IBM

Food Safety is Your Responsibility

Randy Sng
Industry Manager, Manufacturing

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Agenda

- **Key Food Industry Trends**
  - **Vietnam's Food Processing Industry**
  - **Food survey results**

- **Food for Thought**

- **Food Value Chain**
  - **Major Challenges**

- **Smarter Supply Chain, Safer Food**

- **Smarter Supply Chain of the Future**

Key Trends   - Food safety is now a global problem
- Need for better traceability in supply chain

Financial Post, February 23, 2009

- Peanuts and peanut products tainted with salmonella in the U.S. have made 604 people sick, sent 187 to the hospital and killed eight. The **salmonella** also has led to many product recalls in Canada and more than 2,000 product recalls in the U.S., more than any other epidemic. To make matters worse, Peanut Corp. of America, the company at the heart of the salmonella episode, filed for bankruptcy liquidation in court recently.

Bangkok Post, 29 January 2009

- The Public Health Ministry office in Samut Sakhon has filed a lawsuit against the producer and distributor of the Chao Doy **canned fish which caused many people to fall ill** when it was distributed as part of an aid package.

The San Diego Union-Tribune, 30 October 2008

- People pick up **E. coli** by eating contaminated meat or vegetables tainted by polluted water. Most food poisoning caused by E. coli can be avoided by eating well-cooked meat and pasteurized dairy products, and by...

BBC Monitoring Asia Pacific, 24 January,

- Beijing, Jan. 24 Kyodo - Chinese-made frozen dumplings, recalled after the **chemically tainted products** caused food - poisoning cases in Japan…

Industry Trend Analysis - 13 March 2009, BMI Industry Insights - Food & Drink, Asia

- One of a small number of Chinese dairy firms unaffected by late 2008's **melamine** scandal, Beijing Sanyuan Group has acquired the assets of disgraced former giant Sanlu Dairy at auction for CNY616mn (US$90.1mn)

Philippine Daily Inquirer, February 25, 2009, Test area for **Ebola-Reston** virus widened,

- MANILA, Philippines—Authorities have decided to widen the scope of the testing for the Ebola-Reston virus to cover the whole of Central Luzon and Calabarzon regions. The agriculture and health departments authorized the wider testing after finding that the virus was continuing to be transmitted on a farm in Pandi, Bulacan, …. Six thousand pigs are set to be culled within the week on the Bulacan farm while the Manaoag farm is now out of quarantine.

HANOI, Feb. 26 (Xinhua) -- **Bird flu** continues to spread wide in Vietnam with another newly-infected northern Dien Bien province, raising the number of Vietnamese provinces hit by the virus to 11, according to Vietnam's Department of Animal Health under the Ministry of Agriculture and Rural Development on Thursday.

Vietnam's food processing industry

- **260 seafood-processing plants (is a major exporter)**
  - annual production capacity of 250,000 tonnes
- **24 slaughter houses and meat processing plants**
- **160 beverage plants**
- **65 fruit and vegetable processing plants**
- **27 plants manufacturing instant noodles and**
- **23 confectionery manufacturers.**

Source: Business Monitor International, February 2009
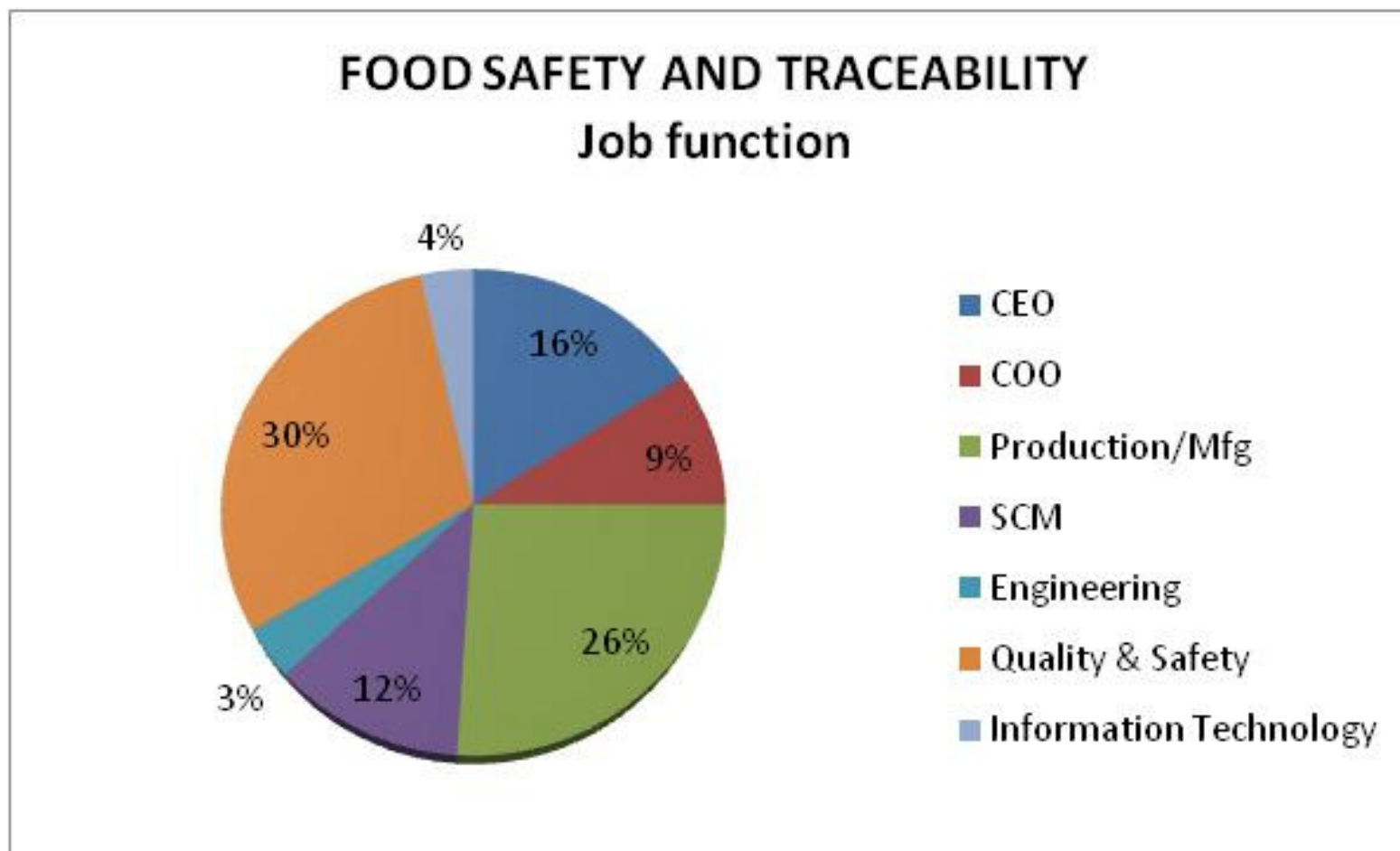
Vietnam food consumption

Forecasted growth of 28.96% in overall food consumption in dollar terms in Vietnam to US$13.55bn in 2013. Per-capita food consumption is set to witness similar growth, reaching a modest US$143.81 in 2013.

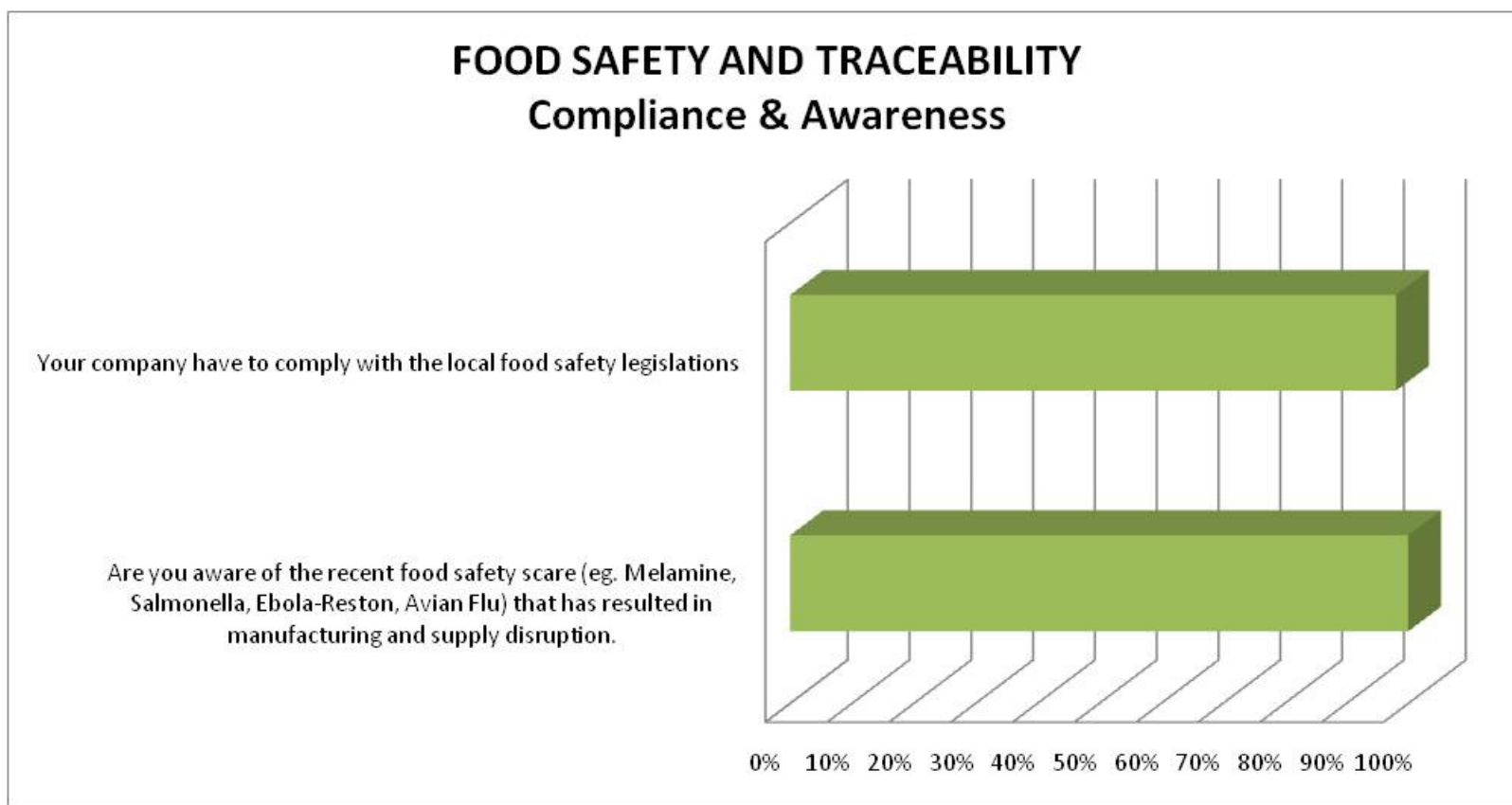**Vietnamese Food Consumption (2004-2013)**

Legend:
- Food Consumption (US$bn), LHS
- Per Capita Food Consumption (US$), RHS
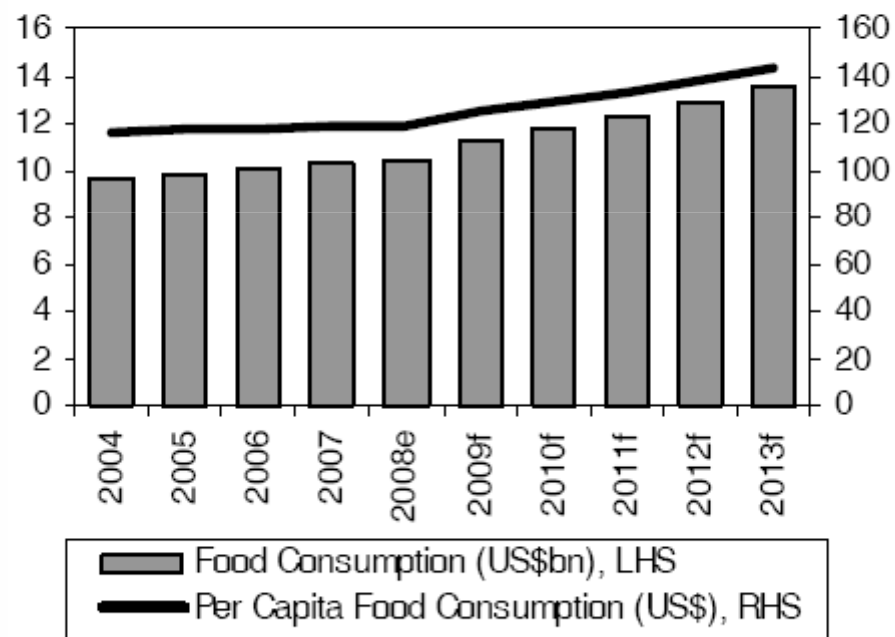
e/f = BMI estimate/forecast. Source: General Statistics Office, BMI

Food Safety and Traceability Survey

N = 57

Food Safety and Traceability Survey

FOOD SAFETY AND TRACEABILITY
Compliance & Awareness

Your company have to comply with the local food safety legislations

Are you aware of the recent food safety scare (eg. Melamine, Salmonella, Ebola-Reston, Avian Flu) that has resulted in manufacturing and supply disruption.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Food Safety and Traceability Survey

- **Food Safety Legislations**

- Singapore Food Regulations
- Indonesia National Standard
- Halal
- ISO
- Food Act
- NMIS Accreditation
- BAI Accreditation
- FDA (Local)

- AVA
- Typhoid card required
- FOSIM (Import)
- MOH
- VET
- HACCP
- GMP

Food Safety and Traceability Survey

Others

FOOD SAFETY AND TRACEABILITY
ISO & Other certification

[bar chart showing percentages for ISO 9001:200X (~58%), ISO 140XX (~20%), ISO 22000:200X (~20%), Others (~33%); y-axis from 0% to 60%]

- Hygiene & Sanitary

- BRC

- OHSAS18001

- NMIS

- ISO/IEC 17025

- HALAL (MS 1500:2004)

- CSR

- GMP

- HACCP

N = 57
Note: Not mutually exclusive

Food Safety and Traceability Survey

Track & Trace System

- 91% of the respondents are with companies with the Track & Trace system in place.

- The remaining 9% plan to implement the said system, with 60% in the next 12 months and 20% over the next 24 months.

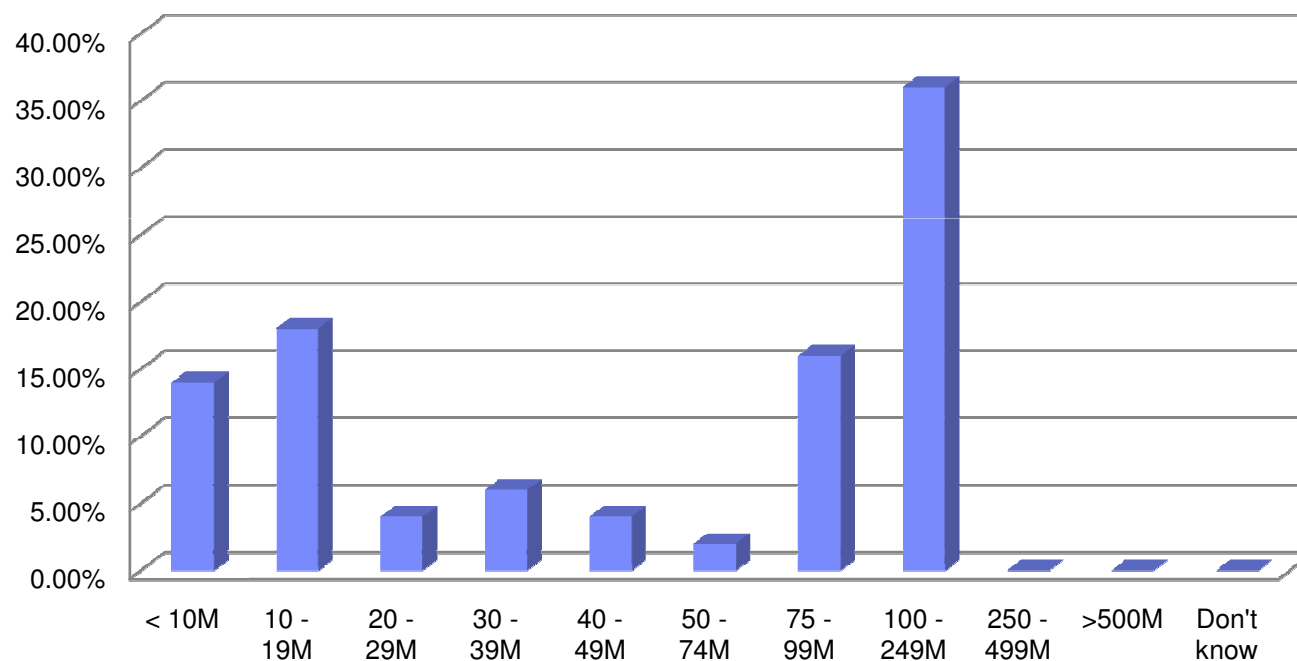- Another 20% is not sure when this implementation will take place.

Food Safety and Traceability Survey

FOOD SAFETY AND TRACEABILITY
Number of Employees
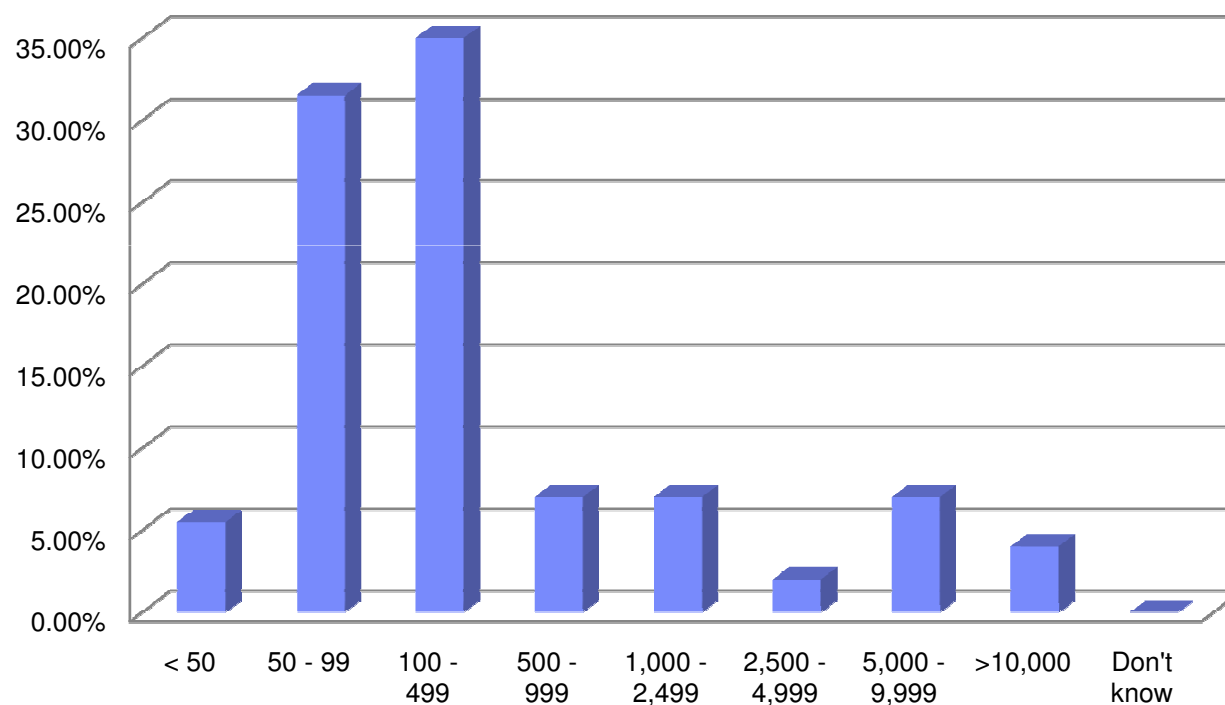
Food Safety and Traceability Survey

FOOD SAFETY AND TRACEABILITY
Country Level Total Revenue in 2008 (in US$)

Food for Thought

What if……….

Source unknown, contamination risk, unsecured logistics, no cold chain….

Global Food Supply Chain challenges
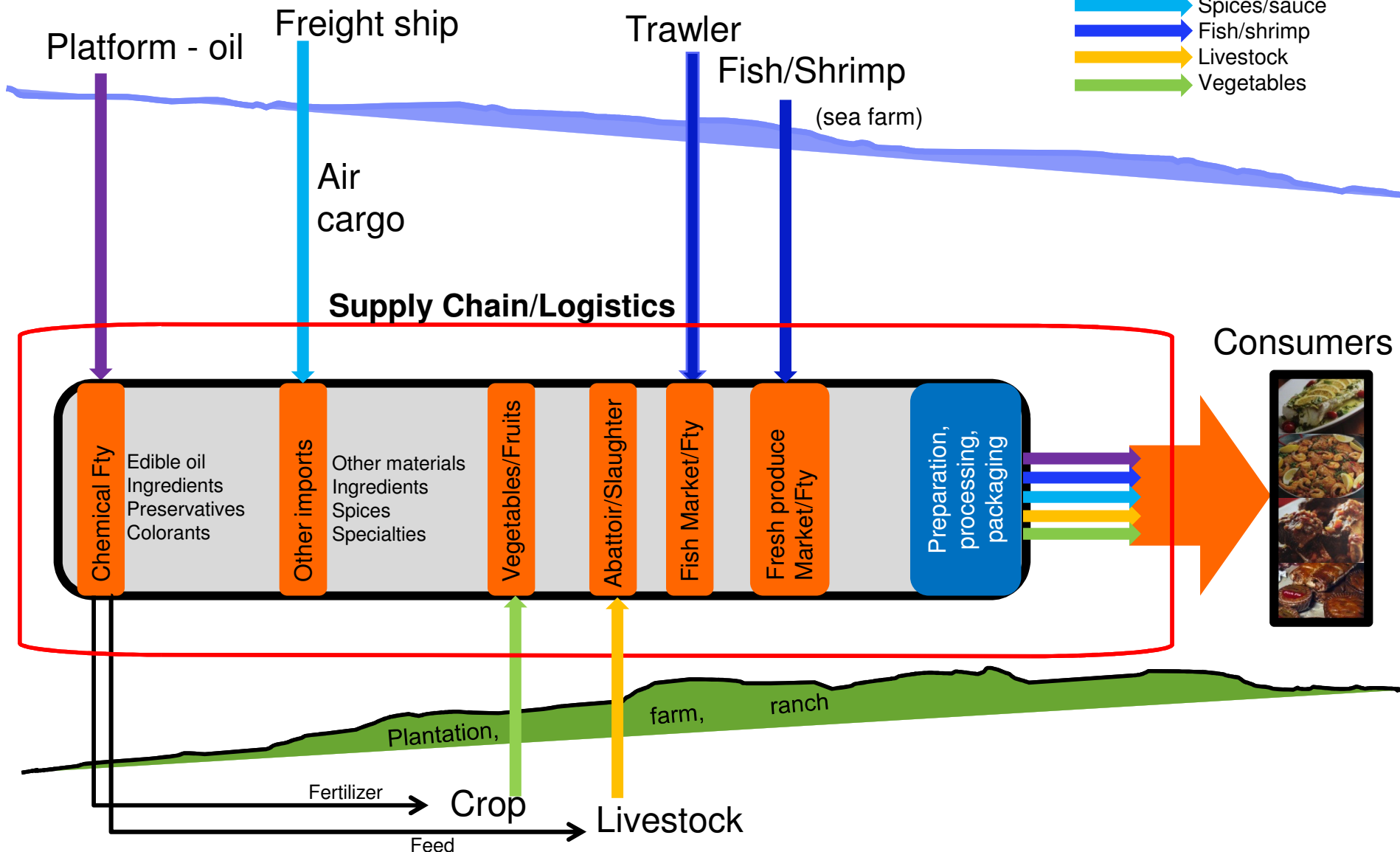
Risks

- Food recalls
  - Salmonella in peanut butter, pistachio
  - Melamine in dairy products
- Foreign Animal Disease outbreaks
  - Avian flu, Ebola Reston, e-Coli, Salmonella,
- Contamination due to long complex supply chains
- Fraudulent activities
  - Re-labeling damaged product, counterfeit products
- Threat of bioterrorism

Results

- Brand erosion
  - 66% of consumers don't trust companies to do what is best for the consumer in the event of a recall
- Customers want proof
  - Demand for "proof" of product claims and origins from consumers and retailers
- Government pressure
  - Increased pressure on governments to implement programs to protect human & animal health
- Import regulations
  - Foreign governments (ex. EU, Japan) have increased regulations requiring traceability of imported product to protect their citizens

Food Value Chain

Platform - oil

Freight ship

Air cargo

Trawler

Fish/Shrimp

(sea farm)

Basics (derived)
Spices/sauce
Fish/shrimp
Livestock
Vegetables

Supply Chain/Logistics

Consumers

| Chemical Fty | Edible oil Ingredients Preservatives Colorants | Other imports | Other materials Ingredients Spices Specialties | Vegetables/Fruits | Abattoir/Slaughter | Fish Market/Fty | Fresh produce Market/Fty | Preparation, processing, packaging |

Plantation, farm, ranch

Fertilizer → Crop

Feed → Livestock

Smarter Supply Chain - Food Safety and Cold Chain Management

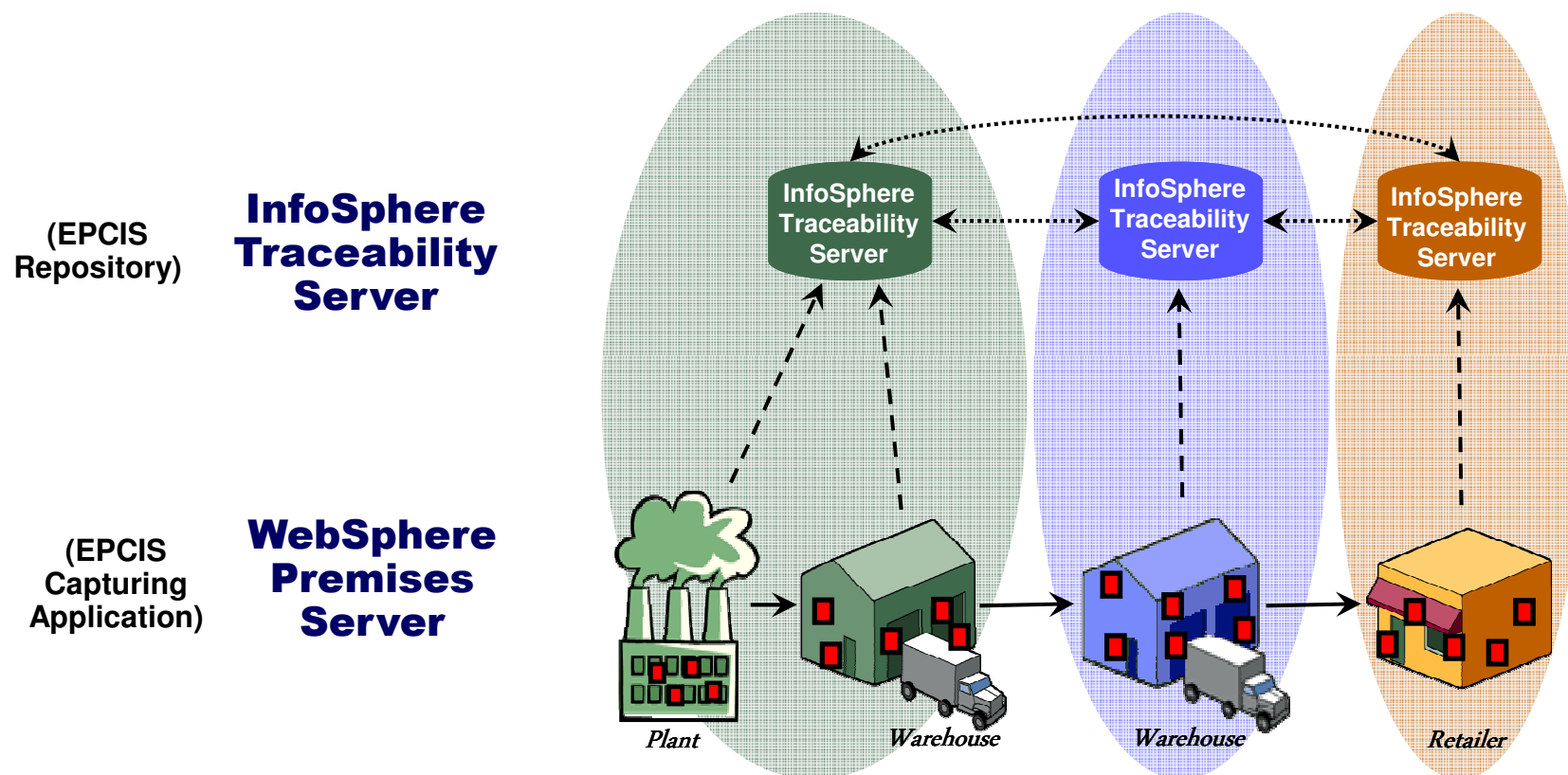Shrimp Traceability Example

Product Velocity → Ensure product freshness

Product Condition → Track temperature & humidity

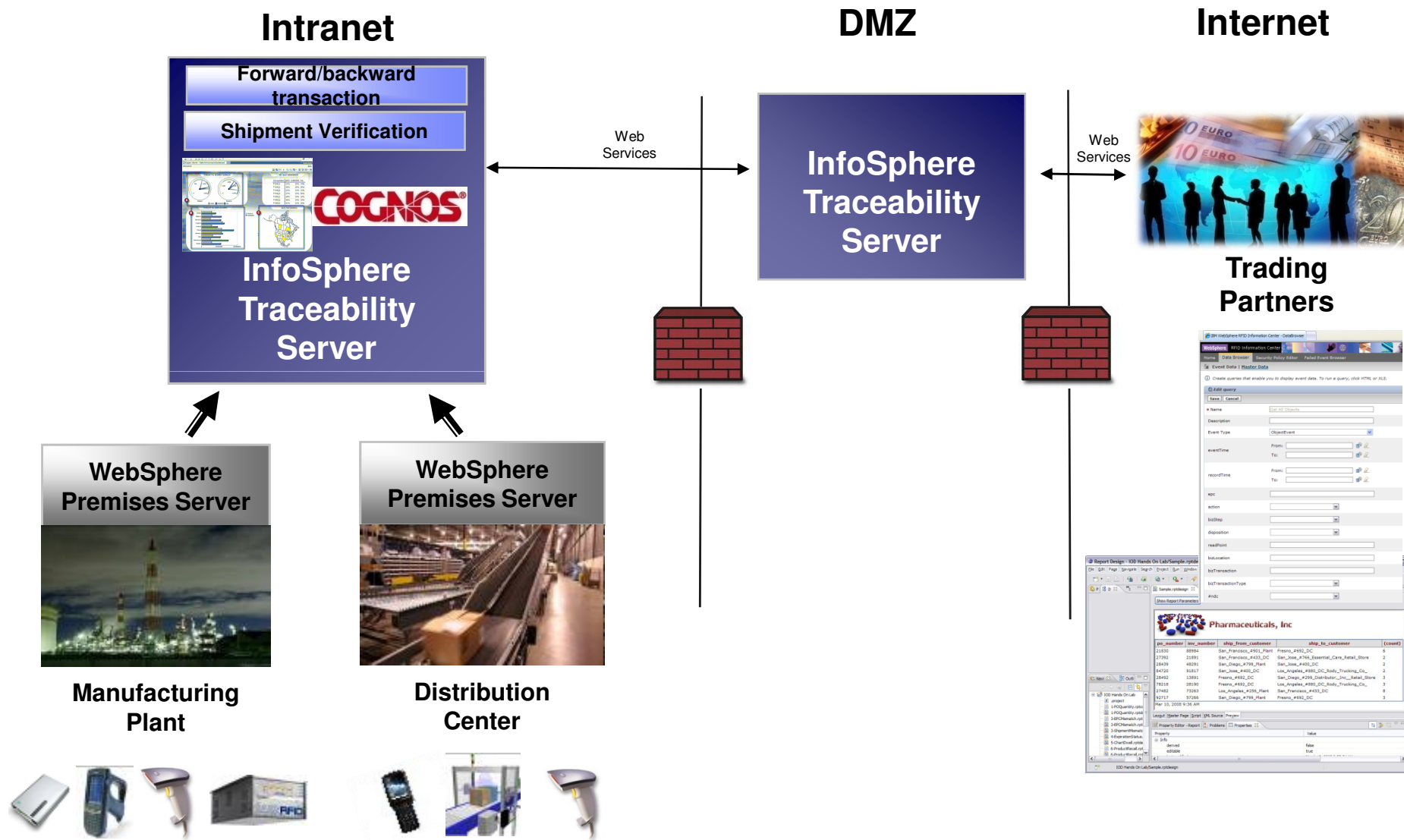Product Recall → Trace product origin and track current location
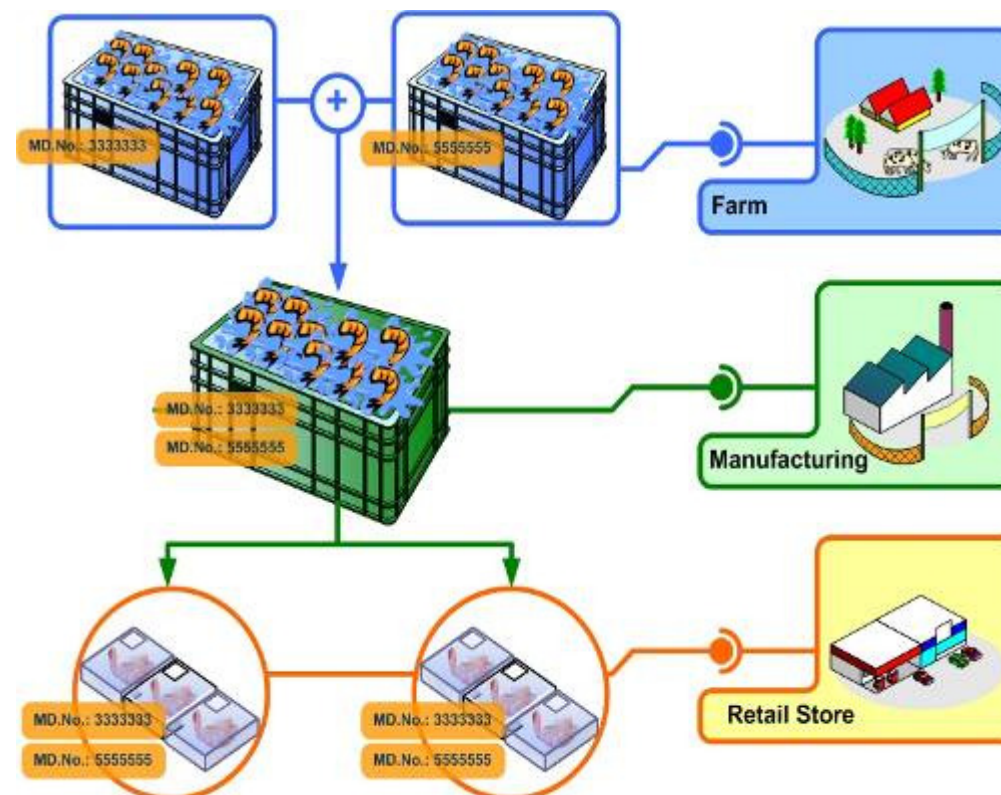
InfoSphere Traceability Server Sample Implementation

(EPCIS Repository)

**InfoSphere Traceability Server**

(EPCIS Capturing Application)

WebSphere Premises Server

InfoSphere Traceability Server

InfoSphere Traceability Server

InfoSphere Traceability Server

Plant

Warehouse

Warehouse

Retailer

InfoSphere Traceability Server Architecture

Intranet

DMZ

Internet

Forward/backward transaction

Shipment Verification

COGNOS®

InfoSphere Traceability Server

Web Services

InfoSphere Traceability Server

Web Services

Trading Partners

WebSphere Premises Server

WebSphere Premises Server

Manufacturing Plant

Distribution Center

SMARTER Supply Chain of the Future.
It will be Instrumented, Interconnected & Intelligent

Instrumented

Interconnected

Intelligent
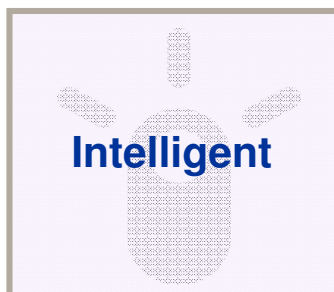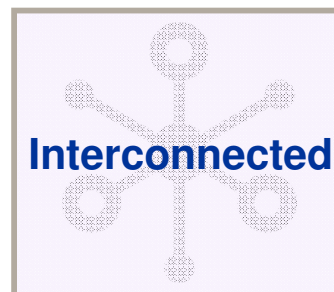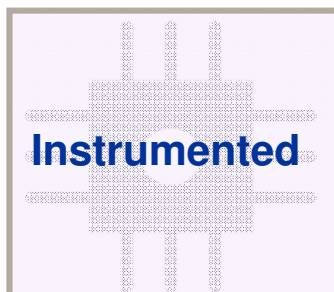
Automated Transactions & Smart Devices

- Use of sensors, actuators, RFID, & smart devices to automate transactions: inventory location, shelf-level replenishment detection, transportation locations & bottlenecks

- Supports real-time data collection & transparency from POS to manufacturing to raw material

- Sense-and-respond demand/supply signals allow "predict and act"

Optimized Flows

- ERP to ERP to ERP system integration across the network. Standardized data and processes.

- Collaborative decision making through decision support and business intelligence – starting with the customer

- C-Suite risk management programs for integrated financial controls with operational performance – monitored and measured

Networked Planning, Execution & Decision Analysis

- Simulation models to evaluate trade-offs of cost, time, quality, service and carbon and other criteria

- Probability-based risk assessment & predictive analysis

- Networked planning/execution with optimized forecasts & decision support

.....is their future!

Your next move.....

Thank You

Randy Sng
sngyhr@sg.ibm.com