Distributed Ledger – Example how technology can reduce supply chain risks

Jags Rao, May 21 2019, Director - Distributed Ledger Technology
DLT (Distributed Ledger Technology) has the potential to fundamentally change how corporations interact, transact and share data across the value chain.

<table>
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<th>Increased trust</th>
<th>Standards &amp; Data access</th>
<th>Lower cost &amp; complexity</th>
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| DLT can establish trust by ensuring **secure, transparent and efficient transaction processes** with effective governance. The governance can be enforced either in a P2P manner by members in the DLT network or through a cooperative organization representing the members. | DLT can enable cooperation platforms allowing multiple competing stakeholders to:  
  - **streamline business processes**  
  - **develop data standards**  
  - **share and exchange real-time data** on a need-to-know basis | DLT therefore offers strategic long-term benefits across the insurance value chain, beyond lower cost & complexity:  
  - **reduced duplication** and reconciliation  
  - **increased automation** of business processes  
  - access to **near real-time risk data**  
  - access to **new channels and models for top-line growth** |

**DLT could expand and transform businesses**  
- Enterprises need to be prepared and shape this change.
Combined innovation of DLT, IoT and AI is accelerating commercial supply chain digitization (e.g. Marine Trade, Trade Finance, Automotive, Food) and generating structured and formatted data at scale

Four quadrants depict differences in nature of data subjects, risk patterns and regulatory aspects

- **Personal Lines**
  - High-volume
  - New risk patterns discovered through research
  - High data sensitivity

- **Commercial Lines**
  - Low-volume
  - New risk patterns discovered thru specialty
  - Low data sensitivity

- **Personal Property**
  - Asset-centric
  - Lower data regulation
  - End-insured specific risk events shared through DLT

- **Life and Health**
  - People-centric
  - High data regulation
  - End-insured specific risk events hard to access

- **Commercial Property**
  - High-volume
  - New risk patterns discovered
  - High data sensitivity

- **Casualty**
  - Low-volume
  - New risk patterns discovered thru specialty
  - Low data sensitivity

- **Urban Air Mobility**
  - Asset-centric
  - Lower data regulation
  - End-insured specific risk events shared through DLT

- **Urban Air Mobility**
  - People-centric
  - High data regulation
  - End-insured specific risk events hard to access
Example Marine Trade Supply Chain - TradeLens
TradeLens – Blockchain based platform that is digitizing the global marine trade

- The platform empowers faster and more efficient, transparent and secure global trade
- TradeLens is built for the industry and offers benefits to trade participants from across the supply chain ecosystem
- IBM and Maersk are developing the platform under a joint collaboration, with significant input from and participation by the industry
- An Advisory Board is being formed to help shape the platform and drive standards
- TradeLens is live in production today, processing millions of transactions per day

JOURNEY

- **January 2018**: Beta release of the platform and launch of Early Adopter program; trials underway
- **August 2018**: Formal launch of the TradeLens platform
  - 92 participants signed on
- **September 2018**: TradeLens Limited Availability Release
- **December 2018**: TradeLens Commercial Release 1.5 million events per day published to the platform
- **January 2019**: Latest production release includes new document sharing, permissioning and notification features.
  - Working with more than 100 ecosystem participants
TradeLens SOLUTIONS LANDSCAPE

**NETWORK**
Comprised of the TradeLens network members, such as carriers, ports, and customs authorities, that connect to and provide data to the platform

**PLATFORM**
Accessible via an open API, the TradeLens Platform brings together the supply chain ecosystem and enables the industry to share information and collaborate; Blockchain and cloud technologies power the platform

**APPLICATIONS AND SERVICES**
An open marketplace that allows both TradeLens and third-parties to publish fit-for-purpose services atop the TradeLens platform
Example Food Supply Chain – IBM Food Trust
Built on a blockchain platform, IBM Food Trust offers industry-specific functionality targeted at key pain points

• **Trace**
  Trace the location and status of food products upstream and downstream across the supply chain

• **Certifications**
  Enable reliability and accountability with instant access to digitized records and documents

• **Fresh Insights**
  Access real-time and aggregate supply chain data to extend product freshness and shelf life

• **Third-party**
  Partner to expand functionalities and deliver new value across the food system through our APIs (see next page)

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**APIs can be used to retrieve platform data to create new applications for internal and consumer facing applications**

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**Capabilities**

- Blockchain Technology
- Food Supply Ecosystem
- Information-sharing Platform

**IBM Blockchain Platform**

**Hyperledger fabric**

*Will be made available in 2019*
IBM Food Trust promising to cater value for all ecosystem actors

Speeds time-to-value by*:

• Adding new modules that address various food supply chain pain points

• Designing a business model where all clients, from small farm to large retailers, generate a positive ROI from the first few products and partners onboarded

• Growing the ecosystem with supply chain partners, competitors, third parties, and standard-setting bodies

*Based on internal value analysis of IBM Food Trust
Risk Intelligence Cockpit
Swiss Re Risk Intelligence Cockpit at the heart of delivering supply chain resilience

Platform for collecting supply-chain data, delivering data-driven intelligence and global scaling of superior solutions

Data harvesting engine with a repeatable framework that aggregates diverse external data lakes and enriches with SR historic risk data to deliver resilient applications
Resilient Trade: Proof-of-Value for **Accumulation and Composition Risks**

Risk specific inferences are derived for the marine cargo movement in the prototype version by connecting to time-series data from TradeLens, a digital marine trade supply chain platform.

Prototype focused on use cases involving two kinds of risks modelled from the transport events:

1) **Accumulation risk**: Patterns in transport events leading to high variance in accumulation of consignments at a given port

2) **Composition risk**: Combinations of contents of consignments at a vessel/port leading to degradation/loss of cargo

Link to Prototype: Resilient Trade (Marine) proof-of-value
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