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UNIVERSITÀ DI PARMA

FOOD QUALITY  
FOR SUSTAINABILITY  
AND HEALTH



# The socio economic sustainability of food quality scheme

## Parmigiano Reggiano Case Study

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# Research Questions

- Sustainability and Geographical Indications – theoretical relationship
- How to assess sustainability: different methods





# Structure

Sustainability and Geographical Indications in Rural Areas

How to assess sustainability

Strength2Food Project and Parmigiano Reggiano Case Study

Results

Discussion





# Sustainability and Geographical Indications in Rural Areas

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166th EAAE Seminar on Sustainability in the Agri-Food Sector – Galway, Aug 30-31, 2018





# Rural Development and GIs

**Sustainability:** “[...] Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is **environmentally non-degrading**, technically appropriate, **economically viable and socially acceptable**” (FAO Council, 1989)

**Regulation (EU) No 1151/2012 of the European Parliament and of the Council on Quality Schemes for agricultural products and foodstuffs**

Art. 1 “[...] The measures set out in this Regulation are intended to support agricultural and processing activities and the farming systems associated with high quality products, **thereby contributing to the achievement of rural development policy objectives**”

The **assumption** is that GIs contribute to a sustainable Rural Development thanks to their positive impacts on rural areas in terms of environmental, economic and social effects...but **the outcome is a challenge and must be assessed...**





# Rural Development and GIs

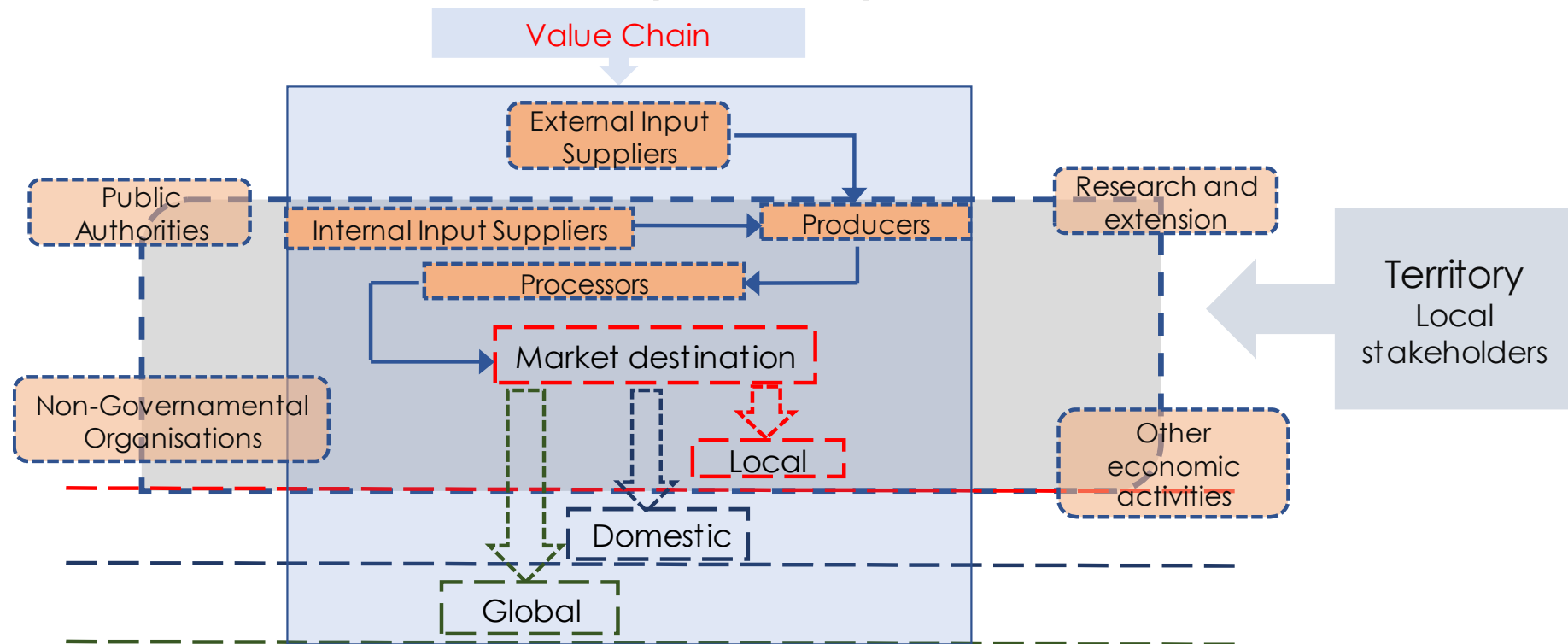
The EU GIs merge together three dimensions:

- ✓ the **rural areas** and the **characteristics of the production system** in their ability to provide unique features, to qualify and manage food production
- ✓ the **quality standard** defined through the **Code of Specification**
- ✓ the **food value chain**, in its ability to **deliver value added** to producers





# The SYAL (LAFS) Approach



Source: Authors' Elaboration





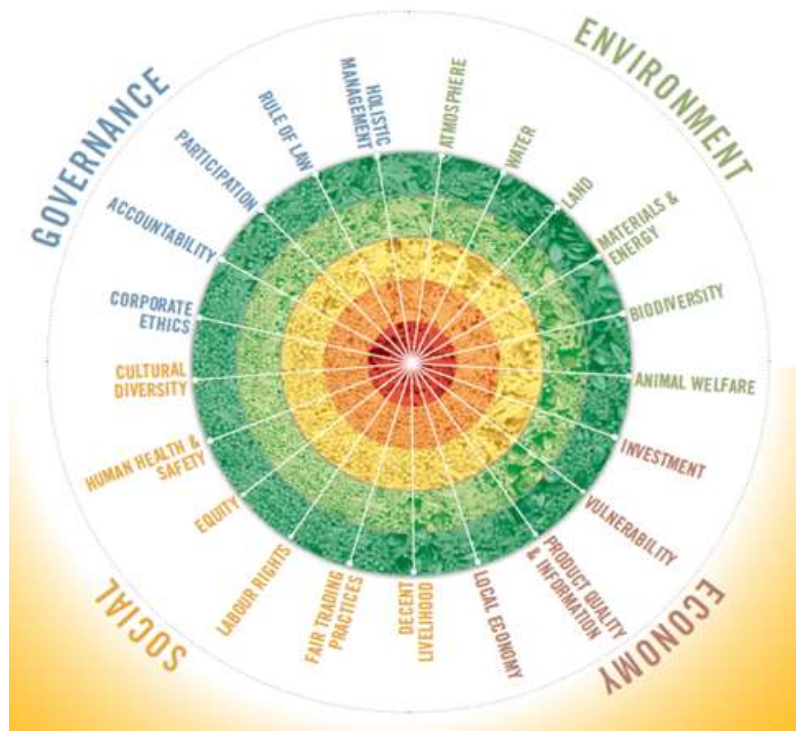


# How to assess sustainability





# How to assess sustainability: The SAFA Approach



## SAFA

SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

## INDICATORS

- ✓ exhaustive list
- ✓ general guidelines
- ✗ operational method (subjective evaluation)





# How to assess sustainability: The S2F Approach

- ✓ **Specifications for the set of sustainability indicators**
  - Applicable to European and non-Eur. food products
  - Using variables available in existing databases or easy to obtain through interviews with key stakeholders





# How to assess sustainability: The S2F Approach

## Information to be collected

- ✓ **Economic performance** (farms, processing plants, retailers): price, gross product, added value, net margin, etc.
- ✓ **Farm efficiency**: yield, input quantity, number of animals per hectare, etc.
- ✓ **Water and energy consumption** at the different value chain levels
- ✓ **Value chain structure and bargaining power**: number of businesses per value chain level (farmers, processors, retailers), market shares, number of trials, share of long-term contracts, etc.
- ✓ **Employment**: number of jobs, age and gender of employees/business owners, educational level of employees/business owners, etc.

## Data sources

- ✓ **Secondary to the extent possible** (Eurostat, FADN, existing reports, ...) and **primary when necessary** (expert knowledge elicitation, survey)





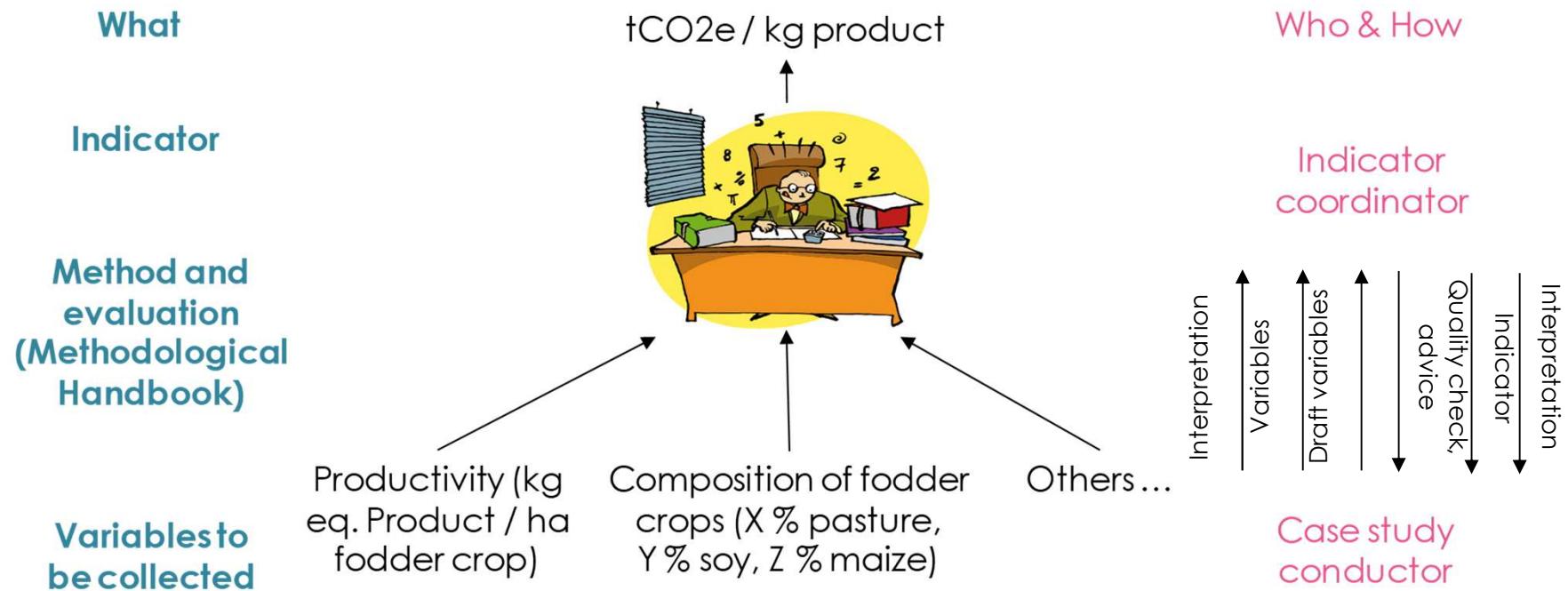
# How to assess sustainability: The S2F Approach

SAFA / S2F Indicators	
Price Net margin Exported share	Food miles (distance) Food miles (carbon)
Carbon footprint (product) Carbon footprint (area)	Green water footprint Blue water footprint Grey water footprint
Labour/product Profit/labour	Bargaining power equality
Educational attainment Wage level	Local multiplier effect
Generational change Gender equality	





# How to assess sustainability: The S2F Approach



Source: Bellassen, V. et al. (2017)



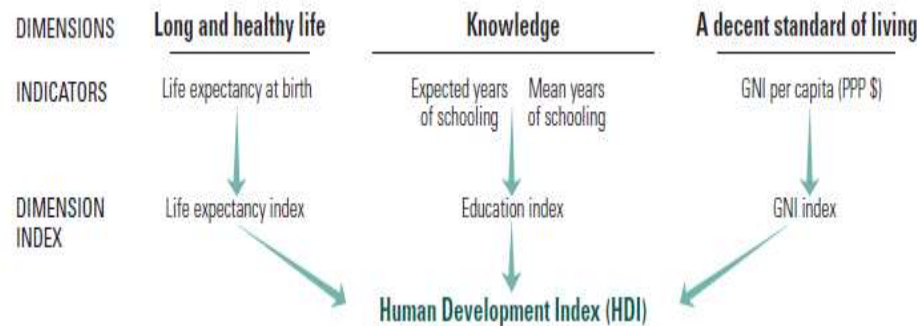


# How to assess sustainability: The S2F Approach

How to get **one synthetic index**?

Mahbub ul Haq and Amartya Sen approach

Human Development  
Index (HDI)



$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

$$Si = (I_{\text{Economic}} \cdot I_{\text{Environmental}} \cdot I_{\text{Social}})^{1/3}$$

Source: UNDP





# Strength2Food Project and Parmigiano Reggiano Case Study



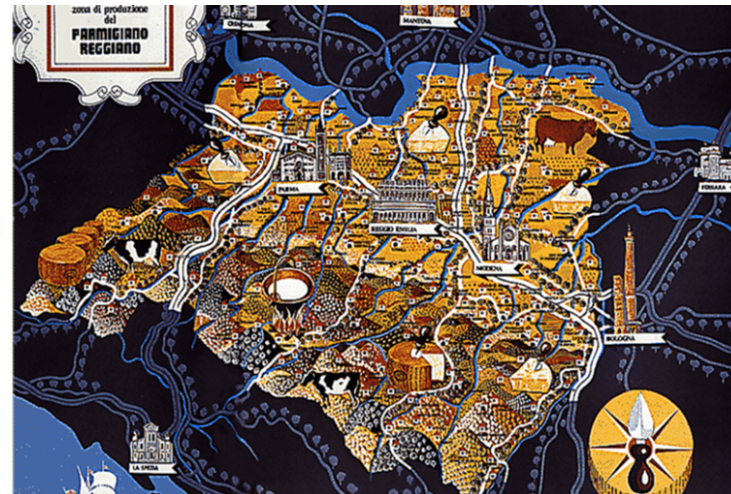




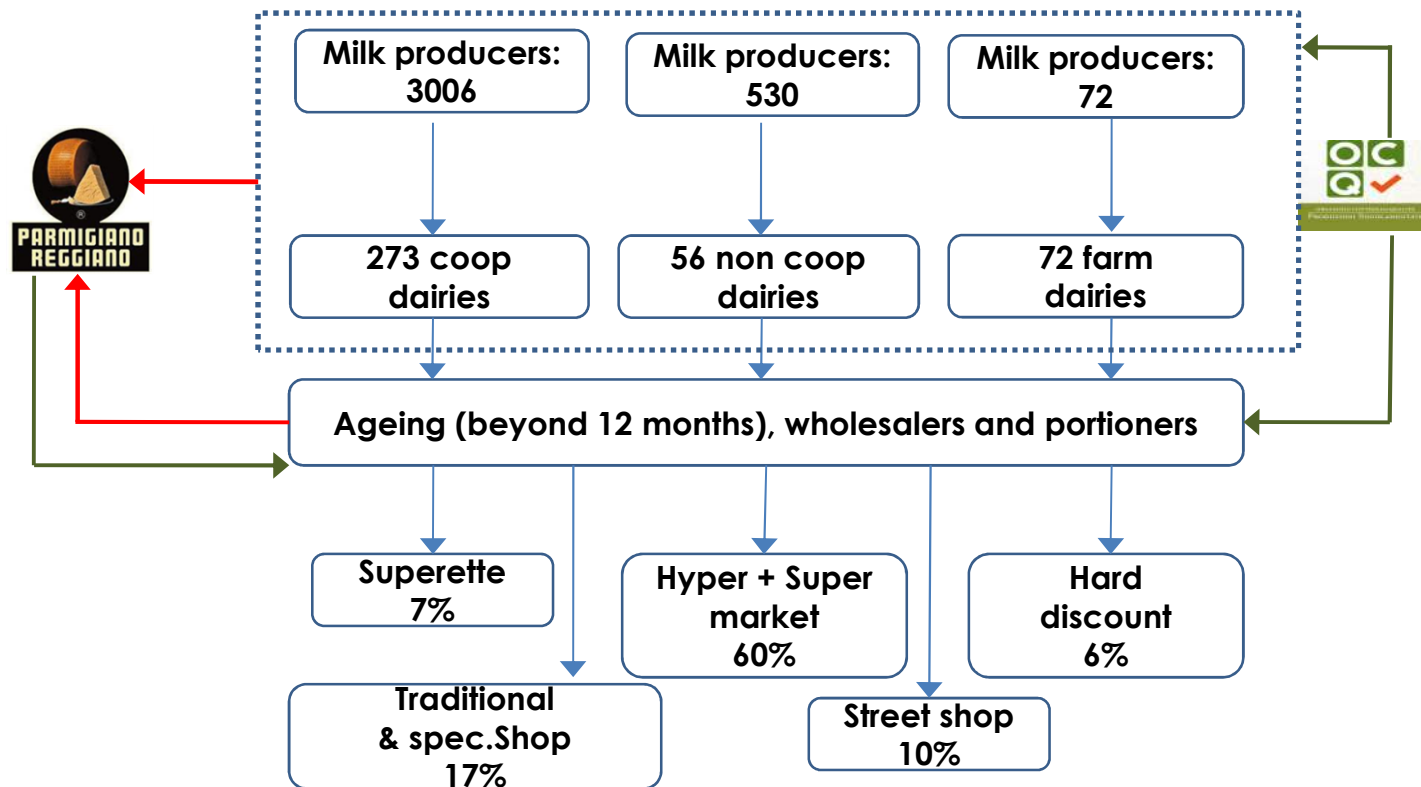
# Parmigiano Reggiano (PR)



Provinces of Parma, Reggio Emilia, Modena, Bologna to the left of the Reno River, Mantua to the right of the River Po



# The PR Supply Chain





# PR Consorzio

The Parmigiano Reggiano Consortium was established in 1934 to assure the effective governance of the supply chain through common initiatives defined in the Statute

Protection of the designation of origin

Monitoring of the production and sale

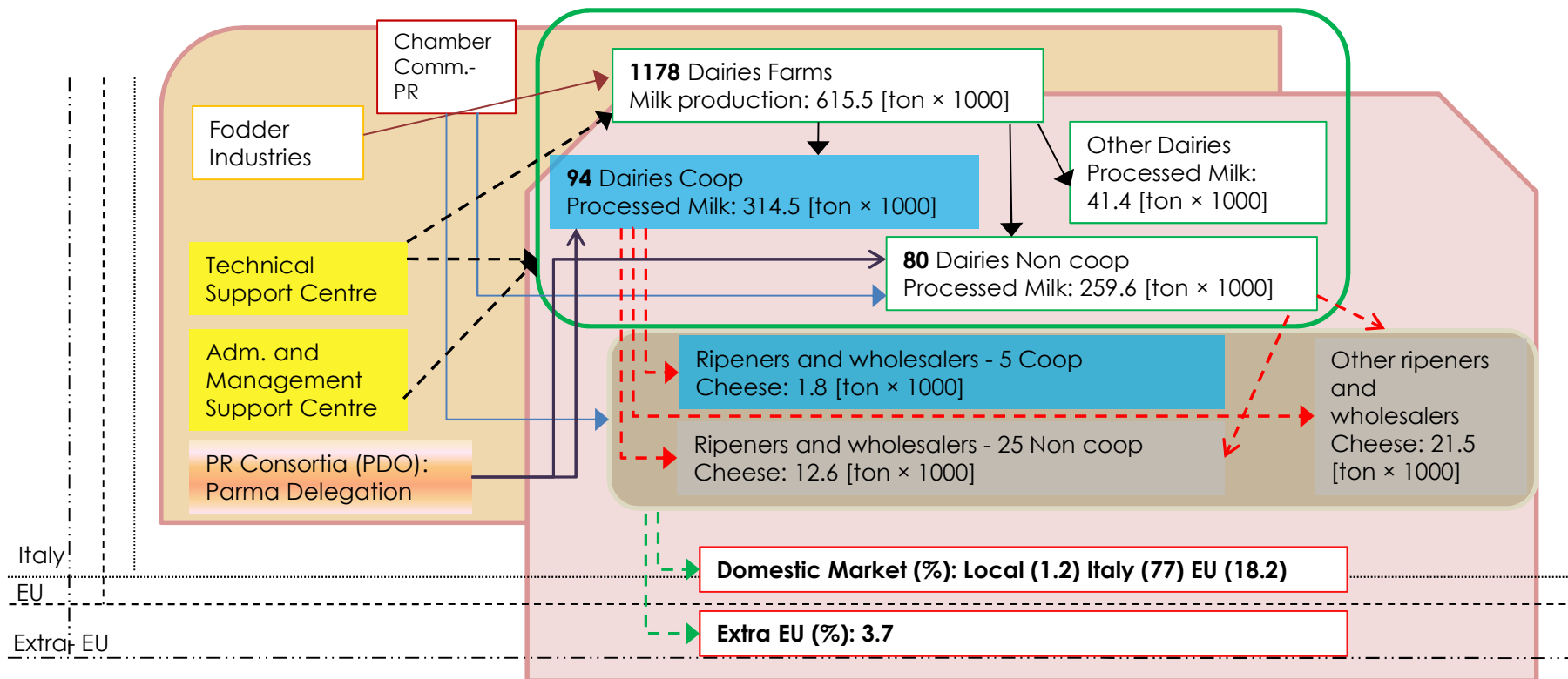
Valorisation of production

Promotion of the consumption in Italy and abroad, as well as the development and support of any initiative of a commercial or other nature aiming to valorise PR Cheese

Promotion, dissemination and knowledge of the Protected Designation of Origin and its relative reserved marks, aiming to generally protect the interests of such designation

Promotion of PR reputation, including the establishment and participation of consortial companies or organisations







# Results



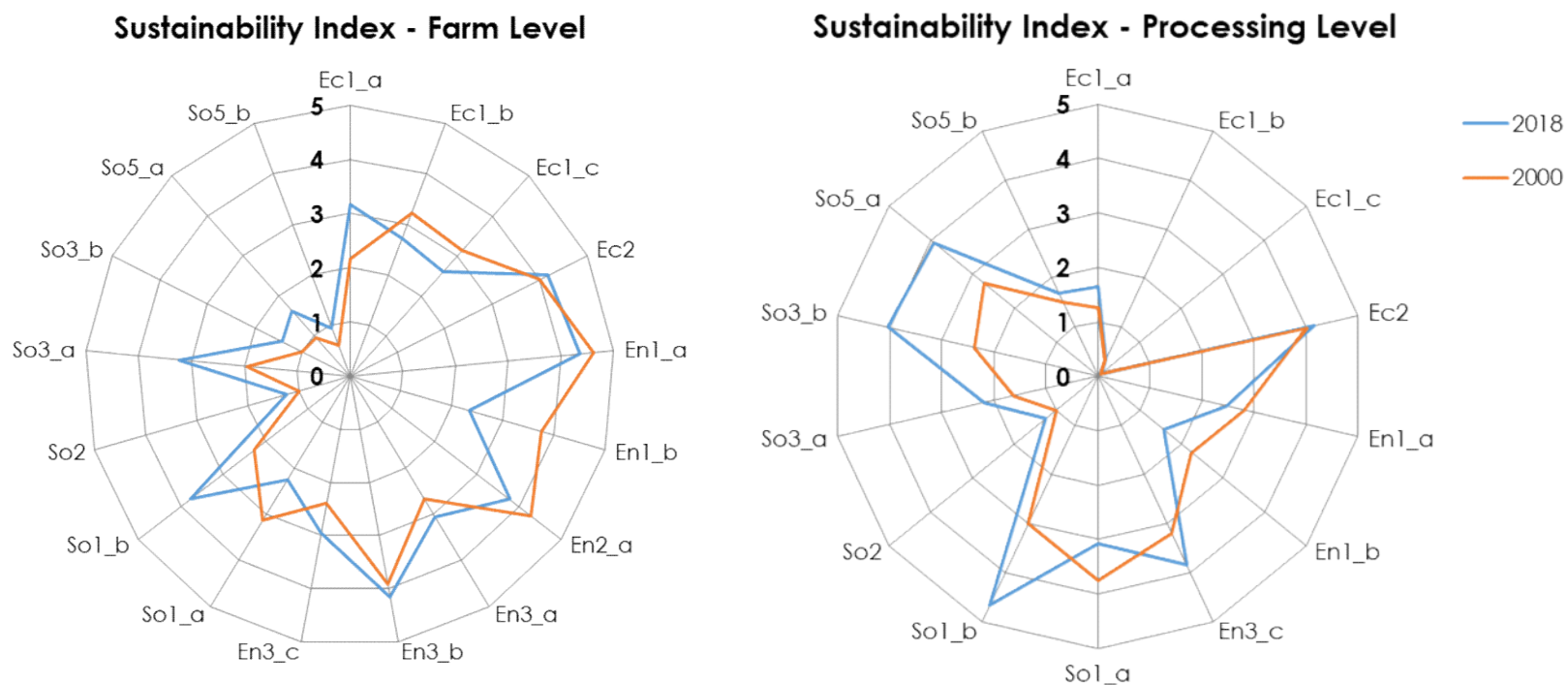


Indicator	Name	Value at Specific Level	
		Upstream	Processing
Ec1_a [€/kg]	Price	0,49	9,32
Ec1_b [% of turnover]	Gross Value-Added	54,9	7,85
Ec1_c [% of turnover]	Gross Operating Margin	52,55	2,55
Ec2	Local Multiplier Effect	2,5	
En1_a [kg CO <sub>2</sub> /ton]	Carbon footprint per unit of product	1.515	25.126
En1_b [kg CO <sub>2</sub> /ha]	Carbon footprint of area	3.066	3.052
En2 [km/ton]	Distance travelled per unit of product	13	
En3_a (Green) [m <sup>3</sup> /kg]	Net consumption of water	4,33	
En3_b (Grey) [m <sup>3</sup> /kg]	Water pollution	0,51	
En3_c (Blue) [m <sup>3</sup> /kg]	Gross consumption of water	7,33	51,46
So1_a [Annual Work Unit/ton]	Labour-to-production ratio	0,003	0,025
So1_b [€/Annual Work Unit]	Profit-to-labour ratio	152.812	390.204
So2 [Likert 1-5]	Bargaining power distribution	0,75	0,75
So3_a [na]	Educational attainment	0,68	0,49
So3_b [€ wages/Annual Work Unit]	Wage level	13.295	48.424
So5_a [%]	Generational change	33	79
So5_b [na]	Gender Inequality	0,81	0,66

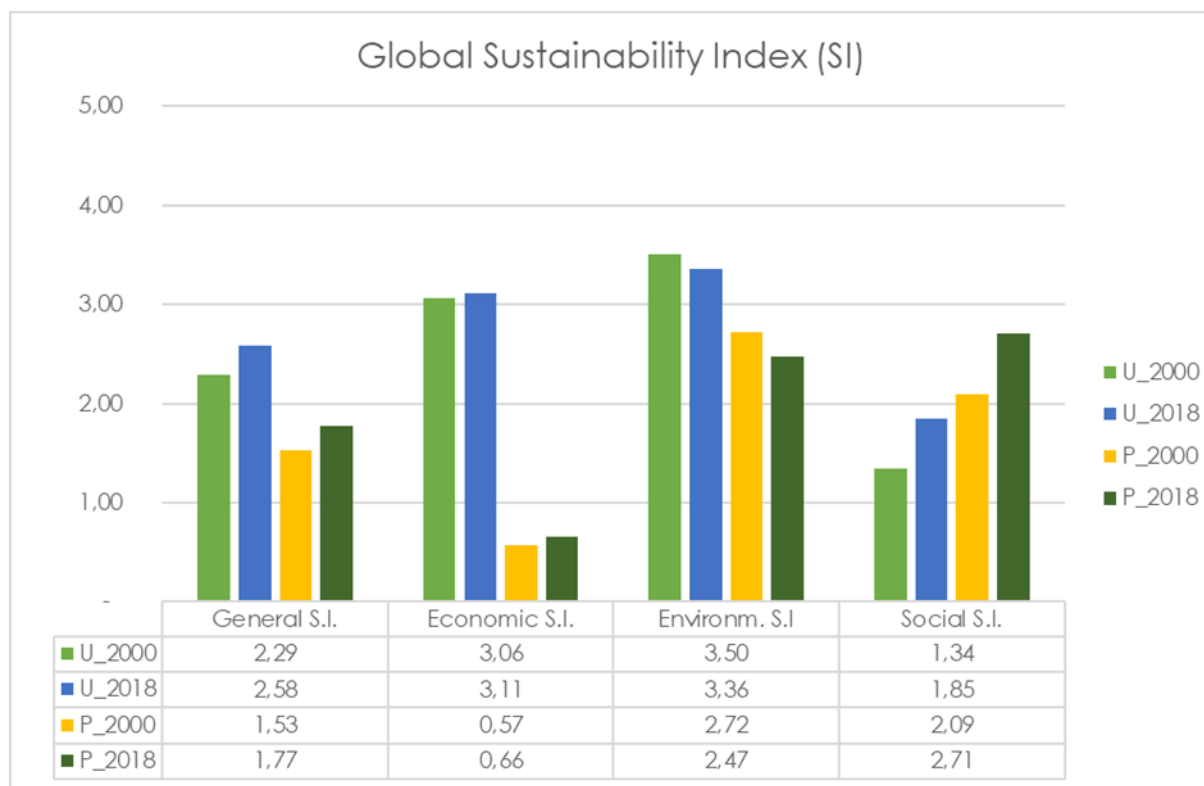




# Comparison 2000 - 2018



# Comparison 2000 - 2018







# Discussion





- ✓ A dashboard indicator is useful tool to monitor the evolution of the FQS scheme across the time and to adopt appropriate policies
- ✓ A correct approach is to consider both a Value Chain and Territorial dimension integrating them in one framework
- ✓ The objective calculation of Indicators requires a great effort in collection and elaboration of data with the collaboration of local stakeholders
- ✓ The case of Parmigiano Reggiano shows and improvement of the Synthetic Index of Sustainability thanks the role of new technologies and to the governance strategy of the Parmigiano Reggiano Consortium





Thank you for your attention

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