Digital Traceability: From Reactive to Proactive

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Foods Connected

TRACEABILITY IN IT'S CURRENT FORM

Traceability rules help keep track of food in the supply chain. They ensure that efficient and accurate **withdrawals and recalls of unsafe foods from the market** can be made in the event of any **food safety** problems
(FSA Website)

1. Food Safety

2. Reactive

3. Sustainable long term?

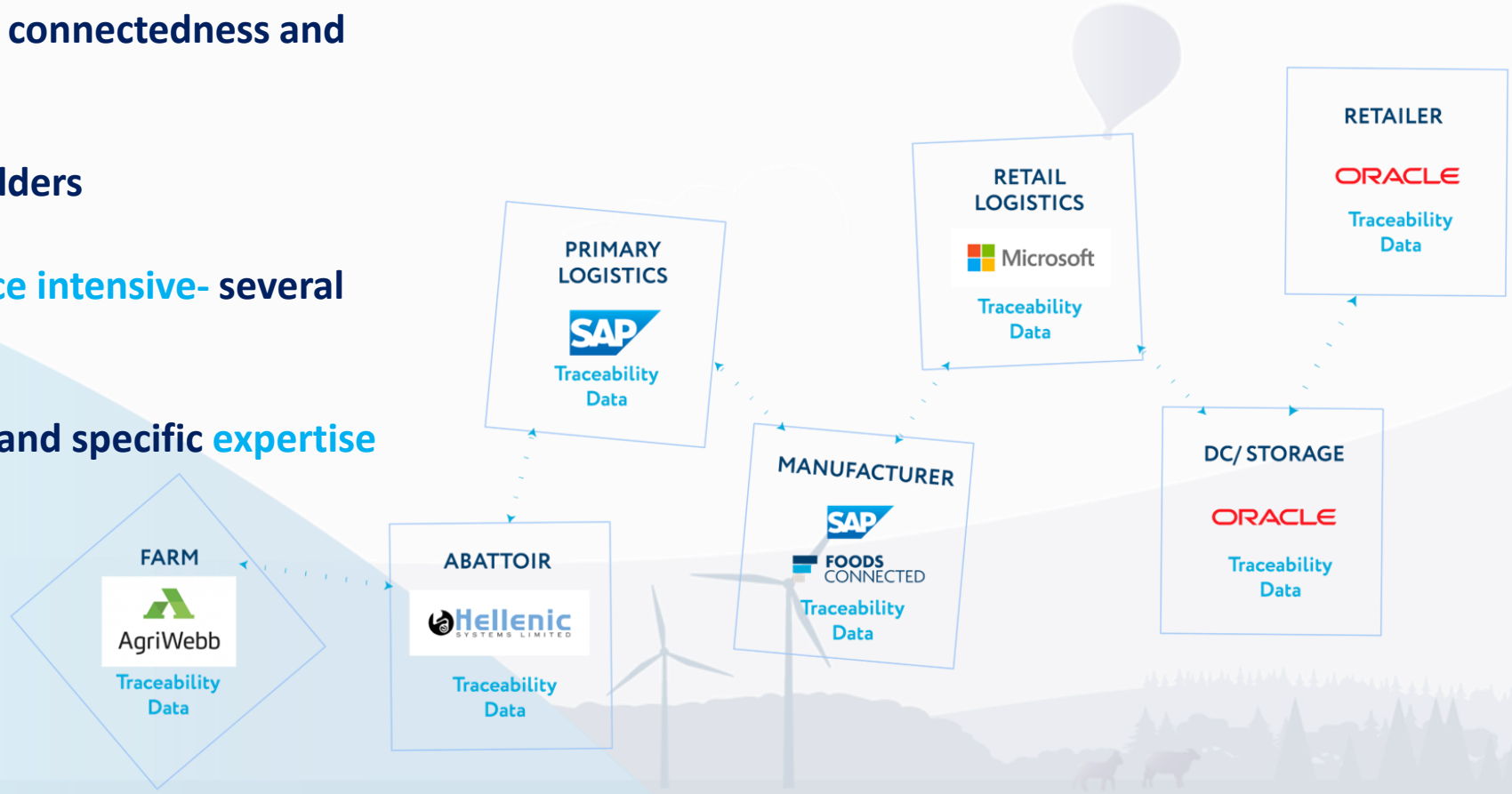
TRACEABILITY IN IT'S CURRENT FORM

Why is this the case?

- Operational efficiency & automation has advanced over the last 20 years
  - Proficient in understanding and mitigating losses, costs etc
- Traceability has not advanced at the same pace regarding digitisation, connectedness and real time decision making
- Reliance of manual data collection inhibiting data analysis
  - Siloed data across supply chain
  - Have to do- 'tick the legislative box'
  - Not regarded as 'value adding'
  - ROI

THE CURRENT STATE OF TRACEABILITY

- **Legislative commitment to one step forward, one step back**
- **Characterised by disparity, lack of connectedness and manual data capture**
- **Processes differ between stakeholders**
- **Trace exercises/recalls are resource intensive- several hours, days**
- **Connecting trace data takes time and specific expertise**
- **Reactionary decision making**
- **Snapshot in time**



INDUSTRY 4.0

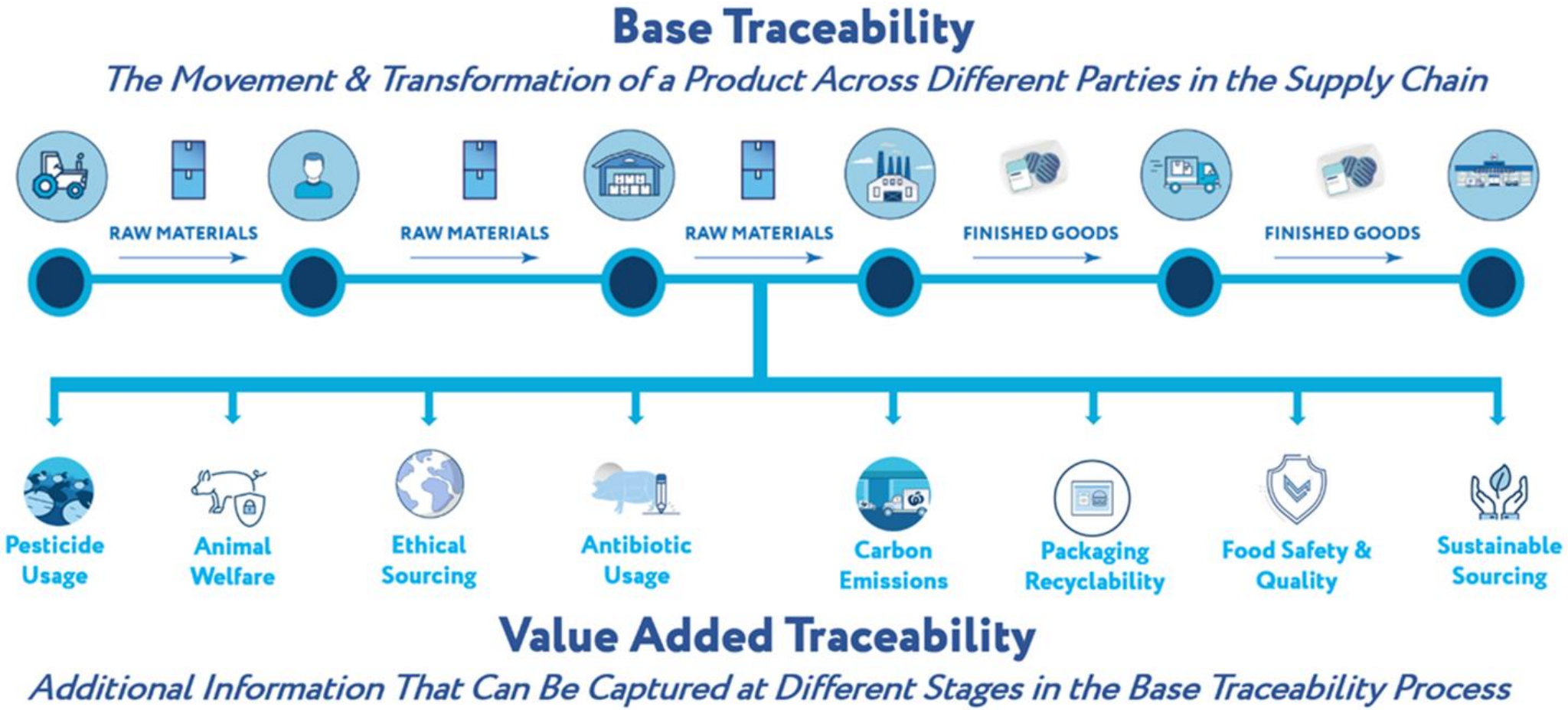
DATA DRIVEN- Artificial Intelligence, IoT, Machine Learning for smart, connected, autonomous processes & factories

Therefore:

- Significant level of **digital maturity** is a prerequisite→ data collected and **analysed** by **digital means**
- Data **connectedness, standardisation** and **interoperability** is also important
- Current state traceability not conducive to industry 4.0 aspirations

WHAT DOES TRACEABILITY MEAN IN ERA OF INDSUTRY 4.0?

TRACEABILITY IN INDUSTRY 4.0 ERA



DIGITAL TRANSFORMATION IN TRACEABILITY

THE SCOPE

Organisations want to have access to information faster in standardised formats to be able to make faster better decisions, based on real data and insight.

Internal & Supply Chain

ACHIEVE TODAY

Technology has to be implemented that can replace spreadsheets, word documents and emails so that information can be managed digitally and be easily maintained and accessed by people.

THE FUTURE

When data is being properly managed in systems there is potential to connect data from multiple platforms to deliver on different value propositions, enabling data driven decisions & actions.

WE NEED TO KEEP PLANNING AND DELIVERING ON TODAY AND START ON THE FUTURE

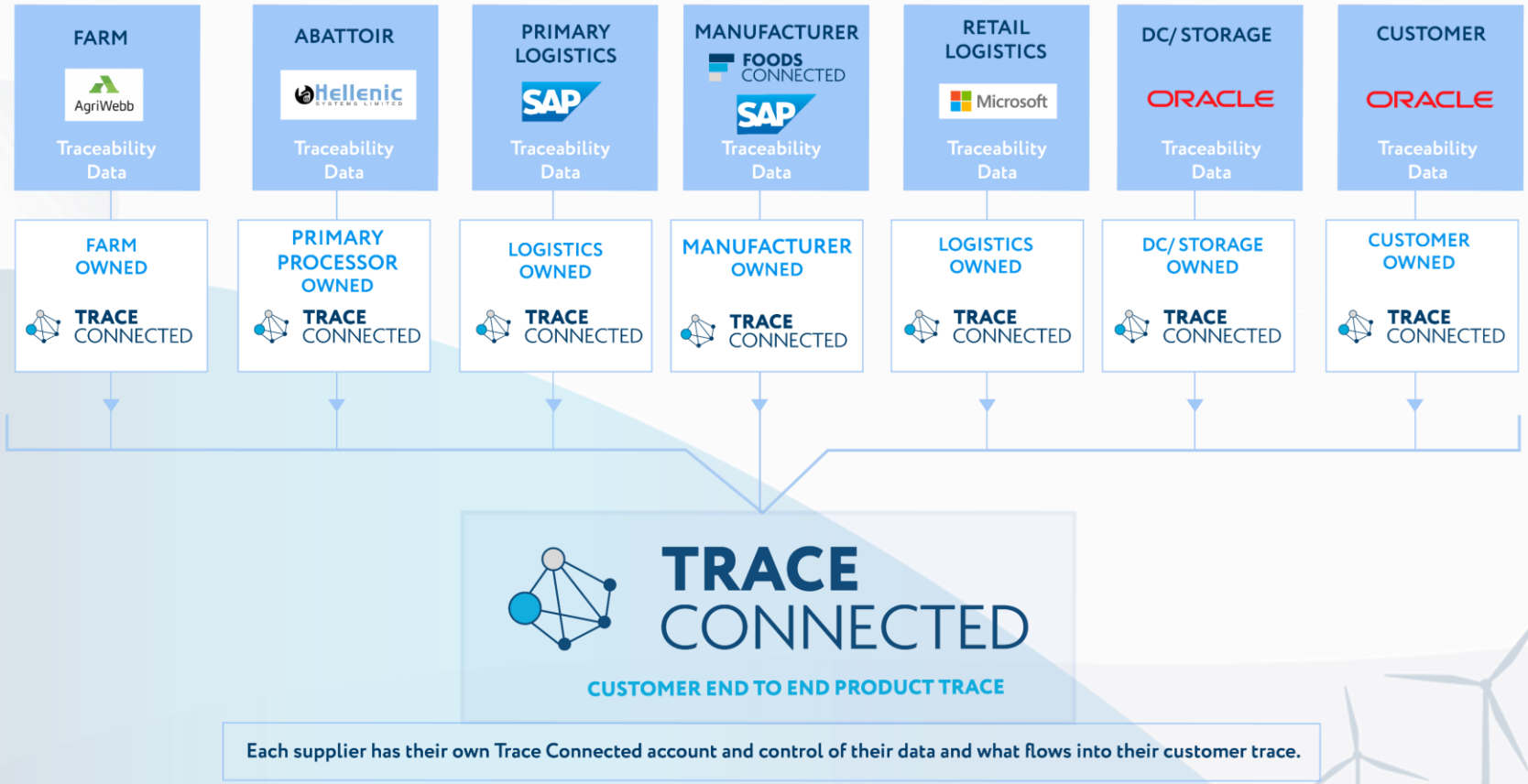
UK Research and Innovation

MADE SMARTER

Trace Connected- Innovate UK Funded Project

FOODS CONNECTED

TRACE CONNECTED



- Centralised Cryptographic Ledger
- Trace Connected is an interoperable platform that links existing trace data together within seconds
- Utilises Critical Tracking Event (CTE) and Key Data Element (KDE) structure
- Replaces the need for individual requests for traceability exercises
- Each party submits own data to their instance & grants access to another party up or downstream.
- Efficient data capture to reduce requirement of double handling of data & provide one accessible source

CENTRALISED CRYPTOGRAPHIC LEDGER

Designed for the Problem: we've worked with industry and used our knowledge to create technology to deliver on problems faced rather than force a technology to solve problems that are not there.

Privacy: with a private ledger, the frequency at which blocks are written (and the content of those blocks) is not public information.

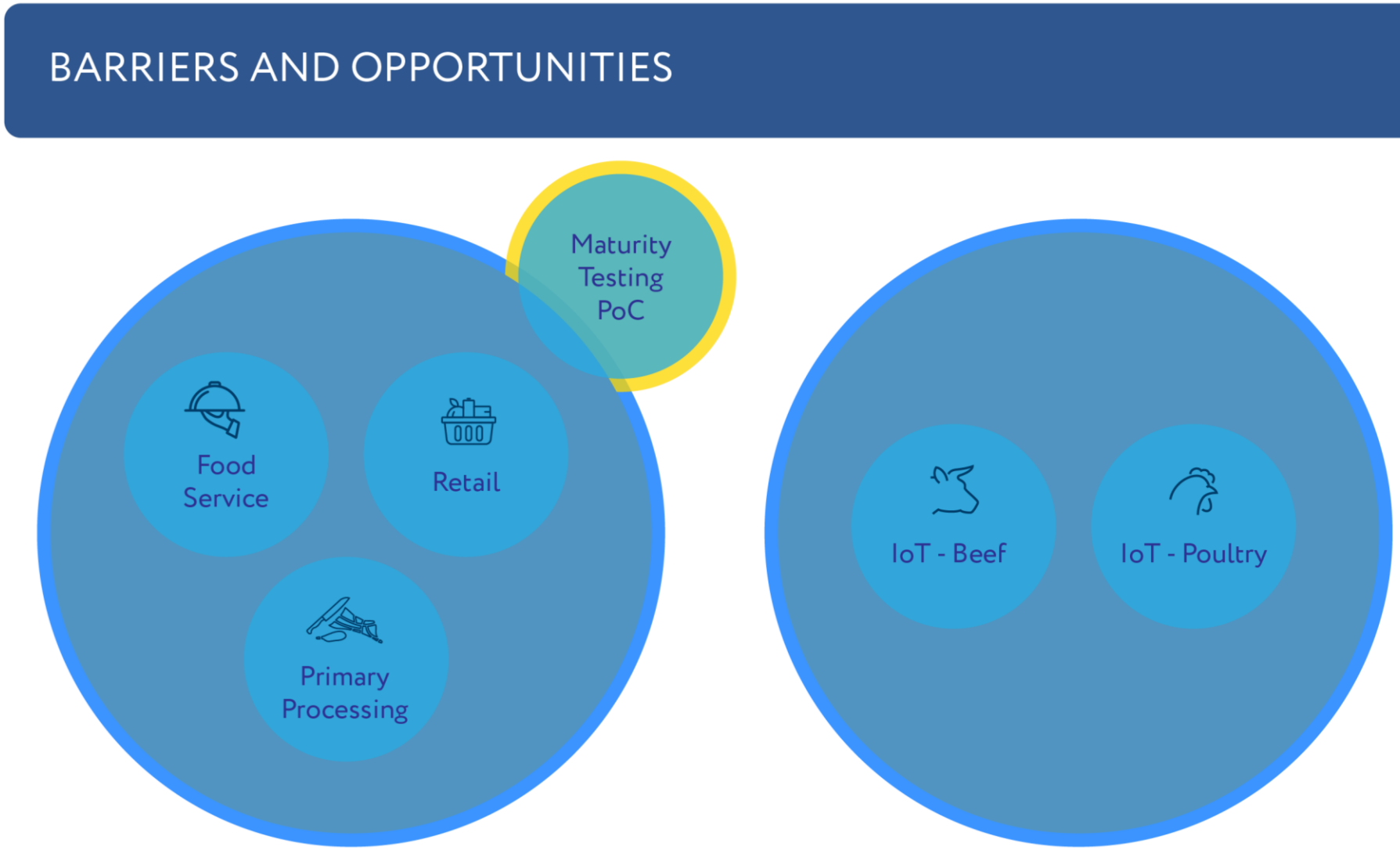
Cost: in terms of both development cost and cost to customers, the centralised cryptographic ledger is a much cheaper solution in both the short and long term, as we have no need to pay per transaction in order to store data on a major public blockchain.

Appropriate Application of Technology: major public blockchain solutions have a drawback of slower transaction speeds and higher energy usage (to the point where public awareness of the energy usage of, say, Bitcoin or Ethereum has become a green issue).

Flexibility: as the solution matures, we have the flexibility to change up the underlying technology of our cryptographic ledger as long as it delivers the same functionality.

Control: customers can control how and when their blocks are shared with other stakeholders in their supply chain

INNOVATE UK- WORK STREAMS



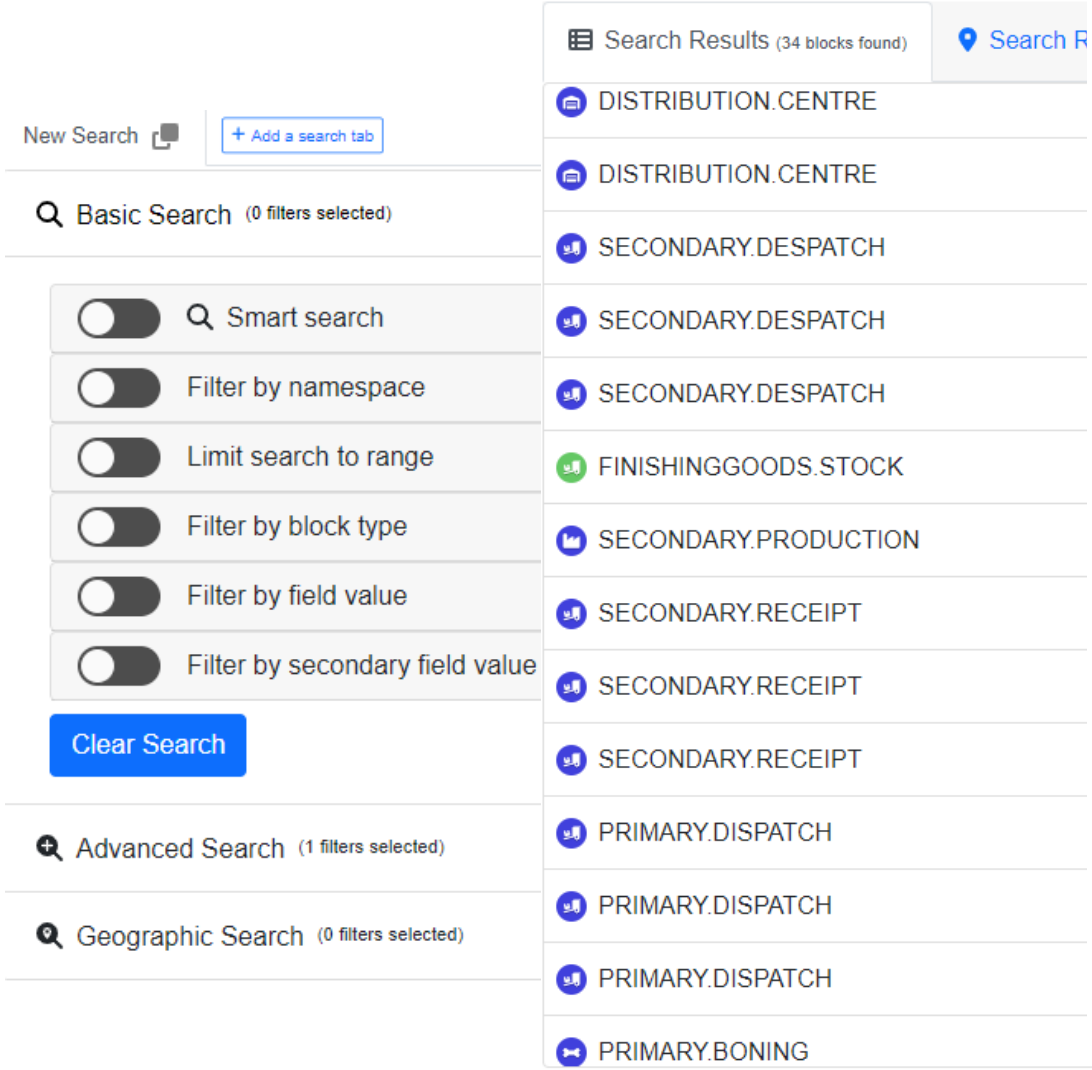
VALUE PROPOSITIONS

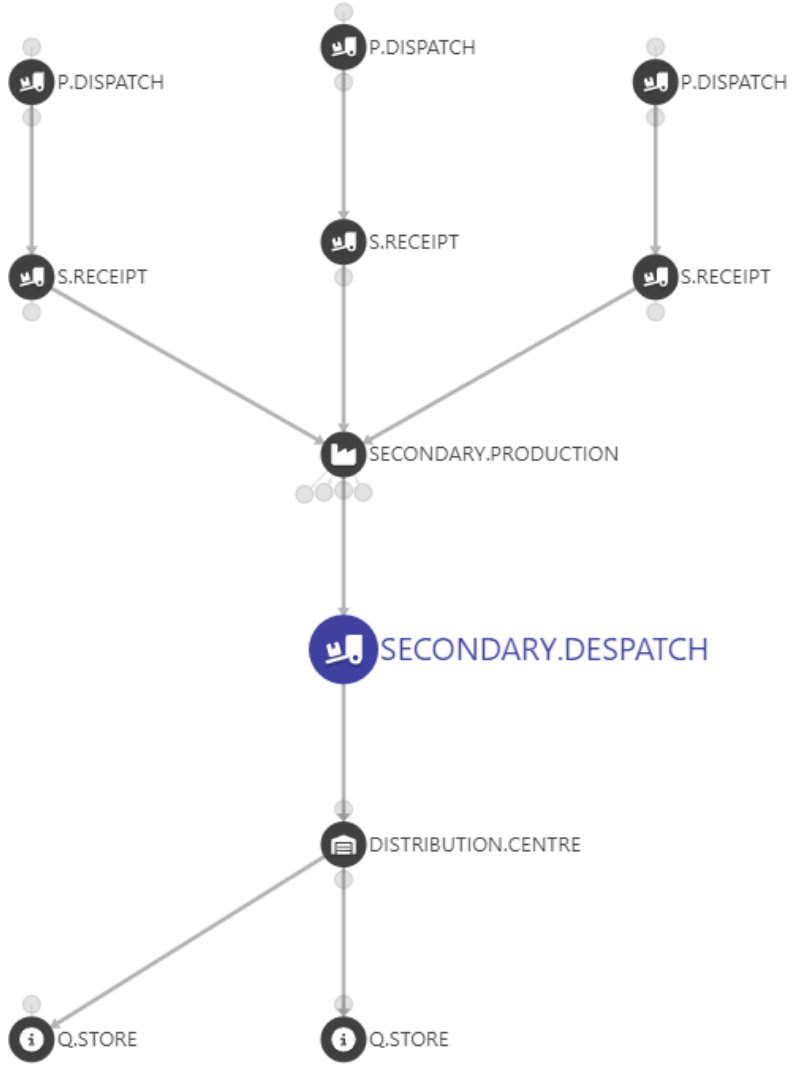
Interoperable prototype traceability system for supply chain transparency & efficiency

Base Line Traceability (intake→ consumption→ finished product → Despatch)

Enhanced stock/inventory visibility	Inventory management from stakeholders in the chain
Temperature Profile	Capture and visualise a product temperature profile
Rapid Recall	Ability to identify and ring fence potentially effected product in the supply chain

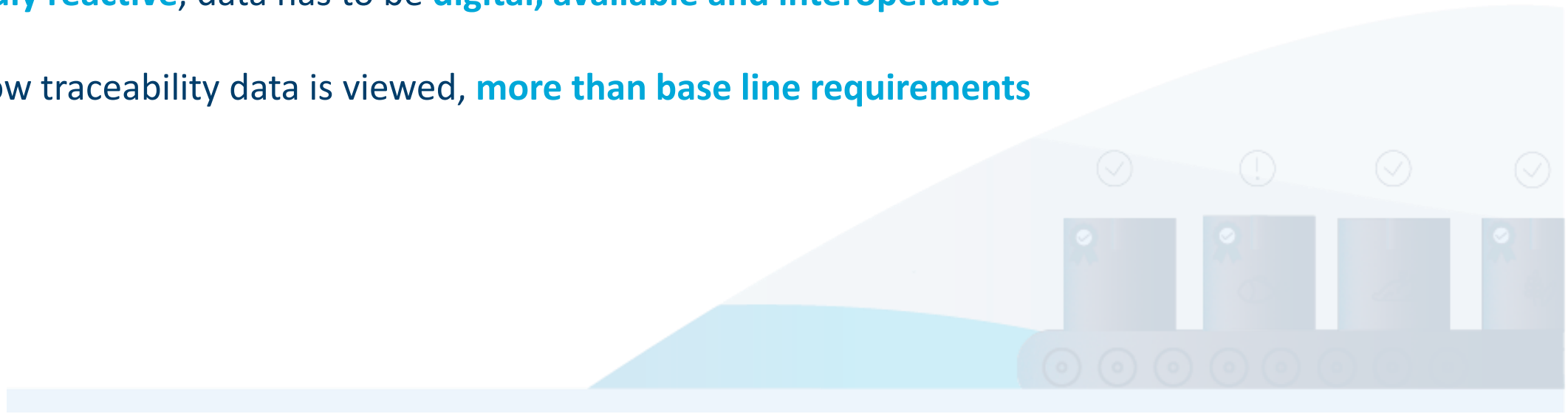
TRACE CONNECTED





DRIVERS FOR PROACTIVE DIGITAL TRACEABILITY

- **Legislated or industry** driven?
  - UK- approach to traceability remained largely unchanged
  - US- FMSA 204, driving digital change in traceability
- Desire for **proactive issue** management (real time informed decision making)
- Legislative requirement→ reactive decisions, **no prescribed formats, data standards**
  - To be **truly reactive**, data has to be **digital, available and interoperable**
- Change in how traceability data is viewed, **more than base line requirements**



CHALLENGES TO PROACTIVE DIGITAL TRACEABILITY

Supply Chain

- Buy In- how is transformation funded & resourced?
- Supply Chain Intricacies/complexities, e.g. globalised supply chains, fragmented fisheries, third party buyers/agents
- Standardisation

Technical

- Digitisation is a journey- fisheries
- Technical Know How- provisioning for digital fluency & investment in people
- Reliance on third party software & services- cost
- Data standardisation- data definitions, mapping & quality, database architecture, compatibility with standards such as GS1, GDST

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ANY QUESTIONS?