Blockchain as an Enabling Technology for Businesses
Hype Trend 2015

Emerging Technology Hype Cycle

Innovation Trigger - Peak of Inflated Expectations - Trough of Disillusionment - Slope of Enlightenment - Plateau of Productivity

Years to mainstream adoption:
- less than 2 years
- 2 to 5 years
- 5 to 10 years
- more than 10 years
- obsolete before plateau

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In Q1 Blockchain and Hybrid Startups Overtook Bitcoin Startups in Total VC Investment for First Time

Investment Sector Distribution

- Q2 2015: 53% Bitcoin, 47% Blockchain
- Q3 2015: 53% Bitcoin, 47% Blockchain
- Q4 2015: 2% Bitcoin, 98% Blockchain
- Q1 2016: 16% Blockchain, 84% Hybrid

Data source: CoinDesk

State of Blockchain Q1 2016

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Blockchain ideas

Number of Blockchain Announcements by Traditional Institutions Continued to Increase in Q1

State of Blockchain Q1 2016

Source: CoinDesk

Note: ‘Traditional institutions’ include governments, central banks, financial institutions and other large firms.

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Enabling Technology – Lessons learned

Factories and electricity


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Blockchain as Enabling Technology

How can blockchain enable businesses?
Blockchain as Registry (land)

Registry, tracking, and managing ownership change
Blockchain as Registry

Registry, tracking, and managing ownership change

- Vehicles
- Copyrights and IPs
- Personal Data
- Digital Keys
- Anything that can be “digitalized”
Blockchain as Registry (Health Records)

Researchers wish to access data. For each record, they check conditions of smart contract to determine if the use is allowed. If so, then access the data, record transaction on Blockchain, make micropayment (in this case) to individuals health wallet.

Health coin payment is made – can be converted to money, used in HSA, or to purchase medical services. Could be Bitcoin.

Users agrees to share health data. Health wallet creates pseudonymous address and stores as smart contract on Blockchain. Gives permission for certain release under specific conditions

https://www.linkedin.com/pulse/blockchain-smart-contracts-health-booz-allen-hamilton-tori-adams
Blockhain as Registry (Health Records)

Child receives vaccination. The data is recorded in the child's EMR (owned by the family of the child) and the event is recorded on the Blockchain as a transaction.

Could send micropayment or notify of differential access to benefits on account of status.

Schools, insurers, and medical providers could validate vaccination via Blockchain.

https://www.linkedin.com/pulse/blockchain-smart-contracts-health-booz-allen-hamilton-tori-adams
Blockchain & Financial Institutions

**Internal Transaction Systems**
- **Architecture:** Centralized internal database (e.g. IBM, Oracle)
- **Settlement Process:** Internal
- **Speed:** Real-time
- **Transaction Cost:** Internal IT
- **Benefits:** Speed, cost and (relative) simplicity
- **Limitations:** Committing transactions with third parties/across network

**Middleware/Messaging**
- **Architecture:** Secure inter-party messaging/queue-based middleware
- **Settlement Process:** Independent (but enabled by messaging)
- **Speed:** Up to 3–5 days
- **Transaction Cost:** External provider + settlement costs
- **Benefits:** Secure transaction between external parties, standardized data formats
- **Limitations:** Data errors slow transactions, flexibility

**Clearing Houses**
- **Architecture:** Third party agent-in-possession
- **Settlement Process:** Via clearing house
- **Speed:** Days (transaction dependent)
- **Transaction Cost:** Third-party service
- **Benefits:** Reduced settlement risk/DVP
- **Limitations:** Complex and cumbersome, expensive

**Blockchain**
- **Architecture:** Distributed ledger with cryptographic integrity
- **Settlement Process:** Consensus
- **Speed:** Near real-time to minutes
- **Transaction Cost:** Similar to internal databases
- **Benefits:** Enables third-party transaction to be as simple and efficient as internal transactions
- **Issues:** Tech maturity, integration with existing systems/workflows
Blockchain & Financial Institutions

Primarily driven by cost reduction
Blockchain & Insurance

Primarily protection and automation

Pay per usage

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Blockchain & Supply Chain

Primarily protection and automation

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Blockchain & IoT

Primarily about connecting devices

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Blockchain & IoT

Closed and centralized IoT networks &
Open access IoT networks, centralized cloud &
Open access IoT networks, distributed cloud


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When can Blockchain deliver value?

• When we have “cost of communication”
• When we need “collaboration”
• When we need “customization”
• When traceability and identity matters
Uncertainties (that will be solved)?

Uncertainties (that will be solved)?

- Scalability – (R3 Corda)
- Cost of blockchain solutions
  - Multiple actors
  - Locking in resources (smart contracts)
  - Legal issues
- Currently “over promising”
Uncertainties (that will be solved)?

Prediction?

• Blockchain is going to have an impact, but not as necessarily the way it is being discussed now

• Blockchain will change to be something else, progressively going "away" from what we know it to be today
Questions?