Future of Automotive Supply Chain

Senthil Virthachalam
IBM Global Automotive Center of Competence
Over 20 years of experience in automotive. My industry experience includes most of global automotive OEMs, Tier I suppliers, electronics and high-tech. My previous work experience includes program management at Tenneco Inc., supplier management, product development at Daimler Chrysler and product development at AshokLeyland (India). I graduated from Michigan State (MBA) and National Institute of technology (Engineering)
Agenda

- Supply Chain Future POV
- What is Blockchain?
- Use Cases
- Q&A
What is Blockchain?
Blockchain is...

a trusted, distributed ledger with shared business processes
Problem with business networks today

... inefficient, expensive, vulnerable, lack of transparency
Solution with shared, replicated, permissioned ledger

- Party D’s records
- Party A’s records
- Bank records
- Auditor records
- Party C’s records
- Party B’s records

Blockchain

*distributed control, shared business process, single source of truth*
Shared Business Processes

- Add control and visibility to shared processes
- Automate network interactions
- Participate directly with network members
Key concepts of Blockchain

Shared system of record. Permissioned access within own network. Immutable & Traceable

Business terms embedded in transaction database & executed with transactions

Ensures appropriate visibility; transactions are secure, authenticated & verifiable

All parties agree to network verified transaction by Consensus

Shared ledger

Smart contract

Privacy

Trust
Blockchain benefits

Save time
Transaction processing from days to near instantaneous

Remove cost
Overheads and cost intermediaries

Create transparency
Access to data among all participants

Reduce risk
Tampering, fraud & cyber crime
IBM is collaborating to transform fundamental business processes across industries.

Core Principles

- **Open**: Fundamental industry technologies, processes and communities need Open source, Open governance, Open ecosystems.
- **Trusted**: To enable multiple parties to work together leveraging permissions and identity, to ensure data and transactions are protected and consistent.
- **For Business**: Blockchain must be built on robust technology environments providing security, confidentiality, auditability, reliability and scalability.
It takes a Community: Hyperledger Project

- Linux Foundation project announced December 2015 with 17 founders
- The Hyperledger Project is a collaborative effort to advance Blockchain technology by identifying and addressing important features for a cross-industry open standard for distributed ledgers that transform the way business transactions are conducted globally
- Open source and open standards-based

Enable adoption of shared ledger technology at a pace and depth not achievable by any one company or industry

https://www.hyperledger.org/projects
Hyperledger Project Members

Premier

General

Source: https://www.hyperledger.org/about/members
Updated June 2017

#IBMBlockchain
Use Cases
Maersk and IBM announce global trade solution based on Blockchain

90% of goods in global trade are carried by the ocean shipping industry each year.

But global supply chains are plagued by inefficiencies caused primarily by:
- ineffective information sharing across organizational boundaries
- Manual, paper-based processes


https://www.youtube.com/watch?v=dcddYatMCGQ
Global Trade Digitization Network

An open, extensible platform for sharing shipping events, messages, and documents across all the actors and systems in the supply chain ecosystem.

Important principles
- Detailed information remains under the control of the owner
- As neutral as the Internet
- Fault tolerant
- Everyone can work in their own systems

Provider of interface: value-add partners

Maersk collaboration video
Walmart & IBM collaborate on Food Safety, traceability & transparency

How to accelerate traceability from weeks to minutes/seconds?
Walmart & IBM are working on 2 pilots in China and USA

**Pork**
Scalability


**Mango**
Network Breadth

https://youtu.be/MMOF0G_2H0A?t=6m3s

Walmart collaboration [video](https://youtu.be/MMOF0G_2H0A?t=6m3s)
Bosch and IBM develop ParcelChain Proof of Concept

Based on Hyperledger
- Open source and open standards-based
- Modular and scalable architecture
- Permissioned
- Performant
- Privacy & confidentiality assured

Advantages
- Transparency on product logistics
- Potential cost savings
- Improved fake detection granularity
- Identification of gray market imports
- Extensible to other business cases
https://youtu.be/jY8HFRs6Y4s?t=17m32s