AGENDA

01 Our Vision
02 Setting the Stage
03 Traceability
04 What’s New
05 Case Studies
IFT Vision

A world where science and innovation are universally accepted as essential to a safe, nutritious, and sustainable food supply for everyone.
Our Members at the Center of All We Do

Global Impact:
17,000+ members representing over 100 countries
## IFT & Traceability

**Vision:** To become the global resource and authoritative voice on food traceability.

<table>
<thead>
<tr>
<th>Year</th>
<th>Traceability Efforts</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>FDA Task Order - Mock tomato traceback pilot using technology solutions</td>
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<tr>
<td>2010</td>
<td>National Center for Food Protection &amp; Defense (NCFPD) Traceability Project</td>
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<td>2011</td>
<td>IFT Traceability Improvement Initiative (TII) – Traceability Summits</td>
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<tr>
<td>2012</td>
<td>FDA FSMA Product Tracing Pilots</td>
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<tr>
<td>2013</td>
<td>Global Food Traceability Center Founded</td>
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<tr>
<td>2015</td>
<td>Comparison of 21 OECD Traceability Regulations: A Benchmarking Study</td>
</tr>
<tr>
<td>2016</td>
<td>Assessing the Value and Role of Traceability in an Entire Value Chain</td>
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<tr>
<td>2017- present</td>
<td>Global Dialogue on Seafood Traceability</td>
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Overarching Goal:
Unified industry-led traceability framework

GS1 Foundation for Fish, Seafood and Aquaculture Traceability Implementation Guideline

provides guidance to the fish, seafood and aquaculture industry to implement GS1 standards.

Best Practices for Data Synchronization

1. Assign responsibility for conveying GTIN Information.
   - The seller is responsible for providing information for each GTIN shipped to buyers, using the PTI-developed Data Synchronization Template (DST) to develop your company’s customized data synchronization spreadsheet. This includes both product procured internally and externally. As the entity primarily responsible for order fulfillment, the seller has the responsibility to ensure that what is shipped is well in advance.

2. Provide your data synchronization spreadsheet electronically well in advance before shipping product.
   - Your Data Synchronization Spreadsheet, listing each GTIN, should be emailed to each buyer customer. To ensure buyers have sufficient time to enter the information into their receiving systems, the spreadsheet should be sent well in advance before product is shipped.

If there is an urgent need to establish a new GTIN, the brand owner’s responsible party should...
GLOBAL CHALLENGES

Population growth & urbanization
- Average 3 births for each death
- 55% of the world’s population lives in urban areas, expected to increase to 65% by 2050

Sustainability
- Packaging
- Water usage
- Soil
- Air pollution

Food safety and security
- Traceability
- Regulation
- Global food chain supply growth and complexity

Chronic diseases impacted by diet and nutrition
- Obesity
- Diabetes

Advancing technologies
- IoT
- AI
- Blockchain
- CRISPR
- Whole genome sequencing
- 3D printing
Stay away from romaine lettuce, Consumer Reports advises

MEDIA HEADLINES

IUU facts and figures in the EU
- almost 30% of the world's fisheries are overexploited
- over 60% are already fully exploited and illegal fishing is a serious economic and environmental threat
- €1.1 bn estimated value of illegally caught fish imported into the EU just-in time for the EU IUU Regulation coming into force

The EU remains a global leader in the fight against IUU fishing

PAPAYA RECALL: AS SALMONELLA OUTBREAK SPREADS, IMPORTER URGES CONSUMERS TO STAY AWAY

Tech & Science

At least one person has died and 12 people so far have been hospitalized due to illness from consuming the Mexico-imported papayas.
TRACEABILITY
Traceability is the systematic ability to trace the path of food ingredients and/or finished products throughout their entire life cycle, by means of previously captured and stored records consisting of Critical Tracking Events (CTEs) and Key Data Elements (KDEs).
Why a Focus on Traceability?

Demand for traceability. Traceability is good business.
Traceability as the Backbone for Transparency and Trust

- Trust
- Transparency
- Chain of Custody
- Food Safety
- Quality
- Sustainability
- Provenance, Authenticity

Traceability Backbone

- Global Standards: Inoperability, KDE/CTE, IT Infrastructure, Data Mgmt.
- Technologies: Blockchain, Traceability Tools, IoT, Sensors, AI
- Efficiencies: Scale, Cost, Speed, Compliance
Food Value Chain: End to End Food System

Agriculture
- Genetics
- Farming
- Post-Harvest

Food Science and Technology
- Ingredients
- Formulation & Shelf-Life
- Process & Packaging
- Manufacture & Ship
- Retail/FS

Consumption
- Consumer Experience
- Waste & Disposal

Digitization and Data
- Equipment
- IoT
- Artificial Intelligence
- Blockchain
- Standards

Sustainability

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Food Traceability Patents rising for the past ten years, US leading

Source: PatSnap
High VC investment activity in recent years

Source: PatSnap
Traceability Challenges

- Highly complex integrated global supply chains built for efficiency.
- Overlapping & inconsistent global regulatory landscape.
- Incompatible technology solutions.
- Initial & on-going hardware & software investment
Interoperability as Key Traceability Mechanism

- **Interoperability** is the extent to which systems can exchange data and interpret that shared data.

- **Key components of interoperability**
  - Globally unique identification
  - Data capture and sharing standards
  - Tech agnostic solutions

- Interoperability enables **End-to-End Traceability**
Simplified Generic Supply Chain CTE Model

1. Harvest/Catch (V1)
2. Offload (V2)
3. First Sale (V3)

- Farmer / Fisherman
- First Processor
- Secondary Processor
- Distribution Retail Foodservice Restaurant
- 2nd Processor
- Warehouse
- Retail
- Foodservice
- Restaurant

- V1: Harvest/Catch
- V2: Offload
- V3: First Sale
- V4: Receiving
- V5: Transformation
- V6: Pack into Containers
- V7: Ship to 2nd Processor
- V8: Receive
- V9: Unpack
- V10: Transformation into Retail Cases
- V11: Packing Cases onto Pallets
- V12: Ship to Warehouse
- V13: Receive Pallets at Warehouse
- V14: Unpack Cases from Pallets
- V15: Receive at Store or Restaurant
KDE Model

<table>
<thead>
<tr>
<th>Category</th>
<th>Key Data Element</th>
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<tbody>
<tr>
<td>Why</td>
<td>Event Type</td>
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<td></td>
<td>Business Step</td>
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<tr>
<td></td>
<td>Disposition</td>
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<tr>
<td></td>
<td>Object</td>
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<td></td>
<td>Commission</td>
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<td></td>
<td>Active</td>
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<tr>
<td>Who</td>
<td>Ownership</td>
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<td>Farm/Vessel</td>
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<tr>
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<td>Item/SKU/UPC/GTIN</td>
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<td>List (CoC)</td>
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Methodology for Building Traceability Systems

- **Design**
  1. Scope and Objectives
  2. Gather Requirements
  3. Analyze Business Process
  4. Choose Identifiers
  5. Define CTEs & KDEs
  6. Establish Methods for Capture, Storage and Sharing
  7. Determine Functions system will perform using traceability data

- **Build**
  8. Perform Gap Analysis
  9. Establish Components
  10. Pilot and Test

- **Deploy and Use System**
  11. Roll-out
  12. Documentation and Training
  13. Monitoring & Maintenance

Source: GS1 Global Traceability Standard Release 2.0, Figure C-1
- Engagement across value chain and stakeholder groups
- Accelerated process by leveraging existing standards
- Spans multiple stages of adoption curve
  - System design
  - Pilots
  - Early implementation
WHAT'S NEW
04
**Emerging Trends**

**Evolving Regulation**
- Regulatory & Legislative bodies active
- Expect new guidelines & rules in 9-18 months

**Global Standards**
- Standards key to widespread adoption.
- Interoperability reduces costs

**Emerging Technology**
- IoT Sensors
- AI & Machine Learning
- 5G Communications
- Whole Genome Sequencing
- DNA Product Coding

**Technology Providers**
- Universe of software providers
- Blockchain
- Open Source Tools
CASE STUDIES
**FDA Food Safety Modernization Act Trace Pilot**

- IFT designed mock traceback scenarios and key questions
- Collected data from food industry
- Solution providers perform timed tests
- Led to CTE/KDE concepts

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**Source:** IFT, “Pilot Projects for Improving Product Tracing along the Food Supply System – Final Report”
"METRO is a committed supporter of cross-industry collaboration to drive the development, acceptance, and implementation of digital traceability solutions in the seafood industry on a large scale. We owe it to our oceans and future generations to work together to develop the best possible tools and practices to ensure fish and seafood sustainability as well as social standards and transparent supply chain management in the sector."

– Britta Gallus, Director, Programs and Risk Assessment, Supply Chain Management (SCM), METRO AG

"As a leading member of both SeaBOS and GDST, Thai Union is committed to responsible seafood sourcing, and we are fully supportive of this initiative. The widespread adoption of GDST traceability standards across seafood supply chains will benefit the industry globally."

– Dr. Darian McBain, Global Director for Corporate Affairs and Sustainability, Thai Union

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B2B Precompetitive Seafood Industry Consortium

GLOBAL DIALOGUE on Seafood Traceability


(list includes only members who have granted permission to publicize their involvement)
Case Study Example: Bolton & Metro Group

**Pilot** launched with leading seafood companies and global retailers and restaurants for wild caught and aquaculture.

**Outcomes** include recommendations of interoperable traceability data standards for seafood that can be applied in a category agnostic way.
Farm-to-Shelf Traceability Chain for Grains & Cereals

Source: Towards Traceable Flour: Digitizing the Grains & Cereals Supply Chain, White Paper by IFT and Centaur Analytics, June 2019
Key Takeaways & Considerations

Three Phases to Traceability
1. Design
2. Build (Pilots and Tests)
3. Deploy

Key Considerations
• Traceability needs vary by:
  • Supply Chain Role
  • Sector and Commodity/Good
  • Size and Complexity
  • Scope and Goals

• Lead 12-36 months depending on sophistication & complexity
• Standards are paramount
• Implementation is possible with current technology of data sharing, capture, and identification systems
• Cost drivers include identification and capture technology, labor & number of trading partners
• Key hurdles: Supplier investment, business process, training, technology reliability

Source: GS1
THANK YOU