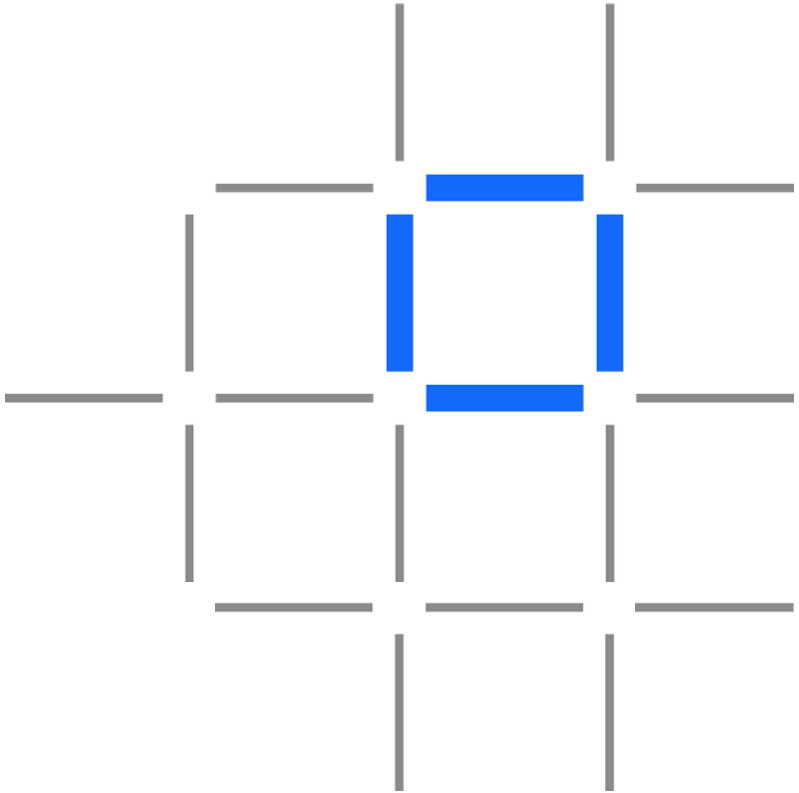
Blockchain & Standards

ANSI SPRING

IBM Blockchain

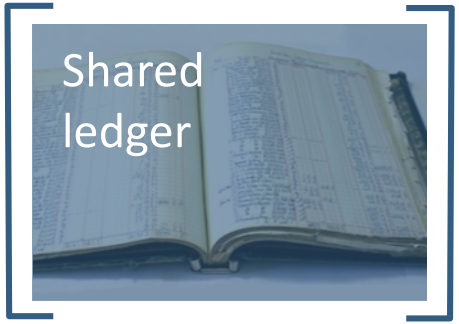


Heather Kreger, CTO International Standards

IBM

Requirements of blockchain for business

Append-only distributed system of record shared across business network



Business terms embedded in transaction database & executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated & verifiable

Transactions are endorsed by relevant participants

Its about business – not just finance

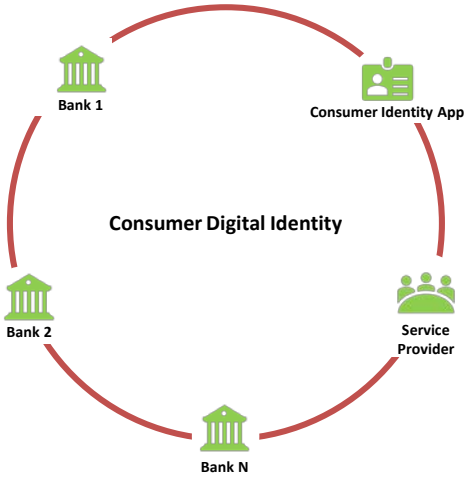
Block chain applies across industries - Client Examples

IBM Blockchain

Trade logistics	MÆRSK	Credit default swaps	DTCC	Diamond provenance	everledger
FX netting	CLS Fundamental to FX	Settlements through digital currency	MIZUHO	Identity management	Crédit Mutuel ARKEA
Food safety	Walmart	Trade finance	Bank of America Merrill Lynch HSBC	Dispute resolution	IBM Global Financing
Low liquidity securities trading and settlement	JPX TOKYO STOCK EXCHANGE	Rewards points management	UnionPay 银联	Contract management	MUFG

Digital Identity

SecureKey and Canadian Banks found digital identity verification network



SECURE KEY
Scotiabank
TD Bank
BMO
RBC Royal Bank

… using NIST Digital Identity standards!

How it works:

1. Consumers use an app to verify their identity.
2. Service provider only sees what it needs to see. All personal information is kept private.

Benefits

Customers: Convenience, simplified experience, full control and consent over identity usage, privacy, security, trust

Businesses: Reduced costs and risks of data breach/theft, efficient compliance management and monitoring, new revenue streams, rapid on-boarding, personalized customer services

Regulators/Auditors: Standardized process, rapid auditing, increased efficiency in compliance control, monitoring and quality

http://securekey.com/press-releases/ibm-securekey-technologies-deliver-blockchain-based-digital-identity-network-consumers/

Use Case: Blockchain Solution for IBM Global Financing (IGF)

Our Commercial Financing business provides working capital to IT suppliers, distributors and partners through financing of inventory and accounts receivables

What?

Improve the efficiency of our commercial financing business by sharing data in a secure and transparent manner on Blockchain

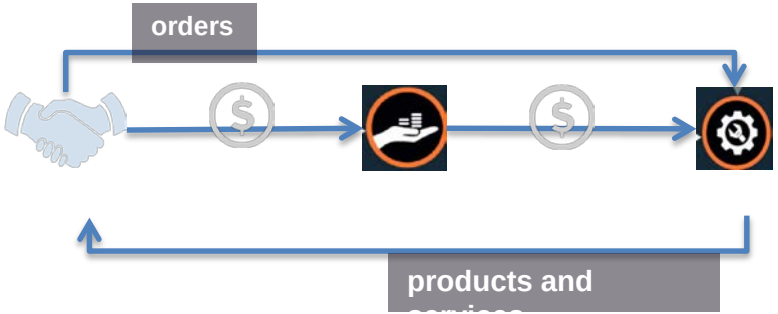
How?

- Blockchain enables Comprehensive View of key operational data:

Purchase Order > Transaction Approval > Shipments > Invoices > Remittances

Benefits

- Fewer disputes & faster settlement
- Reduction in dispute resolution time: 40+ days to under 10 days
- Improved capital efficiency; freer flow of capital



IGF world-wide statistics			
4000+ Partners and Suppliers	**2.9M** Invoices / year		**$44B** Financed / Year
$100M Capital tied up any time!	**25,000** Disputes / year	**$31K** Avg. disputed invoice value	**44 days** Avg. time to resolve a dispute

Why you may invest in blockchain

Unlock New Revenue

DEFINE NEW BUSINESS MODELS

Blockchain expedites transactions and reduces reliance on intermediaries, driving growth with new business models to free up capital and increase revenue

$176B

New business value by 2025 in Financial Services

10%

Projected global GDP stored on Blockchain by 2027

Optimize Your Business

MAXIMIZE OPERATIONAL EFFICIENCY

Blockchain enables process and risk optimization by removing duplicative reconciliation and collapsing already digitized processes through real-time sharing of trusted data

7%

Increase in supply chain provenance

30%

Decrease in back office costs

Transform Markets

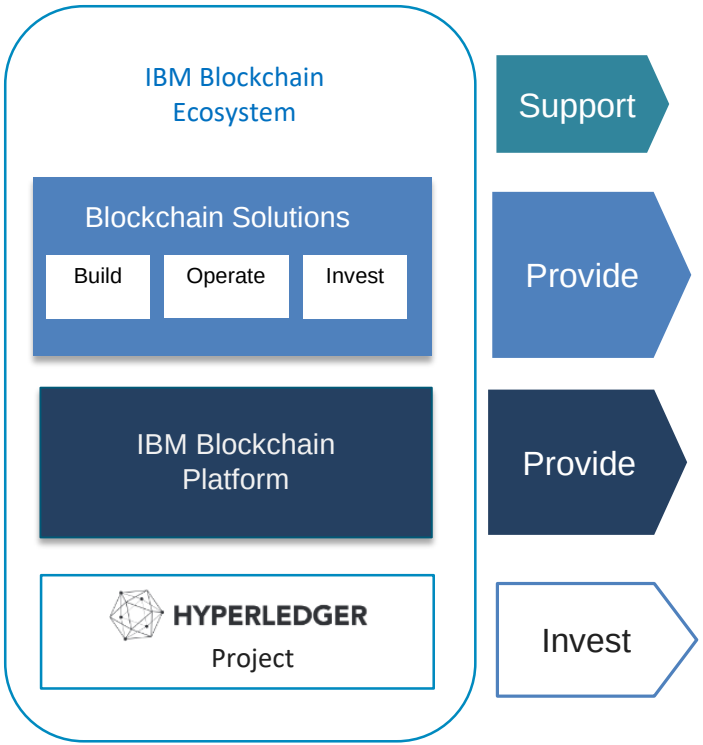
THRIVE IN THE NEW ECONOMY

From providing real-time visibility to mitigating risk, blockchain will revolutionize how future businesses operate, create partnerships and drive growth across more secure and transparent ecosystems

$3T

Estimated business value unlocked by blockchain globaly

IBM Strategy: Transforming Industries with Blockchain



Support — Education, support and partner services to create a thriving ecosystem for Blockchain

Provide — Solutions to transform business processes and industries by creating and operating Blockchain Business Networks with enterprise participants

Provide — Secure Blockchain Platform on the Cloud with developer services and production grade capabilities to enable the creation and management of Blockchain business networks

Invest — **With The Linux Foundation community to ensure the best possible foundation for Blockchain in a commitment to open standards, open source and open governance**

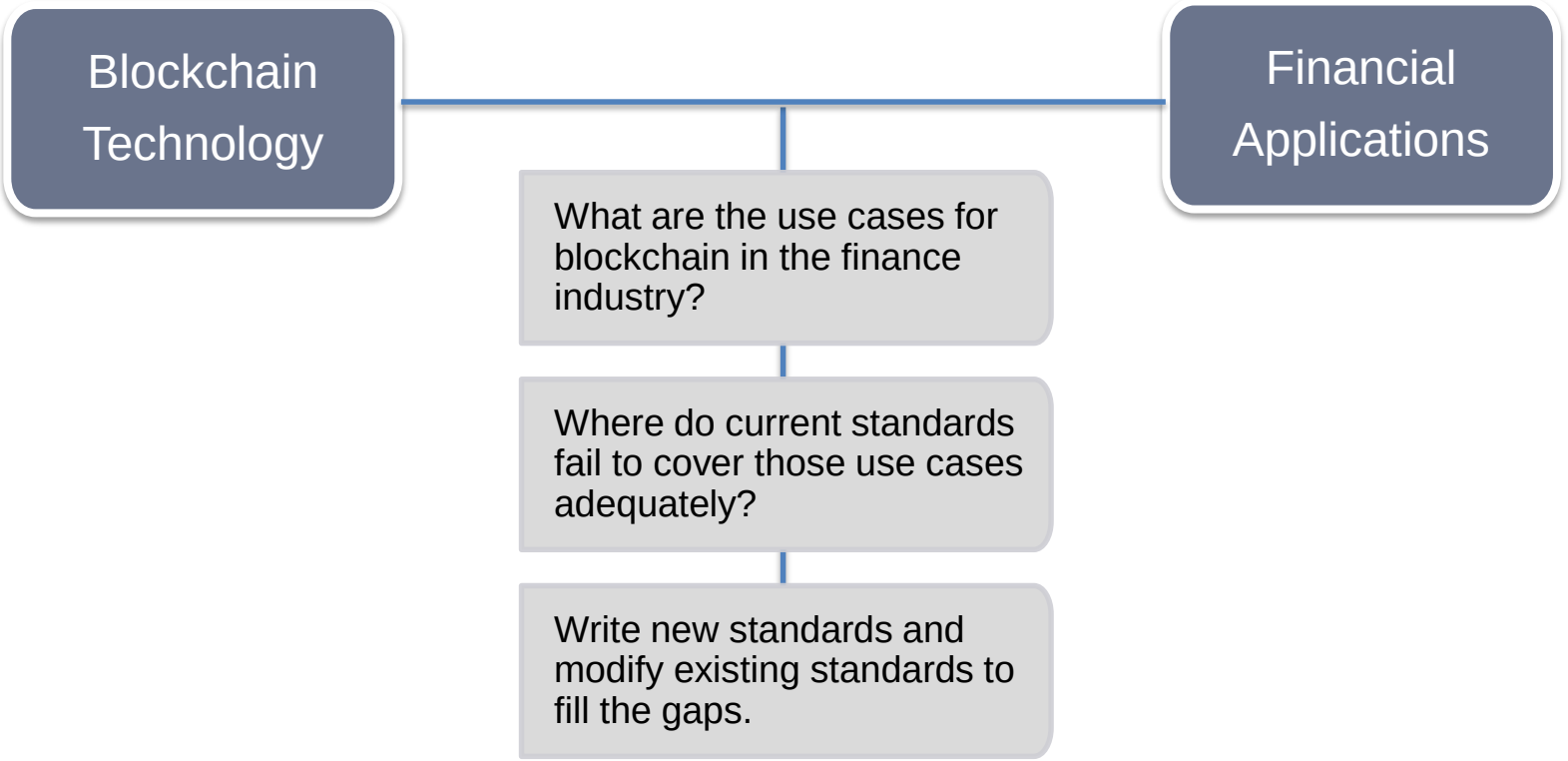
Hyperledger -collaborative effort to advance cross-industry blockchain technologies for business

www.hyperledger.org

*Hyperledger Fabric is a blockchain framework implementation and Hyperledger Composer is a tooling environment for blockchain and two of the projects hosted by The Linux Foundation.

Looking at blockchain and finance

Blockchain is new. It requires a fresh look to see how it relates to finance industry standards.



Blockchain and Finance standards

Dimension	Direction
Data	Data standards are important when transacting blockchain assets in business networks Consider open collaboration to accelerate innovative outcomes
Process	Shared public processes are going to fundamentally change in how they are executed
Intermediaries	Whole new classes of intermediaries are going to arise in the value chain, we think their value add is going to be mostly data driven
Smart contracts	Domain specific languages and domain vocabularies are going to gain importance

Many standards orgs are exploring standards for blockchain – ISO TC307, ANSI X9, SWIFT, …

Some relevant Blockchain standards work in progress

- ANSI X9 - financial standards body has a blockchain study group which is identifying areas where new standards must be developed or existing standards must be modified in order to support the use of blockchain in financial services.

- SWIFT – Society for Worldwide Interbank Financial Telecommunication – hosts standard secure messaging platform for financial institutions - exploring DLT for banking secure network

- ISO TC 307 – Blockchain and Distributed Ledger Technology – International Standards Organization working on global standards, just starting, Currently Terminology

Regulatory View

Canada

- The **Bank of Canada** participated in Project Jasper a POC for DLT-based wholesale payment system. Conclusion: A pure stand-alone DLT system is unlikely to match the net benefits of a centralized wholesale payment system. However, there are benefits to DLT based in its interaction with broader FMI ecosystem through integrating other assets on the same ledger as payments greatly simplifying collateral pledging and asset sales, reaping economies of scope and reducing costs to participants.

International

- The **European Commission** plans to set up an observatory and forum on distributer ledger technology to help it understand what role public authorities should play in developing and helping uptake of the technology.
- **Dubai's** financial regulator has revealed its vision to embrace Blockchain development by setting up the required infrastructure and facilitates for testing of Blockchain technology innovations
- **Russia's** government is said to be moving ahead with plans to introduce rules for blockchain use by 2019
- **The Bank of England** has an active working group studying the benefits of blockchain technology. Published several whitepapers on this topic. Member of Hyperledger Project.

United States

- The state of **Delaware** has passed amendments to state law that make explicit the right to trade stocks on a Blockchain (Jul 2017)
- Legislators of the state of **Illinois**, have officially advanced a bill to establish a government task force to regulate the Blockchain industry and sector (Q1 2017)
- The **Security and Exchange Commission** created the Distributed Ledger Technology Working Group (DLTWG) dedicated to protecting its users and investors from fraud in the sector (Jan 2017)
- **Nevada** has become the first state to ban local governments from taxing Blockchain use (Jun 2017)
- **Arizona** approves a bill seeking to enshrine signatures recorded on a blockchain and smart contracts – self-executing pieces of code – under state law. Specifically, the bill aimed to make those types of records "considered to be in an electronic format and to be an electronic record" (Mar 2017)
- **Vermont** allows "a fact or record" verified through blockchain technology as "authentic" (May 2016)

What Role Can Regulators Play

Encourage Responsible Innovation	➓ Open Frameworks and open source approaches ➓ Security, privacy and transparency controls on Blockchain ➓ Openness to support technologies (e-signature, e-filings)
Sandbox Exploration	➓ Model contract structures ➓ Starter policies ➓ Cognition + Blockchain = Reactive Contracts
Proactive Participation	➓ Participate in emerging Blockchain networks – reviewer, approver ➓ Infuse transparency (and compliance) into the process ➓ Spur industry dialogue to craft future regulatory framework