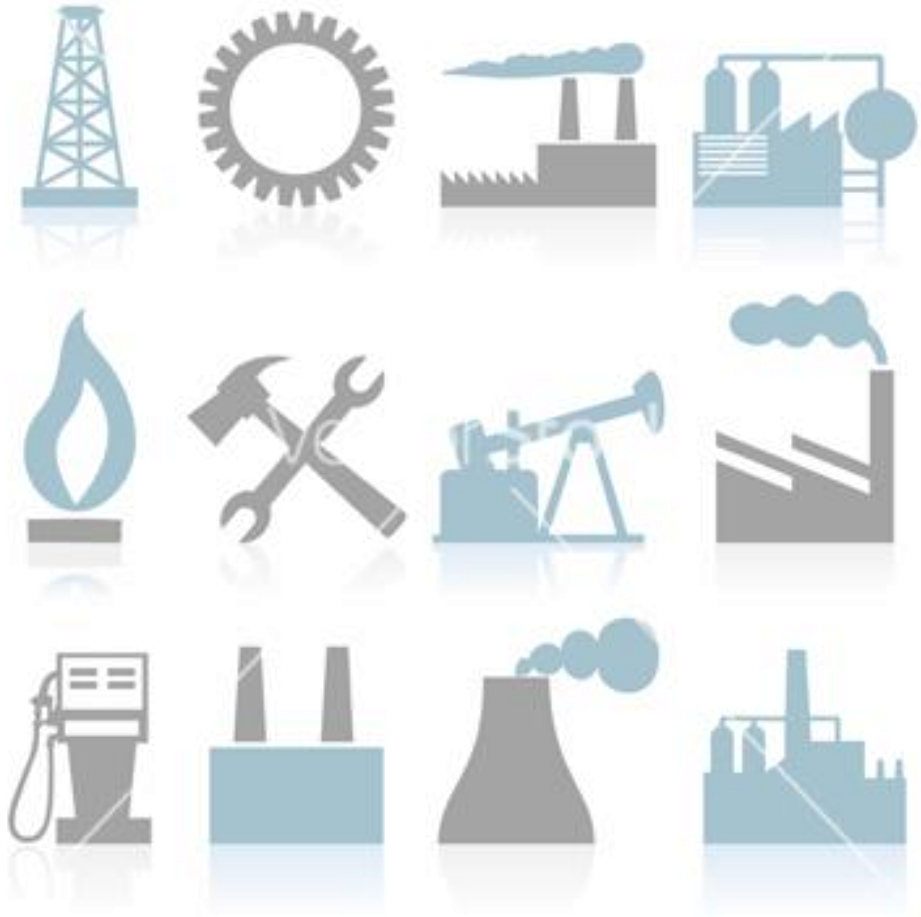
IBM India Pvt. Ltd. – Industrial

July 2019

Blockchain to transform Industrial applications



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Agenda

Blockchain explained

Blockchain Industrial Application

Blockchain use cases

"…blockchain promises more than just data processing advances— it promises to transform how we do business.."

IBM September 2016

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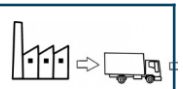
Blockchain represents a significant investment and future opportunity across diverse industries

Supply Chain Financing



- **7-15 days** for documentation processing
- Reduced working capital - **60-90 credit days**, **25% late payments**

- **1 day documentation processing**
- **1-2 days payment release**
- **Reduced fraud**

Source: IBM Research Lab, Manufacturing Conglomerate

Trade Logistics

- **$2tn** trade on physical documents
- **Full payment** of collateral
- **Fraud** and **counterfeiting**

- **Reduced cost & secure tracking**
- **Improved transparency + visibility => fewer errors**
- **Lower transaction cost**

Source: IBM, Global Banks, Global Logistics player

Clearing & Settlements

- **10%** of trades are errors
- **2-5 days** for settlement and reconciliation
- **8-10%** Operational risk capital

- **$11 – 12bn annual cost savings**
- **16% cost reduction in US equities market**
- **$50bn of capital savings**

Source: Goldman Sachs Global Investment Research

Monitor Sports Performance

- Sports performance data **under utilization**
- **Credible** results
- Compensation **alignment** with health & performance

- **Improved reference for coaches to train athletes**
- **Immutable and credible competition results**

Source: Microsoft, Taiwan Triathlon Co. Ltd., Industrial Technology Research Institute of Taiwan (ITRI)

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Blockchain is a shared ledger technology allowing any participant in the business network to see THE system of record (ledger)

Key Attributes of a Blockchain business network

Shared Ledger: Append-only distributed system of record shared across business network

Smart Contract: Business terms embedded in transaction database & executed with transactions

Privacy: Ensuring appropriate visibility; transactions are secure, authenticated & verifiable

Consensus: All parties agree to network verified transaction

along with … **increased transparency, lower cost** and **increased efficiency**

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Blockchain enables and enhances the fundamentals that are required for business growth and productivity

Saves time

Transaction time from days to near instantaneous

Removes cost

Overheads and cost intermediaries

Reduces risk

Tampering, fraud & cyber crime

Increases trust

Through shared processes and recordkeeping

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Blockchain – Industrial Application

Blockchain can be applicable across various stages of the Industrial lifecycle

Manufacturing
(E.g. Oil and Gas)

Use Case Details
- To improve production parameters real-time
- Validation of exchange across multiple production steps
- Untampered permanent record of failure

Partners: Global Oil and Energy Giant, IBM

Blockchain Benefits :
Provenance, Auditability, Transparency

Logistics Data

Trade Logistics
(E.g. Shipping, Insurance, Quality Assurance)

Use Case Details
- E2E visibility for all to reduce time, cost,& risk
- Improved automation and optimization of processes across multiple parties
- Security, access-control, auditability for data

Partners: IBM, Shipping Corporation, Insurance

Blockchain Benefits :
Smart Contracts, Permission, Finality

BLOCKCHAIN

- ✓ ***One version of Truth,***
- ✓ ***Shared & Replicated,***
- ✓ ***Trusted & Permissioned***

Marketplace
(E.g. Product usage, Customer Info)

Use Case Details
- Provides immutable ledger for diamond ownership
- Related transaction history verification
- Trusted marketplace information

Partners: Everledger

Blockchain Benefits :
Ownership, Immutability, Validation, High Value Benefit,

Financing
(E.g. . LC, Trade Finance, Factoring)

Use Case Details
- Enhanced trust through smart contracts
- New business model for trade finance
- Security, access-control, auditability for data and events

Partners: IBM, BaML, MAS, HSBC

Blockchain Benefits :
Smart Contracts, Permission, Finality

B2b, B2c, Others Data

Video 1

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VIDEO 1

SC DAIMOND

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Blockchain – Applicable Use Cases

Industrial Use Case 1 – Setting of production parameters

Partners: *Global Oil and Energy Firm, IBM*

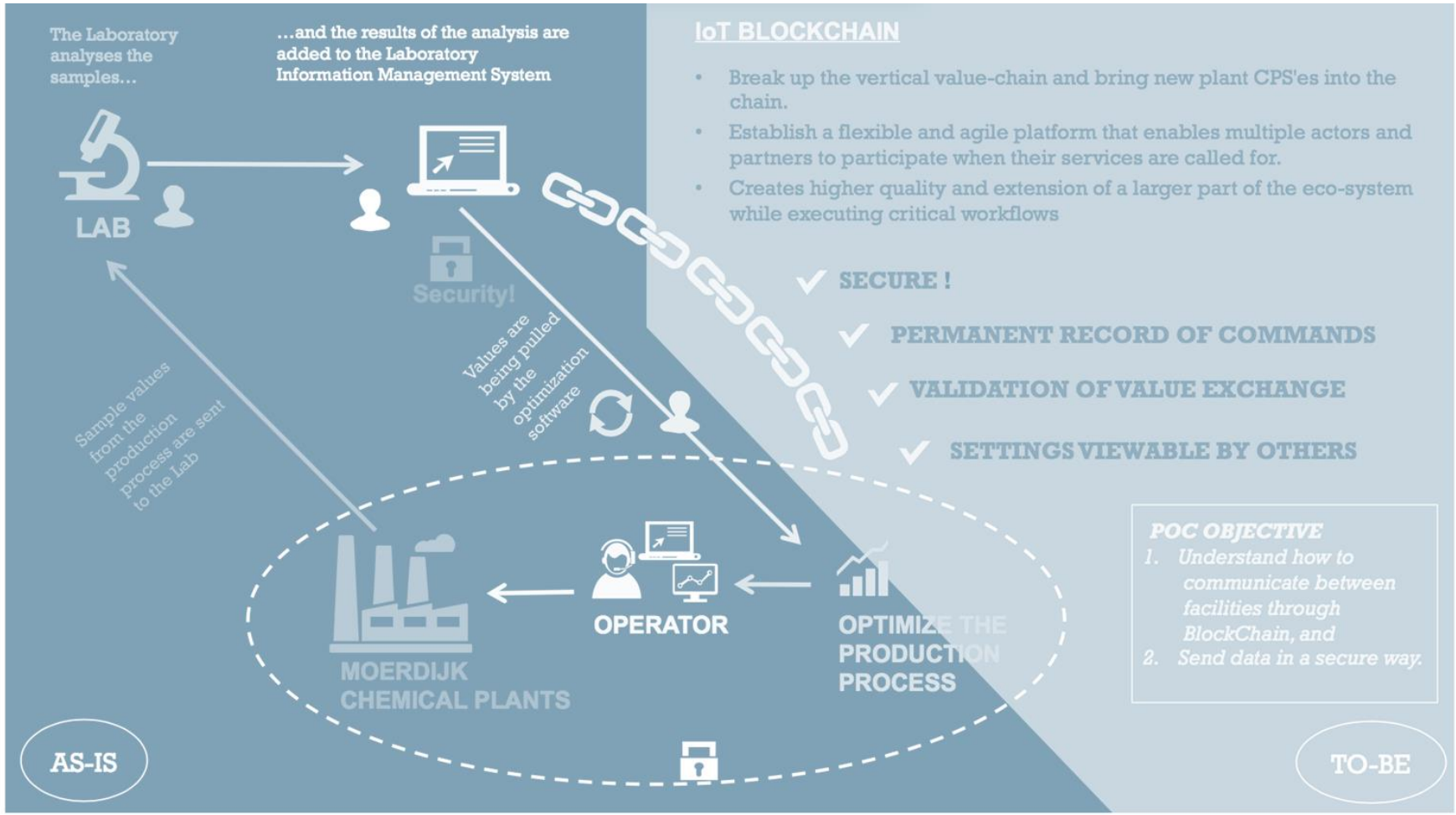
Problem Statements

- **Data communication** from **business to process** domain is restricted.
- With current **communication** protocols there is a chance that **information** can be **intercepted and changed.**
- **Advanced and predictive analytics** tools, located in the business domain, have the capability to improve **production parameters real-time.**

Target State

- An **end-to-end full secure, un-tampered, and proven technology** to achieve this.

- There is **known business value** to exchange **business information to the process domain**.



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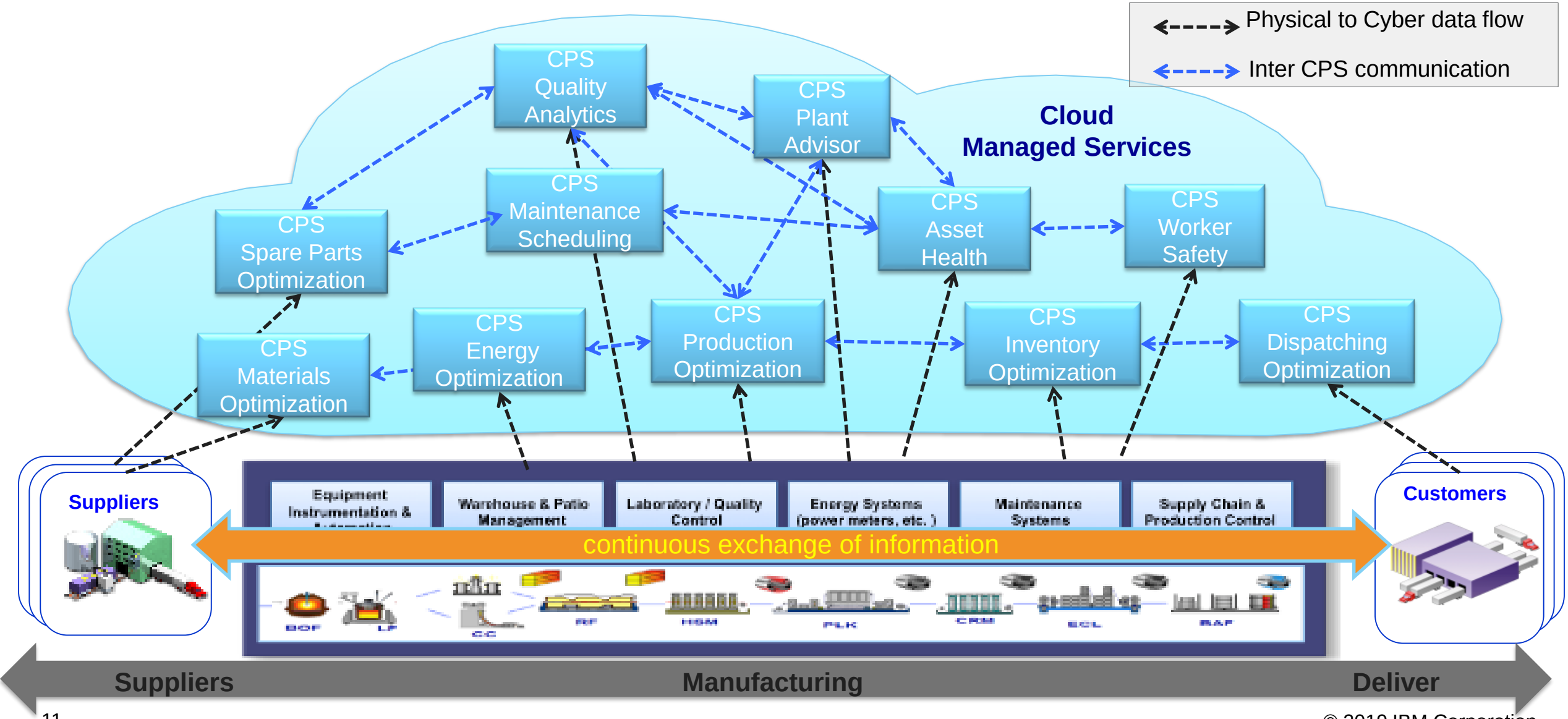
Vision: Cyber Physical Systems (CPS) to drive the 4th Industrial Revolution for the steel industry



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Industrial Use Case 2 – Trade logistics for industrial players

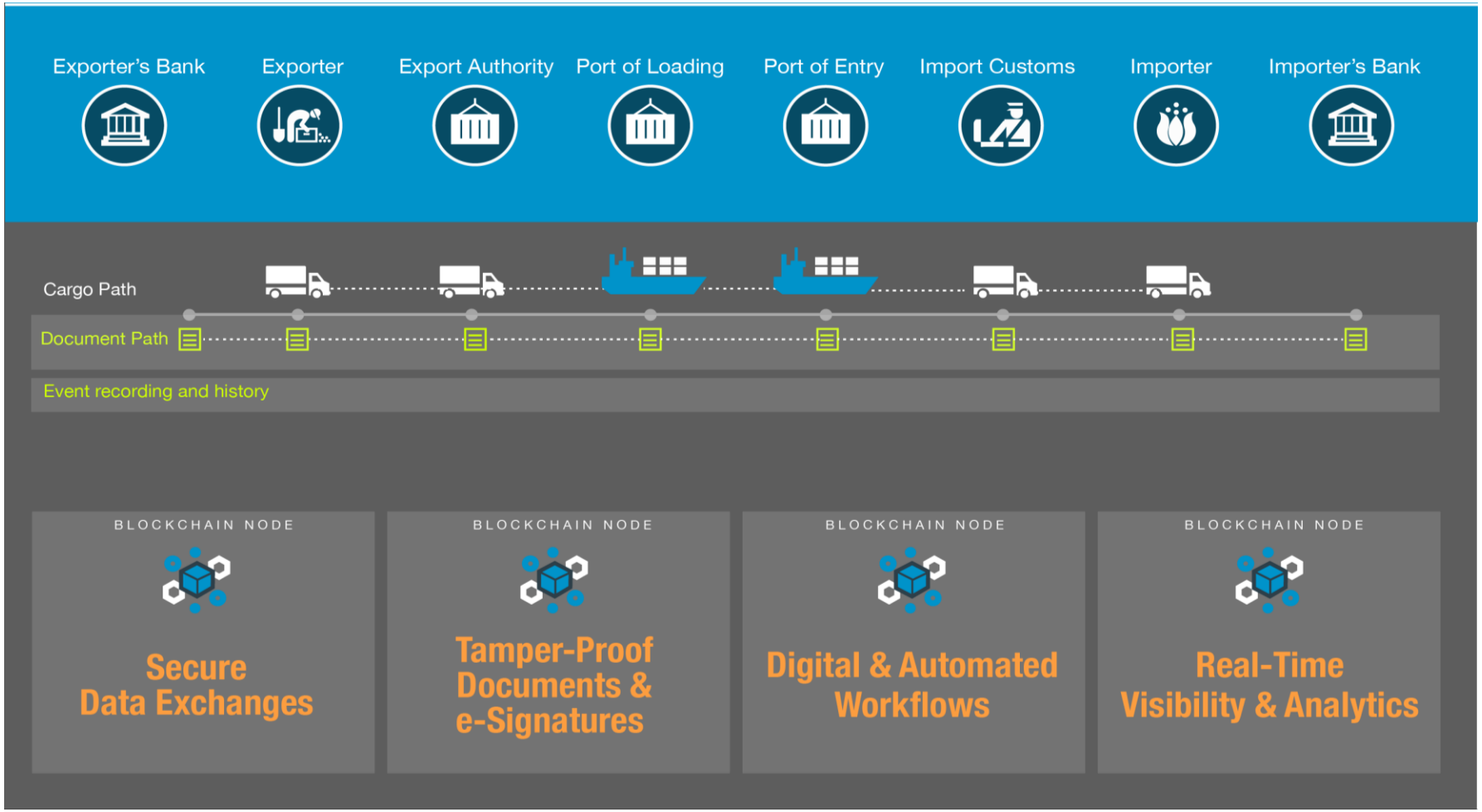
Partners: *IBM, Global Banks, Shipping Player, Port Authority*

Problem Statements

- Involvement of multiple parties with varying degree of information exchange
- Lack of tracking capability for responsibility
- Varied manual processes resulting in high operations costs

Target State:

- End-to-end visibility for all parties to reduce delays, cost, and risk
- Improved automation and optimization of processes across multiple parties, potentially leading to new business models
- Security, access-control, auditability for data, events and processes



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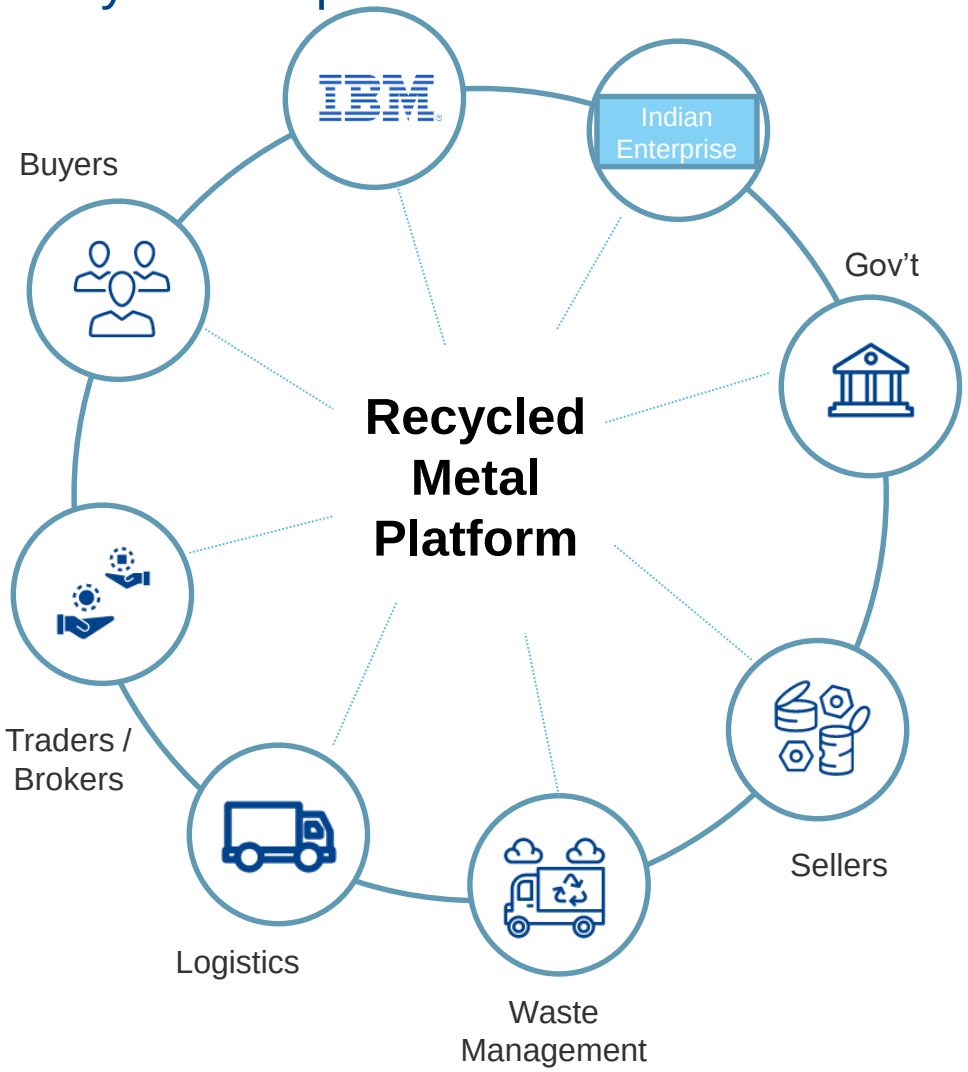
The Recycled Metal Platform enables a circular economy, creating an ecosystem of partners

Recycled Metal Platform



Problem

- Significant amount of metals **goes into landfills**
- **Scrap metal market is fragmented**, but valued at $250B globally
- **Lack of trust between buyers and sellers** regarding quality of scrap products

Potential solution

- Digitally-enabled **marketplace platform** connecting buyers with sellers of recycled materials and scrap
- An **ecosystem of partners** to enable tracking and recycling
- Improved **transparency and trust** from recording provenance

Source: IBM analysis

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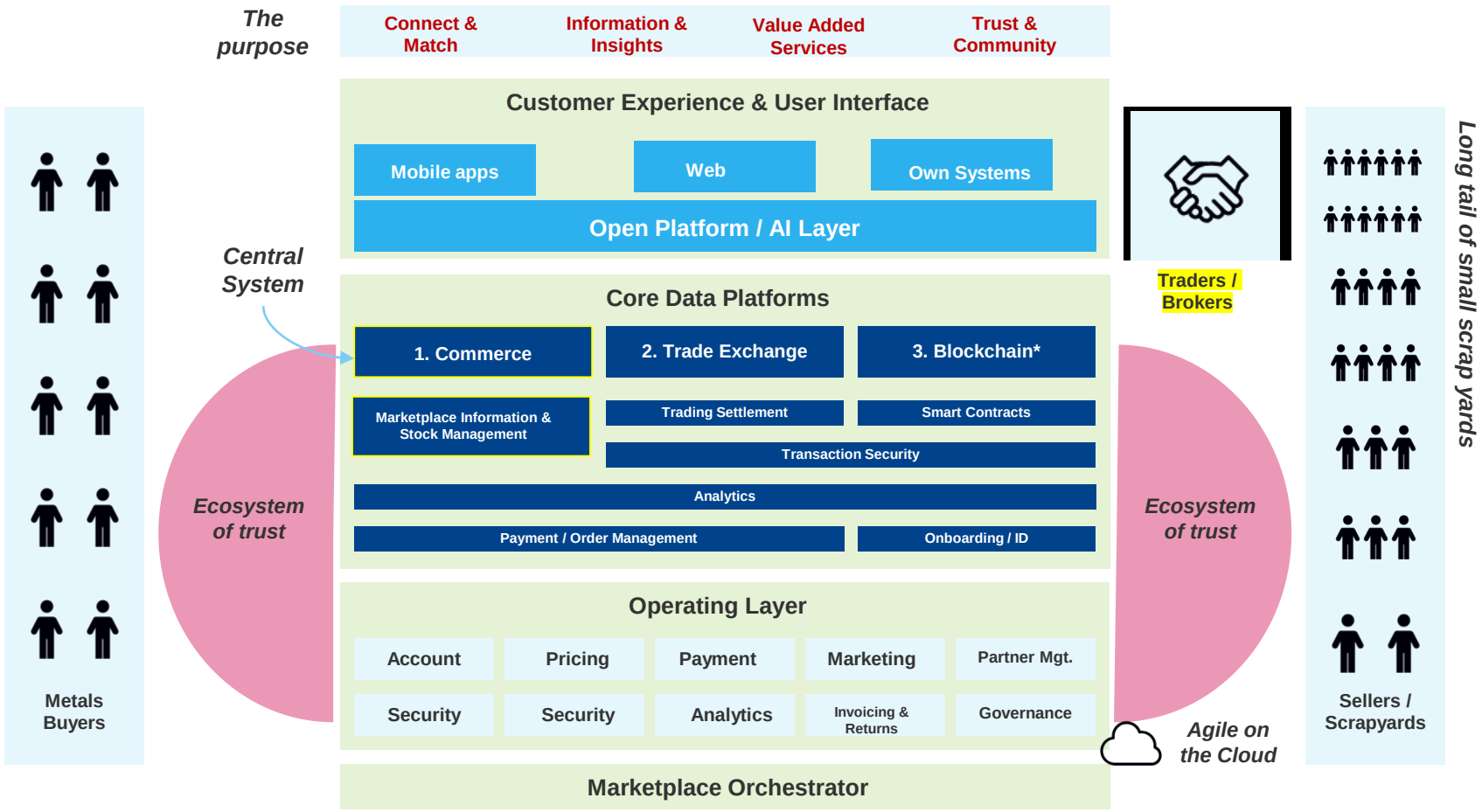
The Recycled Metal Platform is comprised of modular elements to underpin enterprise architecture

Recycled Metal Platform

Potential Recycled Metal Platform at full implementation



Implementation scope

Purpose:	Bring together buyers & sellers of scrap metal
Material:	Metals
Geography:	India
Network participants:	• India Enterprise • Waste management companies • Scrap yards • Financial institution • Traders
Tech enablers:	• Blockchain • Mobile • IoT • Cloud

*Blockchain technology requires for Smart Contracts and to support more transaction security

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Solution Has Potential of cost savings by implementing the Recycled Metal Platform

Recycled Metal Platform 

Value for customers

Access

Match buyers with sellers and brokers/traders of scrap metal

Inform and share insights

Provide members with relevant information about their industry, latest news, price lists, market intelligence

Future certification benefits

Opportunity to work with legislators to set regulations around recycling initiatives

Improve branding

Improve reputation and brand by linking partners to the revolutionary recycling platform.

Lower coordination and sourcing costs

Value for customers

Platform revenue

Transaction or membership fees to participate in platform

Data

Inform new opportunities; potential to sell/monetize the data

Solidify sustainability branding

Establish leadership in sustainability by creating an industry platform

Energy cost savings

Recycle more scrap AL in place of manufacturing primary aluminum

Lower costs of coordination

Connect Novelis directly to more scrap providers, easing coordination

Compliance with regulation

Set the standard for, and get ahead of, environmental regulation

[1]Value estimates by year 3

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VIDEO-2

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THANK YOU