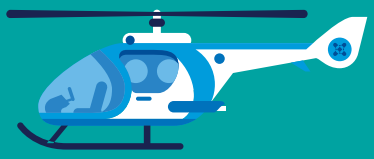
KPMG



Defining Issues®

Blockchain and digital currencies challenge traditional accounting and reporting models

July 18, 2018

KPMG reports on blockchain technologies, including digital assets such as cryptocurrencies, and discusses their effect on internal controls and business processes.

Applicability

Companies using blockchain technologies or considering using them.

Key facts and Impacts

Blockchain is a distributed ledger that keeps a record of transactions across a network that decentralizes their tracking and validation. Because these transactions are decentralized, no single party controls the data. If one business sells an asset to another, each party sees the same data, which has the potential to reduce the time required to verify the data.

Blockchain was originally invented to support **bitcoin**, which is now one of many cryptocurrencies. Blockchain uses **cryptography**, which prevents unauthorized changes to the blockchain record. A digital key allows you to enter a transaction, which records the transfer of a token from one blockchain address to another.

Bitcoin uses public addresses that enable a transaction record to be created and visible to everyone, however, personal information remains private.

Future blockchain uses may be very different, but consensus-driven distributed ledgers offer the potential for more streamlined information systems in many areas.

How are companies using this technology?

- Accepting payment for goods and services in cryptocurrencies, such as bitcoin.
- Tracking and transacting in other types of assets using blockchain technology, including financial instruments.
- Managing a complex supply chain.
- Enabling direct payments between companies.

Blockchain's potential effect

Many experts believe that blockchain has the potential to challenge the role of traditional intermediaries, such as banks, brokerages and insurers, that validate the authenticity and accuracy of transactions. Blockchain allows a buyer and seller to interact directly to transfer something of value without needing verification from a third party.

Blockchain systems are resistant to unauthorized tampering because verification is handled through algorithms and consensus among multiple computers that create a consistent shared record.

Here are a few business processes that blockchain could affect:

- securities settlement that happens in minutes instead of the current multi-day settlement processes;

- insurance claims that are handled more expeditiously by speeding up the interaction time between participants;
- public records, such as property tax, payments or driver's license records that are accessed and managed more efficiently;
- medical records remain confidential, but easily available to authorized healthcare providers; and
- real estate and leasing transactions that are settled more quickly with lower transaction costs.

Smart contracts

While bitcoin enables transactions in an alternative currency outside the traditional banking system, business processes more generally may benefit from the underlying blockchain technology. Blockchain enables smart contracts, which are computer codes stored on a blockchain that executes actions under specified circumstances and automates tasks that previously were performed manually by intermediaries.

Smart contracts can automate the contracting process and enable monitoring and enforcement of some contractual promises with minimal human intervention, resulting in reduced settlement times and operational errors. For example, a blockchain-enabled distribution chain could be programmed to release escrowed cash to a vendor when a third-party shipping company confirms delivery of an item and a third-party inspector verifies that it meets the specifications.

KPMG observation

The future of accounting

Some have asked how blockchain technologies might change accounting and financial reporting. While that may be difficult to predict, we believe blockchain fits into a broader wave of automation technologies that have the potential to improve the efficiency and effectiveness of financial reporting. Those effects may extend across the spectrum of preparing, controlling and analyzing financial information.

Nevertheless, while blockchain and other systems could at some point make verifying a transaction and its amount more automated, internal control over financial reporting involves considerations that extend beyond the integrity of software systems.

For example, a company that records transactions on a blockchain system will still need to verify that the right people access these systems in the right way and at the right time. Recording a transaction on a blockchain does not remove the risk of financial statement misstatement, whether due to fraud or error. A company will still need effective controls to verify that the right information is recorded in its books and records and ultimately reported to stakeholders.

As the pace of automation accelerates, we believe the financial reporting function will play an important role in assessing and addressing the risks that accompany innovation.

Accounting for digital assets

Cryptocurrencies and digital tokens challenge traditional financial reporting boundaries. The accounting for digital assets is an emerging area, and so far neither the FASB nor the IASB have provided specific accounting guidance. As the technology continues to evolve, it may not be clear how to apply accounting requirements to these transactions.

Bitcoin and other cryptocurrencies

Cryptocurrencies like bitcoin may exhibit certain characteristics of assets covered by different accounting codification topics. For example, some have suggested that bitcoin is akin to traditional currencies like those backed by sovereign governments. Others view bitcoin as a commodity, such as 'digital gold.'

However, we believe that cryptocurrencies would generally meet the definition of an indefinite-lived **intangible asset** because they do not convey specific rights in the same way as financial instruments.

Indefinite-lived intangible assets are not amortized, but are required to be recognized and measured at their historical cost; impairment is recognized when their carrying amount exceeds fair value. The subsequent reversal of previously recognized impairment losses is prohibited.

While many believe cryptocurrencies like bitcoin would be better measured at fair value each period, outside of a few specific circumstances (i.e. cryptocurrency held as an investment by an investment company)[1], US GAAP does not permit fair value accounting for an intangible asset.

Evaluate form and substance

While we believe a plain-vanilla cryptocurrency such as bitcoin may be an intangible asset, the accounting for any digital asset should include a careful evaluation of its form and substance, including its ownership and the rights and obligations conveyed. For example, as interest in cryptocurrencies has grown, so have the number of intermediaries that allow the purchase, sale and custody of these assets.

In some cases these holdings may represent direct ownership of a cryptocurrency held in custody by a counterparty, while in others they may simply represent a contractual right that could be a financial contract. Similarly, derivative contracts such as forwards, futures and investments in investment funds that hold interests in digital assets would generally be accounted for as financial instruments.[2]

Valuation requires judgment

To accurately value cryptocurrency that is received in exchange for goods or services, a company may need to seek the expertise of specialists and use judgment. While bitcoin currently trades regularly and in high volume, this may vary for other digital assets. It may be necessary to evaluate and consider information from many sources to determine the fair value of cryptocurrency holdings.

Recognition and measurement

The recognition and derecognition of digital assets should follow the relevant accounting model (e.g. intangible assets), which is generally based on control.

When evaluating the transfer of control and ownership, it may be important to consider the relevant legal environment, especially in situations that are more complicated than a simple sale (e.g. a transaction that involves ongoing custodial services by the seller). For digital assets such as cryptocurrencies, this evaluation may require special attention to legal issues, which is complicated by the fact that case law is only beginning to develop.

Example: Sale of product in exchange for cryptocurrency

Manufacturer enters into a contract to deliver a product to Customer on July 1 in exchange for 100 units of Cryptocurrency X when it is trading at $10 per unit. Assume that Cryptocurrency X has characteristics similar to bitcoin -- it is not a financial instrument and would be treated as an intangible asset by its holders. Manufacturer delivers the product on July 1 and also receives payment at that time. Manufacturer still holds Cryptocurrency X on September 30 when it trades for $8 per unit, and on December 31 when it trades for $11 per unit.

Manufacturer applies revenue recognition accounting guidance[3] to the sale of product and determines that Cryptocurrency X represents a form of noncash consideration that should be measured at inception of the contract at $1,000 (100 units at $10 per unit).

While this contract involves delivery of product and receipt of payment at contract inception, other arrangements may be more complicated and require additional considerations, including whether forward contracts involving actively traded cryptocurrencies represent derivatives or contain embedded derivatives.

	Debit	*Credit*
Intangible asset – Cryptocurrency X	1,000	
Revenue		1,000
To recognize revenue on delivery and receipt of Cryptocurrency X as payment on July 1.		

[1] ASC 946, Financial Services—Investment Companies

[2] ASC 815, Derivatives and Hedging; ASC 321, Investments—Equity Securities

[3] ASC 606, Revenue from Contracts with Customers

Example: Sale of product in exchange for cryptocurrency		
	Debit	*Credit*
Expense Intangible asset – Cryptocurrency X *To record impairment as of Sept. 30 due to a decline in fair value.*	200	 200
On December 31 the fair value is $1,100 but it is not marked up above its basis because it is treated as an indefinite-lived intangible asset.		

Tokenization

Cryptocurrencies represent one form of what is sometimes called 'tokenization', creating a digital representation of an asset on a blockchain so it can be transferred easily. In the case of bitcoin, we believe what has been tokenized is an intangible asset (a specific number of units of bitcoin), because ownership does not come with any other rights and obligations.

In contrast, other digital assets, such as tokens or coins in an initial coin offering, may convey specific utility or financial characteristics, such as rights to goods or services or a share of profits of a company or project. In each case, we believe the accounting should follow the rights and obligations conveyed.

Issuers and holders of digital assets should carefully evaluate the specific characteristics of the asset to determine the appropriate accounting. Issuers would determine whether the token or coin should be accounted for as debt, equity or a right to goods or services in the financial statements. Holders would determine whether the token or coin represents a financial asset, a right to goods or services or something else.

For example, a token that conveys specific rights to cash over time may meet the definition of a debt security or loan irrespective of whether ownership of the token is represented on a blockchain.

It is critical to evaluate digital asset transactions to verify that they comply with relevant regulatory requirements. For example, an issuance of tokens may represent a security that would require registration with the SEC, unless the issuance qualifies for an exemption.

Development and implementation costs

Many companies are considering the potential benefits of blockchain solutions and distributed ledger technologies to replace or enhance their business processes. As they incur development costs for these new systems, it is important to evaluate what the costs represent. The table shows some potential costs and the accounting guidance that would be applied.

Development and implementation costs	Accounting guidance
Research and development	ASC 730-10, *Research and Development Costs—Overall*
Internal-use software	ASC 350-40, *Intangibles-Goodwill and Other—Internal-Use Software*
Software to be sold, leased or marketed externally	ASC 985-20, *Software—Costs of Software to Be Sold, Leased, or Marketed*
Business process reengineering	ASC 720-45, *Other Expenses—Business and Technology Reengineering*

Determining what the costs represent can be complicated, especially when these solutions are developed in concert with other parties such as a consortium. A detailed analysis may be required to determine whether particular costs should be expensed as incurred, capitalized as software assets or treated in some other manner.

Governance and internal control considerations

An area that has received less focus amid the excitement around blockchain technology is the importance of strong internal controls for a company that uses this emerging technology. We believe a company should take a multifaceted approach to identifying and managing the risks associated with blockchain.

Boards and management play key roles in establishing the right control environment for engagement with new technologies. A company should have a clearly defined operational plan, implementation protocols and clear project management and oversight responsibilities from which it can evaluate its internal controls.

For financial reporting purposes, it is critical that management maintain accurate books and records of its transactions under a system of internal controls that provides reasonable assurance that financial statements are complete and free from error. The COSO framework can provide a structured approach to identifying relevant risks, determining appropriate control activities and generating relevant, quality information to be used in evaluating compliance objectives associated with blockchain technologies.[4]

Here are some issues that management might consider.

Control environment

- Does the Board have an adequate understanding and oversight of the company's objectives to ensure management is using new technologies in a well-controlled manner? Has the audit committee evaluated management's response to risks identified, including discussing these risks with the external auditor?
- Does the company employ individuals with adequate knowledge and understanding of the technology and identified risks?

Risk assessment

- Are the objectives associated with the company's use of blockchain clear enough to enable the appropriate identification and assessment of risks?
- Has the company identified and complied with the relevant accounting and reporting standards associated with the company's blockchain implementation?
- Does the use of blockchain technology indicate a change in the company's business model?
- Have fraud risks associated with new technology environments been identified and addressed?
- Does participation in blockchain activities create new relationships that may require an assessment of counterparty risks; subject the company to new regulatory requirements; create related party considerations; or impair independence with the external auditor?
- Has the company designed its risk assessment process associated with blockchain technology to be dynamic and adaptable to changes?

Control activities

- Have controls over development of blockchain systems been designed to verify the systems can accommodate and respond to business needs and risks before they are deployed?
- Have blockchain system deployment policies and procedures been designed to respond to the nature of the blockchain architecture, its consensus and verification mechanisms and the economic incentives of the participants?
- If a company uses intermediaries or third parties (such as a custodian for digital assets), can the company verify that those third-party service organizations are processing transactions in a properly controlled manner? Does the third party obtain a service auditor's report that the company can use to assess the design and operating effectiveness of the third party's relevant processes?
- Have policies and procedures related to the safeguarding of digital assets been developed? For example, assets traded on decentralized networks such as bitcoin are often susceptible to theft if security of a private key is compromised.

[4] Committee of Sponsoring Organizations of the Treadway Commission, May 2013 Internal Control—Integrated Framework

- Has the company established appropriate segregation of duties related to blockchain activities and transactions? What user access and provisioning risks are associated with blockchain systems?
- Has the company established controls over determining the fair value of digital assets such as impairment calculations?

Information and communication

- Has the company established data and information requirements to verify relevant information from blockchain activities is properly captured, used and retained?
- Is the information obtained from blockchain systems timely, accurate, complete, verifiable and sufficient?
- Has the company considered how new systems integrate with its current enterprise resource planning systems? Is additional technology needed to support the integration of a new system?
- Are existing IT practices sufficient to address data management and governance for the blockchain systems?
- Have the company's objectives and controls in the IT area been adequately communicated at all levels?

The COSO framework includes a monitoring component to verify the other COSO components are operating well. For example, internal audit might play a role in testing whether the other COSO components are designed and operating effectively on a periodic basis.

Regulatory considerations

A company will also need to consider which regulatory and legal frameworks apply to its circumstances such as:

- Anti-Money Laundering;
- Know Your Customer;
- SEC securities laws;
- Bank Secrecy Act;
- Foreign Account Tax Compliance Act; and
- General Data Protection Legislation.

Smart contracts may also require separate legal review to determine enforceability. A company will also need to consider the income tax and other tax consequences of their transactions.

Conclusion

New technologies challenge and disrupt traditional business models and financial reporting. This is especially true for digital assets where it is not always clear how to apply accounting and internal control frameworks to new innovations. Nevertheless, participants in financial markets have a responsibility to apply existing internal control and financial reporting requirements to these new technologies.

We believe accountants, finance personnel and audit committees play important roles in ensuring companies implement the right controls and governance. Blockchain technology remains a dynamic and emerging area. Companies should continue to monitor developments carefully.

Contributing authors
Jude Fernandes; Brian Fields; Karmen Ward; Rob Werling; Ian Wildenborg

KPMG's Financial Reporting View
kpmg.com/us/frv

kpmg.com/socialmedia