

Food Supply Chain Project



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Collaborators

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Project Web Site

<http://foodsupplychain.diem.unibo.it/>



Problem statement

Global food supply chains (FSC) links vendors to consumers worldwide, and makes agro-food products available almost at every place and at every season.

Consumers want to be guaranteed about the product characteristics and quality of processes driving the product from the production to their shopping cart.

The quality of agro-food products depends by the **food processing** and by the **distribution** operations, and can be significantly affected during the product life cycle. The proper management and control of the logistics and the distribution network allows the producer to guarantee the quality of products and the preservation of shelf-life. FSC processes and activities typically include:



- Farming
- Food processing
- Packaging
- Storage
- Distribution
- Consumption



Throughout FSC activities, different environmental conditions and stresses have a relevant impact on the quality and properties of agri-food products:

- Cold
- Heat
- Light
- Humidity
- Vibrations



Such shocks affect the quality, the taste and the nutritional characteristics and parameters of food and can influence the reputation of Italian specialties (e.g. wine, edible oil, cheese, pasta and bakery products, fresh fruits) renowned all over the world.

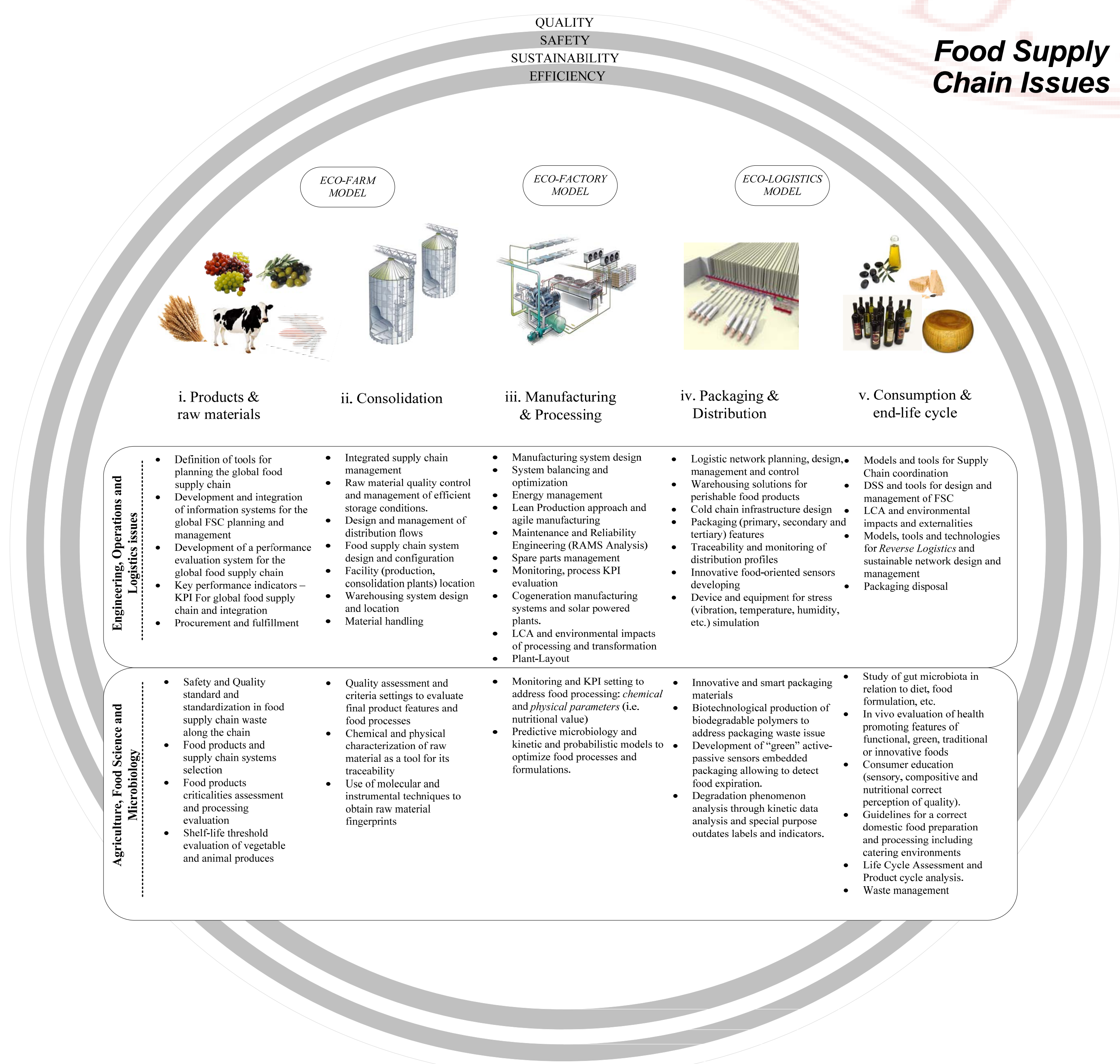
Project idea

Food Supply Chain (FSC) is a project of research of University of Bologna in collaboration with several international research institutions.

Prof. J.J. Bartholdi from **Georgia Institute of Technology** has put together a team joining the **University of Bologna** and Prof. Riccardo Manzini, and other research teams worldwide, attempted to monitor and control the distribution activities of agri-food product throughout global FSC. The scope of the project is to assess for a generic agri-food product the:

- Quality
- Safety
- Environmental sustainability
- Efficiency

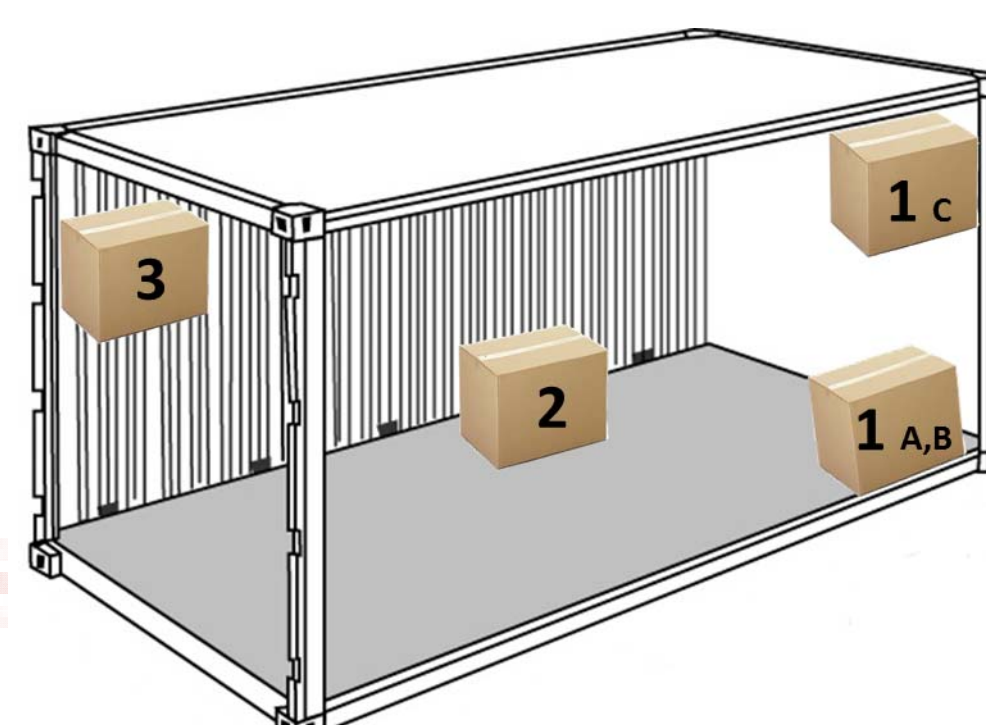
of the FSC system from “farm to fork” according to a multi-disciplines perspective and expertise (e.g. Engineering, Food Science, Agriculture, Chemistry, Logistics).



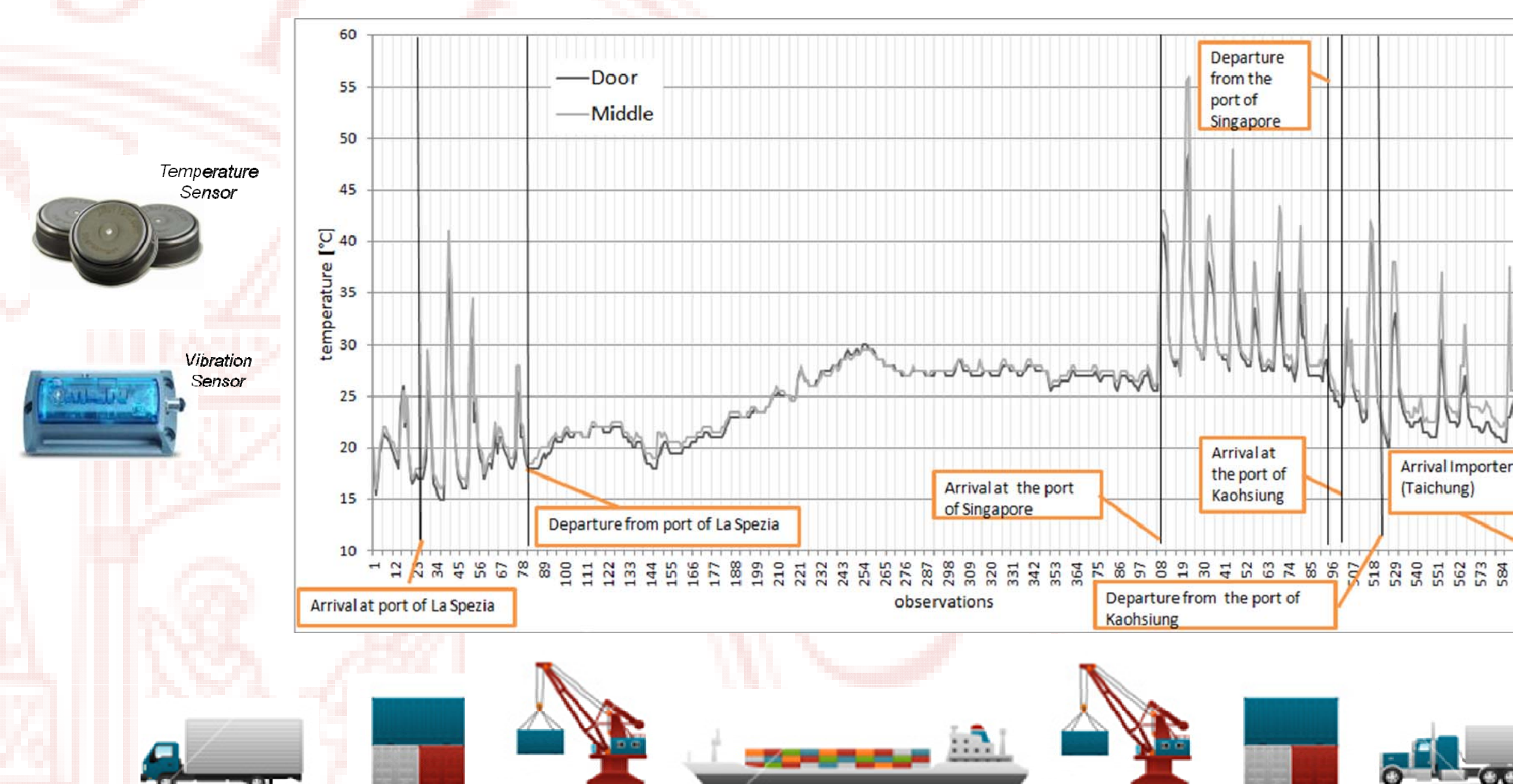
Deployment

The principle activities of this project encompass:

1. Touch base with companies and Industrial partners.
2. Setting of on-board data logger (e.g. black box) to track shipments and products.



3. Recovery shipment profiles through the collection of sensors at destination.



Tracking campaign

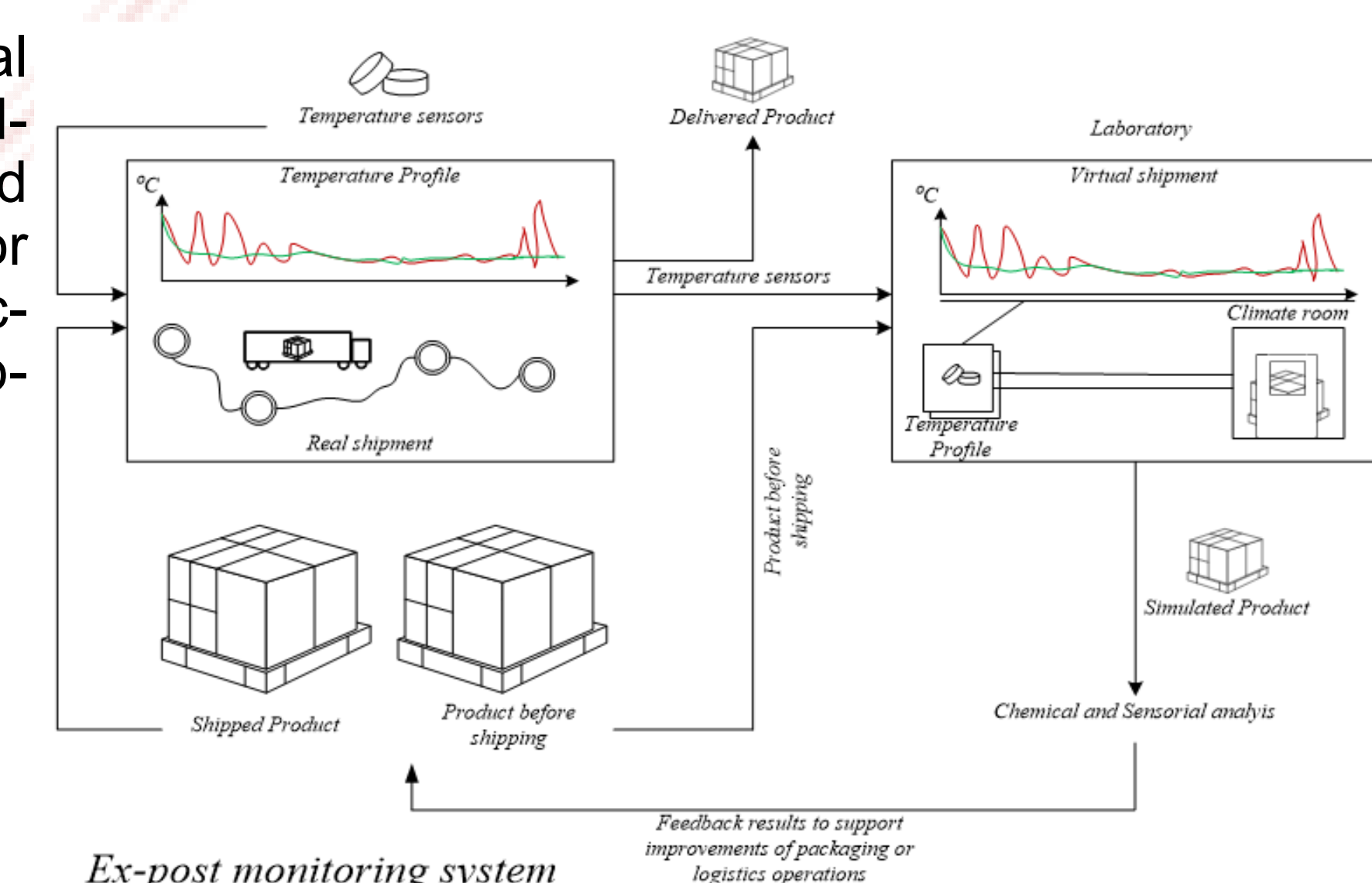


4. Simulation in laboratory through properly developed climate-controlled rooms reproduce the same transport profile (e.g., Temperature, humidity profiles) experienced by the shipped products.



6. Organoleptic and chemical analyses on the simulated products are carried out and related findings result in suggestions for supply chain improvements according to a close-loop approach.

Close-loop Improvement Cycle



Academic Partnerships



Georgia Institute of Technology



Universidad Catolica De Chile



CSIRO Australia



San Francisco State University



Universidad Nacional De Cuyo



GEORGIA TECH Integrated Food Chain Center
A Unit of the Supply Chain & Logistics Institute



Wine Supply Chain Council

Industrial Partnerships



MAJANI



GIORGIO GORI



east balt



McDonald's



Bia Italian Food



Roberto



CONAD



CPR SYSTEM



INALCA



CAMST