secure online ledger that can be used to verify transactions securely and directly, on a peer-to-peer and decentralized basis, without the need for a middleman like a bank or financial institution.

“Blockchain is without question the most significant advancement in enterprise IT in a decade, on par with big data and machine learning,” said Jeremy Millar, a partner at Magister Advisors, a boutique investment bank that specializes in financial services technology. His firm estimates that the top 100 global financial institutions will invest more than \$1 billion in blockchain-related projects over the next two years. “Blockchain, more fundamentally, will become the default global standard distributed ledger for financial transactions,” he added.

To some degree, the business and financial sectors' current interest in blockchain technology comes as a surprise given its origin.

Blockchain technology first came to light about seven years ago when it was identified as the underlying platform powering bitcoin, the first of many crypto (or virtual) currencies now in existence. The connection with bitcoin ultimately forestalled its acceptance as a more mainstream business tool, however, as many came to associate the virtual currency with scandal and fraud, especially after the collapse of the Mt.Gox bitcoin exchange and stories about the currency being used by drug dealers and terrorists to anonymize their online activities.

But a growing number of experts have come to understand that, despite the travails of bitcoin, blockchain technology itself has thus far proven to be a secure and reliable tool, and can be applied to a variety of business tasks.

Adi Ben-Ari, founder and CEO of Applied Blockchain/Tallysticks, a London-based builder of private, blockchain-based networks, believes that growing numbers of companies will eventually turn to the technology as they come to fully understand its capabilities.

One of the key benefits, Ben-Ari said, is being able to transact business on the blockchain without a trusted, third-party intermediary. “This allows you to conduct business far more quickly, with less exposure to error and with much less risk,” he said.

It can also save money. Research conducted by Banco Santander projects that blockchain technology could reduce banks’ settlement, counterparty and infrastructure costs up to \$20 billion a year by 2022.

A range of applications can be built atop the blockchain system to automate and speed up the processing of digital assets like stocks, bonds, property titles or gift card points. It can be used for trade settlements or clearing interbank payments, for identity management online by replacing the need for endless usernames and passwords, and for transferring and storing of all sorts of verifiable data. Thus, it could eliminate the need for notaries, insurance claim processors or intermediaries like banks, and could be used to devise new, more efficient online voting systems.

Blockchain works as a distributed method of storing data online. Participants in the public blockchain network have access to their own data as well as all the transactions that ever happened on the network. This is known as the distributed ledger. Entries are stored within a cryptographic chain of blocks, hence the name “blockchain.” At every stage, the network of participants must agree on the latest block of transactions. Agreement is reached through a process of majority consensus, eliminating duplicate entries or instances of double spending.

The system also relies on the combined computational power of all participants. This process and the cryptographic verification that occurs among the many blocks make the blockchain system irreversible and immutable. Thus, the history of events within the blockchain cannot be modified by any one participant without majority consensus from the group, which helps prevent fraudulent transactions. As a result, individuals who do not know or trust each other can transact or exchange assets safely and reliably.

Some programmers are using the blockchain platform to create a type of online “smart contract” system that will have predefined rules or sets of inputs, allowing it to enforce permissions, conduct calculations and, essentially, execute the requirements of a basic contract. These smart contracts will be powered and cryptographically protected by every node (or computer) in the blockchain.

“Think of [smart contracts] as a business rules engine that can take custody of some valuable assets and move them from one actor to another,” said Peter Vaihansky, senior vice president at tech consulting firm DataArt.

A practical example of this would be an invoice that pays itself when a shipment reaches a port or a crop insurance contract that automatically pays out to a farmer based on information from a trusted weather data feed, Vaihansky explained. “It will disintermediate a lot of structures and could speed business activity up tremendously,” he said.

For all its efficiencies, however, some believe there is one major fault in the blockchain system: It is not private. Participants are pseudonymous, but transaction activity is still visible. This has made full acceptance difficult. “Our clients don’t know or trust the organizations behind the blockchain or the idea of relying on public networks run by computers, many in China or Russia. This is a problem for them,” Ben-Ami said.

As a result, the R3 CEV consortium and a growing number of startups are now developing private blockchain systems that can either be deployed within an organization or shared among a known group of participants. Others are producing hybrid technology that can either utilize the public blockchain or build private blockchain networks.

Despite all the blockchain activity, some experts are not convinced that implementing this technology will go as smoothly as others anticipate. According to Joyce Shen, director of emerging technology partnerships at Thomson Reuters, the challenge for businesses that wish to make use of blockchain technology is whether or not it can successfully integrate with a large organization’s systems, customers and partners. In order for the technology to work, she said, “you have to have well-designed business and application workflow on top of enterprise-grade blockchain technology with all key stakeholders adopting it at the same time.” She believes that adoption and integration will take time.

Some are wary of the lack of centralized governance or regulatory system, while others are concerned about the possibility of a “51% attack,” wherein a majority of users could collude to wrest control of the blockchain. Security firms such as Kaspersky Labs have argued that it is possible for individuals or groups of individuals to insert malware into blockchain transactions.

For now, however, that is not dissuading advocates and early adopters. “Financial firms shifting to blockchain technology is like buying a Tesla to replace your 1985 Chevy Impala,” Millar said. “They’re moving to a seamless, real-time system. The technology is definitely here to stay.”



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