# Welcome to today's webinar: Traceability in the Seafood Supply Chain

The webinar will begin shortly.

Please join the audio portion of the call by having the system call you.

We ask that all attendees mute their phone lines.

FMI™

THE VOICE OF FOOD RETAIL

Feeding Families Enriching Lives

# FMI Antitrust Policy

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# Today's Speakers

**Tejas Bhatt** *Program Director for the Global Food Traceability Center at the Institute of Food Technologists (IFT)*

Tejas directs IFT's science and policy initiatives related to food safety, defense and traceability. He was the IFT lead on the food product tracing pilots conducted for the U.S. Food and Drug Administration as mandated by the U.S. Food Safety Modernization Act. Prior to joining IFT, he was a Research Associate at the Purdue Homeland Security Institute conducting research in the use of technology in emergency planning and preparedness.

**Brian Sterling** *President of SCS Consulting & Managing Director for the Global Food Traceability Center (GFTC*)

Brian was previously the Chief Executive Officer for Ontario's own agri-food traceability corporation (OnTrace) and since 2003 has been an outspoken advocate and successful implementer of food traceability solutions. His achievements extend beyond food traceability, and he is equally adept at driving business start-ups, growing businesses, and rebuilding distressed operations.

# Today's Speakers

**David K. Schorr,** *Leadership team of WWF's network-wide Smart Fishing Initiative*

David's principal responsibility is to direct the SFI's Transparent Seas Project to combat illegal fishing by transforming the traceability of seafood and the transparency of fishing activities. David has expertise in international fisheries governance and in issues surrounding globalization and the environment.

**Hilary Thesmar, PHD, RD, CFS** *FMI Vice President, Food Safety*

Hilary provides leadership for all food safety programs for FMI's retail and wholesale members, as well as support for members on food safety training programs, recall plans and management, crisis management, research, and overall safety and sanitation programs. Prior to joining FMI, Dr. Thesmar served as the senior director of scientific and regulatory affairs for the National Turkey Federation (NTF).

# Traceability Architecture for Seafood

**Food Marketing Institute (FMI) Webinar – January 9, 2015**

**Tejas Bhatt**
**Program Director**
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**Brian Sterling**
**Managing Director**
bsterling@ift.org

# Agenda

- Introduction
  - FMI's perspective
  - WWF perspective
  - IFT-GFTC perspective
- Definitions
  - Traceability
  - Interoperability
  - Traceability system
- Technology Architecture
  - Importance
  - Concept - Blueprint
  - Requirements
- Next Steps
  - Refine blueprint
  - Consultation events
  - Stakeholder dialogue
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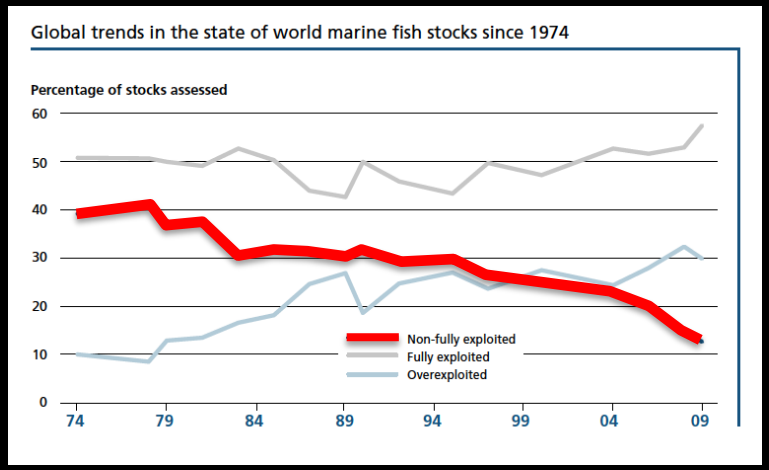
# FMI's Perspective

- Traceability Programs
  - Food Safety, Public Health, Supply Chain, Business Systems
  - Retail Involvement
- Interoperability


*david.schorr@wwf-us.org*

# Fisheries in Crisis




**Declining Stocks**

**Illegal ("IUU") Fishing**

# THE ENVIRONMENT

## Fish imported to U.S. was often caught illegally, study finds

### Up to 32% of total, worth $1 billion-plus a year, gets past inspectors

BY DARRYL FEARS

The seafood on your dinner plate is starting to look a little fishy.

A new study that examined illegal and unreported marine harvests brought into the United States found that some fish shouldn't be on U.S. tables. Up to 32 percent of imported wild shrimp, crab, salmon, pollock, tuna and other catch is poached, according to the study.

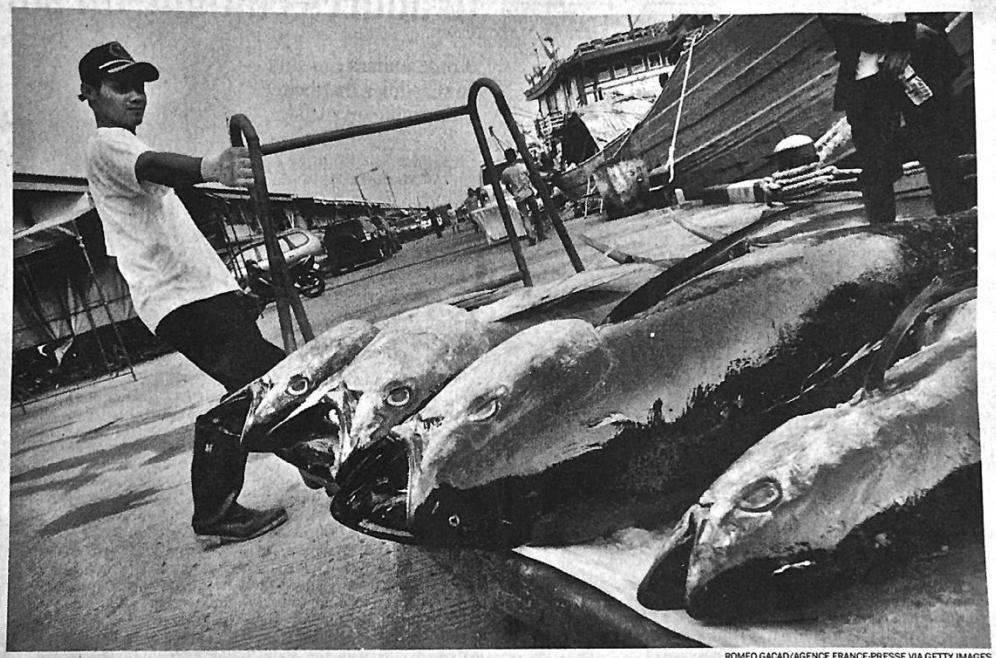
Scientists are concerned about illegal fishing because the world's oceans can barely sustain legal seafood harvests. Eighty-five percent of the world's commercial seafood grounds "are fished up to their biological limits or beyond," the study said.

Earlier studies have shown that illegal and underreported fishing accounts for up to 31 percent of the world's catch, but this study is the first to examine how much of it slips past the better-inspected ports of the United States.

"That was really a surprise to us," said Tony J. Pitcher, a professor of fisheries at the University of British Columbia and co-author of the study, published this month in the journal Marine Policy.

"We thought a well-governed country like the U.S., with tighter controls, would be better," Pitcher said. Inspectors in the United States, which imports 14 percent of the global total, are not required to ask for documentation that shows a bounty's origin.

U.S. inspectors are more concerned with the freshness of seafood and its potential impact on human health. What gets by inspectors is valued in the study at $1.3 billion to $2.1 billion per year, a sum that encourages more illegal and unreported fishing, Pitcher said.



ROMEO GACAD/AGENCE FRANCE-PRESSE VIA GETTY IMAGES

**A worker unloads a tuna for export to the United States and Japan at a fish port in Jakarta, Indonesia. The nation is a major U.S. supplier.**

"It's quite clear that most consumers don't have an idea what's coming into the supply," he said.

Americans ate about 2 million tons of seafood in 2011, second only to China. They spent more than $85 billion on fish — much of it harvested within the country. Tuna, pollock, crab and cod are Americans' wild-caught favorites.

But fishing vessels and seafood processors rely on a shell game to deliver illegal and unreported catch to U.S. ports. Ships fish at different spots on the high seas often for months at a time, using "transition vessels" to taxi the catch to market while they keep trolling for fish.

Documentation of where the fish is caught is lax, the study found. Many of the fish, crab, shrimp and other products are rushed to Chinese processing plants, where low-paid workers fillet salmon, clean the guts of tuna and pull meat from crabs. Illegally caught fish are easily mixed at the plants with those that were caught legally.

*"We thought a well-governed country like the U.S., with tighter controls, would be better."*

**Tony J. Pitcher,** University of British Columbia professor and co-author of the study

"If so much of the overall harvest is under the radar, what about the by-catch," the marine life caught in nets or on hooks, said Tom Bigford, policy director of the American Fisheries Society, a nonprofit group in Bethesda, Md.

"I'm thinking the implications could be pretty severe," Bigford said. Americans assume that seafood that makes it into the United States was legally caught, he said. "But the chain is so complicated that it's hard for us to be positive."

How fish are processed is sometimes puzzling. For example, prawns caught off of Scotland are often sent to China for processing and then shipped back to Scotland, because low-wage processors are cheaper, Pitcher said.

Pollock caught in Russia is frozen there, shipped to China, where it is thawed and processed, then frozen again for the trip back to Russia or elsewhere in the world, including the United States.

Most wild-caught imports to the United States come from 10 countries: China, Thailand, Indonesia, Ecuador, Canada, Vietnam, the Philippines, India, Mexico and Chile.

For the study, researchers looked only at fish caught under flags outside the United States, although illegal and unreported fishing does occur in relatively small amounts in the country.

Scientists sought out information regarding illegal and unreported catches in 30 countries, looking at various species and where they are caught. They then determined the top countries and species, and examined the weight of the catches.

Based on earlier and similar studies, researchers determined that nearly half of wild-caught seafood imports to the United States could be scrutinized as possible illegal catch.

During the two years of the study, researchers "spent months developing the framework," relying on peer reviews to check their steps, checkpoints and initial findings for scrutiny. Katrina Nakamura, an adjunct professor at the University of British Columbia and one of the authors, said that researchers reached out to people in the seafood industry and conservation organizations that track illegal fishing.

"I spent a few solid weeks just myself weeding through the shrimp to try to separate wild and farmed imports," Nakamura said. "It's the first time something like this has been done at the product level."

The seafood industry, which stands to lose money if it loses the public's trust, frowns on such reports.

"We had many challenges from people who care a lot about scientific rigor all the way through" to assure that their methods were sound, because the topic is so sensitive, Nakamura said. "In that sense, it was a process of true scientific discovery."

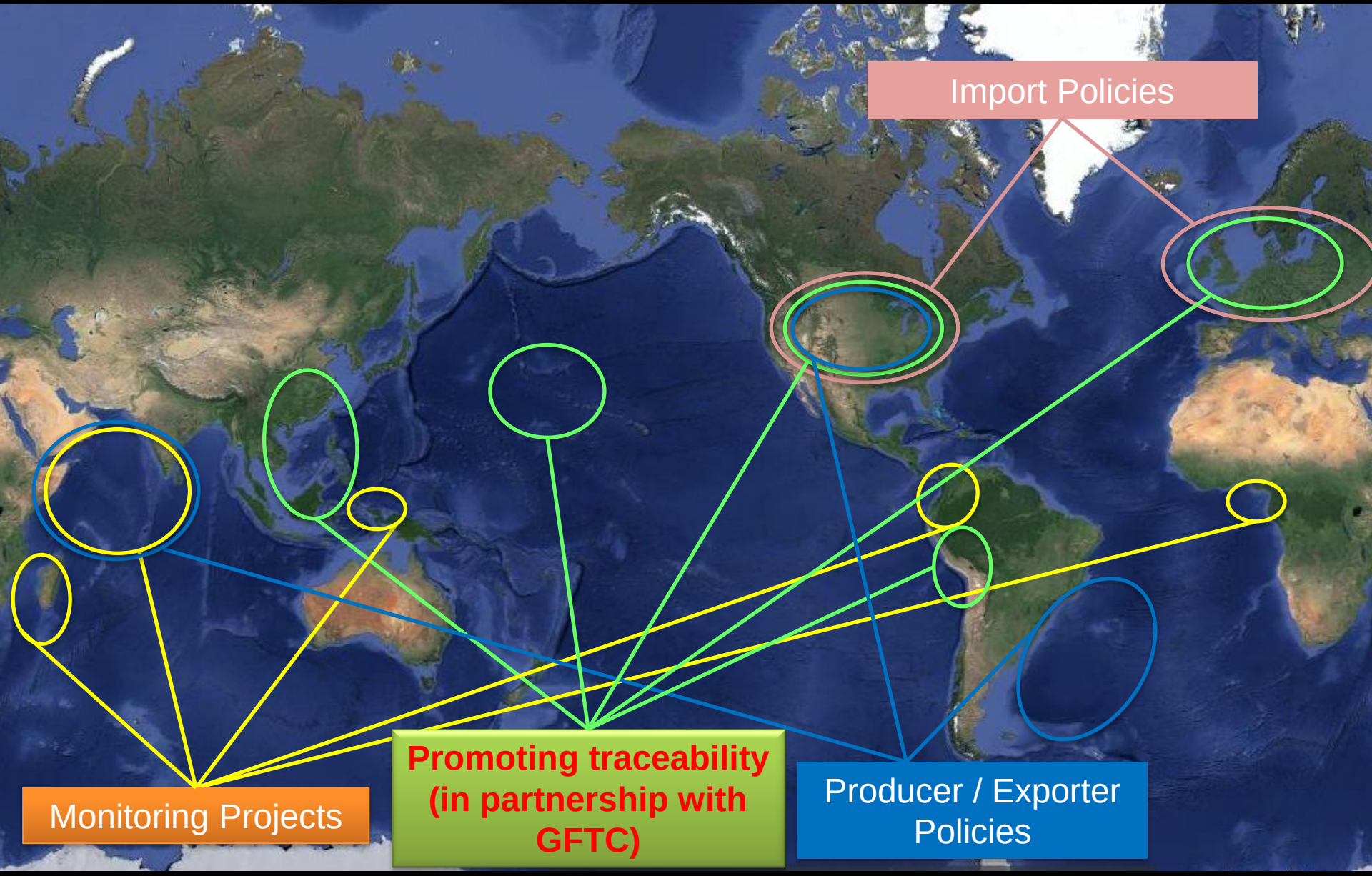
darryl.fears@washpost.com


"I sure hope I can trust the guy who sold me this fish!"
" Surely I can trust this nice young man!"

# A complex and diffuse market chain


**. . . where traceability is possible, but not yet routine**

# A Global WWF Initiative



# IFT-GFTC Perspective

- Science-based professional non-profit society with 18,000 members from 100 countries
- Launched Global Food Traceability Center in 2013
- Vision is to be the authoritative voice on the science behind food traceability

# GFTC Sponsors

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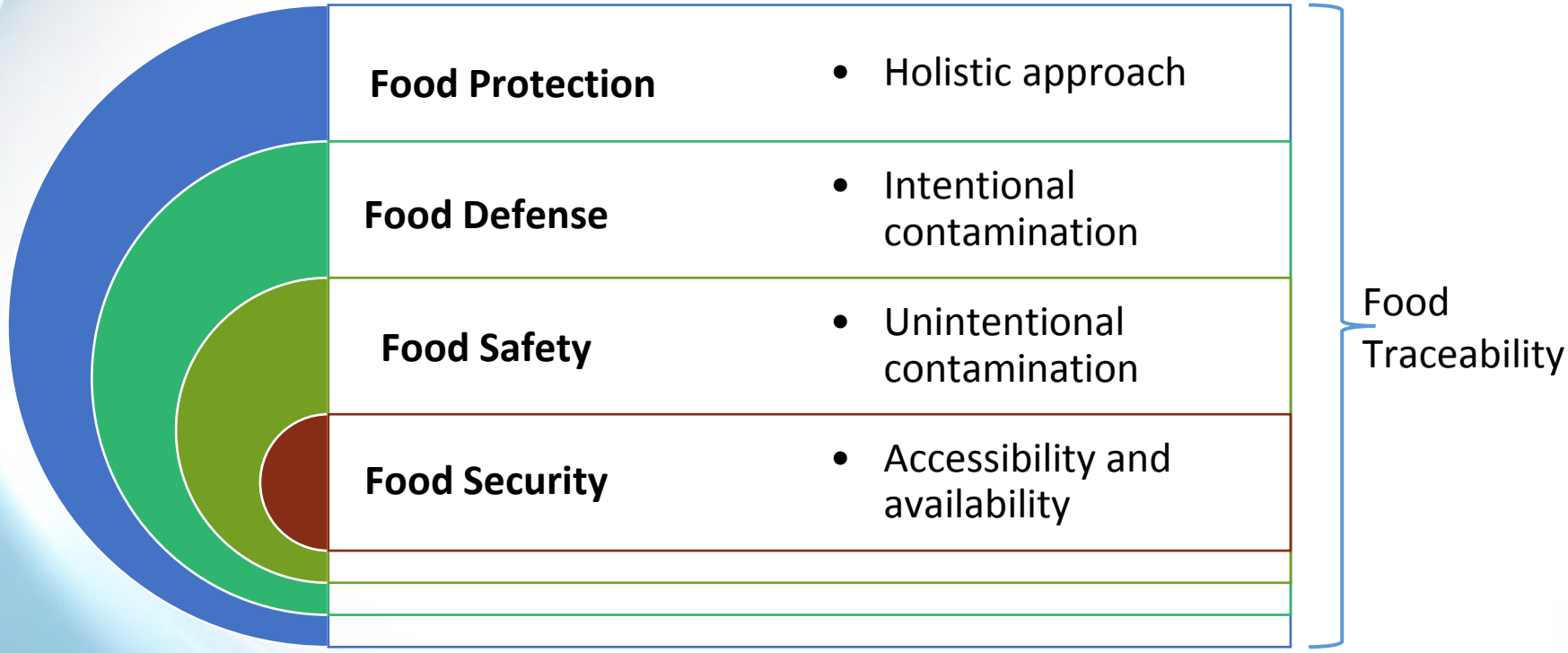
# Definitions: Traceability



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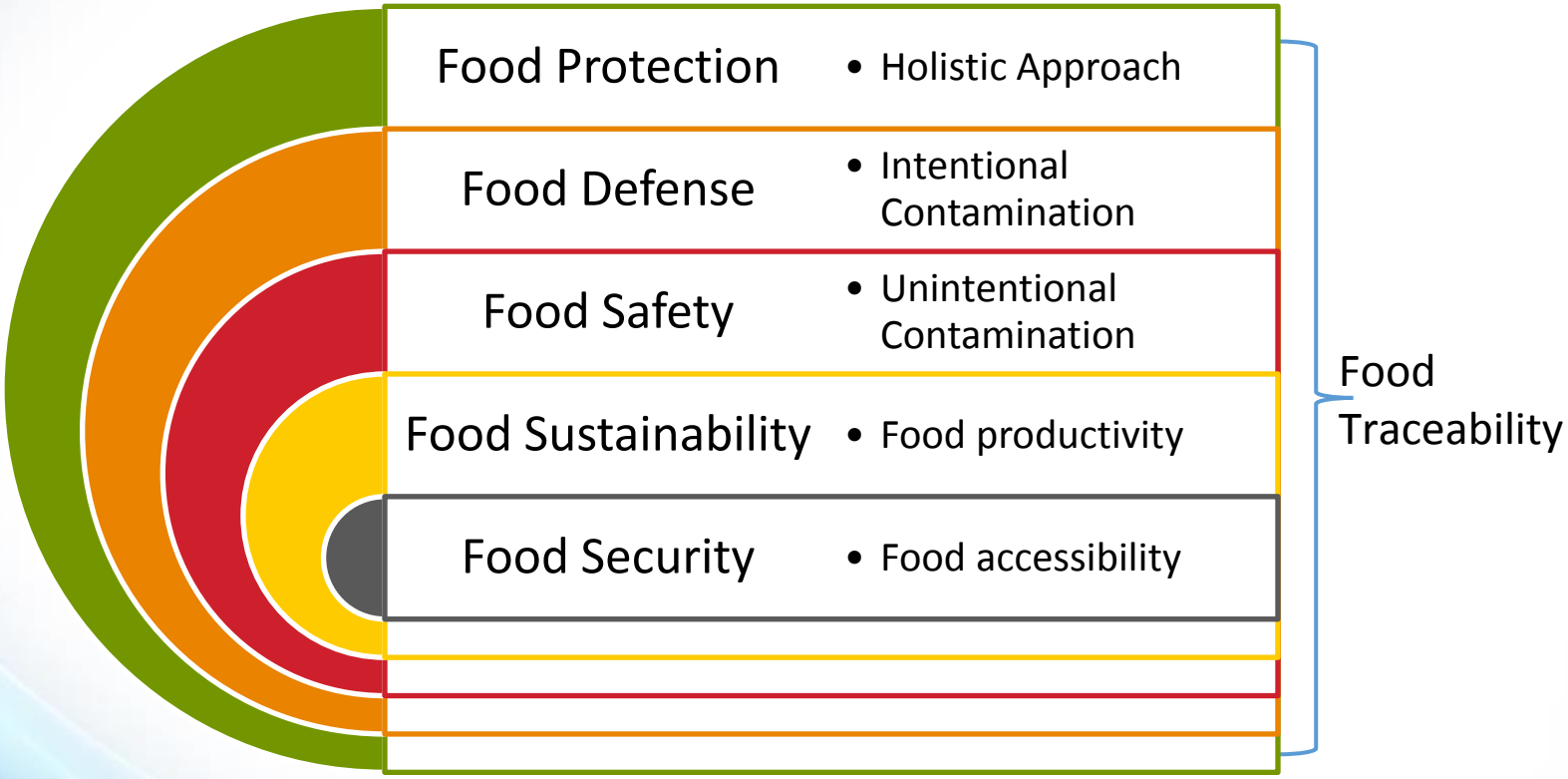


# Definitions: Traceability

- **Categories of traceability**
  - "Internal traceability"
    - Ability to follow the product WITHIN a business

    .
  - "External traceability"
    - Ability to follow the product BETWEEN businesses

# Definitions: Traceability

- Traceability *is not* about data, identifiers, bar codes, RFID, tags, and any information that needs to be linked together to make traceability possible.
  - These are all critical, but not sufficient

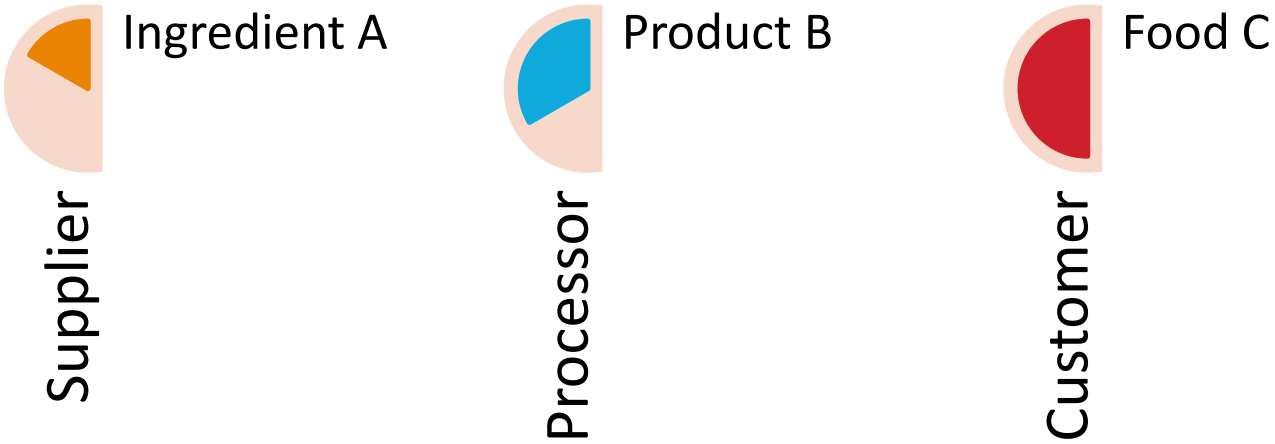
- Traceability *is* about systematic ability to access any or all information relating to a food under consideration, throughout its entire life cycle, by means of recorded identifications.
  - For this to happen, a traceability system must keep track of when the units (and the associated identifiers) are created, used, joined together, split up and finally disposed

# Definitions: Interoperability

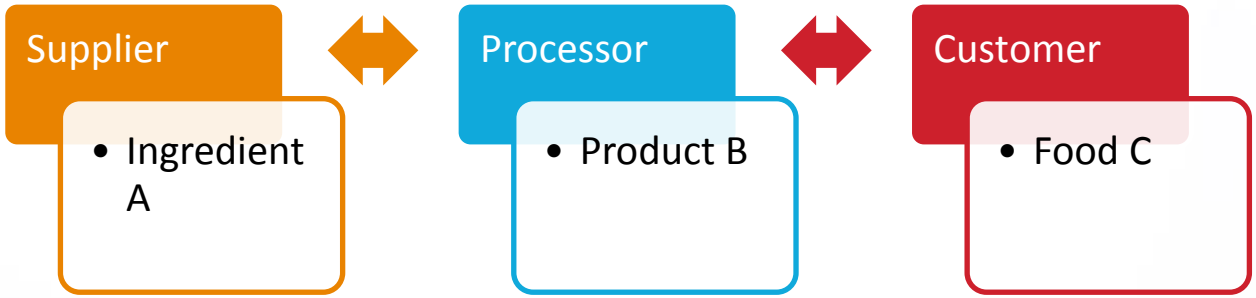
- Islands of data
  - Accessibility
  - Semantics
  - Syntax
- Interoperability means
  - Ability to speak the same ‘language’
  - Understand the same words – Terminology
  - Answer the same questions
- Interoperability does NOT mean
  - Universal access to data
  - Globally standardized KDEs and CTEs
  - Loss of confidentiality, control or capability

# Definitions: Interoperability

Islands of Data



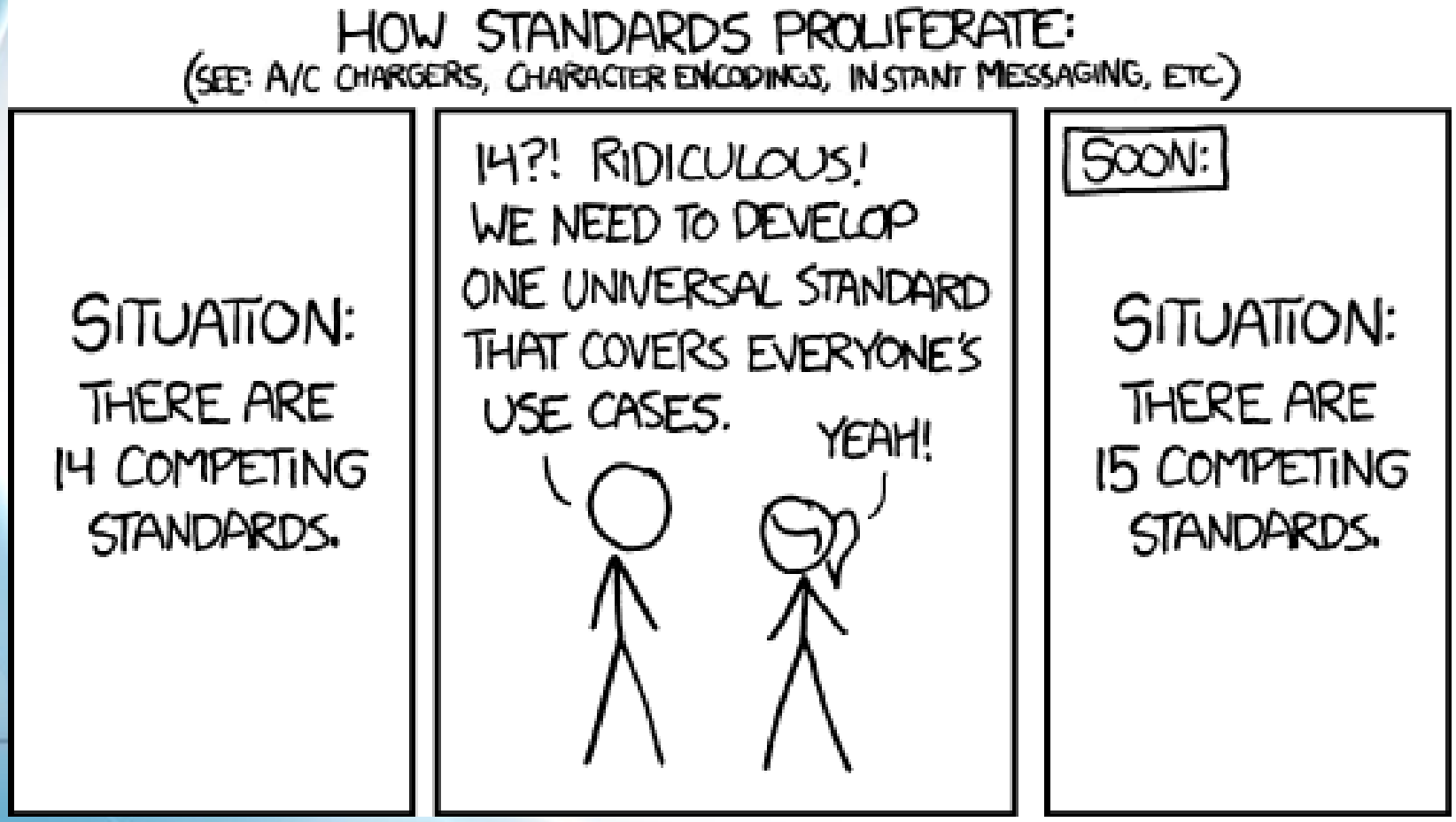

Islands of Data with Bridges



# Definitions: Traceability System

- System characteristics:
  - Provides access to all properties of a food product, not just those verifiable by analysis
  - Provides access to properties of a food product or ingredient in all its forms, in all links of the chain
  - Facilitates traceability of food product backwards (where it came from) and forwards (where it went)
  - Based on systematic recording and exchange of these properties
  - Unit identification or numbering system is present and links to the properties

# What we do NOT want to do…




Source: http://imgs.xkcd.com/comics/standards.png

# Current Trends: Other Industries

- Healthcare and pharmaceutical industries
  - “A Case for Interoperability In Healthcare: Reduce Information Management Labor”
  - “Interoperability: The Glass is More than Half Full”
  - “Is Healthcare IT Interoperability (Almost) Here?”
  - “What's Holding Back Innovation in Health Care?”

# Current Trends: Other Industries

- Information technology and telecommunications
  - “The tech trends of 2015: The Internet of Things becomes a thing”
  - “Cloud computing in 2015”
  - “Is the interoperability gap closing?”

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# Technology Architecture: Importance

- Interoperability reduces the cost burden
  - Do not need to meet multiple, duplicative data and systems requirements
- Like a blueprint it is a framework that does not require “sameness”
  - Built on ‘shared’ principles . . . . and
  - Flexible enough to embrace the diversity of business systems being used today

# Technology Architecture: Importance

- Interoperability needs to be balanced by the principle of managed or controlled access
  - Just because information is stored does not mean that it is accessible to ‘anyone’

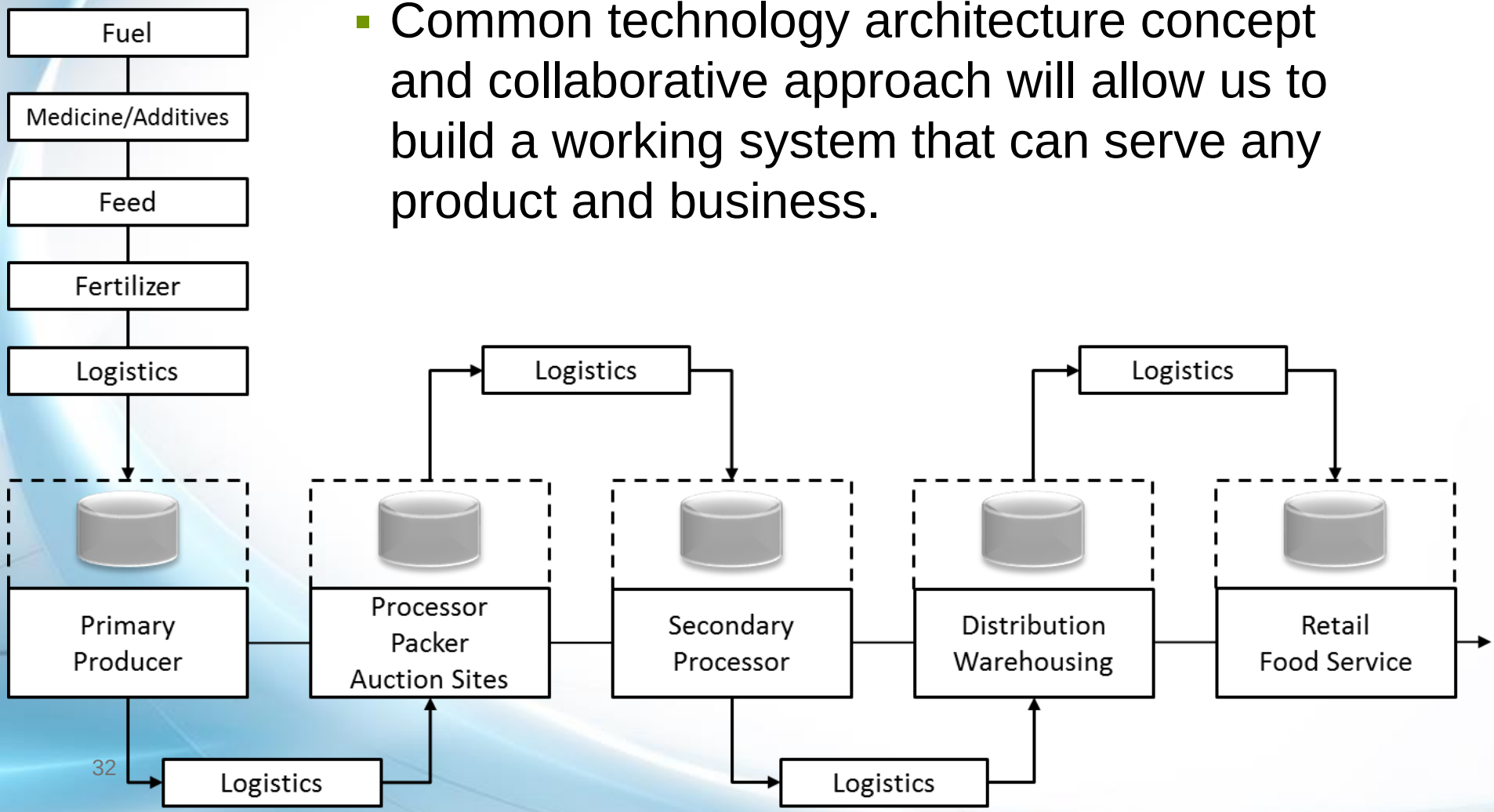
- Central concept
  - No matter what kind of information system stakeholders may use for their own organizations, systems can communicate and be understood by other authorized systems through interoperability.

# Technology Architecture: The Concept

- Technology architecture is akin to a blueprint for a global traceability system
- Purpose
  - A unified picture that will enable stakeholders (businesses, industry, regulators) to see how their own unique traceability practices and systems can contribute to more effective global food traceability
  - Designed for multiple uses and constructed on a common set of requirements, much like the telecommunications, financial, and information technology requirements used for other networks today

# Technology Architecture: Scope

- Common technology architecture concept and collaborative approach will allow us to build a working system that can serve any product and business.



# Technology Architecture: Assumptions

- There will be willing participation by stakeholders of the food system at all steps in the value chain
- Public and private stakeholders will actively participate in refining, planning, and implementing the design of the technology architecture
- The architecture should be designed to have the flexibility to accommodate phased/tiered/rolling participation and implementation of traceability by the diverse group of seafood system stakeholders

# Technology Architecture: Assumptions

- Leverage: ‘Stitch together’ dispersed data to provide a more complete view of seafood traceability
- Leverage: Use existing internal business systems and transactional information (through standardized protocols and secure access) to deliver relevant, reliable and readily accessible information
- Leverage: Businesses that already have mature electronic data management systems encouraged to participate in early pilots so that implementation reflects current capabilities of industry, while maintaining flexibility for future alternatives

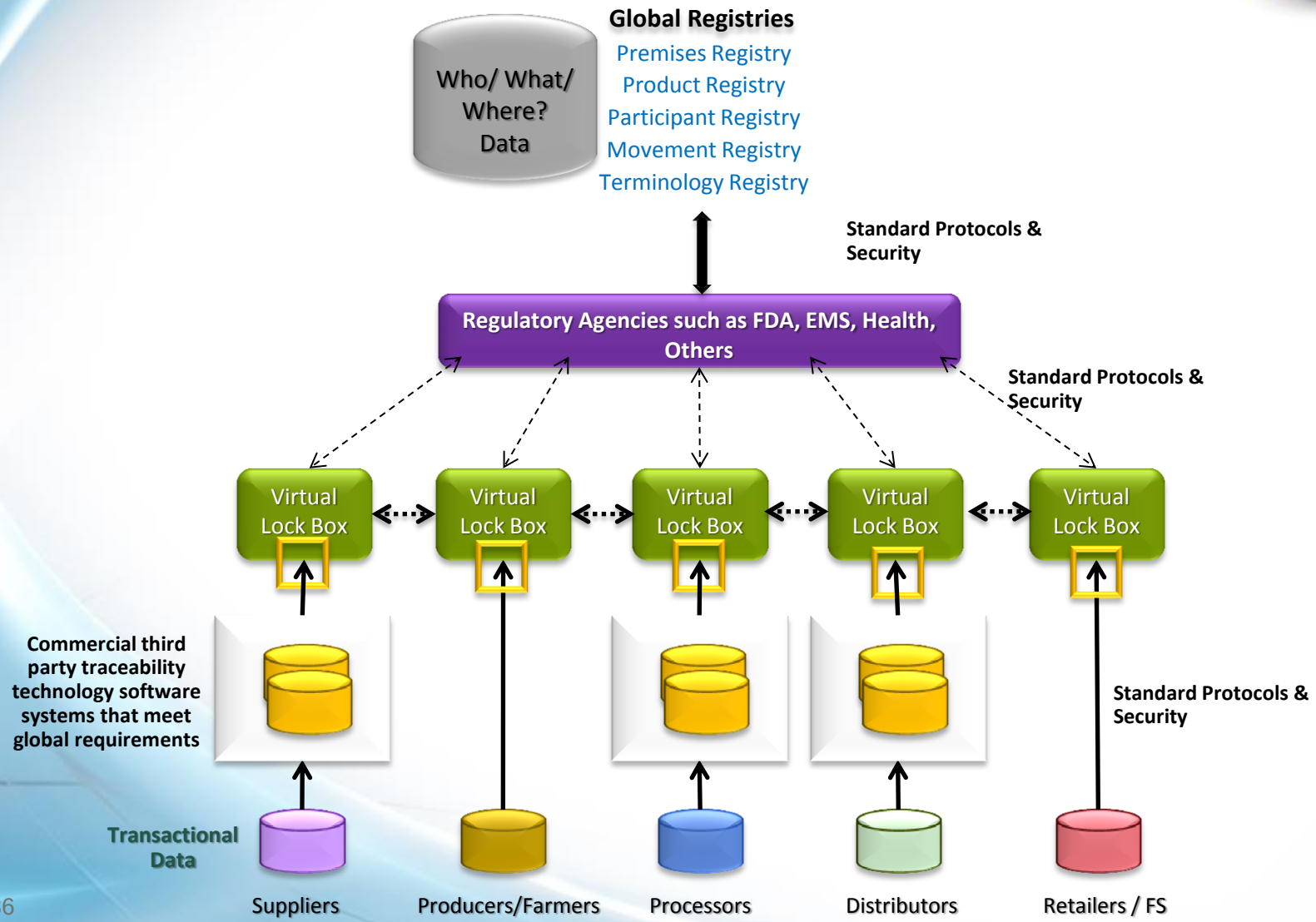
# Technology Architecture: Requirements

- The architecture will use premises, product, participant, and movement identifiers, and data systems to create a more complete view of seafood traceability

- Access to business systems would be voluntary and provided through a 'Virtual Lock Box' software layer that enables each system owner to exercise control over
  - What data is accessible
  - Who may access data
  - When it may be accessed
  - For what purpose

- Standards for data structure and communication methods need to be decided during the design, developmental, and pilot phases of the traceability system construction

# Technology Architecture: Strawmodel



# Virtual Lock Box

- A secure application with interfaces that link into business data systems
- Only designated transactional data in existing business systems need to be accessible
- Accesses the content (Key Data Elements)
- Associates the “context” for the data
  - In other words, the reason that data is selected and from where it originated (Critical Tracking Events)
- Maintains the usage rights for any content (KDE)
  - This means that only those who have authority to see specific data are granted access; and only under specified conditions.

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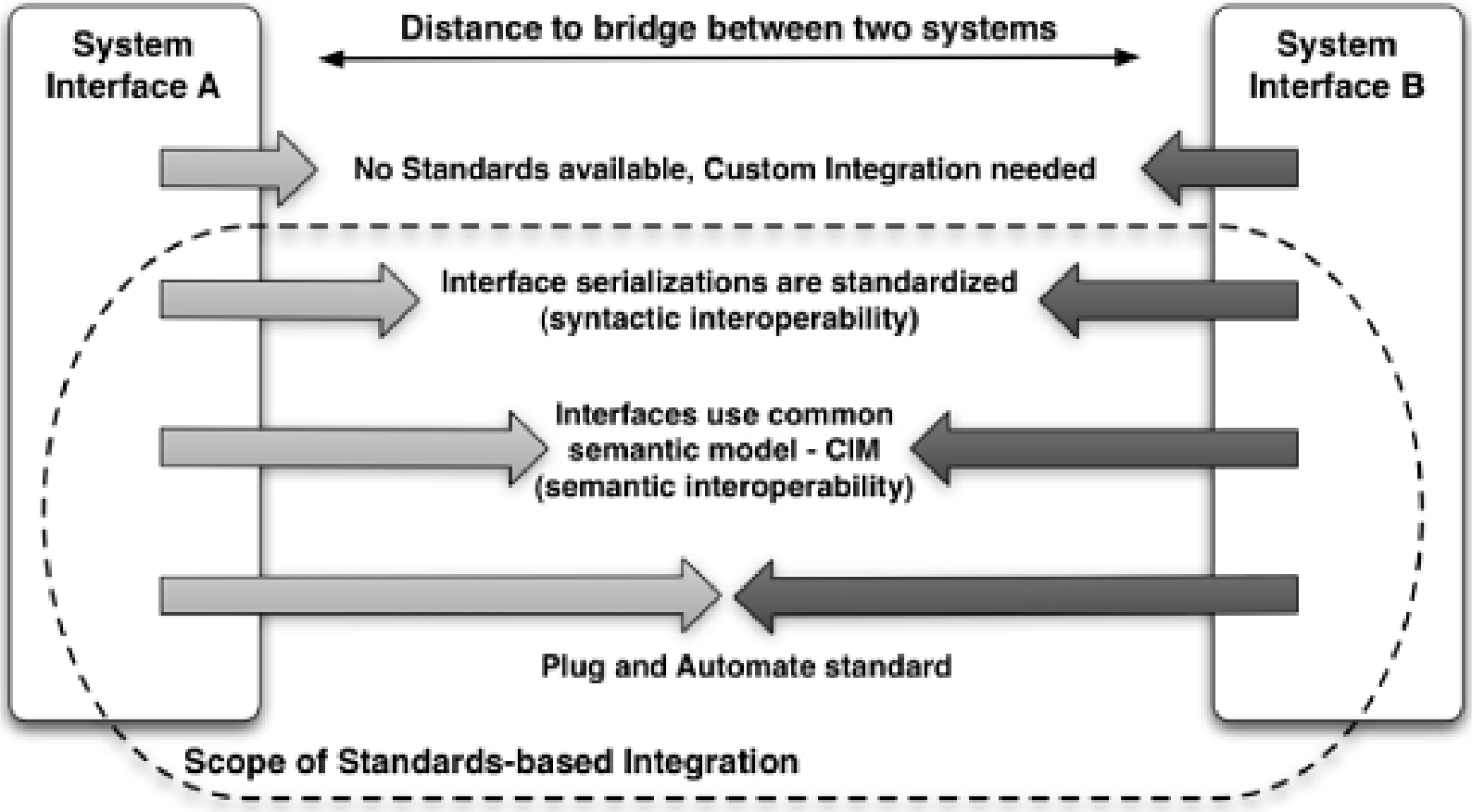
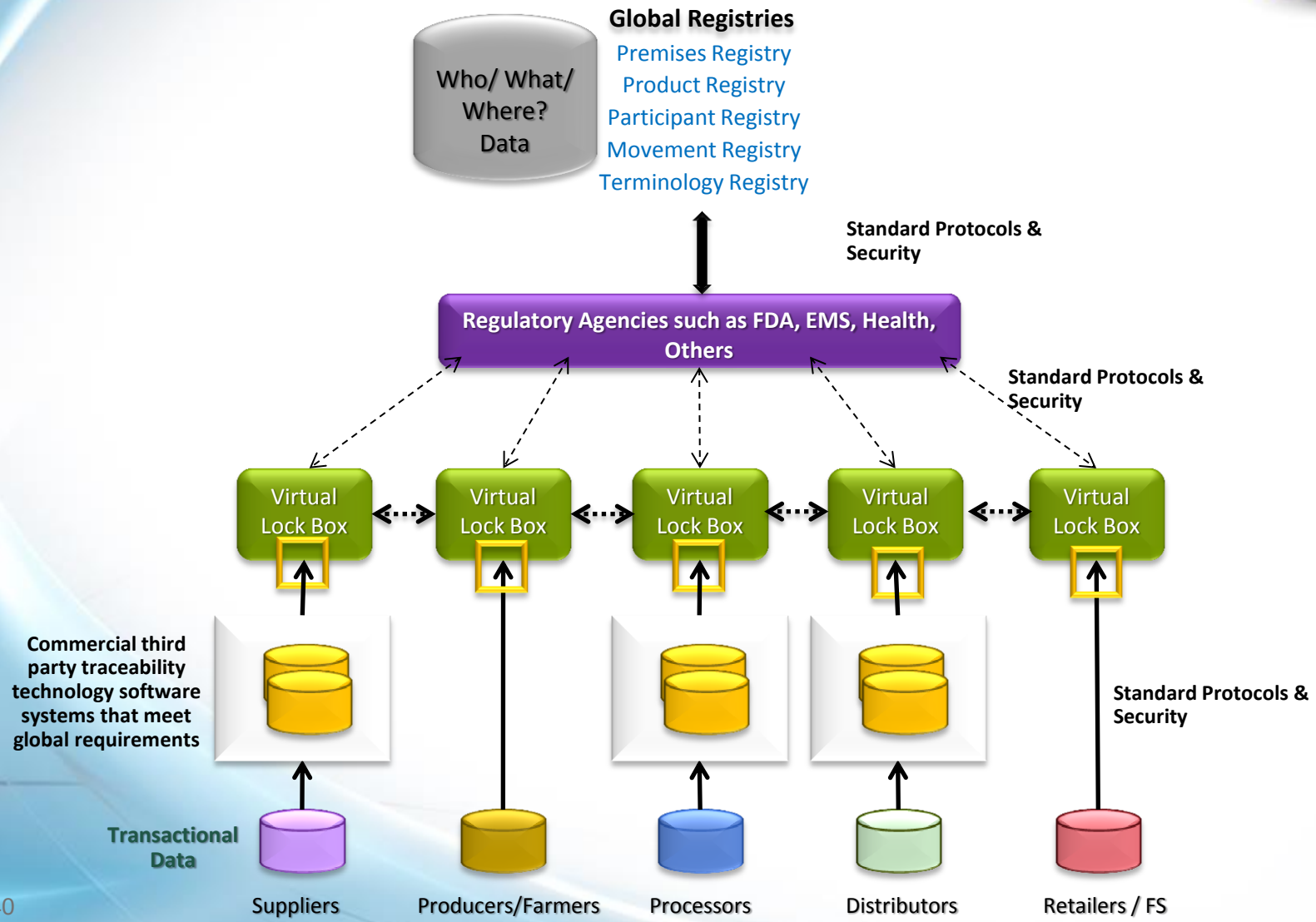
# Progression of the Architecture






*O'Brien and Marakas – 13th Edition Introduction to Information Systems, 2012*

# Technology Architecture: Strawmodel



# Next Steps: Consultation Events

- December 8th in New York (completed)
- January 9th FMI webinar
- March 17th: briefing/workshop 7:30 – 9:00
  - North American Seafood Show 2015 in Boston
- Other events TBD in 2015 – Working groups
- We need to gain input and more participation on developing a solution that benefits all

# What now?
# What does this mean?

- Traceability is an growing area of consumer concern
  - Be open and leverage findings and insights from others
  - Many sectors beyond seafood have succeeded
- Get engaged! Need to built consensus on an architecture
  - Collaboration is essential – We have the knowledge/expertise to start
  - Not about specific technical systems, but how they interoperate
- Built on the concept and principles – First steps
  - e.g. Seafood traceability system can serve both public good AND commercial benefits
  - e.g. Seafood traceability system can provide a template for other food sectors
- GFTC is here to help
  - Leverage the research and lessons learned
  - Focus on practical solutions and aiding change

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