SALT

SEAFOOD ALLIANCE FOR LEGALITY & TRACEABILITY

OVERCOMING BARRIERS

Solutions for adopting electronic traceability

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Interoperability: Speaking a Common Language

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FISH WISE

Interoperability: Speaking a Common Language

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Introduction

Illegal, unreported, and unregulated (IUU) fishing damages fish stocks around the globe. Additionally, illegal fishing practices can sometimes occur alongside human rights abuses. Now, the world is waking up to these injustices. Government import regulations are working to ensure illegal products don't enter their national markets, and some consumers are voicing their preference for certified and sustainably harvested fish[1].

Electronic traceability is the recording and sharing of relevant seafood product information via electronic means[2]. Full chain, electronic traceability entails the electronic capture and sharing of seafood product information from the point of catch until the point of sale. It has the potential to make it easier for the seafood industry to comply with regulations and meet consumer demands.

Thankfully, companies currently deliberating making the switch to electronic traceability are not the first companies to undergo this conversion. The trailblazers who have piloted electronic traceability - along with their NGO partners - have written case studies, described solutions that helped them overcome obstacles, and created tools to make the process easier for others. Here, the **Seafood Alliance for Legality & Traceability (SALT)** has distilled this information to walk the seafood industry through the barriers to adopting electronic traceability and provide potential solutions to overcoming the challenges a company might face.

This blog is the third in the series, "Overcoming Barriers: Solutions for adopting electronic traceability." In two previous blogs, SALT addressed the **indirect benefits for industry** when they adopt electronic traceability, as well as the **direct benefits and costs**. In this blog, we will discuss challenges in sharing data seamlessly and aligning on a common terminology.

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[1] Sterling et al., 2015

[2] Future of Fish Seafood Traceability Glossary

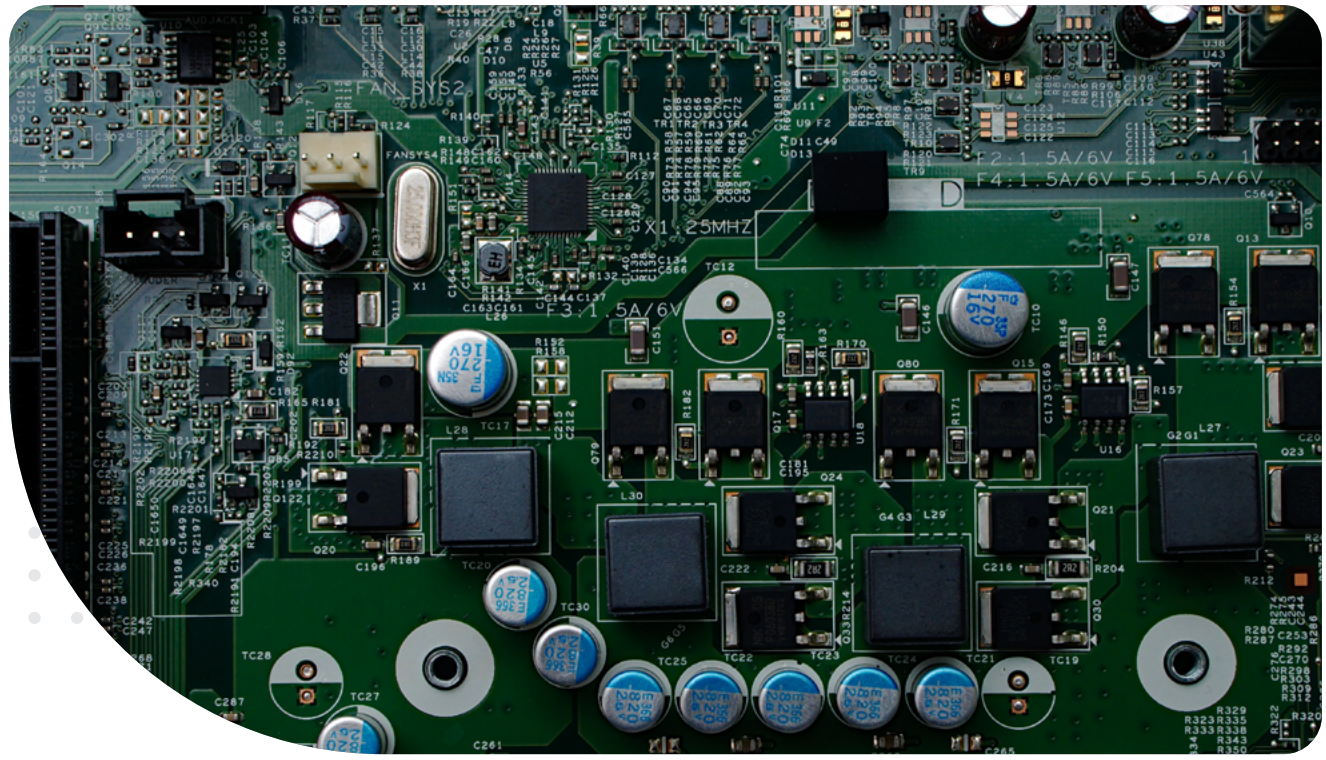

Photo by Michael Dziedzic on Unsplash

We live in an increasingly interconnected world, with global systems like cellphones and banks that transcend geographic and infrastructural boundaries. You can reach someone on the other side of the world with a phone call, regardless of whether they have the same cellular provider; you only need the country code and a way to pay for the long-distance call. Similarly, we can access funds from ATMs that belong to banks where we don't have accounts. The connections between different cellular providers or banking networks are possible because of their **interoperability**. In the seafood industry, a lack of interoperability can hinder the adoption of electronic traceability.

Interoperability is when different technological or software systems can speak to one another and exchange information seamlessly[2].

For data sharing to be interoperable, a software system retrieves information from other software without requiring manual re-entry. The software then interprets and understands the data it receives. If members of a supply chain have systems of data collection that can't easily communicate with each other (i.e., not interoperable), the burden of sharing information about a product may be too great, and information may be lost. With increasing regulations and consumer demands pushing to cast a light into the darker, undisclosed nodes of the supply chain, the viable, long-term option for companies is to share information. Interoperability ultimately makes it easier for companies to meet these regulatory and market demands.

Implementing interoperable data collection systems across the supply chain is necessary for creating greater transparency and traceability of seafood products. When a traceability system is electronic and interoperable, it is easier to store, share, and access relevant data. **Interoperability can help a company reap the full potential benefits of traceability, such as increased food safety or streamlined operations, which we outline in blogs one and two of this series.**

However, two dominant obstacles hinder interoperability:

A lack of standardized terminology and definitions for data collected. This is often referred to as employing a 'common language.' Unfortunately, a lack of alignment on data collection for global regulations has stalled progress towards this common language.

The need for alignment on data formatting, which is also known as a 'common technology architecture.'

Standardizing both terminology and data formatting is challenging for complicated global industries such as seafood. But these obstacles are not insurmountable; other fields have overcome them, such as phones and banks. Below, we describe these two main challenges to interoperability and highlight developing solutions.

Harmonizing Government Regulations

Full chain, electronic, and interoperable traceability systems can ease the burden of complying with import regulations. But, they require a shared understanding of data collection needs across the supply chain. Unfortunately, import regulations frequently differ across countries which can create conflicting ideas about what data to capture. For instance, companies exporting to the U.S. need to report some different data points than companies exporting to Japan or the European Union (EU).

Governments reveal the lack of alignment on the global level when they require different Key Data Elements (KDEs) from importers. KDEs are the backbone of traceability systems and are the pieces of critical information that capture the 'who, when, what, where, and how' of a seafood product as it passes along the supply chain[3]. KDEs can include information such as species name, country of origin, catch method, vessel identification, or social compliance information such as worker age.

When governments mandate different KDEs, complying with import requirements across countries is arduous. The box below highlights some of the differences between the **U.S. Seafood Import Monitoring Program (SIMP)** and the **'CATCH' certification scheme (CCS) from the European Union**.

*SIMP and the EU catch certification schemes were founded on the same premise: keep IUU products out of their respective markets. Although created for the same end goal, the data required of each differs. For instance, the EU catch certificate requires a fishing license number, while that is optional for SIMP. The EU requires verified weight landing of the product; SIMP does not. SIMP requires the type of fishing gear; the EU does not. If you are an exporter who sends seafood products into both markets, deciphering what to collect to meet the different requirements can be daunting and cumbersome. For a side-by-side comparison of KDEs between the U.S. and EU import requirements, check out **this recent report**.*

The inconsistencies in KDEs for import requirements can create misalignment between government needs and industry systems. As delineated in the box above, collecting all required KDEs for different import systems is difficult. In fact, the frustration and inconvenience can make some companies avoid the EU and U.S. markets entirely by exporting into less stringent ones.

[3] Future of Fish Seafood Traceability Glossary

Photo by Laya Clode on Unsplash

Companies want to know they won't have to keep updating their methods of data collection and reporting as governments adopt different systems, since updating KDE collection can cost considerable time and money. This reluctance to invest in a data collection system that may become quickly outdated has resulted in what Future of Fish dubbed "policy paralysis"[4]. To counteract this paralysis, leading businesses have joined together to work towards the adoption of globally recognized KDEs through the **Global Dialogue on Seafood Traceability (GDST). The GDST is an international, business-to-business initiative working to craft a framework for interoperability to allow for scalability and alignment of electronic traceability.**

They are addressing the two key components of interoperability: a common language and technology architecture. The GDST is creating a list of universal basic KDEs that aims to satisfy the reporting requirements of members across the supply chain[5]. This list of voluntary KDEs would serve as a foundation, so companies know where to start for data collection to meet the needs across market sectors. To address the need for a common technology architecture, the GDST is creating guidelines to standardize data formatting to ease information exchange throughout the supply chain. However, the success of the GDST guidelines relies on widespread adoption.

To provide more context on the nuances of the issues the GDST is working to overcome, we've further broken down the two main components of interoperability.

Aligning on a Common Language

A single KDE can be reported in multiple ways. For instance, one species of fish has both a scientific and a common name. To add more confusion, many species have the same common name but then vary in their sustainability status depending on where they are caught (e.g., 'rockfish'). Plus, assessing where the fish was caught is difficult since pinning down how to report catch location is complicated. For example, if fishers pass through multiple management zones in one trip, which do they record? **To avoid miscommunication, foster interoperability, and harmonize terminology, a list of standardized KDEs is critical[6].**

The GDST is working to create a master list of voluntary KDEs that will ideally address most (but not all) of the issues outlined above. The GDST's list of voluntary KDEs doesn't intend to restrict those organizations that are collecting more information for fisheries management or social responsibility; it serves as the starting point for fundamental alignment on data collection.

[4] Future of Fish's Getting There from Here: A Guide for Companies Implementing Seafood Supply Chain Traceability Technology

[5] Global Dialogue on Seafood Traceability

Photo by Ashraful Haque Akash on Unsplash

Aligning on a Common Technology Architecture

Lacking common terminology is not the only factor delaying the progress of interoperability across the industry. Even if groups collect the same information, their current systems for data management might not allow for a seamless exchange of information. In fact, **adopting KDE standards creates more opportunity for interoperability, but does not yield it outright. Rather, it is the implementation of a shared technology architecture that lays the foundation for interoperability**[7].

"The lack of interoperability of information technology (IT) systems within the sector has far-reaching consequences, as it affects the collaboration of businesses along the value chain and weakens businesses' ability to partner with other members of their value chain [8]."

What is a common technology architecture? A technology architecture involves standards and protocols for technology systems – enterprise resource planning (ERP) or other software – to share data in consistent formats to deliver information seamlessly and offer authorized access across the supply chain[9].

Establishing a common technology architecture in seafood is difficult because there are a vast range of internal tracking systems in place. An internal system follows a product as it moves through a company's facility[9]. Some of these tracking systems simply collect data on paper, while others employ ERP software[10]. The design of a common technology architecture must take these variations into consideration when determining how to link internal tracking and overall product traceability. After all, full chain traceability requires sharing KDEs every time the seafood product is transformed or passes hands.

[6] Recommendations for the Global Framework to Ensure the Legality and Traceability of Wild-Caught Fish Products
[7] Recommendations for the Global Framework to Ensure the Legality and Traceability of Wild-Caught Fish Products
[8] GDST Interoperable Traceability Systems

Moreover, the common technology architecture must account for the complicated nature of seafood processing. Many ERP systems outside of seafood are built on processes of aggregation[10]. For instance, a car is constructed from a myriad of parts potentially built elsewhere. These parts all come together to form one final product. In contrast, seafood starts as one piece and is broken into many, via the method of disaggregation. The technology architecture has to account for this complexity[11].

To work towards a common technology architecture, the GDST has created a **Framework for the Design and Development of Interoperable Traceability Systems**, which provides technical specifications that align with standard business formatting.

"To promote interoperability, we have taken the KDEs determined by seafood companies to address IUU fishing, and structured a framework for digital traceability systems to basically create common rules of the road. Therefore, there is a common expectation of how data should be structured, identified, and encoded to facilitate interoperability between different technology systems."

- Thomas Burke, Food Traceability and Safety Scientist at the Institute of Food Technologists

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Conclusion

Interoperability across the seafood supply chain is not easy, but it is possible. The common language and technology architecture crafted by the GDST ushers in a new era of traceability progress. Through guides such as the GDST's, a company now has a better understanding of where to start. Implementing interoperability does require IT skills, but technological challenges to interoperability are becoming easier to surmount.

Though the challenges to seafood interoperability were originally perceived to be primarily technical ones, other challenges remain. We'll explore those aspects, which look at interpersonal and behavioral obstacles, in an upcoming blog in this series.

Photo by Lee Jeffs on Unsplash

[9] Future of Fish Seafood Traceability Glossary

[10] Project to Develop an Interoperable Seafood Traceability Technology Architecture: Issues Brief

[11] Recommendations for the Global Framework to Ensure the Legality and Traceability of Wild-Caught Fish Products

Contact Us

Do you have questions or comments on the recently released GDST guidelines on interoperability? Join the discussion on LinkedIn and hear from an expert. Stay tuned for our next blog, exploring the barriers and working solutions to technology issues.

Resources

Like what you've read so far? Here are key resources to dive deeper into the into the topic of interoperability:

WEBSITE

GDST 1.0 Materials

Global Dialogue on Seafood Traceability

The GDST 1.0 materials are the product of the GDST Secretariat and reflect extensive dialogue with GDST members and external experts. These documents together constitute the full set of GDST 1.0 materials.

REPORT

Comparative Study of Key Data Elements for Import Control Schemes of the Top Three Seafood Markets: EU, US, & Japan

WWF, EFJ, TNC, and Oceana
2020

A comparative study of key data elements in import control schemes aimed at tackling illegal, unreported and unregulated fishing in the top three seafood markets: the European Union, the United States and Japan.

WHITE PAPER

Advancing Traceability in the Seafood Industry: Assessing Challenges & Opportunities

Fishwise
2017

This white paper highlights many traceability initiatives happening across sectors, provides background on a range of important seafood traceability policies and regulations, outlines next steps seafood businesses of all types can take to improve their traceability practices, and provides a discussion of the traceability work on the horizon.