GS1® Australia

National GS1 Traceability
Advisory Group
Solution Provider Group

The path to interoperability

CASE STUDIES AND APPROACH GOING FORWARD

Tuesday 23 May 2023, 10.30am to 12.00pm AEST

Levine Naidoo
Executive Director
LXNDigital

Michael Dossor
Managing Director
Result Group

Luke Wood
CEO & Founder
Escavox

Greg Calvert
Co-founder & Director
FreshChain Systems

LXN

RESULT GROUP OF COMPANIES

escavox
QUALITY PRODUCE HAS A VOICE

FreshChain

Agenda

Time	Item	Who
10.30am	Welcome and Introduction	**Peter Davenport** Manager – Alliances **GS1 Australia**
10.35am	Opening Remarks and official welcome	**David McNeil** Manager - Customer Experience **InfraBuild Steel**
10.45am	Framework of Interoperability	**Levine Naidoo** Executive Director **LXN Digital**
11.00am	A case study of how interoperability standards in the IoT sector have accelerated market uptake of these systems and their associated relationship to with traceability.	**Luke Wood** CEO and Founder **Escavox**
11.15am	Cherry Plus case study	**Greg Calvert** Co-founder and Director **FreshChain Systems**
11.30am	Case Study 3	**Michael Dossor** Managing Director **Result Group**
11.45am	Panel Session with Q&A	**Moderator:** Peter Carter **Panellists:** Levine Naidoo, Michael Dossor, Greg Calvert, Luke Wood, David McNeil
11.55am	General Business & Close	**Peter Carter** Director of Innovation **GS1 Australia**

Acknowledgement of Country

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.

GS1 Australia
Competition Law Caution

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.

Official Welcome
by Co-Chair of the NGTAG

David McNeil

Manager - Customer Experience

InfraBuild

National Accord Statements

1 For the greater good	2 Interoperability and global data standards
Traceability systems can deliver competitive advantages to individual companies. It is its aggregate value across the economy that will deliver greater safety for all Australians and lift Australia's brand in key export markets.	Interoperability of traceability systems is critical to ensure transparent and cost-effective implementation of solutions. Interoperability is needed within and across sectors, domestically and internationally.
3 Traceability insights, collaboration and sharing	4 Transparency with privacy
The business value of full product traceability can be harnessed through collaboration and sharing of traceability insights along with necessary data on both critical incident as well as on a regular basis.	Transparency is a key principle for responsible sharing of traceability data to establish full endto- end product traceability. The signatories recognise that the sharing of traceability data with supply chain partners must be done with data sharing agreements and privacy protections in place.
5 Resolution of incident and data disposal	6 Traceability with purpose
Resolution of product safety incidents, including food safety, in a timely manner is one of the key criteria for successful implementation of traceability solutions.	Traceability must deliver benefits that are tangible, measurable and meaningful to consumers, industry and governments. In this respect traceability is a means to an end, rather than an objective on its own.

Signatories to the Accord

Signatories of the National Traceability Accord agree to:

- Openly collaborate on end-to-end traceability in a non-competitive way, for the benefit of all.
- Utilise global data standards, update or develop new standards when necessary and strive to support interoperability to the greatest extent practical.
- Commit to share traceability insights to enhance product safety and recall, biosecurity and authenticity in both domestic and global markets.
- Recognise the need to share traceability data with supply chain partners based on data sharing agreements, whilst protecting privacy and intellectual property.
- Agree to share relevant product data amongst themselves along with external entities for timely resolution. Signatories will commit to the timely disposal of data shared along with the supporting artefacts.
- Share a common goal to enhance traceability to achieve safer and more responsible production and consumption, to gain market access, more effectively meet regulations, to increase efficiencies and capitalise on circular economy opportunities.

Strategy 2022-2024

Revised Priorities

Progress Traceability through sharing and awareness.	Connect, empower and support industry to lead	Support and promote an ecosystem for interoperability	Support state, territory and federal activities and cross agency collaboration
Info Sharing, Awareness & Education	**Industry Partnerships & Collaboration**	**Interoperable Technology Ecosystem**	**National Traceability Strategy**

Levine Naidoo - LXNDigital

Levine Naidoo
Executive Director

LXNDigital

LXNDigital

A PRACTICAL PATHWAY TO TRACEABILITY INTEROPERABILITY

May 2023

Levine@LXNDigital.com

Contents

- Introduction

- What does traceability interoperability mean?

- Why is it important?

- What is the complication?

- Taking a layered approach

- Summary

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What is supply chain traceability information?

Refers to the information collected and recorded at various points in a supply chain, which enables businesses to track and trace the movement, origin, and history of a product or raw material.
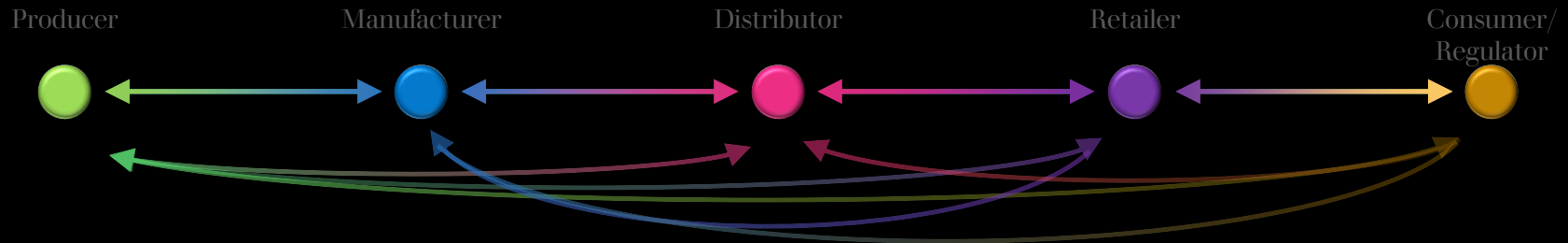
| Producer | Materials & Origin | Manufacturer | Product & Processing | Distributor | Transport & Storage | Retailer | Chain of Custody & Quality | Consumer/ Regulator |

Can include data pertaining to:

- Identification

- Product

- Origin

- Processing and Handling

- Transport and Logistics

- Transactions

- Chain of Custody

What is traceability interoperability?

Refers to the seamless exchange of traceability information across different systems, organizations, and supply chain stages (end-to-end).

- Different stakeholders can capture, exchange and process data seamlessly regardless of specific systems and platforms

- Information is exchanged in both directions

Producer   Manufacturer   Distributor   Retailer   Consumer/
                                                                                Regulator

- End to end traceability interoperability means capturing and sharing data seamlessly across the value chain

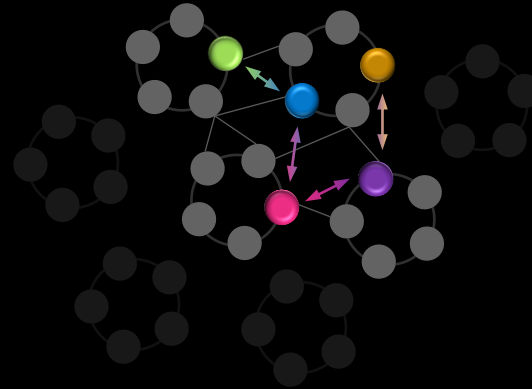# Why is traceability interoperability important

- Visibility

  - Transparency

  - Risk and compliance

  - Trust

- Resilience

  - Friction

  - Agility and response times

- Sustainability

  - Waste

  - Circularity

  - Scope 3

What's the complication

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Technology

- Technology
  - Market fragmentation
  - Legacy systems
  - Integration challenges
  - Connectivity challenges
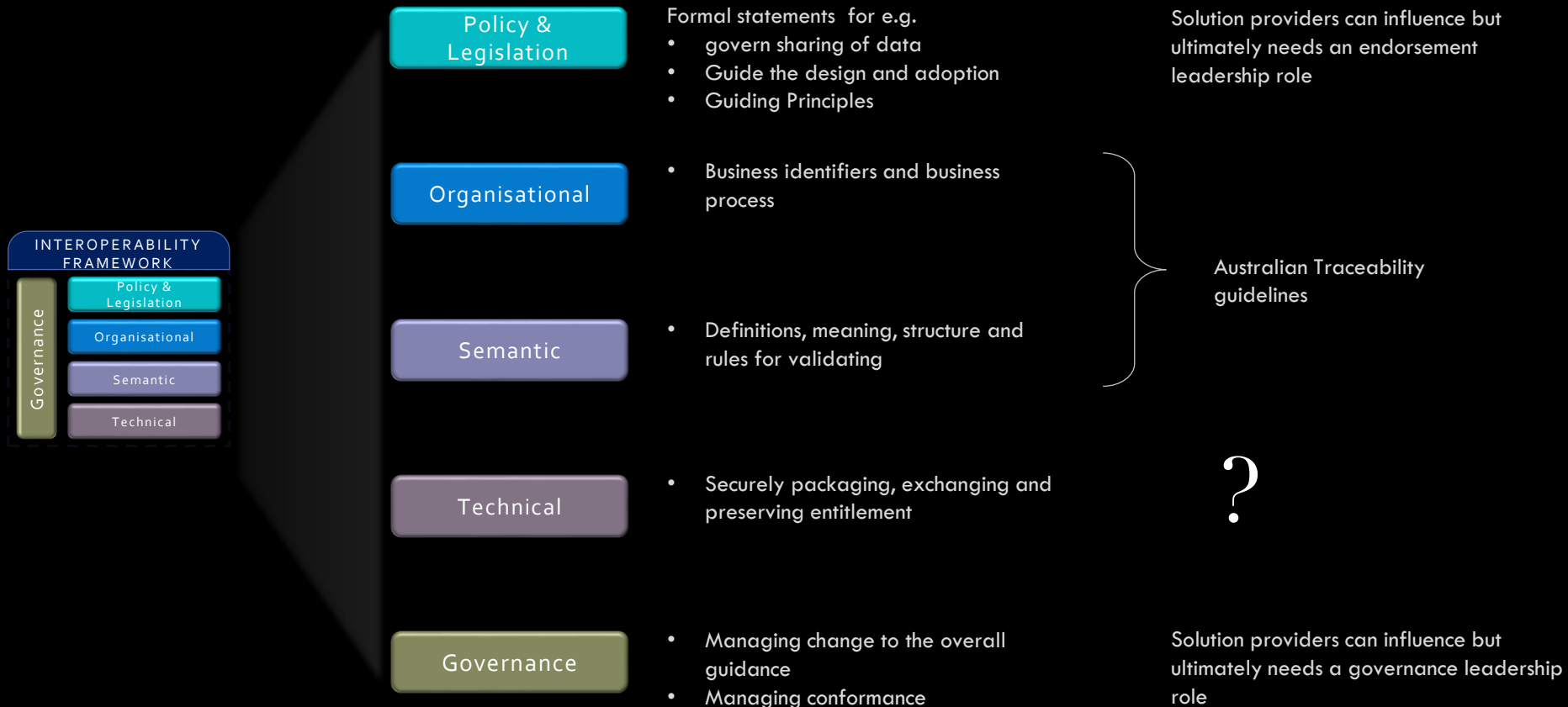
Data

- Data
  - Data islands
  - Security

Organisational

- Organisational
  - Resistance to change
  - Resource constraints
  - Costs
  - Collaboration mindset

Applies to every industry sector

Interoperability layers

INTEROPERABILITY FRAMEWORK

Governance

- Policy & Legislation
- Organisational
- Semantic
- Technical

Policy & Legislation

Formal statements for e.g.
- govern sharing of data
- Guide the design and adoption
- Guiding Principles

Solution providers can influence but ultimately needs an endorsement leadership role

Organisational

- Business identifiers and business process

Australian Traceability guidelines

Semantic

- Definitions, meaning, structure and rules for validating

Technical

- Securely packaging, exchanging and preserving entitlement

?

Governance

- Managing change to the overall guidance
- Managing conformance

Solution providers can influence but ultimately needs a governance leadership role

LXN

Summary

- Why traceability interoperability is important

- A cross sector challenge

- A barrier to traceability adoption

- Layers can be domain specific

- Layers can be common across sectors

- Cross-sector collaboration is essential

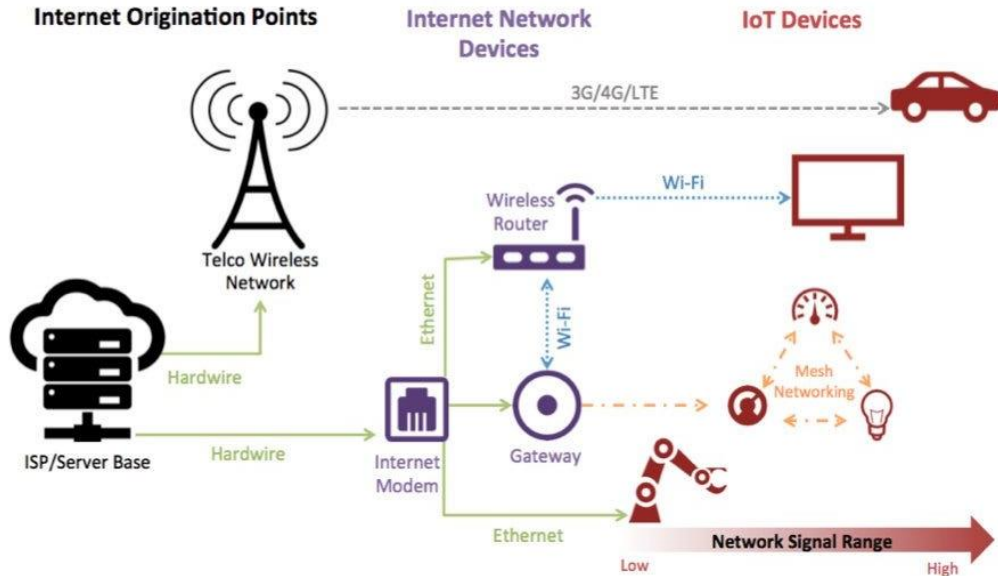# Luke Wood - escavox

Luke Wood
CEO and Founder

Escavox

The Path to Interoperability

- a case study of how interoperability standards in the IoT sector have accelerated market uptake of these systems and their associated relationship to with traceability.

Presented by Luke Wood

The IoT Landscape requires 3 layers of interoperability

Technical – the physical
- *How do I actually connect or plug into something else*
- *Eg: 3G/45/LTE, WiFi, BTE*

Syntactic – the language
- *How do I communicate with whatever it is I have plugged in to*
- *ISO/IEC 18000-63, SMS,*

Semantic – the meaning
- *The context and meaning of what I am communicating*
- *EPCIS, KDE, PoS*

Key Take away | *The greater the number of different nodes in the network the more valuable interoperability becomes.*

A single example – GSMA TS.34 IoT Specification

1.1 Problem Statement

The predicted large scale growth of IoT Devices and their associated IoT Device Applications will create major challenges for Mobile Network Operators. One major challenge that Mobile Network Operators must overcome is the risk caused by the mass deployment of inefficient, insecure or defective IoT Devices on the Mobile Network Operators' networks. When deployed on a mass scale such devices can cause network signalling traffic to increase to a level which impacts network services for all users of the mobile network. In the worst cases the mass deployment of such IoT Devices can disable a mobile network completely.

1.3 Intended Audience

The target audiences for this document are Mobile Network Operators, IoT Service Providers, IoT Device makers, IoT Device Application developers, Communication Module Vendors and Radio Baseband Chipset Vendors.

7.3. Network Connection Efficiency

7.3.3. References

See Section 7 – Connection Efficient Requirements from GSMA IoT Device Connection Efficiency Guidelines v7.1:

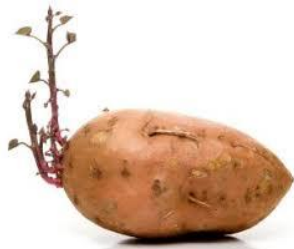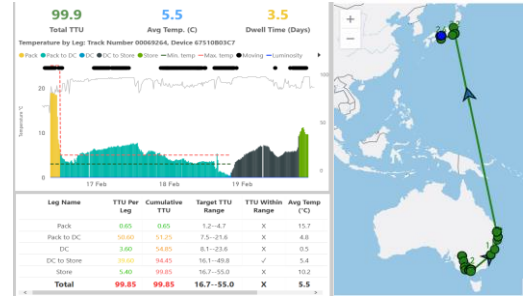GSMA | TS.34 IoT Device Connection Efficiency Guidelines - Newsroom

Key Take away   *All players in the ecosystem must play a role in defining the standard for it to be effective*

How has this changed traceability:
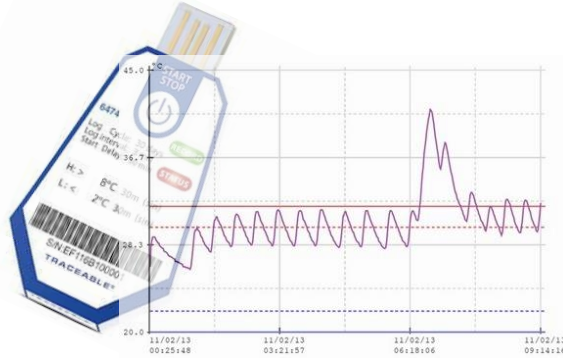
< From This

To This >

< From This

To This >

Key Take away — *Interoperability allows solutions to be deployed which enables change*

Greg Calvert - FreshChain

Greg Calvert
Co-founder and Director
FreshChain Systems

CHERRYPLUS

A standards-based traceability system
to support horticultural industries

Project partners:

Play video ▶

Woolworths Macro Organic Cherries & 2kg Brushed Potatoes

Overview

Objectives
1. To use ISO/IEC-compliant data standards to immediately identify a product's origin or properties in the horticulture supply chain
2. Show that data standards enable efficient emergency responses and supply chain logistics, including all required data for interstate market access
3. Identify areas in the supply chain where the product sits for too long or is exposed to unsuitable conditions to reduce waste.

Methods
To test the suitability of an ISO/IEC-compliant data standard for an integrated traceability system
GS1 data standards and the GS1 National Location Registry were used.
Pilot trials using potato and cherry were conducted to test the efficacy of a data standard traceability system. Potato and cherry were used as pilot commodities as potato is a well-established industry and a staple market commodity and the Australian cherry industry has an interest in using traceability to gain access into markets. Both commodities were supplied to Woolworths as the retailer brands of 'Macro Organics' and 'Woolworths' own label.
Serialised unique QR codes with a GS1 Digital Link label were applied to all consignments in the potato and cherry trials.
For potatoes, 4,500 labels were printed and for cherries, unique serialised labels embedded with data were applied to 1,152 punnets that were linked to 144 serialised crate labels and linked to 4 serialised shipping container codes (Figure 1). These labels were printed on-demand and applied.

What did we want to prove?

| Project Objectives	Status
➔ Instant Property Identification using GS1 Global Location Numbers (GLN's) to support Government quickly deploy support in the event of a biosecurity threat or natural disaster (floods, bushfires, fruit fly incursion)	**Successful**
➔ Multiple mock recalls using the FreshChain platform for rapid identification, containment and sharing of data using GS1 standards in the event of a critical food incident. (back to farm, forward through to DC and stores, real time updated messaging via the QR code for product already sold and potential food fraud. The goal was to identify, capture and share that data using multiple search metrics like GLN, Batch/Lot/Code/Pack date/GTIN/DC/Product description. How long did it take?	**Successful in under 60 seconds**
➔ Linking on-demand printed and serialised punnets to serialised crates to serialised pallets using serialised QR codes with a GS1 Digital Link URI to identify, capture and share data for upstream and downstream traceability.	**Successful**
➔ 4 Digital certificates uploaded on platform for product journey for digital approvals for market access using GS1 GDTI standards (Global Document Type Identifier)	**Successful**
➔ Consumer insights and analytics gained through provenance engagement of the GS1 Digital Link 2D QR codes on every pack	**Successful**
➔ Environmental and location FreshChain sensors travelling with consignments to assess chain of custody and impacts (Temperature, Humidity, Light, Movement, Shock)	**Successful**

The Global Language of Business
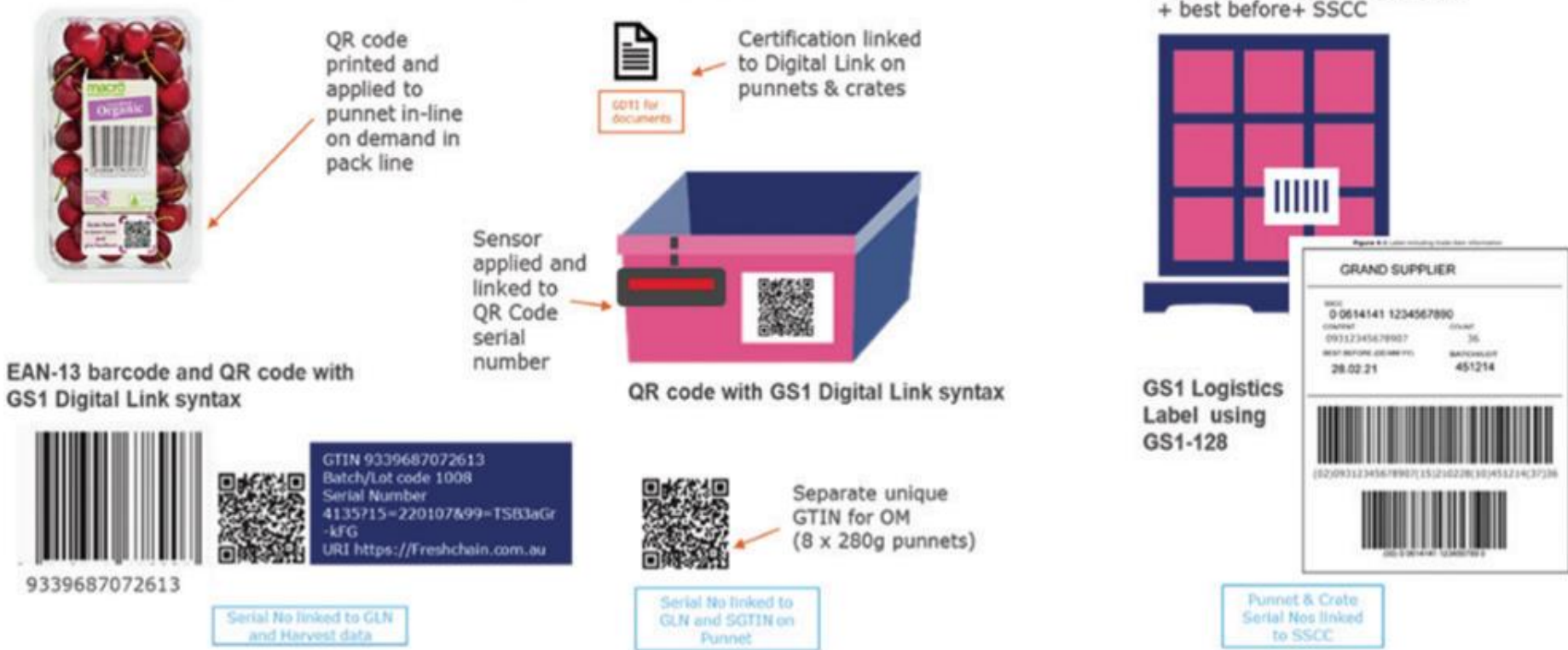
Figure 1. In the cherry trial, every level of packaging was uniquely identified. Source: Wishart (2022).
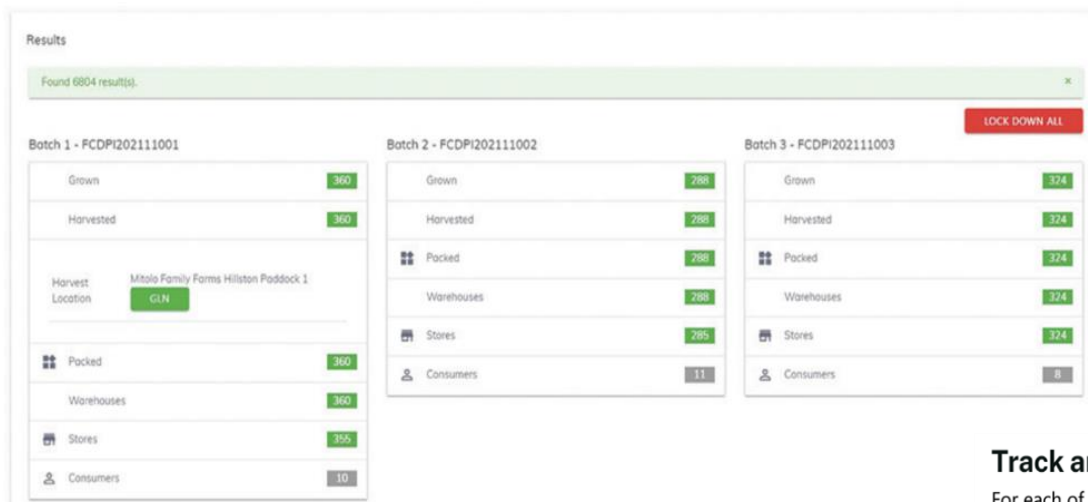
Benefit 1

Figure 5. The FreshChain Systems track and trace dashboard identified the potato batches.
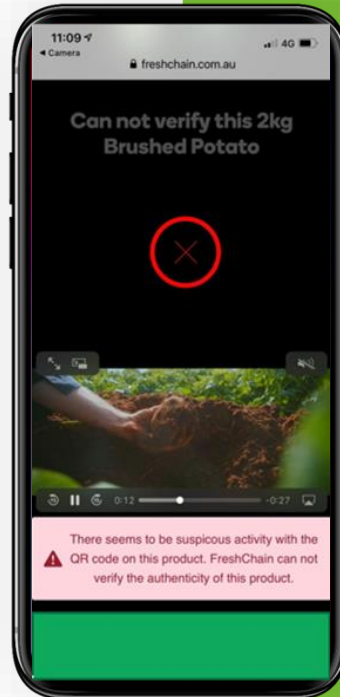
Track and trace

For each of the scenarios, track and trace demonstrations could instantly identify the product's location in the supply chain. Product origin was accurately identified and the FreshChain system was able to send instant recall alerts to display on the QR code when scanned. All batches could be managed from the FreshChain dashboard. Figure 5 shows the interface that a Food Authority officer or retailer will see when initiating a track and trace or food recall. Product can be traced by entering the batch number or packed date and all data associated with that number will be identified and displayed as shown in batches. There is a 'lock down all' button that, when activated, will send a recall message to the identified affected batches.

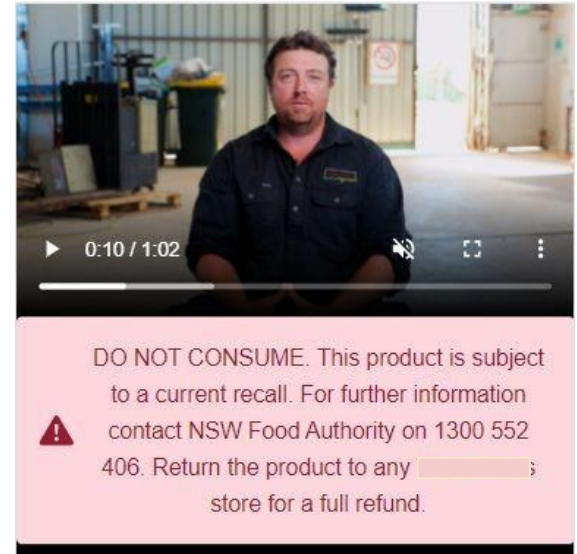# What about further protecting your customer in the event of a critical food incident or biosecurity threat?

Benefit 2

Examples of search metrics:

- Product name
- GLN
- Serial Number (GTIN)
- Batch/Lot/Code
- Date
- Stores
- DC
- 3PL

Benefit 3

Figure 11. FreshChain sensor data for a cherry consignment into South Australia.

Sensors

The FreshChain sensors used in this pilot trial detected temperature changes in the supply chain, highlighting a potential area for improvement, especially where the cherries were exposed to higher than optimal temperatures during transport (Figure 11). More research into the transport component of the supply chain could identify areas where waste due to inefficiencies can be reduced.
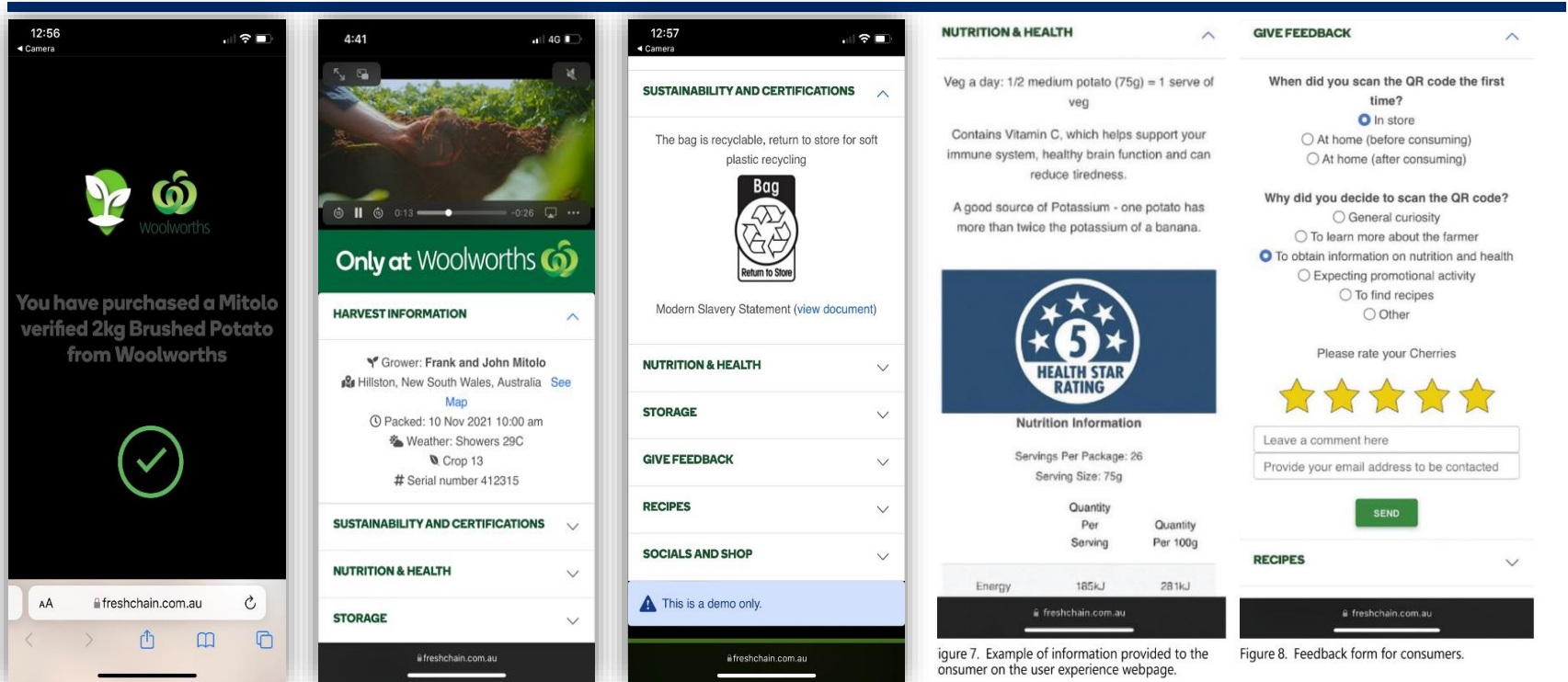
Benefit 4

Figure 7. Example of information provided to the consumer on the user experience webpage.

Figure 8. Feedback form for consumers.

Chain of custody (A)
Major temp breach (3 hrs at 25 degrees in transit)

Origin - what level (A)
Coffs Harbour
Region/Post Code
+Farm X
++Paddock 1
+++Row 23
++++ Picker ABC

Harvest and/or pack date and time (A)
23/06/2022
0600 hrs

Upstream inputs
Fertiliser Use
Pesticide Use
Herbicide Use
Growth Regulator Use
Fungicide Use
Baiting Use
Sunscreen Use
Other treatment Use
Water Use

Growing and picking method
Greenhouse
Open field
Hand Picked
Machine Picked

Packing process
Shed
Field
Combination

Scanned location(A)
Wollongong 2500
3.23pm,
29/06/2022

Carrier(s)
Nolans - 1st leg

Destination & PO
Minchinbury DC
PO 78929736
Batch 123

Freshness Index(A)
6 days from packing

Day and Time of despatch
24.06.22
16.45 hrs

Temperature and weather (A)
11 degrees
Overcast

Benefits to industry

Benefits to industry

This pilot trial identified the following key benefits for industry in adopting an ISO-compliant data standard traceability system:

1. Successfully demonstrated an integrated digital traceability system for horticulture.

2. Successfully traced products forward and backwards in the supply chain.

3. Identified the benefits of traceability for growers, exporters, retailers, governments and consumers.

4. Quick identification of property and assets, minimising loss to the grower.

5. Assuring consumers of the food safety, provenance and authenticity of Australian products to improve consumer confidence.

6. Reducing economic damage to the growers and industries through efficient recalls.

7. Creating new export opportunities by:
   - enhancing clearer supply chain visibility
   - quickly and accurately identifying the origin of the product
   - providing the framework for electronic certification for increased market access

8. Connecting growers with consumers and encouraging communications that could influence buying decisions.
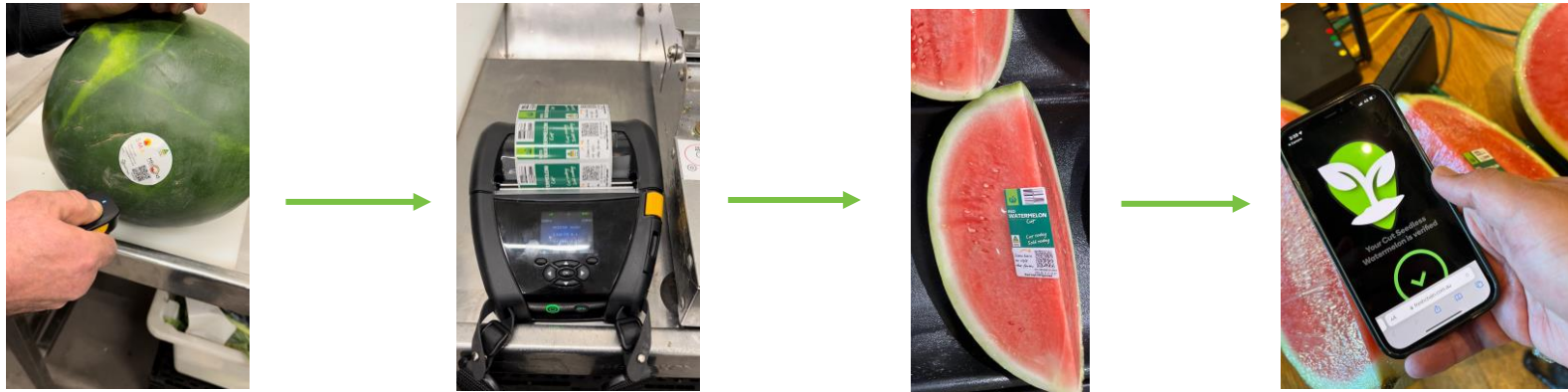
Conclusion

Using a global data standard as a foundation for a traceability system means information can be integrated to make managing products in the supply chain much more efficient. Global data standards will also reduce the time spent identifying products in the supply chain, making food safety incidences and product recalls easier to manage. Although there are many traceability systems available, there are increasing challenges with their interoperability. Data standards agreements can pose challenges for growers, retailers, and government's ability to work together during food recalls, emergency management situations and biosecurity incursions.

For this pilot trial, GS1 global data standards and the National Location Registry were tested in a traceability system, enabling accurate identification of property and products at pre-determined points in the supply chain. This type of traceability system will reduce downtime, allow quicker, more accurate deployment of government resources, and increase consumer confidence. The system also encouraged consumers and growers to communicate with each other, enabling feedback and product information to be shared. all supply chain participants including the retailers, freight services, growers and government.

Transformational activity

Seamless data flow in maintaining traceability from whole to cut watermelon in store.

Seamless transfer of live data from whole to cut seedless watermelons in-store using serialised and unique GS1 Digital Link QR codes using an on-demand print solution in the store cutting area. Thu 16 Dec 2021 Fri 20th May 2022

https://www.freshplaza.com/article/9428639/melons-australia-announces-seamless-data-flow-in-the-traceability-of-seedless-watermelons/

Michael Dossor – Result Group

Michael Dossor
Managing Director

Result Group

Table Grapes
Traceability Pilot

Play video ▶

Challenges & Learnings

Production & Packing Operational Change

Scalable Solutions for an Industry

Deep Collaboration with Current Tech Vendors

Different Markets – Different Outcomes

RESULT
GROUP OF COMPANIES

Enhancing Consumer Engagement

Play video ▶

Promotion dates
02/05/2023 – 12/06/2023
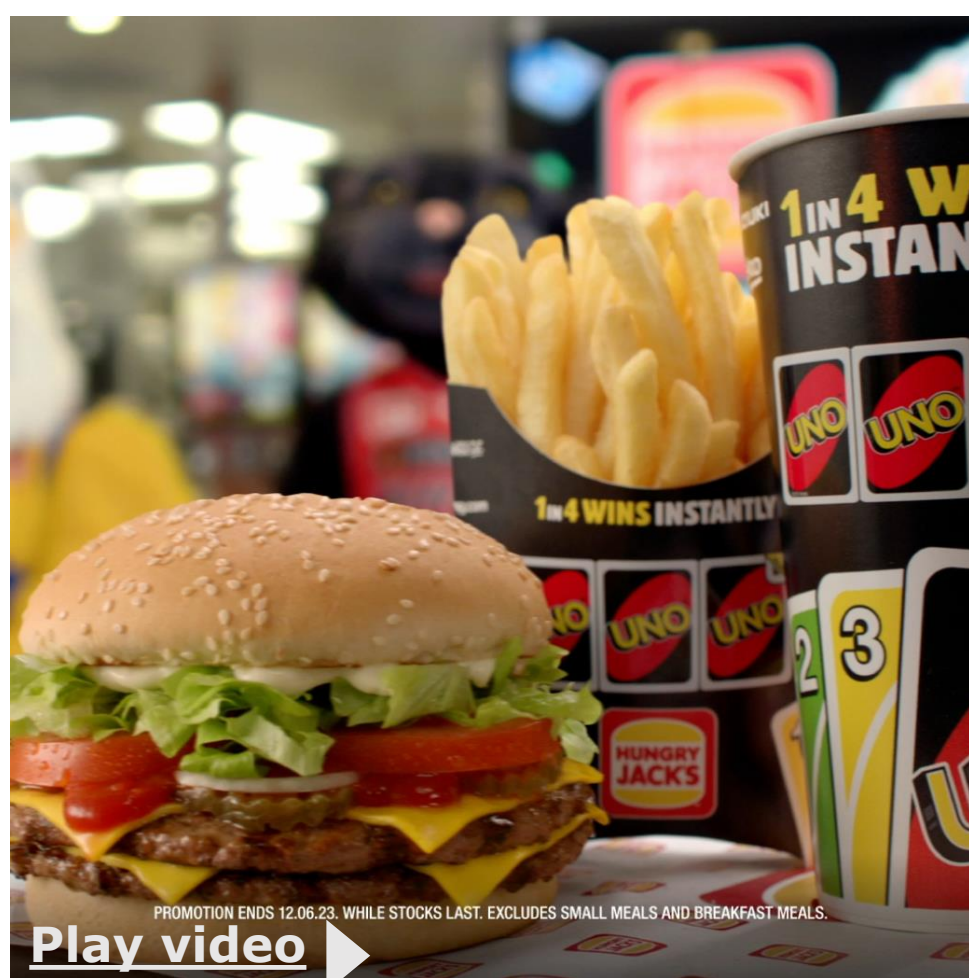
PROMOTION ENDS 12.06.23. WHILE STOCKS LAST. EXCLUDES SMALL MEALS AND BREAKFAST MEALS.

RESULT
GROUP OF COMPANIES

Enhancing Consumer Engagement

Hungry Jack's UNO Promo

YEAR 1
$87 MILLION

YEAR 2
$120 MILLION

YEAR 3
$140 MILLION

FUTURE

RESULT GROUP OF COMPANIES

Enhancing Consumer Engagement

Hungry Jack's UNO Promotion

RESULT
GROUP OF COMPANIES

BIGGEST INTELLIGENT CAMPAIGN

HUNGRY JACK'S

UNO PROMOTION

UNO

1 IN 4 WINS INSTANTLY

Connection to Digital Printing Press

POS Food Prize Actions

HJ's app – existing user

HJ's app – new user

Stash or Hold - food prizes

Prize distribution engine – major prizes

Prize distribution – minor prizes

Prize distribution – collect to win

Prize distribution – second chance

Consumer Web traffic monitoring

Enhancing Consumer Engagement

Challenges & Learnings

Data Security

Packaging Development

Deep Collaboration with ALL Tech Vendors

Marketing & Operational Outcomes

RESULT
GROUP OF COMPANIES

Enhancing Consumer Engagement

Michael Dossor
Group General Manager

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RESULT
GROUP OF COMPANIES

GS1
Strategic Partner

GS1 Australia | National GS1 Traceability
Advisory Group
Solution Provider Group

Co-Chair

WHERE TO FROM HERE?

Follow Us

Panel Session

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Panelists

Greg Calvert

Michael Dossor

Luke Wood

David McNeil

Levine Naidoo

General Business

- Traceability terms made simple

- Future presentations of case studies for Pathway to Interoperability

- How to join the Traceability Solution Provider Special Interest Group

Traceability terms made simple

The Traceability Solution Provider Special Interest Group are in the process of gathering terms related to traceability to share amongst the community. The aim is to have an easy to read library of terms for everyone to access.

CALL TO ACTION AND OPEN TO ALL TO CONTRIBUTE BY WAY OF SHORT VIDEO PRESENTATION

Term Identifier	Expanded	Description	Link to Video
GTIN	Global Trade Item Number	Global Trade Item Number (GTIN) can be used by a company to uniquely identify all of its trade items. GS1 defines trade items as products or services that are priced, ordered or invoiced at any point in the supply chain.	
SSCC	Serial Shipping Container Code	Serial Shipping Container Code can be used by companies to identify a logistic unit, which can be any combination of trade items packaged together for storage and/ or transport purposes; for example, a case, pallet or parcel	
EPCIS	Electronic Product Code Information Service	GS1 Standard for creating and sharing visibility event data, both within and across enterprises, to enable users to gain a shared view of physical or digital objects within a relevant business context.	
Interoperability		GS1 and other definitions	
Data Ownership		Data ownership refers to both the possession of and responsibility for information	

National GS1 Traceability
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The path to interoperability
CASE STUDIES AND APPROACH
GOING FORWARD

CALL TO ACTION FOR ALL SOLUTION PROVIDERS

If you would like to have the opportunity to present your case studies, please reach out to the TSP-SIG team to discuss.

Send letters of interest to
alliances@gs1au.org

How can you join the TSP-SIG?

- 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.