



MALAYSIA INSTITUTE FOR
SUPPLY CHAIN INNOVATION



MIT GLOBAL
SCALE NETWORK

The Use of Blockchain Technology for Food Safety

Dr. Albert Tan

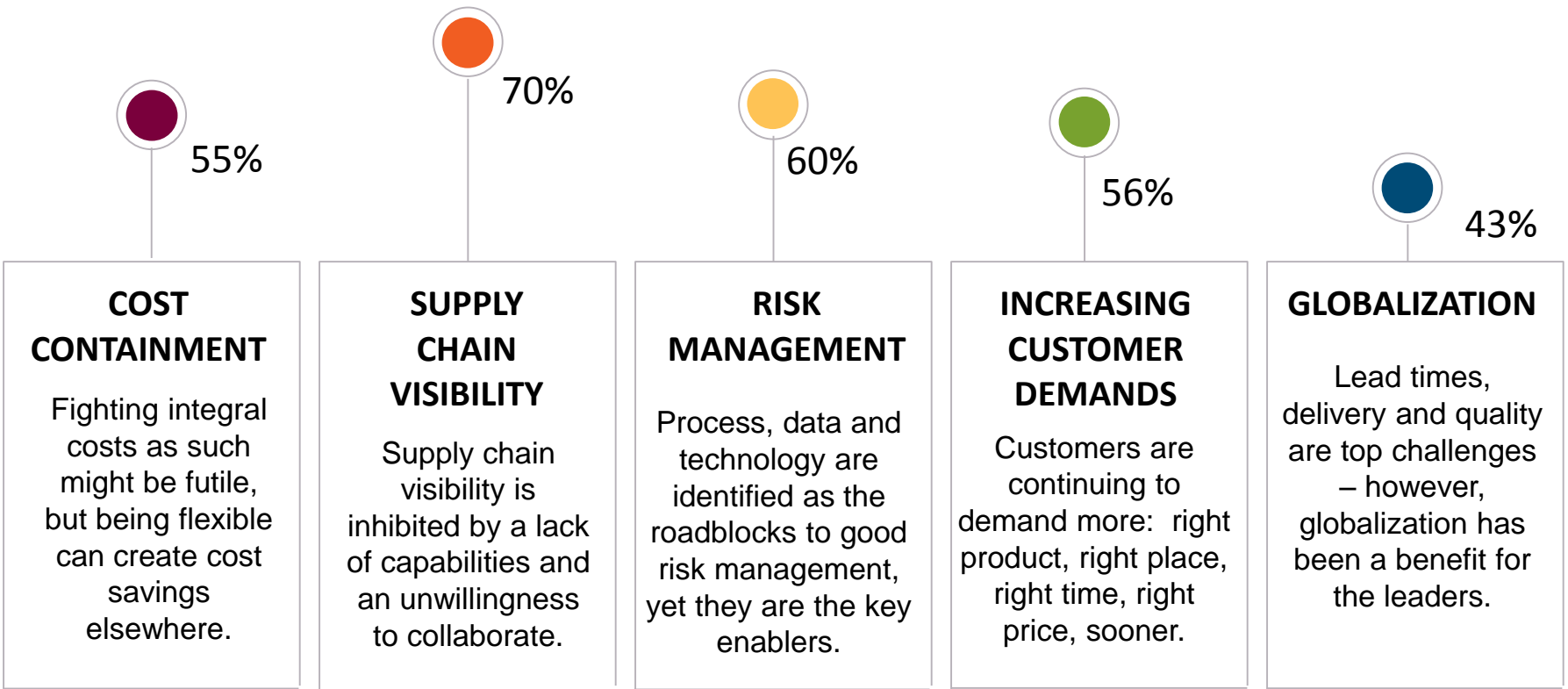


Masters in Supply Chain
Ranked #1 worldwide
Malaysia (MSCM), USA (SCM) and Spain (ZLOG)

Agenda

- Challenges in managing the Supply Chain
- Introduction to Blockchain
- How can Blockchain and IOT helps to ensure food safety in supply chain?

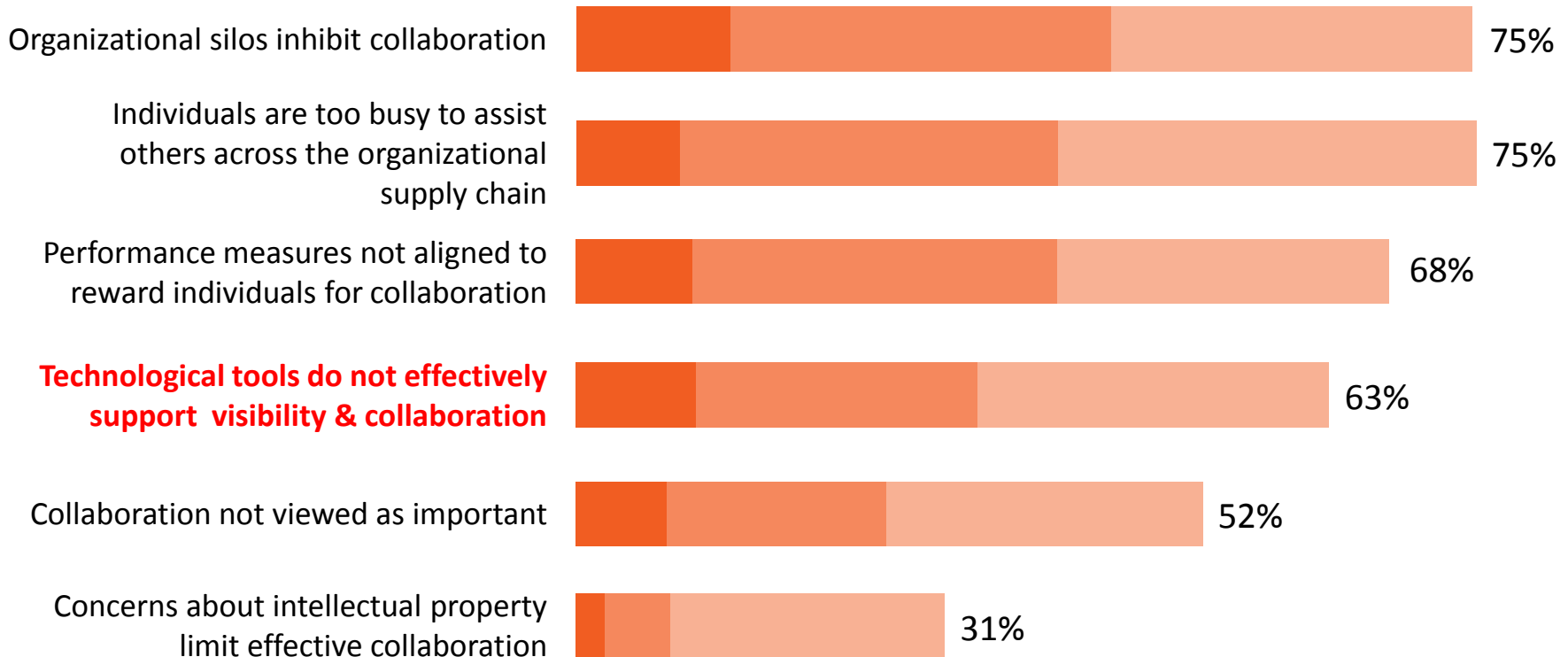
Supply chain executives identify five major challenges



Based on responses of “to a very great extent” and “to a significant extent”

Why are we NOT integrating & collaborating more to increase visibility?

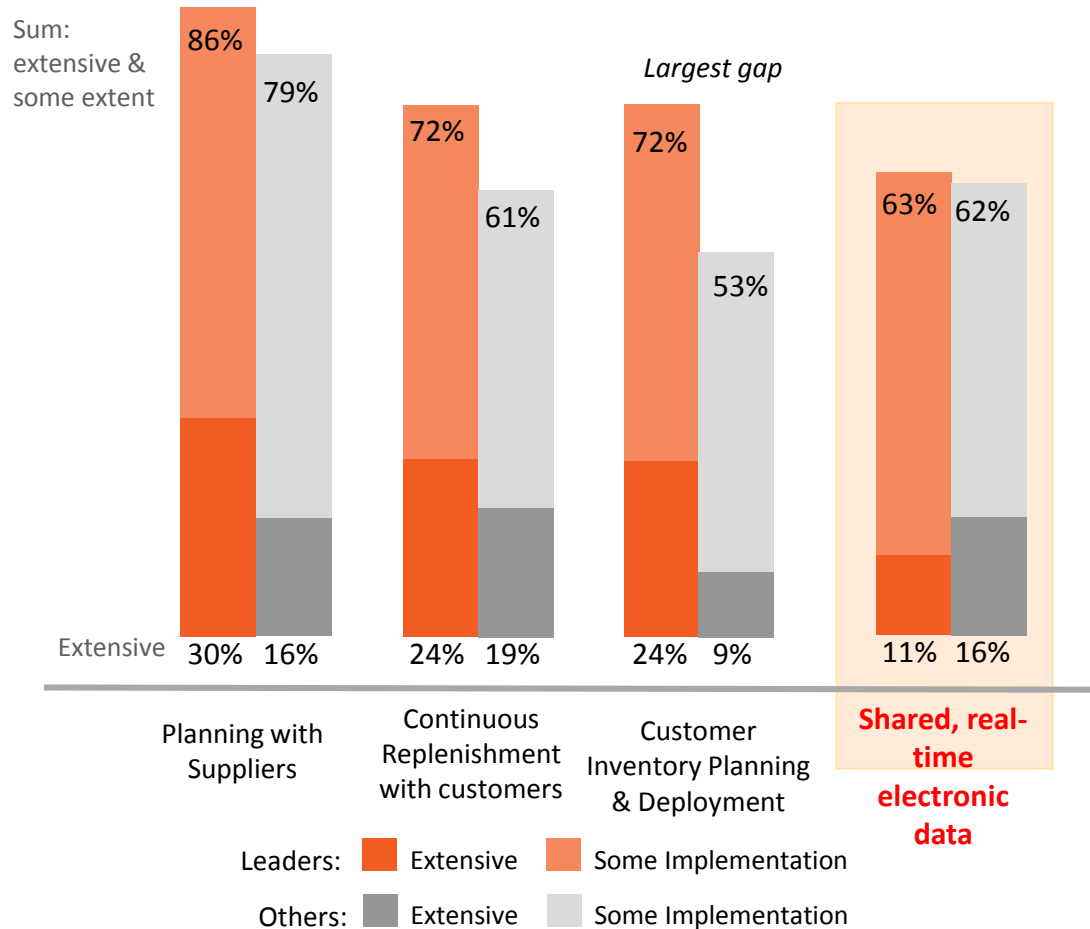
How significant are the following barriers to visibility & collaboration?
(respondents answered very to moderately significant)



IBM Global Chief Supply Chain Officer Study – Executive Summary

Supply Chain will require more connectivity and integrated processes to improve visibility

Extent of implemented Integration Practices



- Decision-support based advanced analytics and optimization to automate supply chain transactions.
- Multi-partner collaborative platform
- Sense-and-respond demand & supply signal notification

Key Questions in addressing Supply Chain Visibility

- Are there opportunities for greater coordination, integration and collaboration between our supply chain functions and with our global network of partners?
- How can we can gain visibility and access to economies of expertise to improve responsiveness and agility?

Use Case of Blockchain in Supply chain and Logistics



Global container shipping still involves a lot of paperwork – costing time and money. Also, paper-based freight documents like the bill of lading are prone to loss, tampering, and fraud.



Counterfeit medicine is a growing problem for pharmacy supply chains. This especially pertains to expensive, innovative medicine like cancer drugs. Pharmacies have to make sure to sell “the right thing” to the consumers.



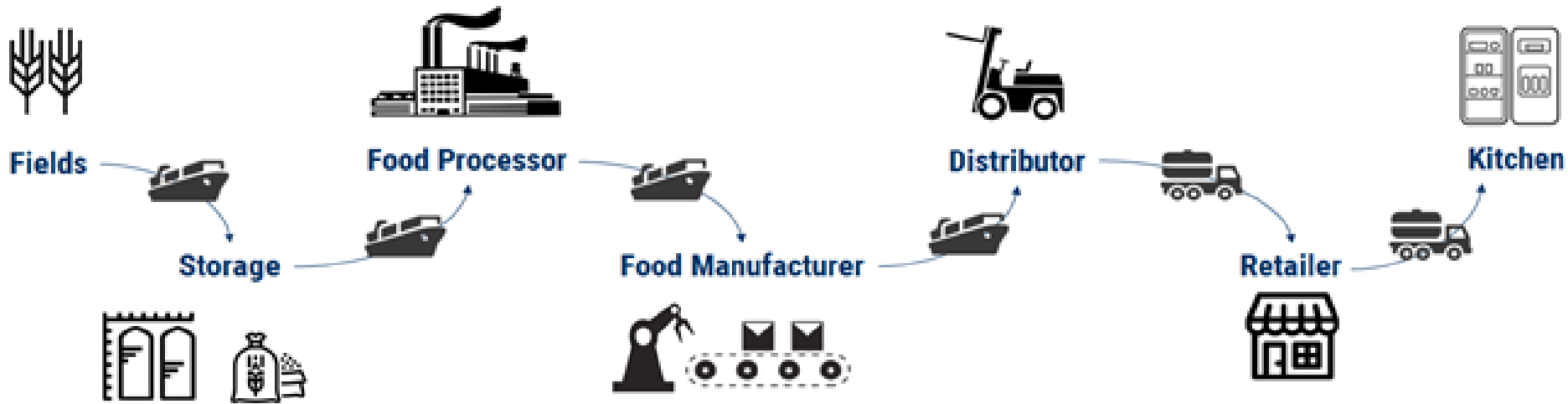
In the food supply chain, foodborne out-breaks are a challenge for retailers. They have to get a quick overview of where the food came from and which other products are also affected and have to be removed from the stores.



More and more logistics objects are equipped with sensors that generate data along the supply chain – e.g. about the status of a shipment. This data has to be stored in an immutable, accessible way.

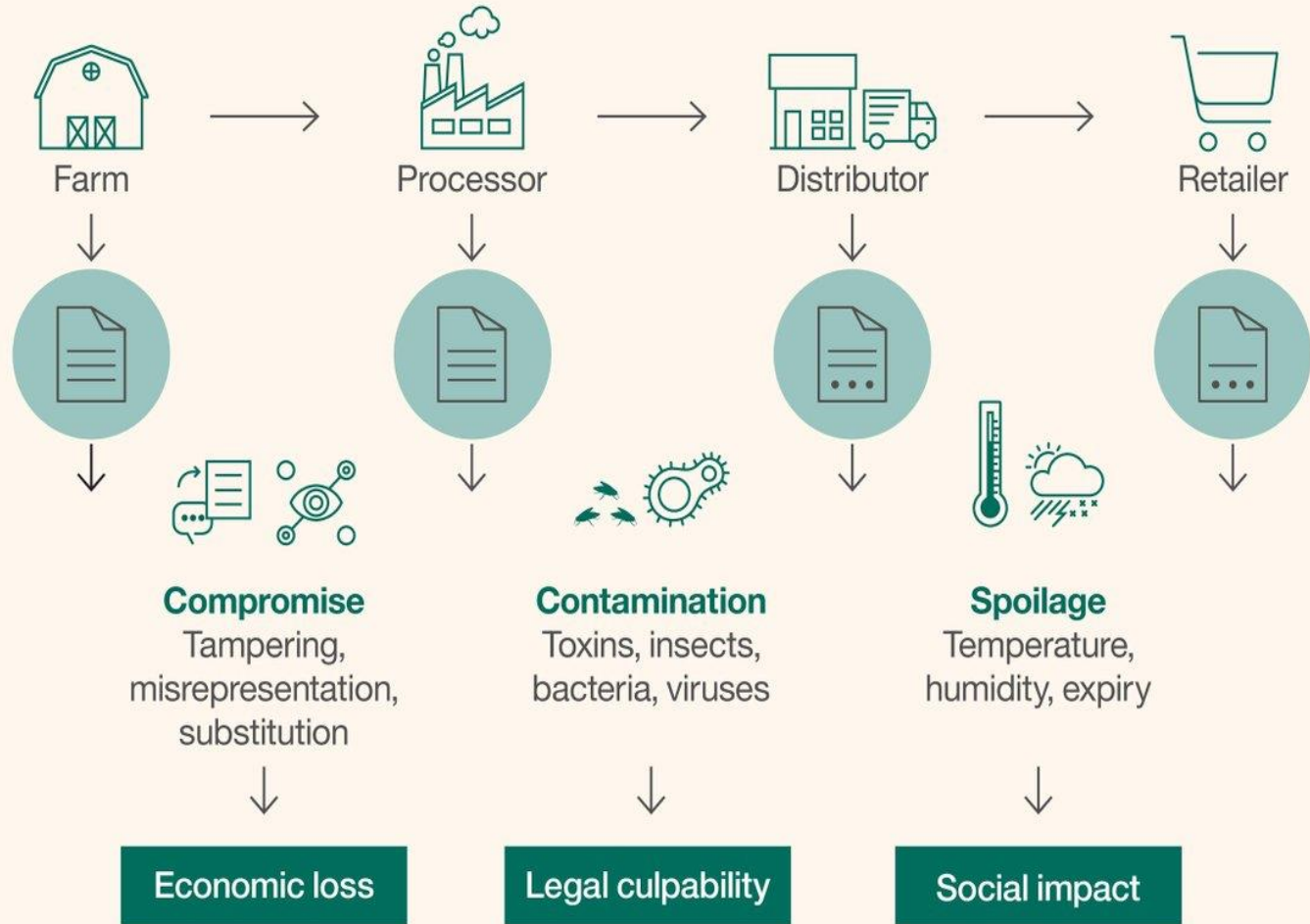
Farms to Forks

The complex global food supply chain



Examples of Blockchain in SCM Walmart with their suppliers


- Walmart and their suppliers to bring the requisite efficiency, transparency and authenticity to food supply chains around the world.
- Trace for food contamination.



Examples of Blockchain in SCM

Unilever and Sainsbury

- Unilever and Sainsbury, international banks, uses Blockchain technologies to gather and record standardized information on small farmers and producers, including quality and price.



“Building on Provenance’s successful work using blockchain technology in supply chains, we aim to design and demonstrate the power of a collaborative ecosystem approach to tackling the Sustainable Development Goals, through linking preferential financing to verifiable sustainability claims and transparent supply chains.”

Jessi Baker, founder of UK-based fintech firm Provenance

Provenance of Food supply chain

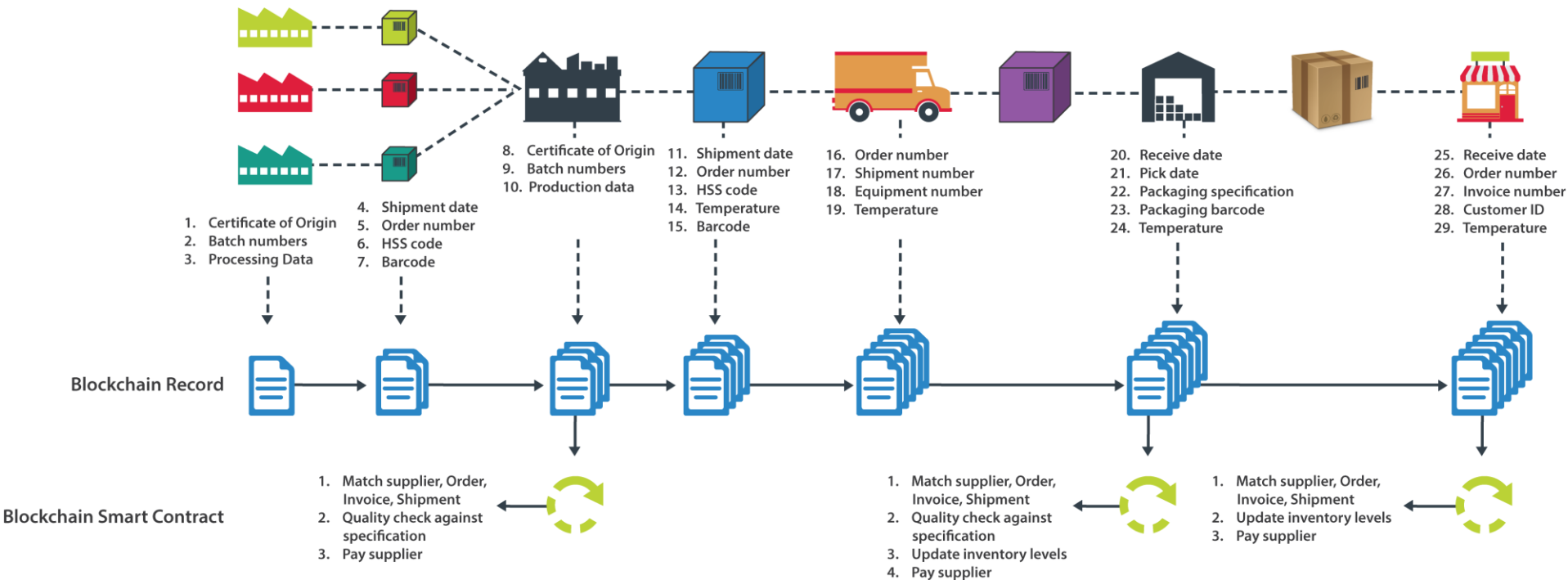
Ability to track and understand the provenance of their food by providing the following abilities:

- Creates an audit trail of transactions from farmers and food processing firms to consumers
- Provide transparency and visibility in the farming, handling and distribution process
- Collect previously untapped data to carry out analytics to improve farming methods
- Smart contract enforces contractual terms and accountability among parties involved.

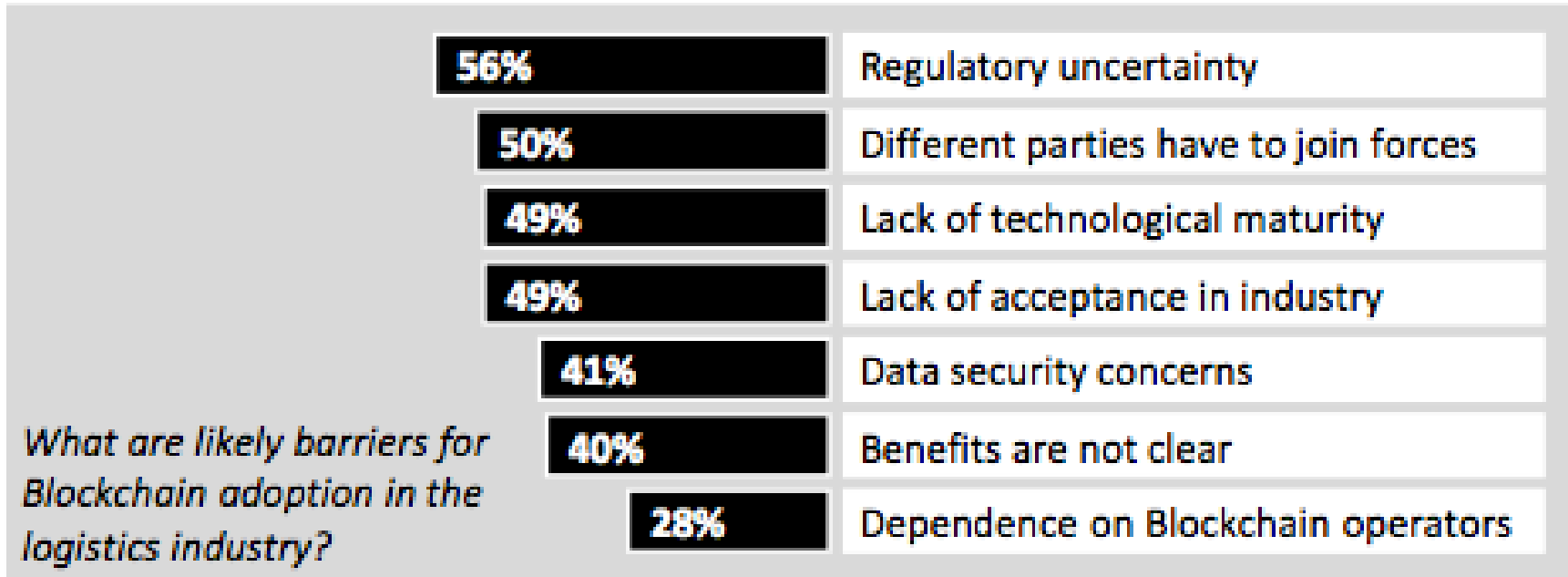
IOT, Blockchain and AI to study chicken growth and development



Smart contract for ensuing food safety along the supply chain



Barriers in Blockchain Implementations



Summary

- Blockchain Technologies is disrupting some industries and their supply chain
- There are many potential applications for Blockchain Technologies but regulators are not ready
- Smart contract is a good feature to execute some of the supply chain operations in real time.
- We need more standardizations of data and processes to increase adoptions.

Questions and Answers

Dr. Albert Tan

atan@misi.edu.my