

agr! BRIDGES

“Building bridges between consumers and producers by supporting short food supply chains through a systemic, holistic, multi-actor approach-based Toolbox”

(Grant Agreement 101000788)

Identification of attribute for
assessment of social, economic &
environmental impact



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Main authors	
Name	Organisation
Roberto Cagliari, Rita Iacono, Ilenia Manetti, Giorgia Giordani, Roberta Sardone, Patrizia Borsotto, Francesca Giarè	CREA

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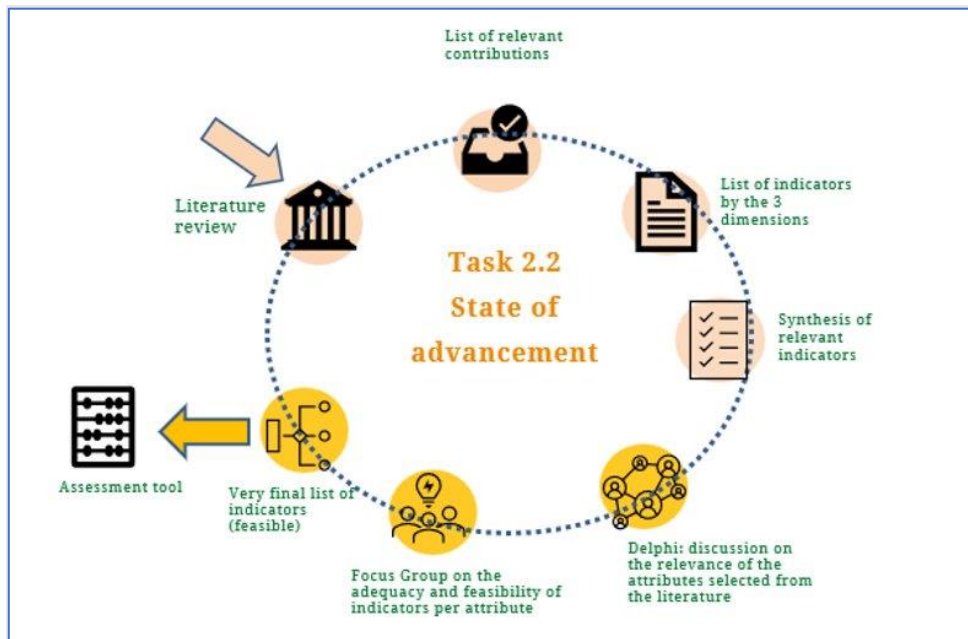
Abbreviations

CSA	COMMUNITY SUPPORTED AGRICULTURE
ONF	ON FARM SALES
OFF_COMM	OFF FARM SALES - COMMERCIAL SECTOR
OFF_CAT	OFF FARM SALES - CATERING SECTOR
DIR	DIRECT DELIVERY
F2F	FACE TO FACE
LFT	LOCAL FOOD TRADE
ON_LINE	ON LINE FOOD TRADE
IM_LOG	IMPROVED LOGISTIC
RACER	Relevant, Acceptable, Credible, Easy and Robust

Introduction

In order to define a set of attribute and linked indicators to evaluate social, economic and environmental sustainability of SFSCs for producers and propose a comprehensive sustainability assessment the Task 2.2 has promoted an interactive process using qualitative and quantitative methods and involving different actors (Fig. 1). First of all, information about SFSCs and their attributes from literature and European projects has been collected. Then a set of economic, social, and environmental indicators has been constructed based on a deeply literature review through the analysis of about 70 scientific references and other projects results such as SMARTCHAIN and STREGTH2FOOD (Bellassen et al. 2019; Bellassen et al. 2016; Antonelli and Petruzzella, 2020), which focused on assessment models and evaluation instruments to measure the economic, environmental, and social sustainability of SFSCs (Joint Research Centre, 2013; EIP AGRI, 2015).

Figure 1. Interactive process for defining SFSCs attributes and indicators

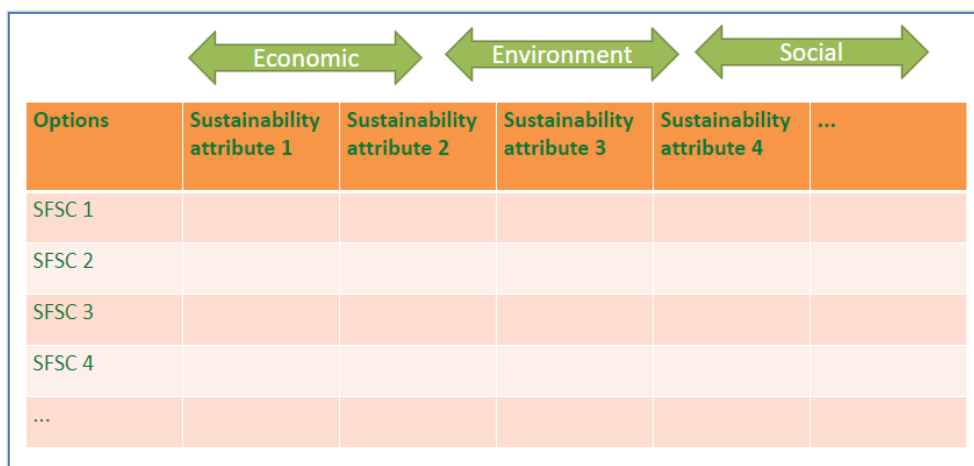


Once these results have been organized, a logical framework based on the follow chain was developed:

Dimensions of sustainability --> Identification of attributes --> Selection of feasible indicators

where the three dimensions (economic, environmental, social) are composed by several attributes described by using different indicators (Fig. 2).

Figure 2. Logical framework



To assess and validate this framework, a participatory path, via qualitative tools, was realized. Two online Focus Groups (Morgan, 2018) has been conducted, one with experts involved in the agroBRIDGES Stakeholder Reference Group¹ and one with experts from other projects on SFSCs², in order to select the more suitable and feasible indicators to design the assessment model (RACER criteria). In parallel, 2 rounds of DELPHI (Marbach, 1991, Hsu and Standford, 2007, Avella 2016) has been conducted in the light of assess the relevance of the attributes identified to describes the three dimension, also operational-wise.

The results of both research activities were analyzed using qualitative (content analysis for the focus groups) and quantitative (statistical analysis for the Delphi survey) methods. In summary, starting from the analysis of the results of the Delphi, the level of agreement or disagreement reached was assessed for each indicator, following the following steps of judgement: first Delphi round and second one; first and second Focus Group. These evaluations were expressed with a sort of traffic light: green: the indicator was accepted; red: the indicator was rejected; yellow: the indicator should be re-evaluated. From the initial list of 52 indicators proposed in the Delphi survey and Focus Groups, we determined 47 items, condensed into 14 attributes, along the three main dimensions.

In addition, for each attribute we estimated a LEAD INIDCATOR, which has a mandatory character in the composition of the attribute, while the other proposed indicators could also not be used in case the collection is too difficult or even not possible.

The current Report presents the list of attributes and indicators as result of the described process.

In order to facilitate the application of the indicators presented, a set of fiches including description, unit of measurement, methodology/formula, information source has been carried out.

¹ agroBRIDGES Stakeholder Reference Group is composed by one representative per each State participant as well as other stakeholders from the Experts Advisory Board and from EU agri-food community.

² Experts from COACH, FOODRUS, and COCOREADO participated in the Focus Group.

1. List of indicators

Price
Price difference Farmgate
Price Premium
Value chain and local producers sustainability
Chain value added
Chain value added
Production costs are lower
Supply costs are lower
Equity in the value generated
Impact on Farm
Turnover
Financial support
Production costs
Distribution costs
Access to credit
Regional economic impact
Number of employees
Number of producers involved
Sells to local customers
Local supply
Bargaining power
Relationship with customers
Relationship with suppliers
Bargaining power Self-Assessment

Food Miles
Carbon Footprint related to food miles
Reduced food miles (production and distribution)
Use of Fuel
Energy consumption
Reduced energy consumption
More energy efficiency measures
Type of process/Products/Packaging
% of BIO products
% of local/traditional products
Access to agri-environmental schemes support
More eco-friendly packaging used
Food loss and waste
Reduced food loss & waste
More circular economy initiatives

Labour/Employment
Labour to production ratio
Presence of corporate welfare
Higher resilience of employment
Inclusion of disadvantaged people
Human capital
Generational change
Educational attainment
Gender equality
No unequal treatment for same roles
Social capital
Influence by SFSC
New local networks
Customers & producers participation
Stakeholders' involvement
Food and Nutrition
Increased access to food via SFSC
Standards for food safety
Increased customers awareness
Governance
Coopetion index
SFSC actors' proactive involvement

Note: Lead indicators are in bold

2. List of attributes by category of BM

CSA	FACE to FACE TRADE	LOCAL FOOD TRADE	ONLINE FOOD TRADE	IMPROVED LOGISTICS
Price	Price	Price	Price	Price
Value chain and local producers' sustainability	Value chain and local producers' sustainability	Value chain and local producers' sustainability	Value chain and local producers' sustainability	Value chain and local producers' sustainability
Impact on Farm	Impact on Farm	Impact on Farm	Impact on Farm	Impact on Farm
Regional economic impact		Regional economic impact		Regional economic impact
Bargaining power	Bargaining power	Bargaining power		Bargaining power
Food Miles		Food Miles		
Energy consumption	Energy consumption	Energy consumption	Energy consumption	Energy consumption
Type of process/ products / Packaging	Type of process/ products / Packaging	Type of process/ products / Packaging	Type of process/ products / Packaging	Type of process/ products / Packaging
Food loss and waste	Food loss and waste	Food loss and waste	Food loss and waste	Food loss and waste
Labour / employment	Labour / employment	Labour / employment	Labour / employment	Labour / employment
Human capital	Human capital	Human capital	Human capital	Human capital
Social capital	Social capital	Social capital		Social capital
	Food and Nutrition			Food and Nutrition
Governance		Governance	Governance	Governance

3. The Economic indicators

3.1 ECO - PRICE

Name	ECO_PR_01 Price difference Farmgate LEAD INDICATOR
Related Dimension	ECO
Related Attribute	PRICE
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It shows the difference between the average farmgate price in the chain and the average farmgate prices in the region
Unit of measurement	Euro
Methodology/formula	Average Farmgate Price in the chain received by farmer (euro/kg)- Average farmgate to retail price in the region(euro/kg)
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ECO_PR_02; ECO_VC_01; ECO_VC_02
Comments / caveat	Could Farm type be a relevant subdivision?

Name	ECO_PR_02 Price Premium
Related Dimension	ECO
Related Attribute	PRICE
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It indicates the better prices achieved by producer
Unit of measurement	%
Methodology/formula	Price difference Farmgate (euro/kg) / Average farmgate to retail price in the region (euro/kg)
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ECO_PR_01
Comments / caveat	Could Farm type be a relevant subdivision?

3.2 ECO – VALUE CHAIN

Name	ECO_VC_01 Chain value added
Related Dimension	ECO
Related Attribute	Value chain and local producers' sustainability
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It can provide a proxy of level of sharing of the value added, strengthening the producers position
Unit of measurement	€/kg
Methodology/formula	Price difference Farmgate – Distribution costs Distribution costs contain costs of transportation, packaging, market fees and similar payments and distribution related labor input. Costs of own labor were calculated at the per hour rates paid to hired labor.
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ECO_PR_01; ECO_VC_02
Comments / caveat	

Name	ECO_VC_02 Chain value added
Related Dimension	ECO
Related Attribute	Value chain and local producers sustainability
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It indicates the better prices/ position achieved by producer
Unit of measurement	%
Methodology/formula	Chain value added / Average farmgate to retail price in the region
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ECO_PR_01; ECO_VC_01
Comments / caveat	

Name	ECO_VC_03 Production costs are lower
Related Dimension	ECO
Related Attribute	Value chain and local producers' sustainability
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It is a proxy for the entrepreneur's ability to act on the cost component to improve position within the supply chain
Unit of measurement	Value (index)
Methodology/formula	Self-declaration: Indicate the degree of influence your organisations can exert on Production costs 1 – Minimum 2 3 4 5- Maximum
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_VC_04, ECO_VC_05
Comments / caveat	

Name	ECO_VC_04 Supply costs are lower
Related Dimension	ECO
Related Attribute	Value chain and local producers' sustainability
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It is a proxy for the entrepreneur's ability to act on the cost component to improve position within the supply chain
Unit of measurement	Value (index)
Methodology/formula	Self-declaration: Indicate the degree of influence your organisations can exert on Supply costs 1 – Minimum 2 3 4 5- Maximum
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_VC_03; ECO_VC_05,
Comments / caveat	

Name	ECO_VC_05 Equity in the value generated LEAD INDICATOR
Related Dimension	ECO
Related Attribute	Value chain and local producers' sustainability
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It is a proxy for assessing the level of equity in distribution of the value generated within the supply chain
Unit of measurement	Value (index)
Methodology/formula	Self-declaration: Is the generated value equally distributed between producers and the other actors of your SFSC? 1 - Not at all 2 3 4 5- Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_VC_03; ECO_VC_04
Comments / caveat	

3.3 ECO – IMPACT ON FARM

Name	ECO_IF_01 Turnover LEAD INDICATOR
Related Dimension	ECO
Related Attribute	Impact on farm
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It represents a measurement of the ability of an enterprise to generate value
Unit of measurement	Euro .000
Methodology/formula	declaration
Information source	Farm level
Reference	Moya Kneafsey, <i>et al.</i> (2013). Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics https://doi.org/10.2791/88784
Link with other indicators	ECO_IF_03
Comments / caveat	We take turnover as indicators of economic impact and report here on the limited information which is available.

Name	ECO_IF_02 Financial support
Related Dimension	ECO
Related Attribute	Impact on farm
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It represents an assessment to estimate the funding capacity
Unit of measurement	Euro .000
Methodology/formula	declaration
Information source	Farm level
Reference	Moya Kneafsey, <i>et al.</i> (2013). Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics https://doi.org/10.2791/88784
Link with other indicators	-
Comments / caveat	There appear to be two main channels from which the funding arises. The first is, internally, from the support of scheme members who might, depending on the cases, pay an annual contribution or weekly fees. External funding is the second source for SFSCs, from European funds (Rural Development) or national / regional sources.

Name	ECO_IF_03 Production costs
Related Dimension	ECO
Related Attribute	Impact on farm
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	Participation in a short supply chain could impact on the cost component.
Unit of measurement	Value/ index
Methodology/formula	Self-declaration: Does operating in SFSC affects on production cost? 1 - Significantly higher in SFSC 2 3 4 5 - 5- Significantly lower in SFSC
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_VC_04
Comments / caveat	

Name	ECO_IF_04 Distribution costs
Related Dimension	ECO
Related Attribute	Impact on farm
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	Participation in a short supply chain could impact on the cost component.
Unit of measurement	Value/ index
Methodology/formula	Self-declaration: Does operating in SFSC affects on distribution cost? 1 - Significantly higher in SFSC 2 3 4 5 - 5- Significantly lower in SFSC
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_VC_05
Comments / caveat	

Name	ECO_IF_05 Access to credit
Related Dimension	ECO
Related Attribute	Impact on farm
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	Is a proxy that evaluates the probability of to access a credit system in an easy way.
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Rate of access to credit (for instance, the ease of obtaining a loan) 1 - Extremely negative 2 3 4 5 - Extremely positive
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	-
Comments / caveat	

3.4 ECO –REGIONAL ECONOMIC IMPACT

Name	ECO_REI_01 Number of employees
Related Dimension	ECO
Related Attribute	Regional economic impact
Related BM	CSA; LFT; IM_LOG
Description	The number of employees allows an impression of the size structure of SFSCs
Unit of measurement	Number (EFT)
Methodology/formula	Declaration
Information source	Farm level
Reference	Moya Kneafsey, <i>et al.</i> (2013). Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics https://doi.org/10.2791/88784
Link with other indicators	-
Comments / caveat	Establishing the number of employees is complex, as many schemes use a mixture of full-time and part-time employees, volunteers, family labor and members. We propose a conversion in Full Time Equivalent (220 labor days/year)

Name	ECO_REI_02 Number of producers involved LEAD INDICATOR
Related Dimension	ECO
Related Attribute	Regional economic impact
Related BM	CSA; LFT; IM_LOG
Description	The number of producers involved allows a representation of the size structure of SFSCs on the territory
Unit of measurement	Number
Methodology/formula	declaration
Information source	Farm level
Reference	Moya Kneafsey, <i>et al.</i> (2013). Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics https://doi.org/10.2791/88784
Link with other indicators	-
Comments / caveat	Clearly the number of producers involved in schemes differs widely and appears to be more a factor of the individual schemes than associated with any geographical patterns.

Name	ECO_REI_03 Sells to local customers
Related Dimension	ECO
Related Attribute	Regional economic impact
Related BM	CSA; LFT; IM_LOG
Description	It provides an indication of how the territorial component is relevant in the business model and what the spatial horizon of the farms is in a commercial sense.
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does the organization sell products to local customers? 1 - all outside the local community 2 3 4 5 - all in the local community
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_REI_04
Comments / caveat	

Name	ECO_REI_04 Local supply
Related Dimension	ECO
Related Attribute	Regional economic impact
Related BM	CSA; LFT; IM_LOG
Description	It provides an indication of how the territorial component is relevant in the business model
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does the organization buy from local suppliers? 1 - always from non-local suppliers 2 3 4 5 - always from local suppliers
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_REI_03
Comments / caveat	

3.5 ECO – BARGAINING POWER

Name	ECO_BP_01 Relationship with customers
Related Dimension	ECO
Related Attribute	Bargaining power
Related BM	CSA; F2F; LFT; IM_LOG
Description	Is an indicator of the entrepreneur's ability to get consumer loyalty, to build more stable and durable relationship
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does operating in SFSC allows organization to have more stable and durable economic relationships? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_BP_02; ECO_BP_03
Comments / caveat	

Name	ECO_BP_02 Relationship with suppliers
Related Dimension	ECO
Related Attribute	Bargaining power
Related BM	CSA; F2F; LFT; IM_LOG
Description	Is an indicator of the entrepreneur's ability to build more stable and durable relationship on supply side
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does operating in SFSC allows organization to have more stable and durable economic relationships? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ECO_BP_01; ECO_BP_03
Comments / caveat	

Name	ECO_BP_03 Bargaining power Self-Assessment LEAD INDICATOR
Related Dimension	ECO
Related Attribute	Bargaining power
Related BM	CSA; F2F; LFT; IM_LOG
Description	It represents an estimation based on self-assessment by business managers surveyed evaluating their position in the chain
Unit of measurement	Value / index
Methodology/formula	Self-assessment based on: 1. Position in the channel. 2. Level of trust in relations with other chain participants. 3. Relations with other farmers/producers participating in the same chain. 4. Relations with the customers.
Information source	Farm level
Reference	Agata Malak-Rawlikowska <i>et al.</i> (2019). Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains https://doi.org/10.3390/su11154004
Link with other indicators	ECO_BP_01; ECO_BP_02
Comments / caveat	

4. The Environmental indicators

4.1 ENV – Food Miles

Name	ENV_FM_01 Carbon Footprint related to food miles
Related Dimension	ENV
Related Attribute	Food Miles
Related BM	CSA; LFT
Description	The Carbon Footprint (CFP) expressed as a carbon dioxide equivalent (CO ₂ eq) represents emissions of Greenhouse Gases (GHG) in the process of transportation.
Unit of measurement	Value
Methodology/formula	Carbon Footprint=Fuel consumption(lkg)*CFP coefficient (CO ₂ /kg)
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ENV_FM_03;
Comments / caveat	-

Name	ENV_FM_02 Reduced food miles (production and distribution) LEAD INDICATOR
Related Dimension	ENV
Related Attribute	Food Miles
Related BM	CSA; LFT
Description	It represents the reduced distance a product travels within the production and delivery process characterizing the short supply chain.
Unit of measurement	Km/Kg
Methodology/formula	self-declaration: Total kilometers travelled by main product for production & processing + total kilometers travelled by main product to reach the final consumers (production + distribution phase on delivered product)
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	-
Comments / caveat	This indicator is often proposed in the literature, but judgement on its use is not always unequivocal.

Name	ENV_FM_03 Use of Fuel
Related Dimension	ENV
Related Attribute	Food Miles
Related BM	CSA; LFT
Description	The use of fuel per kilogram of transported goods corresponds with distances travelled but depends also to a large extent on the type of car used, as well as on the quantities transported. It is a key information concerning the vehicle use.
Unit of measurement	L/kg
Methodology/formula	L/kg in relation to Food Miles
Information source	Farm level
Reference	Majewski, E. <i>et al</i> (2020). Are Short Food Supply Chains More Environmentally Sustainable than Long Chains? A Life Cycle Assessment (LCA) of the Eco-Efficiency of Food Chains in Selected EU Countries. <i>Energies</i> 2020, 13, 4853; doi:10.3390/en13184853 www.mdpi.com/journal/energies
Link with other indicators	ENV_FM_01; ENV_FM_02
Comments / caveat	-

4.2 ENV – Energy Consumption

Name	ENV_EC_01 Reduced energy consumption LEAD INDICATOR
Related Dimension	ENV
Related Attribute	Energy Consumption
Related BM	CSA; F2F; LFT; online; IM_LOG
Description	It measures the reduced rate of energy consumption of the organization.
Unit of measurement	Value / index
Methodology/formula	self-declaration: Rate the energy consumption of organization 1- Very Low -2-3-4-5 Very High
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_FM_01; ENV_FM_03
Comments / caveat	This information is very aggregated and therefore probably not very precise.

Name	ENV_EC_02 More energy efficiency measures
Related Dimension	ENV
Related Attribute	Energy Consumption
Related BM	CSA; F2F; LFT; online; IM_LOG
Description	It measures if and how initiatives or investments have been started in the organization to boost energy efficiency measures.
Unit of measurement	Value / index
Methodology/formula	self-declaration: Have initiatives / investments been started in your SFSC for energy efficiency measures? 1- Never -2-3-4-5 Very Often
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_EC_01; ENV_FLW_02; ENV_FM_03
Comments / caveat	-

4.3 ENV - Type of Process/Products/Packaging

Name	ENV_TP_01 % of BIO products
Related Dimension	ENV
Related Attribute	Type of Process/Products/Packaging
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It indicates the percentage of organic production on the total production of the farm.
Unit of measurement	%
Methodology/formula	Self-declaration: Percentage of organic production on the total production
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_TP_03
Comments / caveat	-

Name	ENV_TP_02 Local/traditional products
Related Dimension	ENV
Related Attribute	Type of Process/Products/Packaging
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It indicates whether the production of local/traditional products is preferred and the percentage of this kind of production on total production.
Unit of measurement	Value / index ; %
Methodology/formula	self-declaration: Does organisation privilege the production of local / traditional products (e.g. PDO, PGI, TSG)? 1- Not all- 2 -3- 4-5 Totally Indicate the percentage of production of local/traditional products on total production %
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_TP_03
Comments / caveat	-

Name	ENV_TP_03 Access to agri-environmental schemes support LEAD INDICATOR
Related Dimension	ENV
Related Attribute	Type of Process/Products/Packaging
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	Access to public support interventions in the agri-environmental field (e.g. via RDPs) is a proxy for the use of environmentally friendly techniques and processes.
Unit of measurement	Self-declaration: Did the organization apply to agri-environmental measures in RDPs? Y/N
Methodology/formula	Self-declaration
Information source	Farm level
Reference	From Task 2.3 (Focus Group)
Link with other indicators	ENV_TP_01
Comments / caveat	The proposed indicator does not consider how many schemes the farmer adheres to, because it would be too complex to give a relative value. It is a dummy, as well as a self-declaration, and for these reasons it should not be used with too much confidence except in conjunction with other information.

Name	ENV_TP_04 More eco-friendly packaging used
Related Dimension	ENV
Related Attribute	Type of Process/Products/Packaging
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It explains if the farm adopts eco-friendly packaging and if it works to minimize the packaging of its products.
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does organization adopt eco- friendly packaging? 1- Not at all - 2 -3 -4 -5 Totally Does organization work to minimize the packaging of its products? 1- Not at all - 2 -3 -4 -5 Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_EC_01; ENV_FLW_02
Comments / caveat	-

4.4 ENV – Food Loss and Waste

Name	ENV_FLW_01 Reduced food loss & waste LEAD INDICATOR
Related Dimension	ENV
Related Attribute	Food Loss and Waste
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It measures how the farm is engaged in reducing food loss and waste
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does your organization work to reduce food waste? 1- Not at all -2-3-4-5- Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_TP_04; ENV_FLW_02;
Comments / caveat	-

Name	ENV_FLW_02 More circular economy initiatives
Related Dimension	ENV
Related Attribute	Food Loss and Waste
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It measures if and how circular economy initiatives have been started in the organization to boost a circular economy model of production and consumption.
Unit of measurement	Y/N
Methodology/formula	Self-declaration: Have circular economy initiatives been launched? Y/N + description
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	ENV_FLW_01;
Comments / caveat	It is a dummy, as well as a self-declaration, and for these reasons it should not be used with too much confidence except in conjunction with other information.

5. The Social indicators

5.1 SOC - Labour/Employment

Name	SOC_LE_01 Labour to production ratio
Related Dimension	SOC
Related Attribute	Labour/Employment
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It reflects the number of hours worked used in the processes including preparing products for transportation, loading, transporting, and selling by producer (farmer).
Unit of measurement	H/Kg
Methodology/formula	[(hours for preparing for sale per one delivery + hours for transport and selling) * Num. Deliveries] / volume of sales in the channel (kg)
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	ECO_IF_03; ECO_IF_04
Comments / caveat	-

Name	SOC_LE_02 Presence of corporate welfare
Related Dimension	SOC
Related Attribute	Labour/Employment
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	This represents services that the company offers to its workers, for example: supplementary health insurance, supplementary pension, flexible benefits such as coverage of expenses for health care and childcare services, etc.
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Does your organization invest in welfare services for its workers? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	-
Comments / caveat	This information is very aggregated and therefore probably not very accurate.

Name	SOC_LE_03 Higher resilience of employment LEAD INDICATOR
Related Dimension	SOC
Related Attribute	Labour/Employment
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It represents the ability to maintain employment levels over the years.
Unit of measurement	Value / index
Methodology/formula	Self-declaration: Estimate occupational resilience (the ability to maintain employment levels over the years) Minimum 1- Maximum 5
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_HC_04
Comments / caveat	-

Name	SOC_LE_04 Inclusion of disadvantaged people
Related Dimension	SOC
Related Attribute	Labour/Employment
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It's a measure of the degree of inclusion within the company and is calculated by considering the sum of groups of disadvantaged workers, such as disabled people, migrants, NEETs, prisoners/ex-convicts, drug addicts/ex-convicts, out of the total number of staff employed.
Unit of measurement	%
Methodology/formula	Self-declaration: % of disadvantaged workers out of the total number of workers, consistent with REGULATION (EU) N. 651/2014
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	-
Comments / caveat	

5.2 SOC - Human capital

Name	SOC_HC_01 Generational change
Related Dimension	SOC
Related Attribute	Human capital
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It represents the incidence of young over experienced workforce.
Unit of measurement	Value
Methodology/formula	Young Age index; Percentage ratio between the number of employees in the 15-35 bracket and number of employees in the 45-65 bracket $GC = EMP (15-35) / EMP (45-65)$
Information source	Farm level
Reference	Strength2Food project - V. Bellassen, <i>et al.</i> Methods and Indicators for Measuring the Social, Environmental and Economic Impacts of Food Quality Schemes, Short Food Supply Chains and Varying Public Sector Food Procurement Policies on Agri-Food Chain Participants and Rural Territories. https://www.strength2food.eu/wp-content/uploads/2018/04/D3_2_Methodological-Handbook.pdf
Link with other indicators	SOC_HC_04
Comments / caveat	-

Name	SOC_HC_02 Educational attainment LEAD INDICATOR
Related Dimension	SOC
Related Attribute	Human capital
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It is constituted by the educational level of people who work in the supply chain.
Unit of measurement	Judgement
Methodology/formula	Labour force self-declaration from the Rural development Regulations <input type="checkbox"/> Practical experience only <input type="checkbox"/> Basic training <input type="checkbox"/> Full agricultural training
Information source	Farm level
Reference	Strength2Food project - V. Bellassen, <i>et al.</i> Methods and Indicators for Measuring the Social, Environmental and Economic Impacts of Food Quality Schemes, Short Food Supply Chains and Varying Public Sector Food Procurement Policies on Agri-Food Chain Participants and Rural Territories. https://www.strength2food.eu/wp-content/uploads/2018/04/D3_2_Methodological-Handbook.pdf

Link with other indicators	-
Comments / caveat	We propose a simplified classification compared to that proposed by the bibliographical reference.

Name	SOC_HC_03 Gender equality
Related Dimension	SOC
Related Attribute	Human capital
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	Represents the share of hours worked by women.
Unit of measurement	%
Methodology/formula	(hours worked by women) / (total labour (h)) *100
Information source	Farm level
Reference	Malak-Rawlikowska, <i>et al.</i> (2019), Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains. Sustainability 2019, 11, 4004. https://doi.org/10.3390/su11154004
Link with other indicators	SOC_HC_04
Comments / caveat	We propose a broader reading than that proposed by the bibliographic reference, which refers only to the process of distribution.

Name	SOC_HC_04 No unequal treatment for same roles
Related Dimension	SOC
Related Attribute	Human capital
Related BM	CSA; F2F; LFT; on line; IM_LOG
Description	It is a proxy for equity of treatment for the same roles with regard to gender.
Unit of measurement	Value
Methodology/formula	Self-declaration: Is there a difference in pay between men and women with the same roles? Y/N + explanation
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_LE_03; SOC_HC_03
Comments / caveat	It is a dummy, as well as a self-declaration, and for these reasons it should not be used with too much confidence except in conjunction with other information.

5.3 SOC - Social capital

Name	SOC_SC_01 Influence by SFSC
Related Dimension	SOC
Related Attribute	Social capital
Related BM	CSA; F2F; LFT; IM_LOG
Description	It expresses the ability of the supply chain to positively influence operators.
Unit of measurement	Value/ index
Methodology/formula	Self-declaration: Does your SFSC positively influence other local actors in their way of operating? 1- Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_SC_02; SOC_SC_04; SOC_G_02
Comments / caveat	-

Name	SOC_SC_02 New local networks
Related Dimension	SOC
Related Attribute	Social capital
Related BM	CSA; F2F; LFT; IM_LOG
Description	It expresses the capacity of the supply chain to create new connections in the territory.
Unit of measurement	Y/N
Methodology/formula	self-declaration: Has the SFSC enabled the creation of local networks (formal or informal)? Y/N
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_SC_01; SOC_SC_04; SOC_SC_05
Comments / caveat	It is a dummy, as well as a self-declaration, and for these reasons it should not be used with too much confidence except in conjunction with other information.

Name	SOC_SC_03 Customers & producers' participation
Related Dimension	SOC
Related Attribute	Social capital
Related BM	CSA; F2F; LFT; IM_LOG
Description	It analyses the involvement of producers and consumers in consumption and production activities.
Unit of measurement	Value/index
Methodology/formula	Self-declaration: Do the following actors participate in the production & processing of your products? Customers 1 - Not at all 2 3 4 5 - Totally Local Producers 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_SC_04
Comments / caveat	-

Name	SOC_SC_04 Stakeholders' involvement LEAD INDICATOR
Related Dimension	SOC
Related Attribute	Social capital
Related BM	CSA; F2F; LFT; IM_LOG
Description	It analyses the involvement of stakeholders in SFSC activities.
Unit of measurement	Value/index
Methodology/formula	Self-declaration: It is a complex indicator based on the sum of the following 3 questions. A. Do you organize activities/meetings/workshops/events to involve and activate the local community? 1 - Never 2 3 4 5 - Always B. Do you organize these activities/meetings/workshops/events together with SFSC actors? 1 - Never 2 3 4 5 - Always C. Rate the participation in these activities/meetings/workshops/events. 1 - Very low 2 3 4 5 - Very high
Information source	Farm level
Reference	Antonelli, A.; Petruzzela, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_SC_01; SOC_SC_02; SOC_SC_03
Comments / caveat	

5.4 SOC - Food and Nutrition

Name	SOC_FN_01 Increased access to food via SFSC
Related Dimension	SOC
Related Attribute	Food and Nutrition
Related BM	F2F; IM_LOG
Description	It measures the degree of commitment of the company to promote and disseminate the added value of short chains.
Unit of measurement	Value/index
Methodology/formula	Self-declaration: Does your organization promote knowledge and diffusion of the short food supply chain? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_SC_02
Comments / caveat	-

Name	SOC_FN_02 Standards for food safety
Related Dimension	SOC
Related Attribute	Food and Nutrition
Related BM	F2F; IM_LOG
Description	In SFSC the customer's attitude towards food labeling as a standard of food control and safety is more developed
Unit of measurement	Value/index
Methodology/formula	Self-declaration: Are the organization following formal standards for food safety and control? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Todorovic V. et al. (2018). Solutions for More Sustainable Distribution in the Short Food Supply Chains. https://www.mdpi.com/2071-1050/10/10/3481 Kneafsey, M.; et al. (2013), Short Food Supply Chains and Local Food Systems in the EU: A State of Play of Their Socio-Economic Characteristics; JRC https://publications.jrc.ec.europa.eu/repository/bitstream/JRC80420/final%20ipts%20jrc%2080420%20(online).pdf
Link with other indicators	-
Comments / caveat	-

Name	SOC_FN_03 Increased customers awareness LEAD INDICATOR
Related Dimension	SOC
Related Attribute	Food and Nutrition
Related BM	F2F; IM_LOG
Description	It expresses the degree of customers' awareness of what they eat and how the products they buy are produced and distributed.
Unit of measurement	Value
Methodology/formula	Self-declaration: Do you think your customers are aware of what they eat and how the products they buy are produced and distributed? 1 - Not at all 2 3 4 5 - Totally
Information source	Farm level
Reference	Antonelli, A.; Petruzzella, D. (2020). SMARTCHAIN Deliverable D3.4: Social Innovation Assessment Template Work Package No.3. https://www.smartchain-platform.eu/sites/default/files/publication-files/Smartchain_D3.4_FINAL110521.pdf
Link with other indicators	SOC_FN_01; SOC_SC_03
Comments / caveat	-

5.5 SOC – Governance

Name	SOC_G_01 Coopetion index LEAD INDICATOR															
Related Dimension	SOC															
Related Attribute	Governance															
Related BM	CSA; LFT; on line; IM_LOG															
Description	It expresses balance between cooperation-oriented behaviour (importance of agricultural cooperatives, existence of professional unions, etc.) and competition-oriented behaviour (number of enterprises; market share of main enterprises).															
Unit of measurement	Value/index															
Methodology/formula	As coopetition index consists in the co-occurrence of antagonistic behaviours authors have adapted a matrix representation.t <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td rowspan="2" style="background-color: #cccccc; padding: 5px;">Cooperative orientation</td> <td style="padding: 5px;">High</td> <td style="padding: 5px;">Collaborative behaviour</td> <td style="padding: 5px;">Syncretic/coopetitive behaviour</td> </tr> <tr> <td style="padding: 5px;">Low</td> <td style="padding: 5px;">Monopolistic behaviour</td> <td style="padding: 5px;">Competitive behaviour</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">Low</td> <td style="padding: 5px;">High</td> </tr> <tr> <td colspan="4" style="text-align: center; background-color: #cccccc; padding: 5px;">Competitive orientation</td> </tr> </table>	Cooperative orientation	High	Collaborative behaviour	Syncretic/coopetitive behaviour	Low	Monopolistic behaviour	Competitive behaviour			Low	High	Competitive orientation			
Cooperative orientation	High		Collaborative behaviour	Syncretic/coopetitive behaviour												
	Low	Monopolistic behaviour	Competitive behaviour													
		Low	High													
Competitive orientation																

	We propose a reclassification of cells, compiled via self-declaration, on a numerical basis. Collaborative behaviour: 4; Syncretic behaviour: 3; Monopolistic behaviour: 2; Competitive behaviour: 1
Information source	Farm level
Reference	Strength2Food project - V. Bellassen, <i>et al.</i> Methods and Indicators for Measuring the Social, Environmental and Economic Impacts of Food Quality Schemes, Short Food Supply Chains and Varying Public Sector Food Procurement Policies on Agri-Food Chain Participants and Rural Territories. https://www.strength2food.eu/wp-content/uploads/2018/04/D3_2_Methodological-Handbook.pdf
Link with other indicators	ECO_VC_05; SOC_G_02
Comments / caveat	We propose a numerical classification coming from that proposed by the bibliographical reference

Name	SOC_G_02 SFSC actors' proactive involvement																																				
Related Dimension	SOC																																				
Related Attribute	Governance																																				
Related BM	CSA; LFT; on line; IM_LOG																																				
Description	It expresses the degree of involvement of the various categories of stakeholders in the supply chain.																																				
Unit of measurement	Value/index																																				
Methodology/formula	<p>Self-declaration: It is a complex indicator based on the sum of the scores given in the following items, by rating the involvement of SFSC actors in decision-making processes</p> <table border="1"> <thead> <tr> <th></th> <th>1 - Minimum involvement</th> <th>2</th> <th>3</th> <th>4</th> <th>5 - Maximum involvement</th> </tr> </thead> <tbody> <tr> <td>Suppliers</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Customers - People</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Customers - Companies</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Other producers</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Distribution (companies)</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>		1 - Minimum involvement	2	3	4	5 - Maximum involvement	Suppliers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Customers - People	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Customers - Companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Other producers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Distribution (companies)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 - Minimum involvement	2	3	4	5 - Maximum involvement																																
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Link with other indicators	SOC_G_01
Comments / caveat	We propose a numerical classification coming from that proposed by the bibliographical reference.

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