Audit Point of View

The blockchain shift will be seismic

Audit committees will definitely feel the impact

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Blockchain. Everyone's talking about it. Some hold it will be just as revolutionary for transactions as the Internet was for information—but not everyone understands its implications. As a technology that can provide real-time, permanent verification for financial and operational transactions (payment card transactions, for example, or product shipping transfers along the supply chain), blockchain is poised to have a major impact on every industry, from banks, asset management, and insurance to mining and beyond.

What is Blockchain?

The blockchain is a shared digital record of transactions or information of any value, between two or more parties. Traditionally, validating something online requires multiple systems that must be coordinated by multiple parties. Blockchain enables a more integrated solution. It is a decentralized, distributed ledger, meaning transactions are shared and replicated in real time on computers located at every node thus promising verifiability independent of a single source of truth. Transactions are stored in batches inside "blocks" that become part of a contiguous "chain," with each block time-stamped and continuously verified by the blocks that precede and follow it. This makes the ledger permanent and virtually tamper proof—a shared source of truth that uses public and private key cryptography to sign transactions digitally.

Importantly, there is no central authority for verification; rather, it is an autonomous system, where verification occurs as a function of its distributed, consensus based structure. It does not require an individual administrator, and no one can enter or change a transaction without it being authenticated by network peers.

Sweeping implementation of blockchain technology won't happen overnight, but when such a ledger becomes easy for businesses and auditors to consult—when once a transaction is recorded, it cannot be hidden or altered—the way businesses are audited will clearly change, as will the responsibilities and agendas of the audit committee.

Industries and businesses will reap advantages

The creation of blockchain is credited to a still-unidentified group or individual known by the pseudonym "Satoshi Nakamoto." It is the enabling technology for bitcoin (a digital currency or cryptocurrency generated and traded independently of the traditional banking system), but it's the blockchain technology behind bitcoin that is making waves in the market. Indeed, many types of businesses will leverage the security, data availability and cost-effectiveness of the blockchain, and benefit from the elimination of third-party intermediaries in the transaction process.

The commercial applications are endless; blockchain has the potential to transform business operating models through the use of smart contracts, supply chain management, intellectual property protection, stock trading and settlement, identity and data management, anti-money laundering and data management, to name a few.

Businesses are already showing a growing interest in the technology, with JP Morgan, ANZ and RBC having all launched pilot programs for blockchain-based payments and Natixis Asset Management recently testing a blockchain smart contract prototype to purchase shares using FundsDLT, a blockchain-powered fund distribution platform for fund managers. Financial institutions can also leverage blockchain when conducting Know Your Client (KYC) checks under anti-money laundering regulations. Once such checks are performed they are permanent, so any bank or credit union on the same blockchain ledger could share them, avoiding repetition, saving costs and increasing customer satisfaction.

The benefits of blockchain go beyond financial services. In the case of supply chain management, for example, blockchain technology enables end-to-end transparency in the global food system and can quickly track a product's progress from the farm to the store shelf. This provides a more efficient way to determine when and where food items are contaminated, which can help producers and public health officials limit contagions. All participants in the global food supply chain—from growers, suppliers and processors to distributors, retailers, regulators and consumers—can gain "permissioned access" to known and trusted transactional information regarding the origin and state of food, including shipping, handling, storage and more. Beyond enhancing consumer confidence, operational losses could potentially be significantly reduced and finance department reconciliations virtually eliminated.

What should audit committees be thinking about?

For all its promise and potential benefits, however, blockchain can present certain risks—around system interoperability, auditability, control and collusion, data management and governance—that audit committees in companies considering blockchain participation should consider and ensure management is considering. Blockchain's transparency and accessibility could also impact record keeping and assurance practices, depending on the technology's market adaptability and pace of adoption (which must be carefully monitored as new models or protocols are written/administered).

Audit committees should see that management has a well-established control environment and framework, akin to the guidance issued by The Committee of Sponsoring Organizations of the Treadway Commission (COSO). Management, internal audit departments and audit committees should also ensure they have the relevant experts, and conduct the necessary due diligence and preliminary impact assessments, prior to entering into or onboarding onto any shared ledger with any "trusted" party.

While not an exhaustive list, there are a number of things that audit committees of organizations looking to adopt blockchain technology should consider:

- Blockchain has caught the attention of regulators, presenting organizations with a number of compliance concerns:
  - Compliance with the Privacy Act is imperative; what is our plan to protect individuals' information in a blockchain environment? What is our plan to ensure valuable trade secrets are secure in a blockchain environment?
  - How do we deal with compliance requirements and the statute of limitations for document retention since blockchain records are never destroyed? How do we determine if certain records should be kept off the chain?
  - If cryptocurrency use becomes broadly entrenched in the blockchain process (likely), how do we deal with activities that are potentially fraudulent or illegal due to the anonymity of the participants? Rest aside the regulatory implications, the regulators are still seeking input into how a digital asset should be accounted for in accordance with applicable generally accepted accounting principles (GAAP).
  - Following the above, proceed cautiously if you are considering an initial coin offering. The SEC and CSA, and regulators globally, have issued notices around this, so consider whether your organization would need to comply with securities law.
- Whether using a private, public or quasi private/public blockchain, how do we define "trusted" partners, monitor business relationships and establish cyber security protocols (transactions controls, access to keys) to avoid financial or reputational repercussions? How do we "secure the chain?"
- How do we make sure we're building a stable, scalable blockchain? Beyond scalability and performance, which has been one of the challenges with existing blockchains, such as bitcoin and ethereum, what sort of consensus mechanism (the process of the various blockchain participants validating a transaction) will be built into the blockchain (proof of work, proof of stake, proof of authority)? Will digital signatures be required? How do we ensure interoperability with different blockchain platforms (ethereum, hyperledger, etc.) and/or while integrating with legacy systems?
- How do we leverage smart contracts and tokenization (replacing sensitive data or physical assets with an immutable digital number, or "token," that is recorded in the blockchain and can then be used in smart contracts) while ensuring surrounding protocols are adaptable enough to fully capture and manage contract complexity?

The audit landscape will change for everyone

Blockchain technology is a focused disruptor of the very foundations of external and internal audit: financial recordkeeping and reporting. If blockchain transactions are truly immutable, will that mean that transactions don't need to be audited at all? And will that mean that, if a consensus mechanism authenticates all corporate data, the audit—as it currently exists—could find some of its responsibilities transformed?

Auditors may, for example, be eventually required to verify the application of blockchain consensus mechanisms or protocols. This could be accomplished through "triple-entry accounting," where existing double-entry accounting systems are retained while blockchain ledger entries would be a "third" entry, the result being a mutual confirmation of transaction integrity. If such changes occur, they will also require new audit tools, approaches and criteria specific to blockchain environments. This will all, in turn, impact the audit committee, which will need to ensure their external and internal audit teams have the resources, expertise and technologies required.

It is apparent that blockchain simultaneously disrupts and reinforces the importance of independent assurance. Given protocols will be determined for this "shared record" with "trusted participants", it would be inevitable that organizations would be demanding assurance over such disruptive platforms to ensure the technology's output is reliable and safe.

From a forward-looking perspective, blockchain represents another major advance in the availability of transactional audit evidence. As a natural extension of recent technologies such as data and analytics, artificial intelligence and robotics, blockchain will take audit strategy to another level and bring the continuous, real-time audit closer to reality.

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Additional resources:

Transform your business with blockchain-powered KYC (Janurary 2018)
PIVOT: the recipe to combat pension apathy (November 2017)
Are Intelligent Automation and Blockchain Poised to Disrupt HHS? (October 2017)
Blockchain: Rewriting the way Government does business (September 2017)
Blockchain accelerates insurance transformation (January 2017)