



# Digital Trade Facilitation: The Role of Emerging Technologies

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# Trade supply chains have 3 core modern era challenges



**Data Visibility**



**Process Optimization**



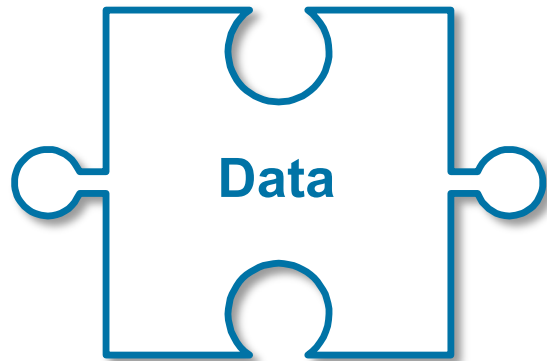
**Demand Management**

... and despite progress in all three areas, end-to-end inefficiencies remain

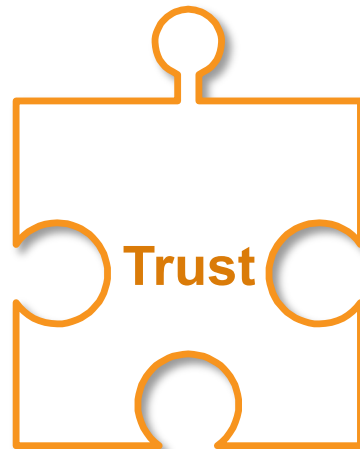
- Administrative costs are twice the cost of physically shipping the container
- Fraud in global trade is \$600B
- Worldwide cargo losses exceeds \$55B
- Non-tariff trade barriers suppress global trade by ~15% (WEF)

# Blockchain creates the TRUST necessary to address these

We can connect the ever-increasing sets of data...



- 80% of worldwide data is sitting in silos
- 90% of data in the world today has been created in the last two years
- Less than 0.5% of all data is ever analyzed



**BLOCKCHAIN**

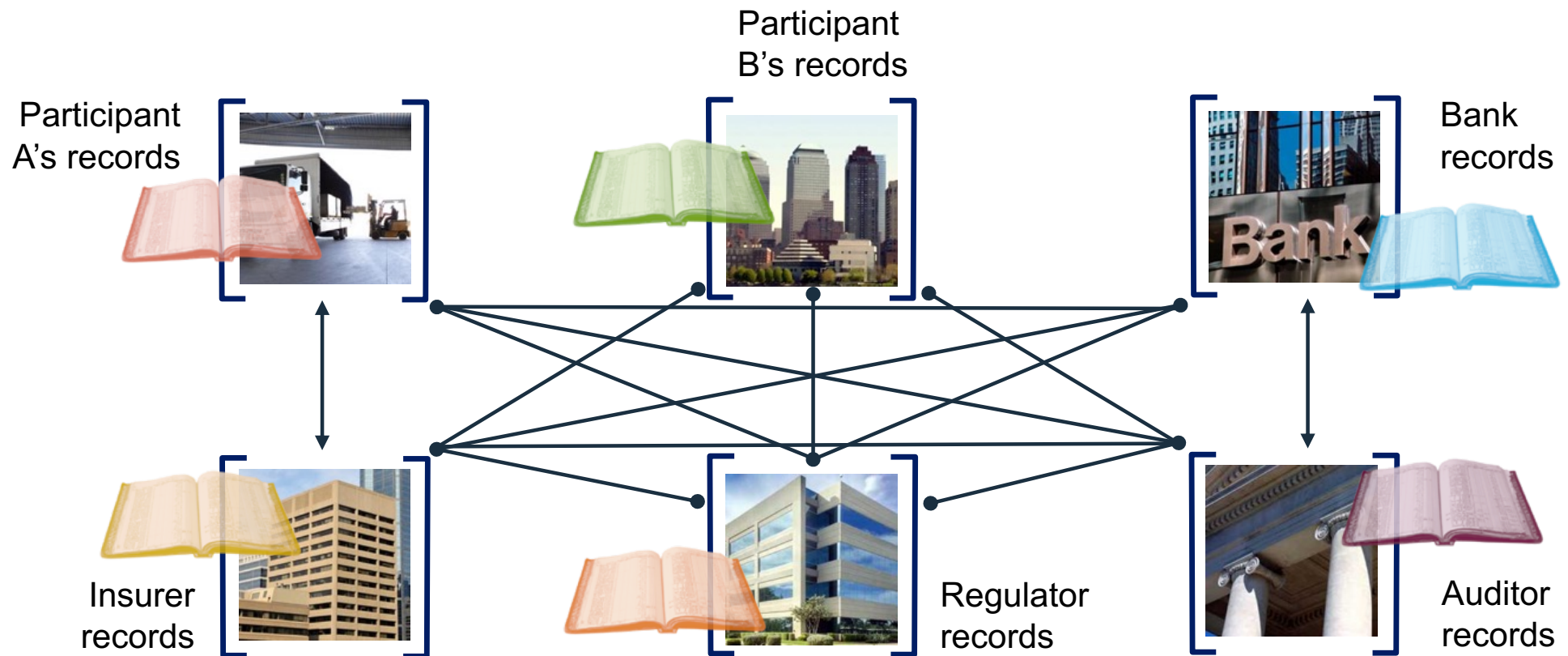
...with the ever-more-powerful analytics



- \$130B+ is spent on big data and business analytics globally
- 73% of global CEOs report cognitive computing will play important role in the future of their organizations



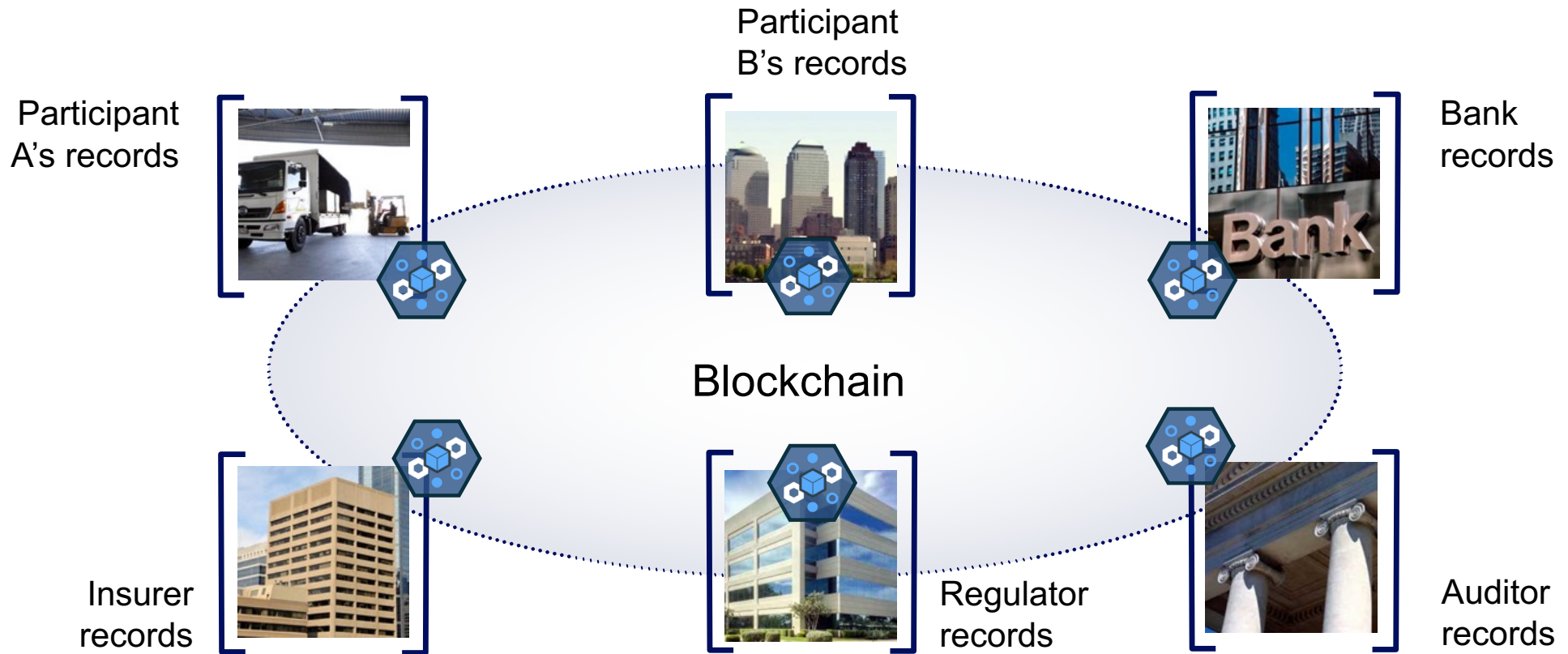
## Problem...



... inefficient, expensive, vulnerable



## Solution: a shared, replicated, permissioned ledger ...



... with consensus, provenance, immutability and finality

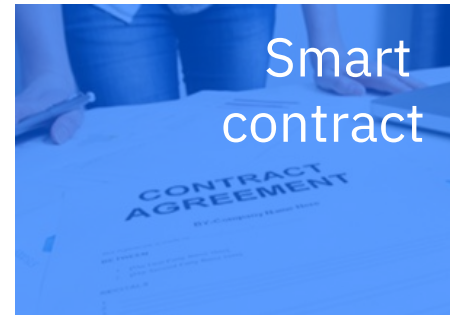
# Blockchain for Business...

Append-only distributed system of record shared across business network

Shared ledger



Smart contract



Shipping documentation is embedded in transaction database and executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated and verifiable

Privacy



Consensus

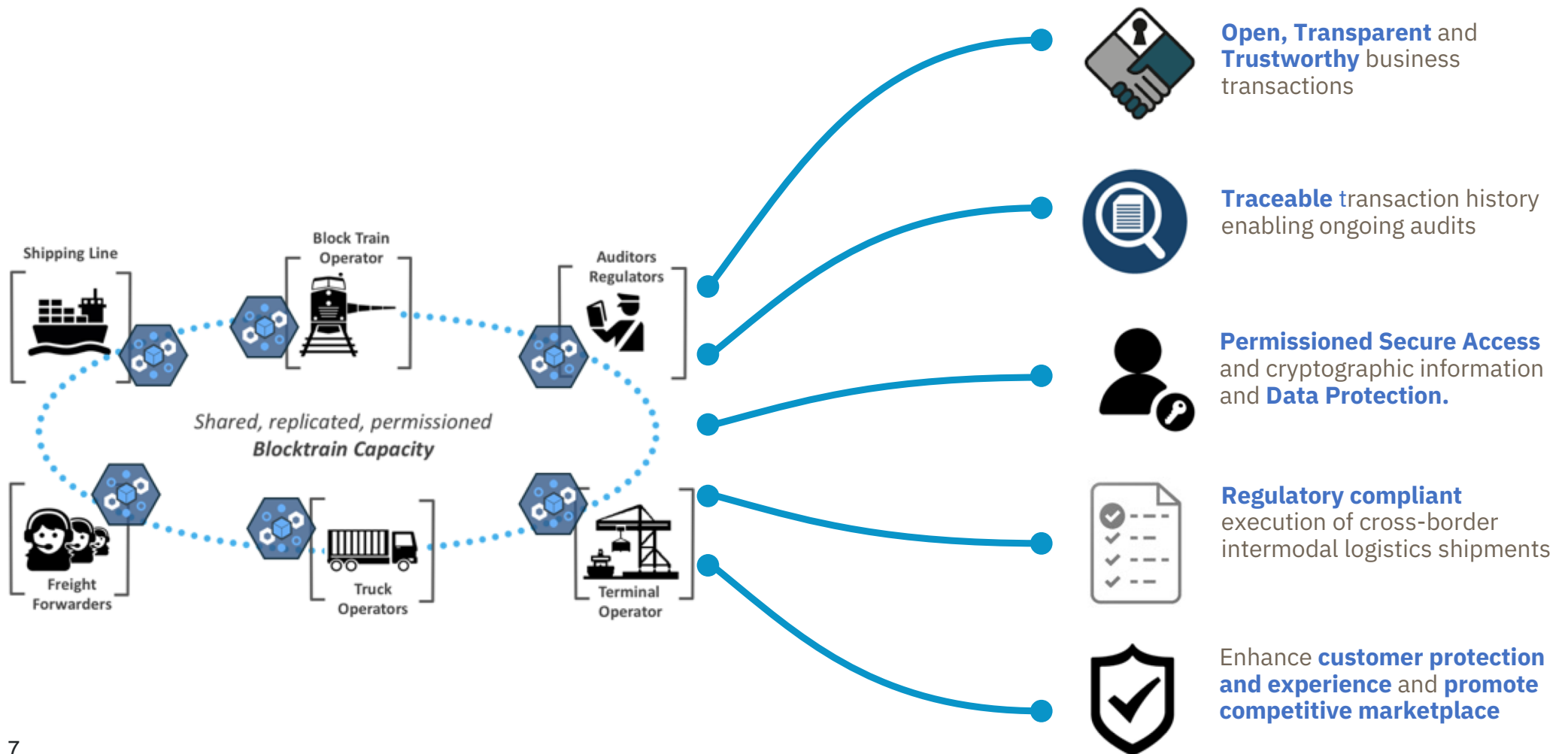


Transactions are endorsed by relevant participants

... Broader participation, lower cost, increased efficiency

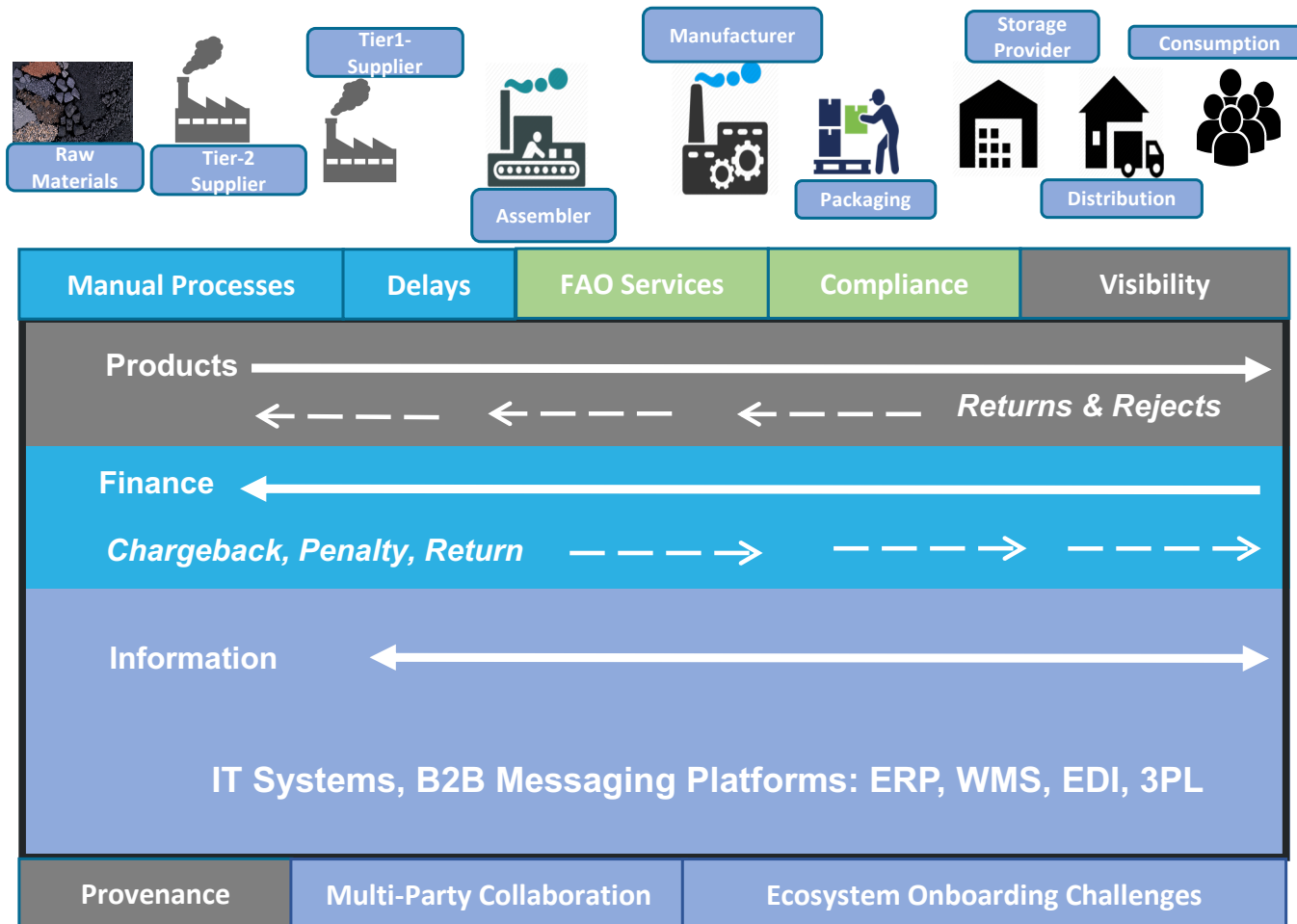
# TRUST in Trade and Supply Chains:

## Shared Ledger, Smart Contracts, Privacy, Consensus



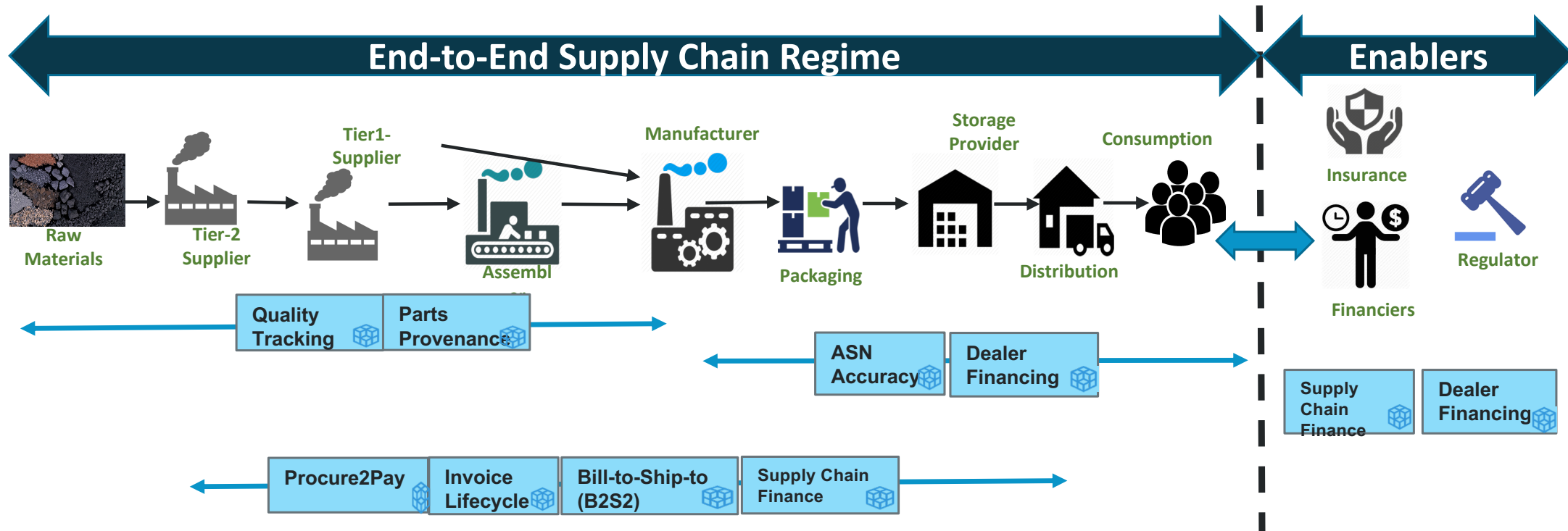


# Blockchain Supply Chains



- Movement of Goods, Finances, Info disconnected
- Within each flow, sequential visibility of events.
- Disconnected flows and sequential visibility leads to:
  - Delays, Confusion, and Ad-hoc Reconciliation
  - Challenges in Financial Management
  - Challenges in Provenance of Physical Goods and Manufacturing
  - Challenges in seamless ecosystem collaboration from IT perspective

# Blockchain-based Supply Chain Apps



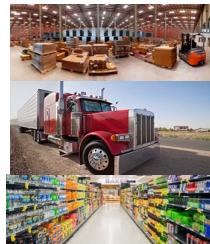
# Industry Supply Chain Use Cases

## Supply Chain Workflow



Blockchain solution to manage and track the paper trail of tens of millions of shipping containers across the world by digitizing the supply chain process

## Supply Chain Visibility



Blockchain technology provides visibility to all the participants involved in moving goods by tracking the purchase order and shipment status

## Supply Chain Accountability



Blockchain holds the history of many items through entire supply chain providing traceability of raw materials

## Manufacturing Provenance



Blockchain holds complete provenance details of each component part, accessible by each manufacturer in the production process

## Supply Chain Financing



Blockchain solution creates a consolidated and detailed view of transactions visible to all parties resulting in a reduction in # disputes, dispute cycle time, and improvement in use of working capital

## Regulatory and Insurance



Blockchain captures information about shipments, risk and liability, and helps firms comply with insurance regulations



# Key players for blockchain adoption



## Market Maker

- More generally, the organization who **innovates**
- Creates a **new business process or model**



## Industry Group

- **Seed and fund the business network** and set the **industry standards**
- Drive **industry adoption** and scale the network



## Regulator

- Define/adopt **standards**
- **Mandate adoption**

# Blockchain and Trade Facilitation

Characteristics that support trade facilitation measures

- Simplified (re-imagined) business processes
- Workflows across organizations (and countries)
- Secure by nature, Resilient by design
- Ecosystem level data and analytics

However barriers remain that will take time

- Interoperability and scalability of early stage technology
- Regulatory and legal acceptance

# IBM and Maersk are bringing Global Trade Digitization to market to *reduce global trade barriers and increase efficiency in international trade*

GTD is a trade platform for containerized shipping connecting the entire supply chain ecosystem

1

## Shipping Information Pipeline (SIP)

- Provides end-to-end supply chain visibility
- Enables all involved in a global shipping transaction to securely and seamlessly exchange shipment events in real time

2

## Paperless Trade

- Digitizes and automates paperwork filings
- Enabling end users to securely submit, stamp and approve documents across national and organizational boundaries



*GTD is built on an open technology stack and is underpinned by Blockchain technology*



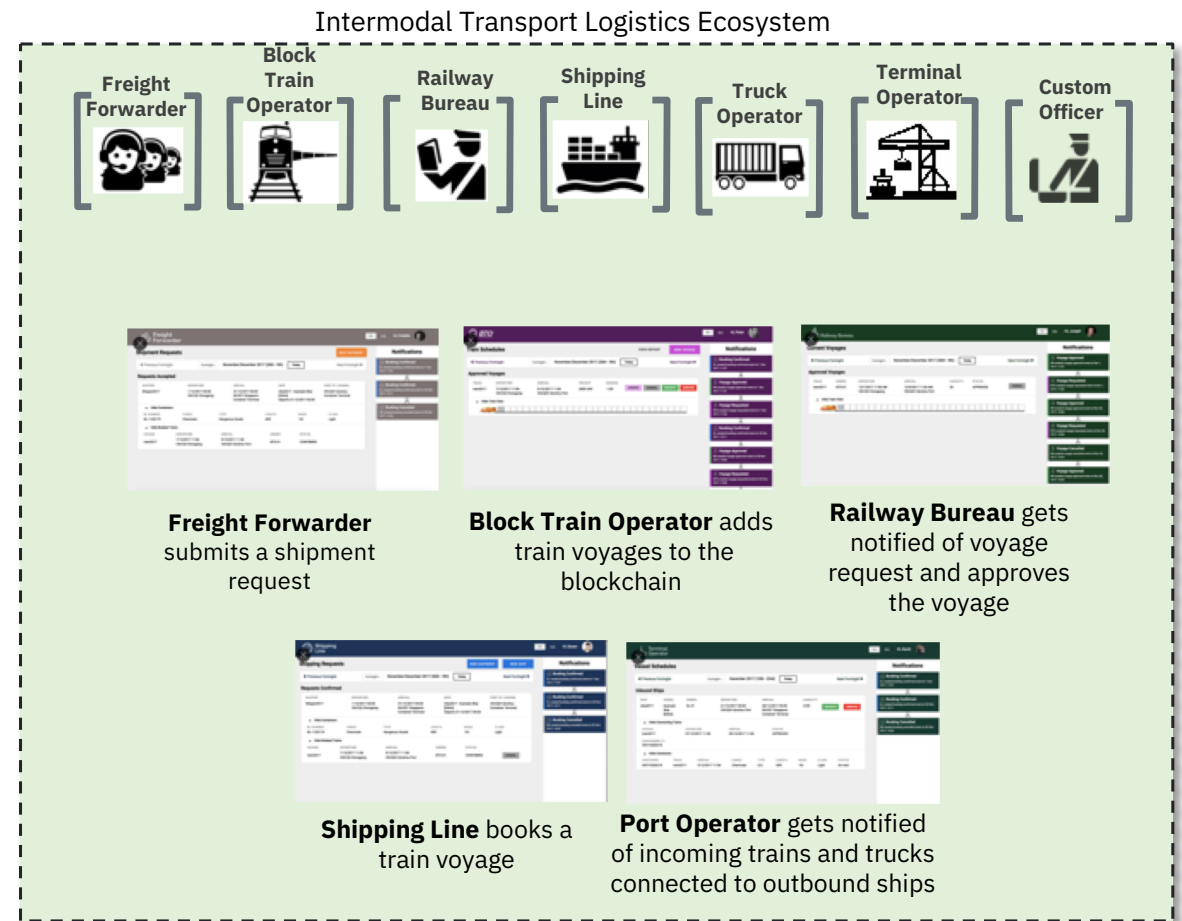
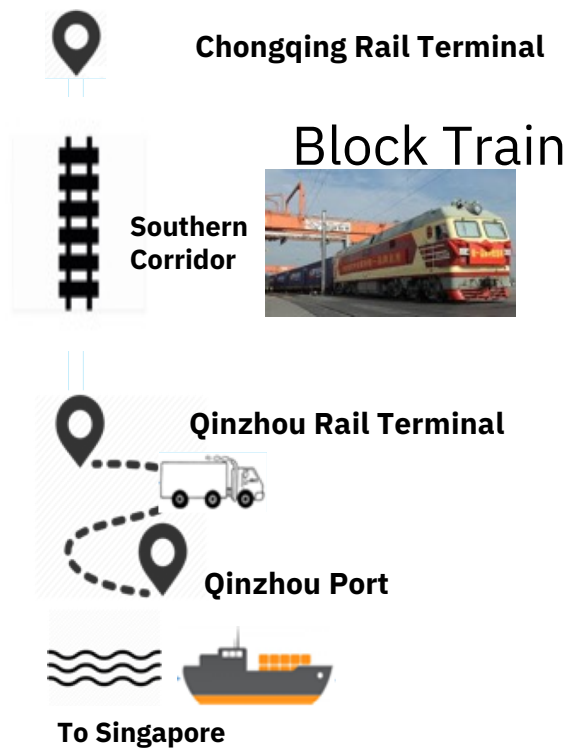
# GTD is an industry platform that connects and benefits the ecosystem

Product offering and a global network interconnected with all supply chain participants....

<b>Ports and Terminals</b>	<b>Provide</b> information about the disposition of shipments within the boundaries of the port / terminal <b>Benefit from</b> pre-built connections to shipping lines and other actors, end-to-end visibility across shipping corridors, and real-time access to more information to enrich port collaboration and improve terminal planning
<b>Shipping Lines</b>	<b>Provide</b> information about the disposition of shipments across the ocean leg <b>Benefit from</b> pre-built connections to customers and ports / terminals around the world and real-time access to end-to-end supply chain events
<b>Customs Authorities</b>	<b>Provide</b> information about the export and import clearance status for shipments into and out of the country <b>Benefit from</b> more informed risk assessments, better information sharing, less manual paperwork, and easier connections to national single window platforms
<b>Freight Forwarders / 3PL</b>	<b>Provide</b> the transportation plan, inland transportation events, information on intermodal handoffs, and document filings <b>Benefit from</b> pre-built connections to the ecosystem, improved tools for customs clearance brokerage function, and real-time access to the end-to-end supply chain data to improve effectiveness of track-and-trace tools
<b>Intermodal Transport</b>	<b>Provide</b> information on the disposition of shipments carried on trucks, rail, barges, etc. <b>Benefit from</b> improved planning and utilization of assets (e.g., less queuing) given real-time access to end-to-end supply chain events for shipments
<b>Shippers</b>	<b>Engage</b> with GTD as a customer and user of SIP and Paperless Trade <b>Benefit from</b> a streamlined and improved supply chain allowing for greater predictability, early notification of issues, full transparency to validate fees and surcharges, and less safety stock inventory

# Intermodal logistics - example with PSA, PIL

End-to-end journey of containers from Chongqing to Singapore using Intermodal: Truck, Rail, Ship



# Thank You

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