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Why Should Accountants Care About Blockchain?

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An Emerging Issues Forum



Blockchain and bitcoin



<https://www.youtube.com/watch?v=aeMv9uKpAZg>



What is the paper about?

- Our focus is on the accounting system and the accounting function
- Blockchain can be adopted for operational purposes (not covered here)



Overview

- What is blockchain?
- What does blockchain mean for accountants?
- Things to think about:
 - Data Security and Privacy
 - Technology, Adoption and Implementation
 - Accounting and Auditing
- Final thoughts



What is Blockchain?

- Individual records are bundled together into blocks
- Blocks are added to the chain one after another (hence the block-chain)
- Process:
 - The record would include some information about a transaction, with digital signatures for each party
 - The record is checked by the network for validity through mathematical techniques (like encryption and hashing, who is going to do it?)
 - Once approved, the record is added to a block
 - Hash codes connect the blocks together in a specific order and hence make them difficult to change
 - Any changes to the original input will generate a new hash
 - The next block in the chain still has the old hash, so to restore the chain a hacker would have to recalculate the old hash. And the next, and so on. Takes an enormous amount of computing power



What is Blockchain? (cont.)

- Blockchain is associated with a decentralized egalitarian network (bitcoin)
- The bitcoin network keeps members anonymous
- Transactions need to be approved by consensus
- These characteristics may not be good fit in all implementations
- Others types of blockchain networks exist (e.g. Hyperledger)



What does blockchain mean for accountants?

- Blockchain can be adopted outside accounting (e.g. supply chain, healthcare) or within accounting (e.g. AP, AR)
- So, why should accountants care?
- Secured and verified data?
 - Less audit work?
 - Continuous auditing?
 - Financial statements on demand?
 - A headache?
 - Nothing at all?



What Should Accountants Think About

We examine the following considerations:

- Data Security and Privacy
- Technology, Adoption and Implementation
- Accounting and Auditing



Data Security and Privacy

- Data security – preventing unauthorized alterations (many copies)
 - Bitcoin scams
- Data privacy – a distributed journal does not help
 - AP or AR example
 - Regulatory issues (selective disclosure)
- Is Hyperledger the solution?
 - Different types of nodes
 - Retaining less information on blockchain (just hash ID)
 - Reduces the amount of the data on blockchain – would it still provide resilience?



Technology, Adoption and Implementation

- Improved access to company information (vendors, customers, auditors, regulators, investors)
- Potential to standardize accounting information
- Is it scalable?
 - Need a lot of storage - Instead of having one copy of the journal, we now have many
 - Transaction velocity - blockchain system needs to reconcile and record more transactions and make more copies
 - Would costs be too high?
 - Reducing information is an option (as mentioned)



Technology, Adoption and Implementation (cont.)

- Costs of adoption within the company may be high
 - Especially if integrated with legacy
- Companies have exhibited resistance to costs and effort of transforming IS
- Costs would likely vary across companies
 - Is blockchain adopted somewhere else?
 - Can it replace legacy ERP?
 - Do all counterparties (e.g. vendors) need to adopt it?
 - Is this an industry move? (unlikely)
 - Private Key Infrastructure (PKI) – key management and storage



Accounting and Auditing

- Accounting information reliability – two party verification. Verifier is a third party at arms' length to the company
- Enhanced credibility benefits company and auditor
- Currently auditors spend time collecting confirmations on company balances
- Third party verification may help in areas like cash payments for operating and capital expenditures and cash collections of revenue



Accounting and Auditing (cont.)

- Accounting information is complex. Includes estimates. Blockchain may be good for cash transactions, not as much for estimates that are not verified
- Revisions are common (presentation, adoption of new rules, changes in estimates, errors)
- Making revisions may be more difficult and costly



Accounting and Auditing (cont.)

- May be good for “smart contracts” – can establish blockchain records to execute future actions (e.g. long term contracts)
- Blockchain relies on third party verifiers – as strong as its weakest link
- Auditors need to be careful not to allow the perceived credibility of blockchain-based accounting information to reduce their skepticism in the audit



Accounting and Auditing (cont.)

- Allows for transparent and continuous distribution of information to a company's stakeholders – continuous auditing?
- Would companies be willing to reach consensus around standards?
- Companies' willingness may depend on different factors (e.g. size, complexity, competitive position, culture)



Accounting and Auditing (cont.)

- Is there an economic case for blockchain?
- Would the benefits outweigh the costs?



Final Thoughts

- Blockchain has the potential to make a significant impact on the security and resilience of data
- It is good for an ecosystem with many users where trust is a concern
- Data privacy may be an issue
- The benefits for accounting data may not outweigh the costs and concerns

