

Embracing Disruption with Blockchain

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The IBM logo, consisting of the letters "IBM" in a bold, sans-serif font, with a registered trademark symbol (®) to the right.

Just being digital isn't the ultimate destination

You have to be willing to be disruptive...

Digital
businesses are
disrupting
industries and
professions.

72% are vulnerable
to disruption
within *three* years

Source: FROM DATA TO DISRUPTION: INNOVATION THROUGH
DIGITAL INTELLIGENCE IBM-sponsored report by Harvard
Business Review Analytic Services, 2016

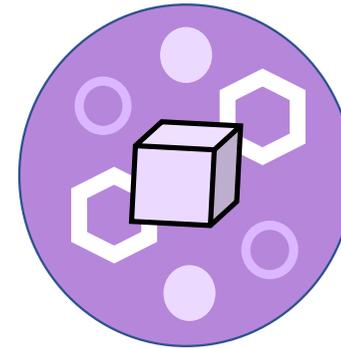
Harvard
Business
Review



IBM

Applying blockchain technology to change the game

Blockchain's early adopters – **the Explorers** – are turning uncertainty that comes with digital disruption into their unique advantage.



One in five Explorers intends to disrupt a new market or industry by completely changing the rules of the game.

66% of Explorers are experimenting with a radically different business model – the platform model – to create entirely new forms of value.

Source: Forward Together: Three ways blockchain Explorers chart a new direction, May 2017, Global C-suite Study, IBM Institute for Business Value



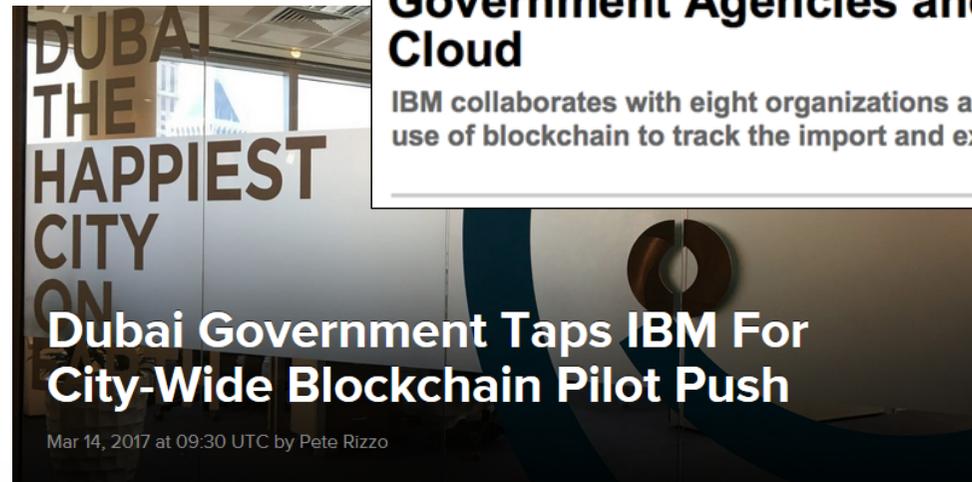
IBM

Dubai is an early “explorer”



Dubai will be the 1st government in the world to execute all applicable transactions on the Blockchain by 2020.

- His Highness Shaikh Hamdan bin Mohammed Al Maktoum on the launch of the Dubai Blockchain Strategy, October 5, 2016



IBM Launches Blockchain Initiative with Dubai Government Agencies and Enterprises on IBM Cloud

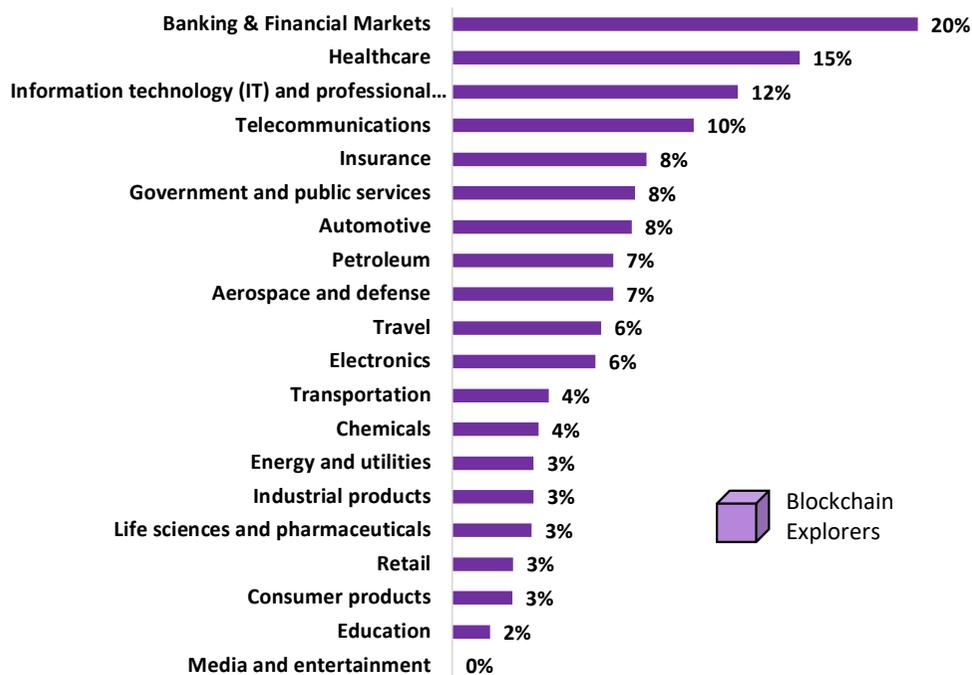
IBM collaborates with eight organizations across three countries to explore the use of blockchain to track the import and export of goods in Dubai.



Blockchain is a C-Suite Initiative across all Industries

IBV Global C-Suite Study “Forward Together” found 8% of Companies have Blockchain projects underway, & 34% expect to this year

% Blockchain Explorers across industries

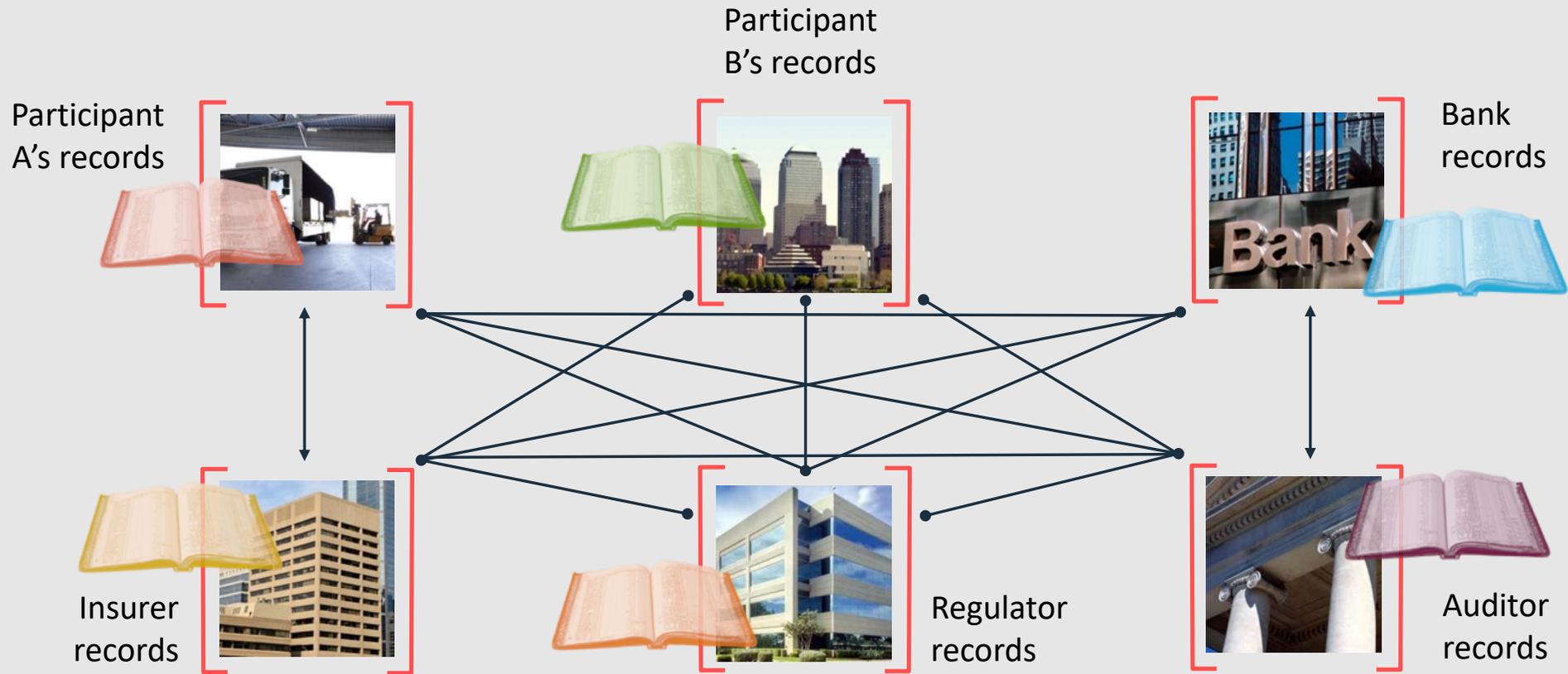


Best Practices from Blockchain Explorers

- **Orchestrate for economic advantage:** Get the business model right and make sure all participants, not just the founders, see economic benefit.
- **Establish a circle of trust:** Blockchain is all about the network. Test the linkage with a “minimum viable ecosystem”, not just a minimum viable product. Consider including competitors as well.
- **Learn fast & keep an open mind:** There is an opportunity for a first mover advantage, if only to develop skills and test use cases. But expect new learnings and be prepared to pivot quickly.



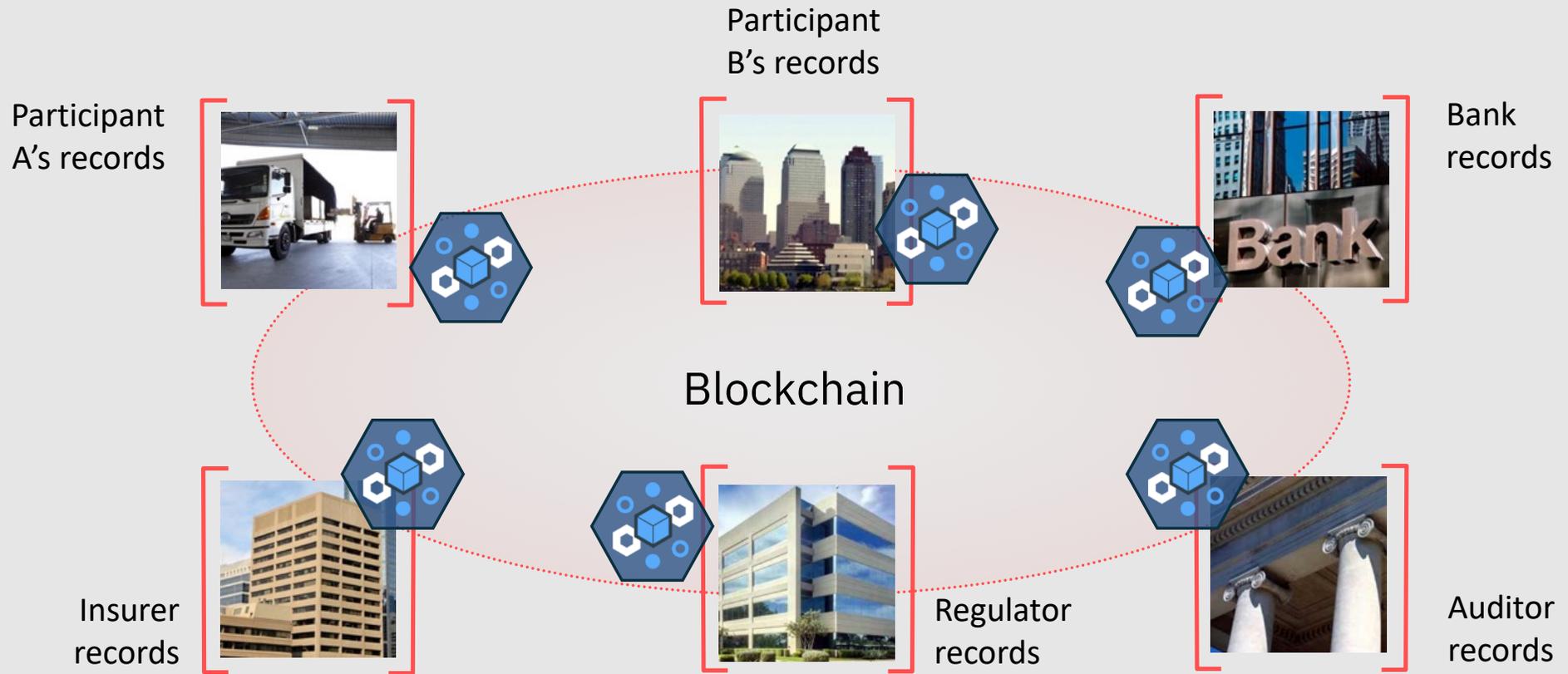
Problem ...



... inefficient, expensive, vulnerable

A shared, replicated, permissioned ledger ...

IBM Blockchain



... with consensus, provenance, immutability and finality

Requirements of blockchain for business

Append-only distributed system of record shared across business network

Shared ledger



Smart contract



Business terms embedded in transaction database & executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated & verifiable

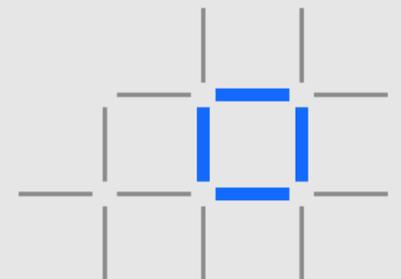
Privacy



Trust

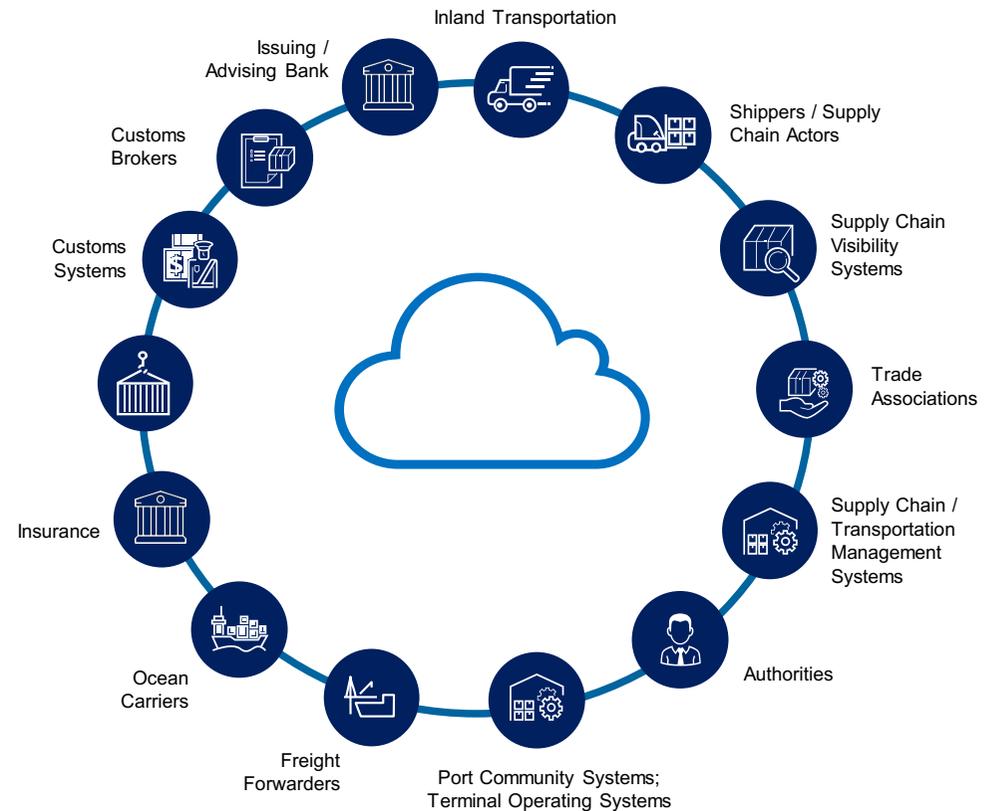


Transactions are endorsed by relevant participants



Future state: reduced global trade barriers with increased efficiency across international trade value chains

- Transparent, near-instant access to end-to-end trade value chain data
- Assurance of the immutability of digital documents
- Trusted cross-organizational workflows
- Better risk assessments
- Fewer unnecessary interventions
- Far lower administrative expenses



Future state outcomes and benefits



Operational simplification

DLT reduces / eliminates manual efforts required to perform reconciliation and resolve disputes



Regulatory efficiency improvements

DLT enables real-time monitoring of financial activity between regulators and regulated entities



Counterparty risk reduction

DLT challenges the need to trust counterparts to fulfil obligations as agreements are codified and executed in a shared, immutable environment



Fraud minimization

DLT enables asset provenance and full transaction history to be established within a single source of truth.



Clearing and settlement time reduction

DLT dis intermediates third parties that support transaction verification / Validation and accelerates settlement



Liquidity and capital improvement

DLT reduces locked-in capital and provides transparency into sourcing liquidity for assets

Blockchain Recent Project

Seven major banks signed up to a new project aimed at increasing global trade among small and medium-sized businesses using blockchain, or distributed ledger, technology.

Deutsche Bank, HSBC, KBC, Natixis, Rabobank, Société Générale and UniCredit have all signed up to a Memorandum of Understanding, signaling that they will work together to develop and commercialize a new product called Digital Trade Chain (DTC). All the banks participating in the DTC project are equal investors and have each put in a six-figure sum.



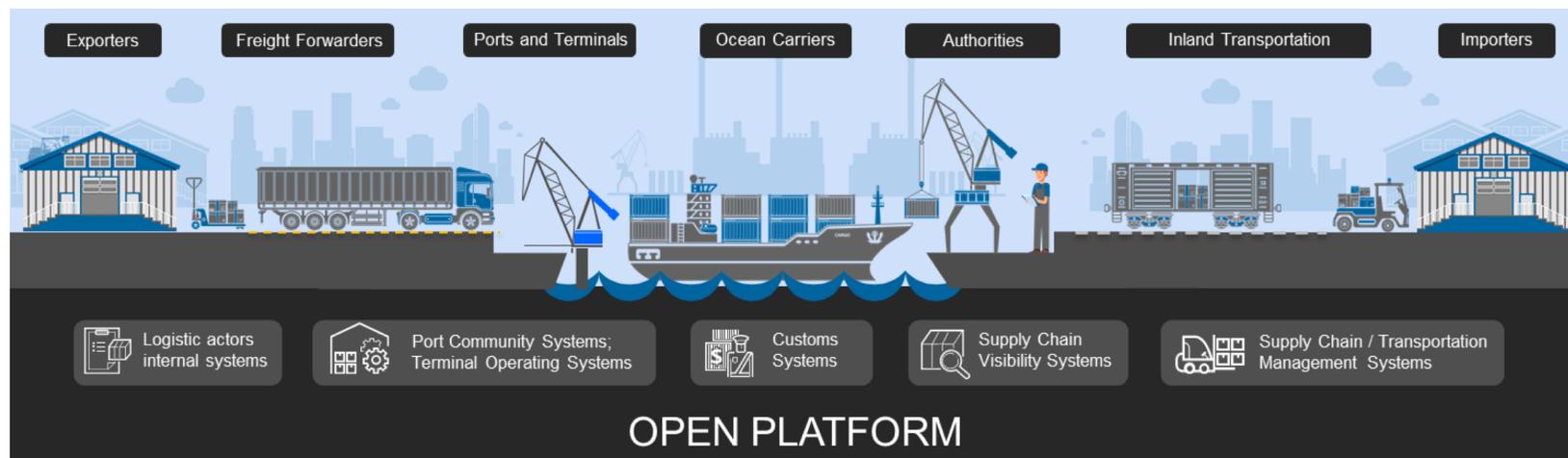
IBM has been selected to build a new blockchain-based international trading system for the consortium. DTC will use the same technology that underpins digital currency bitcoin to connect all parties involved in international trade — buyers, sellers, transporters, banks financing the deals, and so on. The hope is that this leads to more financing for people lower down the chain as banks can be confident seeing the end buyer is good for the money.

Source: <http://markets.businessinsider.com/currencies/news/blockchain-digital-trade-chain-ibm-hyperledger-deutsche-bank-hsbc-soc-gen-2017-6-1002125411>, June 26, 2017

http://uk.businessinsider.com/deutsche-bank-hsbc-kbc-natixis-rabobank-societe-generale-and-unicredit-sign-on-digital-trade-chain-dtc-2017-1?utm_source=marketsinsider&utm_medium=igest, Jan

The Global Trade Digitization platform shows how an entire supply chain ecosystem can participate in paperless trade

- Based on blockchain, the new technology will empower faster, more efficient and secure global trade.
- At the center will be a software platform, built on open standards and delivered from the IBM cloud, to enable companies to move goods across international borders with greater transparency and simplicity.
- The new technology platform will benefit all participants including manufacturers, shipping lines, freight forwarders, port and terminal operators, shippers and customs authorities.
- By creating this new company, Maersk and IBM are providing a neutral vehicle for the industry to standardize communications, streamline compliance, and reduce inefficiencies.



Client Examples

Trade logistics



Credit default swaps



Diamond provenance



FX netting



Settlements through digital currency



Identity management



Food safety



Trade finance



Dispute resolution



Low liquidity securities trading and settlement



Rewards points management



Contract management



Food Safety



What?

Provide a trusted source of information and traceability to improve transparency and efficiency across the food network.

How?

Shared ledger for storing digital compliance documentation, test results and audit certificates

Benefits

- Reduce impact of food recalls through instant access to end-to-end traceability data to verify history in the food network and supply chain.
- Help to address the 1 in 10 people sickened and 400,000 fatalities WW which occur every year from food-borne illnesses.



Trusted Identity

What?

New experience for consumers to effortlessly sign-on to digital services, while remaining in control of their identity attributes.

How?

Blockchain enables

- No central database or identity honeypots
- No central point of failure
- “Triple Blind” data sharing – PRIVACY

Benefits

Institutions that participate in an ecosystem benefit with increased customer satisfaction, reduced risk in identity theft, and new revenue sources to institutions





Can Blockchain be the Next Big Thing in Omnichannel?

How do we answer this question

Getting started on your blockchain journey



Learn More About
IBM Blockchain



Schedule an IBM Blockchain
Workshop



Develop a Blockchain
Application



Activate and Grow your
Blockchain Network

Thank You

#Blockchain

*What the internet did for communications,
blockchain will do for trusted transactions.*

- Ginni Rometty, CEO IBM

Appendix



Hyperledger: A Linux Foundation project

IBM Blockchain

- A collaborative effort created to advance cross-industry blockchain technologies for business
- Announced December 2015, now around 150 members
- Open source, open standards, open governance
- Five frameworks and three tools projects
- IBM is a premier member of Hyperledger

A diagram of a network structure with blue lines connecting various nodes, representing the Hyperledger ecosystem. Three key individuals are highlighted with their portraits and titles.

Brian Behlendorf
Executive Director

Blythe Masters
Board Chair

Chris Ferris
TSC Chair

www.hyperledger.org

Hyperledger members

IBM Blockchain

Premier

General



A grid of 20 logos for Premier members, arranged in 5 rows and 4 columns. The logos include: accenture, AIRBUS, AMERICAN EXPRESS, CHANGE HEALTHCARE, CISCO, CME Group, DEUTSCHE BORSE GROUP, DAIMLER, Digital Asset, DTCC, FUJITSU, HITACHI Inspire the Next, IBM, intel, J.P.Morgan, NEC, r3, and SAP.



A second grid of 20 logos for Premier members, arranged in 4 rows and 5 columns. The logos include: Accord, BANK OF ENGLAND, CHAMBER OF DIGITAL COMMERCE, CSA cloud security alliance, ColoredCoins, FEDERAL RESERVE BANK OF INDIANA, IC3 Institute for Enterprise Security, Investrata Foundation, NXT FOUNDATION, OSCRE, sovrin, tecnalia, Blockchain Research Institute, TNO Innovation for life, The IBM Blockchain Initiative, INUIT, and vsp Global.

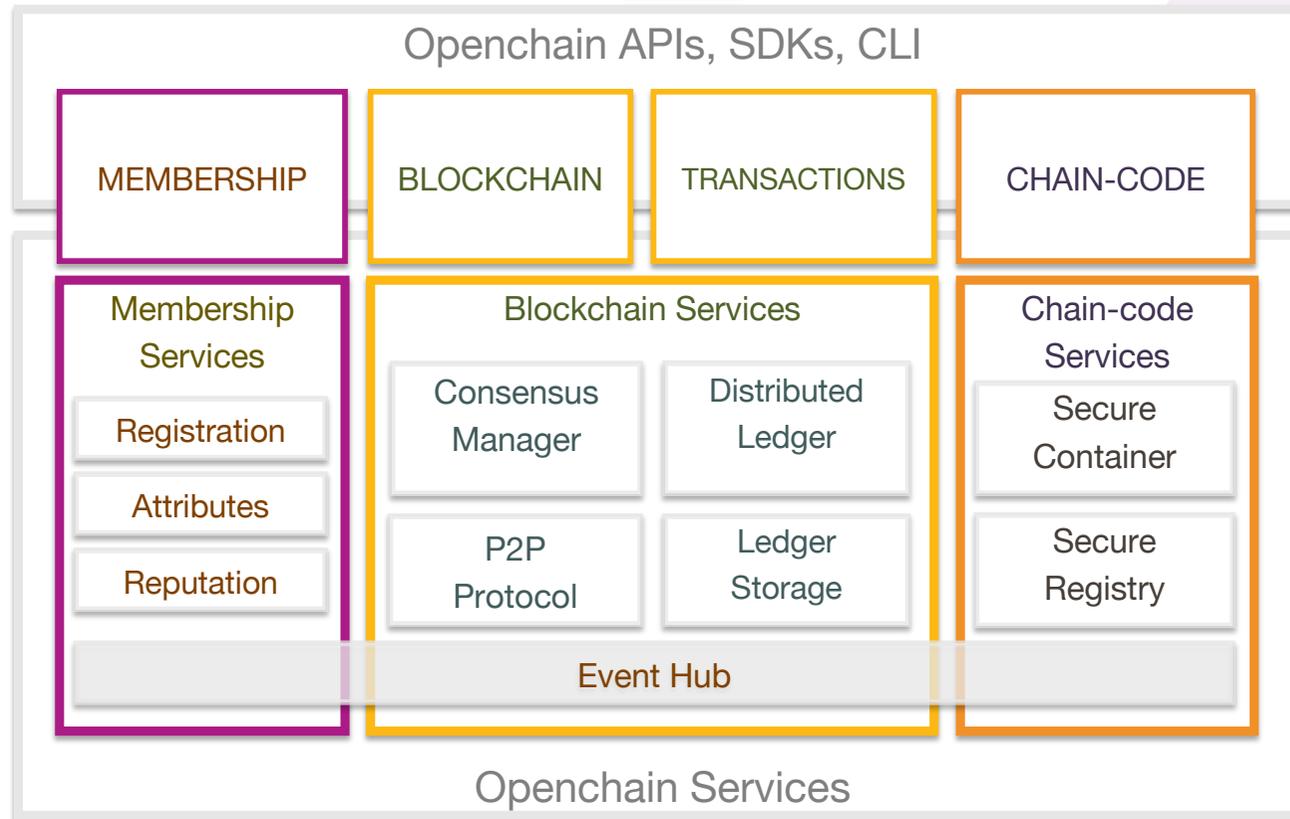


A large grid of logos for General members, arranged in 10 rows and 15 columns. The logos include: 1World Blockchain, ABN-AMRO, AESTHETIC INTEGRATION, AlphaPoint, ALTOROS, ANNE, ANZ, BBVA, 博图纵横, 瑞卓喜投, belink, BITMARK, MONAX, MonetaGo, ML, MOSCOW EXCHANGE, MURPHY & MCGONIGLE, NSE, bitSE, BLOCKCHAIN, blocko, Blockstream, bloq, BNP PARIBAS, NETKI, NEX, NOKIA, norbloc, NTT DATA, onchain, BNY MELLON, Broadridge, bubu.cn, ca technologies, Calastone, Capgemini, 橙色魔方, PAXOS, PDX, RadarWin, redhat, Revelry, 连连 Chain Connected, 智链 ChainNova, 招商银行, 中信 CITIC, clause, cludsoft, SAMSUNG, SAMSUNG SDS, SANY, SBERBANK, Schrodgers, SECURE KEY, GINGKO, CLS Fundamental to FX, coinplug, collector, colu, ConsensusBase, CONSENSYS, onechain, 四方精创, NEXGO, 点融网, SmartLink, Cuscal, Deloitte, ENERGY, EY, Eurostep, FACTOM, SORAMITSU, STATE STREET, SWIFT, swisscom, symbiont, 房掌柜 FZG360.COM, Gem, Peersafe, guardtime, HBC, 33. CN, tequa, creek, THOMSON REUTERS, TMX, TRADEIX, UMF 联动优势, vmware, HASHED HEALTH, HUAWEI, HUNDSUN, Hyperchain, intellect, IROOTECH, WELLS FARGO, 云象, 保全网, KAISER PERMANENTE, KRX KOREA EXCHANGE, KSD Korea Securities Depository, koscom, kubique, LedgerDomain.

Associate

Source: <https://www.hyperledger.org/about/members>
Updated 21 August 2017

IBM Blockchain Architecture



Open Source Code: Blockchain built from the ground up for business.
Permission | Privacy | Confidential | Auditable





IBM & Hyperledger – Selected References

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|--------------------------------|---|
| ABN AMRO | https://www.abnamro.com/en/newsroom/blogs/arjan-van-os/2016/walking-the-walk-exploring-the-power-of-blockchain.html |
| Bank of Tokyo – Mitsubishi UFJ | https://www-03.ibm.com/press/us/en/pressrelease/50544.wss |
| Crédit Mutuel Arkéa | http://www.coindesk.com/ibm-completes-blockchain-trial-french-bank-credit-mutuel/ |
| CLS | http://www-03.ibm.com/press/us/en/pressrelease/50615.wss |
| DTCC | http://www.forbes.com/sites/laurashin/2017/01/09/dtcc-selects-partners-for-blockchain-solution-for-credit-default-swaps/#11276315ad88 |
| Everledger | http://www.the-blockchain.com/2016/09/20/everledger-rolls-out-blockchain-technology-to-digitally-certify-kimberley-diamonds/ |
| HSBC, Bank of America, IDA | http://www.coindesk.com/hsbc-bank-america-blockchain-supply-chain/ |
| IBM Global Finance | http://www.coindesk.com/ibm-building-blockchain-dispute-resolution-system/ |
| Japan Exchange Group (JPX) | http://www.ibm.com/press/us/en/pressrelease/49088.wss |
| Mizuho | http://www.coindesk.com/mizuho-digital-currency-powered-blockchain-settlement/ |
| UBS | http://www.thepayers.com/cryptocurrencies-bitcoin-virtual-currencies/ubs-and-ibm-test-blockchain-for-trade-finance/766361-39 |