CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FOOD IMPORT AND EXPORT INSPECTION AND CERTIFICATION SYSTEMS

Twenty-Sixth Session

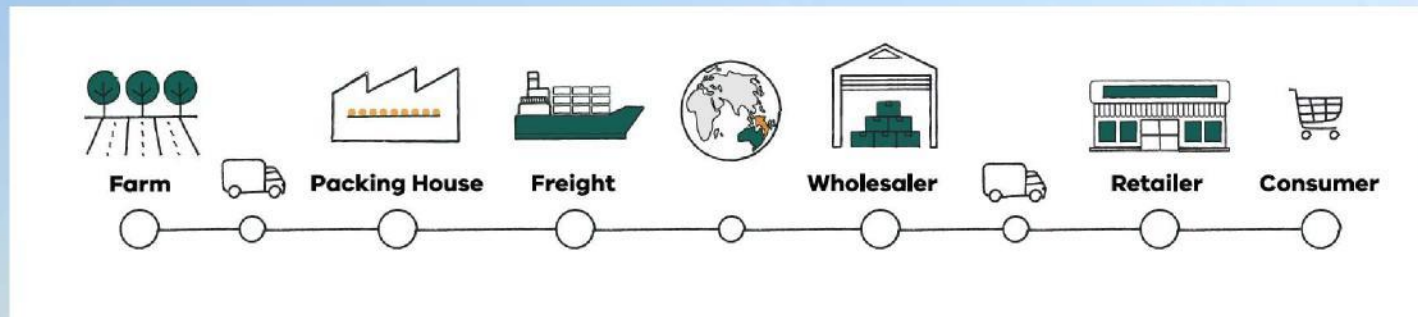**Presentations from Traceability Side Event**

Traceability

Caroline Barrett

Program Manager - Traceability

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Traceability

Traceability systems track the journey of food from 'farm to fork'

Our Drivers: Emergency responses, biosecurity, food safety, market access, provenance, product quality, supply chain efficiency, integrity assurances

Traceability Challenges: Victoria, Australia

- Victoria's current traceability systems are meeting global baseline requirements but trail market leaders

- We are leading competitors in livestock traceability but not for the full supply chain into international markets

- Other countries are investing in traceability, and digitising quicker than our sectors

- Our horticulture, grain and wool sectors need the most support to build traceability

- Horticulture traceability systems in Australia are currently unharmonized across industries and supply chains, fragmented and not fully digitised

- Grant Thornton Report: Traceability Supply Chain Technology Analysis 2020

Victoria, Australia: Government & Industry Traceability Programs
Τραχεαβιλιτψ Φυνδσ ανδ Προγραμσ ι

Traceability Fund
$11.7 million 2021-24

1. Traceability Information Hub

2. Smart Traceability Design and Innovation

3. Building Victorian Traceability Systems

4. Marketing "Paddock to Plate" Traceability of Victorian Produce to Overseas Consumers

5. Developing Australian & Victorian Traceability Standards

Food to Market Grant Fund
$3.1 million allocated to traceability (of $15 million fund) 2021-23

Traceability Projects

Traceability Hub

Summerfruit · Bees · Apples & Pears

Cherries · Livestock

Biosecurity Portal

Quickstart Guide

Horses · Plant Property Identification

Citrus · Table Grapes · Cost Benefit Analysis Calculator

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Citrus Traceability Project

- Future-proofing Australian industries for international traceability regulations is key.

- The new US FDA Food Traceability Rule is likely the most comprehensive set of traceability regulations internationally at present.

- Used as the basis for data compilation and functionality within our citrus, table grapes, cherries projects.

- Requires recording of "Key Data Elements" KDEs at "Critical Tracking Events" CTEs.

- NB: Businesses need to provide traceability back to the farm within 24 hours in an electronic format.

- GS1 consultation informed the US FDA Food Traceability Rule design, and GS1 standards are nominated by the World Trade Organisation.

- Therefore, in this project, GS1 standards were implemented alongside the Mildura Fruit Company's current data to produce a comprehensive set of "Key Data Elements" KDEs in electronic format.

Key Data Element	GS1 Standard
Where	GLN Global Location Number – Packing House
What	GTIN Global Trade Item Number – Product Unit
	SSCC Serial Shipping Container Code – Logistic Unit
Data Storing and Sharing	EPCIS 2.0 Electronic Product Code Information Services
Data Access	GS1 Digital Link: B2B and B2C connections through scanning QR codes

Traceability Key Data Elements KDEs

Location	Key Data Elements (KDEs)	Mildura Fruit Company Usual Data Format	GS1 Standards	GS1 Standards Data Format Receival	GS1 Standards Data Format Dispatch
Farm*					
Packhouse	Location Identifier		GLN	9377778092553	9377778092553
	Location Description		GLN	9377778092553	9377778092553
	Location coordinates		GLN	9377778092553	9377778092553
Item	Commodity	Mandarin	GTIN	9313336000318	9313336000318
	Variety	Afourer	GTIN	9313336000318 (Afourer Mandarin)	9313336000318 (Afourer Mandarin)
	Logistic Unit identification	MF22012838	SSCC	093133360220230267	093133360220230267
	Trade Item Description	Navel Class 1 - China Orchard Breeze Black	GTIN	9313336000356	9313336000356
	Trade Item Quantity	Fixed weight, not variable	GTIN	9313336000318	9313336000318
	Trade Item Unit of Measure	Wood bin 450kg - FW 1kg		Loose	Pallet
	Batch	22221	Batch provided by MFIS	22221	22221
	Serial Number	(21)	Trust Codes Token	gHKYhn9Z	gHKYhn9Z
	Pallet Number	MF22012838	SSCC	093133360220230267	093133360220230267
Transit	Transit date	11/07/2022	Date/time in UTC		2022-07-11T00:00:00Z
	Transit time	N/A	Date/time in UTC		2022-07-11T00:00:00Z
Logistics*					

*Farms and logistics present future development opportunities 6

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Data Revealed versus Data On Record

Data Revealed	Data On Record
Unique serialised GS1 Digital Link QR codes on product enable scanning and access to a B2B microsite (wholesale product) or B2C microsite (retail product).	A product cloud captures all product traceability data and this is available to view through a dashboard at the packhouse.
Everyone in the supply chain from farm to consumer can authenticate product origin and engage with the brand via phone scan.	GS1 standards are used for traceability data.
Privacy is ensured through controlled data reveal.	Unit and pallet codes support inventory management.
B2B microsite data may include information such as storage needs, certification, food journey, expiry dates and marketing.	Scan data supports anti food fraud brand protection.
B2C microsite data may include information such as marketing, promotions and feedback surveys. There is two-way flow of information, with surveys and scan data providing information back to the producer.	Survey data from consumers can be used for marketing and product development.
Product alerts including food fraud notifications or recalls may be activated through the microsite. (No food fraud notifications or recalls were activated within this project.)	Electronic traceability data can be used for instantaneous regulatory compliance in times of crisis e.g. recalls.

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Discover more about the project here including Videos and the Final report here

US FDA Food Traceability Final Rule: Requirements for Additional Traceability Records for Certain Foods

Jennifer Thomas
Senior Advisor
US Food and Drug Administration
Center for Food Safety and Applied Nutrition

Why is traceability important?

- When a foodborne illness outbreak occurs, need to quickly identify and remove contaminated food from market to avoid additional illnesses/deaths

- Need accurate information on the food to trace it back through the supply chain to identify the source and also forward to determine how the food was distributed

Traceback Diagram

E. coli 0157:H7 - Romaine - Multi-state Outbreak
Master Traceback Diagram
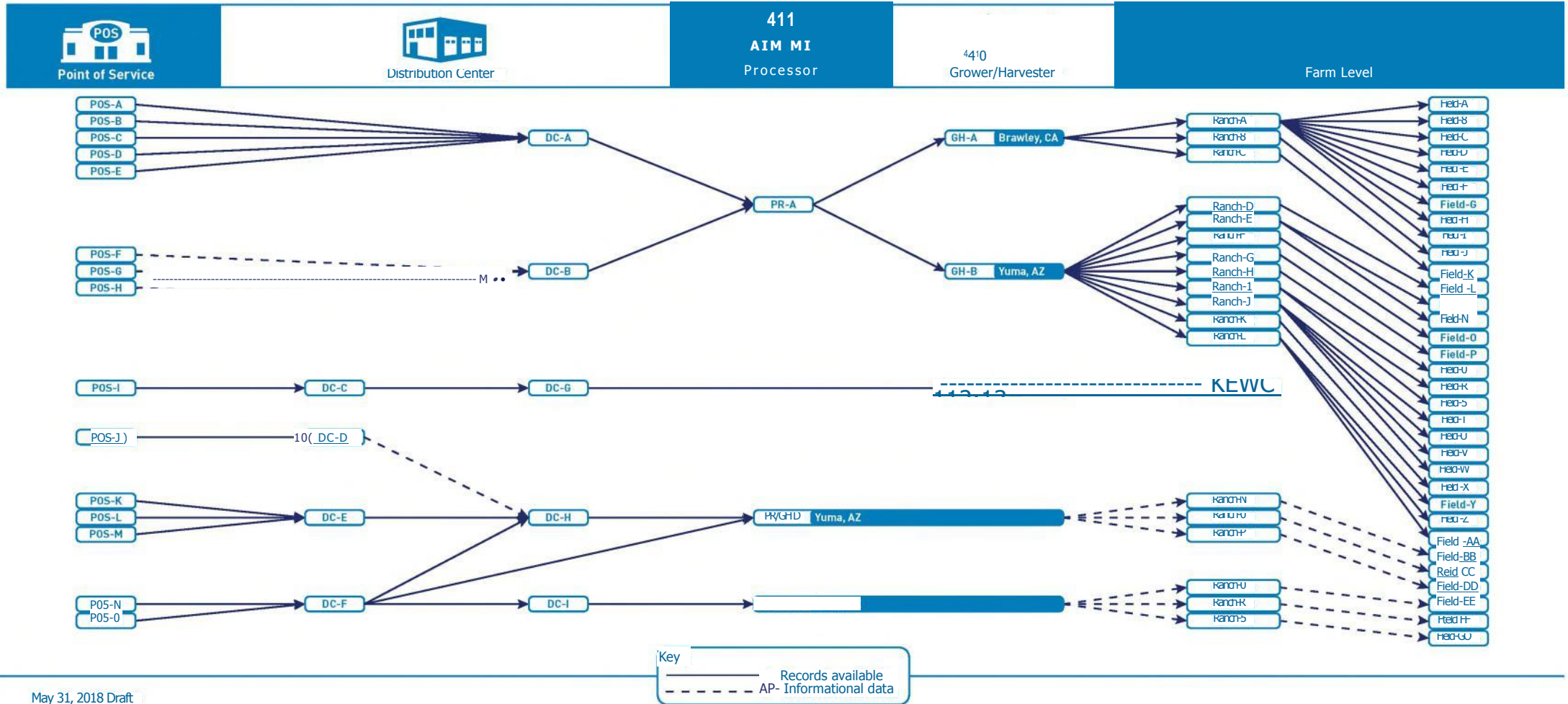
May 31, 2018 Draft

The Case for Better Traceability

Goals:
- Rapid identification of sources of contamination
- To limit the scope of recalls
- Reduce food waste

How we get there:
- Data standards
- Linking – connecting the dots on how food moves through the marketplace
- Interoperability and interconnectivity
- Improved communications

FSMA 204(d) – Additional Recordkeeping Requirements for High Risk Foods

Requirements shall... *(this list is not an exhaustive list)*

- Apply only to designated foods;

- Not require a full pedigree;

- Not require records of recipients of a food beyond the immediate subsequent recipient of a food (can only go one up);
- Not prescribe specific technologies for maintaining records
- Allow maintenance of records at an accessible location;
- Include a process by which a food may be removed from the designated list
- Be science-based

Food Traceability List

Cheese (made from pasteurized milk), fresh soft or soft unripened

Cheese (made from pasteurized milk), soft ripened or semi-soft

Cheese (made from unpasteurized milk), other than hard cheese

Shell eggs

Nut butters

Cucumbers (fresh)

Herbs (fresh)

Leafy greens (fresh)

Leafy greens (fresh-cut)

Melons (fresh)

Peppers (fresh)

Sprouts (fresh)

Tomatoes (fresh)

Tropical tree fruits (fresh)

Fruits (fresh-cut)

Vegetables (fresh-cut)

Finfish (histamine-producing species) (fresh and frozen)

Finfish (species potentially contaminated with ciguatoxin) (fresh and frozen)

Finfish, species not associated with histamine or ciguatoxin (fresh and frozen)

Smoked finfish (refrigerated and frozen)

Crustaceans (fresh and frozen)

Molluscan shellfish, bivalves (fresh and frozen)

Ready-to-eat deli salads (refrigerated)

- Persons who manufacture, process, pack, or hold foods on the Food Traceability List

- Covers the entire food supply chain

- Includes both foreign and domestic entities

- Full and partial exemptions may apply

What will the Food Traceability Rule require?

Key Concepts of the Final Rule

-

- (C

- Sta

- Linking

- Electron

- Records p

- Faster produ

CTE and KDE Framework

The role of the entity in the supply chain defines the data it must keep and share

Critical Tracking Events

Harvesting, Cooling, Initial Packing, First Land-based Receiving, Shipping, Receiving, and Transforming are Critical Tracking Events (CTEs) for which records would be required.

Key Data Elements

Required records would need to contain specific Key Data Elements (KDEs). The KDEs required would depend on the CTE being performed.

The records required at each CTE would need to contain and link the KDEs to the traceability lot.

Emphasis on...

Keeping and sharing KDEs

Traceability Lot Code (TLC)

Traceability Lot Code Source (TLC Source)

Traceability Plan
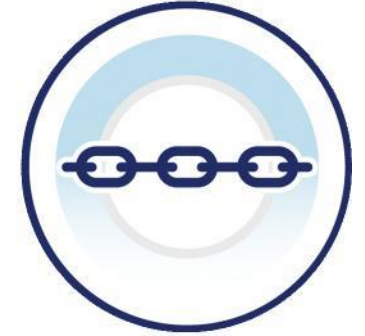
Working with your supply chain partners

Supply Chain Example: Fresh Produce

Traceability Plan
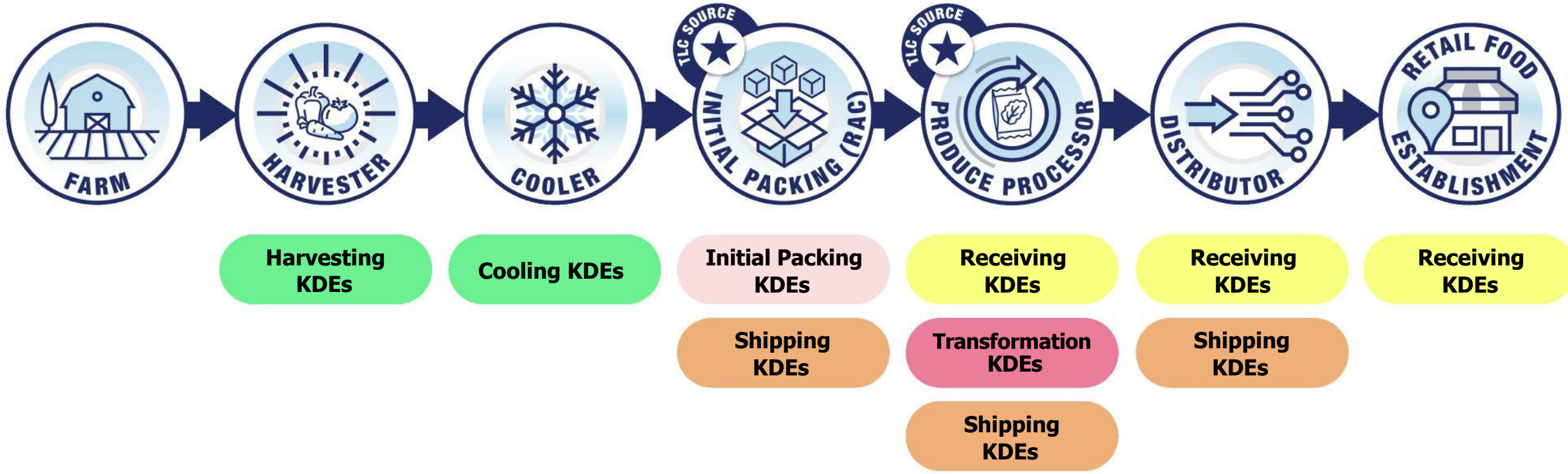
Records Maintenance and Availability

Legible **original paper, electronic**, or true copies. Stored to prevent deterioration or loss. May **include electronic links.**
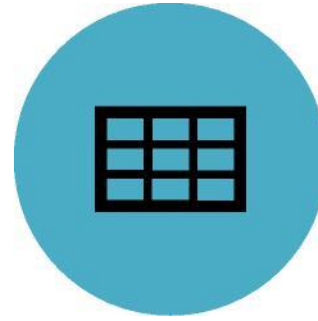
Records must be **kept for 2 years.**

FDA

Available **within 24 hours (or reasonable time if FDA agrees)**. May be stored **offsite or by another entity** .

During an outbreak - **electronic sortable spreadsheet** within 24 hours of a request (including a **phone request**).

Compliance date

FDA

January 20, 2026

- Applies to all firms
- Provides 3 years for covered entities to work with supply chain
- We will educate before and while we regulate

Low-Cost/No-Cost Traceability Challenge

- In 2021, the US FDA issued a challenge to innovators from all disciplines to develop traceability elements that are low-cost or no-cost to the end user.

- FDA received 90 submissions and 12 winning submissions were identified

- More information about the winners can be viewed at: https://www.fda.gov/food/new-era-smarter-food-safety/meet-winners-fdas-low-or-no-cost-food-traceability-challenge

Available Resources – FDA.gov

- **Food Traceability Final Rule**

- **Food Traceability Final Rule webpage**

-

Questions (FAQs)

- **Food Traceability Final Rule Webinar**

- **Critical Tracking Events and Key Data Elements document**

- **Food Traceability List webpage**

- **Risk Ranking Model Results tool**

- **Supply Chain examples**

Frequently Asked

- **Exemptions tool**

TRUST CODES®

PRODUCT CLOUD

Consumer Engagement | Digital Brand Protection | Anti-counterfeit | End-to-end Traceability
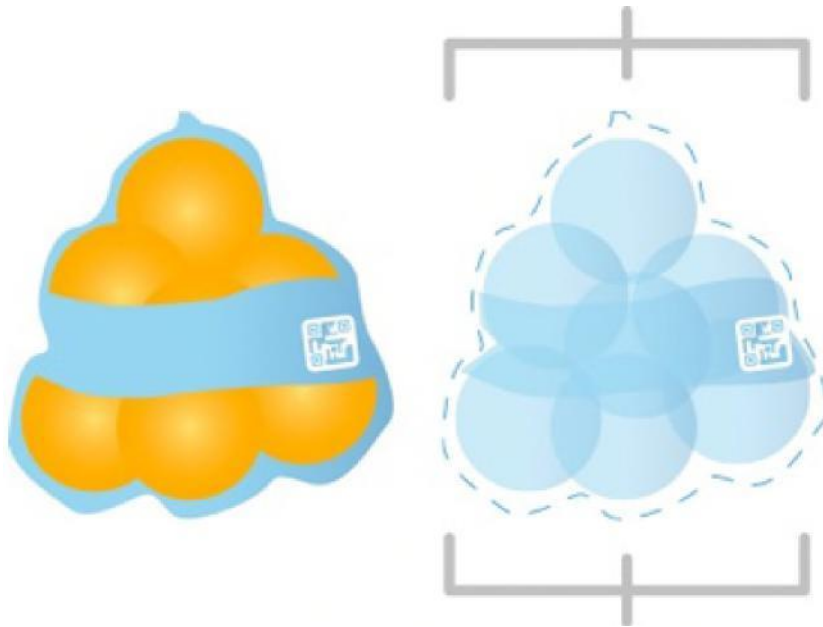
A digital twin

Traceability at an item level creates a digital twin that can be mapped across the value chain, identifying choke points, consumer behaviour, supply chain efficiency etc.

Digital Twins mean that each and every product movement can be analysed and validated.

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TRUST CODES

Standards are critically important

GS1 standards provide for data coherency and controlled interoperability between everyone in the value chain.

Trust Codes integrates all GS1 standards to provide data coherency and inter-operability otherwise there will be systemic risks related to data, privacy, and compatibility across different tracing systems.

Support for GTS2.0; EPCIS and CBV provide data coherency between different software platforms and networks.

GTS refers to Critical Tracking Events (CTEs) and Key Data Elements (KDEs) and this is flowing through to regulation like US FDA FSMA requirements for fresh food.

The next generation of barcodes

The GS1 Digital Link standard means we can use the same QR code for supply chain, as we do for retail, as we do for consumer engagement.

Digital Link enables sharing of a wealth of product information from multiple locations to supply chain partners, consumers and regulators, via a single scan.

Protected GS1 based item level identities
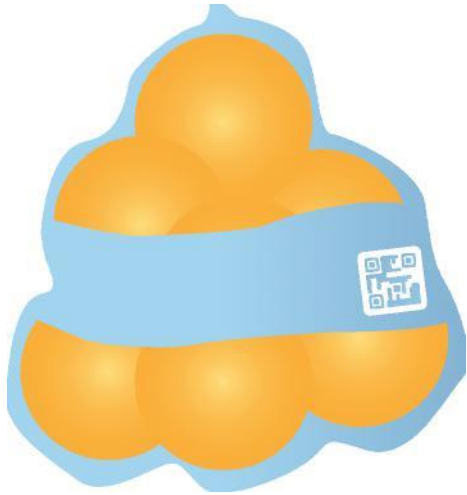
- Copy protection and anti-counterfeit algorithms identify fraud patterns and helps MFC combat counterfeiters.

- The User Experience (UX) provides reassurance to consumers,, contextually to where the consumer is located – all from the same code.

- GS1 Digital Link code format means the brand can engage with consumers on social media and retailer apps, but also use the same code to capture traceability events.

- Traceability adds to anti-counterfeit capability – for example by mapping product to expected location in market.

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TRUST CODES

Our product cloud
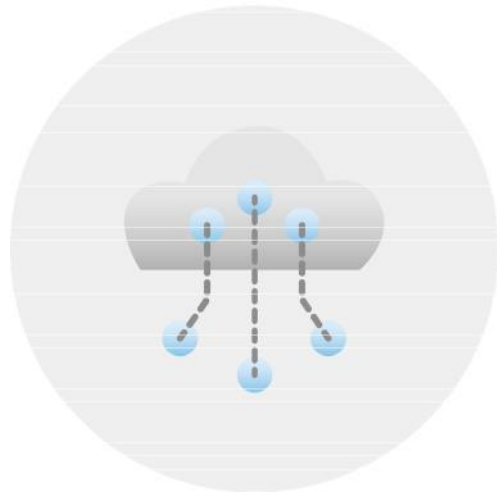
- Connected, unique digital licence plates for every item

- Create personalised consumer experiences with social tracking

- Brand Protection Machine Learning algorithms

- End-to-End traceability

- Connected packaging and digitally connected supply chains to track impact

- Recall management

- Integration with physical packaging

- Data coherency and interoperability

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Digital Traceability Guidance
Industry perspectives for regulatory considerations

Maria Palazzolo

Executive Director and Chief Executive Officer, GS1 Australia

Monday May 1st, 2023

GS1 – the global language of business

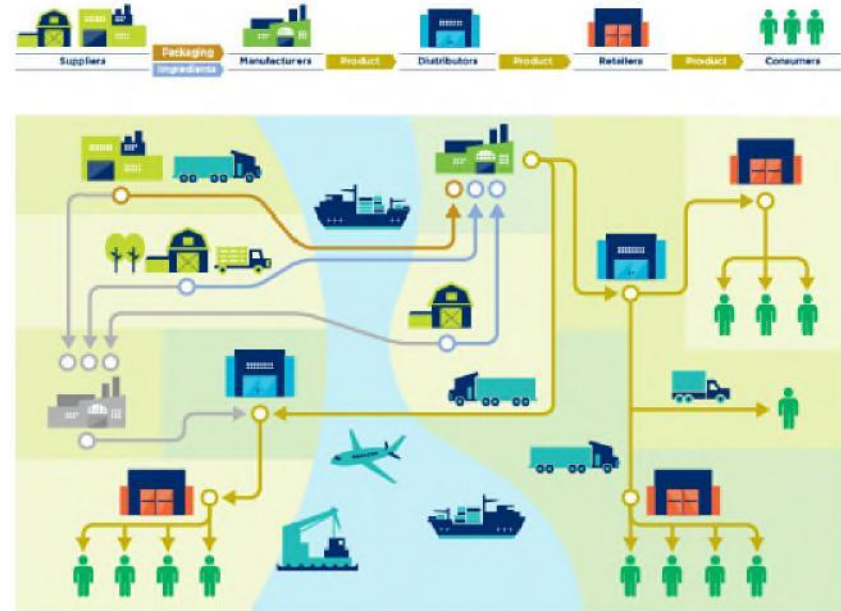GS1 is a global, not for profit, standards organisation with 2M-member companies across 116 markets worldwide.

Neutral and not-for-profit	User-driven and governed
Global federation with local members	Inclusive and collaborative

Our standards provide a framework for technology agonistic interoperability

Global partner organisations

Our ambition

Support economic growth

Increase public safety

Drive circularity and sustainability outcomes

Facilitate resilient, rules based trade

The Global Language of Business

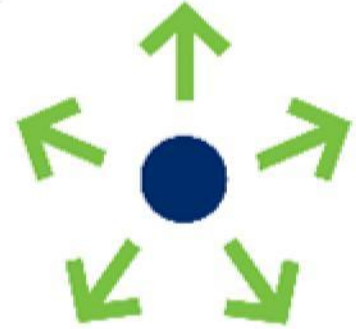# GS1 Standards for traceability

Identify
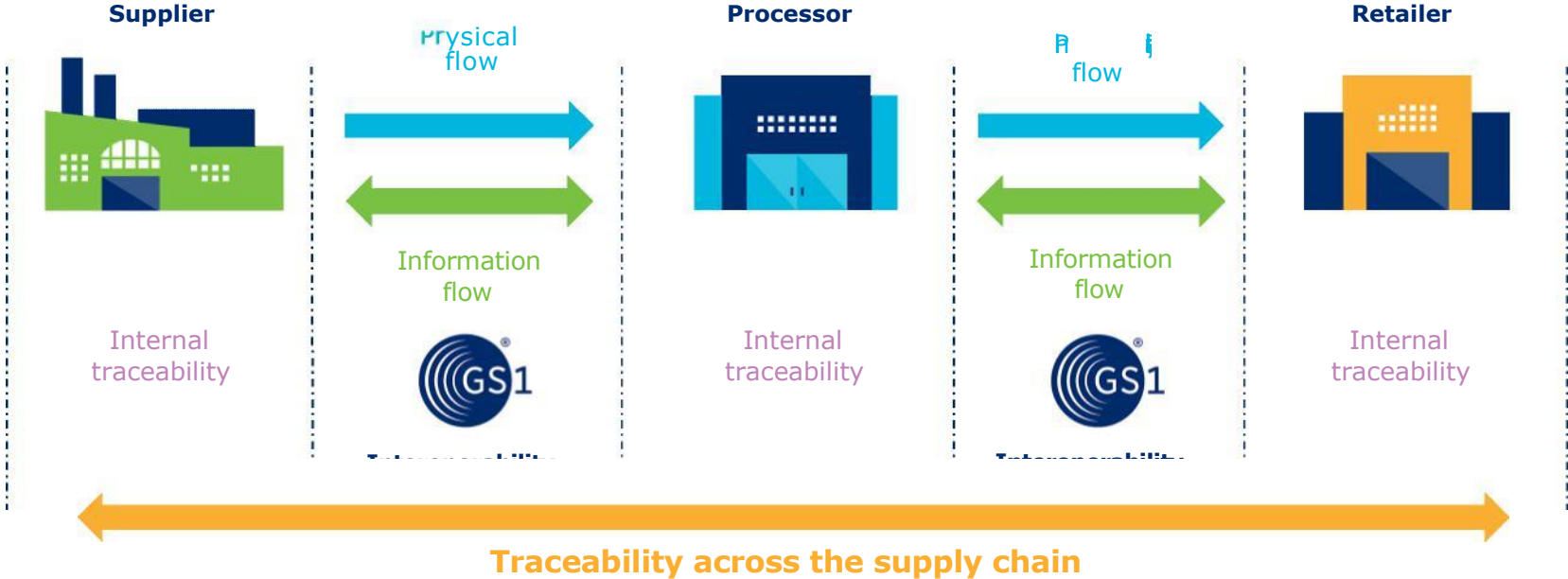Uniquely identify products, places, shipments and assets

Capture
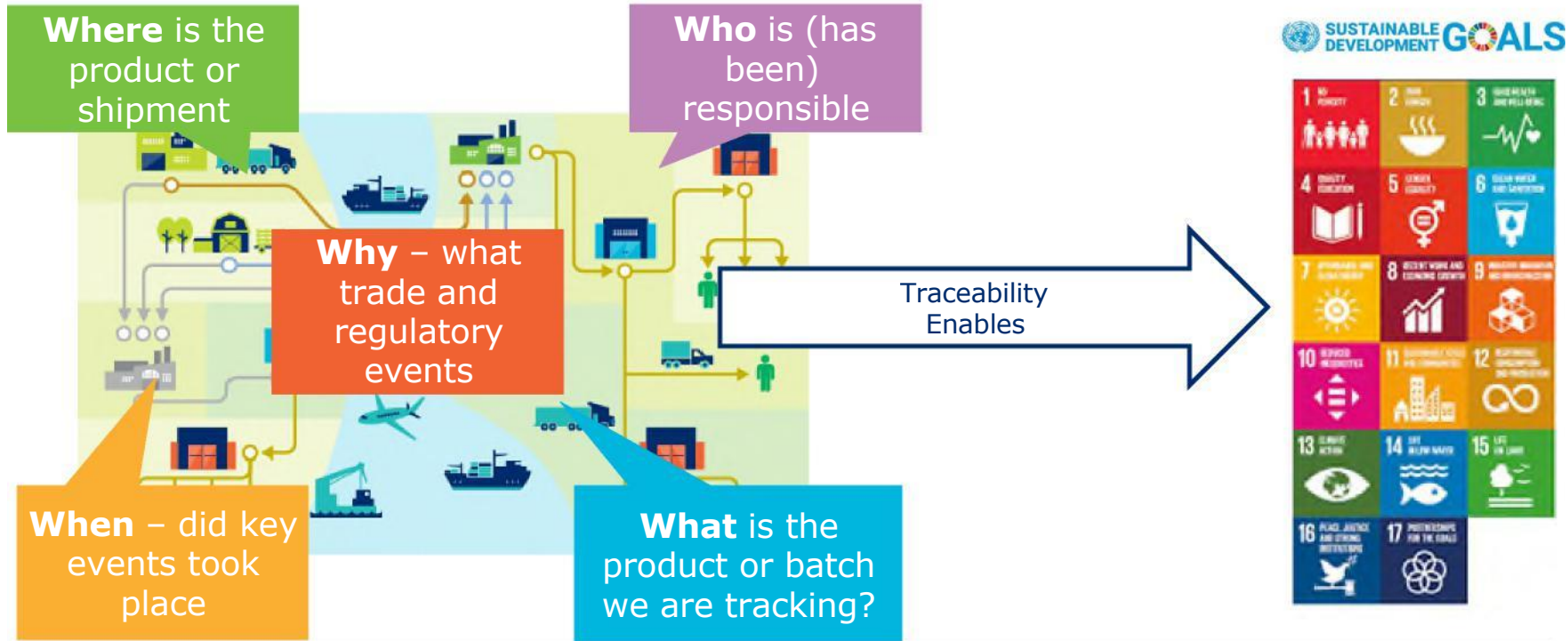Capture identity and more in a barcode or RFID tag

Share
Share data with trading partners, consumers and patients

Standards are a critical foundation for traceability

Supplier   Physical flow   **Processor**   Physical flow   **Retailer**

Information flow

Internal traceability   GS1   Internal traceability   GS1   Internal traceability

Traceability across the supply chain

How GS1 Standards support traceability

Where is the product or shipment

Who is (has been) responsible

Why – what trade and regulatory events

When – did key events took place

What is the product or batch we are tracking?

Traceability Enables

SUSTAINABLE DEVELOPMENT GOALS

4 Key Ingredients for Traceability

Unique Identification and Data Standards (interoperability)	Clear responsibilities across the supply chain
Data Sharing	Product traceability and product conformity

The Global Language of Business

4 Industry Needs to consider

Scalability

Regulatory vs commercial drivers

Harmonisation

Confidence

One challenge for traceability guidance

- As you consider updating traceability guidance, we recommend you find a balance between two competing concepts and requirements:

  1. Broad, flexible guidance on traceability to support choice, competition and innovation; and
  2. The specifics needed by industry to invest with confidence.

- Without striking this balance, investment in traceability systems will happen very slowly indeed.

To sum up

There is great benefit in a principles-based approach to traceability

National Traceability Accord

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.

Traceability insights, collaboration and sharing

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 end. to-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.

Resolution of incident and data disposal

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.

Thank you!

Maria Palazzolo
GS1 Australia

Proudly packing and marketing
quality Australian citrus
to the world.

MFC
MILDURA FRUIT COMPANY

www.mfc.com.au

- MFC strives to improve grower's returns by exporting fresh produce to customers across the globe that demand our superior product.

- MFC, through the Citrus Export Development and Traceability Pilot, aimed to grow our export volumes whilst protecting our grower's product, and improving traceability

- The use of the simple QR Code, a code that grew in prominence during its use throughout the pandemic, has become a powerful tool in how to engage with customers, and protect and trace product through distribution channels.

- Each unit sold will contain its own unique QR Code, providing the protection of limiting the number of scans allowable before the consumer will receive a warning message

gives us that opportunity to really define where the product may nt from, be it a farm or a packing shed that has been involved in ain. We need, ultimately, to be able to respond to foodborne od fraud issues in a timely manner."

ock

CEO

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Data is the new oil

IoT

Agricultural Robotics

Artificial Intelligence
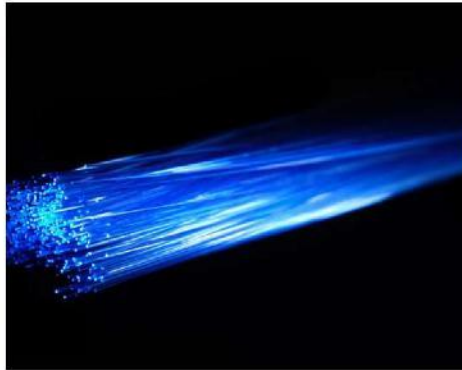

Drones

Precision Farming

Biotechnology

Big Data

Controlled Environment

TRUST CODES

Data is the new oil

Regenerative

Connectivity

Connected Consumers

Sustainability & Social Licence
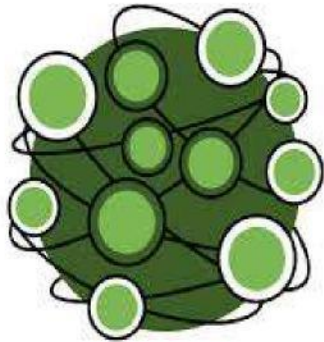
Supply Chain

Regulatory Data

**What's in this?**

You & me

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Sharing data in a fun way, that is easy for consumers to engage with develops more loyal consumers. We built an easy to play game to "grow oranges in Mildura and make juice for a koala" which resonated well with consumers. Increased engagement meant more time the brand has with the consumer, with both overt and inferred messaging about how great the fruit is.

The consumer doesn't even know it's all data driven- they just enjoy the experience and infotainment.

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In-market partners and retailers use the consumer engagement to drive demand. No one can see the supply chain data behind that because it isn't intended for that recipient. The way the product cloud is designed is that information is shared with those who need it, not with everyone who wants it.

Consumers don't want data - they want information, and the more fun and informative that delivery of information is, the better it is for consumer perception and getting useful data.
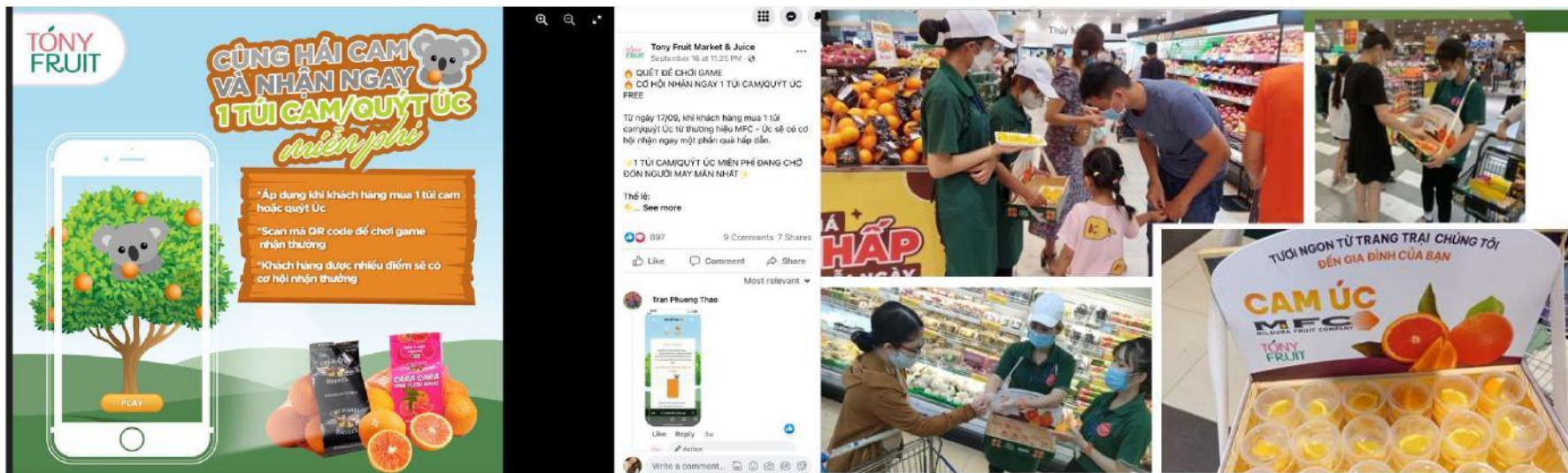
- Don't underestimate the power of the QR Code
- Consumer engagement and traceability is where the power lies in promoting your brand and product
- Dandy Mandy distribution domestically and export to include the QR Code wherever allowed.

- MFC intends to utilize QR Code and other GS1 labelling

- Specific consumer engagement pieces will be developed

- The Trust Codes system will enable MFC to measure where the product is being scanned, and how many scans are taking place of the one QR Code

- In the unlikely event of a product recall MFC will be able to do this efficiently and effectively

- MFC learnt a lot from the Pilot program and would recommend to others wanting to implement such a change to:
  - Don't try to capture everything at once
  - Partner with a supplier that truly understands your business needs
  - Take the time to plan and engage with relevant stakeholders

  - Over to Paul now to provide some insights in to how it all works behind the scenes