Leveraging Blockchain Technology for halal supply chains

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Topics

1. Towards halal SCM
2. Blockchain Technology
3. Halal Blockchains
4. The Halal Blockchain Innovation Project
1. Towards halal SCM
Evolution of halal

Where is Malaysia (and Asia) in this evolution?

Halal Maturity

- Muslim Company
- Halal Product
- Halal Supply Chain
- Halal Value Chain
- Halal DNA
- Risk Mgmt
- Halal Certified
- Non-compliant

Emerging industry requirements

01
Food and non-food need to be halal certified

02
Halal requires a supply chain approach

03
Halal risk & reputation management critical
Issues with Halal Supply Chains

Halal foods pioneer sentenced for export fraud to Indonesia, Malaysia

The Jakarta Post

78 Kontena Daging Kambing Dan Babi Bercampur Masuk Malaysia

By Adria I July 20, 2017

National

Concerns rise over halal fraud

Halal fraud appears to be on the rise, with developing countries such as Indonesia and Malaysia at high risk. Halal meat is often indistinguishable from its non-halal equivalent, which means that everyday consumers are not able to verify food status. Falsely claiming halal for a food item is an easy fraud to commit, whether it is on the retail sale of un-packaged food in restaurants and takeaways or as sophisticated as forgery of certification documents accompanying shipments of food or as simple as dishonest signage in a takeaway shop.

UPDATE-Brazil food fraud scandal: How much halal exports are in the mix?

Pork in Cadbury's: Malaysian chocolate recalled after DNA traces found

Hazelnut and roast almond bars came up positive for pig DNA during testing for non-halal substances

Cadbury chocolates are Halal, Jakim reiterates

KUALA LUMPUR: The Islamic Development Department (Jakim) reiterated that Cadbury chocolates, which are previously found tainted with porcine DNA are Halal to be consumed.
Issues with Halal Supply Chains

Halal supply chains are vulnerable and complex to manage

- Halal is not a consolidation requirement in stuffing of mixed (LCL) trucks, containers, and ULDs
- Different knowledge levels and segregation practices in halal supply chains
- The halal status of cargo is not communicated on freight documents, cargo labels, and in ICT systems
- Different requirements for different Muslim markets
Issues with Halal Supply Chains

Serious GAPs in halal supply chains, resulting in a deficient halal assurance system!

Exposure of brands to high-impact integrity violations.
2. Blockchain Technology
Key concepts of blockchains

Open Ledger
Recording of every single transaction made in its network in a public record

DISTRIBUTED LEDGER
Transfers authority & trust to a decentralised virtual network

SMART CONTRACTS
Define the rules (coded terms) & penalties, but also automatically enforce those obligations

SYNCHRONISED
Keep transactions up to date

Cryptopgraphy
Security keys are required to gain access to transaction outputs
Examples in SCM

Walmart partners with IBM to track food shipments in China: Retailers will use blockchain software to trace meat and vegetables through supply chain (20 October, 2016)
Examples in SCM

Microsoft's Blockchain Supply Chain Project Grows to 13 Partners (3 May, 2017)
Examples in SCM

Maersk and IBM Unveil First Industry-Wide Cross-Border Supply Chain Solution on Blockchain (5 March, 2017)
Examples in SCM

Europe’s largest shipping port launches a blockchain field lab (25 September, 2017)
3. Halal Blockchains
Without halal blockchains
What problems we want to solve?

- **TRUST**: ability by the consumer to validate the halal integrity of the product
- **CHAIN INTEGRITY**: automatic alignment of market requirements to a supply chain scenario
- **TRANSPARENCY**: auditing of halal supply chains and effective isolation of a halal issue
- **HALAL PERFORMANCE OPTIMISATION**: measuring performance of supply chain partners
With halal blockchains
The goal

Halal Compliance

Retailers

Distributors

Manufacturer

Farmers & Suppliers
Halal blockchain

- Operational supply chain system to communicate automatically halal logistics instructions in the supply chain based on market requirements
- Vehicle for collaboration in halal supply chains, creating synergy advantages
- A tool for the industry and halal authorities to audit and quickly investigate a halal issue in the supply chain
4. The Halal Blockchain Innovation Project
The combination of the distributed ledger technology with smart contracts have the potential to create high performance halal networks.

Test the application of blockchain technology for halal food, cosmetics, and pharmaceutical supply chains.
Consensus on design parameters

- Halal blockchain parameters with industries
- Consensus with the halal authorities:
  - What are the halal issues?
  - What information is required with each halal issue scenario?
  - How to segregate & communicate in halal supply chains?
Next steps

- Consensus on design parameters (completed)
- Design of Halal Blockchain (in progress)
- Test of Halal Blockchain in food, cosmetics, and pharma (starting soon, to be completed in 2018)
- Go/No Go Decision (Q1 2019)
- Rollout