Blockchain-Driven Redesign of Business Processes
Topics

01 Business Process View of Blockchain
02 Business Process Redesign
03 Business Process Redesign with Blockchain
Blockchain Technology as Disruptive
Blockchain Technology as Disruptive

[Diagram showing the innovation cycle with various technologies listed andBlockchain mentioned near the top as a disruptive technology.]

Years to mainstream adoption:
- O less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ◆ before plateau

As of July 2016

Source: Gartner (July 2016)
Blockchain as Registry

Registry, tracking, and managing ownership change

- Vehicles
- Copyrights and IPs
- Anything that can be "digitalized"
Blockchain 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

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

Primarily driven by cost reduction
Blockchain Technology as Disruptive
Trough of Disillusionment

Blockchain must advance and we must see pragmatic use cases

Mainly experimentation phase / limited-scale production

Promising signs of using blockchain to transform digital businesses (supply-chain-related and payments-related processes).
How can we use blockchain for innovating, meaningful, and viable use cases?
Avoid technology substitution
Lessons learned?
Information Technology | Business Value
Information Technology ENABLES Change YIELDS Business Value
The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.

Bill Gates
Enabling Technologies
Use the capabilities of blockchain to rethink solutions
How can we use blockchain for innovating, meaningful, and viable use cases?
Business Processes
“A set of ordered activities performed in coordination in an organizational and technical environment to realize a business goal.”

[Weske]
Business Process Management (BPM)

Input -> People -> Technologies (Optimize, Model, Rules, Workflow, BAM, Analytics) -> Process -> Methodologies (SOA) -> Output
BPM Life-Cycle
Why?
BPM Life-Cycle
Transactional / Incremental
Transformational
Example of Ford Motors
Using the Capabilities of Technology
Results

- 75% reduction in head count
- Simpler material control
- More accurate financial information
- Faster purchase requisition
- Less overdue payments

“Don’t Automate, Obliterate!” (Hammer, 1990)
Lessons to be Learned

Don’t Automate, Obliterate!

(Hammer, 1990)
Information Technology

Transformational Process Redesign

Business Value
How can we use blockchain for innovating, meaningful, and viable use cases?
How can blockchain enable redesign of **Know-Your-Customer** processes?
Current Situation

Who is the Customer?

Can the Customer be Trusted?

Repeat
Collect and Cross-Check Data

- 1/3 of Data from the Client
- Public Data
- Third parties
## Issues

- Non-value adding process for banks
- Processing is time consuming and error prone
- Duplicate storage of client data
Blockchain-Based KYC – Data Storage

Use capability of blockchain to act as a shared data storage
Blockchain-Based KYC – Notifications

Use smart contracts to notify involved parties of changes
Blockchain-Based KYC – Reporting

Use blockchain for reporting – authorities use data they needed
Capture Data Once and at the Source

- Reduce risk of data error and duplicates
- Faster updates
- Clients grants access to their data
Push Work to those who use the Output

• Authorities process data, not compiling reports
• Faster processing and detection
How can we use blockchain for innovating, meaningful, and viable use cases?
We can use best practices of business process redesign for business processes powered by blockchain systems
## Redesign Heuristics by Reijers and Mansar

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Blockchain Capabilities

- Shared Data Storage
- Computation (Smart Contracts)
- Data Communication
- Asset Management
Redesign Heuristics for Blockchain

Redesign Heuristics

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Case Study – Auditing of Timber-to-Charcoal

- Certifying organizations that certify companies
- Certified charcoal if all preceding steps conducted by certified companies
- Companies audited onsite
- Invoice data (suppliers and customers, invoices, and volumes)
Auditing Process As-Is
Issues

1) Easy to add, replace, modify invoices before presenting to auditors

2) Manual auditing (sampling, time consuming, error prone)

3) Audits conducted on annual basis (fraud undetected for long periods of time)

4) Sensitivity of invoice data restricts sharing invoices
Redesigning the Auditing Process
Collaboration of Entities

H1: Consider all participating entities required to achieve the objective of the inter-organizational process as if they are centralized.

1. Elicit the objective

2. Identify entities needed to achieve the objective

**Objective:**
Cross-organizational auditing of the timber-to-charcoal process

**Entities Required:**
- Certifying organizations
- Certified timber processors
- Owner of FSC (database)
Case Management Structure

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- Identify processes that are replicated across participating entities

**Replicated Processes:**

- Manual calculation of aggregated volumes
- Assessment of conversion rates
- Verification that suppliers and customers are certified (invoices)
Data Management

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Sources of Data

- FSC Database (certificate status of companies)
- Reference rates of conversion rates
Challenges Ahead

- Technical
- Network Effect
- Legal
- Governance