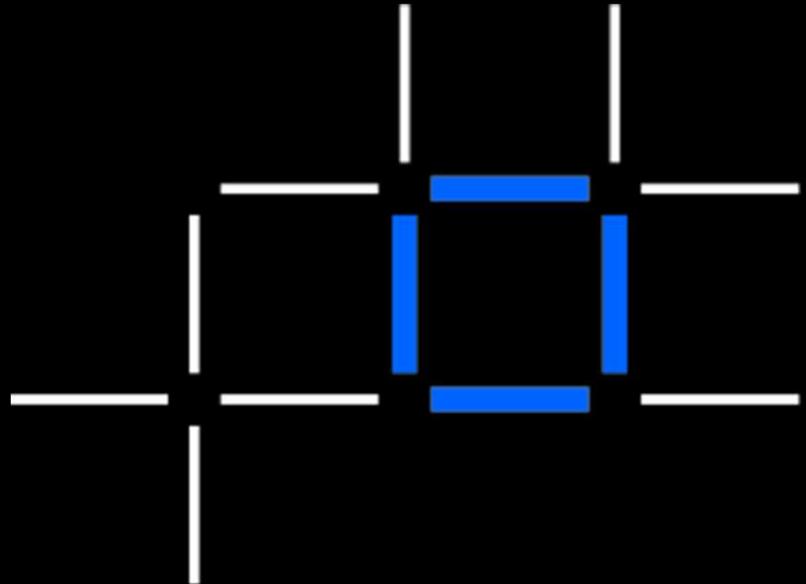


Blockchain Explained

An Introduction to Blockchain for Business

*Christophe Chatelus
christophe_chatelus@fr.ibm.com
Worldwide Solution Manager for ISV Banking Application*



Helsinki, 12 November 2019

IBM Blockchain





10%

of global GDP will be stored on blockchains or blockchain related technology by 2025

Source: World Economic Forum



US\$ 176 billion

business value added by blockchain by 2025, then surging to exceed \$3.1 trillion by 2030

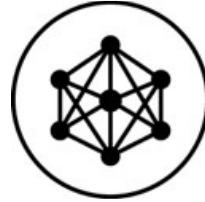
Source: Gartner



66%

of banks expect to have commercial blockchain applications by 2020

Source: IBM



US\$ 23 billion

estimated size of the blockchain technology market by 2021

Source: MarketsandMarkets

What is Blockchain?

Example networks

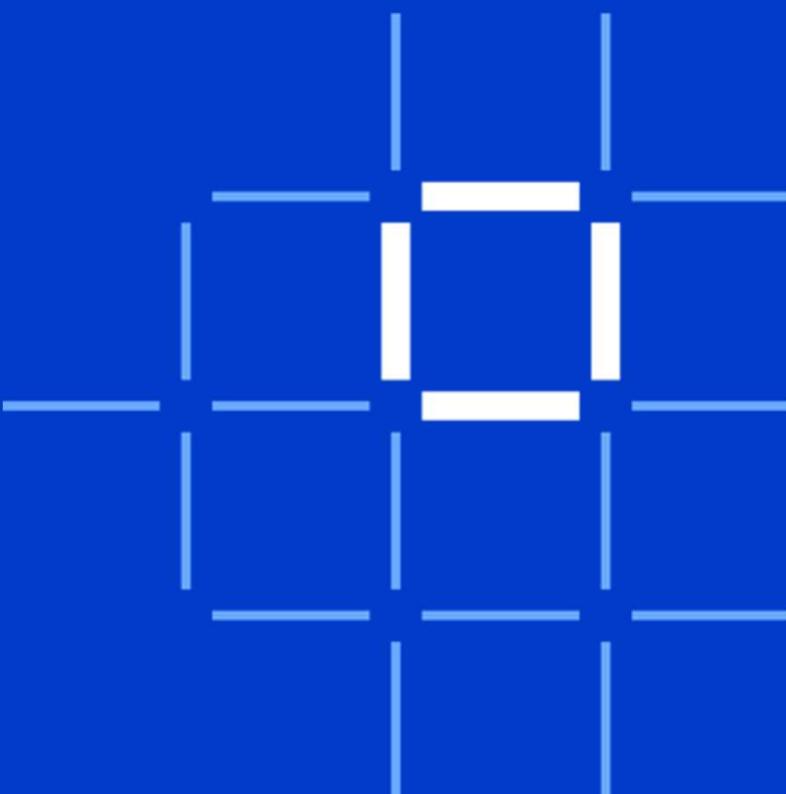
How can IBM help?

IBM

[?] What is Blockchain? []

[] Example networks

[] How can IBM help?



IBM Blockchain

IBM

Key Concept: Assets

Assets are anything, digital or physical, capable of being owned or controlled to produce value within the business network.

Examples: Data, physical goods (e.g., shipping containers, oranges, pharmaceutical products), currency (crypto or fiat), vehicles, transaction records.



Key Concept: Smart Contracts

IBM Blockchain

Smart Contracts define ‘what can be done’ within the business network resulting in queries + updates to assets represented on the ledger

- Shared business process agreed by network participants, embedded into the shared ledger
- Verifiable, signed
- Encoded in a programming language, aka ‘chaincode’
- Makes the data available to the participants in the network

Example: If A pays B money, then the car passes from B to A.



© 2018 IBM Corporation

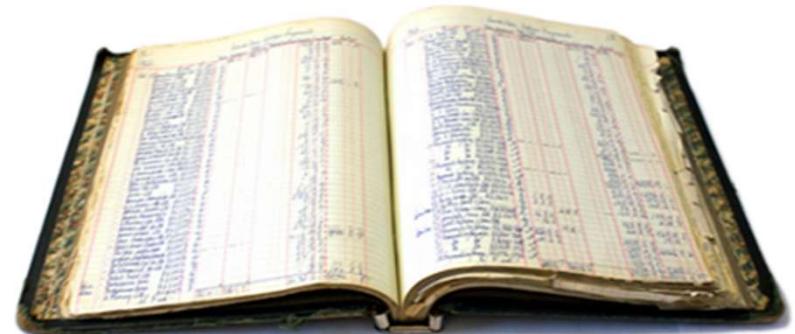


Key Concept: Distributed Ledger

IBM Blockchain

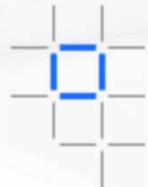
A **Distributed Ledger** is a database / system of records that holds digital records of every transaction done within the network and is available to all participants. Multiple copies of the database exist in the network.

- Shared between participants
- Participants have own copy through replication
- Permissioned, so participants see only appropriate transactions
- THE shared system of record

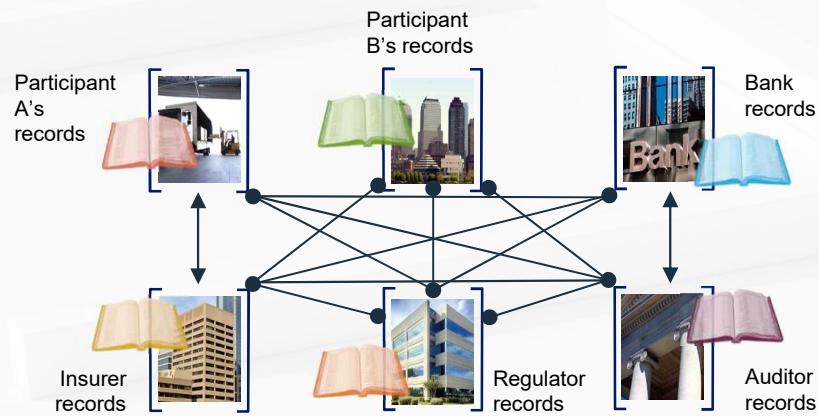


Businesses that use a distributed ledger technology improve their efficiency and mitigate the risk of conflicts.

Blockchain will fundamentally change business processes

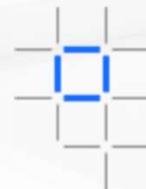


Traditional Business Network

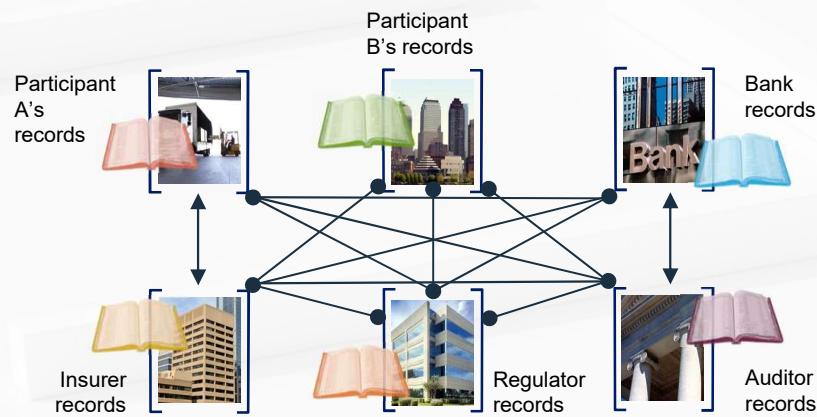


inefficient, expensive, vulnerable

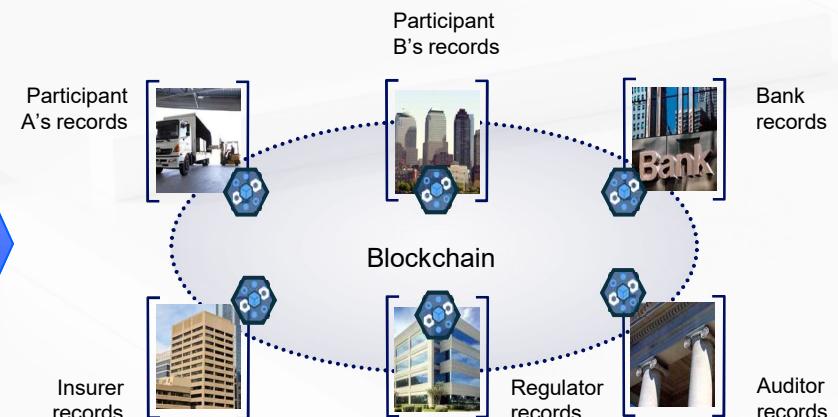
Blockchain will fundamentally change business processes



Traditional Business Network



With Blockchain



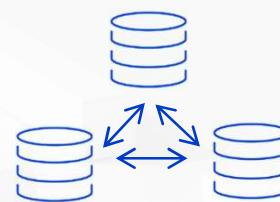
inefficient, expensive, vulnerable

provenance, immutability, finality, consensus

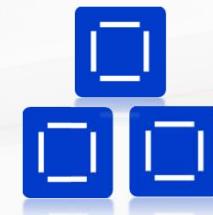
Traditional databases cannot be used in untrusted networks



- A traditional database is **centralized**
- Everyone needs to **trust** the administrator managing the database
- There's typically **no immutability or provenance**



- Distributed databases do not alleviate the **trust** issue
- There are now **more copies** to worry about and **more administrators**



- **Blockchain** allows the concept of a distributed database to be deployed across an **untrusted network**
- Something a traditional database cannot handle

Different types of blockchain

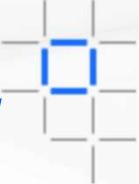
- All blockchains aim to provide **irrefutable proof** that a set of transactions occurred between participants
- Different types of blockchain exist:



is an example of an unpermissioned, public blockchain

- The first blockchain application
 - Defines a shadow-currency and its ledger
 - Resource intensive
-
- **Blockchains for business** are generally permissioned and private, and prioritize
 - **Identity** over anonymity | **Selective endorsement** over proof of work | **Assets** over cryptocurrency





Requirements of “*blockchain for business*”



ASSETS

Participants decide which assets to share



IDENTITY

Participants know who they are dealing with; information shared is need-to-know



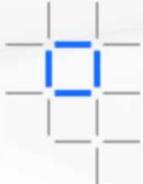
ENDORSEMENT

Participants give provable endorsement



Identity

Knowing who you're dealing with



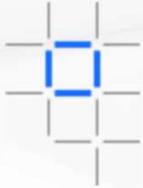
- Various regulations applied to businesses require them to know who they are dealing with
 - e.g. KYC, AML, CFT
- Identity is used to ensure business networks are kept **private** and individual transactions **confidential**
 - With transparency for the regulator
- There are established methods for obtaining and asserting identity
 - Cryptography is central to these
 - Identity allows transactions to be signed and encrypted



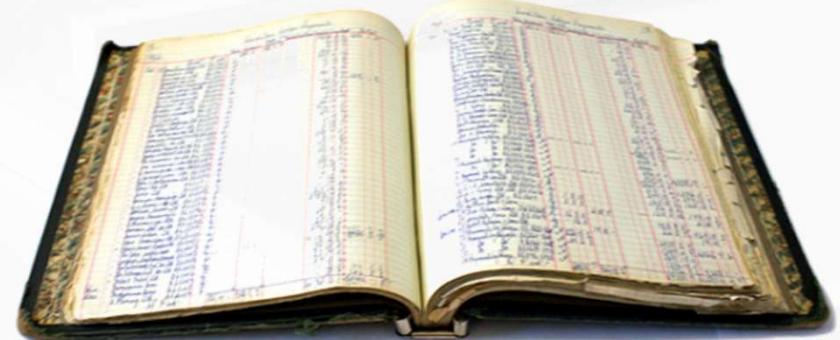


Assets

The business network decides what to share on the ledger



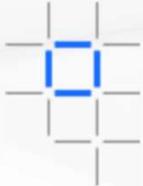
- **Assets** are anything of value
 - On the blockchain, these are represented digitally using a pre-agreed format
- **Transactions** change the state of an asset and are provably recorded on the blockchain
 - e.g. transfer ownership, change color
- Transactions are underpinned by **smart contracts**
 - Verifiable business rules that cause the asset to change state





Transaction Endorsement

Provable verification by relevant participants



- Endorsement is the process in which a transaction is verified as “good”
 - Ensures that participants are happy to accept the transaction and prevents (e.g.) double spending
- Endorsement can be expensive in public blockchains
 - Without identity, transactions are thrown to the whole network for endorsement
 - Proof of work is particularly CPU intensive
- In the real world, transactions are endorsed by a **smaller number of participants**
 - e.g. sender bank, receiver bank, payments provider
 - Must be completed in an appropriate timeframe



What is Blockchain?

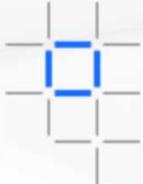
[Example networks]

How can IBM help?

IBM Blockchain

IBM

IBM Global Financing: Dispute Resolution



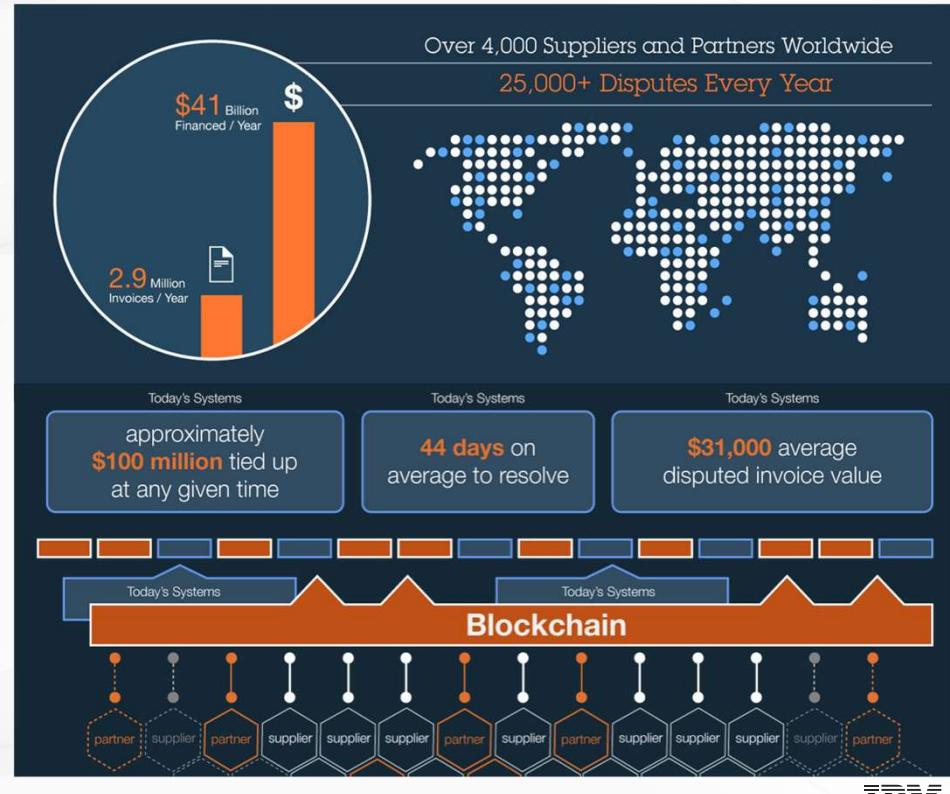
What?

- IBM Global Finance provides a \$41bn channel financing per year. There are a number of disputes that take time to resolve and can lock up transactions costing time and money

How?

- Blockchain provides visibility and provenance end-to-end across supply chain

IBM Blockchain

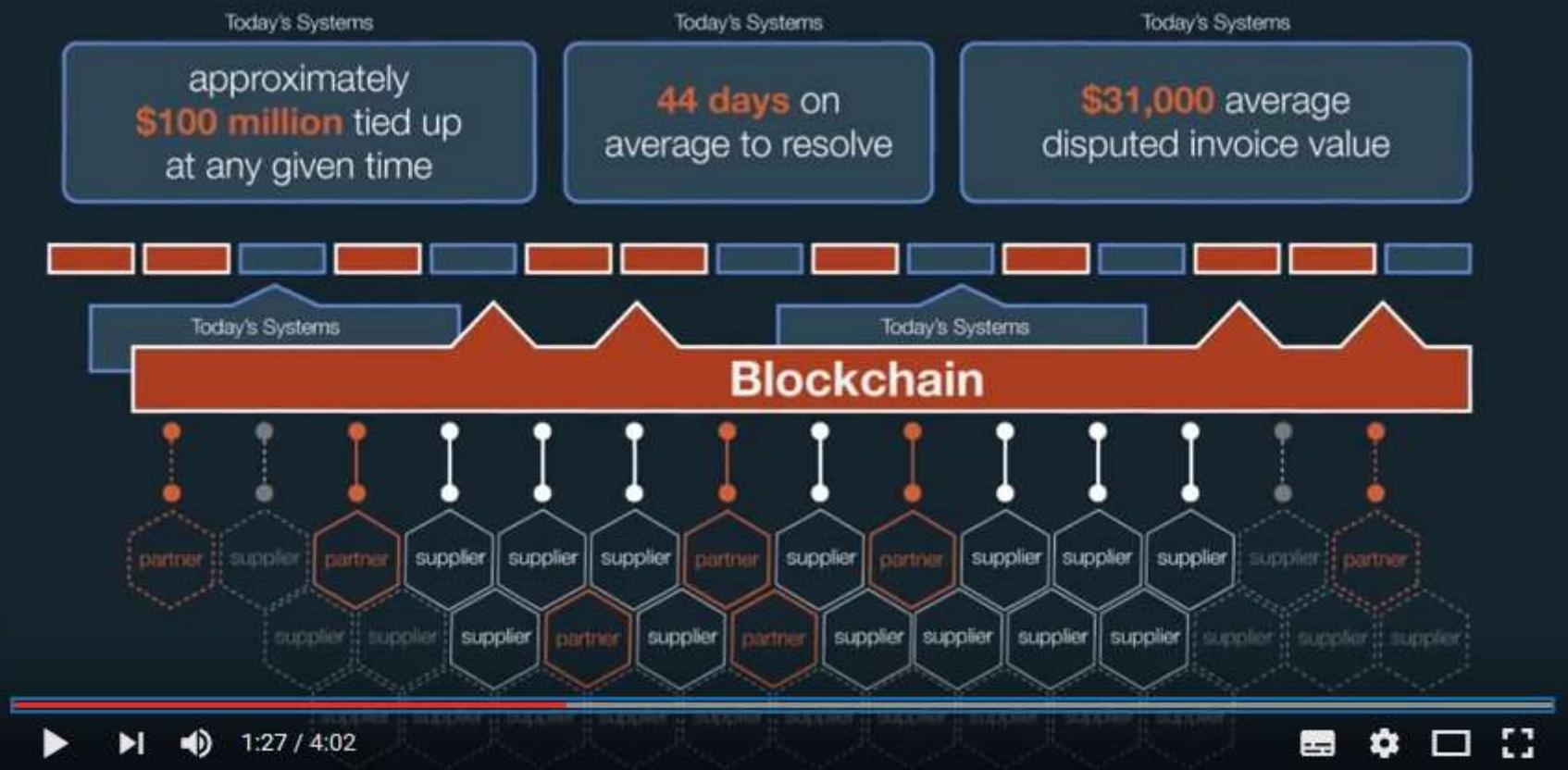


IBM

3M Blockchain Solution for Global Financing

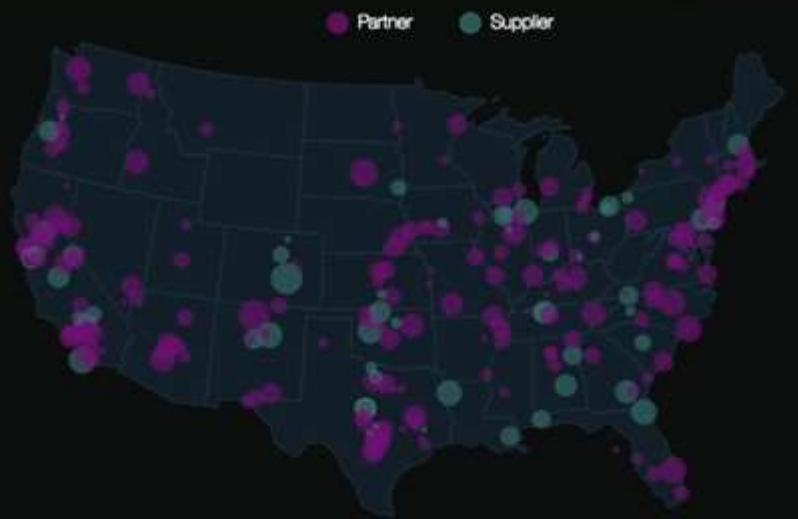


Blockchain Enables a Comprehensive View of All IGF Operations

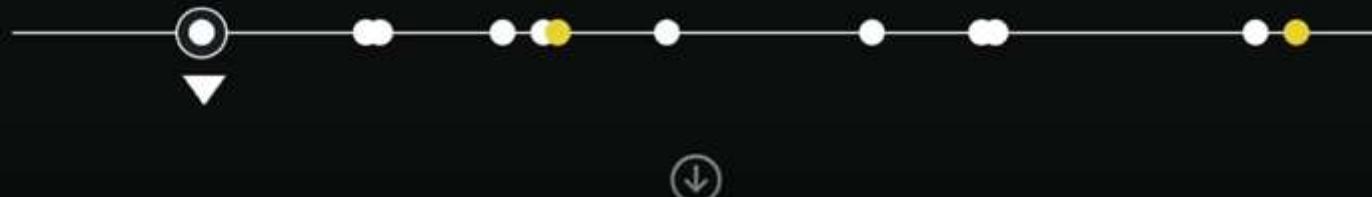


Partner 945

Supplier	Number of Transactions						Total	Total \$
	Jul	Aug	Sep	Oct	Nov	Dec		
Supplier 307	1	1	1	1	1	1	89	55,398,448
Supplier 308			1	1	1	1	5	60,600
Supplier 3574		1	1	1	1	1	103	7,136,289
Supplier 389			1	1	1	1	2	62,000
Supplier 2201	1	1	1	1	1	1	66	19,023,152
Supplier 2849	1	1	1	1	1	1	2	455,328



There were 17 transactions between Partner 945 and Supplier 3574 in August 2015





There were 17 transactions between Partner 945 and Supplier 3574 in August 2015



Information Available in the Current System No Information Available in the Current System

Order Placed

Transaction Approval Request

Approved / Rejected

Shipment Sent

Invoice to IGF

IGF Remittance to Supplier Initiated

Proof of Delivery

Payment Due to IGF from Partner

Partner Remittance to IGF Initiated



Partner 945
Business Partner

Place Order

product	QTY	unit price	total
[prod#]	1	\$107,705.00	\$107,705.00

Tax Rate: 7%

[skip](#) [stop](#)

IBM Blockchain Solution for Global Financing

Live Supplier Partner IGF

There were 17 transactions between Partner 945 and Supplier 3574 in August 2015

↑
↓

Information Available in the Current System No Information Available in the Current System

Order Placed Transaction Approval Request Approved / Rejected Shipment Sent Invoice to IGF IGF Remittance to Supplier Initiated Proof of Delivery Payment Due to IGF from Partner Partner Remittance to IGF Initiated

Global Financing IBM

Approve Transaction Request

Supplier ID: 3574
Partner ID: 945
PO Number: 266173
Request Amount: \$ 107,706.00
Approval ID: 039703

skip step

▶ ▶! 🔊 2:26 / 4:02

grid settings full screen

IBM Blockchain Solution for Global Financing

Live Supplier Partner IGF

There were 17 transactions between **Partner 945** and **Supplier 3574** in August 2015

↑

Information Available in the Current System No Information Available in the Current System

Order Placed Transaction Approval Request Approved / Rejected Shipment Sent Invoice to IGF IGF Remittance to Supplier Initiated Proof of Delivery Payment Due to IGF from Partner Partner Remittance to IGF Initiated

▼

Partner 945
Business Partner

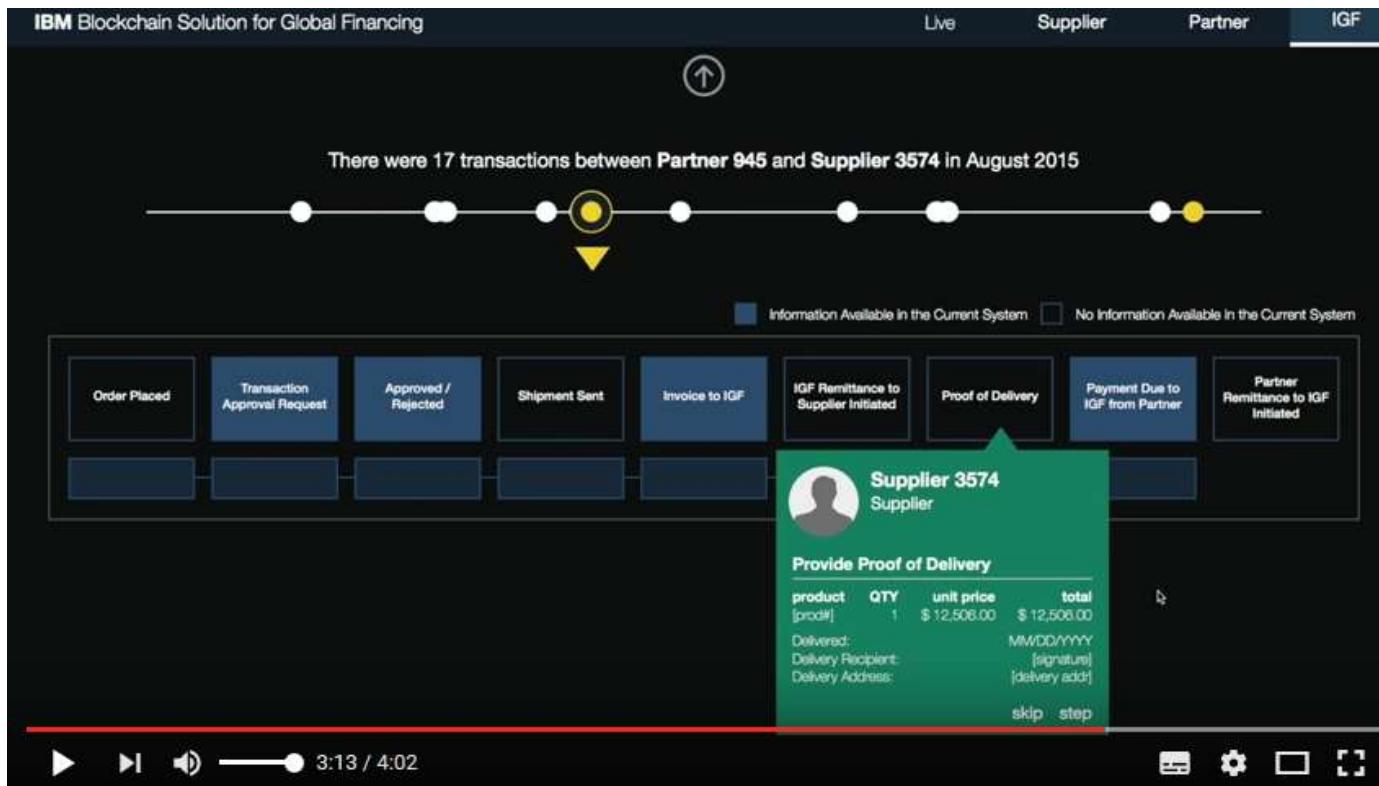
Dispute: Proof of Delivery / Not Received

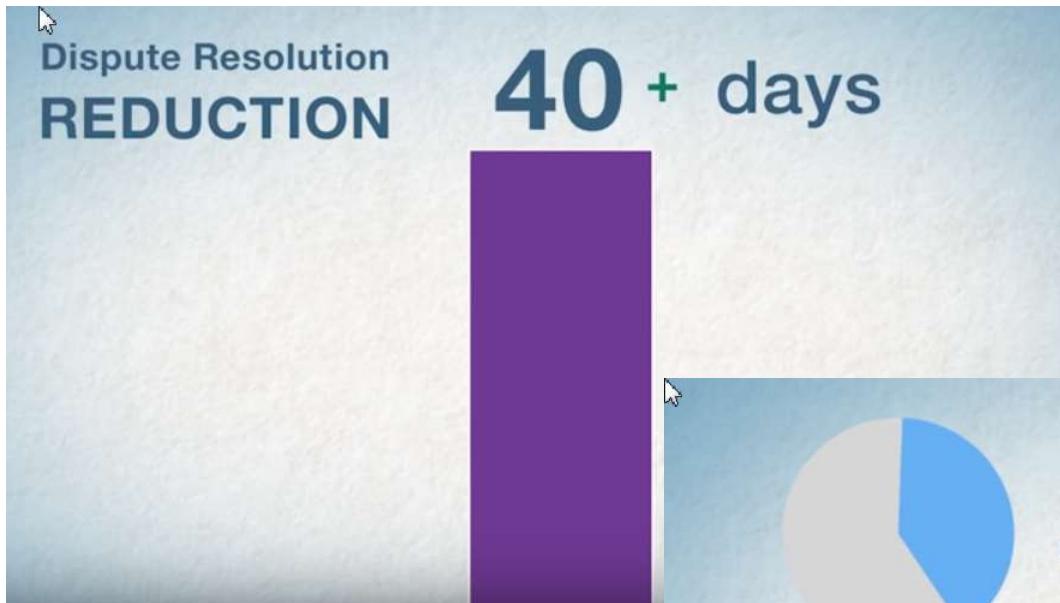
Dispute ID: 279283
Invoice / Loan: 11679040
Amount: \$ 1088.36

▶ ▶ 🔍 2:56 / 4:02

☰ ⚙️ 📺 🎖️

26





IBM saved
75%
of Time tied up in
Transaction Disputes



Food provenance: IBM Food Trust



Découvrez la traçabilité de votre produit

Renseigner votre numéro de lot

9 078 0836A 2

Je découvre

Trouver le numéro de lot

This screenshot shows a web-based tracing interface for a Mousline product. It features a large image of the product box at the top. Below it, there is a form where users can enter their lot number. The lot number '9 078 0836A 2' is already entered. There are two buttons: 'Je découvre' (Discover) and 'Trovuer le numéro de lot' (Find the lot number).

Informations sur votre produit

Mousline Nature 520g

A consommer de préférence avant fin: 31/03/2020

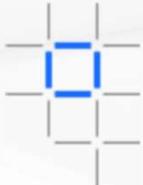
Date de production: 19/03/2019

This screenshot shows the detailed information page for the same Mousline product. It displays the product name 'Mousline Nature 520g', the recommended consumption date '31/03/2020', and the production date '19/03/2019'. The product image from the previous screen is also present here.

IBM Blockchain

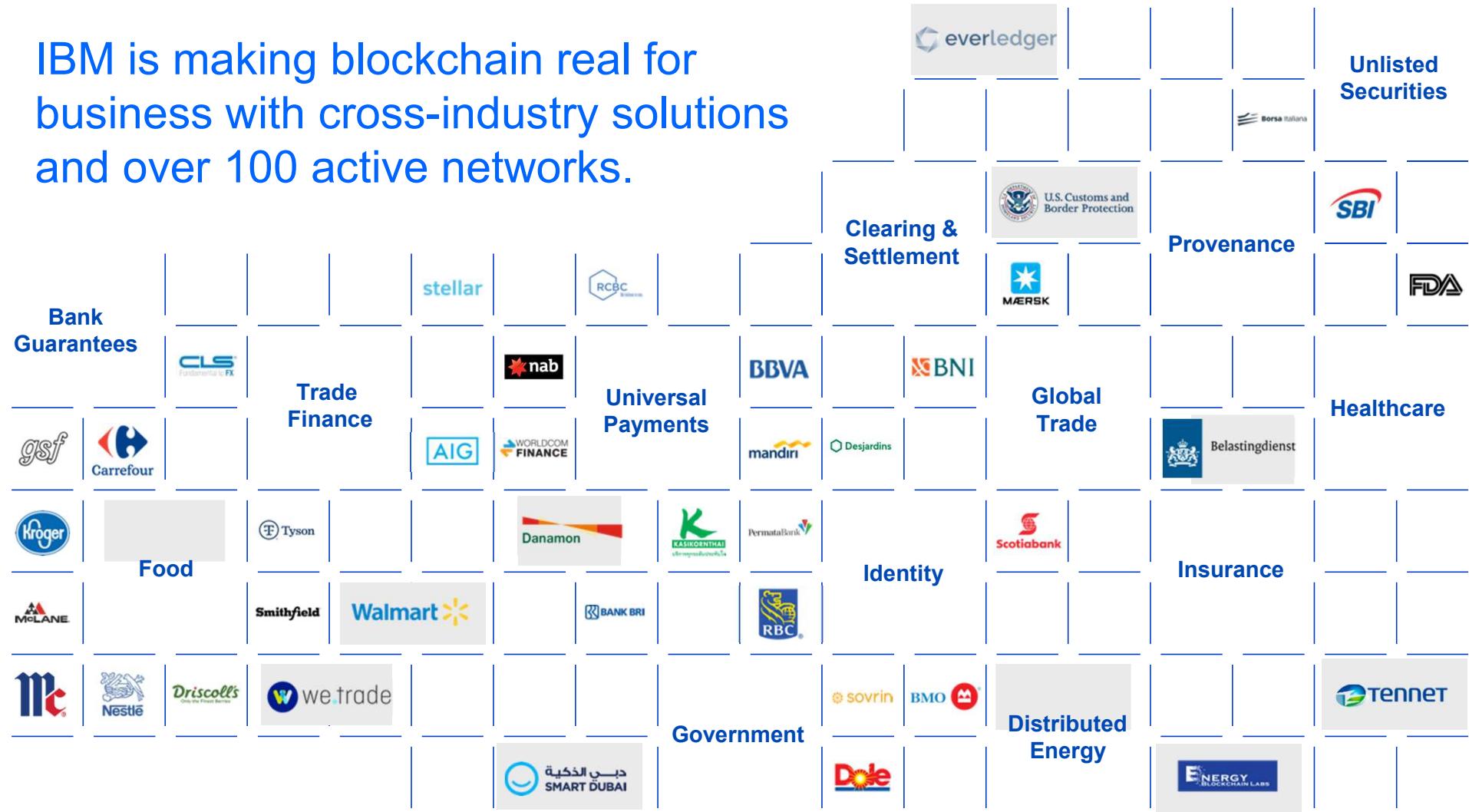
IBM

Further examples by (selected) industry



Financial	Public Sector	Retail	Insurance	Manufacturing
<ul style="list-style-type: none">• Trade Finance• Cross currency payments• Mortgages• Letters of Credit	<ul style="list-style-type: none">• Asset Registration• Citizen Identity• Medical records• Medicine supply chain	<ul style="list-style-type: none">• Supply chain• Loyalty programs• Information sharing (supplier – retailer)	<ul style="list-style-type: none">• Claims processing• Risk provenance• Asset usage history• Claims file	<ul style="list-style-type: none">• Supply chain• Product parts• Maintenance tracking

IBM is making blockchain real for business with cross-industry solutions and over 100 active networks.



What is Blockchain?

Example networks

How can IBM help?

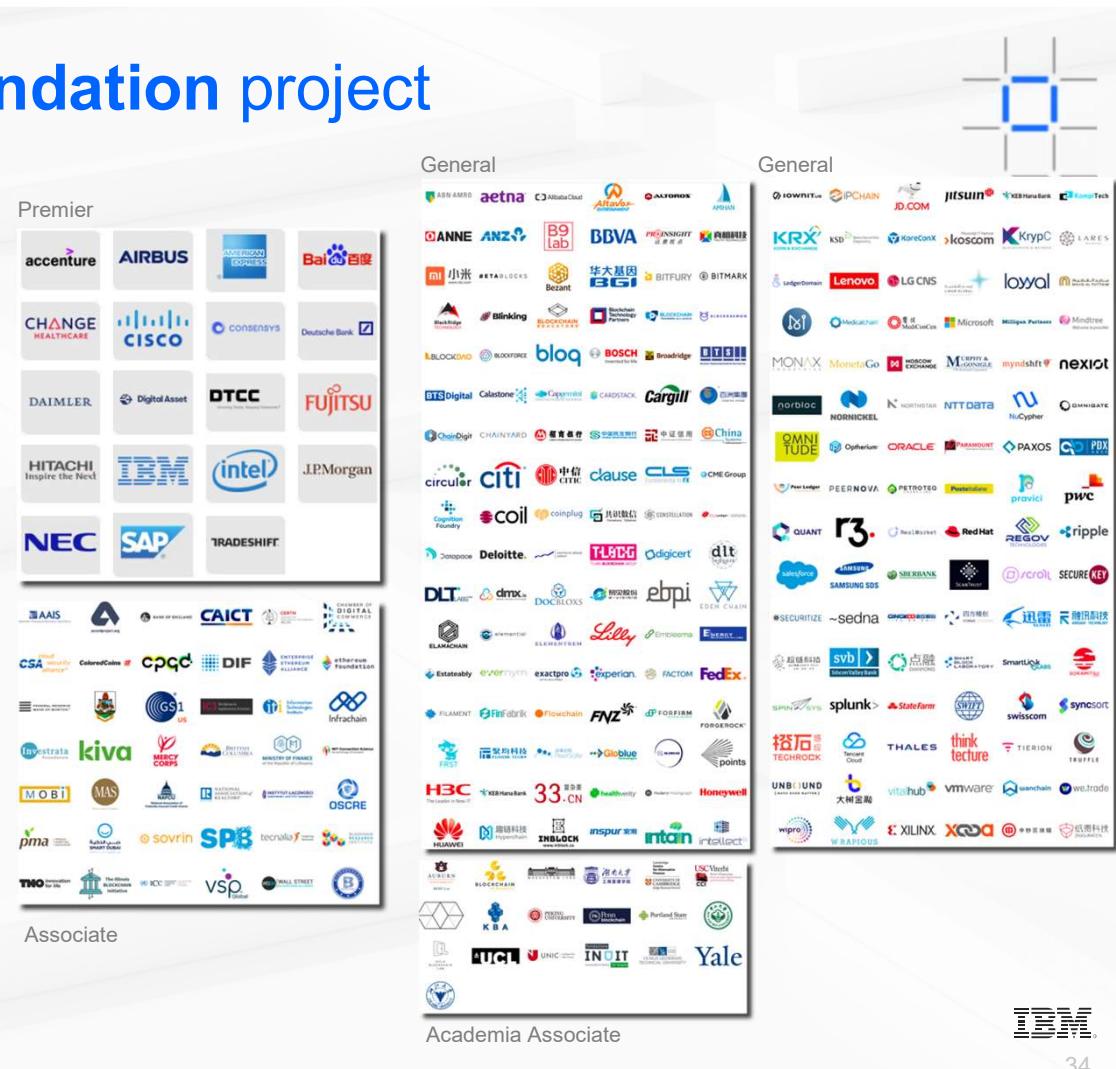
IBM Blockchain

Hyperledger: A Linux Foundation project

- IBM Blockchain Platform is underpinned by technology from the Hyperledger project
- Hyperledger is a collaborative effort created to advance cross-industry blockchain technologies for business
- Founded February 2016; now more than **280 member organizations**
- Open source
Open standards
Open governance model

Source: <https://www.hyperledger.org/members>
Updated: 11 September 2019

IBM Blockchain



IBM

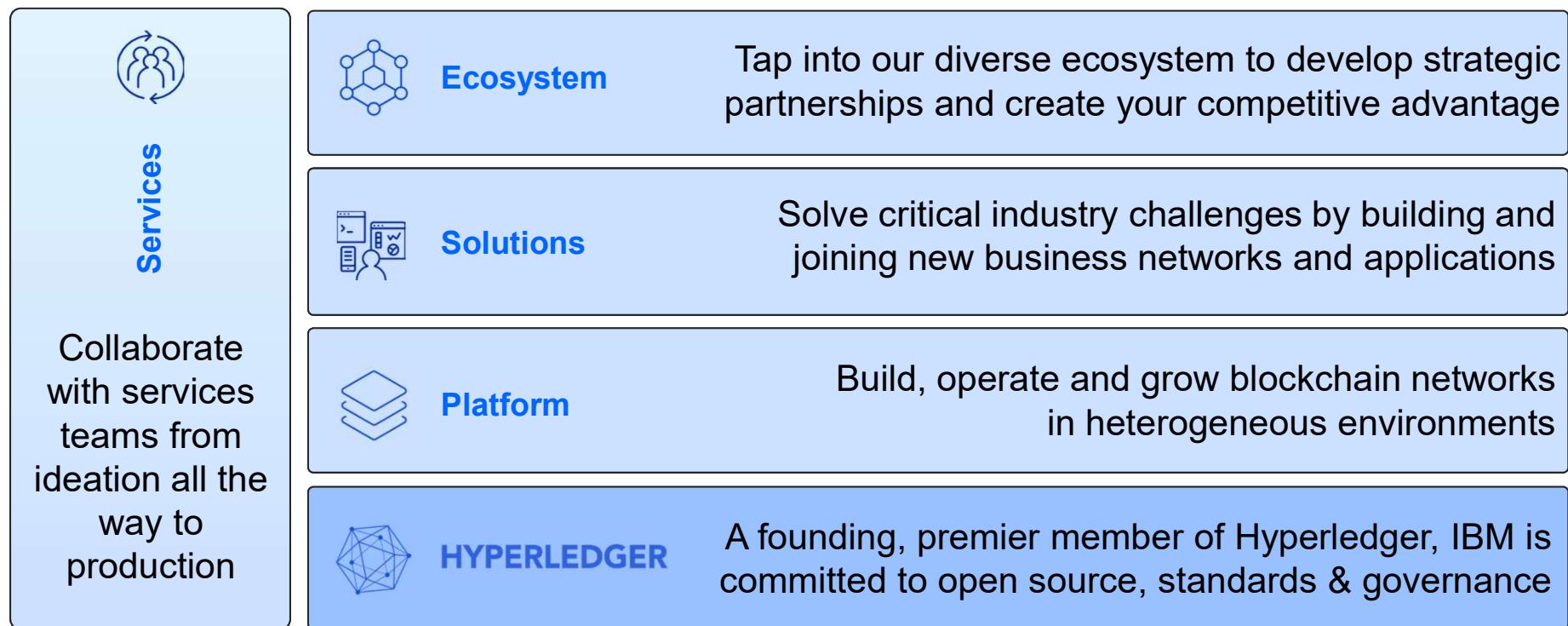
34



Distributed ledger

- An implementation of blockchain technology that is a foundation for developing blockchain applications
- Emphasis on ledger, smart contracts, consensus, confidentiality, resiliency and scalability.
- V1.4.3 released August 2019
 - V1.4 Long Term Service release with emphasis on production operational and serviceability enhancements; new programming model abstractions for ease of development
 - V2.0 targeted year end 2019
- IBM is one of the many contributing organizations

IBM's end to end Blockchain Strategy

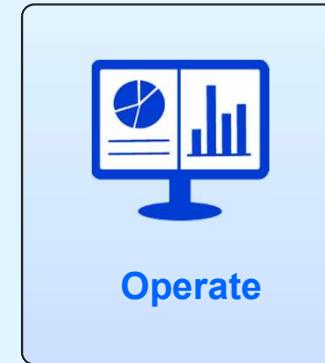
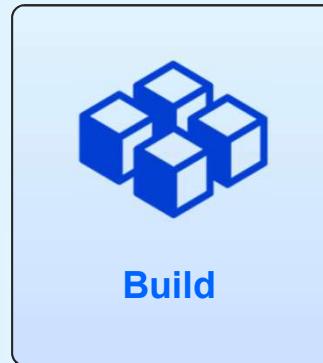


IBM Blockchain Platform

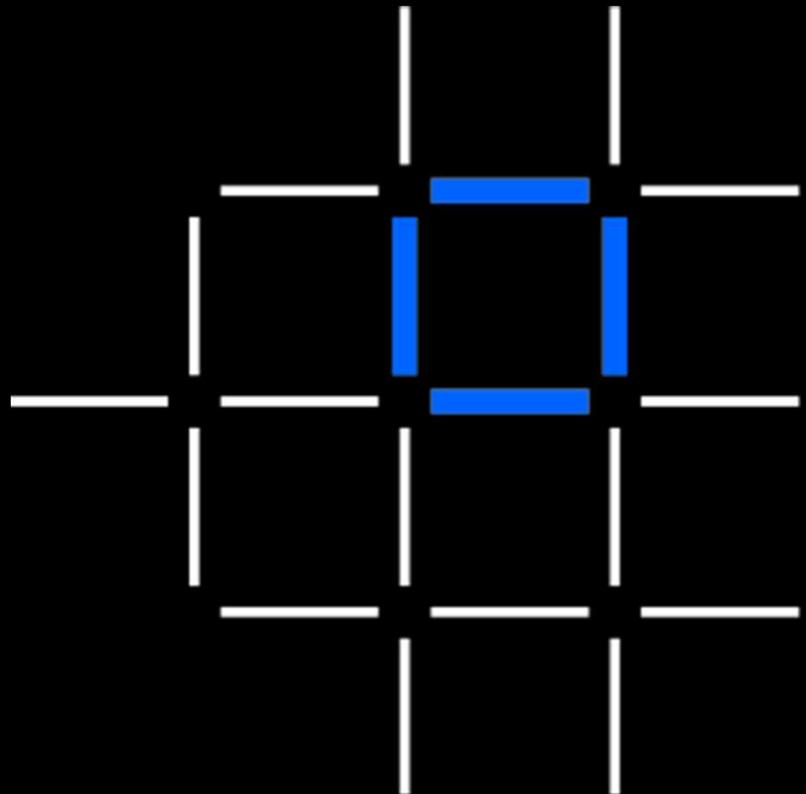
Advanced tooling
allows you to quickly
build, operate and grow
blockchain networks

Open technology
uses the popular
Hyperledger Fabric
distributed ledger

Deploy anywhere
fully managed, or flexible
deployment on-premises or
on other cloud vendors



Thank you



*Questions? Tweet us or
go to ibm.com/blockchain*

-  @IBMBlockchain
-  IBM Blockchain
-  IBM Blockchain

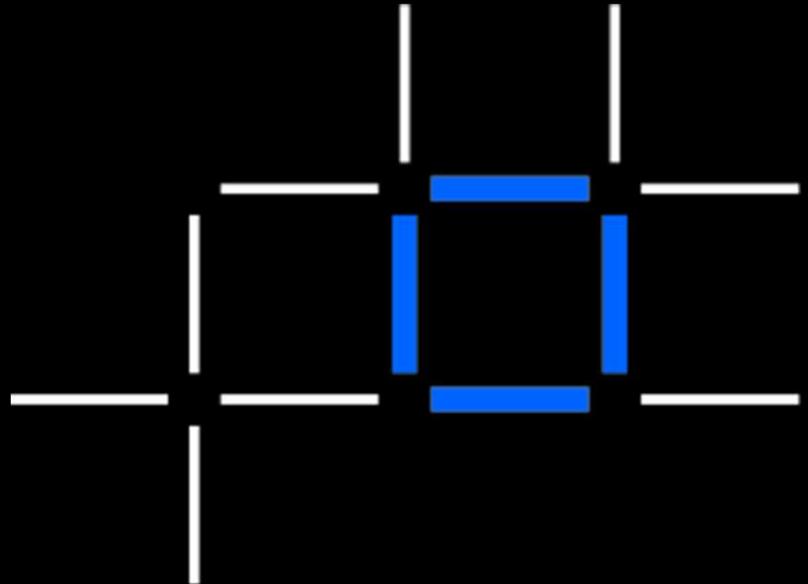
IBM Blockchain

IBM

Blockchain Solutions Explained

IBM Blockchain Networks

*Christophe Chatelus
christophe_chatelus@fr.ibm.com
Worldwide Solution Manager for ISV Banking Application*



Helsinki, 12 November 2019

IBM Blockchain



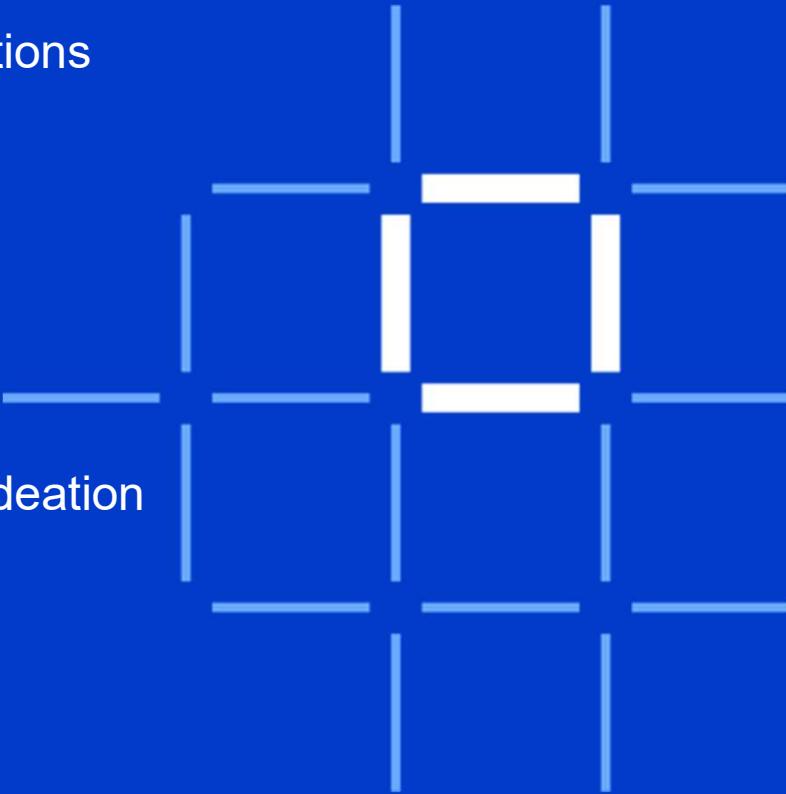


Use cases and IBM Solutions

- Food Trust
- We.trade
- World Wire
- TradeLens



Your Solution: use case ideation



IBM Blockchain

IBM

Use cases and IBM Solutions

- Food Trust
- We.trade
- World Wire
- TradeLens

Your Solution: use case ideation

IBM Food Trust™

adding trust and transparency to our products



IBM Blockchain

IBM

Only 1 in 4 Consumers Trust the Food Ecosystem

Food Safety



1 out of 10
people get sick each year, and
420,000 die from foodborne
illness

Supply Chain Inefficiency



80%
of CPGs business are partially
or entirely paper-based
(Consumer Products Goods)

Food Waste



1 / 3
of fresh food is thrown out
because it is considered
unacceptable

Food Fraud

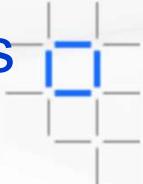


1 in 5
seafood samples mislabeled
worldwide

(43% mislabeled in NYC)

The root of these issues, and many others, are the lack of trust and transparency

Blockchain properties deliver an important set of key benefits



Blockchain's unique properties differentiate it from other methods for storing data....

Data is immutable

Data is stored in an append-only style meaning it cannot be changed. Instead new "blocks" of data are added to old "blocks", thereby preserving a permanent record of all edits, deletions, additions.

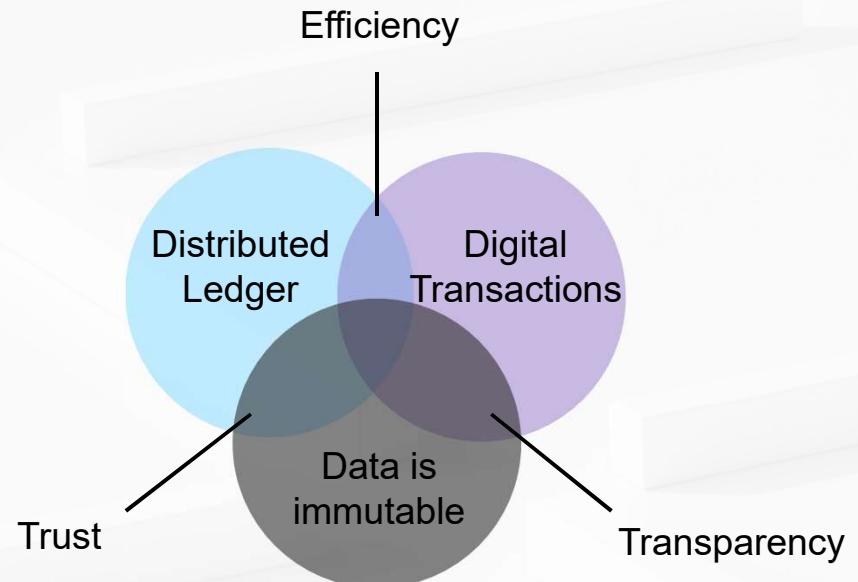
Distributed Ledger

Information is decentralized and a copy of the "ledger" exists on every participant's system. Consensus among the participants is required for adding any information to the blockchain

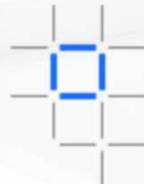
Digital Transactions

All transaction records are digital meaning that sharing and using that information is faster and easier than ever before

...these properties make blockchain a more transparent, trusted, and efficient way to transact



A range of pain points across the supply chain need to be addressed in order to advance the industry



Growers

- Prove farm is not a source of outbreak
- Ease of connectivity to the supply chain



Food Manufacturers / CPGs

- Instill trust between retail, suppliers & customers
- Automate & reduce manual certificate management



Wholesalers / Distributors

- Conduct targeted recalls
- Enable internal data sharing



Food Logistics

- Enhance ability to meet compliance standards
- Reduce manual processes



Food Retailers

- Assure customers food supplied is safe
- Conduct targeted recalls quickly



Consumers

- Learn about recalls and increased transparency
- Reduce risk of being victimized by food fraud



Certification Bodies

- Reduce fraudulent certificates
- Increase renewal speed



Food Service

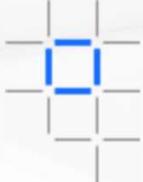
- Assure customers food supplied is safe
- Reduce wasted food



Regulators

- Identify contamination quickly
- Reduce unnecessary testing

IBM Food Trust leverages blockchain to address main food industry concerns



Food Safety

Supply Chain Optimization

Food Waste

Consumer Demand



Early Adopters

IBM Blockchain

IBM

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Trace

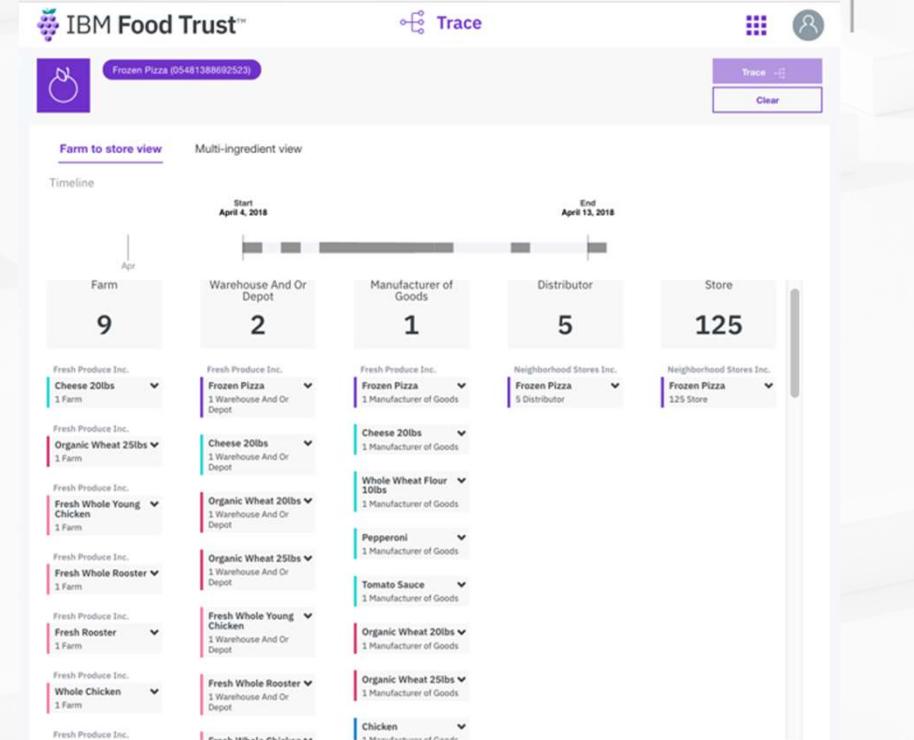
Last year, there were at least **456 food safety recalls** globally due to contamination, with each recall estimated to cost an average of **\$10 million**.

Functionality

- Securely and transparently trace the location and status of food products upstream and downstream in seconds.

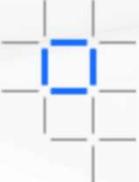
Impact

- Improve food safety
- Conduct surgical recalls
- Identify ingredient provenance
- Reduce Food Fraud



IBM Blockchain

IBM



Trace: the effectiveness of the IBM Food Trust solution was demonstrated with a Walmart mango pilot

Pilot Test Case

How long does it take to trace a package of sliced mangoes back to the farm?



IBM Blockchain

Supply Chain



Results

Typical manual, mixed digital and paper-based method
6 days
18 hours
26 minutes

IBM Food Trust digital solution

2.2 seconds

IBM

Certifications

Driven by today's food system complexity, food fraud is a global business estimated to cost **\$40 billion** annually.

Functionality

- Easily digitize and share inspections, quality certifications, and registrations.

Impact

- Improved brand trust
- Reduced food fraud
- More sustainable ecosystem

The screenshot shows the IBM Food Trust interface. At the top, there's a navigation bar with the IBM Food Trust logo, a search icon, and a user profile icon. Below the navigation is a main dashboard area with three cards: 'Find a Facility' (with a building icon), 'Expiring Certificates' (count 5), and 'Expired Certificates' (count 3). Further down is a search bar with filters for 'Owning Company', 'Facility Type', 'Location' (USA, California, Fresno), and buttons for 'Clear' and 'Search'. The main content area is a table listing certificates. The columns include 'Number of Certificates', 'Owning Company', 'Facility Type', 'Facility Name', and 'Address'. The table lists several entries, such as 'Jeremy's' (2 certificates, MANUFACTURER_OF_GOODS), 'Basilion' (1 certificate, PROCESSING PLANT), and multiple entries for 'Juniper Roof' (3 certificates, GROWER). Each row provides details like the scheme (e.g., BRC Global Standard for Food Safety), scope (e.g., Agents and Brokers: 04 - Ready-to-Eat chilled and frozen products), expiration date, and days until expiry. There are also 'View Details' links for each entry.

Number of Certificates	Owning Company	Facility Type	Facility Name	Address	
> 2	Jeremy's	MANUFACTURER_OF_GOODS	Main Facility	9873 Pointout Drive, Fresno, CA US	
> 1	Basilion	PROCESSING PLANT	Main Facility	76 Ridgeapple Drive, Fresno, CA US	
3	Juniper Roof	GROWER	Main Farm	8909 Jordan Court, Fresno, CA US	
Access Control	Scheme	Scope/Standard	Expiration Date	Expires In	
○	BRC Global Standard for Food Safety	Agents and Brokers: 04 - Ready-to-Eat chilled and frozen products	01-16-2019	134 Days	View Details
○	BRC Global Standard for Food Safety	Agents and Brokers: 04 - Ready-to-Eat chilled and frozen products	10-05-2018	31 Days	View Details
○	BRC Global Standard for Food Safety	Agents and Brokers: 04 - Ready-to-Eat chilled and frozen products	12-07-2018	44 Days	View Details
> 3	Hewetts	DISTRIBUTION_CNTN	DC #1025	432 Pinewood Rd, Fresno, CA, US	
> 2	MicroGrowers	GROWER	Farm #750	55 Quaker Town Blvd, Fresno, CA US	

IBM Blockchain

IBM

55

Fresh Insights

40-50% of root crops, fruits and vegetables are wasted annually. Food losses and waste amounts to roughly **\$680 billion** in industrialized countries.

Functionality

- Real time insights on inventory flow, average dwell time, time-since-harvest. Enables root-cause diagnosis and provides alert capabilities.

Impact

- Supply chain efficiencies
- Reduced food waste
- Increased Shelf Life
- More sustainable ecosystem

IBM Blockchain

The screenshot displays the IBM Food Trust Fresh Insights interface. At the top, it shows a product name "Demo: fresh strawberry" and a GTIN "1234564323478". Below this, there are two tabs: "Current inventory" (selected) and "Insights". A sidebar on the left lists facility types and their counts: Farms (420), Packing houses (20), Manufacturing of goods (15), Warehouses (13), Distribution centers (120), and Stores (1,230). The main area features a map of the United States with several red dots indicating locations of concern. A callout box highlights a specific location in California with the number "32". Below the map, sections for "Inventory summary" and "At risk inventory" provide detailed data tables.

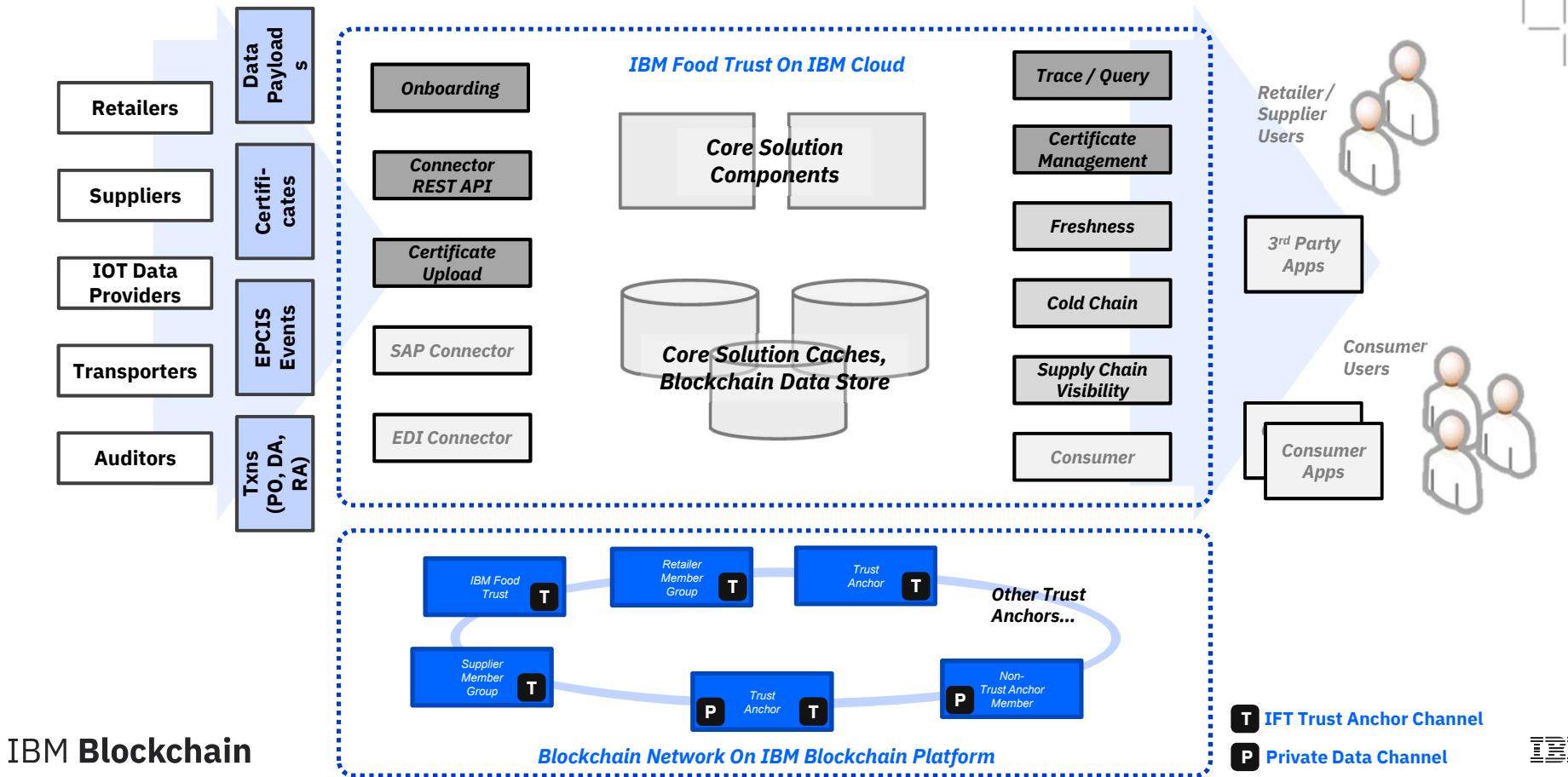
Facility location	Unit	Last 24 hours inflow	Last 24 hours outflow	Current inventory	At risk inventory	At risk percentage
Address of location...	lbs	28,200	13,200	34,000	2	2.07%

Serial number	Inventory	Expiration date
L2160.23	2,300 lbs	12/12/2018
L2190.45	2,300 lbs	12/12/2018

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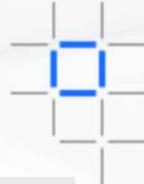
IBM Food Trust High-Level Architecture



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Momentum is growing



Today, we have full in-production capability after over a year of testing:

- One of the **largest** non-crypto blockchain networks in the world
- **5M+** food products on retail shelves
- **~1,200 SKUs/items** digitized, representing **4M+** transactions
- **200K** traces conducted to date

IBM Blockchain

<https://retailanalysis.igd.com/news/news-article/t/carrefour-spotlights-blockchain-benefits/i/21741>

IBM

Cost?



IBM Food Trust

Overview Pricing Resources

Small Business

Choose modules to address your business needs. Available ONLY to companies who send and receive goods in the food supply chain (< \$50M).

Starting at
€96.50*
per month

Get Started

Medium Business

Choose modules to address your business needs. Available ONLY to companies who send and receive goods in the food supply chain (\$50M - \$1B).

Starting at
€965.00*
per month

Get Started

Large Enterprise

Choose modules to address your business needs. Available ONLY to companies who send and receive goods in the food supply chain (\$1B+).

Contact us

Virtually-Guided Onboarding

Engage with IBM Food Trust experts to receive hands-on virtual onboarding. Available as an add-on to your existing subscription.

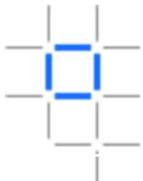
Starting at
€4,825.00*
one-time charge

Get Started

Let's talk

IBM Blockchain

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Range of onboarding offerings

Premium onboarding	Assisted onboarding	Virtually guided onboarding	Self guided onboarding
For clients needing process reengineering in addition to IBM Food Trust onboarding	Clients receive a dedicated expert to guide them through the onboarding process	Clients interact with an expert in pre-defined education modules and as-needed to answer onboarding questions	Clients onboard independently using self-service education, digitally available tools, documentation, chat and discussion forums
IBM Led   Target: enterprise <ul style="list-style-type: none">▪ Process Improvements▪ App Connect Integration▪ 1 supply chain process (2-100 SKUs) onboard \$150K	IBM Led   Target: mid <ul style="list-style-type: none">▪ Single process data mapping and process map▪ 1 supply chain process (2-50 SKUs) onboard \$35K	Client Led IBM Assisted   Target: mid <ul style="list-style-type: none">▪ 1 supply chain process (2-20 SKUs) onboard▪ Add on time as needed \$5K + add-ons	Client Led   Target: mid & small <ul style="list-style-type: none">▪ Self-onboarded ongoing SKUs & Certificates No cost

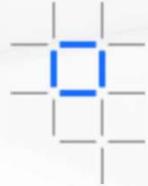
IBM Blockchain

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we.trade
more trust. more trade.

we.trade – Digital Trade Chain



Source: BoAML, HSBC, IDA

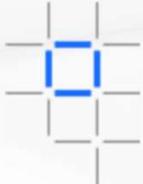
IBM Blockchain

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we.trade – Digital Trade Chain

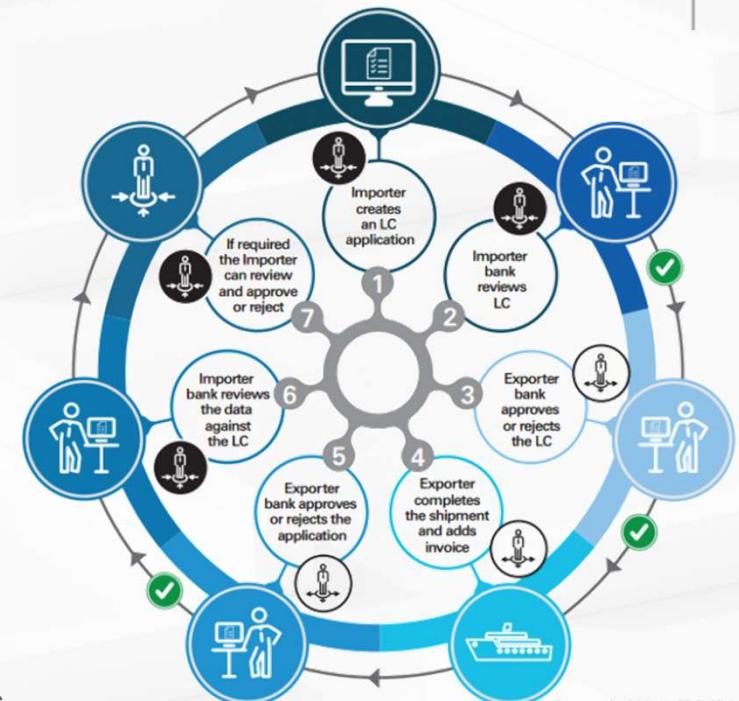


What?

- Digital Trade Chain (DTC), is a blockchain-based international trading system for a consortium of major world banks including:
Deutsche Bank, HSBC, KBC, Natixis, Rabobank, Société Générale, Santander, UniCredit and Nordea
- Enables accurate trading posture information, order to settlement control, risk coverage, track and trace options

Benefits

- Near-real time exchange of information on a secure platform that digitizes transactional financing and other complex processes
- Continual business and compliance readiness in any regulatory environment
- Scalability that allows for rapid international expansion as business, regulatory, and security opportunities converge



Source: BoAML, HSBC, IDA



World Wire

IBM Blockchain



Payments: Trends

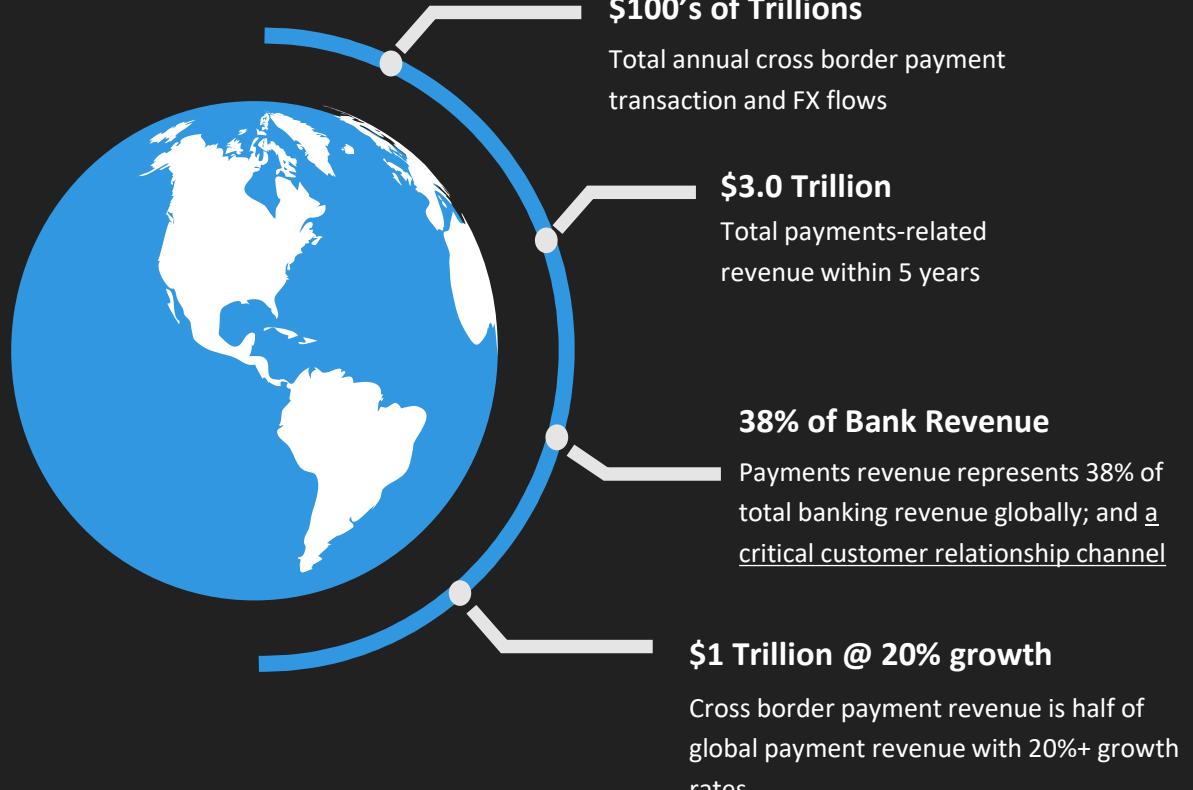
Economic Trends

- Revenue is moving away from banks to non-bank financial firms
- Payment margins are exposed, with major regional differences
- In US, UK, and Europe, margins are under increasing pressure from Fintech's

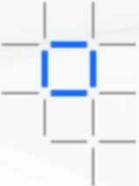
Market Trends

- Faster / Immediate Payments, Real Time Settlement
- Regulation & Legislation (PSD2, GDPR)
- Blockchain / DLT Seen as Enabler
- New Forms of eMoney: Central Bank Digital Currencies and Stable Coins

Source: McKinsey, 2018



The IBM Blockchain World Wire difference in action



Current international payment system today

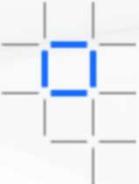


IBM Blockchain

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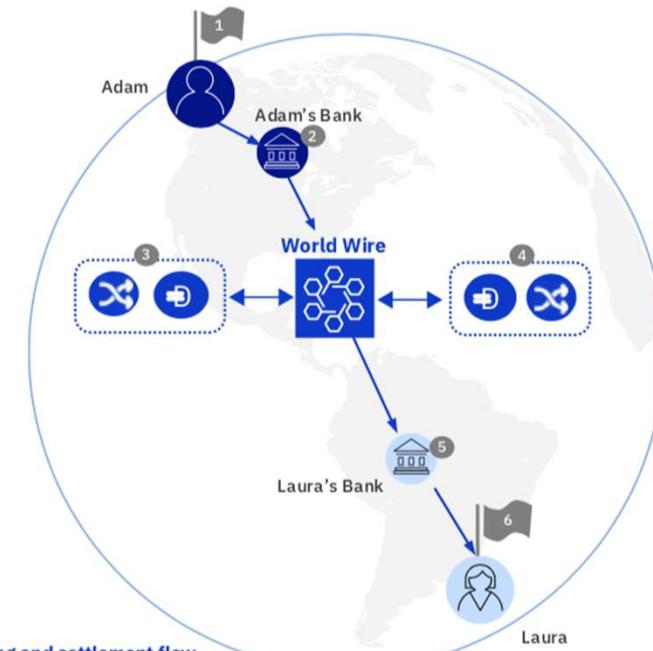
The IBM Blockchain World Wire difference in action



Current international payment system today



With IBM Blockchain World Wire tomorrow



IBM Blockchain

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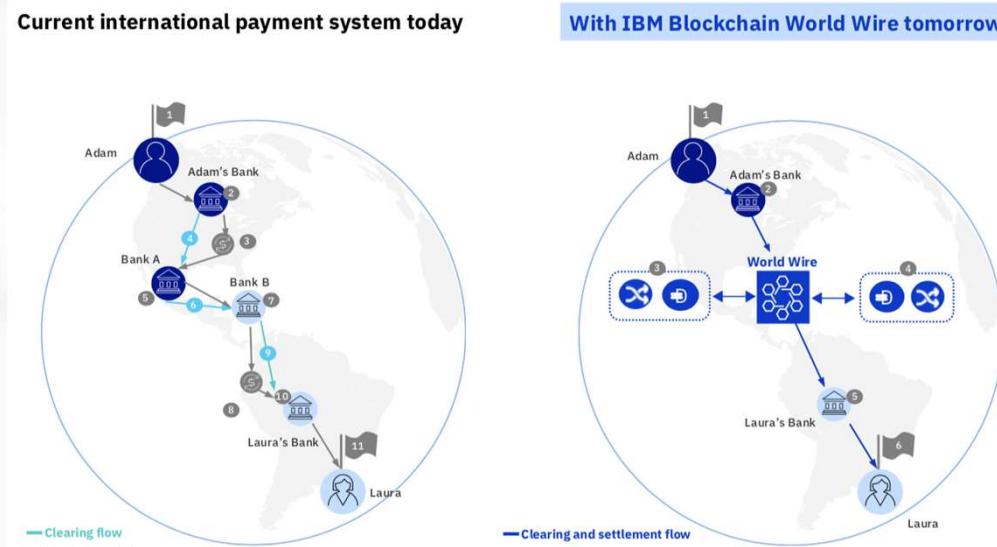
The IBM Blockchain World Wire difference in action

Sending money across borders today requires a series of intermediaries for both clearing and settlement, each adding time and cost to the process.

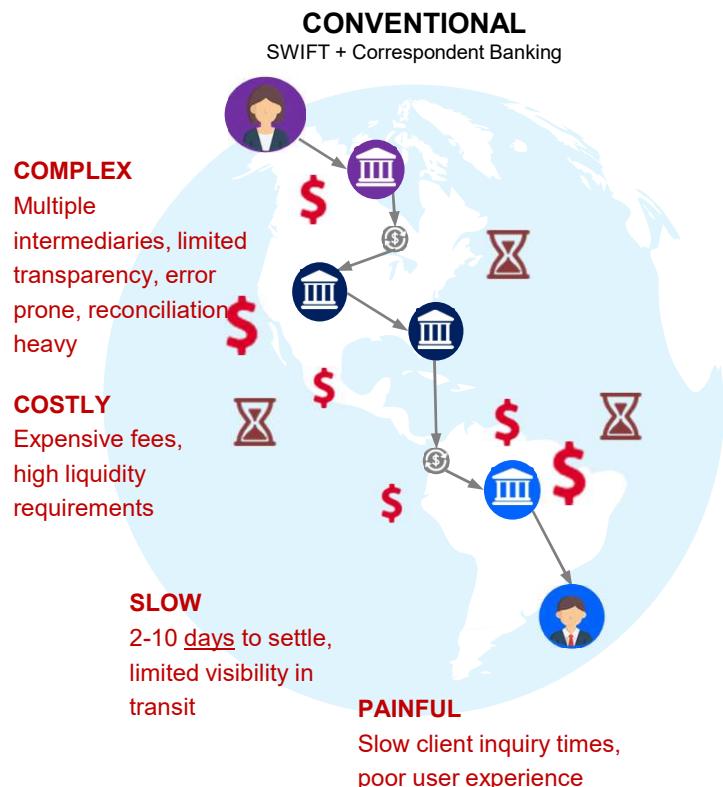
With IBM Blockchain World Wire, clearing and settlement with finality happens in near real-time.

The solution uses digital assets to settle transactions as well as integrating payment instruction messages.

It all means funds can now be transferred at a fraction of the cost and time of traditional correspondent banking.

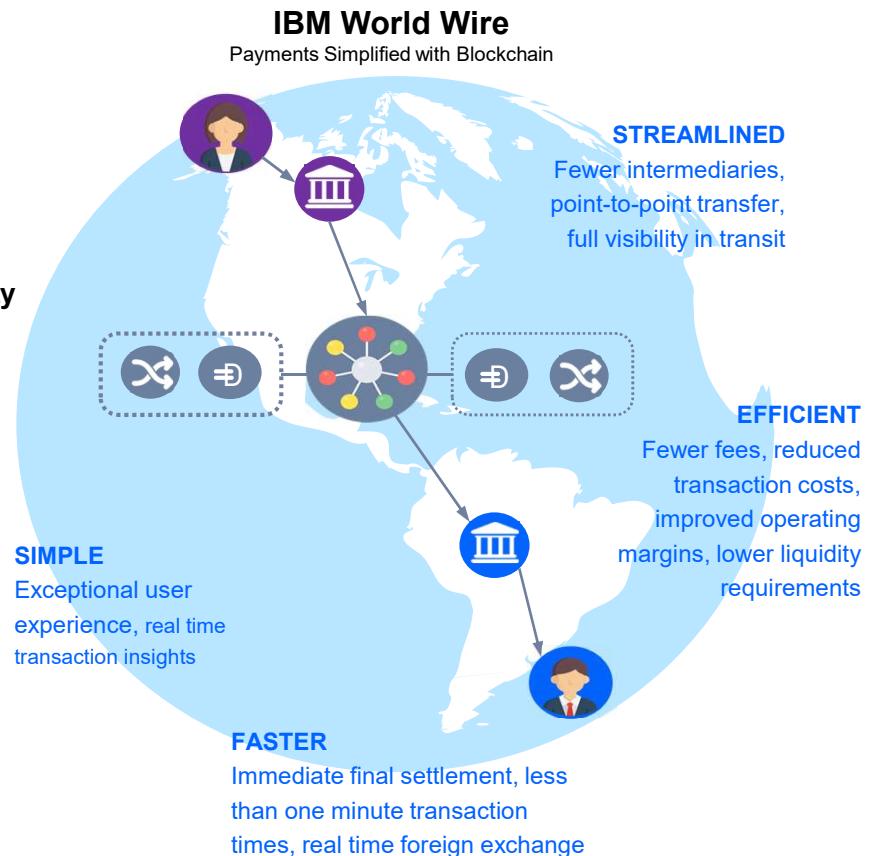


How Money Moves



10 – 20% savings
in operational efficiencies & liquidity management

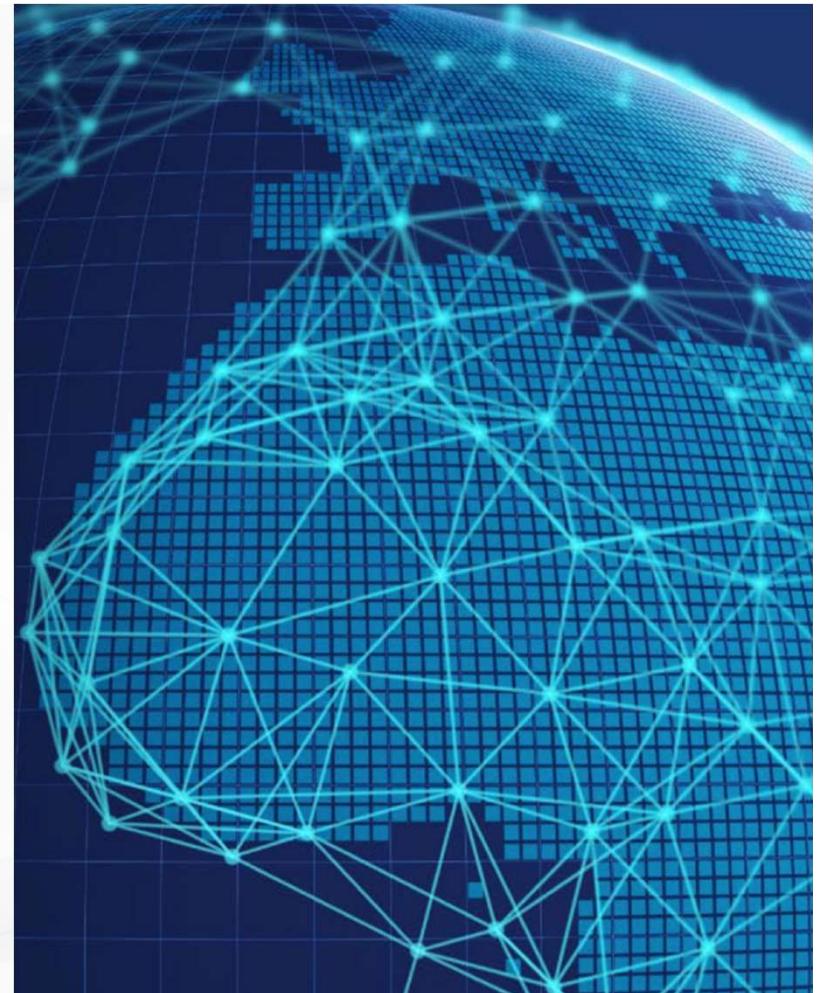
55 – 85% reduction in overall transaction costs



IBM Blockchain World Wire

Cross-border payments in seconds

- The new financial rail that simultaneously **clears** and **settles** cross-border payments in **near real-time**
- Integrating with your existing payment systems, you'll **replace costly opacity** with affordable transparency – and that can bring greater financial opportunity to all
- **Available in 72 countries, 47 currencies, 44 banking endpoints and more than 1081 unique currency trading pairs.**



IBM Blockchain

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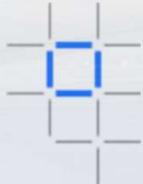


The image shows a massive Maersk container ship sailing on a vast blue ocean. The ship is light blue with a red stripe along the waterline and the words "MAERSK LINE" printed on its side. It is heavily loaded with numerous shipping containers stacked high on its deck. A yellow lattice boom crane is visible on the upper deck. The ship is moving from left to right, creating a white wake behind it. In the background, there are distant hills or mountains under a clear sky. On the right side of the image, there is promotional text.

TradeLens
IBM - Maersk

What is the problem?

The cost of global trade is estimated at \$1.8 trillion annually¹ with potential savings from more efficient processes of ~10%



More than **\$16 trillion** in goods are shipped across international borders each year



80% of the goods consumers use daily are carried by the ocean shipping industry



By reducing barriers within the international supply chain, global trade could increase by nearly **15%**, boosting economies and creating jobs²



In many cases the administrative cost of moving a container is **higher** than the cost of physically moving it

1) Maersk Strategy Group (May 19, 2016) based on World Bank data for World Trade Costs
2) The World Economic Forum: Enabling Trade Valuing Growth Opportunities 2013

What is TradeLens?

- TradeLens is an open neutral platform underpinned by Blockchain Technology, supported by IBM and Maersk
- Responding to industry feedback, IBM and Maersk have revised the approach and are proceeding under a Collaboration Agreement, which offers greater flexibility and responsiveness to industry feedback
- An Industry Advisory Board helps to shape the platform and drive standards

Bloomberg

Business

Maersk, IBM Launch Blockchain-Based Shipping Platform TradeLens

By Christian Wienberg
August 9, 2018, 4:00 AM PDT

LISTEN TO ARTICLE :36

A.P. Moller-Maersk A/S, the world's largest container line, and International Business Machines Corp. have launched a blockchain-based platform for sharing transaction information in real time, to speed up shipments.

Forbes

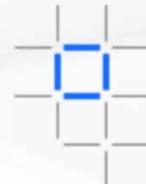
Billionaires | Innovation | Leadership | Money | Consumer | Industry | Lifestyle

2,532 views | Aug 9, 2018, 07:01am

IBM-Maersk Blockchain Platform Adds 92 Clients As Part Of Global Launch

Michael del Castillo, Forbes Staff
I cover enterprise adoption of blockchain and cryptocurrency.
astill

Global trade is highly inefficient and burdened by paper-based processes



Data trapped in organizational silos

Information is held in paper and various digital formats across dozens of service providers along the supply chain, requiring complex, cumbersome, and costly peer-to-peer messaging. The result is inconsistent information across organizational boundaries, latency in obtaining shipment visibility, and blind spots that hinder the efficient flow of goods.

Manual, time-consuming, paper-based processes

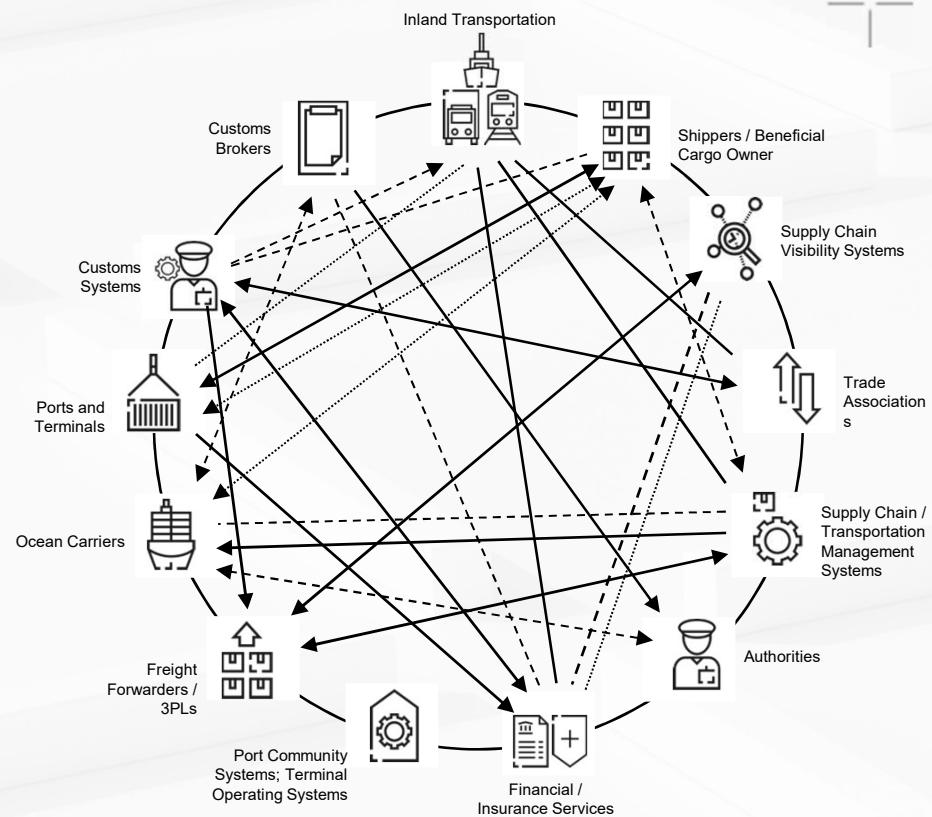
The collection and processing of up-to-date data, as well as inefficient trade document exchange, requires manual checks and frequent follow-ups and results in errors, delays and high compliance costs. Late filings are common due to missing information.

Clearance takes too long and is often subject to fraud

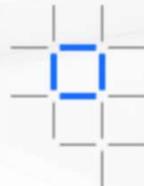
Risk assessments by customs authorities lack sufficient and trusted information resulting in high inspection rates, added prevention measures against fraud and forgery, and delayed customs clearance.

High costs and poor customer service

These challenges have significant downstream repercussions. The inability to forecast and plan effectively, address supply chain disruptions in real-time, and share trusted information across the supply chain leads to excessive safety stock inventory, high administrative costs, operational challenges, and ultimately poor customer service.



The TradeLens Platform - Digitizing the global supply chain



Connects the ecosystem

Brings together all parties in the supply chain - including traders, freight forwarders, inland transportation, ports and terminals, ocean carriers, customs and other government authorities, and others - onto a Blockchain-based platform with a secure permission and identity framework

Drives true information sharing

Provides for the seamless, secure sharing of real-time, actionable supply chain information across all parties to a trade - encompassing shipping milestones, cargo details, trade documents, the structured data embedded in trade documents, customs filings, sensor readings, and more

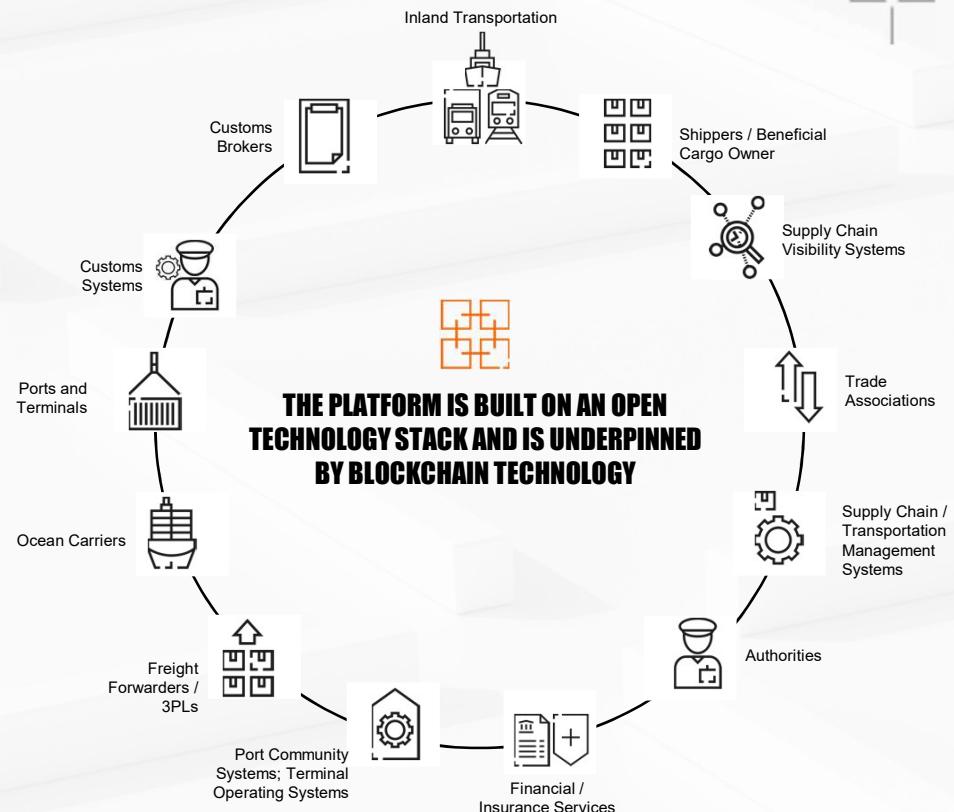
Fosters collaboration and trust

Enables the digitization and automation of the cross-organization business processes integral to global trade, including import and export clearance, with Blockchain ensuring secure, auditable, and non-repudiable transactions

Spurs innovation

Lays the foundation for ongoing improvement and innovation through an open, non-proprietary API, the use of standards and promotion of interoperability, and the launch of an Applications Marketplace that parties can use to build and deploy TradeLens-powered applications for themselves, their partners, and their customers

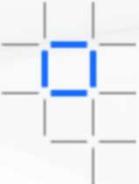
IBM Blockchain



IBM

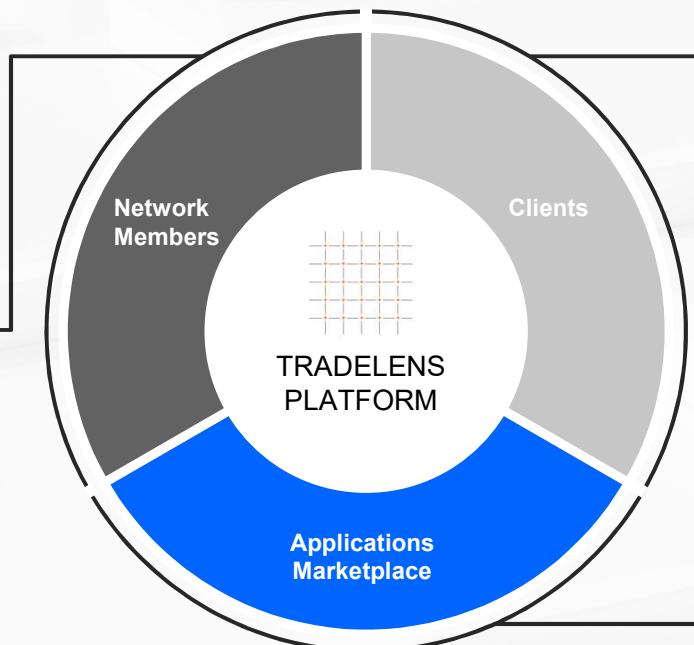
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The TradeLens ecosystem



Provide and gain access to end-to-end supply chain information

- Ocean carriers
- Ports and terminals
- Government authorities
- Inland transportation
- Freight forwarders / 3PLs
- 3rd party data providers



Primary consumers and beneficiaries of the platform

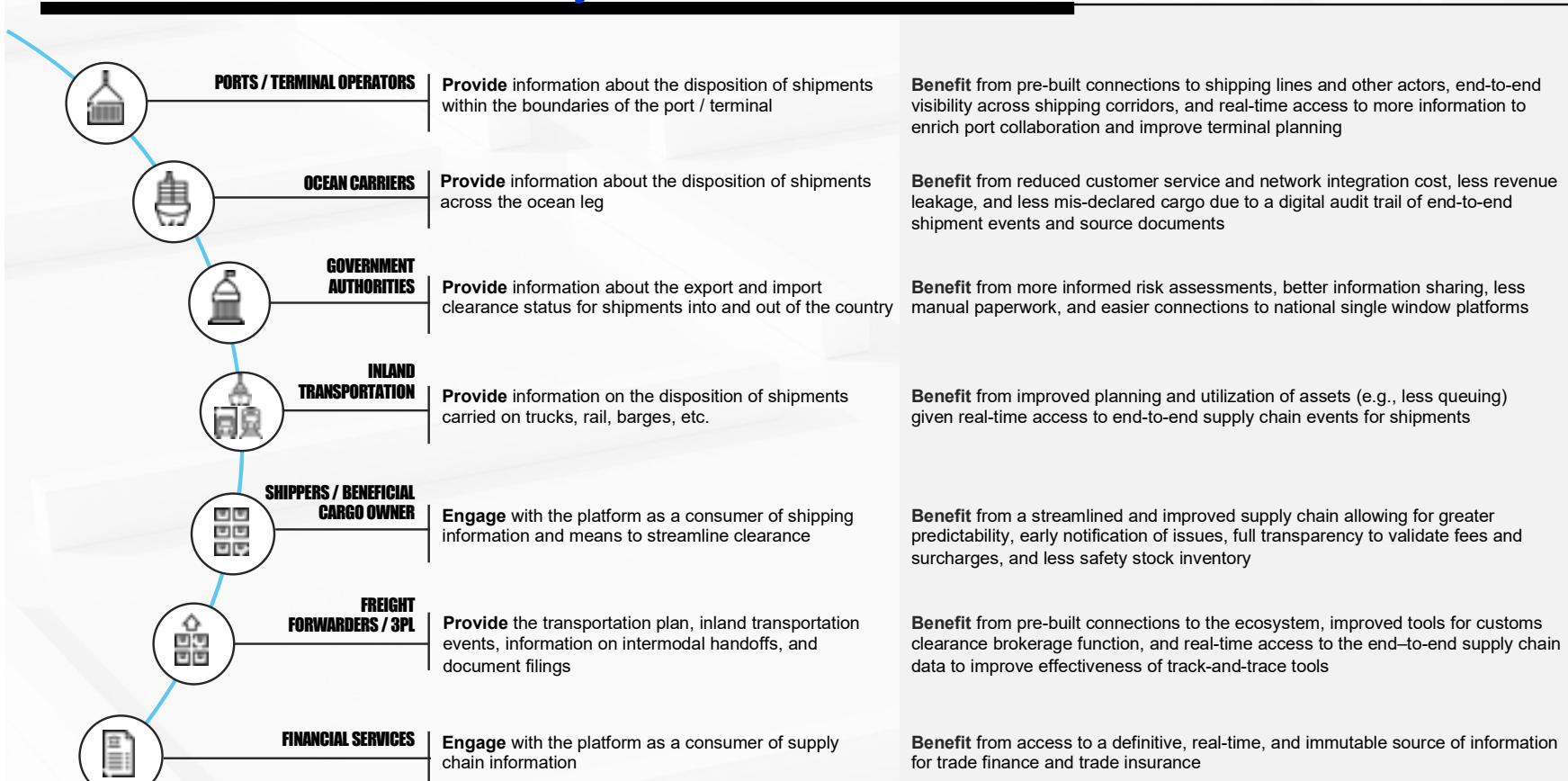
- Shippers (BCOs, retailers, manufacturers, etc.)
- Freight forwarders, customs brokers, 3PL
- Financial institutions



Offer value added services to the ecosystem through a platform marketplace

- TradeLens offerings
- Offerings from third party ISVs
- Offerings from Network Members and Clients

Benefits to the ecosystem



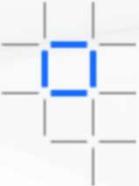
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Network geographic Coverage - as of April 2019



MORE INFORMATION

- www.TradeLens.com
- TradeLens documentation:
 - <https://www.tradelens.com/documentation/>
- TradeLens demonstration video:
 - <https://www.youtube.com/watch?v=-QgPQzwyrCA>
- Blockchain and supply chain:
 - <https://www.ibm.com/blockchain/industries/supply-chain>
- TradeLens news:
 - <https://www.tradelens.com/news/>



MORE INFORMATION

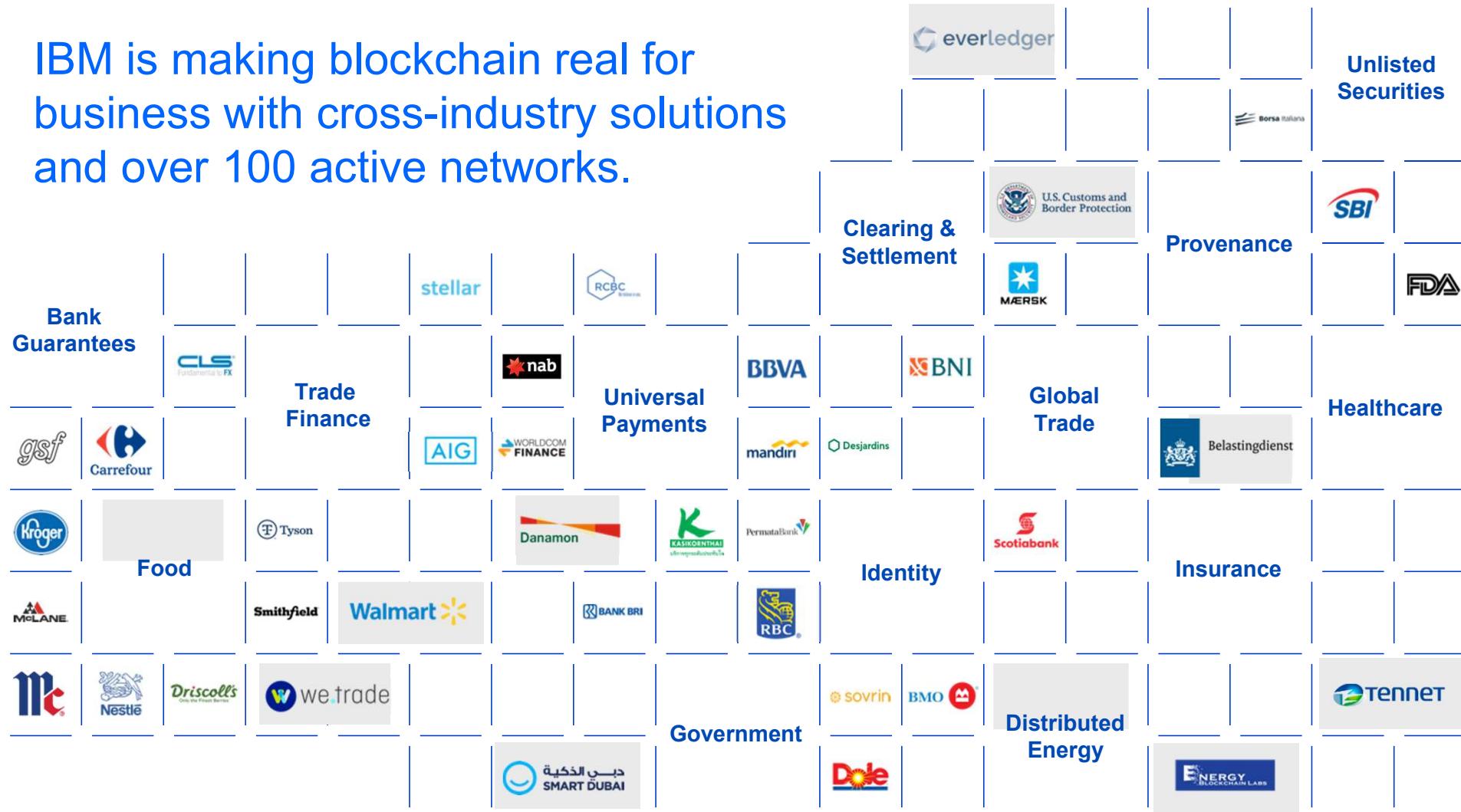
- www.TradeLens.com
- TradeLens documentation:
 - <https://www.tradelens.com/documentation/>
- TradeLens demonstration video:
 - <https://www.youtube.com/watch?v=-QgPQzwyrCA>
- Blockchain and supply chain:
 - <https://www.ibm.com/blockchain/industries/supply-chain>
- TradeLens news:
 - <https://www.tradelens.com/news/>



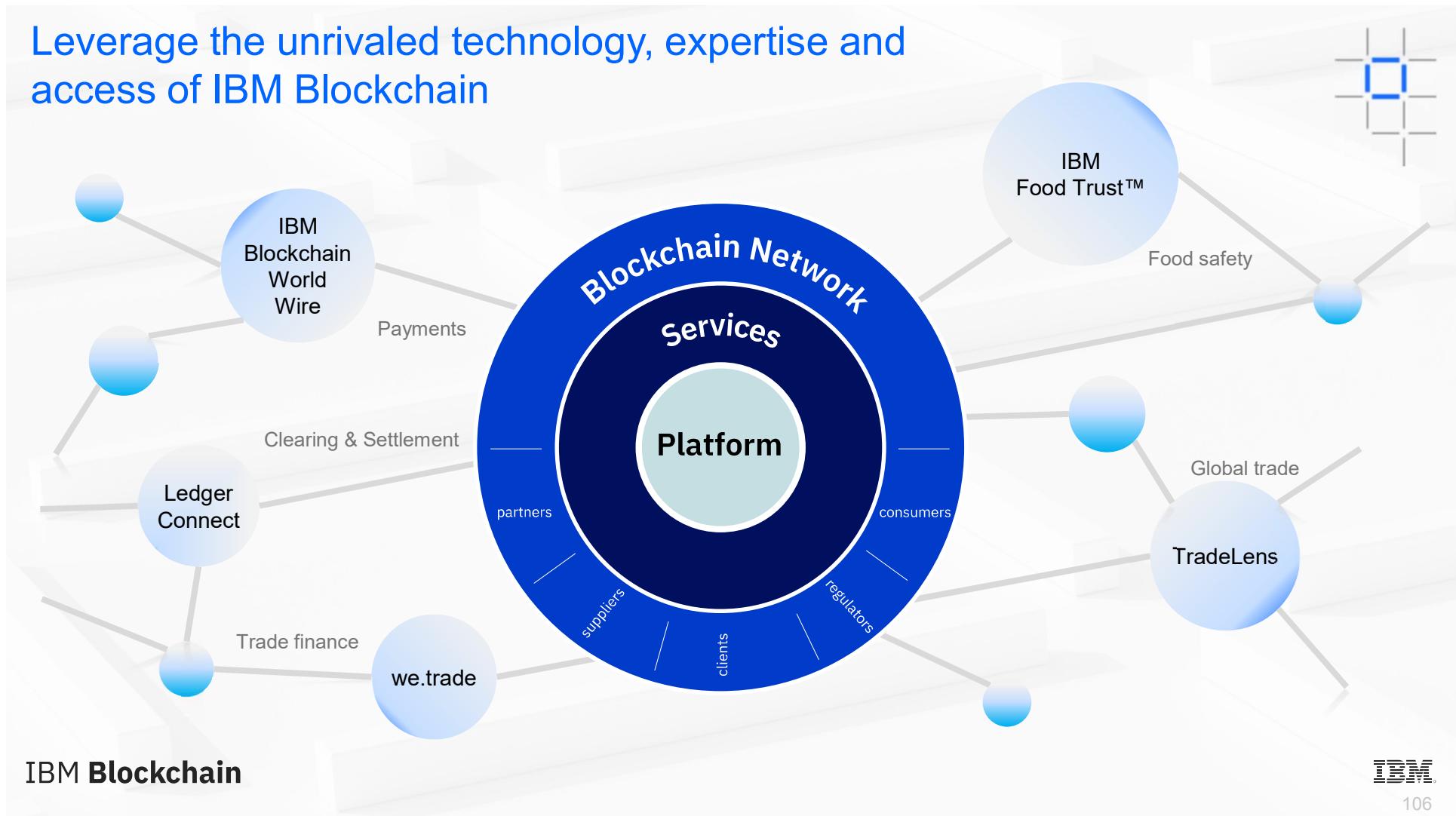
IBM

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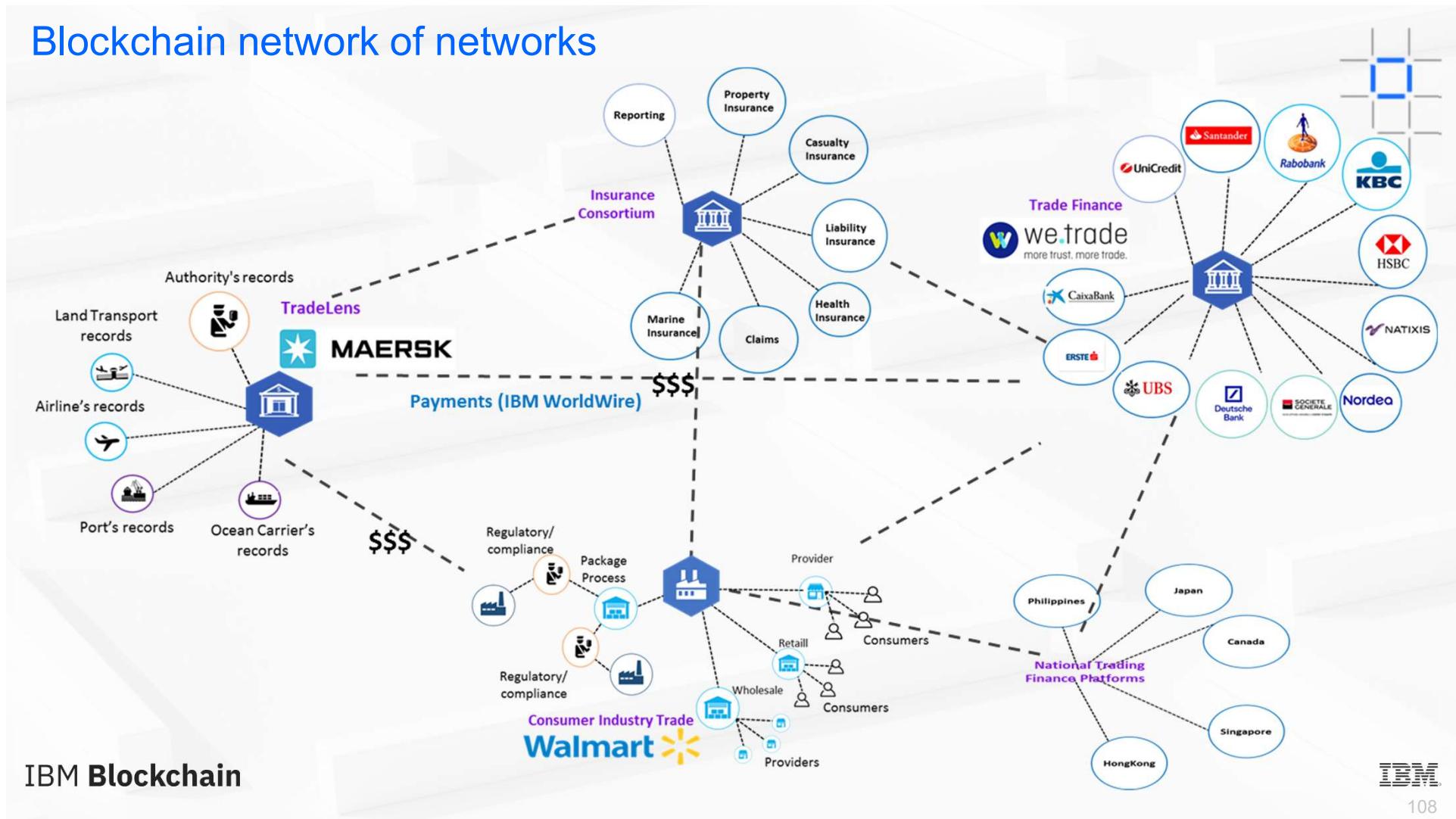
IBM is making blockchain real for business with cross-industry solutions and over 100 active networks.



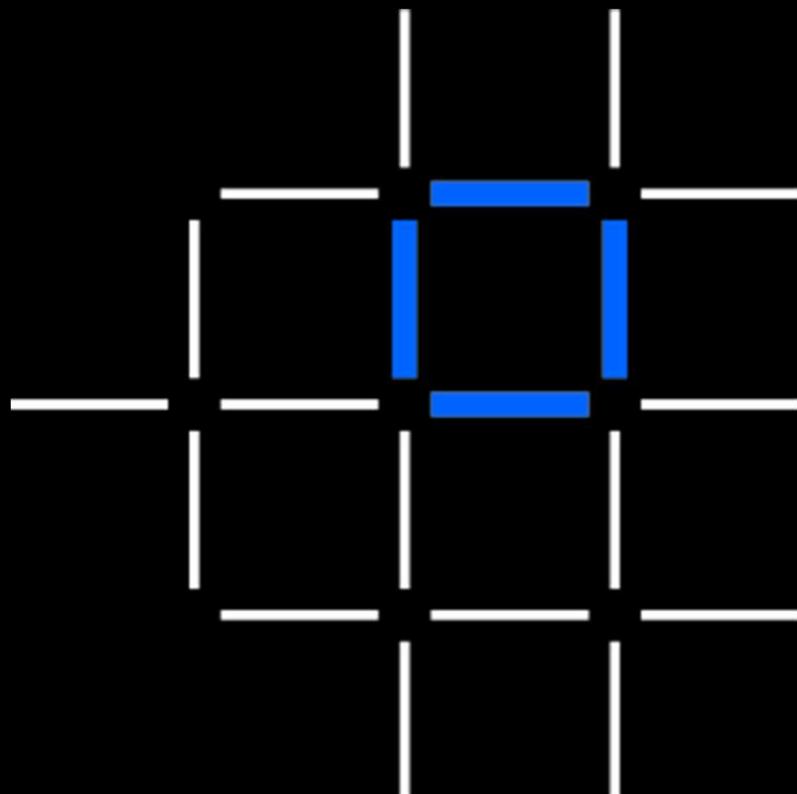
Leverage the unrivaled technology, expertise and access of IBM Blockchain



Blockchain network of networks



Thank you



Questions? Tweet us or
go to ibm.com/blockchain

-  @IBMBlockchain
-  IBM Blockchain
-  IBM Blockchain

IBM Blockchain

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