



February 28, 2019
Earle Brown Heritage Center

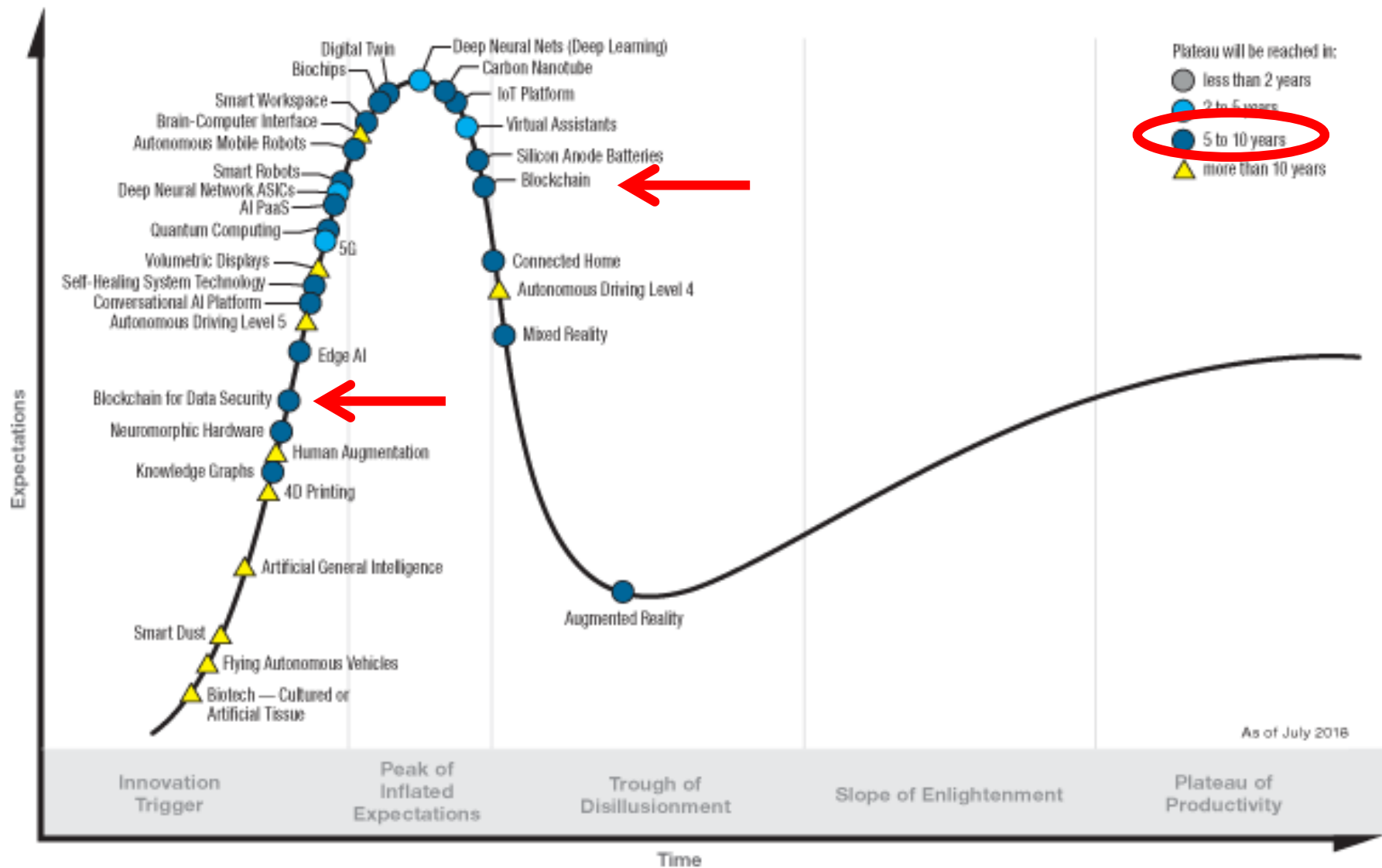
Blockchain: An Evolution or Just the Next Passing Thing?



Teresa J. Walker
Waller Lansden Dortch & Davis, LLP
Nashville, Tennessee

ALAMN Educational Conference
February 28, 2019

Hype Cycle for Emerging Technologies, 2018



What is Blockchain?

Distributed Ledger **Technology –**

- **Electronic Ledger shared among users via the Internet (peer-to-peer network)**
- **Creates unchangeable records of transactions (blocks)**
 - **Blocks created/owned by a specific user**
- **Timestamps each**
- **Links each block to the prior one**

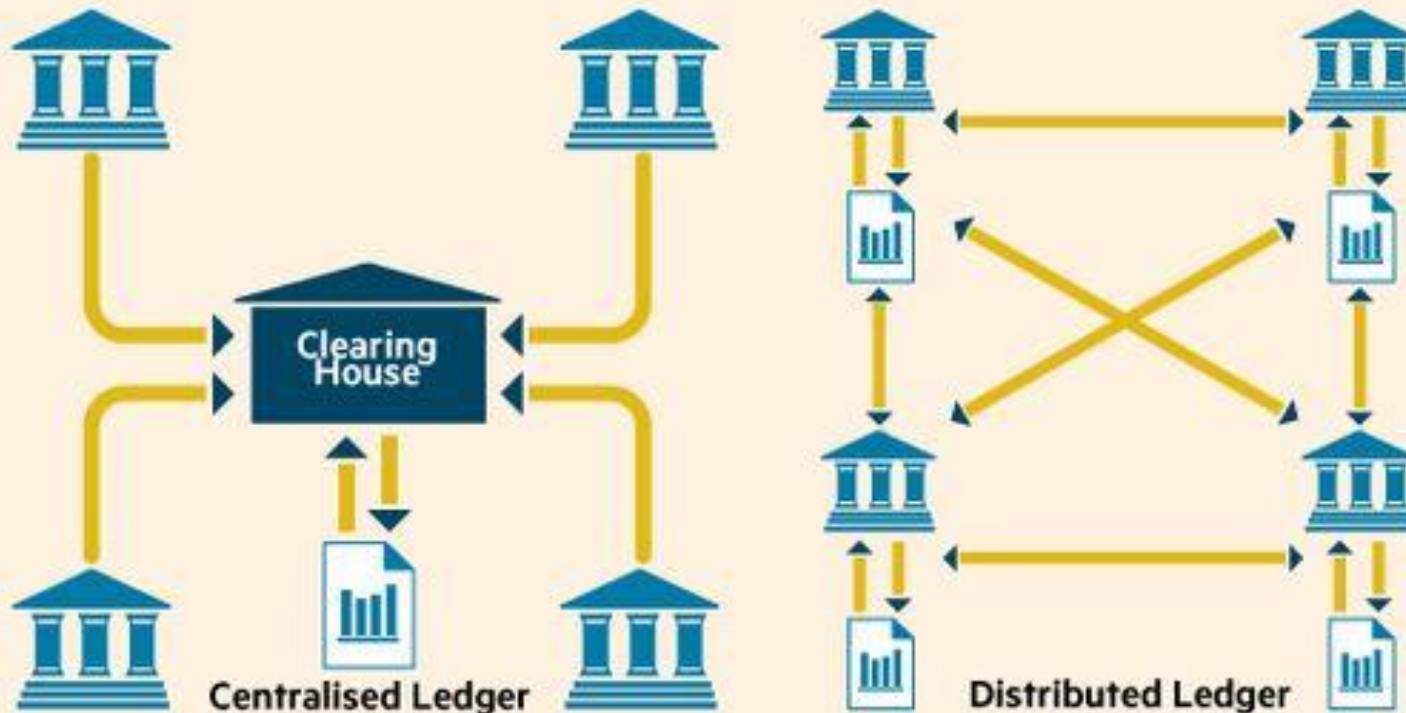
What is Blockchain?

Distributed Ledger **Technology –**

- **Typically updated by consensus among users**
- **Contains a true/verifiable record of each transaction**
- **Write-once, append-many electronic ledger (a chain of blocks)**

Embedding distributed ledger technology

A distributed ledger is a network that records ownership through a shared registry



In contrast to today's networks, distributed ledgers eliminate the need for central authorities to certify ownership and clear transactions. They can be open, verifying anonymous actors in the network, or they can be closed and require actors in the network to be already identified. The best known existing use for the distributed ledger is the cryptocurrency Bitcoin

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

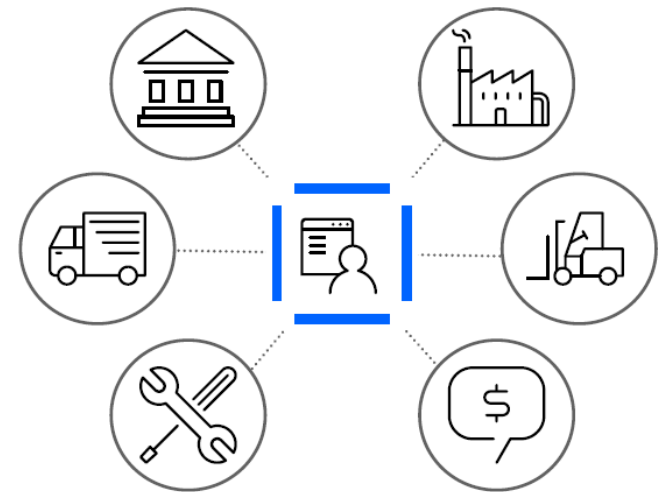
Ordinary transactions are complex

- Each participant has his own, separate ledger — increasing the possibility of human error or fraud
- Reliance on intermediaries for validation creates inefficiencies
- Can become a paper-laden process, resulting in frequent delays and potential losses for all stakeholders



Blockchain reduces that complexity

- Single, shared, tamper-evident ledger — once recorded, transactions cannot be altered
- All parties must give consensus before a new transaction is added to the network
- Eliminates or reduces paper processes, speeding up transaction times and increasing efficiencies



When and Who?

2008 – “Bitcoin: A Peer-to-Peer Electronic Cash System”

Satoshi Nakamoto whitepaper

The underlying technology used was Bitcoin Blockchain

2013 – Blockchain starts to separate from Bitcoin; Ethereum Project proposed by Vitalik Buterin

Components

- Cryptography
- P2P Network
- Consensus Mechanism
- Ledger
- Validity Rules

You've been Ha##ed!

Hacked?!? NO! HASHED!

Cryptographic process that creates a digital fingerprint of your transaction data!

[Blockchain 101 - A Visual Demo by Anders Brownworth](#)

You've been Ha##ed!

Generate a Hash!

Now is the time for all good men!

**DB7549DA9A29107AC4BB8659C53696292D920D1CDA9402BED6D5F
FE5067BADF2**

Now is the time for all good men?

**77777B4F3C6463AEB0567B95686FE12C5691372D5DBC3CCEBCEBF
3F1A276540B**

Blockchain

Block: # 1 Nonce: 11316 Data: Prev: 00000000000000000000000000000000 Hash: 000015783b764259d382017d91a36d206d0 Mine

Block: # 2 Nonce: 35230 Data: Prev: 000015783b764259d382017d91a36d206d0 Hash: 000012fa9b916eb9078f8d98a7864e697ae81 Mine

Block: # 3 Nonce: 12937 Data: Prev: 000012fa9b916eb9078f8d98a7864e697ae81 Hash: 0000b9015ce2a08b61216ba5a0778545bf4d Mine

alright so here's my blockchain I've

Creating the Chain

5:18 / 17:49

Blockchain

Block: # 3 Nonce: 12937 Data: Prev: 000012fa9b916eb9078f8d98a7864e697ae81 Hash: 0000b9015ce2a08b61216ba5a0778545bf4d Mine

Block: # 4 Nonce: 35990 Data: Prev: 0000b9015ce2a08b61216ba5a0778545bf4d Hash: 0000ae8bbc96cf89c68be6e10a865cc47c6c41 Mine

Block: # 5 Nonce: 56265 Data: Prev: 0000ae8bbc96cf89c68be6e10a865cc47c6c41 Hash: 0000e4b9052fd8aae92a8afda42e2c Mine

two and block 3 and 4 this block chain

Immutability

Blockchain

The image shows a blockchain mining interface with two blocks, Block #4 and Block #5, displayed side-by-side. Each block has a 'Data' field, a 'Nonce' field, and a 'Prev' field. The 'Data' field for Block #4 contains 'hi'. The 'Nonce' field for Block #4 contains '35990'. The 'Prev' field for Block #4 contains '0000b9015ce2a08b61216ba5a0778545bf4d'. The 'Hash' field for Block #4 contains '381d730e4322e85a592ebd11f8f7c84d64f2f'. The 'Data' field for Block #5 is empty. The 'Nonce' field for Block #5 contains '56265'. The 'Prev' field for Block #5 contains '381d730e4322e85a592ebd11f8f7c84d64f2f'. The 'Hash' field for Block #5 contains 'd3d159fc26e5a4183230ae092631c52ed027f'. There are 'Mine' buttons below each block. A text overlay at the bottom of the blocks reads 'hi in there and sure enough all right so'.

Block #	Nonce	Data	Prev	Hash
4	35990	hi	0000b9015ce2a08b61216ba5a0778545bf4d	381d730e4322e85a592ebd11f8f7c84d64f2f
5	56265		381d730e4322e85a592ebd11f8f7c84d64f2f	d3d159fc26e5a4183230ae092631c52ed027f

hi in there and sure enough all right so

Each block is timestamped and “signed”

Examples of Values Stored

Assets	Real Estate Titles, Tokens
Trust	Validated Transactions/Information
Ownership	Intellectual Property
Money	Cryptocurrency
Identity	Validating Credentials
Contracts	Smart Contracts

Types of Blockchains

Public

Private or Permissioned

Public-Private Hybrid or Consortium

Examples of Public Blockchains

Public

- Bitcoin and Ethereum

Transaction View information about a bitcoin transaction

39afcad6c4d0713ed291014315c4dcf2d81334275218c28fd354af45b7395c61

1Jh8THzSSQBZKYg8in5f6Sowsp3gxjjcP



12YygZpCEC8VED2oSMQdWCq5xBnHo9ts1Z
1K7y31fJidER3XdcPTPHjNZeUTrisKbvqz

48,500.08799325 BTC
0.1 BTC

48,500.18799325 BTC

Summary

Size	225 (bytes)
Weight	900
Received Time	2018-06-27 23:20:56
Lock Time	Block: 529514
Included In Blocks	529515 (2018-06-27 23:25:24 + 4 minutes)
Confirmations	4003 Confirmations
Visualize	View Tree Chart

Inputs and Outputs

Total Input	48,500.188 BTC
Total Output	48,500.18799325 BTC
Fees	0.00000675 BTC
Fee per byte	3 sat/B
Fee per weight unit	0.75 sat/WU
Estimated BTC Transacted	0.1 BTC
Scripts	Show scripts & coinbase

Examples of Private Blockchains

Private or Permissioned -

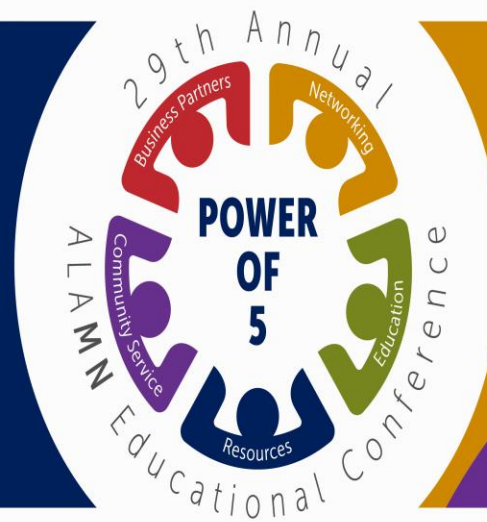
- **NASDAQ Linq – used by Nasdaq with clients (Citi and Chain.com, for example) to streamline payment transactions**
- **Japan Exchange Group and IBM**
- **Korea Exchange**
- **London Stock Exchange**

Examples of Hybrid Blockchains

Public-Private Hybrid or Consortium

- **Hyperledger Fabric – The Linux Foundation**
- **Corda – R3**
- **Quorum – JPMorgan Chase**
- **EWF (Energy Consortium)**

Impact on the Practice of Law and The Business of Law



Legal Industry Impact

Delaware Blockchain Initiative – law allows creation/maintenance of corporate records

West Virginia – tested election voting in 2018 midterm election

Vermont – law approves blockchain data as court admissible

Illinois Blockchain Initiative –

- medical credentialing process project
- blockchain in government tracker
- birth registration pilot project

Legal Industry Impact

Ohio (Franklin County) – Transfer of Property Deeds

Legal Industry Impact

System/Process/Functions	Entities Involved, Blockchain
Document Management System	NetDocs, Integra Ledger
Document Assembly	Thomson Reuters' Contract Express, Integra Ledger
Document Templates for Smart Contracts	OpenLaw, Ethereum
Contract Management using Smart Contracts	Monax's Agreements Network
Document Execution, Existence	Basno, Blocksign
Notary Services	SilentNotary, Ethereum
Service of Process	ServeManager

Groups Working on Legal Industry

Opportunities

Global Legal Blockchain Consortium

OpenLaw

Accord Project

Let's Talk About You!

Entertainment

KickCity, B2Expand, Spotify, Guts, Ujo, CryptoKitties

Socializing

Matchpool, Minds, Peepeth, Akasha

Retail

Warranteer, Blockpoint, Loyal, RARE

Exotic Cars

Bitcar

Supply Chain

IBM Blockchain and Walmart, Food Industry, Provenance, Blockverify, OriginTrail, DeBeers, Fura Gems

Insurance

Accenture, RiskBlock from Nationwide

Healthcare

MedicalChain, MedRec, Nano Vision, Bramble, Gem

Real Estate

BitProperty, Deedcoin, Ubiquity, imbrex,

Charity

BitGive, AidCoin, Utopi

Financial

Bitcoin Atom, Securrency, Ripple, ABRA, Smart Valor

[Source: 30+ Practical Uses of Blockchain Technology You Should Know, Published May 29, 2018](#)

Consumer Identity Uses



[Proof of Identity Infographic - Australia Post & The Boston Consulting Group, Dec. 2016](#)

Q & A



Your opinion matters!
Please take a moment **now** to evaluate
this session.

Thank You!

Teresa Walker
Teresa.walker@wallerlaw.com