ACCOUNTING AND BLOCKCHAIN

JENNIFER BURNS, DELOITTE & TOUCHE, LLP
ERIC E. COHEN, COHEN COMPUTER CONSULTING
AGENDA

• Getting to know you
• Blockchain briefing
• COSO and the 2013 Framework
• The COSO Blockchain Thought Leadership Project
• Your questions
DISCLAIMERS
GETTING TO KNOW YOU

- Familiarity with Blockchain (and CryptoAssets)
  - Personal involvement
  - Academic involvement (research, curriculum)
- Familiarity with COSO and the 2013 Framework
BLOCKCHAIN: ACCOUNTING AND ACADEMIC IMPLICATIONS OF BLOCKCHAIN

The Phenomena, the Fad and the Fallacies

ERIC E. COHEN
COHEN COMPUTER CONSULTING
HILO, JANUARY 3, 2020
You May Have Heard*

- Blockchain is “inherently self auditing”
- Blockchain will make accountants and auditors obsolete; It’s the end of accounting and auditing as we know it
- Triple Entry Accounting will solve all entity reporting and reconciliation issues
- 100% of the data an auditor would need is encrypted and available to the auditor on the Blockchain

*Not necessarily the views of the speaker

"Blockchain [is] The New Technology of Trust"

"A blockchain ledger would provide an assurance baseline that eliminates the need for traditional auditing entirely"
- Gartner, “What Assurance Leaders Need to Know About Blockchain”, September 2019
WHAT IS BLOCKCHAIN (AND ARE THEY TAKING OUR ACCOUNTING AND AUDIT AWAY)?

- The Phenomena, the Fad and the Fallacies; getting us together on some things
- Bitcoin and blockchain/distributed ledger technologies backgrounder
BLOCKCHAIN AND DISTRIBUTED LEDGER TECHNOLOGIES*

- "Peer to peer ledgers": a new kind of "database"/decentralized transaction environment for storing records/transactions/"ledger entries": decentralized*, public*, transparent, cryptographically supported and immutable*, to bring trust between different parties.
- Smart contracts and crypto assets take it beyond (just a) new more trustworthy database
- Popularity ushered in as the foundation for Bitcoin, the leading cryptocurrency, with a current "market capitalization" of $130B (compared with $US1.58T and €1.1T in circulation)
- While tracking the exchanges and net balances of > 5,000 cryptoassets (electronic payments*) are the best known uses of blockchains, blockchains and the more general distributed ledger are being used for a wide variety of purposes with a strong concentration in financial services

* Simplified
... we implement the proof-of-work by incrementing a nonce in the block until a value is found that gives the block’s hash the required zero bits. Once the CPU effort has been expended to make it satisfy the proof-of-work, the block cannot be changed without redoing the work. As later blocks are chained after it, the work to change the block would include redoing all the blocks after it.

**Bitcoin Blockchain fact:**
~ 300,000 transactions in last 24 hours  

Reward to record 1 Bitcoin transaction:  
~$100 not including energy costs  
(12.5 Bitcoin per block + fees)
THE PHENOMENA, THE FAD AND THE FALLACIES; GETTING US TOGETHER ON SOME THINGS

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest

October 31, 2008

https://bitcoin.org/bitcoin.pdf
Chain of Blocks goes back 25 years!

Start-up fields time-stamp system

Company unveils first electronic file validation software.

BY ELLEN MESSMER

Start-up Surety Technologies, Inc. this month began shipping desktop computer software that gives corporations a way to electronically notarize and time-stamp important documents.

Companies commonly have paper documents certified by notaries in order to prove the document's authenticity. The Surety Technologies software, used in conjunction with its Internet-based archive service, for the first time gives companies a way to notarize documents electronically over a network through the Digital Notary System.

With the Digital Notary client software for Windows or Unix running on their desktop computers, users can compress and timestamp a file employing a mathematical algorithm, called a "hash." Each time-stamped document's hash is as unique as a fingerprint, so only the identical document would produce the same hash.

The Surety software for Windows works well as a single workstation implementation, but we want to make it server-based within the corporation so we can validate documents by integrating the Digital Notary System into Lotus Notes," said Gary Kuehlsan, manager of advanced technology at American Cyanimid.

The firm has an array of research data that must be notarized to substantiate patent claims, he said.

"Our scientists have to manually submit the test scripts and other documents to be witnessed by another individual under the federal rules of evidence," he noted. "The paper is getting out of hand, and we'd like to use the computer as the witness instead."

Stuart Haber, chief scientist and cofounder of Surety Technologies, said a LAN-based version of the software and an application program interface tool kit will be ready by March.

The Windows and Unix-based versions of the Digital Notary System, which cost...
DOES BLOCKCHAIN IMPACT/OBSOLETE ACCOUNTANTS?

Blockchain technology has the potential to impact all recordkeeping processes, including the way transactions are initiated, processed, authorized, recorded and reported. Changes in business models and business processes may impact back-office activities such as financial reporting and tax preparation. Independent auditors likewise will need to understand this technology as it is implemented at their clients. **Both the role and skill sets of CPA auditors may change as new blockchain-based techniques and procedures emerge.** For example, methods for obtaining sufficient appropriate audit evidence will need to consider both traditional stand-alone general ledgers as well as blockchain ledgers. Additionally, there is potential for greater standardization and transparency in reporting and accounting, which could enable more efficient data extraction and analysis. Blockchain technology could bring new challenges and opportunities to the audit and assurance profession. **While traditional audit and assurance services will remain important, a CPA auditor’s approach may change.** Just as the audit and assurance profession is evolving today, with audit innovations in automation and data analytics, **blockchain technology may also have a significant impact on the way auditors execute their engagements.** Moreover, CPAs may need to broaden their skill sets and knowledge to meet the anticipated demands of the business world as blockchain technology is more widely adopted.

CRYPTO: MADE BLOCKCHAIN KNOWN

- FOMO
- HODL
- DYOR
- ATH, ATL
- Whale
- ASHDRAKED, REKT
- *Eric is a REVERSE INDICATOR*

**Fork** – If you held Bitcoin at 8/2014, how may altcoins would you also hold? ([https://en.wikipedia.org/wiki/List_of_bitcoin_forks](https://en.wikipedia.org/wiki/List_of_bitcoin_forks))

*Most terms are humorous; not understanding one of these terms means you lose money.*
### Bitcoin, Forks and Altcoins

<table>
<thead>
<tr>
<th>Date</th>
<th>BTC</th>
<th>BCH</th>
<th>BTG</th>
<th>BTCP</th>
<th>BSV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/15/2016</td>
<td>660.00</td>
<td>380.00</td>
<td>140.00</td>
<td>140.00</td>
<td>156.00</td>
<td><strong>$660.00</strong></td>
</tr>
<tr>
<td>8/1/2017</td>
<td>2,900.00</td>
<td>320.00</td>
<td>115.00</td>
<td>60.00</td>
<td></td>
<td><strong>$3,280.00</strong></td>
</tr>
<tr>
<td>10/24/2017</td>
<td>5,900.00</td>
<td>1,200.00</td>
<td>60.00</td>
<td></td>
<td></td>
<td><strong>$6,360.00</strong></td>
</tr>
<tr>
<td>2/28/2018</td>
<td>11,000.00</td>
<td>1,200.00</td>
<td>115.00</td>
<td></td>
<td></td>
<td><strong>$12,375.00</strong></td>
</tr>
<tr>
<td>8/5/2019</td>
<td>11,875.00</td>
<td>350.00</td>
<td>18.00</td>
<td>0.40</td>
<td></td>
<td><strong>$12,399.40</strong></td>
</tr>
</tbody>
</table>

Visit [this link](https://cryptocurrencyfacts.com/a-list-of-upcoming-bitcoin-forks-and-past-forks/) for more information.
THERE’S A LOT OF CONFUSION

• “The’ Blockchain”
• Blockchain <> Distributed Ledger ... or is it?
• Anarchy tool or regulatory tool?
• New means of financing/equity?
• Teams and whitepapers or F/S?
• Blockchain or Block chain (terminology)
• Nakamoto vs beyond

• Fungible tradeable assets vs direct identification (FT, FNT, ERC20/ERC721)
• Permissionless/permissioned
• Public/private

• Decentralized/centralized
• Proof of Work/Proof of Stake
• Mining/Consensus
IS IT ALL ABOUT BITCOIN?

• Generally fungible – no collectible coins or tokens
• Tied to tangible? Story of Tether
• Exchanges: e.g., Coinbase
• Manage your own
  • Handing over the keys?
DIGITAL ASSETS

Top 100 Cryptocurrencies by Market Capitalization

<table>
<thead>
<tr>
<th>Name</th>
<th>Market Cap</th>
<th>Price</th>
<th>Volume (24h)</th>
<th>Circulating Supply</th>
<th>Change (24h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitcoin</td>
<td>$131,278,391,576</td>
<td>$7,237.65</td>
<td>$23,628,352,372</td>
<td>18,138,250 BTC</td>
<td>1.43%</td>
</tr>
<tr>
<td>Ethereum</td>
<td>$14,135,421,145</td>
<td>$129.54</td>
<td>$8,581,128,412</td>
<td>109,120,413 ETH</td>
<td>-0.07%</td>
</tr>
<tr>
<td>XRP</td>
<td>$8,252,069,929</td>
<td>$0.190412</td>
<td>$1,228,111,14b</td>
<td>43,333,903,409 XRP</td>
<td>-0.53%</td>
</tr>
<tr>
<td>Tether</td>
<td>$4,148,798,230</td>
<td>$0.068</td>
<td></td>
<td>044,456 USDT</td>
<td>1.06%</td>
</tr>
</tbody>
</table>

January 2020  Hawai'i Accounting Research Conference

https://opensea.io/assets
IS IT EASY TO INVEST AND MANAGE YOUR OWN ASSETS?

• With custodial accounts (they hold they keys), you do not have access to your assets except through them; many attacks and losses
• With non-custodial or direct holdings:
  • No one else can help you if you lose track of them; the strength of the security is a “weakness”
  • Your unfamiliarity with managing assets in these matters means someone else could use guesswork, social engineering or other relatively simple means of taking your assets from you
  • No one has any idea how much of the assets are left without anyone having access to them
DECENTRALIZED “MONEY”

- Kept at third party (e.g., exchange) – easy, but many risks
  - Exchanges and KYC/anonymity
- Kept on your device on a wallet
- If you lose your keys/phrases, you are out of luck
- Will public/private keys become worse than tracking passwords?
- No FDIC guarantee
- No one to get you back in
- Attackers galore
PRE-ICO SALE IS LIVE

15% BONUS ENDS IN
14 : 22 : 26 : 32
Day(s) Hours(s) Minute(s) Second(s)

TOKEN SALE!

DON'T MISS THIS EXCLUSIVE OPPORTUNITY TO PARTICIPATE IN
January 2020 Hawai'i Accounting Research Conference Hilo, HI
Exercise 1:
Exercises might include:

When did Bitcoin first hit $1, $10, $100, $1,000, $10,000?

What was Bitcoin’s highest value? How about Ripple/XRP?
VALUING CRYPTOCURRENCY

Books
• (Foreign) Currency?
• Inventory?
• Securities/investment?
• Intangible? (Indefinite-Lived Intangible Asset)

• New AICPA Guidance
  • FASB and others ...

Tax
  • Revenue Ruling 2019-24
  • IRS Notice 2014-21
BLOCK/TRANSACTION VIEWING TOOLS

- Bitcoin: [https://blockchain.info/](https://blockchain.info/)
  - But see [https://cryptograffiti.info/](https://cryptograffiti.info/)
- Ethereum: [https://etherscan.io/](https://etherscan.io/) [https://etherchain.org/](https://etherchain.org/)
- Ripple: [https://lnkd.in/drqks5n](https://lnkd.in/drqks5n)
- Litecoin: [https://lnkd.in/der2REx](https://lnkd.in/der2REx)
- Stellar: [https://stellarchain.io/](https://stellarchain.io/)
- 16 different chains: [https://bchain.info](https://bchain.info)

**Exercise 2:**
Exercises might include:
Using Blockchain.info, provide a print screen showing the exchange of 10,000 Bitcoin that purchased two pizzas
[https://bitcointalk.org/index.php?topic=137.0](https://bitcointalk.org/index.php?topic=137.0)

Identify the wallet addresses holding the most USD equivalent in Bitcoin, Ether or other cryptocurrencies

See later exercises; use these viewing tools to show transactions that will take place in class

Coinmarketcap accepts donations in crypto – how much has been put into those wallets?
This transaction was successful, and validated in ledger 33721517 on October 24, 2017 11:06 AM.

This is an OfferCreate transaction.
-eri (rDBLjgXE7165r3VWh5Q4Fzjy7PNrTMwUq) offered to pay 5,642.9801 USD.mrr (rB3gZey7WWhYRxjHLoHDEgK2pEPNielKIS) order to receive 1 BTC.mrr (rB3gZey7WWhYRxjHLoHDEgK2pEPNielKIS).
The exchange rate for this offer is 5,643 BTC/USD.
The transaction will also cancel -eri (rDBLjgXE7165r3VWh5Q4Fzjy7PNrTMwUq)'s existing offer #9029399
The transaction's sequence number is 9029502

The transaction contains the following memos:
1. Type: offer_comment (decoded hex)
   Data: rb_mrr_btc5_yuri#quote_ripple (decoded hex)
Public Key (a number derived from the private key)

Public Address (a number derived from the public key)  
(Bitcoin, Ethereum, etc.)

Private Key (a number derived from the above)

See it in action!

Bitcoin
https://www.royalfork.org/2014/08/11/graphical-address-generator/

Ether
https://www.royalfork.org/2017/12/10/eth-graphical-address/

Wallet Specific Recovery Phrase, based on wallet-specific wordlist

https://github.com/bitcoin/bips/blob/master/bip-0039.mediawiki
Whoever holds the private keys to these two addresses has access to $1B of assets each as of 6/23/2019.

**Bitcoin Address** Addresses are identifiers which you use to send bitcoins to another person.

- **Summary**
  - Address: 3D2oetdNuZuqQHPJmcMDDHYoqkyNVsFk9r
  - Hash 160: 7c6775e20e3e938d2d7e9d79ac310108ba501ddb

- **Transactions**
  - No. Transactions: 5009
  - Total Received: 1,756,206,534,392,98 BTC
  - Final Balance: 173,122,522,036,63 BTC

**Address** 0x281055Af2c982d96fAB65b3a49cAc8b878184Cb16

- **Overview**
  - Balance: 1,538,422,843560898194846506 Ether
  - Ether Value: $727,286,399.29 (@ $475.75/ETH)
  - Transactions: 500 txns

- **Misc**
  - Address Watch: Add To Watch List
  - Token Balances: View ($951,662.74)

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**Exercise 4:** Use of **RoyalFork** to visualize and better understand private and public keys, wallet addresses and why random numbers as input are necessary.
While it is “simple” to move from private key to public key and public addresses ("deterministic"), it is very difficult to go the other way. If someone has your private key, they have access to all related resources.

All public addresses are public and viewable on a specific public chain or ledger. They are not associated directly with the owner. Still, it is recommended to only use a public address once.

Public keys can be made public, so third parties can know a specific owner has signed a transaction.

Private keys are used to sign transactions sending cryptocurrency to others. The key should be tightly controlled (be very careful what applications you enter them into). The public key can verify that the private key was used to sign the transaction due to the tight coupling of the two.
Bitcoin Address

Addresses are identifiers which you use to send bitcoins to another person.

Summary

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>1Dl8ty59tU9LkrXG2ocWeSzKFAY8fu6jga</td>
</tr>
<tr>
<td>Hash 160</td>
<td>8d4d508f5bf2c28b20a3863405f05d3cd374b045</td>
</tr>
</tbody>
</table>

Transactions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Transactions</td>
<td>4</td>
</tr>
<tr>
<td>Total Received</td>
<td>0.00316 BTC</td>
</tr>
<tr>
<td>Final Balance</td>
<td>0 BTC</td>
</tr>
</tbody>
</table>

Transactions (Oldest First)

<table>
<thead>
<tr>
<th>Transaction ID</th>
<th>Amount</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-10-26</td>
<td>0.00316 BTC</td>
<td>08:24:41</td>
</tr>
<tr>
<td>1Dl8ty59tU9LkrXG2ocWeSzKFAY8fu6jga</td>
<td>0.00009661 BTC</td>
<td>2017-10-26 08:24:41</td>
</tr>
</tbody>
</table>

Request Payment | Donation Button
CHALLENGES

• Taking old legacy data and turning it into new legacy data – lack of interoperability
• “The good news about standards is that there are so many of them”
  • Example: ISO/TC 307 Blockchain and Distributed Ledger Technologies
• As we have discussed, keys, forks and other technical issues are non-trivial
• ...
ACCOUNTING AND AUDIT
An Internet-facilitated single, global, immutable, public, cryptographically-supported standardized audit trail supporting continuous “audit”, leveraging digital signatures and hashes

I’VE BEEN DISCUSSING THIS FOR > 15 YEARS
ENOUGH TO AUDIT? ONLY FOR AUDIT?
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**MEMOS:**
The transaction contains the following memos:
1. Type: offer_comment (decoded hex)
   ○ Data: rb_mrr_btc5_yuri##quote_ripple (decoded hex)
“BLOCKCHAIN MAKES AUDITORS OBSOLETE; IT IS SELF-AUDITING”

Valuation  Existence  aLocation  Occurrence  Completeness  classification  understandable  Accuracy  Presentation  cuTof  Obligations  Rights
PROVIDE THE DETAIL – THE SUMMARY CAN BE A SIMPLE BY-PRODUCT (50 YEAR OLD IDEA)

To aggregate, or not to aggregate ... that is the question:
Whether 'tis more transparent in the mind to provide “Events” of underlying detail for stockholders to make outrageous Fortunes
Or to summarize a Sea of Troubles
And by the “Value” report them.

An “Events” Approach to Basic Accounting Theory

George H. Sorier

In 1966, after two years work, a committee of the American Accounting Association issued its report, “A Statement of Basic Accounting Theory.” Unfortunately, the most startling recommendation was the omission of current costs and the advocacy of a two-column (historical and current) report. To this member of the committee, however, even more startling was that the main maintenance agreement on the recommendations was arrived at by following two very divergent paths originating from two very distinct basic concepts about accounting. This left the committee members but rather ominous representatives of a more widespread and heretofore differences in the world outside. The majority view of the committee and the present emphasis of the basic invention as a study on the value of the “value” approach to accounting. The minority view of which I am sometimes the “value” as the “value” approach. This view although the only member 1. demands on the part has to be the fact that more knowledge has been emphasized that may have to be defined on the part and the kinds of problems that you are not. This work seeks to define the value and consider the present arguments for and against the “value” approach to accounting. This view allows the definition of an “events” in accounting theory, and reflects the basic function to the recommendations in the Statement of Basic Accounting Theory. Hopefully, this will provide not only insights and help for the

The Accounting Review, January 1969
Some hurdles to making Events Approach practicable; role of Blockchain and Events recording
POTENTIAL APPROACHES AND THINGS TO CONSIDER

- Partial or total tokenization
  - Digital, physical and intangible assets, including IP and rights
    - Tracking
    - Ownership and obligations
- Removing after-the-fact, untraceable decisions
  - Smart contracts and standard business rules
- Audit
  - Transaction authentication
  - Audit trail
  - Automated audit processes
3EA/TEA/“TRIPLE ENTRY ACCOUNTING/BOOKKEEPING/LEDGERS”

- Cryptographic means and mechanisms
- The trade document is the transaction
- Pseudonymity
- Integrated payments

- “One source of the truth”

- Implementations - examples
Moving Accounting & Audit to B/DLT

What if there was an ecosystem that uses distributed ledger technology and an open source library of accounting smart contracts sufficient to capture, process, audit and report enterprise data and performance data on a real time continuous basis under a continuous independent audit exceeding current accounting, audit and control standards?

One with the capacity to meet and exceed the reliability of existing reporting and audit standards but laying down a foundation for the potential token economy?
The objective of the auditor is to **plan** and **perform** the audit to obtain appropriate **audit evidence** that is sufficient to support the **opinion** expressed in the auditor's report.¹
CREATE AN ELECTRONIC STANDARDIZED AUDIT TRAIL – “BLACK BOX AUDIT TRAIL” EEC, 2001-2003

XML-based source documents can be stored in databases and retrieved and reported upon as needed. XML-based universal audit trail can represent transactions AND processes; archive and query anytime. XML-based universal audit trail provides drill-down detail from standardized business reports. XML data can be from a file, a data stream, or a web service.
ERIC’S BLACKBOX AUDIT TRAIL FROM 15 YEARS AGO
POTENTIAL BENEFITS TO ACCOUNTING AND AUDITING

Data standardization and transparency

Financial Statement Preparation

- Continuous feed of structured data
- Automate financial statement preparation and reporting
- “Automate” counterparty reconciliation
- Continuous monitoring
- Advanced analytics

Auditing Techniques

- Independent data extraction
- Real-time monitoring and exception reporting
- Memorialize evidence through time-stamping on the blockchain
- Advanced audit analytics of public data scalable to multiple engagements
- Large training data for artificial intelligence
Smart Contract Platform

- Commitments and contingencies
- Board Resolutions
- Audit Committee Resolutions
- Employment Agreements
- Equity Issuance Agreements
- Debt Issuance
- Equity Based Compensation
- Equipment Purchase
- Purchase Orders
THE COSO BLOCKCHAIN THOUGHT LEADERSHIP PROJECT: APPROACH AND DEVELOPMENT

- Initial theme
- Outline
- Evaluation of blockchain and consideration of ICIF
PLANNED CONTENT AND DELIVERABLES

• Thought leadership document
  • Background necessary for purpose (there’s a lot of great material out there already, especially from sponsoring organizations)
  • Evaluation of how blockchain is and can be a help, a threat, or both
    • Recognition that much of the impact comes from blockchain PLUS something
  • Analysis and suggestions
  • Resources
• Executive Summary
## UNIQUE RISKS

<table>
<thead>
<tr>
<th>Financial risk</th>
<th>Technological risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of digital assets due to cyber attacks on (or failure of) system protocol, networks, digital wallets and end points. Market demand for reporting of real-time information.</td>
<td>Verification of transactions may be interrupted by an unreliable blockchain protocol. A new framework of controls needs to be adopted by organizations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operational risk</th>
<th>Regulatory risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blockchains may have complex identity verification systems, including cryptographic keys. Loss or theft of keys can mean permanently losing access to digital assets.</td>
<td>There are unclear, evolving and varying regulations across jurisdictions. Companies continue to struggle with regulatory understanding and compliance.</td>
</tr>
<tr>
<td>Control Environment</td>
<td>Risk Assessment</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>1. Demonstrates commitment to integrity and ethical values.</td>
<td>6. Specifies suitable objectives.</td>
</tr>
<tr>
<td>4. Demonstrates commitment to competence.</td>
<td>9. Identifies and analyzes significant change.</td>
</tr>
<tr>
<td>5. Enforces accountability.</td>
<td></td>
</tr>
</tbody>
</table>
MOVING FORWARD

Standard seters

Market participants

Regulators
RESOURCES, CALL TO ACTION AND NEXT STEPS FOR ACCOUNTANTS

Various Professional Bodies Respond

• Blockchain resources (representative content)
  • AICPA
    • [https://www.aicpa.org/interestareas/informationtechnology/resources/blockchain.html](https://www.aicpa.org/interestareas/informationtechnology/resources/blockchain.html)
    • Digital Assets Committee, Blockchain Certificate program
    • Exposure Draft: Audit Evidence
  • AAA
    • [https://aaahq.org/Meetings/2018/BlockchainAAA](https://aaahq.org/Meetings/2018/BlockchainAAA)
  • FEI
  • IIA
    • [https://www.theiia.org/centers/aec/Pages/blockchain-risks-opportunities.aspx](https://www.theiia.org/centers/aec/Pages/blockchain-risks-opportunities.aspx)
  • IMA
    • *Various articles in Strategic Finance*
AICPA

- Certificate program
  - https://certificates.aicpastore.com/certificate-programs/blockchain
- Digital Assets Committee
- See also NYSSCPA Digital Assets Committee and Conference
  - https://cpe.nysscpa.org/product/30115
RESOURCES

- Handbook of Applied Cryptography
  - http://math.fau.edu/bkhadka/Syllabi/A%20handbook%20of%20applied%20cryptography.pdf
RESOURCES AND FOR MORE INFORMATION

• COSO's Guidance on Internal Control
  • [https://www.coso.org/Pages/ic.aspx](https://www.coso.org/Pages/ic.aspx)
  • Note: materials throughout are from “Free Downloads” made available by COSO and used with permission

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Questions?