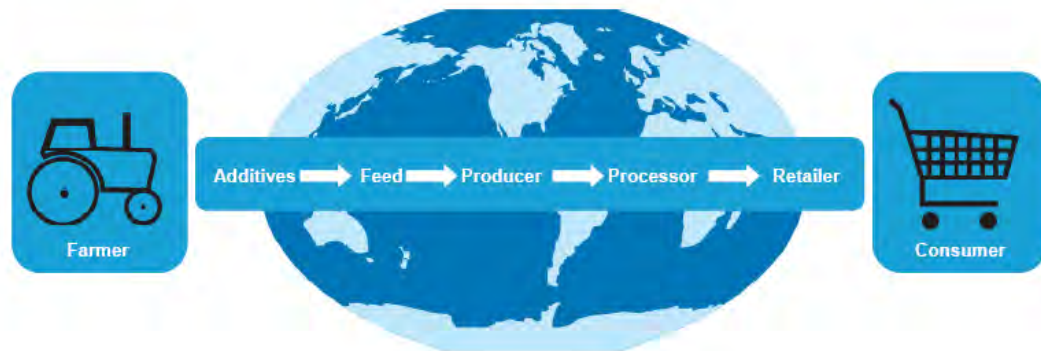


*Quantifiable Food Safety
and Measurable Sustainability
with
The Help of a Whole-Chain Traceability Network*



We make the
products you buy
better

 **BASF**

The Chemical Company



tracetracker

We don't make a lot of the products you buy.

We make a lot of the products you buy better.®

We make the
products you buy
better

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We don't make the sunscreen. We make it stronger.

BASF's Z-COTE microfine zinc oxide and Uvinul ultraviolet light absorbers are used to make sunscreens that provide long-lasting protection from the sun's rays. [Find out more »](#)



We don't make the helmet. We make it tougher.

BASF manufactures Ultramid® polyamide nylon...which provides hardness, rigidity, and abrasion resistance to end-use products. [Find out more »](#)



We don't make the bridge. We make it more durable.

Styrofan 1186 emulsion latex from BASF is used as an additive to concrete to help roads cure faster and last longer. By improving concrete adherence, flexural strength and resistance to road salt, Styrofan 1186 can help to increase the useful life of concrete bridge decking overlays by up to 25 years, saving money for municipalities and reducing inconvenience to motorists. [Find out more »](#)



We don't make the car. We make it more colorful.

BASF manufactures Automotive OEM (Original Equipment Manufacturer) paints and coatings for new cars in a range of colors used by major car manufacturers around the globe. In addition, the company makes and markets Glasurit®, R-M®, and LIMCO® brand refinish automotive paints for repair work. [Find out more »](#)

BASF in Animal Agriculture

We make the products you buy better

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The Chemical Company

BASF GROUP

OVERVIEW:

BASF is a global chemical company that aims to increase and sustain its corporate value through growth and innovation.

GLOBAL HEADQUARTERS: Ludwigshafen, Germany

NORTH AMERICAN HEADQUARTERS: Florham Park, New Jersey USA

CORE BUSINESS SEGMENTS:

- **Chemicals:** Petrochemical feedstocks, plasticizers, glues and resins, electronic grade chemicals, amines, diols, surfactants, detergent raw materials, automotive chemicals
- **Plastics:** Styrenic and styrene-based polymers, engineering plastics, polyurethane systems, polyurethane specialty elastomers, polyols, isocyanates, fiber intermediates
- **Performance Products:** Dyes and process chemicals for textiles, leather and office use; super absorbents, automotive OEM and refinish coatings, industrial coatings, monomers, adhesive raw materials, paper chemicals
- **Agricultural Products and Nutrition:** Herbicides, fungicides, insecticides, vitamins, flavors, pharmaceutical active ingredients, UV absorbers
- **Oil and Gas:** Crude oil and natural gas

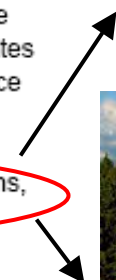
HISTORY: Founded in 1865 as **Badische Anilin und Soda Fabrik**

EMPLOYEES: 81,000 worldwide; (7,500 in Research and Development)

TOTAL SALES: Approximately \$50.4 billion worldwide (2005)

STRUCTURE:

- BASF Aktiengesellschaft and over 150 consolidated subsidiaries
- Production facilities in 40 countries
- Markets products in 170 countries

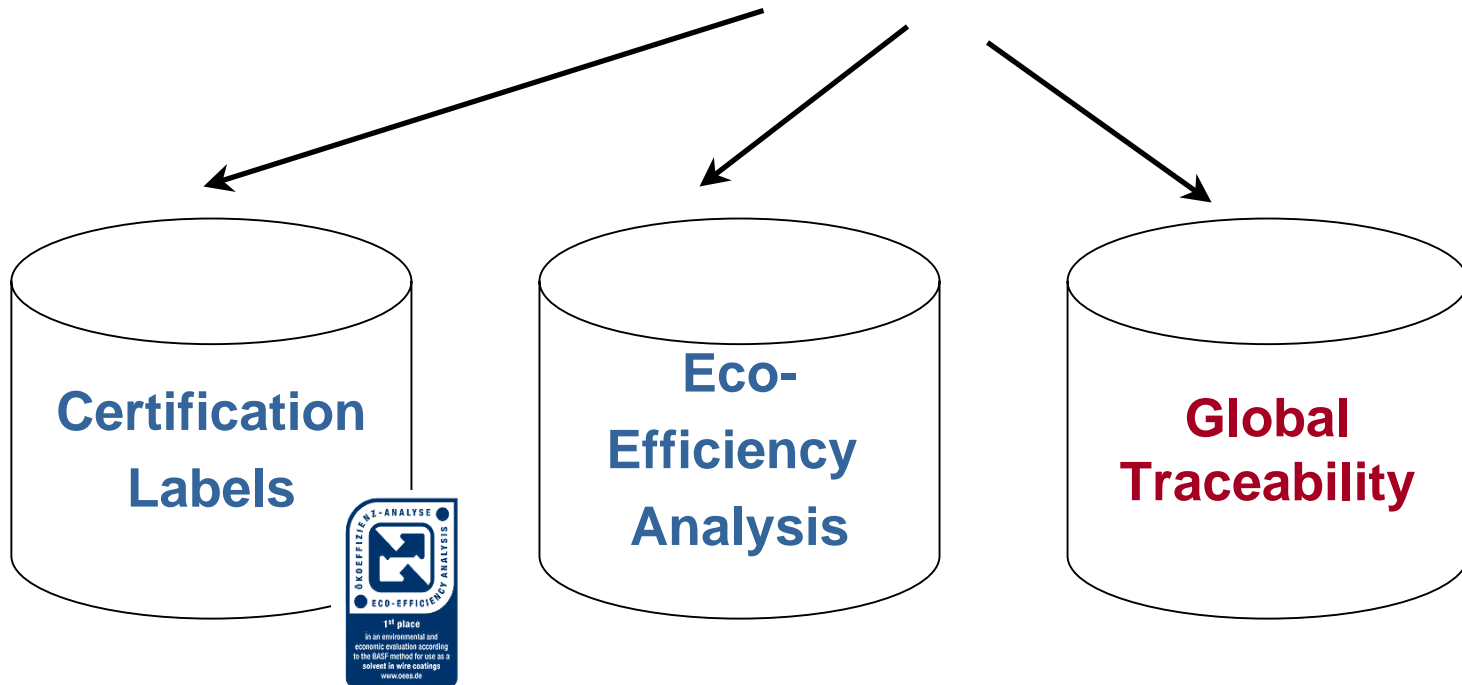


BASF's Sustainable Development Measurements

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BASF embraces Sustainable Development as a core strategic guideline because it balances economic growth, environmental protection and social responsibility.



Sustainability at BASF

Internal Management and Instruments

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better



- **Sustainability council**
 - Organization ensures sustainable business activities
- **Competence Center Responsible Care**
 - The Competence Center Responsible Care defines concrete goals for the key sectors of Responsible Care, ensures their implementation and monitors goal achievement
- **Success - Added Value through Sustainability**
 - Depending on the region and industry, our services range from an initial assessment and measurements to comprehensive process and product evaluations and the subsequent development of strategic concepts.
- **Audits**
 - We are continuously improving our environmental, health and safety performance and monitor this progress by carrying out regular audits at all our sites worldwide.
- **Acting responsibly in our Supply Chain**
 - What counts for us is acting responsibly throughout the entire supply chain because we want to build stable and sustainable relationships with our business partners.

SYSTEM FOR TRACING FOOD:

- Your dinner has been through a complex value chain before it ends up on your plate - the graph shows this.
- SINTEF, together with Fiskeritorstøking, has participated in creating the «TraceFish» standard, which describes how an efficient traceability system for fish can be designed. An example is highlighted along the salmon chain.
- The TraceFish standard builds on a general purpose method called «TraceFood» that can be applied to any type of food.

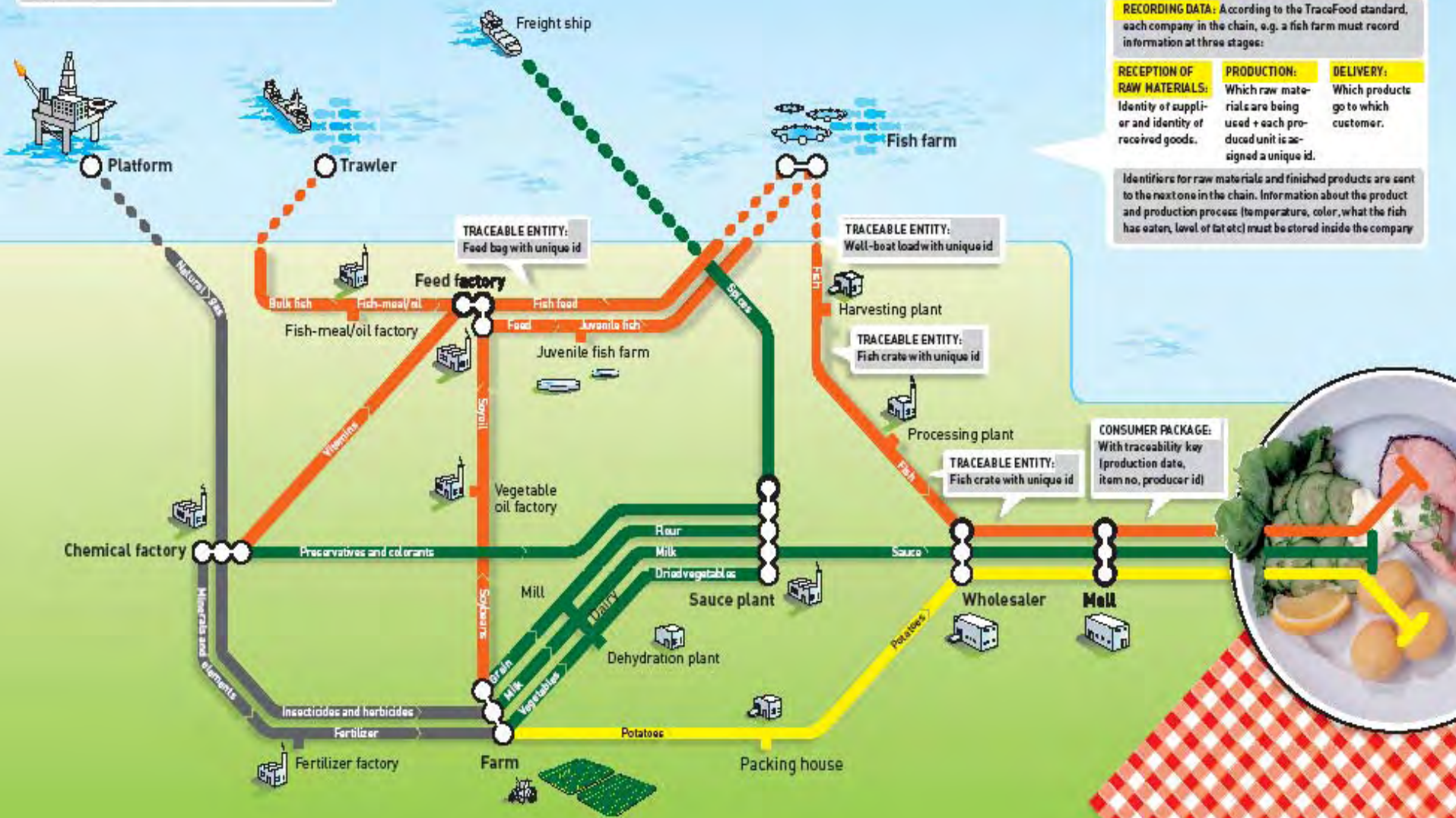
What is traceability ?

- Salmon chain
- Sauce chain
- Potato chain
- Basics chain

RECORDING DATA: According to the TraceFood standard, each company in the chain, e.g. a fish farm must record information at three stages:

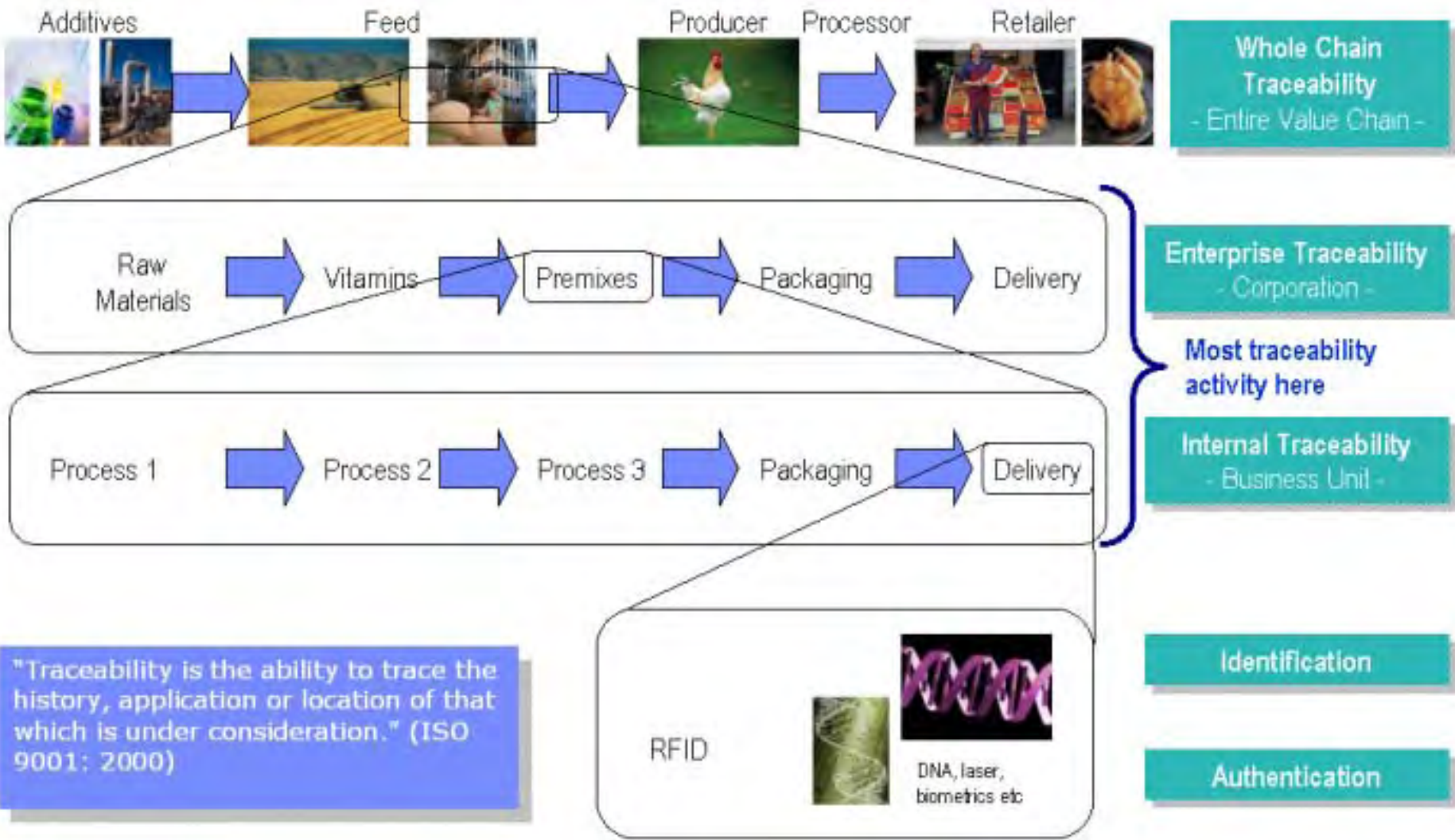
RECEPTION OF RAW MATERIALS:	PRODUCTION:	DELIVERY:
Identity of supplier and identity of received goods.	Which raw materials are being used + each produced unit is assigned a unique id.	Which products go to which customer.

Identifiers for raw materials and finished products are sent to the next one in the chain. Information about the product and production process (temperature, color, what the fish has eaten, level of fat etc) must be stored inside the company



Traceability is a broad topic that spans the entire value chain

RFID tags on pallets and cases is just the beginning

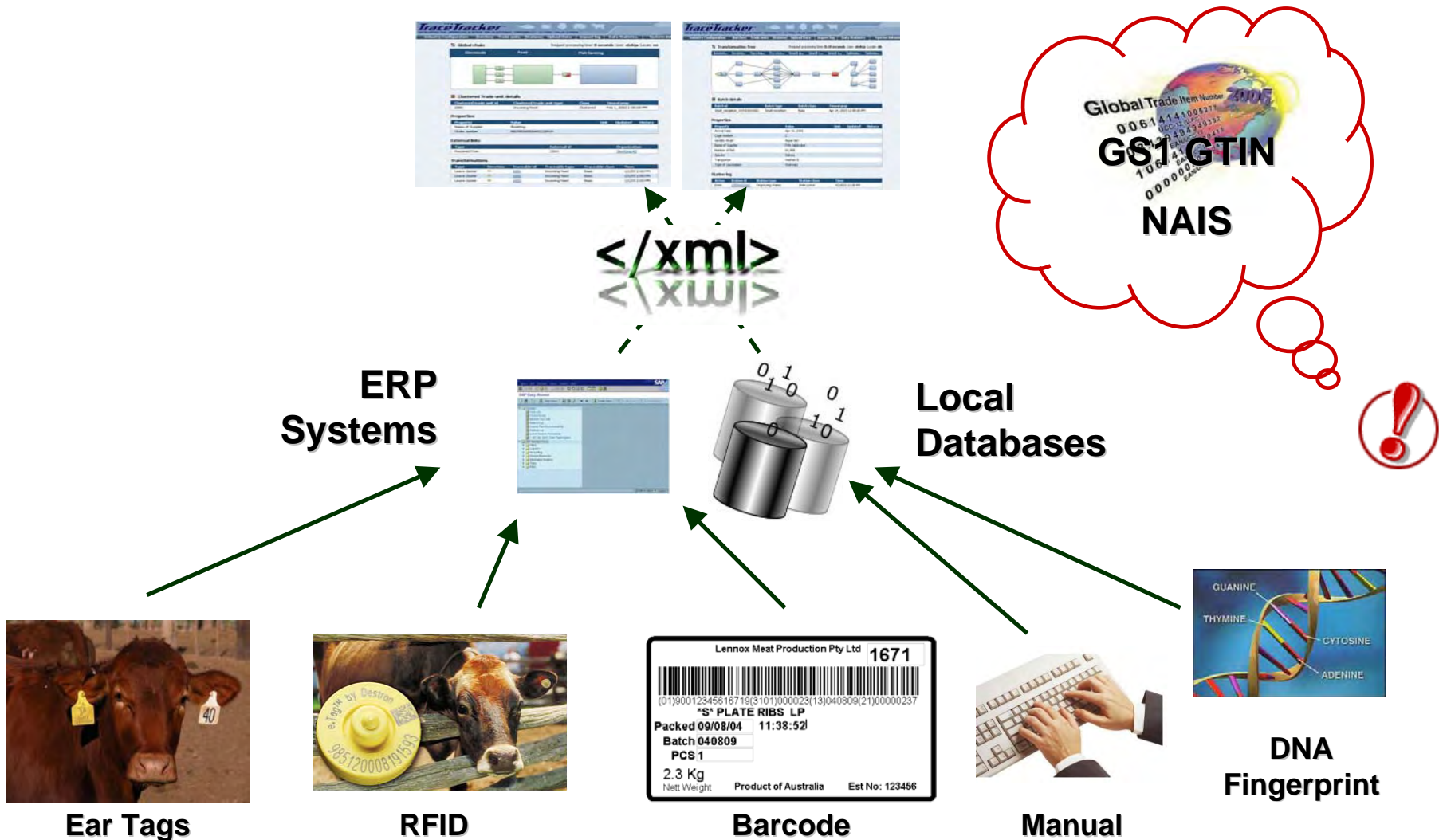


"Traceability is the ability to trace the history, application or location of that which is under consideration." (ISO 9001: 2000)

Different Ways to Capture Data, but One Traceability Platform

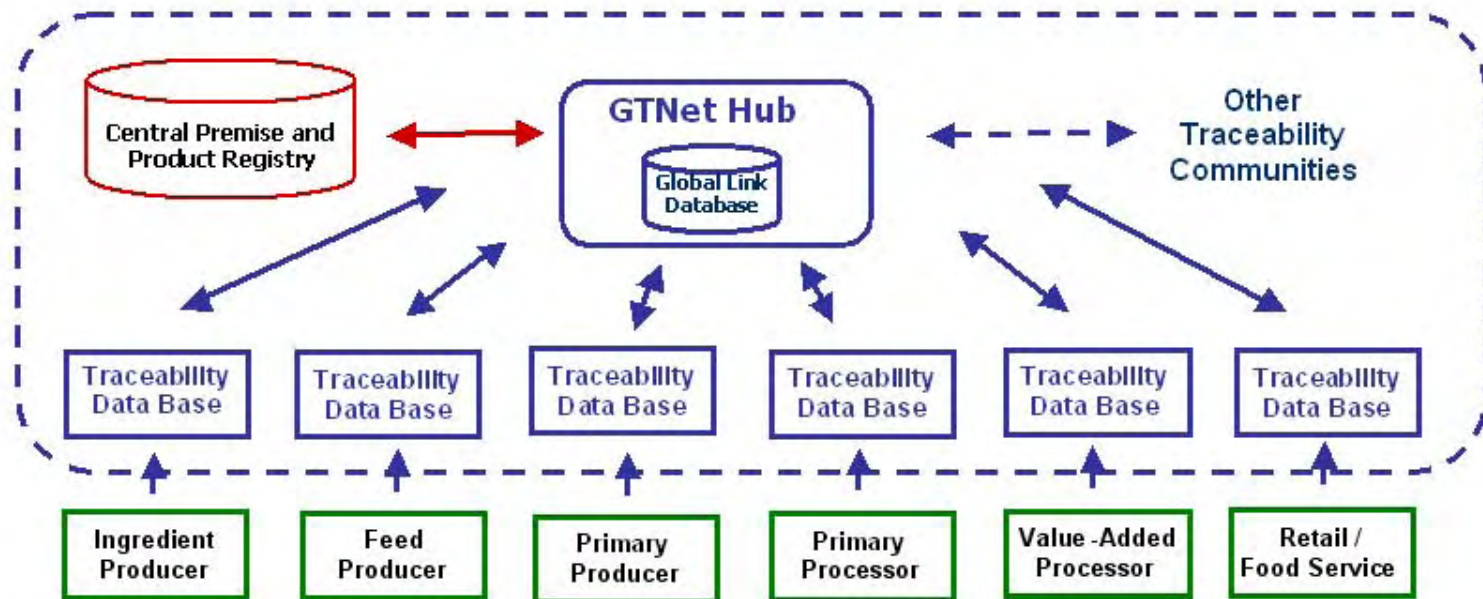
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GTNet – a Whole Chain Traceability System

A distributed system architecture that links traceability information between independent members of the value chain



- Company / site information
- Business processes / practices
- Product characteristics, ingredients
- Business transactions

Example Salmon Chain

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Ingredients



Feed



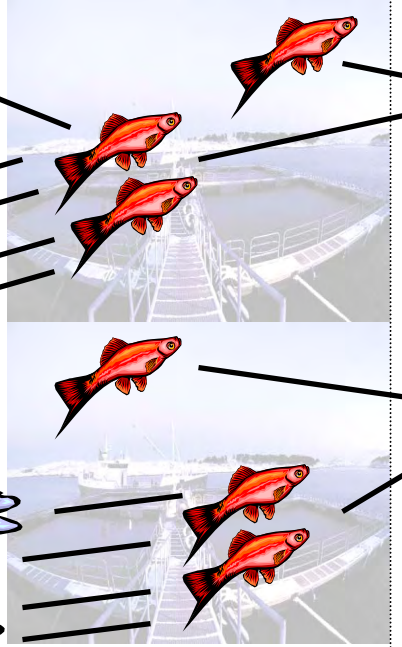
Salmon Farm



Processing

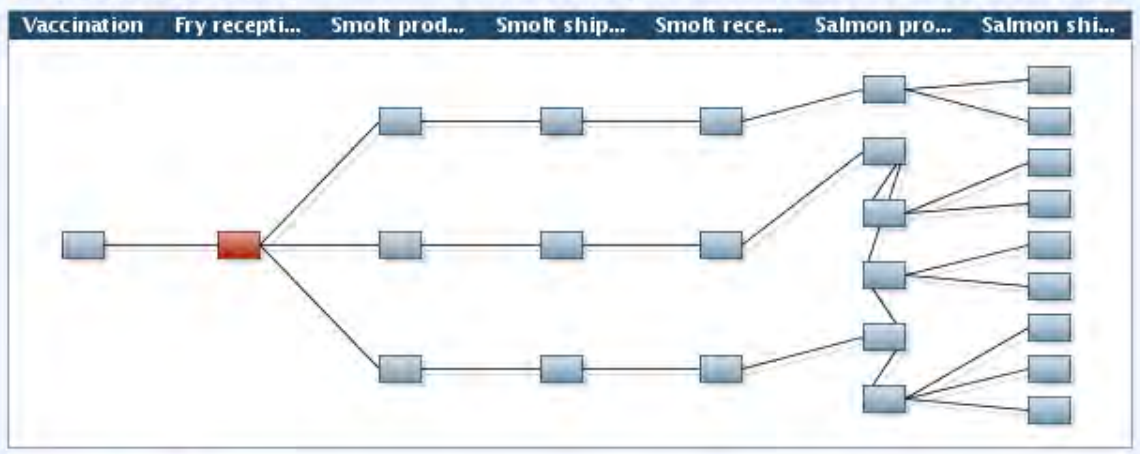


Food service





Transformation Tree Request processing time: 0.215 seconds User: basf-fc Locale: en_US



Batch details

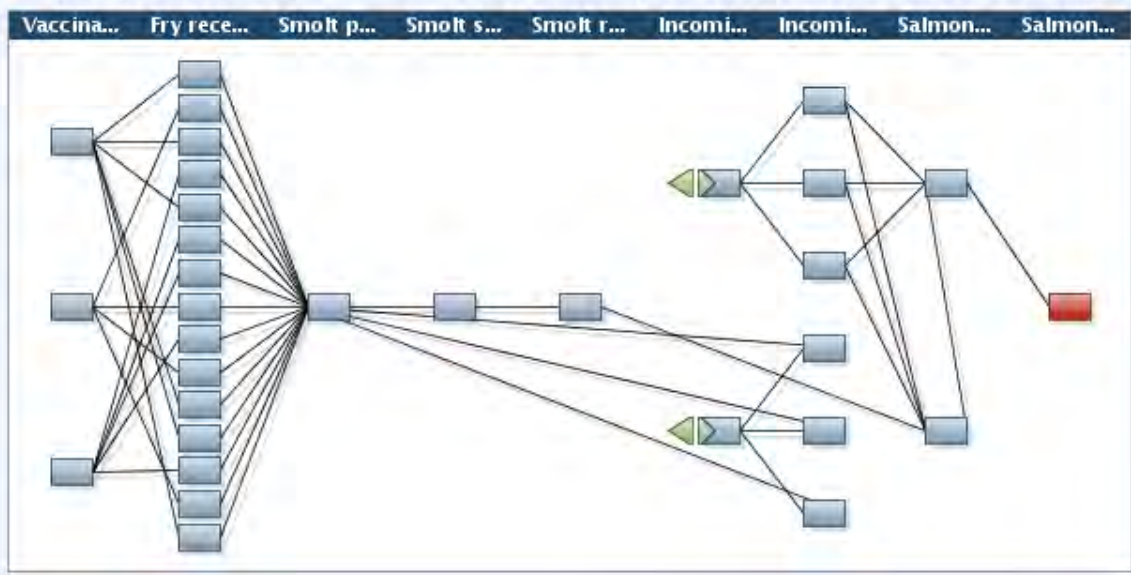
Batch id	Batch type	Batch class	Timestamp
Fry_reception_101002030019	Fry reception	Basic	Jun 18, 2002 2:00:00 AM

Properties

Property	Value	Unit	Updated	History
Arrival Date	Jun 18, 2002			
Average weight	11			
Day degree arrival	2,424			
Genetic strain	Aqua Gen			
Name of Supplier	PSFN Avd. Mo			
Number of fish	201,690			
Species	Salmon			
Transporter	KS Transport			

Transformation Tree

Request processing time: 0.39 seconds User: basf-fc Locale: en_US



Batch details

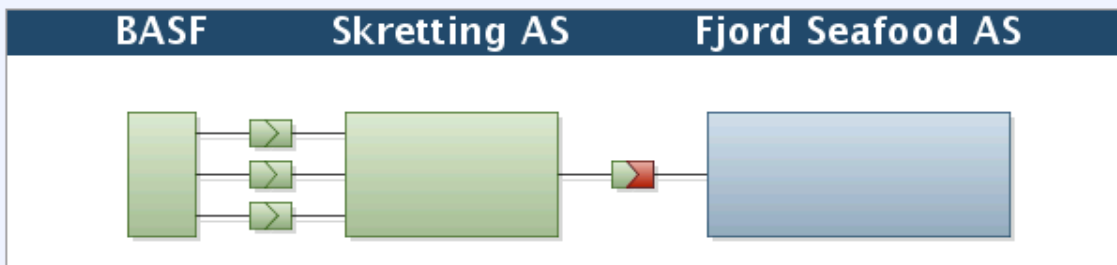
Batch id	Batch type	Batch class	Timestamp
Salmon_shipment_1_107003010003	Salmon shipment	Basic	May 26, 2004 12:00:00 PM

Properties

Property	Value	Unit	Updated	History
Bimass of fish	44,863			
Date of shipment	May 26, 2004			
Number of fish	9,856			
Receiver	Fjord Seafood Herøy			
Receivers project number	25,952			



Global chain

Request processing time: **0.001 seconds** User: **basf-fc** Locale: **en_US**

Clustered Trade unit details

Clustered trade unit id	Clustered trade unit type	Class	Timestamp
2001	Incoming feed	Clustered	Feb 1, 2003 1:00:00 PM

Properties

Property	Value	Unit	Updated	History
Name of Supplier	Skretting			
Order number	0009966068/HST/125186			

External links

Type	External id	Organization
Received from	2001	Skretting AS

Transformations

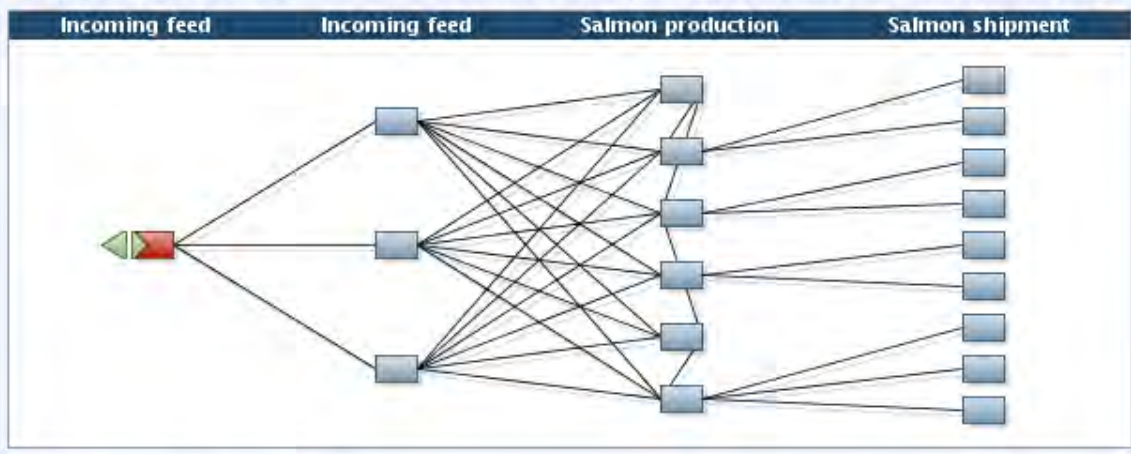
Type	Direction	Traceable id	Traceable type	Traceable class	Time
Leave cluster		1005	Incoming feed	Basic	1/1/03 2:00 PM
Leave cluster		1004	Incoming feed	Basic	1/1/03 2:00 PM
Leave cluster		1006	Incoming feed	Basic	1/1/03 2:00 PM

TraceTracker
 DEVELOPING AND OPERATING SYSTEMS FOR ELECTRONIC TRACEABILITY IN FOOD VALUE CHAINS

Industry Configuration | Batches | Trade units | Stations | Upload Data | Import log | Data Statistics | System Administration | Logout



Transformation Tree Request processing time: **0.011 seconds** User: **basf-fc** Locale: **en_US**



Clustered Trade unit details

Clustered trade unit id	Clustered trade unit type	Class	Timestamp
2001	Incoming feed	Clustered	Feb 1, 2003 1:00:00 PM

Properties

Property	Value	Unit	Updated	History
Name of Supplier	Skretting			
Order number	0009966068/HST/125186			

External links

Type	External id	Organization
Received from	2001	Skretting AS

Transformations

BASF's Nutrition Business ROI

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- ❑ Early adaptor competitive advantage
- ❑ Brand our products as measurably:
 - Eco-Efficient
 - Sustainable
 - Whole-chain traceable
- ❑ Differentiation without a price decrease
- ❑ Be confident and proud about our high quality products
- ❑ Be an example for other industries where BASF products are involved

Other ROI Examples

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1. Brand Protection and Empowerment

1.1 Product differentiation

Case: Creative Salmon Company

- Located in the village of Tofino, Vancouver Island, British Columbia
- Producer of Canadian Chinook (King) Salmon
- 6 farming sites located in Clayoquot Sound, a UNESCO Biosphere reserve, and in the territory of the Tla-o-qui-aht First Nations.
- Founding member of the Pacific Organic Seafood Association (POSA)
- 90% of production to export markets (USA and Japan)

Pilot Project Objectives

- Focus on customer service through proactive information sharing with pilot clients in Japan, USA and Canada
- Strengthen product branding and company image by delivering proof of product quality and sustainable business practices with each shipment
- Embrace transparency as a vehicle to enhance the dialogue and strengthen relationships with value chain partners
- Secure access to international markets through regulatory compliance
- Build traceability awareness and knowledge base as a foundation for internal and external traceability strategy development



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Other ROI Examples

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Creative Salmon Company – Sharing Product Information



Graphical Navigation

Trade unit details

Detail	Value	Reports
Id	15102-2002-1103	Table of dependencies
Label	Salmon to slaughter	Supplier and customers
Description	The end product of the production process prior to shipment	Upstream TUs
Created	1/1/04 1:00 PM	

Property	Value	Property	Value
Product ID	XXXXXX	Farm Site	Baxter Inlet Link
Species	Chinook	Harvest Number	CSCBX-06-085
Hatchery	Sea Spring	Harvest Date	Aug 21, 2008
Strain/Origin	Big Qualicum	Population ID	BQ04-855-1000
Ponding Date	January 2005	Stocking Date	May 10, 2005
Antibiotic Use	NIL	Cage Number	08
Vaccine	Vibrogen	Grower Feed	Taplow Link
Hatchery Feed	EWOS Link	Processing Date	Aug 21, 2008
		Flesh Temperatures (°C)	0.6 – 0.6 – 0.4

Dynamic Property Information

Static Property Information



The advertisement for EWOS micro features a list of benefits and technical specifications. The benefits include:

- There are chlorine-based terminals and daily applications that try to feed fish in order to maximize survival and growth throughout the production cycle. Quality standards require high-quality and high-quality feed.
- EWOS micro is a chlorine-based health-protection feed additive, proven to reduce mortality and improve growth in the culture system.
- It is a Special Type of chlorine-based feed additive, proven to reduce mortality and improve growth in the culture system.
- It is a Special Type of chlorine-based feed additive, proven to reduce mortality and improve growth in the culture system.
- It is a Special Type of chlorine-based feed additive, proven to reduce mortality and improve growth in the culture system.

Technical specifications include:

EWOS micro	EWOS micro
100% Chlorine-based	100% Chlorine-based
100% Chlorine-based	100% Chlorine-based
100% Chlorine-based	100% Chlorine-based
100% Chlorine-based	100% Chlorine-based

Other ROI Examples

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2. Supply Chain Efficiency

2.1 Product quality monitoring

Case: Bama Group

- Norway's largest importer and distributor of fruit and vegetables with 2006 revenues of more than \$ 1 billion
- During transport and distribution product spoilage amounts to between 3% and 5% of revenues, 70% of which is caused by temperature related problems

Pilot Project Objectives

- To reduce product spoilage by 10% every year
- To enhance efficiency and discipline in the supply chain

Pilot Project Solution

- Temperature and time / movement are logged for each traceable entity at all "stations" in the supply chain using RFID technology
- GTNet links the temperature and movement data from each station to provide an "uninterrupted temperature log" for the entire supply chain



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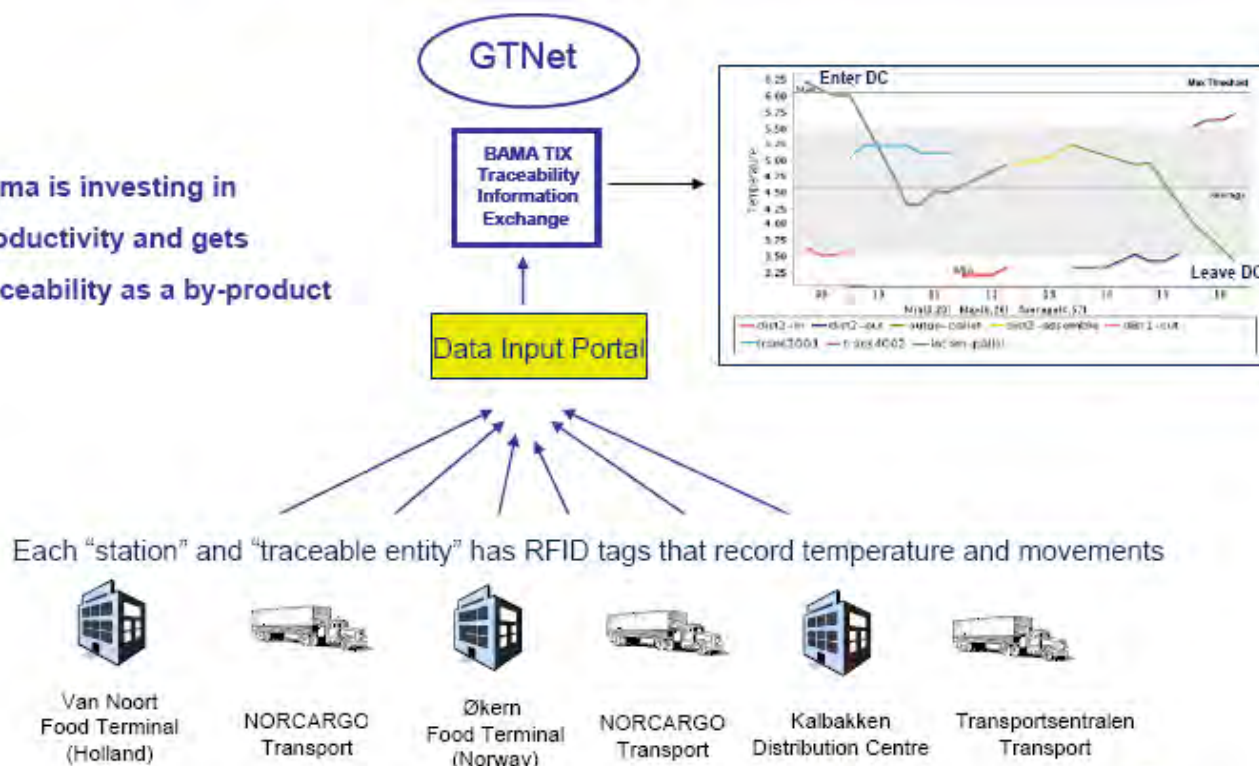
Other ROI Examples

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Bama – “Cold Chain Integrity” Solution

Bama is investing in productivity and gets traceability as a by-product



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Other ROI Examples

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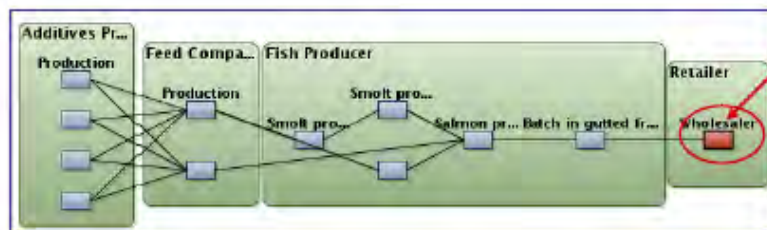
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3. Risk Mitigation and Compliance

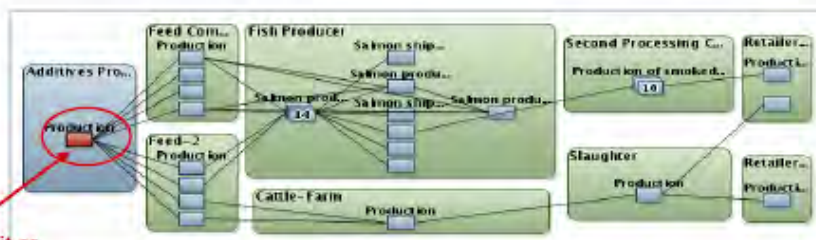
3.3 Product Recall / Withdrawal

1. Trace-back:

Establish the cause of the product defect



Trace Unit or Batch in focus



Trace Unit or Batch in focus

2. Trace-forward:

Identify and locate affected batches down-chain

- Faster and more effective product recalls
- Reduced costs and management time
- Protect company image and brand names

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Other ROI Examples

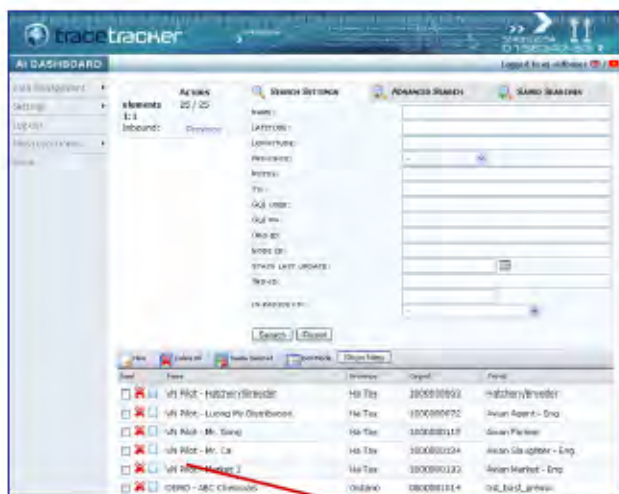
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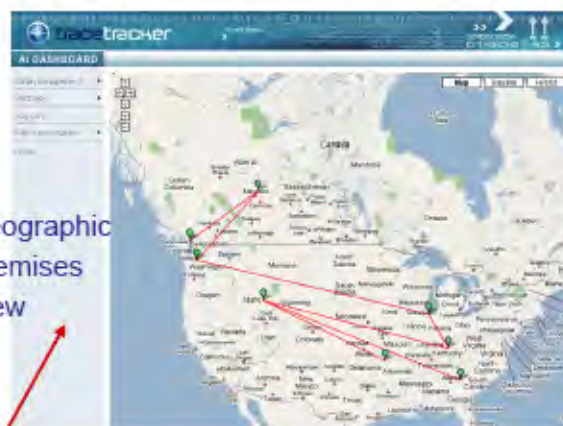
4. Emergency Planning and Management

4.1 Foreign Animal Disease (FAD) Outbreak

TT Dashboard Search Screen



Geographic Premises View



Premises Details



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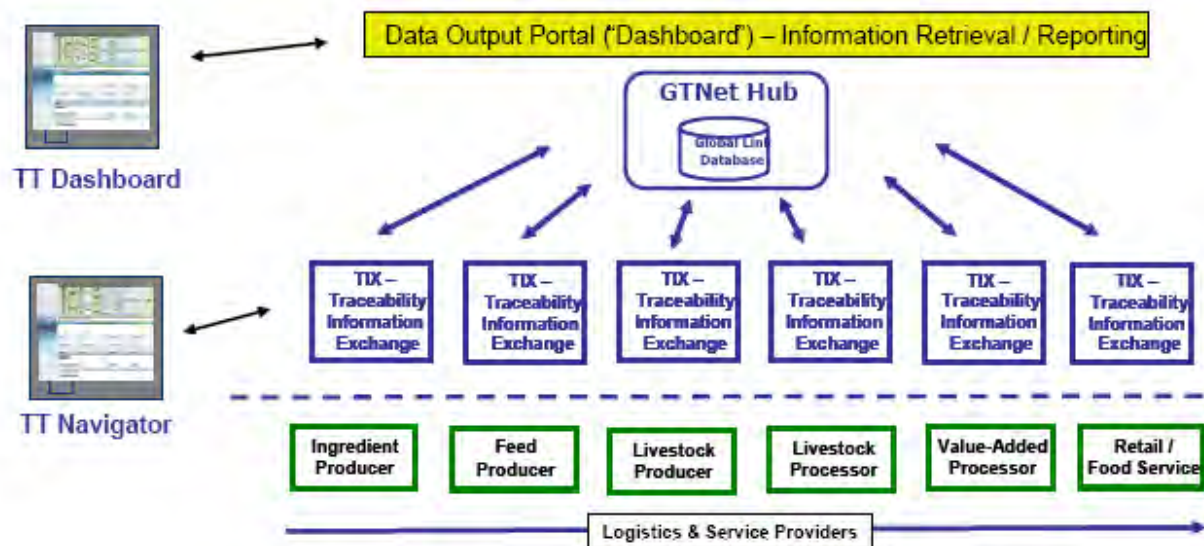

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Manitoba Pork „Proof-of-concept“

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FT POC GTNet System Schematic



Each company along the value chain generates information unique to them:

- Company / site information
- Business processes / practices
- Product characteristics, ingredients
- Business transactions

Linking this information together in a whole chain traceability system will enable the participating companies and other value chain stakeholders to achieve a variety of business objectives



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Potential ROI for the Animal Agriculture Industry

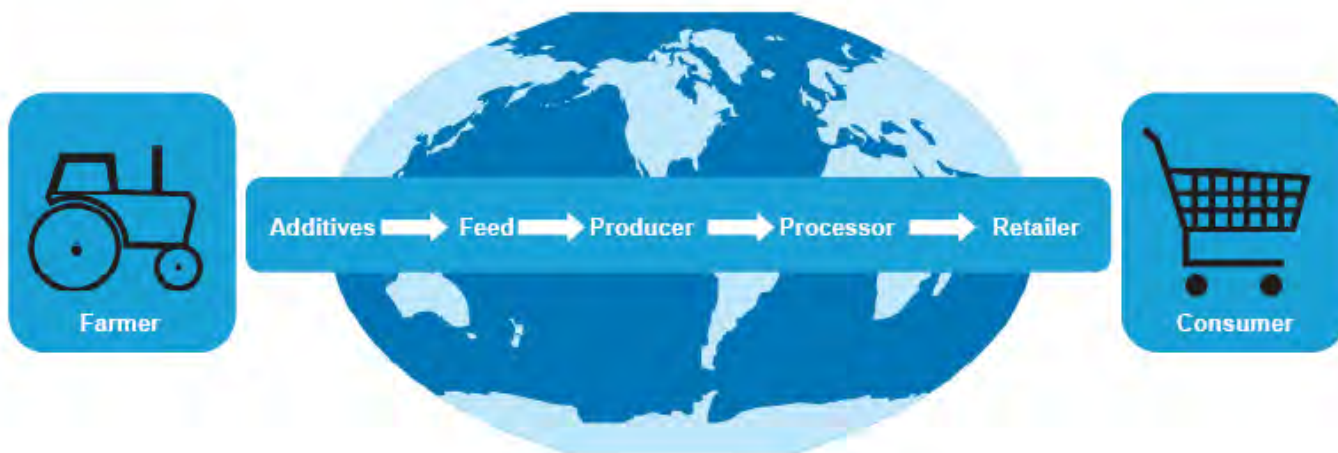
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- ❑ Brand YOUR products as measurably:
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 - Sustainable
 - Whole-chain traceable
- ❑ Differentiate without a price decrease
- ❑ Be confident and proud about YOUR high quality products
- ❑ Faster and more surgical recalls throughout the entire chain
- ❑ Build consumer trust
- ❑ Think out of the box: Find the Built-on Applications based on the traceability backbone that work for your business

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THANK YOU !