From sustainability dimensions to measurable indicators

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Research Focus 1: on assessing the sustainability of all GIs

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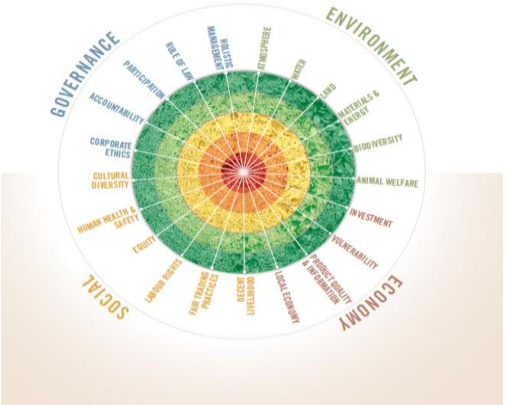
What kind of sustainability do PDO and PGI products have?

Environmental dimension of sustainability

Economic dimension of sustainability

A dynamic holistic approach



Social dimension of sustainability

Governance dimension of sustainability

GIs and Sustainability

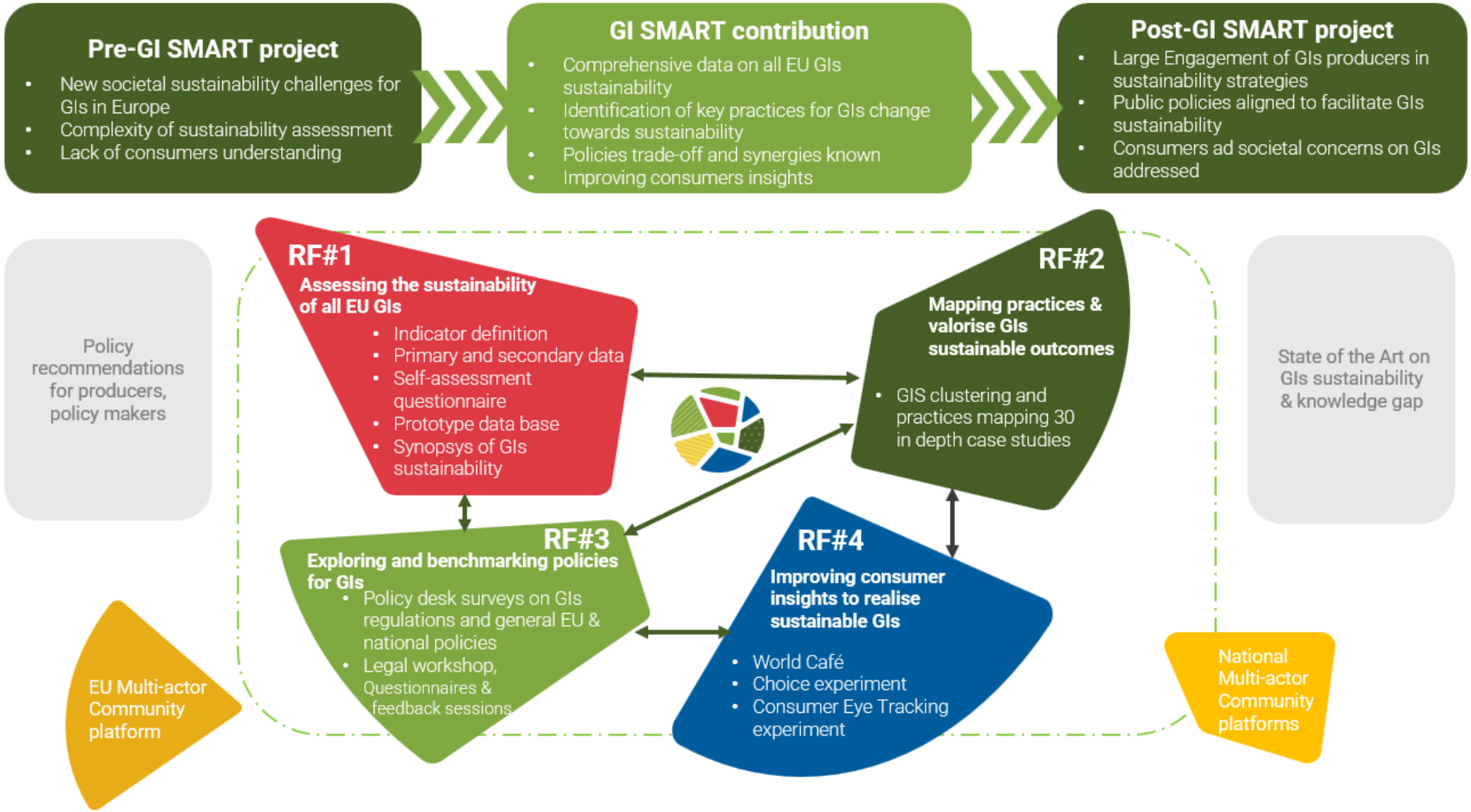
Are PDO-PGI products sustainable simply because they are PDO-PGI products?

- What does ‘sustainability’ mean for PDO-PGI products?
- Merely a reduction in the use of resources (water, energy, agrochemicals), plastic and other packaging, and waste?
- Merely the generation of income and added value in local areas?
- … or is there more to it?

Where do the roots of PDO and PGI product sustainability lie?

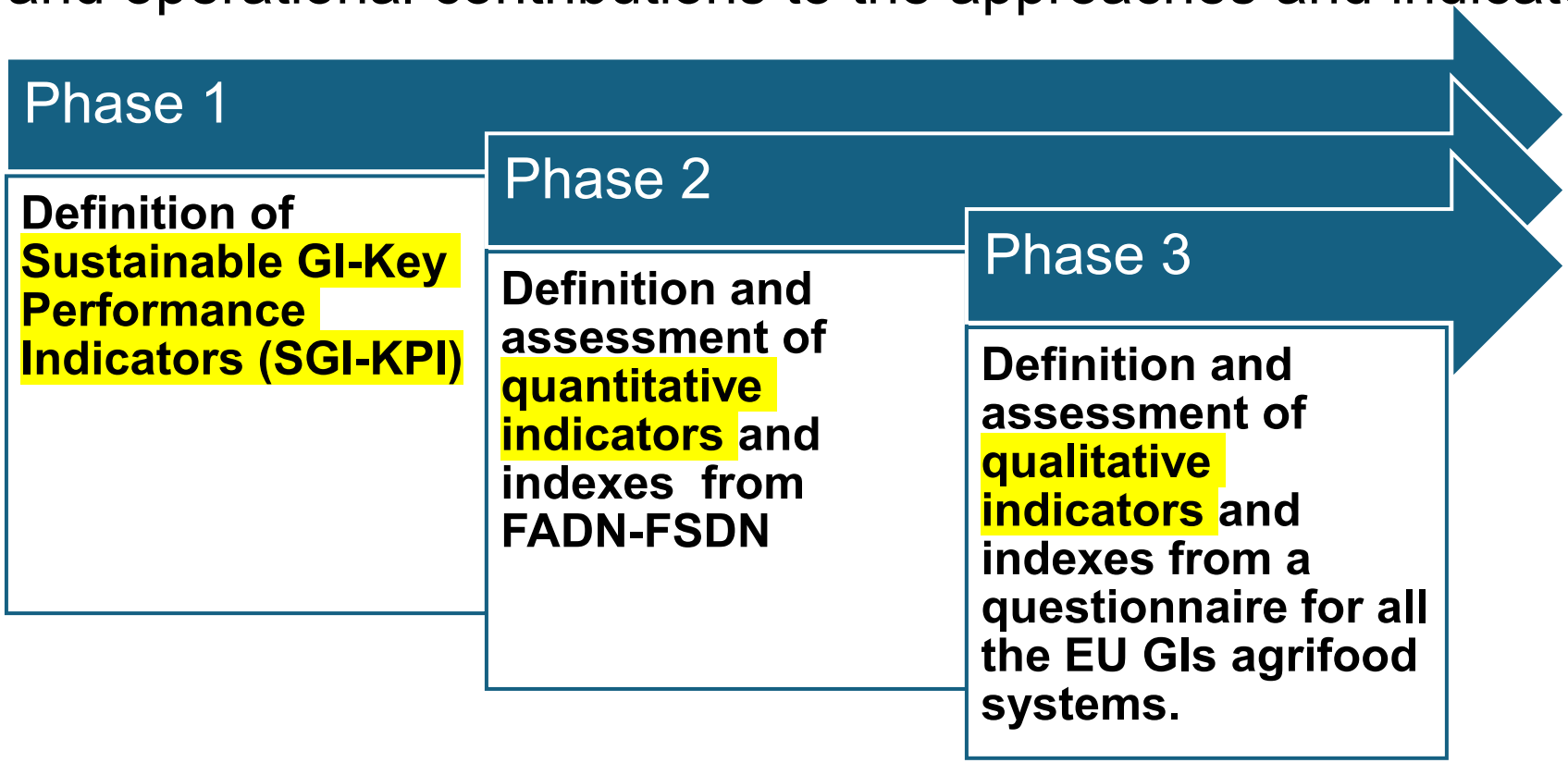
Is an individual or business-led approach sufficient, or do we need to go further?

GISMART H-Europe project



Objective

Define a generalised and **reproducible** methodology for assessing the sustainability of European GI products, taking into account the available scientific and operational contributions to the approaches and indicators used and usable.



The GI database

Data sources for GI assessment

What data sources are available to assess them?

Main data sources	Product category challenges	Territorial scale challenges
• FSDN/FADN (at EU and National levels) • Agricultural Censuses • EUROSTAT • Other official statistical databases	• Accountability at the value chain level • Confidentiality of information • The issue of the **incidence** of GI production at the NUTS3 level	• Need for additional data sources, as some data are not available at the desired territorial scale • Integration of different data sources. • The lack of information at the NUTS3 level limits the choice of indicators.

GI-KPIs definition

What KPIs can be used to assess sustainability?



KPI Quantitative

Measurable indicators through consolidated secondary data.

KPI Qualitative

A structured questionnaire on **perceptions** of the economic, social, environmental, governance, and cultural heritage sustainability dimensions.



Quantitative KPIs



- For farm-level KPIs, FSDN/FADN provides a common framework across EU Member States.

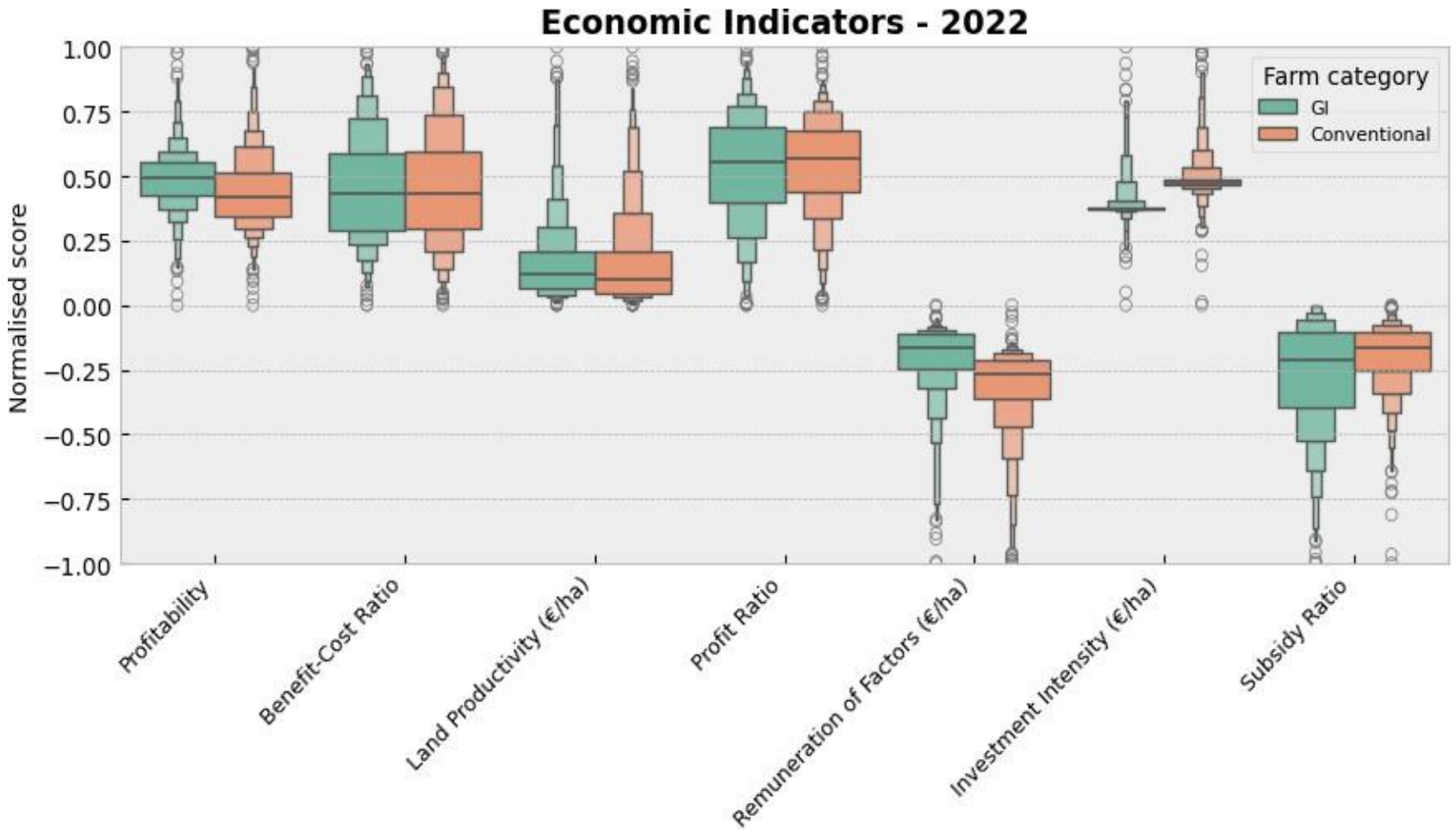
- KPIs can show either positive or negative effects.
  e.g., subsidy ratio; fertiliser intensity measures negative effects
  e.g., presence of other activities; Shannon-Wiener measure positive effects

Main limitation

- Lack of dedicated GI databases on structural characteristics and sustainability outcomes at the value chain level
- Data related to GI systems at the local dimension must be extrapolated to broader contexts using proxy
- FSDN do not allow the distinction between PDO and PGI
- FSDN implies problems of representativeness and confidentiality

- The lack of information at the NUTS3 level limits the choice of indicators.
- It is possible to use indicators at the NUTS2 level by reporting using **national statistics** and **the incidence of the GI variable at** the NUTS3 level

Quantitative KPIs





Composite Indexes (KPIs are grouped together in one index) [Gharaei et al. 2025]

SGI-KPI – FSDN/FADN based indicators



Economic Sustainability:

7 KPIs

15 Variables



Social Sustainability:

8 KPIs

12 Variables



Environmental Sustainability

9 KPIs

27 Variables

SGI-KPI – FSDN/FADN based indicators

SGI-KPI	Dimension	Description	Related frameworks	FSDN - Variables
Profitability	Economic	Net income by total revenue	SAFA, FAO-SDG	SE131,420
Benefit-Cost		Revenue to cost ratio	SAFA	SE131,270
Land productivity		Gross output per hectare	SAFA, FAO-SDG, CAP	SE025,131
Profit ratio		Gross profit by net sale	CAP	SE131,275
Remuneration of factors		Value added to agricultural production	SAFA, CAP	SE025,415
Investment Intensity		Gross farm investment per hectare	SAFA	SE025,516
Subsidy ratio		Total subsidies by gross income	FLINT-EU	SE410,605
Employment	Social	Total farm labour input per hectare	SAFA, CAP, FLINT-EU	SE010,025
Risk management		Diversification on activities	FAO-SDG, FLINT-EU	SE022
Rural development		Rural development payment per hectare	SAFA	SE025,624
Insurance ratio		Insurance per hectare	FLINT-EU	SE025, insurance
Age profile		Youngest level of farmer	CAP	Age
Education		Education level of farmer	CAP, FLINT-EU	Education
Family labour		Unpaid farm labour by total labour	SAFA	SE010,015
Gender equality		% of Female farm owners	SAFA, CAP	Gender
Water intensity	Environmental	Value added per water unit usage	SAFA	SE131, water usage
Permanent Woodland		Permanent woodland in hectare	SAFA, CAP, FLINT-EU	SE075
Eco-efficiency		Environmental output to input	SAFA	SE025,345, water usage, land price
Shannon Weaver		Crop acreage to total acreage	SAFA, FAO-SDG, CAP	SE035,041,042,046,050,054,055,060,065,071
Energy intensity		Energy consumption per hectare	SAFA, CAP, FLINT-EU	SE025,345
Fertilizer intensity		Fertilizer consumption per hectare	SAFA, FAO-SDG	SE025,295
Pesticide intensity		Crop protection per hectare	SAFA, FAO-SDG, CAP, FLINT-EU	SE025,300
Livestock density		Number of livestock per hectare	SAFA, CAP, FAO-SDG, FLINT-EU	SE080, SE025
GHG emission		IPCC methodology	SAFA, CAP, FLINT-EU	SE025,085,090,095,100,105,fertilizer, energy

Qualitative – KPIs

Economic
13 KPIs – 7 FADN-linked

- Profitability (farm)
- Profitability (firm)
- Productivity
- Value added (farm)
- Value added (firm)
- Remuneration of workers
- Investment intensity
- Subsidy support – CAP payment
- Willingness to pay
- Financial risk
- Export share
- Diversification of activities
- General economic sustainability

Socio-cultural
16 KPIs · 8 FADN-linked

- Employment
- Diversification of territorial activities
- Rural development
- Generational renewal
- Education and training
- Family labour
- SME support
- Economic uncertainty
- Gender equality
- General social sustainability
- Traditional know-how – cultural heritage
- Support for tourism initiatives
- Landscape relevance
- Traditional know-how – local cuisine
- Dietary relevance
- Influence of landscape

Environmental
10 KPIs · 6 FADN-linked

- Permanent woodland
- Natural resources use efficiency
- Biodiversity
- Energy intensity
- Fertilization intensity
- Pesticides intensity
- Animal welfare
- GHG emissions and air quality
- Waste and by-products
- General environmental sustainability

Governance
11 KPIs · 0 FADN-linked

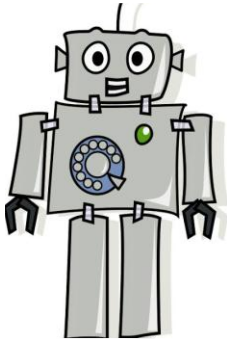
- Cooperation among producers
- Governance efficiency
- Sustainability statement
- Agreement with local administrators
- Management of conflicts
- Bargaining power
- Updating rules democratically
- Communication and valorisation
- Social dialogue
- GI sustainability reputation
- General governance sustainability

- FADN-linked KPI (also computable from farm accounting data).

Output from GI SMART

Quantitative Self-Assesment tool (Commission)

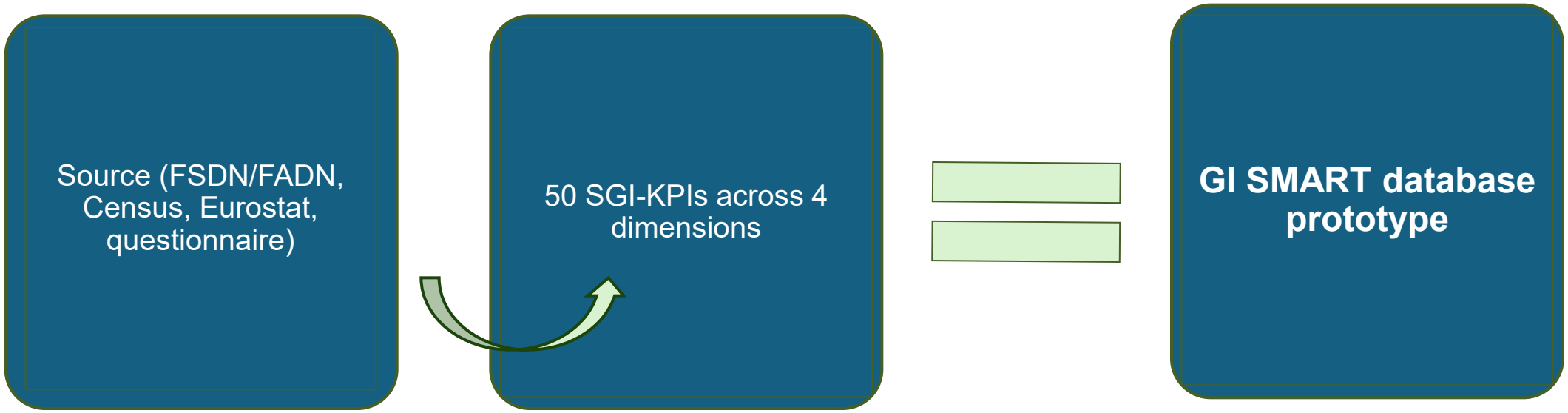
Qualitative Self-Assesment tool (AREPO/National Governments/ GI-Groups)



GI SMART database prototype

From KPIs to the GI SMART Database

Depending on data availability and update frequency, the GI SMART Database could support public authorities and not only.



In order to provide analysis ex-ante and ex-post

End of the presentation

Thank you for your attention

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