TSP-SIG Meeting 9

16th June 2022

National GS1 Traceability Advisory Group

Connecting Australian supply chains for enhanced e2e traceability

Traceability Solution Providers Special Interest Group

Collaborate, educate and standardise
Thursday 16 June, 9.30am - 11.30am
Interoperability & supply chain data exchange
How will it help your business?

Multiple traceability systems can interoperate to transmit and exchange information about a product's journey throughout the supply chain; to support end-to-end food traceability.

Hear from industry experts on how this can be achieved.

1

Acknowledgement of Country

Traceability Solution Providers Special Interest Group

We acknowledge the Traditional Custodians of the various lands on which we meet and work today and any First Nations' people that may be participating in this meeting.

Specifically, we acknowledge the people of the Kulin and Eora nations, where GS1 offices are located, and pay our respects to elders past, present and emerging.

We recognise and celebrate the diversity of First Nations' people, and their ongoing cultures and connections to the lands and waters across Australia.

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Meeting Etiquette

Traceability
Solution Providers
Special Interest Group

Introduce Yourself
When asking a question

Be Considerate
Silence phones
Keep comments concise

Be Collaborative
Ask questions
Be open to other views

Be Professional
Speak on company's behalf

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Identify Yourself : Name & Company

Traceability
Solution Providers
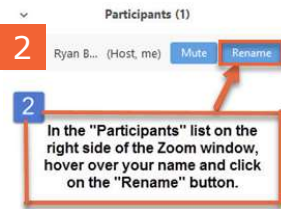Special Interest Group

- How to change your screen name:

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Use the Q&A

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- Click the bar at the bottom of your screen
- Click Q&A to pose questions

Click here

Security | Participants 1 | Polls | Q&A

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Competition Law Caution

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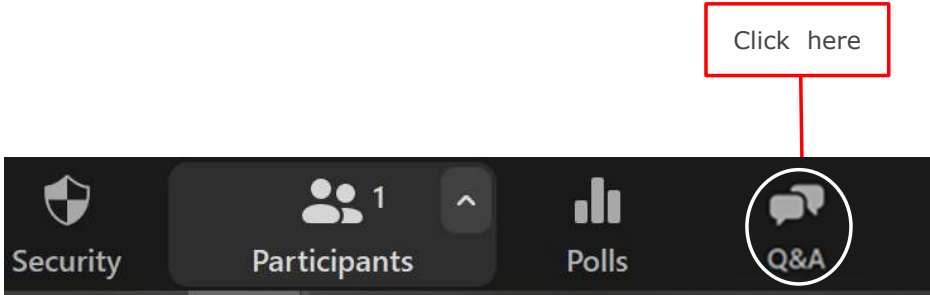
Participants on GS1 Boards, committees, task forces, work groups, or other similar bodies, must always remember the purpose of the Board, committee, task force, or work group is to enhance the ability of all industry members to compete more efficiently and effectively to provide better value to the consumer or end user.

GS1 activity almost always involves the cooperation of competitors; therefore, great care must be taken to assure compliance with competition laws in Australia and in other jurisdictions (including the Australian Consumer Law (ACL), the Competition and Consumer Act (CCA) and state based Fair Trading Legislation.

This means:
- Participation must be voluntary, and failure to participate shall not be used to penalise any company.
- There shall be no discussion of prices, allocation of customers or products, boycotts, refusals to deal, or market share. (For the avoidance of doubt, this does not preclude discussion of GS1 Australia's prices, customers or products.)
- If any participant believes the group is drifting toward impermissible discussion, the topic shall be tabled until the opinion of lawyer(s) with experience in competition law can be obtained.
- Where appropriate, meetings shall be governed by an agenda prepared in advance and recorded by minutes prepared promptly after the meeting.
- Where appropriate, tests or data collection shall be governed by protocols developed by GS1 in consultation with, and/or monitored, by legal counsel.
- The recommendations coming out of a GS1 Board, committee, task force, work group, are just that. Individual companies remain free to make independent, competitive decisions.
- Any standards developed must be voluntary standards.

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Agenda

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Special Interest Group

- Welcome from Peter Carter

- Setting the scene by Robert Beideman - via video

- Keynote Speaker – John G Keogh

- Have your say - Poll

- Case Study Presentation

  - Paul Ryan – Trust Codes

  - Max Soyref - KPMG

  - Rose Elphick Darling – Deakin University

- Panel Discussion including Ian Watt and John Keogh

- General Business

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Setting the Scene - Robert Beideman

GS1 Australia | Traceability
Solution Providers
Special Interest Group

Interoperability and supply chain data exchange

An interview with Robert Beideman
GS1 Chief Product Officer

0:04 / 10:52

Short extract
10 min

View full interview
Approx 25 min

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John G. Keogh

Managing principal at Toronto-based niche advisory and research firm Shantalla Inc.

Published 30 peer-reviewed research papers and chapters on supply chains, digital transformation, blockchain, IoT, semantic web and interoperability, augmented reality, and GS1 standards.

Professor of Practice at McGill University Centre for the Convergence of Health and Economics (MCCHE).
Researching large scale interoperable digital ecosystems for the agri-food sector.

Recently advised the US FDA on revised product recall ruling

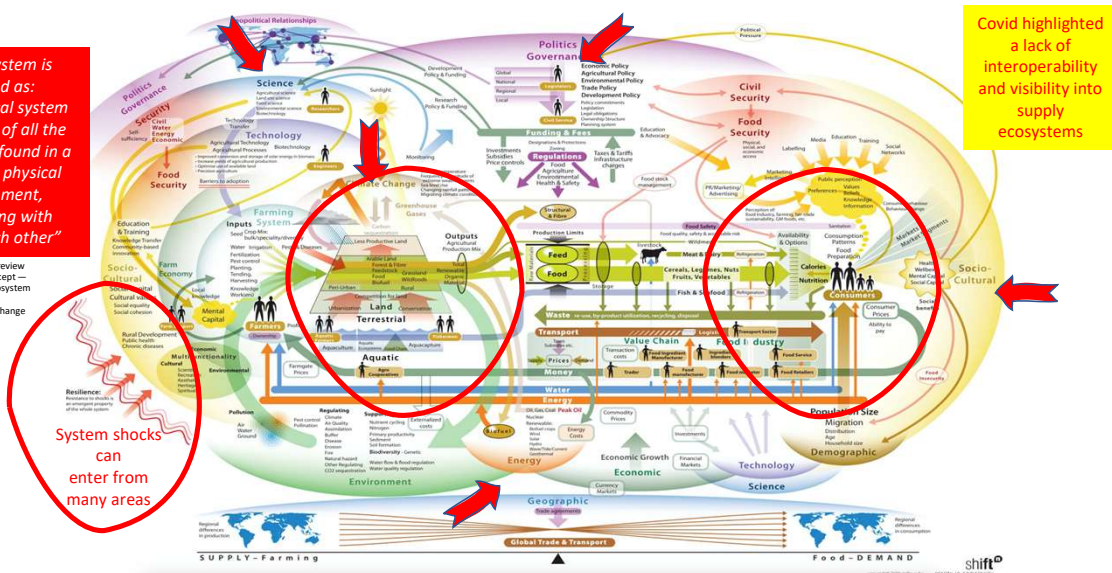*Regular keynote speaker and media analyst.*

Currently on an extended field mission in Vietnam working on two capacity building projects for the Canadian government and World Bank assessing agri-food traceability, ecosystems interoperability and digital transformation

Recognized globally as an expert advisor in supply chain management, supply chain transparency & trust, digital transformation, industry standards

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Today's food supply comprise complex ecosystems across multiple stakeholders, countries and languages, disparate technologies and tools, essential services and regulations that aim to produce and distribute safe and nutritious foods

An ecosystem is defined as:
"A biological system composed of all the organisms found in a particular physical environment, interacting with it and each other"
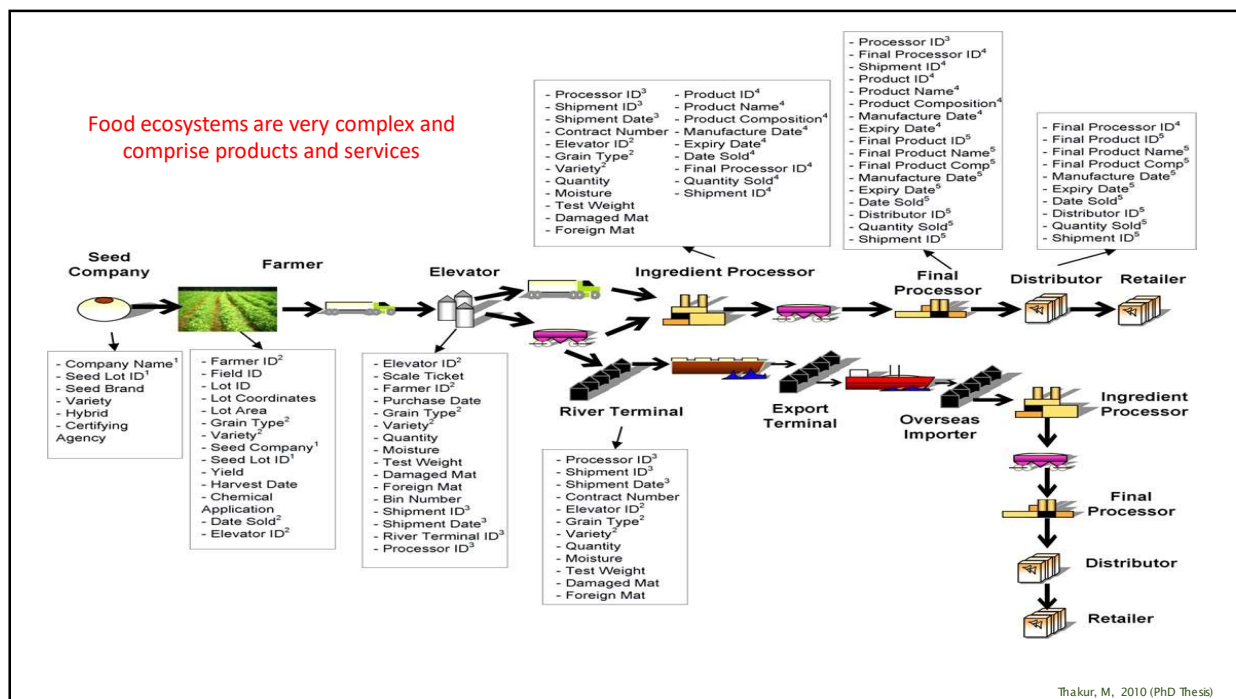
M. Tsujimoto et al. A review of the ecosystem concept — Towards coherent ecosystem design. Technological Forecasting & Social Change 136 (2018) 49–58
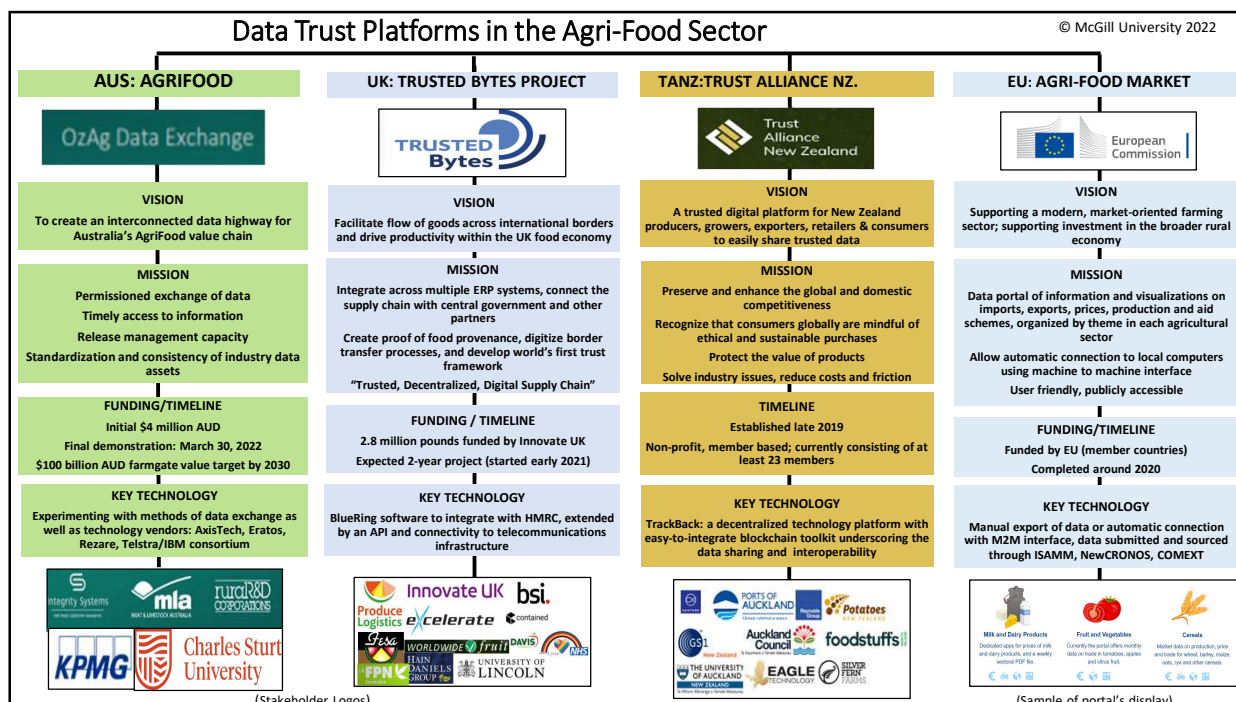
Covid highlighted a lack of interoperability and visibility into supply ecosystems

Resilience:
Resistance to shocks is an emergent property of the whole system

System shocks can enter from many areas

Shantalla Inc. 2020 ©

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Food ecosystems are very complex and comprise products and services

Thakur, M, 2010 (PhD Thesis)

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Data Trust Platforms in the Agri-Food Sector

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AUS: AGRIFOOD	UK: TRUSTED BYTES PROJECT	TANZ:TRUST ALLIANCE NZ.	EU: AGRI-FOOD MARKET
OzAg Data Exchange	TRUSTED Bytes	Trust Alliance New Zealand	European Commission
VISION To create an interconnected data highway for Australia's AgriFood value chain	**VISION** Facilitate flow of goods across international borders and drive productivity within the UK food economy	**VISION** A trusted digital platform for New Zealand producers, growers, exporters, retailers & consumers to easily share trusted data	**VISION** Supporting a modern, market-oriented farming sector; supporting investment in the broader rural economy
MISSION Permissioned exchange of data	**MISSION** Integrate across multiple ERP systems, connect the supply chain with central government and other partners	**MISSION** Preserve and enhance the global and domestic competitiveness	**MISSION** Data portal of information and visualizations on imports, exports, prices, production and aid schemes, organized by theme in each agricultural sector
Timely access to information Release management capacity Standardization and consistency of industry data assets	Create proof of food provenance, digitize border transfer processes, and develop world's first trust framework "Trusted, Decentralized, Digital Supply Chain"	Recognize that consumers globally are mindful of ethical and sustainable purchases Protect the value of products Solve industry issues, reduce costs and friction	Allow automatic connection to local computers using machine to machine interface User friendly, publicly accessible
FUNDING/TIMELINE Initial $4 million AUD Final demonstration: March 30, 2022 $100 billion AUD farmgate value target by 2030	**FUNDING / TIMELINE** 2.8 million pounds funded by Innovate UK Expected 2-year project (started early 2021)	**TIMELINE** Established late 2019 Non-profit, member based; currently consisting of at least 23 members	**FUNDING/TIMELINE** Funded by EU (member countries) Completed around 2020
KEY TECHNOLOGY Experimenting with methods of data exchange as well as technology vendors: AxisTech, Eratos, Rezare, Telstra/IBM consortium	**KEY TECHNOLOGY** BlueRing software to integrate with HMRC, extended by an API and connectivity to telecommunications infrastructure	**KEY TECHNOLOGY** TrackBack: a decentralized technology platform with easy-to-integrate blockchain toolkit underscoring the data sharing and interoperability	**KEY TECHNOLOGY** Manual export of data or automatic connection with M2M interface, data submitted and sourced through ISAMM, NewCRONOS, COMEXT

(Stakeholder Logos)

(Sample of portal's display)

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6/16/2022

"The essential significance of the ecosystem concept is generated from the analysis of organic networks, based not only on a positive view of their functioning, but also the negative and competitive aspects: ecosystem-level competition, predation, parasitism, and destruction of the whole system. Each actor in the ecosystem has different attributes, decision-making principles, and purposes. These differences cause unintended results at the ecosystem level, although each actor's decisions and behavior may be rational at any specific point. The analytical border of the ecosystem is the product/service system, and is not limited to national borders, regional clusters, contractual relations, and complementary providers. Within the border, not only business actors, but also non-business actors are included. Naturally, the ecosystem analysis requires the longitudinal observation of the product/service system's dynamic evolution or extinction"
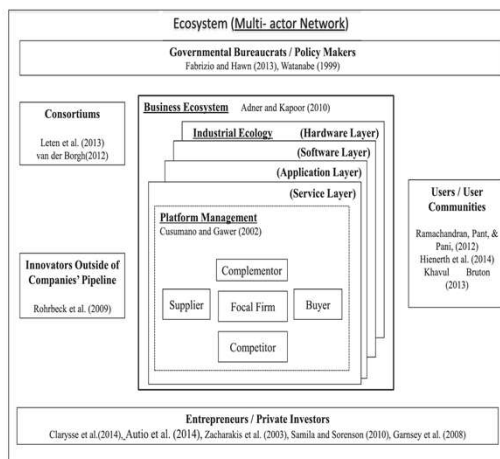
M. Tsujimoto et al. A review of the ecosystem concept — Towards coherent ecosystem design. Technological Forecasting & Social Change 136 (2018) 49–58

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Conclusions

- We don't have food supply chains anymore – we have complex food supply ecosystems

- Interoperability between ecosystems is an essential consideration to build resilience

- Systems thinking is a lost skill…..organizations MUST consider the potential cascading consequences of adjacent systems failures

- Foundational standards like GS1/ISO and others are essential considerations to enable interoperability – one platform or one ecosystem with multiple platforms will not be sufficient

- Think about the ATM model of interoperability with embedded trust and transparency

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Have Your Say

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Poll

- **Q1. Market awareness -** Out of 5, how would you rate the market's (or your customers') knowledge of data standards use in supply chain traceability systems *eg. understanding the value of traceability system interoperability?* [0 = less/no knowledge to 5 highly knowledgeable]

- **Q2. Role of industry organisations -** Should peak industry organisations play a more or less active role promoting awareness of and a standards-based approach to supply chain interoperability to realising the benefits of enhanced traceability [0 = less/no to 5 more/large]

- **Q3. Role of government** – to what extent (if at all) do you agree that governments should play a more proactive role in promoting awareness and use of data standards for supply chain traceability to realise public benefit [0 = less/no to 5 more/large]

- **Q4. GS1 standards awareness** - Would you be interested in a solution providers deep dive or review of the GS1 traceability standard guideline? Example: For the Australian dairy industry.

- Yes or No

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Interoperability Case Study Review

GS1 Australia | Traceability **Solution Providers** Special Interest Group

Paul Ryan
Trust Codes

Chief Executive Officer

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Max Soyref
KPMG

Director, Ventures

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Rose Elphick –Darling
Deakin University

Research Fellow
Centre for Regional and
Rural Futures

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OVERVIEW OF THE INFANT NUTRITION E2E TRACEABILITY

Data interoperability | Connected Products | Product Cloud
Digital Brand Protection | Anti-counterfeit | End-to-end Traceability

TRACEABILITY 4.0

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Trust Codes product cloud and unique digital licence plate

- Trust Codes product cloud is based on a unique digital identity/licence plate for everything- a **digital twin** of the physical item- 100s of millions of infant formula cans and milk powder bags have a digital identity from birth.

- The digital twin is tracked throughout the manufacturing and supply chain. The digital twin connects product data across the value chain for traceability, visibility, validation, real time intelligence and connection with people.

- Machine learning intelligence and business logic – both programmed and predictive – applied to that digital twin.

- All based on interoperability and data coherency delivered by GS1 standardised data and syntax.

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Infant nutrition market context

- Many routes for supply to the consumer create supply chain opacity.
- Regulatory impact for marketing of products in many markets.
- Multiple layers of product distribution- aggregation and disaggregation make accurate end to end traceability difficult.
- Traceability is a competitive edge and helps engage with consumers transparently
- Often products have been distributed by "informal channels"

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Trust Codes interoperability

GTIN: 09421902960062
LOT: 2110007249
PRD: 21287
EXP: 23286
UNITS: 10
SSCC: 89421028300543139

(02)09421902960062(11)21287(17)23286(10)211007249(37)10

(00)89421028300543139
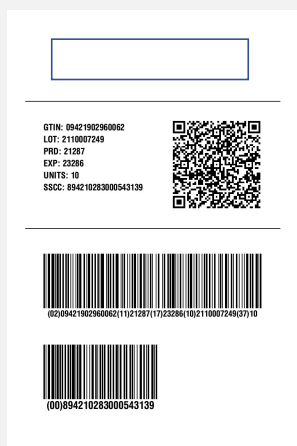
- Interoperability is not merely applying a GS1 standard data set or barcode.
- It includes methods to exchange standards based, coherent data between many disconnected participants in the value chain.
- Use of data aggregation, standards, security and obfuscation are all part of interoperability, and platform providers exist to simplify the data management and governance processes, and to develop and support data interoperability.

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CASE STUDY: AUSTRALIAN BEEF

Beef
- Data Flow
- Product Flow

Regulator
Buyer
Financier
Retailer
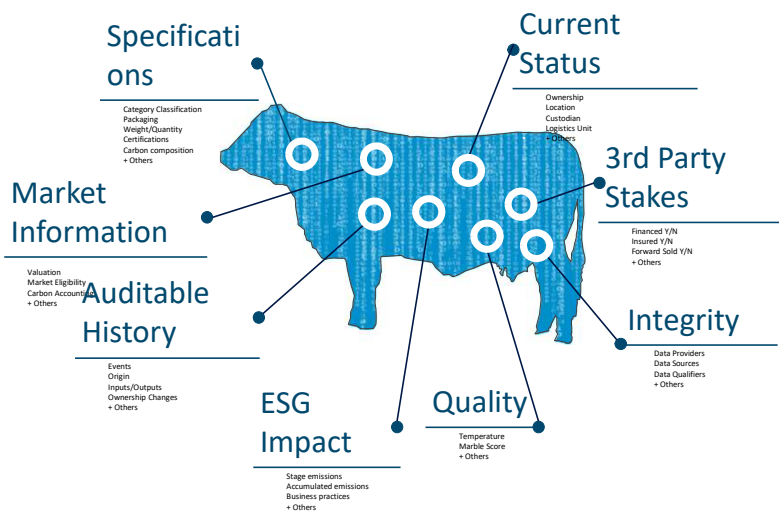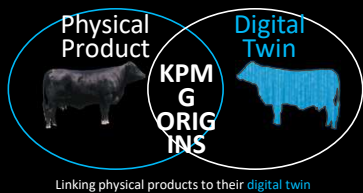
KPMG Origins

Retailer
Processor
Farm
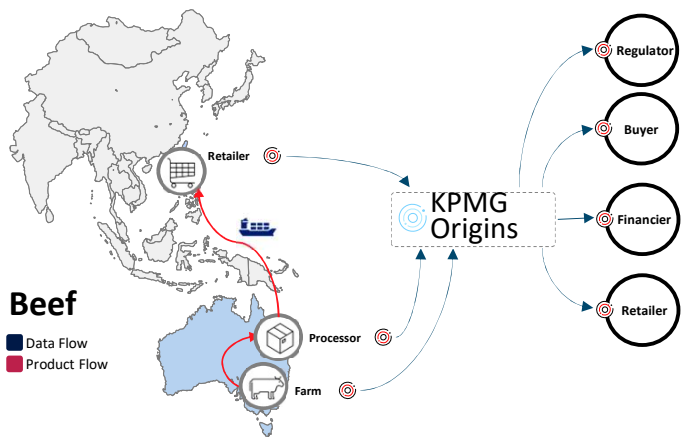
In the 21st century commerce, products rely on **complex value chains** to assemble together **credentials** such as provenance, asset traceability, financing and insurance

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STANDARDISING DATA

Seamlessly connected, standardised and validated data to enable a common digital twin asset taxonomy to empower the data interchange between organisations.

Physical Product — KPMG ORIGINS — Digital Twin

Linking physical products to their digital twin

Specifications
Category Classification
Packaging
Weight/Quantity
Certifications
Carbon composition
+ Others

Current Status
Ownership
Location
Custodian
Logistics Unit
+Others

3rd Party Stakes
Financed Y/N
Insured Y/N
Forward Sold Y/N
+ Others

Market Information
Valuation
Market Eligibility
Carbon Accounting
+ Others

Auditable History
Events
Origin
Inputs/Outputs
Ownership Changes
+ Others

Integrity
Data Providers
Data Sources
Data Qualifiers
+ Others

ESG Impact
Stage emissions
Accumulated emissions
Business practices
+ Others

Quality
Temperature
Marble Score
+ Others

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INTEROPERABILITY

Interoperability across supply chains enables greater collaboration and extends traceability solution use-cases

Internal Operational Systems

Ecosystem wide collaboration platforms

Ecosystem wide collaboration platforms

Internal Supply Chain Systems

Internal Bank and Insurer Systems

Internal Operational Systems

COMMON TAXONOMIES

Industries need common language and data requirements to describe their products and features of the products – this needs to go beyond Logistics and Retail but include financiers, insurers and regulators

DATA STANDARDISATION

Organisations using same data taxonomies should be able to share data in a standardised format

INTEROPERABLE IDENTIFIERS

Ability to use identifiers that are relevant to the part of the supply chain is key – supporting multi-ID formats helps make players interoperable

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Thank you

Max Soyref
Director, Ventures
msoyref@kpmg.com.au

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Industry Case Study
ORGANIC PRODUCE

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Why implement industry demonstrations?

To test the E2E data model in real world settings … using data formats that allow agreed SC level information to flow between partners with a range of applications, processes and technologies.

To better understand the challenges … identifying (and remedying) gaps in coverage, or challenges in implementation.

To better understand the broader costs and benefits … in terms of efficiencies, cost-savings, visibility, technology uptake and compliance support in compliance.

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How does it work … who does what?

Deakin	R&R Smith	iTrazo	Woolworths	GS1 Australia	SRT Logistics
Project management	Supply information on processes and IT systems	Assess system gaps	SC mapping through Primary Connect and WOW inbound and distribution	Review of data standards	CTE data from TMS on specific shipments
Evaluation Reporting	Determine CTEs/KDEs (especially those underpinning organic status	Selection of input technology	Determine metrics to measure impact	Advisory for implementation solution providers	
	Determine metrics to measure impact	Complete Supply chain eco-system process mapping	End-to-end traceability testing		
	Product recall test	End-to-end traceability Solution for Key data elements and critical trace events	Product recall		
		Complete Supply chain data exchange and			

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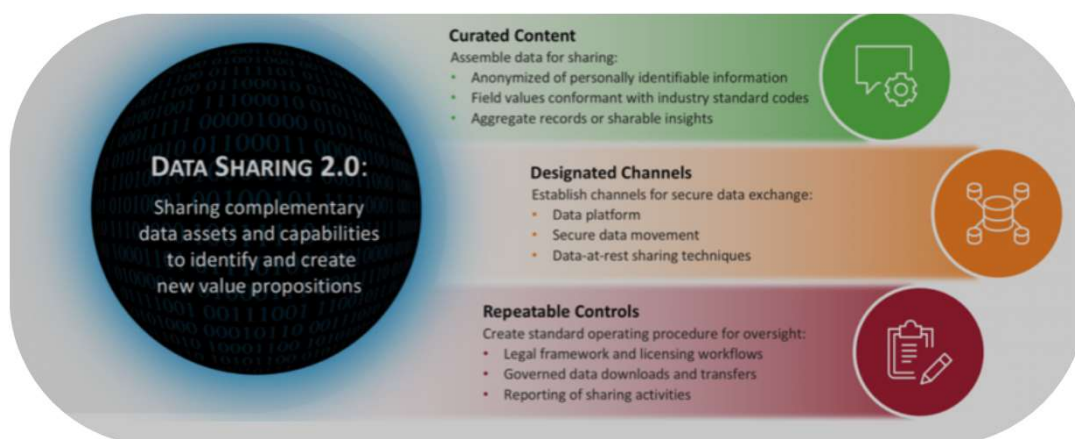## Complete Eco-System Supply chain process
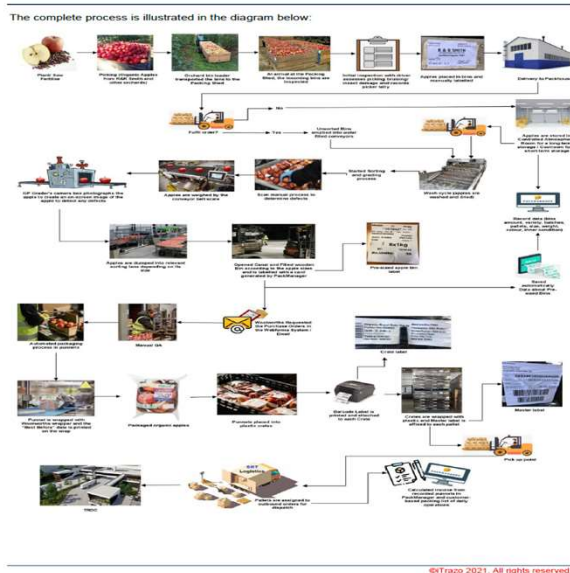
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Business benefits

Efficiency	Clarity on CTE/KDE suite, verification of data, saving integration costs, the potential to automate
Security	Cybersecurity management of data
Visibility	Platform access, product data flow across enterprise systems

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Next steps

Source MIT 2020

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Panel Session

John G. Keogh
Veteran | Strategist | China Observer |
Advising & Researching Digital Supply
Ecosystems & Transparency & Trust

Rose Elphick –Darling
Deakin University

Ian Watt
Vice Chair
UN/CEFACT Bureau - Program
Development Area

Max Soyref
KPMG

Paul Ryan
Trust Codes

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General Business

- Traceability Solution Provider - Special Interest Group

EDUCATION   STANDARDS   COLLABORATION

SCAN ME

Open to all industries and solution providers interested in supporting enhanced product traceability for Australian industry and governments. Traceability requirements are continually evolving. No single solution is likely to meet all industry needs, now or into the future.

You are welcome to play an active or passive role in the group with the intention of networking, sharing insights and hearing from industry and government representatives to discuss projects, issues, trends and, where possible, align needs.

There is no cost to participate in this group other than the contribution of your time.

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General Business

- DAWE update
- Next NGTAG open event, 2DBarcodes

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