Is There a Blockchain in Your Future?

By C. William (Bill) Thomas, CPA, Ph.D.

Should you and I learn as much as we can about blockchain this year? The answer to that question is decidedly "yes." Implementation of blockchain technology is having a significant impact on accounting and auditing.

What is Blockchain and How Will it Impact Accounting?

Blockchain is a global digital ledger of transactions that is decentralized, transparent, continuously updated by countless users and considered by many as almost impossible to corrupt or hack. While invented to help transact bitcoin cryptocurrency, blockchain is more than bitcoin.

We may think of a blockchain as the rails that bitcoin and other cryptocurrencies ride on. A blockchain database consists of two types of records: transactions and blocks. Blocks hold batches of transactions. Each block is timestamped and linked to a previous block. Following are some other basic facts.

1. Blockchain is secure and immutable. All blockchain entries are distributed and cryptographically sealed. In theory, a blockchain cannot be hacked, because that would require overpowering all the computers that contribute to and update the ledger (i.e., the entire internet). Immutable implies permanent, unalterable, irreversible.

Once a blockchain is created, it is accompanied by a digital fingerprint (hash string). That fingerprint is immutably timestamped on the transaction, so it's impossible to access later without entering the identical hash string. Timestamping assures that the electronic document within the blockchain is archived for storage and may not be modified over the entire document lifecycle.

2. Blockchain might be considered the "internet of value." Whereas the internet as we know it focuses on the exchange and transmission of information, blockchain centers on transactions. Instead of keeping separate records based on transaction receipts, companies write their transactions directly into a joint distributed register, creating an interlocking system of enduring accounting records.

3. The most obvious applications of blockchain technology will be accounts payable and receivable transactions in the consumer products and manufacturing industries. The technology will verify dates, quantities and payment, and there will be no question that the customer sent the payment.

Buyers and sellers collaborate in executing the transactions, which are all settled in cryptocurrency, without the assistance of an intermediary like a bank. Although consumer products and manufacturing hold the most obvious applications, there is also significant blockchain activity in the health care, technology, media and telecommunications industries.

4. Blockchain technology allows for "smart contracts" or computer programs that automatically execute transactions under certain conditions. Picture a scanning device on a receiving dock. When delivered goods pass through the scanner, the system automatically matches the information with the purchase order and vendor's invoice and, if all information matches predetermined specifications, payment of the invoice is approved and sent electronically by cryptocurrency. Blockchain backbones can also provide a home for documents of all sorts, from contracts to property deeds to birth records.

How Will Blockchain Impact Auditing?

Blockchain has tremendous implications for auditing. Accessing a digitized timestamped transaction within a blockchain requires searching for it by providing the identical hash string, applying an appropriate audit procedure and returning the audited transaction to the ledger with a notation that it has been audited. The audited record has a different timestamp, so the entire audit trail of the information is retained.

Since blockchain transactions are digital, they are processed faster than traditional methods. Whereas the traditional audit can only be performed after the fact on historical data, often taking weeks or months, use of blockchain technology will allow for real-time continuous auditing, making the year-end audit process much more timely. Auditors will have to become more involved with the data on a real-time basis, using it with a forward rather than historic perspective.

Additionally, rather than being a top-down process, starting with an account balance and using sampled transactions as a basis for the evidence supporting the audit opinion, the auditor will be able to access an entire database of transactions, identifying those that are outside pre-specified parameters and focusing on them as potentially erroneous, thus making the audit more effective. As a result, the audit may be transformed into a higher-valued service than it presently holds. ■

Resources

In this column, we have just scratched the surface. If you want to stay in this game, you should learn more. Here are some excellent resources:

- Lou Carlozo, "Why Finance Executives Should Care About Blockchain," *CPA Insider*, AICPA, May 8, 2017.
- Lou Carlozo, "Why CPAs Need to Get a Grip on Blockchain," *Journal of Accountancy*, June 13, 2017.
- Don and Alex Tapscott, *Blockchain Revolution: How the Technology Behind Bitcoin is changing Money, Business and the World.* Go to https://www.ted.com/talks/don_tapscott_how_the_blockchain_is_changing_money_and_business.
- Deloitte's Blockchain Institute, available at www.deloitte.com/de/blockchain.

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