Strengthening European Food Chain Sustainability by Quality and Procurement Policy

METHODOLOGICAL ISSUES FOR GI SUSTAINABILITY ASSESSMENT (GLAMUR, STRENGTH2FOOD)

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The S2F and GLAMUR objectives

GLAMUR (FP7)

General objective of the project is to integrate advancement in scientific knowledge about the impact of food chains with application of knowledge to practice to increase food chains sustainability through public policies and private strategies. This general objective will be pursued through the following specific objectives:

- To develop and validate a 'performance criteria matrix' for assessment and comparison of food chains operating at a range of geographical scales through analysis of how food chain impacts are communicated in different spheres of society.
- To build a database of quantifiable indicators of impact and a set of 20 case studies aimed at understanding how impacts are generated within specific food chains.
- To advance knowledge on methodological problems

Strength To Food (H2020)

To provide a consistent, common and comprehensive **methodological framework** suitable to evaluate the social, environmental and economic impact of all the S2F Food Quality Schemes (FQS):

- Product Designation of Origin (PDO), Protected Geographical Indication (PGI), Traditional Specialty Guaranteed (TSG) and Organic productions

on **agri-food supply chain participants and rural territories** aiming at describing and analyzing the **relationships between territory and food chains which influence the sustainability** of the rural areas and shape the perceptions and conceptions of **sustainable food products**

The S2F objectives

- Environmental impacts on
  - Specific environmental conditions
- Economical impacts on
  - Local and Rural Development, Value added , Public goods, Corporate and Public strategies
- Social Impacts
  - Citizen dynamics
  - Public goods

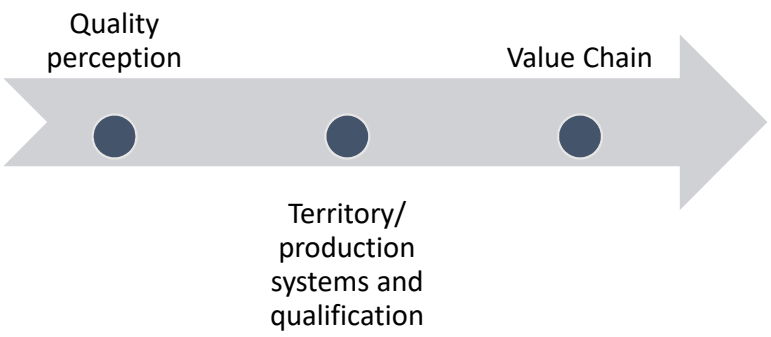
Sustainability and GI

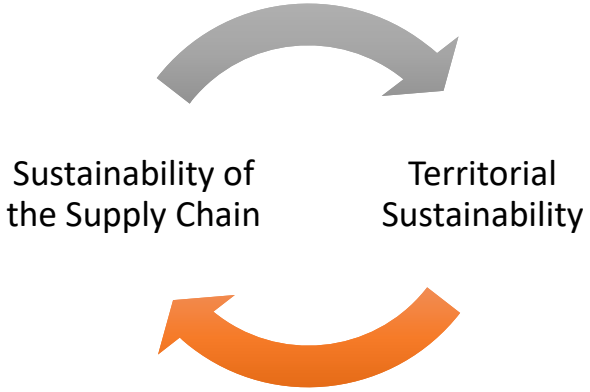
- The initial assumption is that the **Geographical Indications**, although not resulting in environmental sustainability, **are able to compensate** for this thanks to their positive impact on territory in terms of economic and social sustainability.
- Sustainability: a complex feature which requires us to define
  - a Conceptual framework useful for **describing the interactions** of different phenomena considering the economic, social and environmental dimensions of sustainability;
  - **the indicators**;
  - a qualitative and quantitative **approach to measurement**;

Conceptual framework: Sustainability and GIs

From the literature it emerges that GIs are characterized by:

- ✓ the concept of **quality** and its perception by the consumer;
- ✓ the **territory** and the characteristics of the **production system** in its ability to provide unique characteristics to, qualify and manage food production;
- ✓ the **food value chain**, in its ability to deliver value added to producers

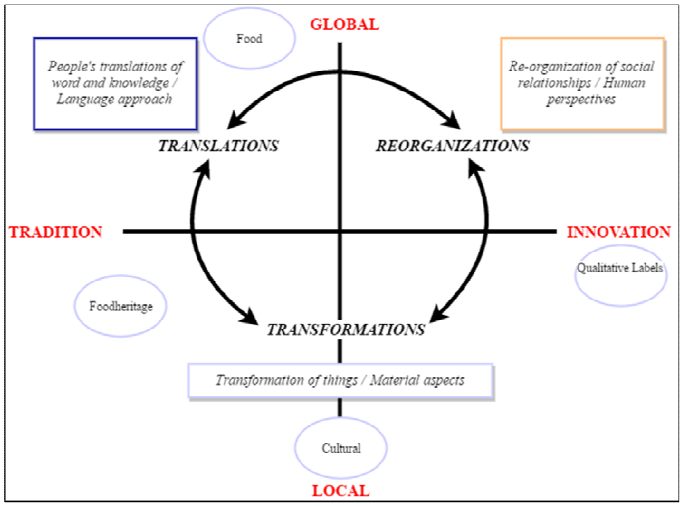


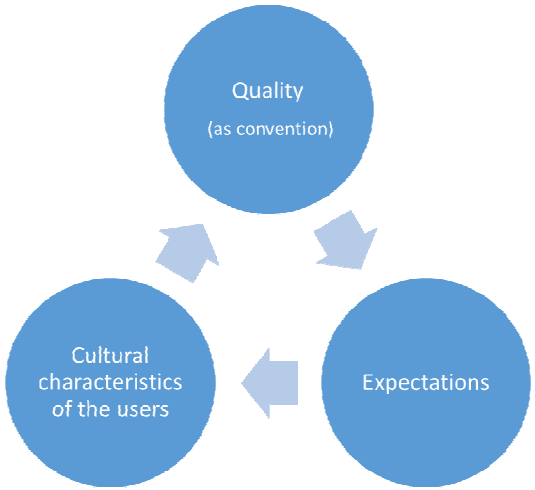


Conceptual framework:
The quality dimensions of GIs

The **value of quality** is due to the **characteristics** of the **actors** in the supply chain, **how they relate** to consumers, the **production rules** and the **manner in which the rules are defined**.

Quality becomes a **dynamic concept** related to the cultural characteristics of the users of the products offered by the chain with a GI recognition, in individual production environments.





Conceptual framework:
The territorial dimension of GIs

The **territory** is

- ✓ the **place of production** whose specific environmental and socio-economic characteristics (micro-climate and local varieties) are capable of determining the qualitative characteristics of the products;
- ✓ the place that, according to the presence of institutions and methods of interaction between the agents, **facilitates the provision of the product**, lowers **transaction costs** and contributes to the creation of the **reputation** of the product;
- ✓ the place of **consumption** (for SFSC) and the **reputation** origin;
- ✓ the place where different **supply chain management** arrangements generate environmental, social and economic impacts;
- ✓ the place where the **impacts emerge** and are measured;
- ✓ the territory as Local Agri-food system (LAFS)

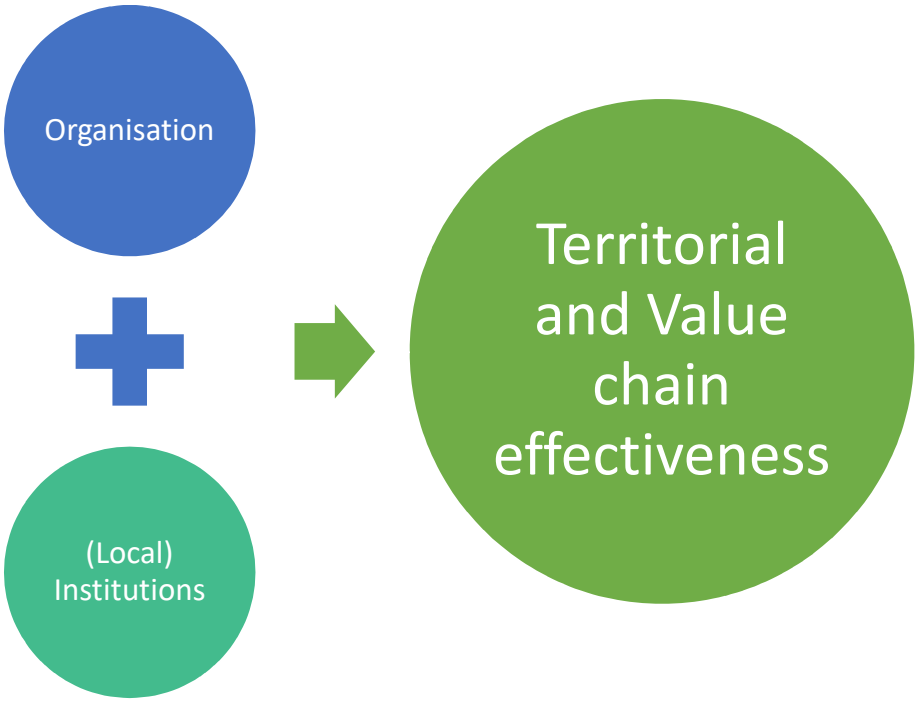
Conceptual framework:
The role of the value chain for GIs

- Value chains **combine** the technological functions of the supply chain in a more economic and managerial function;
- Chains are regarded as a **tool for managing production**, useful to create **appropriate product quality and develop marketing strategies** aimed at **creating value** for all the actors in the chain;
- **GIs are not an exception!!!**
- A dominant model of GI-value chain does not exist but - rather - **several typologies of GI-value chains emerge**, according to the combination of their structural and management features and their interplay with the production system;

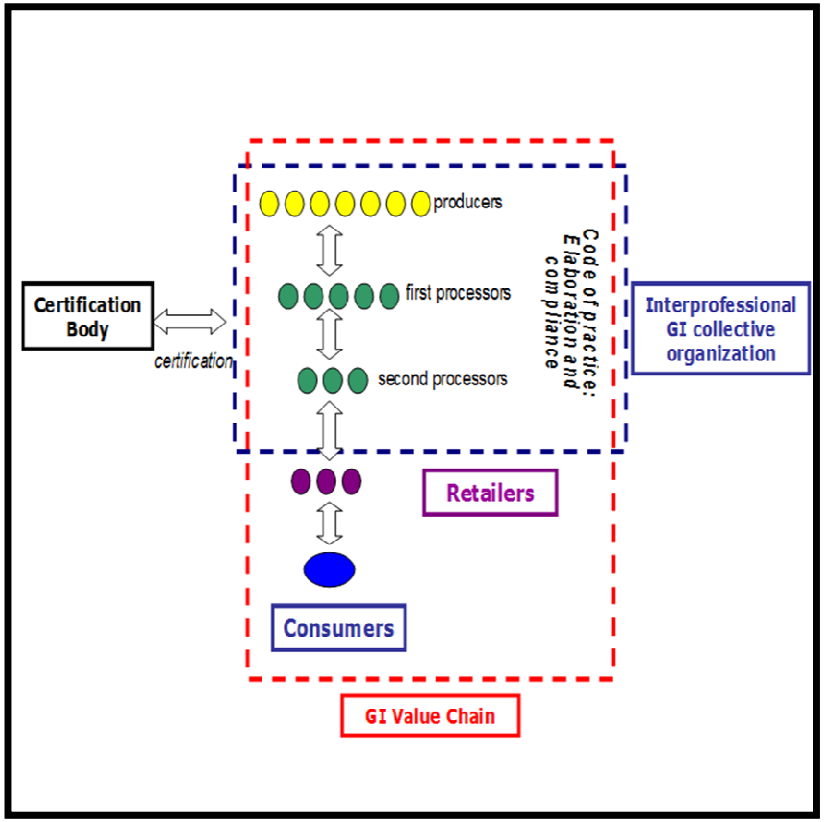
Conceptual framework:
The role of the value chain for GIs

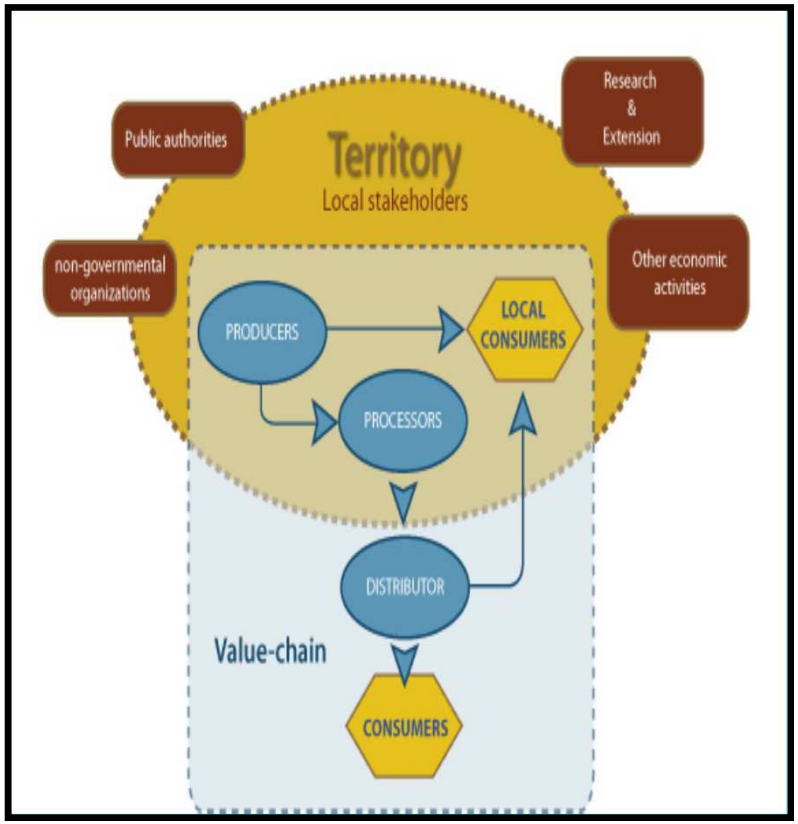
Factors influencing the effectiveness of a value chain and delivery

- the evolution and the upgrading of of the supply chain
- the degree of openness to trade
- the level and evolution of market demand
- the evolution of the quality attributes
- the governance model
- the presence of internal and external institutions
- the extent of information asymmetry
- the incidence of transaction costs



From GI Value Chain to Territorial GI Value Chain





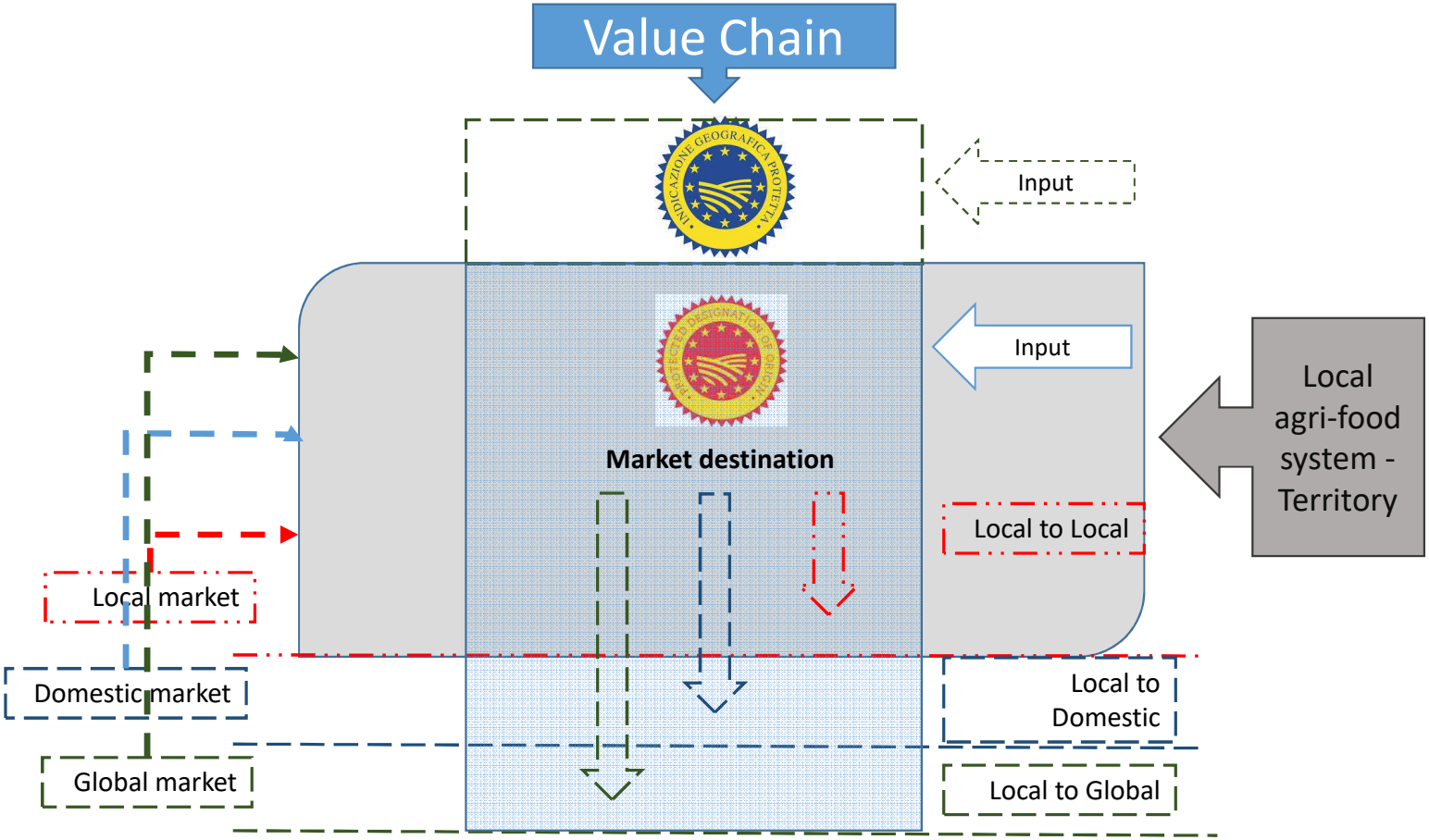
The interaction of value chains and territory

Open LAFS	Close LAFS	Mixed
• Local agricultural outputs are not processed by local food industries (and vice versa) or purchased by local consumers • The supply chain is not bounded by the territory	• Local agricultural outputs are processed by local food industries or purchased by local consumers • Supply chain is bound (or embedded) by the territory	• Coexistence of open and close LAFS

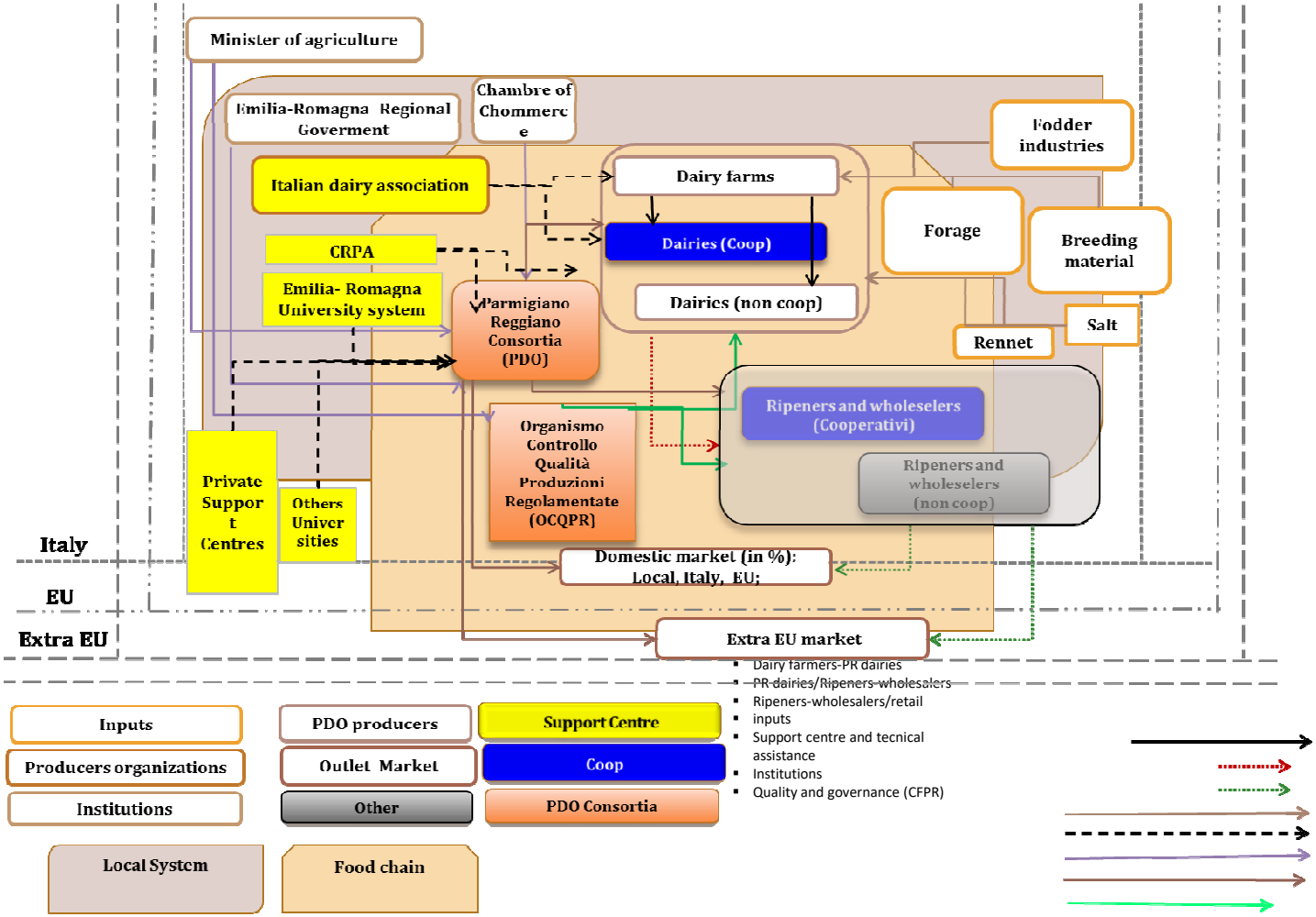
Implications in term of:

- Sustainability;
- Public good creation;
- Intervention mechanisms (governance and policy actions)

Conceptual framework:
Interactions between territory and VC



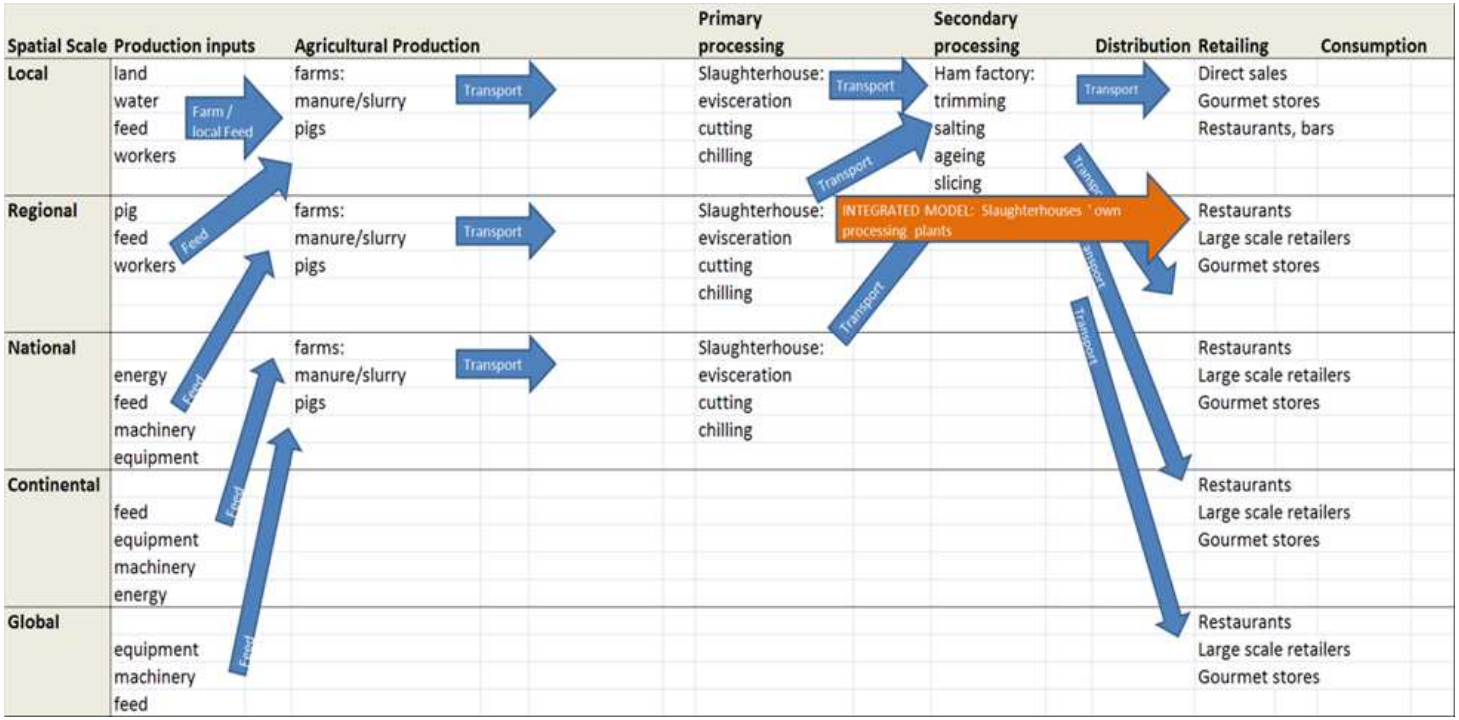
The case of Parmigiano Reggiano



Conceptual framework: The value chain approach

GLAMUR
Global and local food assessment:
a MUltidimensional performance-based approach

Parma ham flow chart



From theory to practice: the use of indicators

SAFA

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Global and local food assessment:
a MUltidimensional performance-based approach

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Metodological approach

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Global and local food assessment:
a MUltidimensional performance-based approach

- **Selection of attributes**
  - Literature and media review (WP2)
  - Interviews with some stakeholders
- **Selecting of indicators**
  - Literature and research experience
  - Availability of data
  - LCA indicators
- **Data collection and calculations**
  - Interviews with stakeholders
  - Use of existing databases
  - Collection of firm balance sheets
- **Analysis**
  - Analyze and explain differences in performances between the chains

Metodological approach

GLAMUR
Global and local food assessment:
a MUltidimensional performance-based approach

Selection of attributes

- **Key attributes**
  - Value added and and its chain distribution
  - Resilience
  - Territoriality
  - Resource use efficiency and pollution (LCA)
- **Other attributes**
  - Affordability
  - Chain governance
  - Animal welfare
  - Biodiversity

Metodological approach

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Global and local food assessment:
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From attributes to indicators

Attribute	Indicator	Detailed indicator	Source of indicator
Affordability	Retail price	Retail price in supermarket	CPP
	Retail price	Retail price in supermarket	ASSICA/Infoscan
	Retail price	Retail price at speciliased retailer shop	Interviews with companies
	Dynamics in pork consumption	Domestic market and exports	CPP
		Domestic market and exports	ASSICA-ISTAT
		Domestic market and exports	Consorzio Cinta Senese
	Dynamics of pig meat consumption last 10 years		ISTAT
Added value	VA at farm level/AWU	Sales price of pigs- non factor costs	CRPA Notizie
		Sales price of pigs- non factor costs	Interpig
		Sales price of pigs- non factor costs	Interviews with companies
	VA slaughterhouse/AWU	Price of fresh PDO ham-non factor costs	Bilance sheets
		Price of fresh generic ham - non factor costs	Balance sheet of VION
		Price of fresh Cinta ham-non factor costs	Interviews with companies
	VA ham factory/AWU	Price PDO Parma ham-non factor costs	Balance sheets of sample of companies
		Price of generic ham - non factor costs	Balance sheets of sample of companies
		Price of Cinta ham-non factor costs	Interviews with companies

Metodological approach

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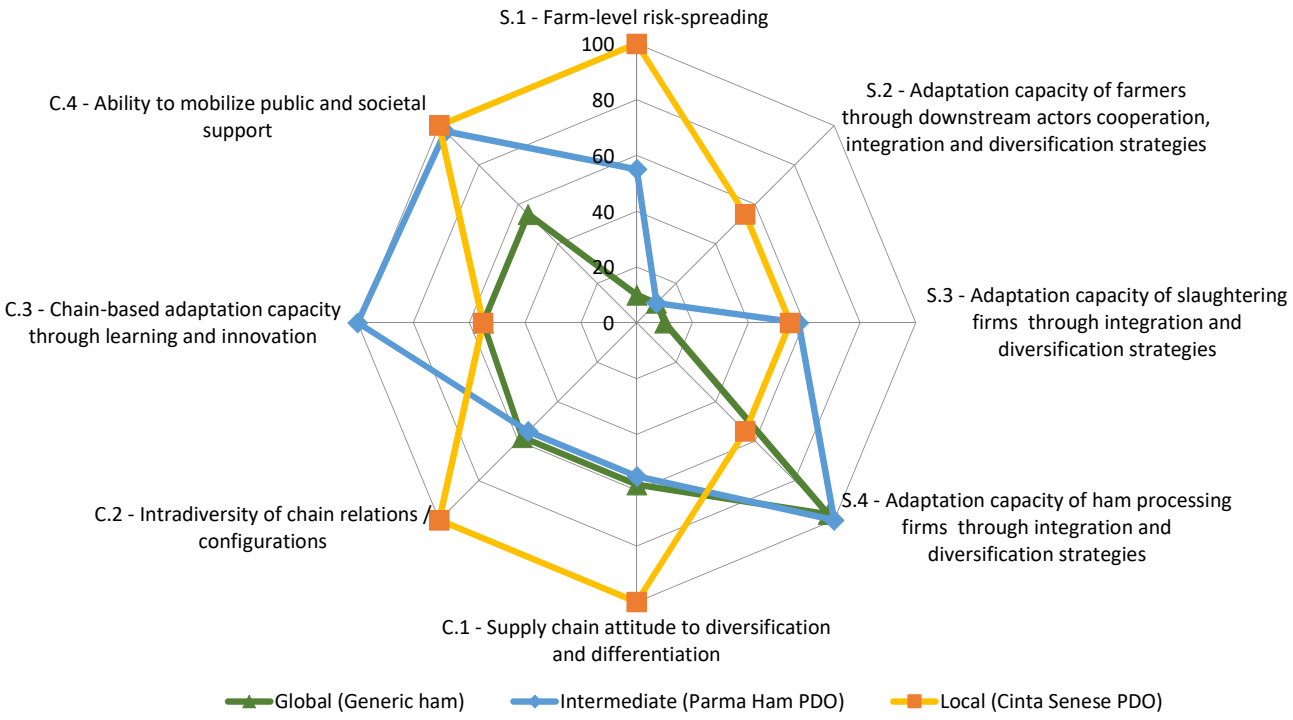
Global and local food assessment:
a MUltidimensional performance-based approach

Resilience: synthetic and general indicators



Metodological approach

Sustainability pilar	Type	Sub-type	Systematic/com	Index
Economic	Price premium	Price premium	Systematic	Ec1
Economic	Profitability and value added distribution	Gross Value-added	Systematic	Ec1
Economic	Trade	Share of value exported within Europe	Systematic	Ec1
Economic	Local multiplier effect (LM3)	Local multiplier effect (LM3)	Systematic	Ec2
Environmental	Carbon footprint	Carbon footprint per unit of product	Systematic	Ec1
Environmental	Foodmiles	Distance travelled per unit of product	Systematic	En2
Environmental	Water footprint	Green water footprint (net consumption of w	Systematic	En3
Environmental	Water footprint	Grey water footprint (water pollution)	Systematic	En3
Social	Employment	Labour to production ratio	Systematic	So1
Social	Governance	Bargaining power distribution	Systematic	So2
Social	Social capital	Generational change	Systematic	So5
Social	Social capital	Gender equality	Systematic	So5
Economic	Profitability and value added distribution	Gross Operating Margin	Complementary	Ec1
Economic	Profitability and value added distribution	Net result	Complementary	Ec1
Economic	Trade	Share of value exported outside Europe	Complementary	Ec1
Economic	Trade	Share of volume exported within Europe	Complementary	Ec1
Economic	Trade	Share of volume exported outside Europe	Complementary	Ec1
Environmental	Carbon footprint	Carbon footprint per hectare	Complementary	En1
Environmental	Foodmiles	Emissions from transportation per unit of pr	Complementary	En2
Environmental	Water footprint	Blue water footprint (gross consumption of v	Complementary	En3
Social	Employment	Income to labour ratio	Complementary	So1
Social	Employment	Undesirable employee turnover rate	Complementary	So1
Social	Governance	Coopetition index	Complementary	So2
Social	Social capital	Educational attainment	Complementary	So3
Social	Transmissibility of knowledge and know-ho	Transmissibility of knowledge and know-how	Complementary	So4

95 Indicators

	Key	Secondary
Systematic	63	68
Complementary	32	75

238 Variables

Index card guide

HORIZON 2020

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Strengthening European Food Chain Sustainability by Quality and Procurement Policy

Deliverable 3.2:

REPORT DETAILING THE METHODS AND INDICATORS FOR MEASURING THE SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACTS OF FQS, SFSC AND VARYING PSFP POLICIES ON AGRI-FOOD CHAIN PARTICIPANTS AND RURAL TERRITORIES

October 2016

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Responsible Partner(s)	INRA
Author(s)	V. Bellassen, G. Giraud, M. Hilal, F. Arfini, A. Barczak, A. Bodini, M. Brennan, M. Drut, M. Duboys de Labarre, M. Gorton, M. Hartmann, E. Majewski, S. Monier-Dilhan, P. Muller, T. Poméon, B. Tocco, A. Tregear, M. Veneziani, M-H. Vergote, G. Vitterso, P. Wavresky, A. Wilkinson.
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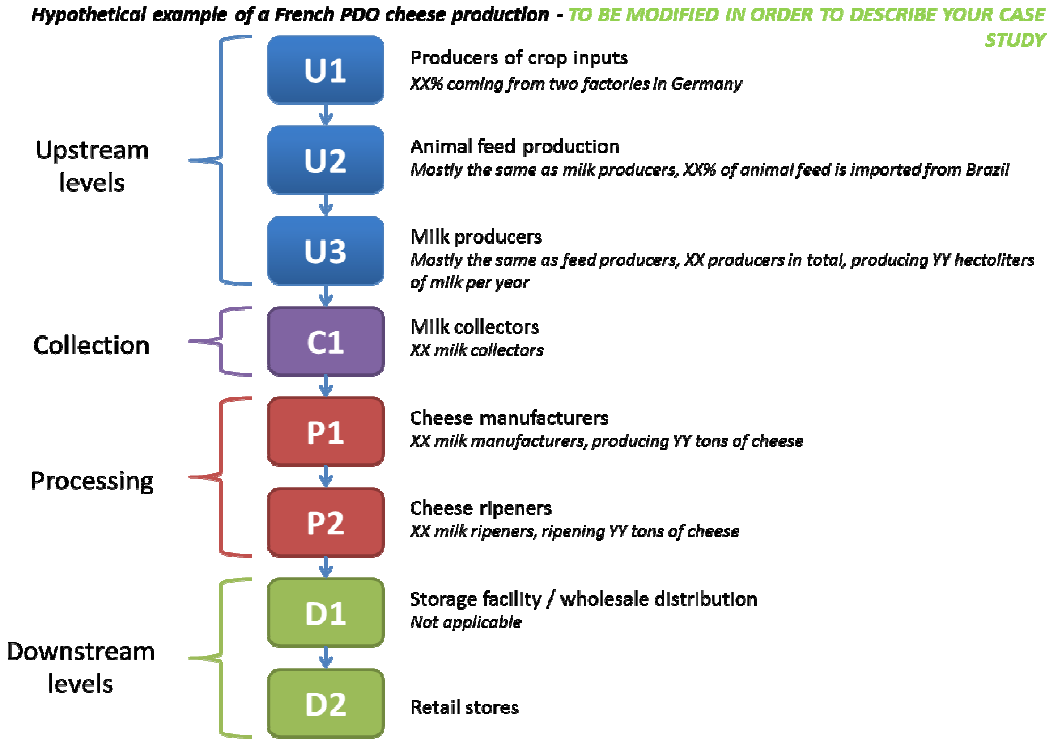
The level of observations along the chain



Indicators are collected for **each step** of the value chain.

Indicators can be:

- chain specific,
- territorial specific,
- hybrid

Key principles for indicators calculation: eg. carbon footprint

What Indicator

Indicator

tCO2e / kg product

Who & How

Method and calculation

Indicator coordinator

Interpretation

Variables

Draft variables

Quality check, advice

Indicator

Interpretation

Variables to be collected by field or desk

Productivity (kg eq. product/ ha fodder crop)

Composition of fodder crops (X% pasture, Y% soy, Z% maize)

Others …

Case study conductor

The future ahead

- Because of the connection between the territory and the value chain, **it is important that the measurements of a set of indicators related to economic, social and environmental sustainability should be carried out both at value chain at territorial level**.
- SAFA indicators are an important source of reference but figures are elaborated with the help of the **Methodological Handbook (for S2F)**
- Indicators can be used for:
  - Elaborate a specific sustainability index to **benchmark** the sustainability level along the time.
  - Generate **determinants** that at LAFS level will describe the impact of attributes on sustainability of GI systems.

The future ahead

The discussion will continue … in Parma

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TOWARDS SUSTAINABLE AGRI-FOOD SYSTEMS:
BALANCING BETWEEN MARKETS AND SOCIETY

Thank you for your suggestions and comments

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