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Interoperability Pilot: Traceability, 2021

Standards Are Key to Supply Chain Interoperability

A recent seafood industry traceability pilot has validated the critical role that data standards play in enabling trading partners to seamlessly exchange supply chain information across various technology platforms, thus unlocking end-to-end visibility. Furthermore, the pilot demonstrated that the globally unique nature of GS1 Standards enables industries to speak in a common language despite utilizing disparate software solutions, all of which is necessary to achieve the interoperability of such platforms.

Why Is Interoperability So Important?

Businesses face significant hurdles to achieve inventory visibility across a fragmented global supply chain. Collectively, these hurdles present an almost insurmountable challenge to industry:

- Inefficient inventory management
- Inability to trace and locate recalled goods
- Inability to prove product provenance to the consumer

Modern supply chains include countless stakeholders and myriad solutions that record and exchange data. These systems need a common language in order to communicate effectively. Interoperability refers to the basic ability of these systems to readily connect and communicate with one another to share data. Interoperability enables solution choice across stakeholders, which is critical to meet the large-scale data-sharing demands of the global supply chain.

The foundational components required to achieve interoperability include:

- Globally unique identification
- Standardized data models that facilitate data sharing

While GS1 Standards provide the building blocks for interoperability, industry agreement is also needed to determine how to use and apply these standards in a prescriptive way for a defined use case. It is essential that industry application standards be developed by any industry/vertical that outline the following:

- Identification requirements (upstream goods, finished products, trading partners, physical locations)
- Labeling requirements for data carriers to ensure strong fidelity between information and the objects it describes
- Master data requirements for products, parties, and locations
- Critical tracking events/key data elements
- Data capture, data sharing, accessing and permissioning
- Mappings to EPCIS (Electronic Product Code Information Services) and CBV (Core Business Vocabulary) standards

Key Findings

1 **A standards-based framework is a necessary foundation.**

Globally unique identifiers and standardized data models for event data are essential for interoperable data sharing of supply chain visibility data. The GS1® system of identification and the event data-sharing standard, EPCIS, are foundational.

2 **Industry collaboration and specification of Critical Tracking Events and Key Data Elements, along with requirements for master data, product, location, and party identification are just as critical.**

Systems can use standards to speak to one another; industry application standards prescribe the conversation required to meet the business need.

3 **Diverse technologies must interoperate—it is not just blockchain.**

While blockchain is a specific technology choice for some traceability platforms supporting food safety use cases, traceability is also possible using cloud or other emerging technology systems.

Background & Methodology

The pilot was conducted by GS1 US in collaboration with the Global Dialogue on Seafood Traceability (GDST), the Institute of Food Technologists (IFT), Beaver Street Fisheries, Bumble Bee Seafoods, Chicken of the Sea, FoodLogiQ, IBM Food Trust, Insite Solutions/Norpac, ripe.io, SAP, Walmart, and Wholechain.

Using real-world data, the pilot successfully demonstrated how EPCIS, a standard for capturing and sharing event-based data, effectively connected two or more traceability systems. The effort utilized a subset of industry requirements for traceability as defined in the GDST along with data and event requirements for the seafood industry from the proposed *Requirements for Additional Traceability Records for Certain Foods*, which implements section 204(d) of the U.S. FDA Food Safety Modernization Act (FSMA). The group utilized historical product origin information, transformation, shipping, and receiving events at multiple points in the supply chain to illustrate a trace in accordance with these requirements.

The pilot built upon a successful 2020 prototype that confirmed that traceability solutions from FoodLogiQ, IBM Food Trust, ripe.io, and SAP can interoperate to transmit and exchange information about a product's journey throughout the supply chain when GS1 Standards are used.

Bryan Hitchcock, Executive Director, Global Food Traceability Center (GFTC), IFT, said, "This positive result represents just the beginning of what industry can do when we prioritize collaboration and standardization to help companies meet new regulations, supply chain demands, and consumer expectations."

> "GS1 US remains committed to finding collaborative ways to solve the supply chain's most urgent challenges," said Melanie Nuce, Senior Vice President, Innovation & Partnerships, GS1 US. "This pilot demonstrates not only that systems 'speak' to each other using GS1 Standards, but also that **industry collaboration is equally critical to define these conversations.** With both key elements in place, we can create transparency across industries."

What's Next?

GS1 US will continue to collaborate with industry to advance the use of GS1 Standards as key to interoperable data sharing in supply chains, as well as to understand traceability data requirements, evaluate the need for new technical standards or protocols required for interoperability, and explore more advanced use cases.

For more information on ways to participate in future pilots or to just learn more, contact innovation@gs1us.org

About the GS1 US Innovation and Partnerships Team: GS1 US® is a unique identification organization that enables companies in more than 25 industries to identify parties, places, and things in a standardized way to facilitate the global supply chain. As a neutral, not-for-profit organization, GS1 US drives industry collaboration through the use of GS1 Standards—the most widely used data standards in the world. The barcode, the most recognizable example of a GS1 Standard, is scanned more than six billion times per day globally. GS1 Standards create a foundation for emerging technologies that can improve security, visibility, interoperability, and trust between business partners. Unique identification makes it possible to take advantage of the technologies of the future—connecting consumers, patients, businesses, and products. For more information, visit www.gs1us.org.