



Distributed registry technology - live projects panorama.

New opportunities for applying the technology

Blockchain is all about trust

IBM Blockchain

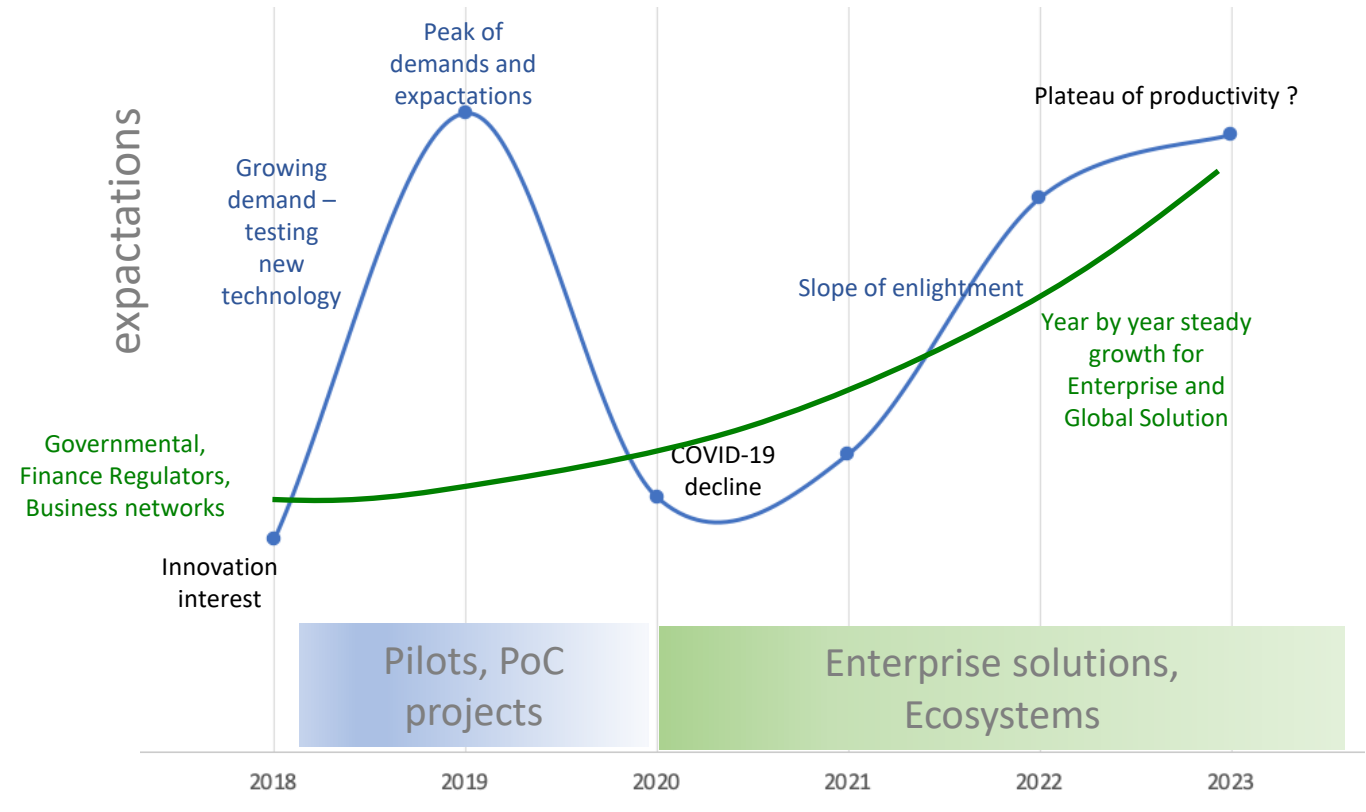


# A new era of digital relations between individuals, legal entities and the State, as well as between States, has already begun

Blockchain is officially past the **tourism phase** or playground days.

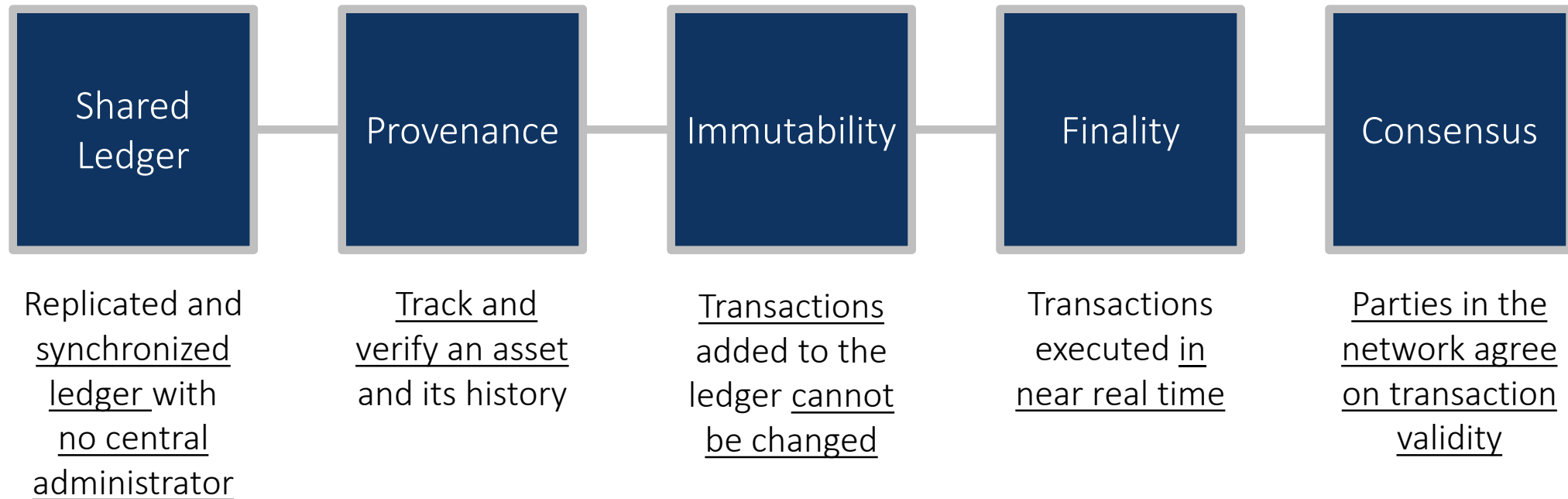
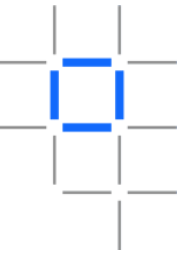
- The industry is seeing less noise and more signal in terms of the blockchain applications with the most potential
- 82% of CEOs consider blockchain useful for their business, while 57% of mid-sized corporations are now considering deploying blockchain solutions.
- How organizations should be managing, operating and governing blockchain networks cannot be solved through experimentation or pilots.
- This will require integrating blockchain into real business processes

Interest vs Practical solution growth



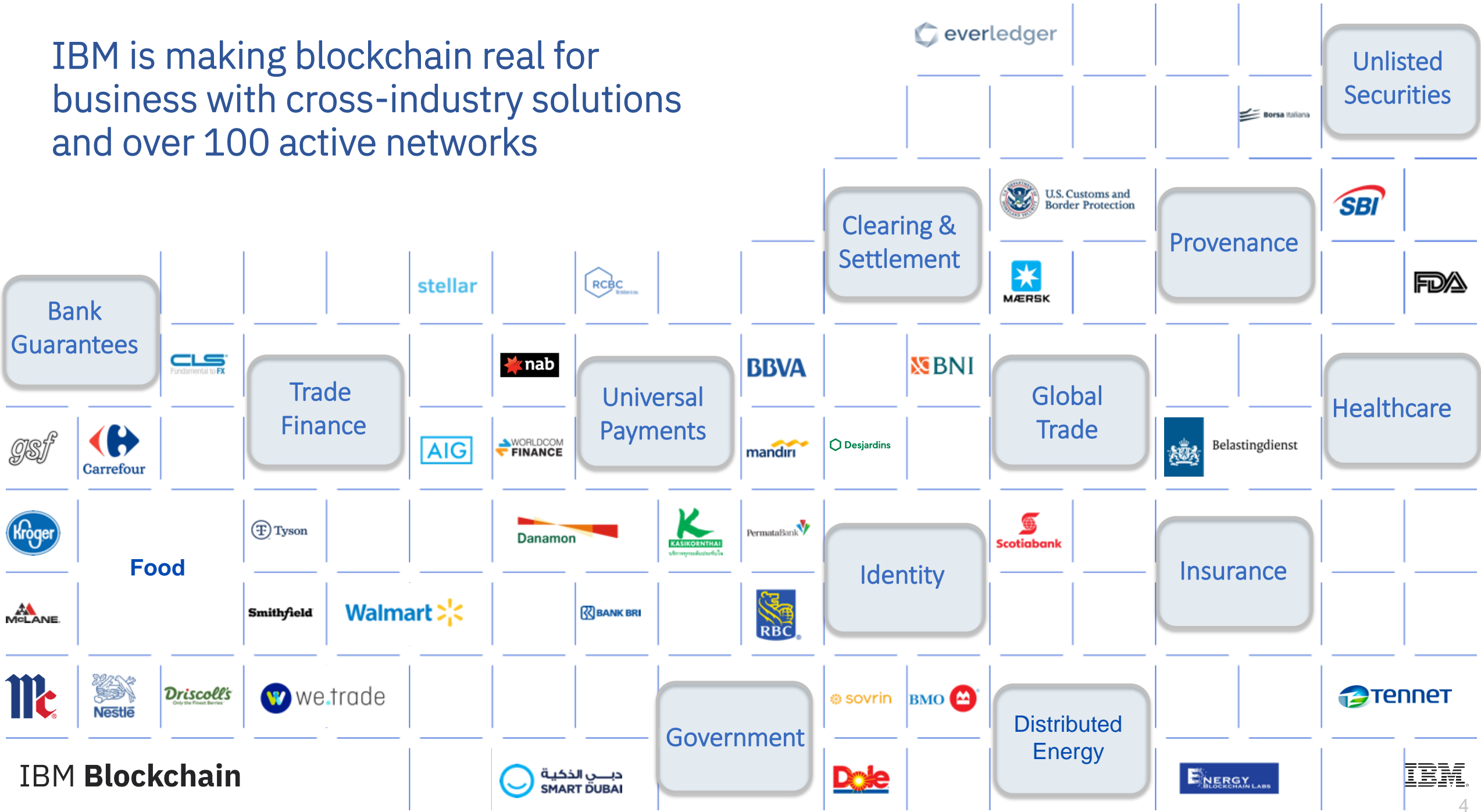


# Blockchain solves problems that traditional databases can't typically address



IBM provides the technology and services to help clients build blockchain solutions.

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





# Financial services

Bring trust, simplicity and enhanced customer experience to financial services.

Industries



## Industry challenge

## How we solve it

Inefficient clearing and settlement bottlenecks

Real-time, point-to-point transactions reducing settlement times from days to minutes

Sophisticated and repetitive identity validation processes

Consolidated and secure identification

Lengthy, paper-based manual processes for companies not publicly traded

Digitized issuance of non-public securities

1. IBM Blockchain World Wire  
Global transactions don't have to take six steps and 14 business days. IBM Blockchain World Wire simplifies clearing and settlement to streamline cross-border payments

2. Digital currency was just the first application of blockchain, but a range of other exciting use cases are about to go mainstream.

3. *Blockchain networks can record and manage any transferable digital asset – whether a share of stock, a streamed song, your healthcare records or an international cargo shipment.*





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Industries



| Projects   | Descriptions  |
|------------|---|
| World Wire | <p>Optimizes and accelerates foreign exchange, cross-border payments and remittances.</p> <p>The first blockchain network of its kind to integrate payment messaging, clearing and settlement on a single unified network, while allowing participants to dynamically choose from a variety of digital assets for settlement</p>  |
| GMEX       | <p>Partnered with IBM blockchain to enable near real time settlement of traditional and digital assets, cryptocurrencies, security tokens, and more.</p> <p>The solution is already used by multiple exchanges and custodians, including DAG Global, which now uses the technology to settle Bitcoin and Ethereum trades between the two leading cryptocurrency exchanges, Coinbase and Kraken.</p> |
| Lygon      | <p>ANZ, Commonwealth Bank, Scentre Group and Westpac teamed up with IBM to create a blockchain-based solution developed to simplify bank guarantees for commercial real estate</p>  |



# Government

Ensure data stewardship to protect citizen information, maintain trust and ensure the accuracy of public records.

Industries



## Industry challenge

## How we solve it

Limited supply chain visibility leading to material waste

A traceable permanent record

Error-prone and inefficient manual data entry

Fully digital shared ledger technology with automated workflows

Risk of fraud and compliance failures

Cryptographically secure data

Projects in this area are aimed at creating a state digital infrastructure based on blockchain.

Digital identification platforms are necessary to ensure paperless, legally significant online interaction of individuals and legal entities with the state, as well as for the implementation of commercial agreements between any participants





# Government

Ensure data stewardship to protect citizen information, maintain trust and ensure the accuracy of public records.

Industries



| Projects                      | Descriptions   |
|-------------------------------|--|
| Digital Identification System | <p>The platform developed under the guidance of the Central Bank of Azerbaijan and provides digital passports and documents via Web and mobile applications : Individuals, Legal Entities</p> <ul style="list-style-type: none"><li>○ Storage of legally significant identification documents</li><li>○ Storage of legally significant contracts and other notarial documents</li><li>○ Online Video identification</li></ul>  |
| Trust Your Supplier (TYS)     | <p>Digital identity blockchain designed to improve supplier onboarding, validation and life cycle information management.<br/><u>Built in partnership with Chainyard, founding partners include Anheuser-Busch InBev, Cisco, GlaxoSmithKline, Lenovo, Nokia and others.</u></p> <ul style="list-style-type: none"><li>○ Creates a “digital passport” for supplier identity that can be seamlessly shared with any permissioned buyer on the network.</li><li>○ At IBM, 70-80% reduction in cycle time to onboard new suppliers; 50 percent reduction in administrative costs.</li><li>○ IBM already onboarded 4,000 NA suppliers</li></ul> |
| Secure Key                    | <ul style="list-style-type: none"><li>○ Digital identity and attribute sharing network based on IBM Blockchain that makes it easier for consumers to instantly verify their identity for services such as new bank accounts, driver’s licenses or utilities.</li><li>○ The network is currently in use throughout Canada.</li></ul>  |





# Insurance

Revolutionize the trust that powers the insurance industry with an immutable foundation of transparency and shared purpose.

Industries 

## Industry challenge

## How we solve it

Information asymmetry risks errors and claim resolution delays

“Smart contracts” with consolidated view of policy data

Manual multi-step, multi-company claim reviews are slow and expensive

Companies collaboratively assembling single record trail

Multiple reinsurers working together on major claim events need shared visibility

Transparency across the reinsurance value chain ensures contract certainty

Insurance events require accurate facts, a strict time sequence of events, and the legal significance of the submitted documents. A flexible workflow should be used, and rules should be followed by everyone. Trust in data is the essence of blockchain



# Insurance

Revolutionize the trust that powers the insurance industry with an immutable foundation of transparency and shared purpose.

Industries 

| Projects                      | Descriptions   |
|-------------------------------|--|
| Marsh                         | <ul style="list-style-type: none"><li>○ Working with IBM to transform commercial proof of insurance.</li><li>○ By using blockchain technology, Marsh is transforming the certificate of insurance process by automating the proof of insurance process and creating efficiencies</li></ul> |
| Insurance certificates issues | Legally significant Insurance certificates are an integral part of logistics documents in such global blockchain projects as Tradelens and FoodTrust   |





# Transportation, Supply Chain

Speed transactions, reduce fraud and streamline operations to move passengers, personnel and parcels more efficiently.

Industries 

## Industry challenge

## How we solve it

Logistical  
bottlenecks for  
identification

A single  
identification token  
streamlines travel

Vetting personnel for  
security and  
certification

Management mechanism  
for certification and  
licensure

Risk of counterfeit  
or defective parts

A trustworthy  
environment thanks to  
immutable records

600 ports

& terminals  
contributing data or  
directly integrated with  
TradeLens

By enabling permissioned access to a shared, distributed ledger, blockchain can enable competitors to work together toward mutual goals without compromising proprietary data.

Features like immutability, transparency and digitization of analog processes leads to greater economic efficiency, less administration and friction, and more trust and speed.



# Transportation, Supply Chain

Speed transactions, reduce fraud and streamline operations to move passengers, personnel and parcels more efficiently.

Industries 

| Projects  | Descriptions  |
|---|---|
| <b>TradeLens</b><br><br>Coverage across 6 continents<br><br>80 ports and terminals directly integrated into TradeLens | <ul style="list-style-type: none"><li>○ The platform helps mediate <u>more than half of the world's ocean container cargo</u>, providing real-time access to shipping data and documents.</li><li>○ Enables trusted, end-to-end tracking of oceanic cargo in near real-time.</li><li>○ Processes millions of shipment events and documents across six continents.</li><li>○ <u>500 million</u> discrete shipping <u>events per year</u>, which involves processing some <u>5 million documents</u> and more than 20 million containers every year</li><li>○ The network comprises more than <u>170 participants</u>, including shippers, freight forwarders and terminal operators.</li></ul> |
| <b>IBM Food Trust</b>   | <ul style="list-style-type: none"><li>○ Food Trust enables near real-time tracking along the distribution chain, vastly reducing or even eliminating food borne.</li><li>○ The network has more than 300 participants, from major players such as <u>Walmart</u>, <u>Dole</u>, <u>Nestle</u>, <u>Driscoll's</u>, <u>Kroger</u>, <u>Tyson Foods</u>, to the local farms they source from</li></ul>   |





# DIGITAL IDENTIFICATION - IS THE BACKBONE OF DIGITAL INFRASTRUCTURE

## Financial services

Bring trust, simplicity and enhanced customer experience to financial services.

## Government

Ensure data stewardship to protect citizen information, maintain trust and ensure the accuracy of public records.

## Transportation

Speed transactions, reduce fraud and streamline operations to move cargo more efficiently.

## Insurance ....

Revolutionize the trust that powers the insurance industry with an immutable foundation of transparency

## BASIC SERVICES OF THE DIGITAL IDENTIFICATION SYSTEM

Digital Identity documents,  
credentials

Enhanced digital  
signatures

State confirming  
bodies –  
E-Gov Digital  
Services

Multilevel  
Security Services

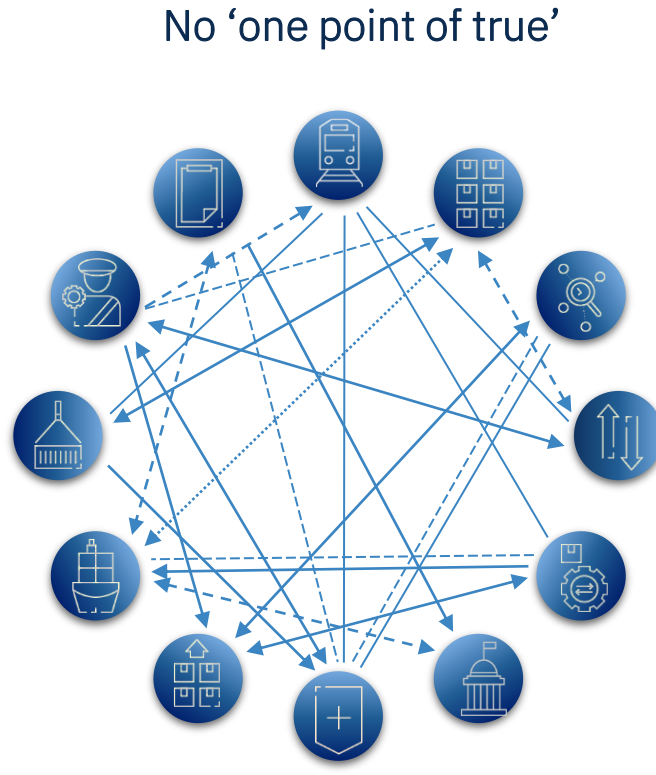
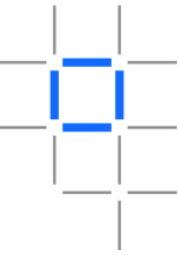
Video identification

Digital contracts

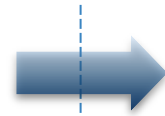
Legally significant  
workflow of any digital  
documents

API Platform

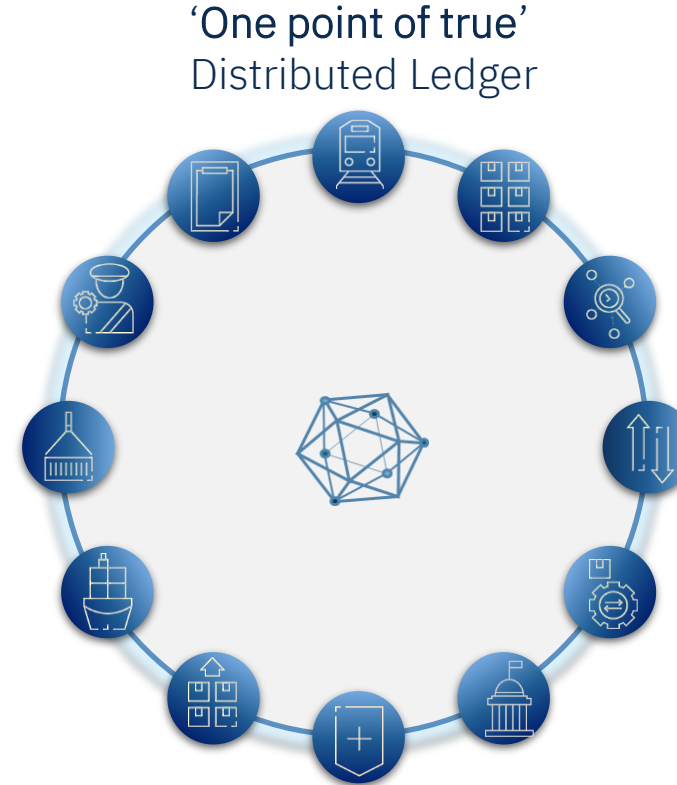
**Digital Identification Platform** – provides legally relevant, paperless interaction for all participants according to the same rules for any workflow



Each participant has its own system, its own Ledger, its own interpretation of events and documents



**Digital  
Identification  
Platform**



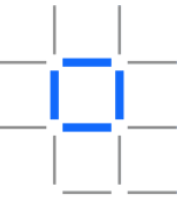
The Distributed Ledger stores:

- **Legally significant events**
- **Legally significant documents** that confirm such events

- The platform provides:
- **Unified interaction rules** – one state machine program code, for all nodes, a blockchain that applies to all transactions.
  - **Consensus** mechanism for obtaining permission to record events and related documents



# The blockchain platform for providing identification and banking services in the Republic of Azerbaijan was developed by IBM under the guidance of the Central Bank



The platform provides online banking services via Web and mobile applications:

Individuals,  
Legal Entities

- Storage of legally significant identification documents
- Storage of legally significant contracts and other notarial documents
- Online Video identification

The platform provides:

- Opening accounts for residents,
- Provision of various Deposit products from 11 banks of the Republic

The platform is expanding its capabilities in credit products,

- Support full life cycles services for Bank Guarantees and Letters of Credit

Banks are guarantors of protecting your investments and savings, but now ..., it is not necessary to come to the bank,

Banks themselves come to you using the Blockchain



## The code base of the Platform: Hyperledger Fabric

The Blockchain Platform customers take advantage of [Hyperledger Fabric](#), an industry-leading, open-source blockchain solution and software environment from the Linux Foundation.



**HYPERLEDGER**



Hyperledger Fabric uses a modular architecture to deliver enterprise-ready network security, scalability, confidentiality and performance, making it versatile for enterprises with complex development needs and satisfying a broad range of industry use cases.

The IBM Blockchain Platform's open technology is 100% compatible with Hyperledger Fabric artifacts, preventing vendor lock-in.



IBM  
Blockchain  
Platform