



GLOBAL DIALOGUE
on Seafood Traceability

Voluntary Industry Standards For Interoperability



Expert Group on Fisheries Control
Workshop on traceability of fisheries and aquaculture products
Brussels, 10 October 2019

Speaker: David Schorr

What is the **Global Dialogue on Seafood Traceability**?

The GDST is a global, precompetitive, business-to-business platform
Launched in 2017

Primary Goal:

Voluntary industry standards for interoperable seafood traceability

Why?

Basic motivators for the GDST:

- **Technology confusion** (dozens of solutions, 100s of vendors)
- Systems in **non-interoperable silos** --> rigidity + vendor-capture
- Diverse (and growing + diverging) **information reporting requirements**
 - From international proliferation of **regulations**
 - From growing and shifting **consumer/NGO demands**
- Obstacles to **data creation/acquisition**
(inconsistent demands on suppliers = confusion, costs ↑, motivation ↓)

Goals

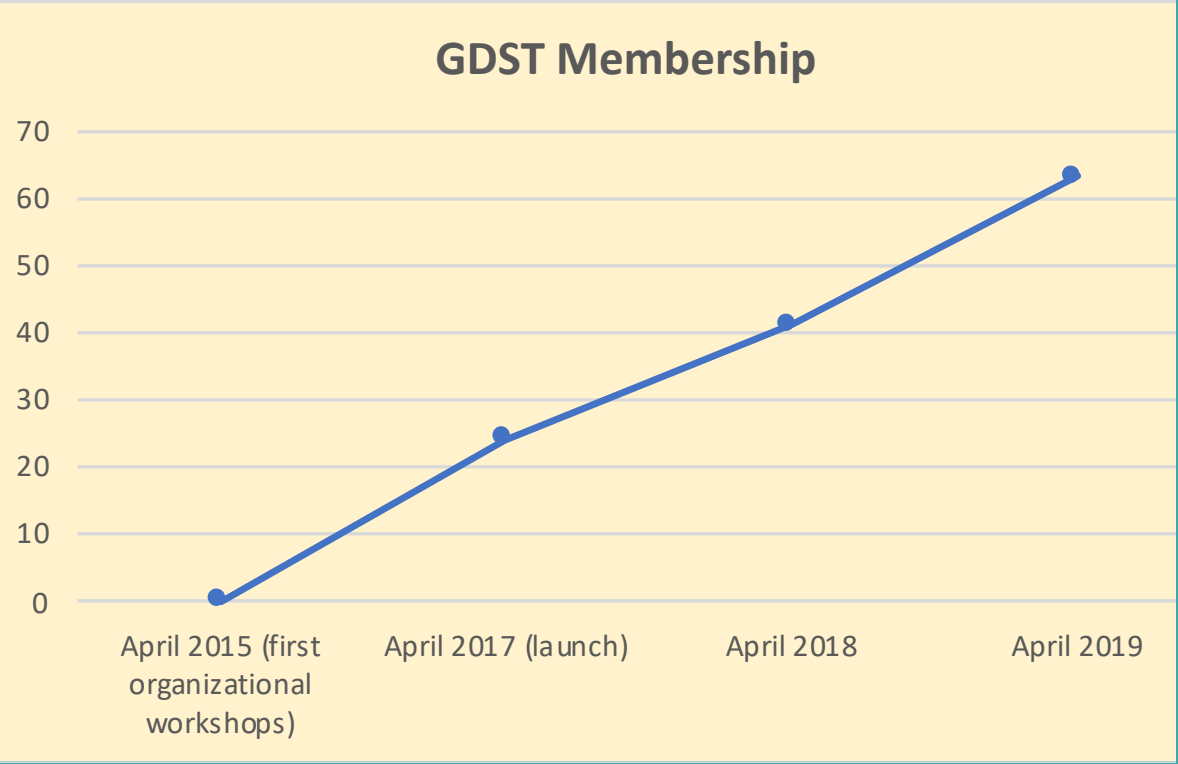
Major prerequisites to globalizing responsible supply chains:

Enable full chain transparency

Support data reliability and verification

**Drive down costs, raise returns
for investments in digital data capture and data exchange**

GDST has become a significant, powerful "B2B" platform



70 companies have joined or endorsed GDST

7 of top 10

USD \$35B/yr

GLOBAL DIALOGUE on Seafood Traceability

A. Espersens A/S – Ahold Delhaize – Ajinomoto Co., Inc – 178 Degrees – Aldi Nord – Anova Food USA – AP2HI – Asian Alliance International Company – Charoen Pokphand Foods Public Company Limited (CPF) – Bolton Food – Bomar (PT. BOGATAMA MARINUSA) – Culinary Collaborations LLC – Bumble Bee – General Tuna Corporation (Century Pacific Tuna) – Japanese Consumers' Co-operative Union – China Aquatic Products Processing & Marketing Alliance (CAPPMA) – Citra Mina – Lyons Seafood – Envisible – Fishin Company – Hong Kong Exhibition Centre – Intercity Packers Meat & Seafood – LDH (La Doria) Ltd. – Lidl Stiftung & Co, KG – Luen Thai Fishing Venture – Metro – Publix Super Markets, Inc. – Sainsbury's Supermarkets Ltd – Morrisons Supermarkets – Mt Cook Alpine Salmon – Seachill Part of the Hilton Food Group – Seacore – New England Seafood – Southeast Asian Packaging and Canning Ltd – Stavix Seafoods – Sysco Corp – Target – Nissui – Thai Union – Orca Bay – PT Bumi Menara Internusa (BMI) – Wegmans – Santa Monica Seafood – Sea Delight – Socskargen Federation of Fishing and Allied Industries, Inc. – Taylor Shellfish – Woolworths Group – Co-op UK – Thai Tuna Industry Association – Tri Marine – Vietnam Association of Seafood Exporters and Producers – Vinatuna – Whole Foods – World Tuna Purse Seine Organization – Pacifical – Karoo Catch – Tesco – Silver Coast Foods LLP – Young's Seafood

+ SeaBOS endorsement

GDST geographic diversity



Canada

Intercity Packers Meat & Seafood
Seacore

USA

Anova Food USA
Bumble Bee
Culinary Collaborations LLC
Envisible
Fishin Company
Orca Bay
Publix Super Markets, Inc.
Santa Monica Seafood
Sea Delight
Stavis Seafoods
Sysco Corp
Target
Taylor Shellfish
Tri Marine
Wegmans
Whole Foods

UK

Co-op UK
LDH (La Doria) Ltd.
Lyons Seafood
Morrisons Supermarkets
New England Seafood
Sainsbury's Supermarkets Ltd
Seachill
Tesco
Young's Seafood Ltd

Denmark

A. Espersens A/S

Germany

Aldi Nord
Lidl Stiftung & Co, KG
Metro

Italy

Bolton Foods

Netherlands

Ahold Delhaize
Pacifical

Turkey

Eciens

South Africa

Karoo Catch

Australia

Woolworths Group

China

China Aquatic Products Processing & Marketing Alliance (CAPPMA)
Hong Kong Exhibition Centre
Luen Thai Fishing Venture

Hong Kong

178 Degrees

India

Silver Coast Foods LLP

Indonesia

AP2HI
Bomar (PT. BOGATAMA MARINUSA)
PT Bumi Menara Internusa (BMI)

Japan

Ajinomoto Co., Inc
Japanese Consumers' Co-operative Union
Nissui

New Zealand

Mt Cook Alpine Salmon

Philippines

Citra Mina
General Tuna Corporation (Century Pacific Tuna)
Socksargen Federation of Fishing and Allied Industries, Inc.
World Tuna Purse Seine Organization

Thailand

Asian Alliance International Company
Charoen Pokphand Foods Public Company Limited (CPF)
Southeast Asian Packaging and Canning Ltd
Thai Tuna Industry Association
Thai Union

Vietnam

Vietnam Association of Seafood Exporters and Producers
Vinatuna

Americas = 18

Europe = 16

Other = 2

APAC = 24

GDST representation across the supply chain

[lists are illustrative, overlapping, and not fully inclusive]

- Ajinomoto Co., Inc
- AP2HI
- Citra Mina
- Fishin Company
- Karoo Catch
- Luen Thai Fishing Venture
- Mt Cook Alpine Salmon
- Nissui
- Socskargen Federation of Fishing and Allied Industries, Inc.
- Tri Marine
- Vinatuna
- World Tuna Purse Seine Org.

- AP2HI
- Bomar (PT. BOGATAMA MARINUSA)
- China Aquatic Products Processing & Marketing Alliance (CAPPMA)
- Charoen Pokphand Foods (CPF)
- Citra Mina
- General Tuna Corporation
- Luen Thai Fishing Venture
- Nissui
- PT Bumi Menara Internusa (BMI)
- Southeast Asian Packaging and Canning
- Thai Union
- Tri Marine
- Vietnam Association of Seafood Exporters and Producers

- 178 Degrees
- A. Espersens A/S
- Ajinomoto Co., Inc
- Envisible
- Fishin Company
- Intercity Packers Meat & Seafood
- Lyons Seafood
- New England Seafood
- Nissui
- Orca Bay
- Santa Monica Seafood
- Seacore
- Sea Delight
- Silver Coast Foods LLP
- Stavis Seafoods
- Thai Union
- Young's Seafood Ltd

- Bolton Foods
- Bumble Bee
- Century Tuna
- Charoen Pokphand Foods
- Citra Mina
- Co-op UK
- Fishin Company
- Nissui
- Santa Monica Seafood
- Seachill
- Seacore
- Stavis Seafoods
- Thai Union
- Young's Seafood Ltd

- Ahold Delhaize
- Aldi Nord
- Co-op UK
- Hong Kong Exhibition Centre
- Japanese Consumers' Co-op Union
- Lidl Stiftung & Co, KG
- Metro
- Morrisons Supermarkets
- Publix Super Markets, Inc.
- Sainsbury's Supermarkets Ltd
- Sysco Corp
- Target
- Tesco
- Wegmans
- Whole Foods
- Woolworths Group



Fishing/Farming



Processing



Export/Import



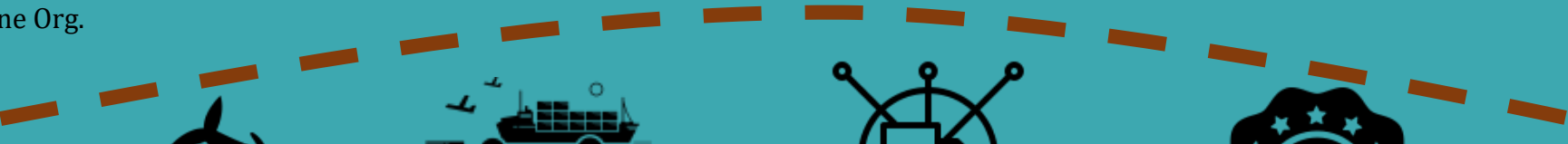
Additional Processing and Distribution



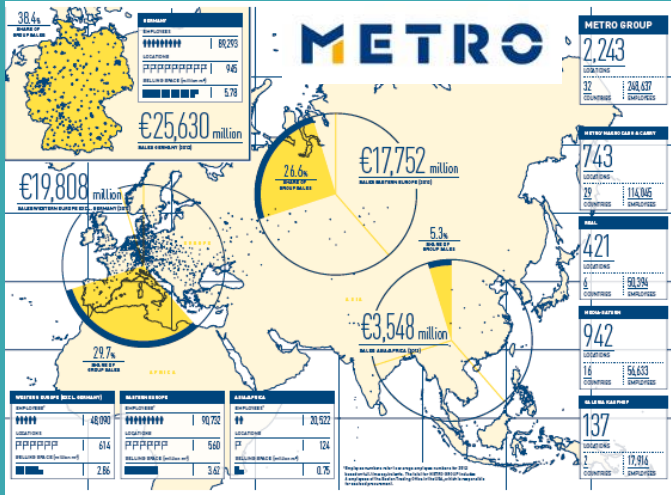
Major Brands



Retail / Food Service



Including enterprises at all scales -- small, medium, & large



Defining Key Data Elements

Basic KDE Challenges:

- Determining scope / basic contents (what is on the list)
- Nomenclature (common vocabulary)
- Detailed definitions
- Agreeing data formats
- Agreeing “authoritative sources” for information quality
- (KDEs) and who/where they enter the system
 - KDE/CTE matrix (CTE= Critical Tracking Events)

Key Data Elements (KDEs): *More than just a list*

KDE No.	KDE Name	KDE Definition	Standard Data Options	Standards Org.	List Link	Authoritative Data Source	Authoritative Data Document
W02	Vessel Registration	standardized number or identifier for distinguishing vessels registered under the same flag nation.	Free-entry Field	N / A	N / A	Flag state regulatory body with oversight of the nation's fishing fleet	Respective Flag state fishing vessel registry
W03	Unique Vessel Identification	identifier associated with a vessel for the duration of its existence that cannot be re-used by any other vessel with a permanent physical marking on the craft.	IMO Number registry managed by IHS Maritime (For eligible vessels)	International Maritime Organization (IMO) - http://www.imo.org/en/ourwork/msas/pages/imo-identification-number-scheme.aspx http://www.fao.org/fishery/docs/DOCUMENT/global_record/2015/inf9e.pdf	https://gis.imo.org/Public/SHIPS/Default.aspx	IHS Maritime on behalf of the International Maritime Organization	The IHS Maritime registry of valid IMO numbers
W05	Gear Type	equipment used to extract seafood from water for capture.	The International Standard Statistical Classification of Fishing Gear (ISSCFG) Revision 1	UN-FAO's Coordinated Working Party on Fishery Statistics (CWP)	http://www.fao.org/3/a-bt987e.pdf	Fishing vessel captain	Captain's logbook / harvest records

(NOTE: slide excerpted from GDST draft, not yet formally adopted)

IT Guidance: Digital Interoperability

Event Type	Event 1 Object Event ADD	Event 2 Object Event OBSERVE	Event 3 Object Event OBSERVE	Event 4 Transformation Event OBSERVE	Event 5 Aggregation Event ADD	Event 6 Object Event OBSERVE
Event Time	2018-05-10 10:11:02.591 GMT+12:00	2018-05-10 14:14:03.591 GMT+12:00	2018-05-12 11:11:23.591 GMT+12:00	2018-05-14 15:10:03.345 GMT+12:00	2018-05-14 16:14:03.000 GMT+12:00 2018-05-14 04:14:03.000 UTC	2018-05-17 09:09:09.591 GMT+12:00
Record Time						
"What" Dimension	Class GTIN 19417823001004 Lot 1234-TK Quantity 3500 kg	Class GTIN 19417823000014 Lot 1234-TK (Whole King Salmon) Quantity 3500 kg	Class GTIN 19417823000014 Lot 1234-TK (Whole King Salmon) Quantity 3500 kg	Transformation ID um.uuid.6560812c-b6f4-48b6-89b6-8a1ede9b0ca Inputs Class GTIN 19417823000014 Lot 1234-TK (Whole King Salmon) Quantity 3500.0 kg Outputs Class GTIN 19417823012024 Lot 1820-0399 (Chilled, Gutted and Gilled King Salmon, 1 Case, 3-4 kg) Quantity 1000.0	Parent SSCC 094178230003920909 Class GTIN 19417823001202 Lot 1820-0399 Quantity 40	SSCC 094178230003920909
Read Point	GLN 9417823000017 (MCAS - Lake Takapo)	GLN 9417823000017 (MCAS - Lake Takapo)	GLN 9417823000024 (MCAS - Lake Pukaki)	GLN 9417823000031 (MCAS - Timaru)	GLN 9417823000031 (MCAS - Timaru)	GLN 9417823000031 (MCAS - Timaru)
Biz Location	GLN 9417823000017 (MCAS - Lake Takapo)	GLN 9417823000017 (MCAS - Lake Takapo)	GLN 9417823000024 (MCAS - Lake Pukaki)	GLN 9417823000031 (MCAS - Timaru)	GLN 9417823000031 (MCAS - Timaru)	GLN 9417823000031 (MCAS - Timaru)
Biz Step	Commissioning (CBV)	Shipping (CBV)	Shipping (CBV)	Active (CBV)	Packing (CBV)	Shipping (CBV)
Disposition		In Transit (CBV)	In Transit (CBV)	Active (CBV)	Active (CBV)	In Transit (CBV)
Sources (pds:1)		Location (CBV) GLN 9417823000017 (MCAS - Lake Takapo)	Location (CBV) GLN 9417823000024 (MCAS - Lake Pukaki)			Location (CBV) GLN 9417823000031 (MCAS - Timaru)
Destinations (pds:1)		Location (CBV) GLN 9417823000024 (MCAS - Lake Pukaki)	Location (CBV) GLN 9417823000031 (MCAS - Timaru)			Location (CBV) GLN 9429031430821

Big Picture:

- Creating a “free and open” solution
 - Vendor and platform neutral
 - open source outputs
- A “push” solution
 - enabling transparency w/o mandating it
- One design for multiple use cases
- Level of technical detail → ready to use

seafoodEvent	Catch	seafoodEvent	Landing	seafoodEvent	Transport
organizationName	Meiho Gyogyo Co., Ltd.			shippingParty	Meiho Gyogyo Co., Ltd.
vesselOwnerName	Meiho Gyogyo Co., Ltd.			receivingParty	Wild Planet Foods
vesselName	Meiho Maru No.22				
vesselID	MMSI:431801000	vesselID	MMSI:431801000		
vesselFlagState	JP				
fishingGearTypeCode	LHP (hand-operated pole-and-lines)				
speciesCode	SKJ				
speciesName	Skjegg tuna				
detectionMethodCode	01 ("Caught at sea")				
grossWeight	700				
grossWeightUOM	KG				
storageStateCode	FZZ ("Not Previously Frozen")				
containerID	d9e4512b-c62c-4b7c-bca3-4609b2e6b5a	containerID			
quantity	1				
quantityUOM	EA				
license	http://docs.meiho.com/licenses/012130123				
catchCertificate	http://docs.meiho.com/catchcerts/03293492				
eventTime	2018-04-13T08:09:23	eventTime			
eventTimeZoneOffset	+09:00	eventTimeZoneOffset			
harvestStartDate	2018-04-01				
harvestEndDate	2018-04-12				
catchLocation	FAO.71	unloadingPart			
countryOfOrigin	JP				

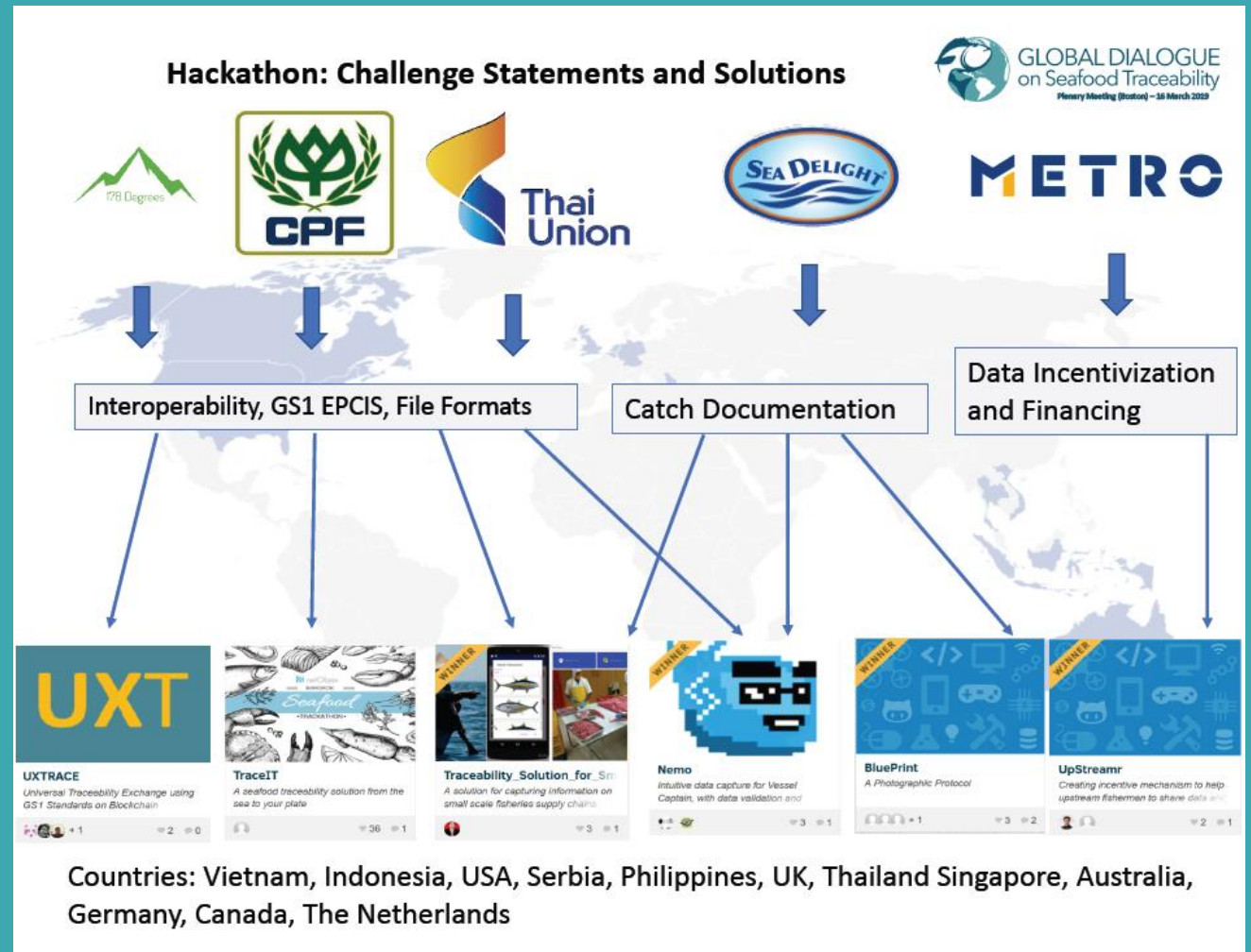
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<eventTimeZoneOffset>+09:00</eventTimeZoneOffset>
<baseExtension>
  <eventID>urn:uuid:6ca36614-1622-44a4-9400-7b9720b994d5</eventID>
</baseExtension>
<epcList>
  <epc>urn:epc:id:grain:08479760.2233.234567890</epc>
</epcList>
<action>ADD</action>
<bizStep>urn:epcglobal:cbv:bizstep:commissioning</bizStep>
<disposition>urn:epcglobal:cbv:disposition:active</disposition>
<readPoint>
  <id>geo:11.251877,131.206273</id>
</readPoint>
<extensions>
  <land>
    <cbvmda:speciesID>fisheryStatisticsPurposesCode</cbvmda:speciesID>
    <cbvmda:speciesName>SKJ</cbvmda:speciesName>
    <cbvmda:speciesCode>SKJ</cbvmda:speciesCode>
    <cbvmda:tradeItemDescription>Skjegg Tuna</cbvmda:tradeItemDescription>
    <cbvmda:harvestStartDate>2018-07-01</cbvmda:harvestStartDate>
    <cbvmda:harvestEndDate>2018-07-12</cbvmda:harvestEndDate>
    <cbvmda:productionMethodForFishAndSeafoodCode>MARINE_FISHERY</cbvmda:productionMethodForFishAndSeafoodCode>
    <cbvmda:countryOfOrigin>JP</cbvmda:countryOfOrigin>
    <cbvmda:netWeight>700</cbvmda:netWeight>
    <cbvmda:catchArea>71</cbvmda:catchArea>
    <cbvmda:vesselCatchInformationList>
      <cbvmda:vesselOwnerName>Fish Co., Ltd.</cbvmda:vesselOwnerName>
      <cbvmda:vesselName>Fish Co Maru No.22</cbvmda:vesselName>
      <cbvmda:vesselID>IMO.9119751</cbvmda:vesselID>
      <cbvmda:vesselFlagState>JP</cbvmda:vesselFlagState>
      <cbvmda:fishingGearTypeCode>LHM</cbvmda:fishingGearTypeCode>
      <cbvmda:vesselCatchInformationList>
    </cbvmda:vesselCatchInformationList>
  </land>
</extensions>
<gdst:seafoodEvent>Catch</gdst:seafoodEvent>
<gdst:fishingLicense>http://docs.fishco.com/licenses/012130123</gdst:fishingLicense>
<gdst:catchCertificate>http://docs.fishco.com/catchcerts/03293492</gdst:catchCertificate>
</ObjectEvent>
                
```

IT Guidance: Digital Interoperability

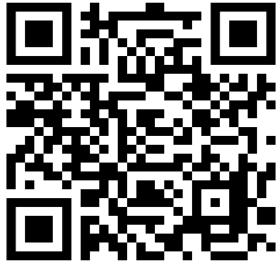
Examples of Use Cases:

- Enabling interoperable digital data capture on small scale vessels
- Linking case/pallet identifiers with downstream systems
- Linking GS1 with non-GS1 systems
- Ensuring blockchain pilots are not siloed
- Linking legacy systems and new web and blockchain systems
- Enabling digital Chain of Custody certification
- Matching labeling requirements with inputs from suppliers



GDST enables **lot-level integrity** without constraining business practices

- Lot-level information conforms to seafood operations while providing the basis for connectivity and traceability through the supply chain steps.
- Mixed species lots, even at point of first sale, are common in some parts of the seafood industry (e.g., tuna landed from purse seiners)

 <p>urn:uuid:a2[REDACTED]2-7f96-4d6d-9431-c4e6e3ef4[REDACTED]8 https://www.uuidgenerator.net/</p>	<p>Mixed Container of Whole Fish Skipjack and Yellowfin Tuna</p> <p>Qty: 1000 KG Catch Date: FAO Catch Area: 71 July 1, 2017</p> <p>Cert: MSC-C-5[REDACTED]9</p> <p>Gear Type: Purse Seiner</p> <p>Vessel: FU [REDACTED] No [REDACTED]6</p> <p>ID: IMO 8[REDACTED]2</p> <p>Flag: Taiwan</p>
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In such cases, sorting and grading often occur during first processing

GDST enables **lot-level integrity** without constraining business practices

“Event-based” traceability (using GS1 EPCIS) allows end-to end tracking as **lots are disaggregated and/or combined**, even multiple times


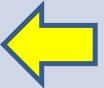
Some technical details:

- **Transformation Events** link inputs to outputs.
- **Aggregation Events** link cases to pallets and shipping containers
- **Object Events** define new objects, attach master data and allow shipments and receipts to connect buyers and sellers, source and destination locations.

- Lot level integrity is **easily communicated** throughout the supply chain in **GDST Pedigree Files**.
- This should support the ability to reconstruct the species content of individual first sales

Illustration of GDST **lot-level integrity across events** using event-based traceability and a “pedigree file”



Dimension	V5	V6	V7	V8
Why	TransformationEvent	AggregationEvent ADD, Packing	AggregationEvent ADD, Packing	ObjectEvent OBSERVE, Shipping
Who	Processor	Processor	Processor	Processor
What	Input: Mixed Species (UUID 1) Mixed Species (UUID 2) Mixed Species (UUID n) Output: Frozen Skipjack (GTIN + Lot) Frozen Yellowfin (GTIN + Lot) 	Parent: Container A Children: Frozen Skipjack (GTIN + Lot)	Parent: Container B Children: Frozen Yellowfin (GTIN + Lot)	Container A Container B 
Where	Loin Processing Plant	Loin Processing Plant	Loin Processing Plant	Source: Loin Plant Destination: Canner
When	Date, Time, Zone	Date, Time, Zone	Date, Time, Zone	Date, Time, Zone
Master Data Header	Plant Operator/Owner Plant Identifier			Customer Contact Info Ship To Address
Instance/Lot Master Data	Lot Number Production Date Storage State First Freeze Date			
Tech Info	Product Owner Information Provider Geolocation of Event	Product Owner Information Provider Geolocation of Event	Product Owner Information Provider Geolocation of Event	Product Owner Information Provider Geolocation of Event

What's Next for GDST?

Release of **GDST 1.0** is coming soon

- **GDST technical drafting and initial pilot testing ending now**
- **Second set of GDST hackathons in late October**
- **Public release of "beta" version ca. November**
- **Adoption and release of GDST 1.0 ca. March 2020**



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on Seafood Traceability

Summary

1. GDST voluntary standards are coming soon
2. They have significant industry backing, and reflect years of industry pre-competitive consultation
3. GDST standards are already being road-tested in multiple environments and use cases
4. GDST 1.0 should provide an important basis and reference point for any future regulation, especially with goal of driving “upward harmonization” at global scales