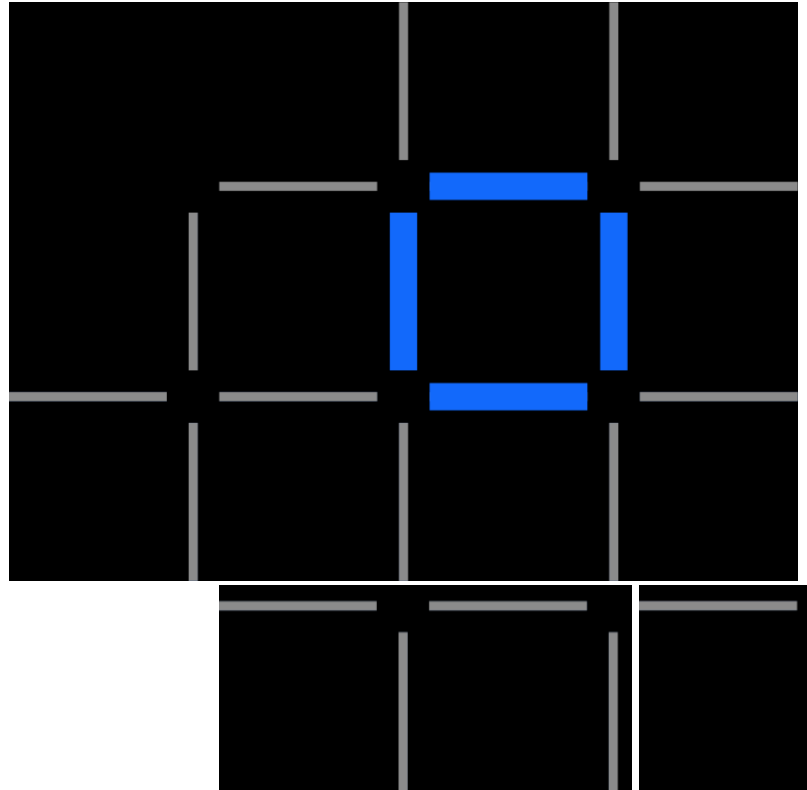


Blockchain Explained

An Introduction to Blockchain for Business

IBM Blockchain

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Blockchain is creating extraordinary opportunities for businesses to come together in new ways

Create New Value

Exploit new business models and eliminate inefficiencies

Optimize Ecosystems

Streamline business processes and the exchange of value along your ecosystem

Reduce Risk

Replace uncertainty with transparency and a trusted decentralized ledger



Further examples by industry



Financial	Public Sector	Retail	Insurance	Manufacturing
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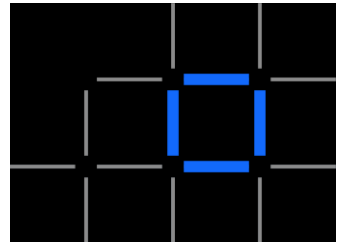
- Trade Finance
- Cross currency payments
- Mortgages

- Asset Registration
- Citizen Identity
- Medical records
- Medicine supply chain

- Supply chain
- Loyalty programs
- Information sharing (supplier – retailer)

- Claims processing
- Risk provenance
- Asset usage history
- Claims file

- Supply chain
- Product parts
- Maintenance tracking



Government Examples Around The World

Canada

- Corporate Registry
- Voter registration

USA

- Register of Births
- Vehicle licensing
- Parcel tracking
- Prescription drugs tracking

Europe

- Invoicing and payments
- Grants management (donations through to recipient)
- Trade supply chain
- Registry of electric bikes

Africa

- Identity and payment



MEA

- Housing, Business registry, Visa, Event permitting, 360 student, Energy supply chain, EHR/Treatment, Tourist tickets, Prosecution cases
- Multimodal services, Fare card, Supply chain, Multimodal information, Vehicle licensing

UK

- Food supply chain
- Authorised Economic Operator
- Immigration
- Firearms register
- Vehicle registry
- Personalised budgets and spend control
- Autonomous vehicles
- Defense logistics supply chain
- Property exchange

ANZ

- Payment of social benefits
- Personalized budgets and spend control
- Tax payments on land title transfer
- e-invoicing
- Corporate registry

Example: Shared reference data

What

- Competitors/collaborators in a business network need to share reference data, e.g. bank routing codes
- Each member maintains their own codes, and forwards changes to a central authority for collection and distribution
- An information subset can be owned by organizations

How

- Each participant maintains their own codes within a Blockchain network
- Blockchain creates single view of entire dataset

Benefits

1. Consolidated, consistent dataset reduces errors
2. Near real-time access to reference data
3. Naturally supports code editing and routing code transfers between participants

Example: Supply chain



- What**
- Provenance of each component part in complex system hard to track
 - Manufacturer, production date, batch and even the manufacturing machine program

- How**
- Blockchain holds complete provenance details of each component part
 - Accessible by each manufacturer in the production process, the aircraft owners, maintainers and government regulators

Benefits

1. Trust increased, no authority "owns" provenance
2. Improvement in system utilization
3. Recalls "specific" rather than cross fleet

Example: Audit and compliance

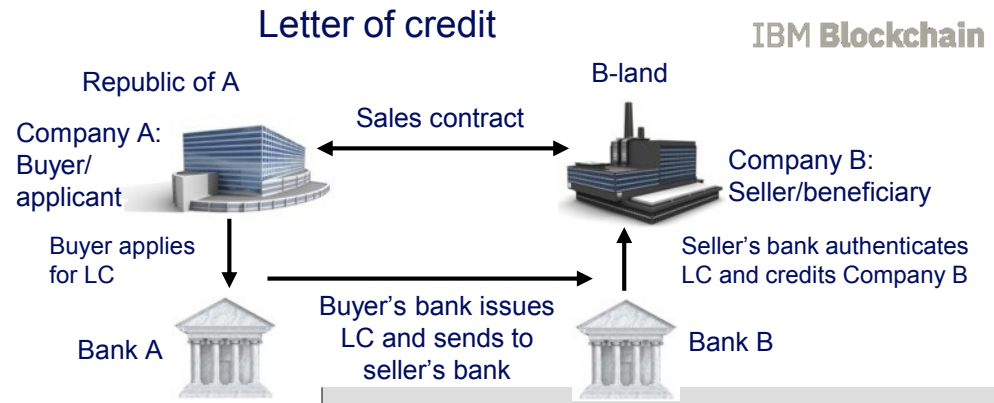


- What**
- Financial data in a large organization dispersed throughout many divisions and geographies
 - Audit and Compliance needs indelible record of all key transactions over reporting period
-
- How**
- Blockchain collects transaction records from diverse set of financial systems
 - Append-only and tamperproof qualities create high confidence financial audit trail
 - Privacy features to ensure authorized user access

Benefits

1. Lowers cost of audit and regulatory compliance
2. Provides “seek and find” access to auditors and regulators
3. Changes nature of compliance from passive to active

Example: Letter of credit



- What**
- Bank handling letters of credit (LOC) wants to offer them to a wider range of clients including startups
 - Currently constrained by costs & the time to execute

- How**
- Blockchain provides common ledger for letters of credit
 - Allows all counter-parties to have the same validated record of transaction and fulfillment

Benefits

1. Increase speed of execution (less than 1 day)
2. Vastly reduced cost
3. Reduced risk, e.g. currency fluctuations
4. Value added services, e.g. incremental payment

Patterns for customer adoption

HIGH VALUE MARKET

- Transfer of high value financial assets
- Between many participants in a market
- Regulatory timeframes

ASSET EXCHANGE

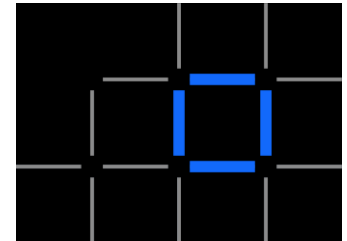
- Sharing of assets (voting, dividend notification)
- Assets are information, not financial
- Provenance & finality are key

CONSORTIUM SHARED LEDGER

- Created by a small set of participants
- Share key reference data
- Consolidated, consistent real-time view

COMPLIANCE LEDGER

- Real-time view of compliance, audit & risk data
- Provenance, immutability & finality are key
- Transparent access to auditor & regulator



Thank you

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www.ibm.com/blockchain

developer.ibm.com/blockchain

www.hyperledger.org

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