

How Should a CFO Think about the Potential for Blockchain in Finance & Accounting?

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The blockchain is a distributed database network built on multiple computers and servers containing “blocks” of transaction data recorded by all parties involved in a transaction and linked or “chained” together. Each computer contains the entire chain of blocks and functions as a “node” in the larger blockchain.

Instead of an individual company housing and maintaining its own transactions database then reconciling transactions against its vendors and customers’ information, a blockchain records all transactions between the company and its vendors and customers on multiple encrypted “blocks.” Each of these digital transactions is continuously verified by network nodes that secure and process block transactions within the blockchain and eliminates the need for a third party to validate the transactions.

The graphic below depicts an example of a blockchain transaction. Each computer or node contributes pieces of the transaction represented by the blocks with digits. Each node is verified by the others to accurately document the transaction.

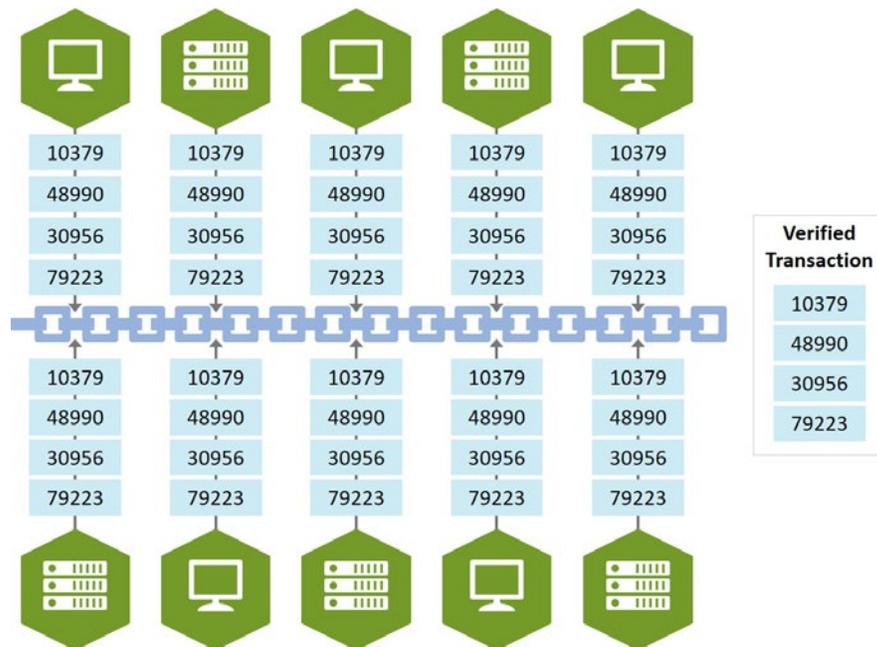


Figure 1: An Example of a Blockchain Transaction

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How Will Blockchain Impact Finance and Accounting (F&A)?

Today, every order-to-cash (OTC), record-to-report (RTR) and purchase-to-pay (PTP) transaction necessitates one set of verification records on the seller side and another set on the buyer side. This means both companies have versions of order confirmations, receipt verifications, discrepancy follow-ups and payment verifications. Blockchain allows a buyer and a seller to share the same version of the transaction, creating practical immutability of that version and eliminating clearing requirements.

For F&A leaders who oversee these processes, blockchain offers the potential for increased data integrity, instantaneous or significantly quicker reconciliations, reduction in close time, increased audit efficiency and improved real-time financial information. Two blockchain capabilities have particularly significant implications for F&A:



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1. Distributed Ledger Technology (DLT)

A distributed ledger is a consensus of replicated, shared and synchronized digital data spread geographically across multiple sites, countries or institutions. Today, in cases in which we rely on a double-entry accounting system for debits and credits, a DLT can leverage the blockchain to:

- Produce blocks and chains in sequential order based on a measure of time (for example, every ten minutes)
- Support or “pull” blockchain applications along a limitless blockchain rail that is continuously being constructed
- Support digital commerce
- Provide limitless virtual boundaries.

Enterprises can securely and privately leverage either a public or an open-source blockchain. This could, for example, allow Walmart to process invoices for Samsung products, while at the same time, account for taxes and supply tax information automatically to auditors. By creating a perpetual audit with multiple parties viewing data in a particular chain at any point in time, DLT enables multi-functional recordkeeping and creates a verified storybook of multiple aspects of a single transaction with all contributing entities.

2. Smart Contracts

A smart contract is a digitized software application built on a distributed ledger that contains all terms and conditions between parties. Because it delivers an immutable, verifiable and secure record of all contracts and related transactions, it reduces operational overhead,

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administration and service costs and facilitates compliance and reporting. Blockchain technology is self-executable and functions across all elements of a supply chain regardless of industry.



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F&A organizations that leverage these two blockchain capabilities will transform their OTC, RTR and PTP activities into more efficient and effective processes, especially when combining technologies like robotic process automation (RPA). Using a single, shared ledger greatly improves the transparency and accuracy of accounting transactions.

Below is a table showing some examples of the benefits of blockchain to these F&A processes:

| |  Order to Cash |  Record to Report |  Procure to Pay |
|---|---|---|--|
|  Process Activity | Order Entry (i.e., pricing, quantities, units, exchange rates) | Account Reconciliations | Goods Receipt/Matching |
|  Blockchain Application | Shared Ledger/ Smart Contract | Shared Ledger | Shared Ledger/ Smart Contract |
|  Benefit | One verified version of the "truth" eliminates discrepancies | Decrease Close times and Audit resources/fees | Completed instantaneously at the time Goods are received |

Figure 2: Benefits of Blockchain in F&A Processes

Revenue recognition is an example of a process that can improve dramatically because of an upstream enhancement. Because the seller can see a validated receipt transaction – or other transaction that triggers revenue recognition – via blockchain, the entire revenue recognition process can be automated.

Use Cases for Blockchain and F&A Processes

As a Complement to RPA

Recently, RPA has helped organizations make great strides in improving efficiency. However, because RPA simply automates a process and does not necessarily make the transaction immutable or instantly verifiable by multiple parties in the transaction, the parties must still access various databases and send files manually. Blockchain allows an RPA process to access data that is already verified and trusted, which eliminates complicated steps in an automated process and reduces manual intervention for discrepancies. By using one source of data that is verified by all parties, encrypted and secure, blockchain increases the accuracy and productivity RPA offers.

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Because verified blockchain transactions do not require lengthy discrepancy resolutions, the close process shrinks from days to hours.

Procure to Pay

Procurement leaders are already seeing the early adoption of smart contracts that can automatically execute the terms and conditions of a contract among multiple parties. In doing so, the information and data is viewable by all parties involved in the transaction, and the data is immutable. Additionally, a smart contract creates significant implications for the downstream PTP process. When combined with other transformational initiatives like RPA, blockchain allows for seamless, instantaneous matching once goods are received and an invoice or purchase order is verified. A smart contract lays out parameters for a payment schedule and notifies all parties – activity that significantly reduces or even eliminates duplicate payments, re-issued invoices and potential billing discrepancies.

Record to Report

While adoption of DLT or shared ledger technology will lag the procurement adoption of smart contracts, blockchain will dramatically transform RTR processes like journal entries, account reconciliations, capital/project accounting, fixed-asset accounting and even tax accounting. With the adoption of RPA technologies, most of these activities require little or no human interaction and therefore can reduce transaction processing costs by as much as half of what they are today. And, because verified blockchain transactions do not require lengthy discrepancy resolutions, the close process shrinks from days to hours. Audit times and support requirements are dramatically reduced so the focus of future audits can be on merger and acquisition activity instead of normal business transactions.

Order to Cash

OTC processes can be very complex, especially across numerous vendors, products, SKU codes, locations, shipping details, supply chain systems and inventory movement and replenishment activities. Like for the PTP payables side of transactions, blockchain and RPA solutions have the potential to significantly impact OTC processes. Blockchain smart contracts are designed to execute and settle complex transactions across multiple parties in an open/distributed database accessible by any party in the transaction. Because blockchain automatically and instantaneously verifies quantities, units of measure and pricing, organizations can all but eliminate time spent on order-entry issue resolution. Generation of invoices become obsolete as the shared transaction information from a smart contract automatically triggers a payment from the buyer, and cash application and receivables processing requires almost no human interaction.

Is There a Limit to Blockchain's Applicability in F&A?

The major limitation of blockchain at this moment in time is the fact that applications for its use are still emerging, and full adoption may take a couple of years. Buyers and sellers will have to configure their systems to be compatible with each other, including syncing encryption protocol that requires a cryptographic private key for each user. Additionally, organizations will need some degree of process standardization and transformation to fully realize the benefits. Currently, financial institutions appear to be the early adopters.

The blockchain market is already humming. SAP, Oracle, IBM and Microsoft have blockchain offerings with Microsoft offering "blockchain platform as a service." While we are still early in the adoption of blockchain technologies, the evolution of developing use cases continues to accelerate at a rapid pace. From tracking food along a supply chain to linking college diplomas to digital identities, new blockchain applications are emerging daily. And the near-universal adoption of integrated ERP systems – as seen below – only accelerates its benefits



Figure 3: An ERP System Integrates Many Applications that May Benefit from Blockchain

Audit firms also are looking at how they will adapt to the new paradigm. Recognizing that the extent of future audits will be focused on significant events for their clients, auditors will have to change their model to utilize more senior resources on specific, complex issues.

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The flowchart below contains four questions to help an organization determine whether it needs blockchain.

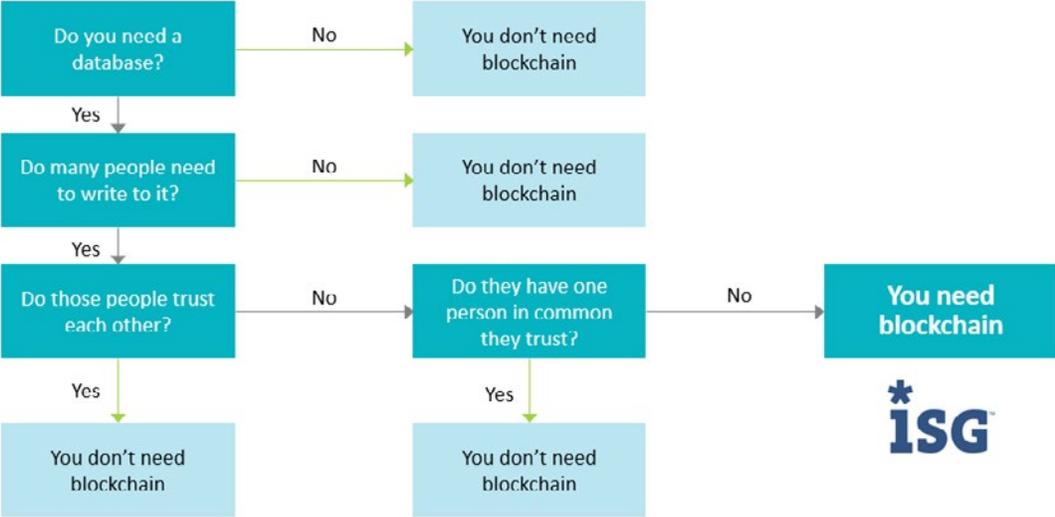


Figure 4: A Blockchain Decision Tree

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