



# Towards Global Interoperable Blockchain Infrastructure

## 3 dimensions of interoperability in the agri-food supply chain

Online workshop, 9 July 2020

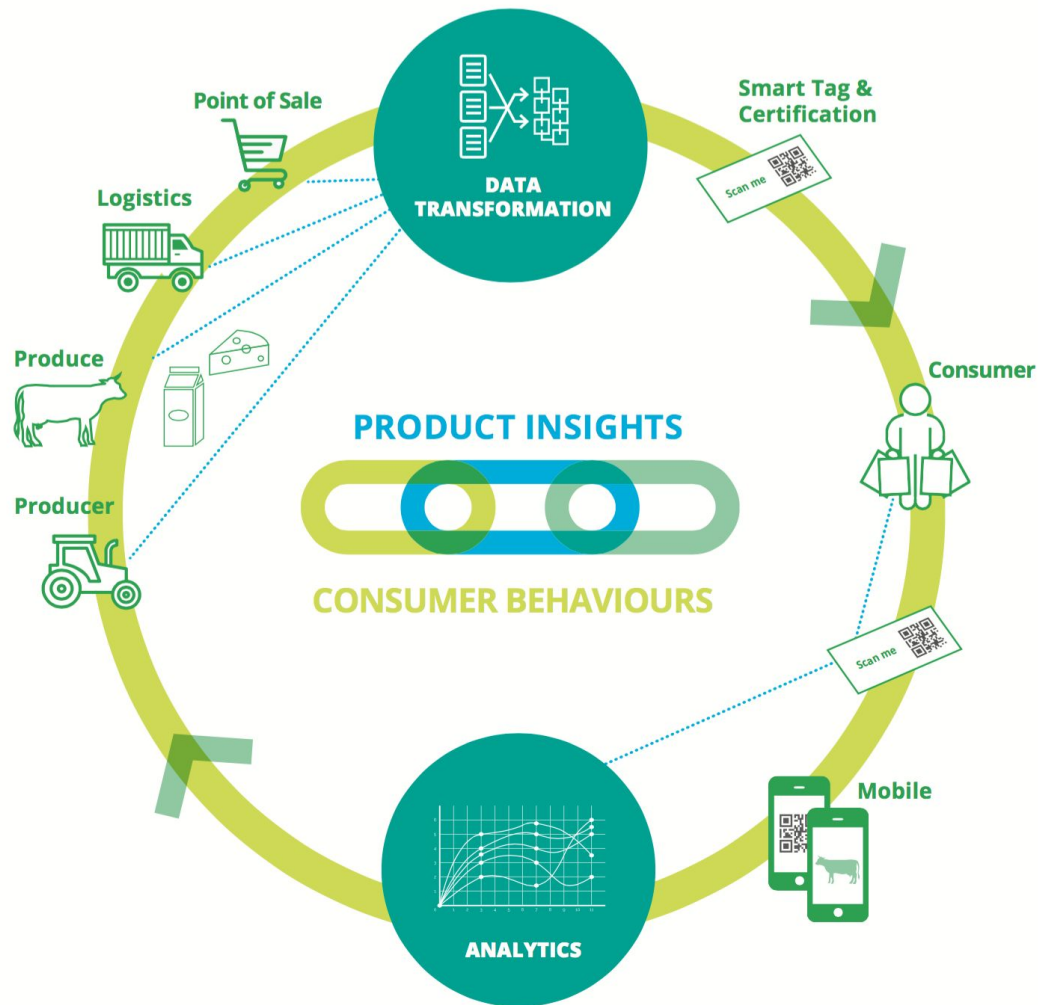
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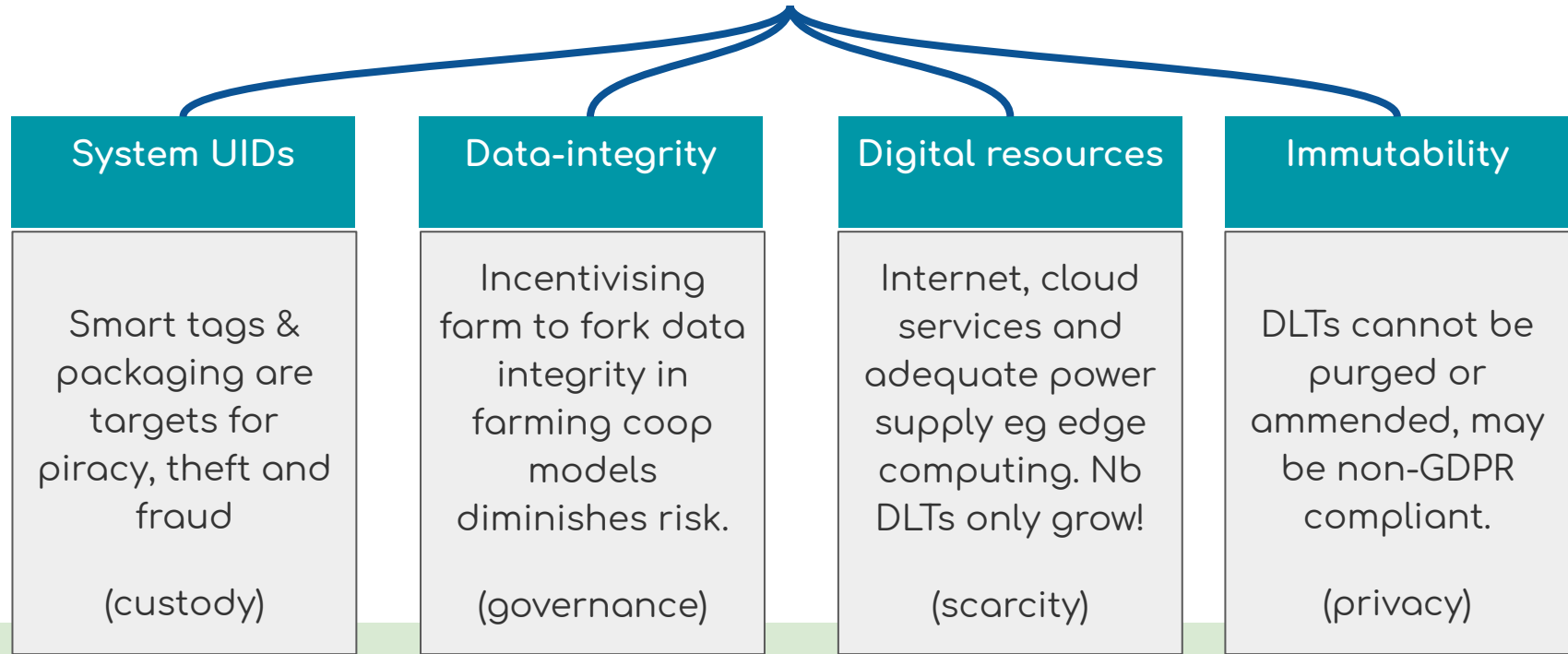


## Blockchain & agri-food

Real-time process visibility  
enhances process communication  
and facilitates provenance  
assurance.



# Agri-food & DLT some current threats



Future risks - - - - -

Quantum computing is a potential threat to the cryptographic integrity / security of DLT

# Farming community & digital transformation



There is a gap in the 'farm to fork'  
supply-chain transparency model

Required: high-quality on-farm  
digital data collection





# Legal interoperability

## Focus on GDPR

# Universal Farm Compliance (IE) System overview off-chain and on-chain data

Stakeholders: Farm compliance authorities, farmers, landowners, Dept. of Agriculture, agri-food businesses, service provider.

## B: non-DLT systems:

### Farmers and landowners:

- UFC: Mobile farm app + web-app dashboard.
- Other farm mgt systems

### Compliance authorities:

Web-interface: Set, monitor and certify compliance workflows.

### Existing CRM / enterprise systems:

- DAFM
- Co-ops + food processing plants

## A: other- DLT system

Hyperledger Indy: Self-sovereign ID  
Onboarding, KYC and identify mgt.

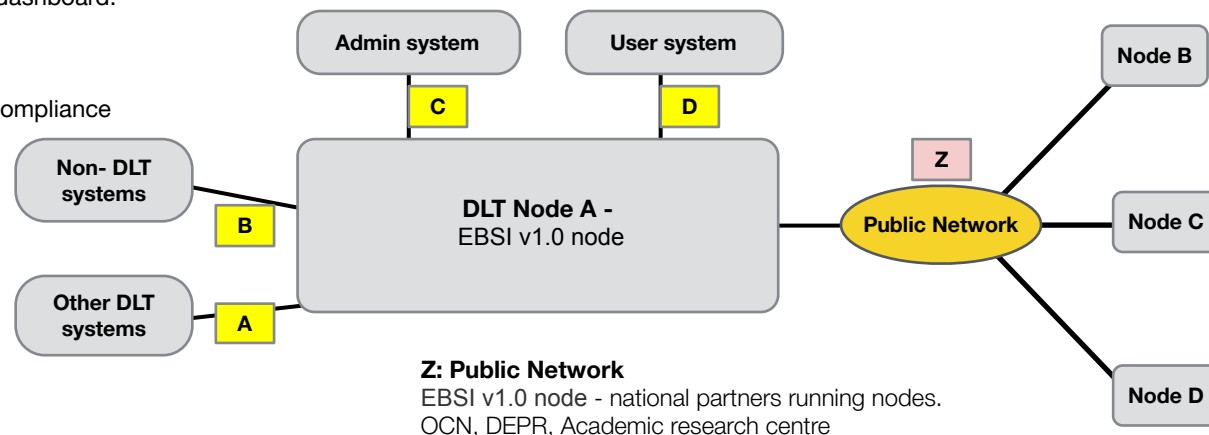
**C: Admin system:** Service  
provider -  
Origin Chain Networks

## D: User systems:

Report, audit and compliance certification.

**Farmers and landowners:** Finalise compliance reports

**Compliance authorities:** Certify compliance workflows.





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# Governance interoperability

Focus on regulation

# Organic Irish heritage apple and oat porridge

## Info categories

- Audited / Regulated
- \*Reputation based marketing
- Food Safety

**Plant Passport:**  
REGULATION  
(EU) 2016/2031

**Graded:**  
Rootstock

**Species ID:**  
RHS defined

**Organic** production uses organically grown seed + stock, *unless* commercially unavailable. (EC 889 / 2008 - MS derogation)



**Heritage\* apple:**  
native var. Bloody Butcher

**Local\* oats:** native var. sourced from neighbouring farm.



*Sustainable /  
Artisanal*

Source      Producer      Processor      Logistics

**Production:**  
Certified organic  
EC 834/2007

**Sustainability:**  
Origin Green  
EN45011 / ISO  
17065

**Orchard:**  
Artisanal\*  
husbandry

**Tillage:**  
Traditional\*  
husbandry

*Sustainable /  
Traditional /  
Artisanal*

**Processing:**  
Certified organic  
EC 834/2007

**Handling:**  
Certified Halal

**No additives:**  
Healthy\* Natural\*

**Food Mgt:**  
Safety standards

**Packaging Labeling:**  
Organic, Halal,  
prepared foods  
standards

*Healthy /  
Artisanal*

**Shipping /  
Trade:**  
Regulated

**Transportation:**  
Safety standards

**Warehousing:**  
Safety standards

**Retail and PoS:**  
Safety standards

**Certified  
premium produce:**  
Organic /  
Halal / Artisanal /  
Healthy  
baby food



Customer in UAE



Product

REGULATION (EU)  
No 609/2013



**Consumer interest  
marketing terms**





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# Technical interoperability

Focus on functional requirements

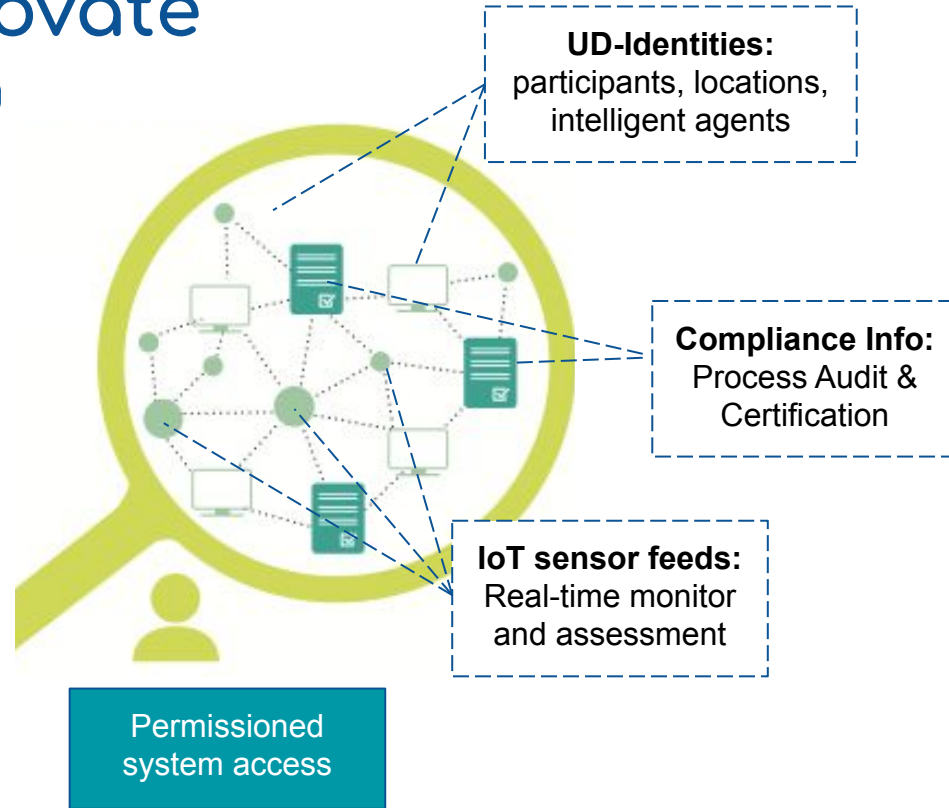
# Future-proof and innovate

## Decentralised SaaS in farming

**Communication:** consistent, uniform, immutable, asynchronous, near-real-time

**Co-operation:** common oversight and streamlined data-sharing

**Decision-making / action-taking:** real-time data availability facilitates automated protocol responses including interoperable IoT and AI-enabled inputs.



*\*Bonus feature: environmental protection ~ paperless processes*



# Towards the future

# Partnerships for Success - agri-food

Sustainable Development Framework - UN SDG



Partners:

- a. Compliance authorities
- b. Farming community
- c. IT sector
- d. Government and EU





# Thank you!

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