

# THE POWER OF BEING UNDERSTOOD

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# BLOCKCHAIN: PREPARING FOR DISRUPTION

What is Blockchain and how will it impact you in the coming years

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# Introduction



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- Consulting in the Tech & Digital practice on emerging and disruptive technologies
- Engaging with clients who are exploring new cryptocurrencies, helping companies address how to accept cryptocurrencies, how blockchain is going to disrupt a company

# BITCOIN VS BLOCKCHAIN

What are we even talking about?

# So what exactly is a Blockchain anyways?

A Blockchain is a ledger where transactions are recorded and confirmed **anonymously**. It's a record of events that is **shared between many parties**. More importantly, once information is entered, **it cannot be altered**.

# Bitcoin was merely one of the first applications

“Blockchain is to Bitcoin, what the internet is to email. A big electronic system, on top of which you can build applications.

Currency is just one.”

—Sally Davies

# Blockchain

- One of the key underlying technologies behind Bitcoin (and other cryptocurrencies) is the blockchain
- Standing alone, blockchain has little value
- There is an enormous amount of hype around the word “blockchain”

Markets

## Long Island Iced Changing Its Nan

By [Arie Shapira](#) and [Kailey Leinz](#)

December 21, 2017, 8:06 AM CST *Updated or*

04.12.18

## Surprise! The Long Island Iced Tea blockchain pivot didn't work

BY CALE GUTHRIE WEISSMAN 1 MINUTE READ

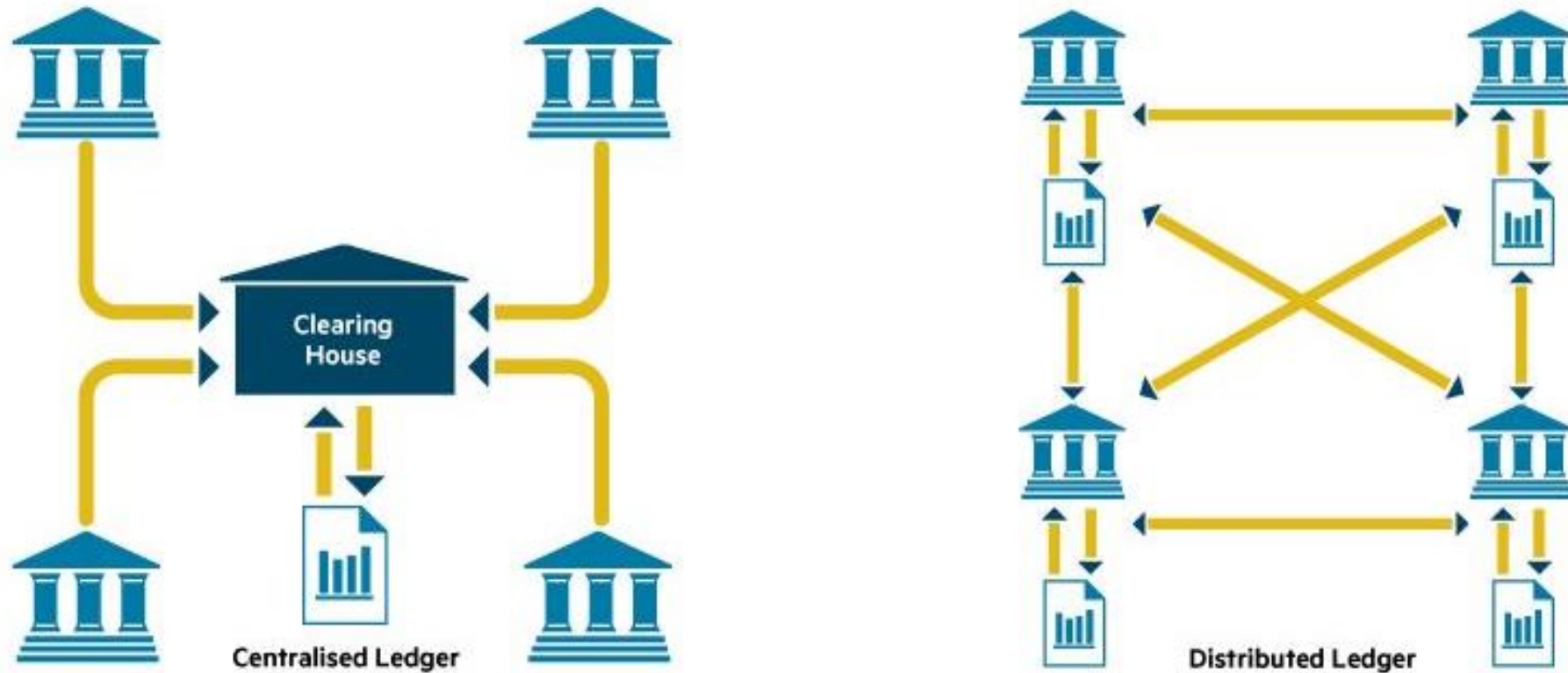
Whenever you put your lips on a crisp, cold bottle of iced tea, do you ever think to yourself, “Man, I really could use decentralized ledger-based technology to free me from my current technological paradigm?” If you said no, Wall Street agrees.

# What is a Blockchain?

- A Blockchain is a **distributed ledger** where transactions are recorded and confirmed in an anonymous and **trustless manner**.
- It's a record of events that is shared (and updated in real-time) between many parties.
- More importantly, it is an append-only database, **once information is entered, it cannot be altered.**



# Centralized vs. Distributed Ledger



FT graphic. Source: Santander InnoVentures, Oliver Wyman & Anthemis Partners



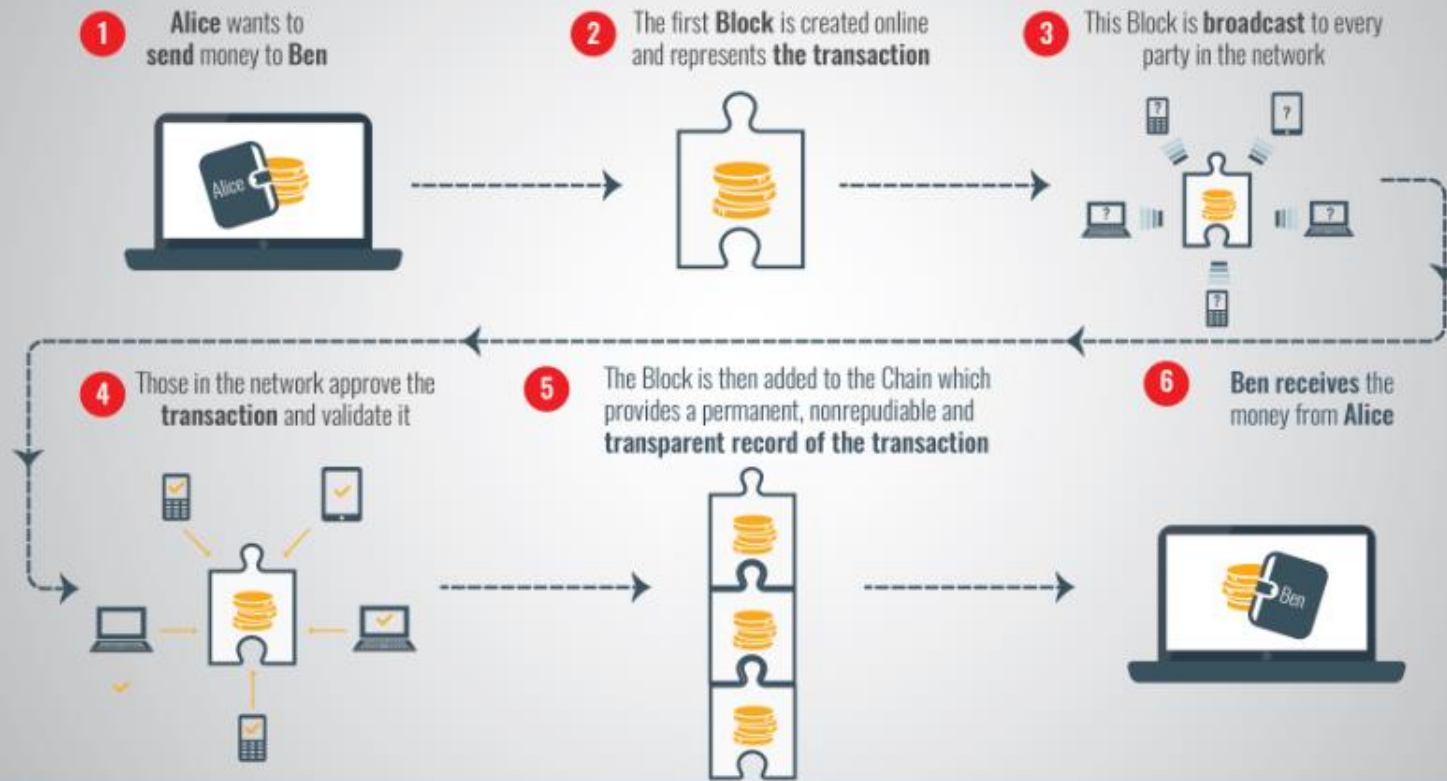
# Why Revolutionary?

- The technology can work for ***almost every type of transaction involving value or data, including money, goods, information and property.***
- Its potential uses are almost limitless: from collecting taxes to enabling migrants to send money back to family in countries where banking is difficult, property title, **identity**, voting, audit, **energy grid optimization** and contracts – “**Smart contracts**”
- Blockchain could also **help to reduce fraud** because every transaction would be recorded and distributed on a public ledger for anyone to see – anti-money laundering and know your client. (AML/KYC)
- The exponential and disruptive growth will be in an ecosystem of private and public blockchains where firms, customers, and suppliers can collaborate in a secure, auditable and **virtually verifiable** way.

# What is Bitcoin and Blockchain

## HOW BLOCKCHAIN WORKS

“ A Blockchain is a cloud based database shared by every participant in a given system. In the case of this exemplar, its a currency trade. The Blockchain contains the complete transaction of the cryptocurrency or other record keeping in other applications. Think of It as a cloud based peer to peer ledger. ”



**Notes:** Transactions are not valid until added to the Chain. Tampering is immediately evident.

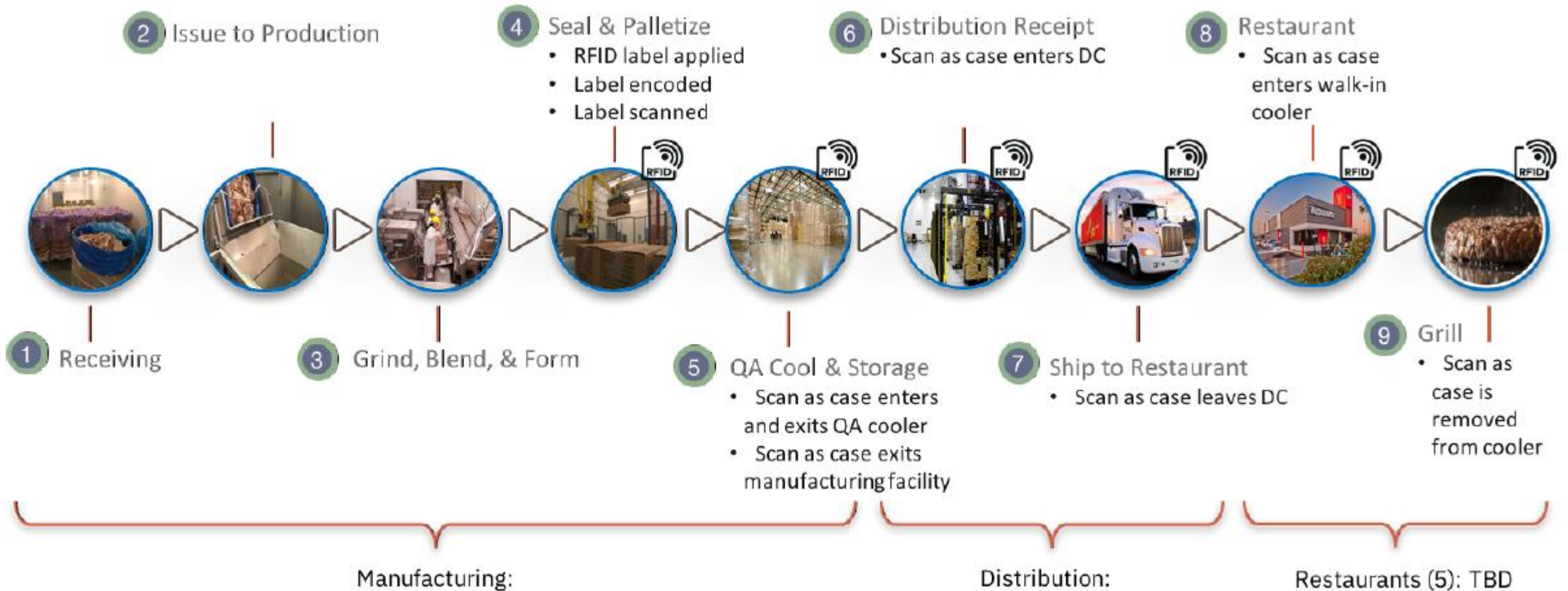
The Blockchain is regarded as safe as everyone in the network has a copy. The Source of any discrepancies are usually evident immediately.

@PDForrest

# Recent Market Developments – Blockchain (Enterprise)

- **Walmart's food safety blockchain launched commercially in September 2018**
- IBM and Maersk join forces in joint venture called TradeLens, which is creating a platform digitizing the global shipping industry supply chain
- **ICE announces partnership with Microsoft, Boston Consulting Group, and Starbucks to launch an institutional grade digital asset ecosystem with warehousing as well as merchant and consumer applications – Q2 2019**
- **Accenture, MasterCard, and Amazon partner to establish transparent blockchain supply chain application**
- Bank of America becomes the largest holder of blockchain patents with just over 45 live patents
- **AXA Insurance launches *Fizzy*, a flight delay insurance policy leveraging smart contracts**
- **DocuSign extends integration with Clause to allow for signatures to trigger actions within smart contract applications**
- We.Trade platform for trade finance began trading in July 2018 (Includes names such as HSBC, Santander, Societe Generale, and Natixis)
- The World Bank, in conjunction with Australia's largest bank, created, allocated, transferred, and managed \$73.16 Million worth of two-year bonds on a blockchain network.

# Merging the Business Process with a Blockchain



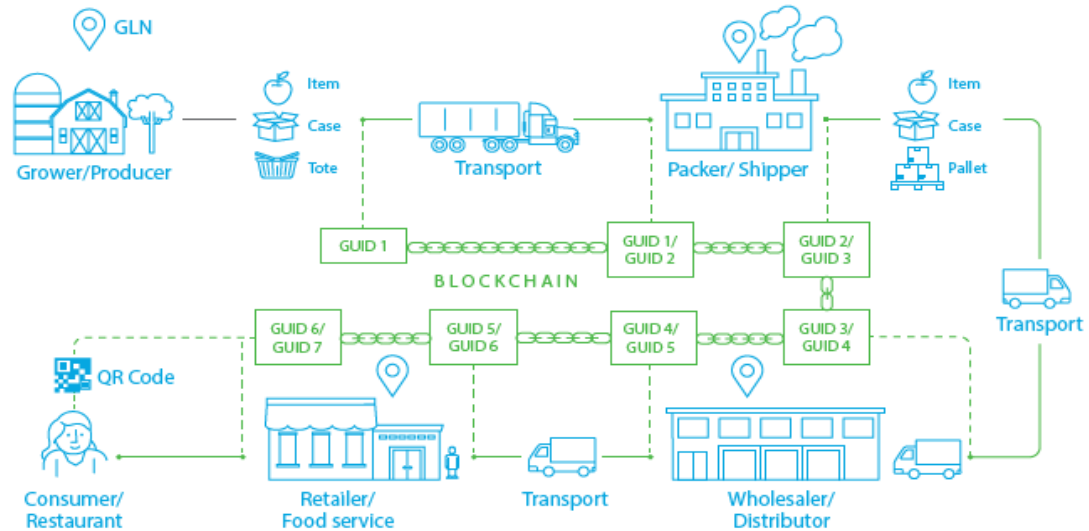


# Example – RSM's CLEARThru Solution

## Why is RSM's advanced traceability solution and CLEARthru™ right for your business?

- You need to comply with up-coming key-customer traceability initiatives and regulatory requirements
- Your current approach for traceability relies on spreadsheets, tribal knowledge, or other disconnected systems
- You can provide better value for your customers and gain a competitive advantage
- You will have better visibility to the safety and acceptability of inbound products before you invest time or money in handling them
- You want to build stronger relationships with your customers and trading partners

## CLEARthru™ and the Value Chain



- As goods flow through the value chain, transactions and product attribute information are written to the blockchain at each step in the process
- If IoT devices (such as temperature, humidity, or shock sensors) are used in the process, information from those devices can also be written to the blockchain
- As goods are packed, QR codes are applied and tied to the information written to the blockchain. Usually the packer/shipper would drive this process
- As goods are moving downstream through the value-chain, the QR code is scanned to view product lineage and safety information

# What is Bitcoin (and other Cryptocurrencies)

- Coins are bought and sold like stocks and commodities, exchanged for other coins, issued to raise money, and used to purchase goods
- **But....**
  - They aren't (yet) regulated
  - The IRS says they're property (like a house)
  - The SEC says if it smells like a duck (Howey Test), it's probably regulated

# General Categories of Digital Assets

- Cryptocurrencies
  - Intended to be used as a currency or store of value
  - Bitcoin, Litecoin, Ripple (XRP)
- Utility Tokens
  - Exchanged for products, services, or content (distributed computing/storage)
- Asset-backed Tokens
  - Digital representations of assets (gold, oil, real estate, art)
- Security Tokens
  - Tokenized representations of new or existing securities
- Privacy centric
  - Anonymous and untraceable (Monero, Zcash, Bitcoin Private)



# Cryptocurrencies – Due Diligence example

Asset:	Inherent Risks	Threats and Vulnerabilities	Likelihood & Impact	Internal Controls
Cryptocurrencies	<ul style="list-style-type: none"> <li>1) Compliance</li> <li>2) Incentive mechanism</li> <li>3) Volatility and Liquidity</li> <li>4) Hacks and malware</li> <li>5) 3rd party platform reliance</li> <li>6) Auditability</li> </ul>	<ul style="list-style-type: none"> <li>1) The cryptocurrency does not meet all compliance requirements associated with its use</li> <li>1,2) Vendors cannot accept or use the cryptocurrency</li> <li>2) The consensus algorithm used does not balance the risks of decentralization, security, and scalability with the appropriate use case the company is looking to use it for</li> <li>3) The cryptocurrency does not stay stable in value</li> <li>3) Availability, time delay, and administrative burden associated with liquidation</li> <li>3) The cryptocurrency is subject to manipulation based on low volumes</li> <li>4) Malware or hacks allows for the theft of the cryptocurrencies from any wallet type or exchange</li> <li>5) A 3rd party software in use has not been properly audited</li> <li>6) Can the amounts sent and received be audited with no block explorer?</li> <li>6) Why is the company holding the cryptocurrency? (speculation vs. access)</li> </ul>	<ul style="list-style-type: none"> <li>1) High likelihood, very high impact</li> <li>2) High likelihood, very high impact</li> <li>3) High likelihood; moderate to high impact</li> <li>4) Low likelihood, high impact</li> <li>5) Moderate likelihood, moderate to high impact</li> <li>6) High likelihood, high impact</li> </ul>	<ul style="list-style-type: none"> <li>1,2) Evaluation of compliance with regulations and laws</li> <li>1,5,6) Ensure proper third parties are hired to consult on issues related to compliance, legal, accounting, etc.</li> <li>2) Evaluation of consensus algorithm and previous activity and comments by the community</li> <li>2) Evaluation of total wallets holding the cryptocurrency to understand how popular it is</li> <li>3) Evaluation of market for cryptocurrency and activity to date</li> <li>4) Proper IT training to ensure malware is not downloaded and understand the risks of hacks to the underlying blockchain</li> <li>5) Segregation of duties associated with interacting with any third-party platforms</li> <li>5,6) Continuous review of the updates to the underlying blockchain by the core developers that the cryptocurrency supports as the incentive mechanism.</li> <li>6) Evaluation of required documentation for an audit (block explorer/wallet activity)</li> </ul>

# Notable Cryptocurrency Hacks

- **CoinDash hack**

- CoinDash got off to a disastrous start in 2017 when a hacker manipulated the address posted on CoinDash’s website telling initial coin offering investors where to exchange Ether for CoinDash tokens. The hackers made off with \$7 million in stolen Ether.

- **Parity hack**

- The Parity hacker found a vulnerability in the Parity Multisig Wallet that allowed access to funds from the ICOs of Edgeless, Casino, Swarm City and aeternity blockchain. Ironically, “white hat” hackers took it upon themselves to safely drain the accounts of the remaining Parity wallet users and protect their funds, but the malicious hackers still made off with \$30 million in Ether.

- **Veritaseum hack**

- Two months after its ICO, hackers gained access to a Veritaseum wallet and snatched \$8 million in coins. Veritaseum is a cryptocurrency designed to build software for decentralized capital market trading.

# Notable Cryptocurrency Hacks (cont.)

- **Enigma hack**

- Prior to Enigma’s ICO, hackers used credentials of CEO Guy Zyskind to infiltrate the cryptocurrency’s website, Slack group and email list and send messages to subscribers asking for funding. The hackers collected roughly \$500,000 in Ether.

- **Tether hack**

- Details on the Tether hack are thin at this point, but the company posted on its website that \$30.9 million in tokens had been stolen via a malicious attack. Tether says it is attempting to recover the stolen coins before they can enter the broader cryptocurrency market.

- **Coincheck hack**

- Coincheck had \$500+ million worth of NEM coins stolen from a “hot wallet” instead of a “cold wallet.” (Even though Japanese authorities required exchange to use cold wallets) The balance was compromised by a hack impacting 260,000 cryptocurrency investors. Hot wallets are connected to the internet, therefore vulnerable to hacking. Experts warn that holding large sums in hot wallets is the equivalent of carrying large amounts of cash in person.

# Shift in Focus and Future CPA Roles

- Shift from retrospective, point-in-time review to real-time oversight and analytics
- Elimination of confirmations, reconciliations, and sampling over time
- Future Roles:
  - Oversee, design, and tune the automation and data analytics of accounting, audit, and tax
  - Service auditors to permissioned, consortium blockchains
  - Auditors of smart contracts, oracles, and data-input accuracy
  - Credentials administrator and arbitration
- Auditors will need to adapt and expand competencies

# Reading Recommendations

- Blockchain Revolution
  - Highly-readable, good overview and history of Blockchain tech
  
- Any Andreas Antonopoulos book
  - The Internet of Money
  - Mastering Bitcoin

