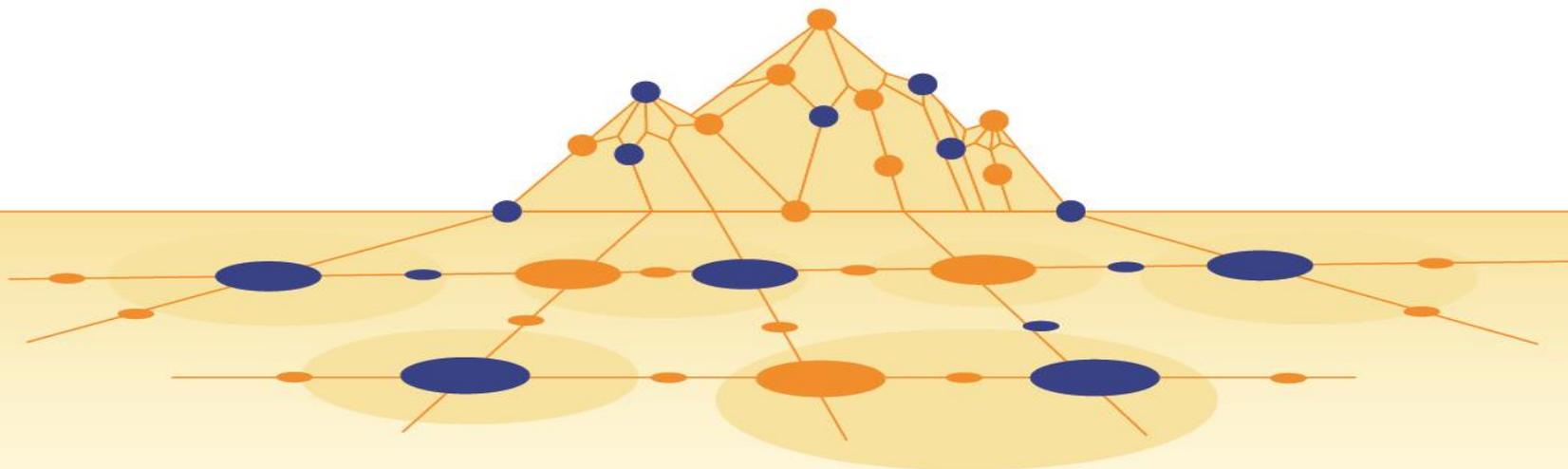# S3-4AlpClusters

Smart Specialisation with Smart Clusters
Preparation of a Base of Evidence – Qualitative and Quantitative Analysis

Training Tool
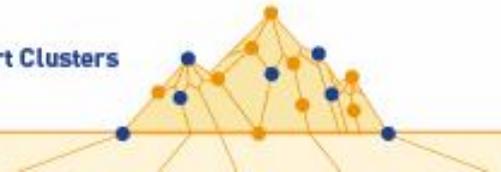
Smart Specialisation with Smart Clusters

In the implementation of S3 three challenges have been identified:

- Lack of real Transformative Activities to support innovation and structural transformation
- Lack of cross-regional collaborations to gain critical mass
- Need to better integrate and collaborate with clusters in S3

Smart Specialisation with Smart Clusters proposes a **systematic process** that follows **5 Action Lines** to address these challenges:
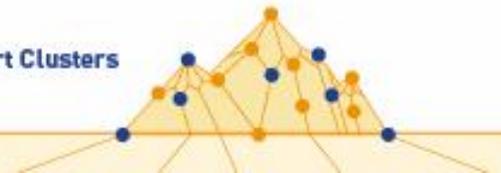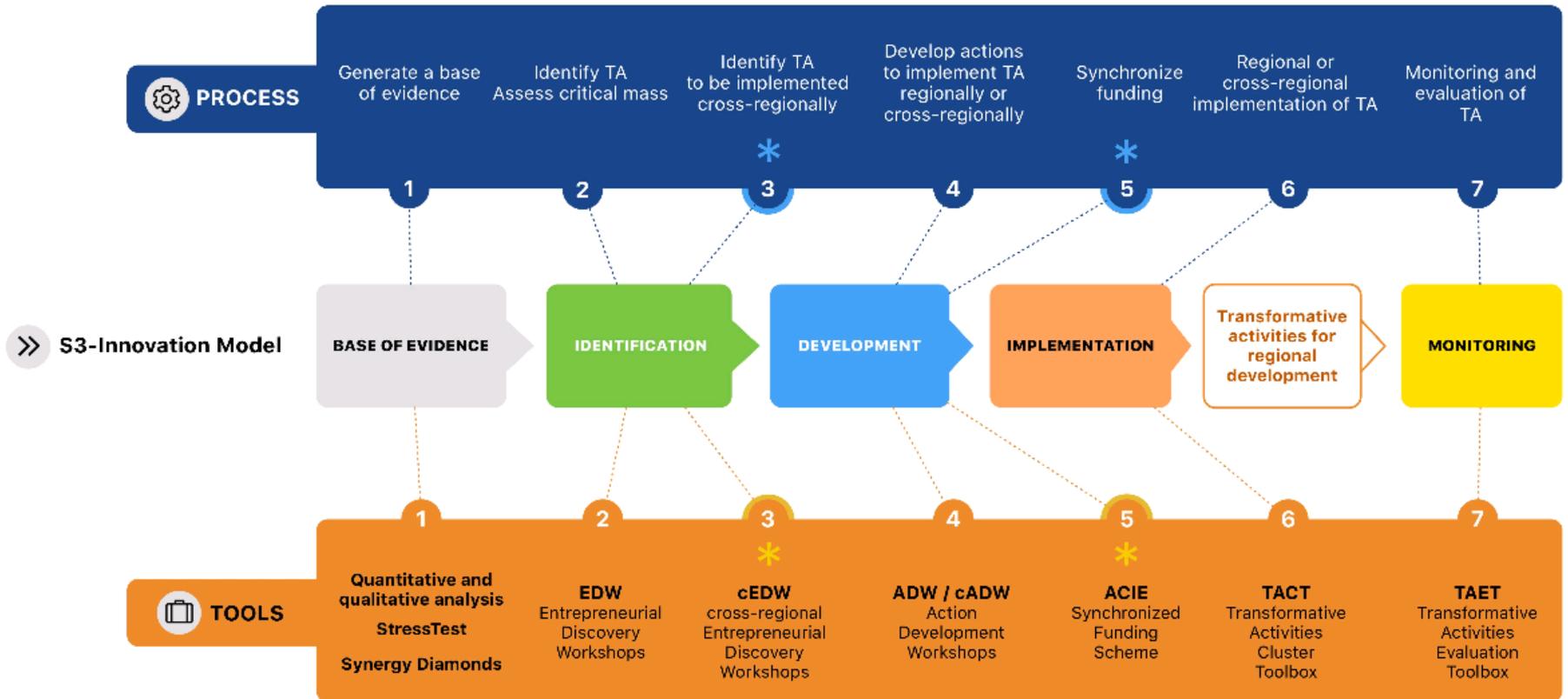
1. Provide a **Base of Evidence**
2. **Identification** of Transformative Activities
3. **Development** of actions
4. **Implementation** of Transformative Activities
5. **Monitoring**

To support the implementation of the individual process steps, **specific instruments and services** are developed. The **Training Tool Kit** provides guidance on how to implement the process and the instruments in a region.

Smart specialisation with smart clusters
A new approach to generate Transformative Activities (TA)

PROCESS

1	2	3	4	5	6	7
Generate a base of evidence	Identify TA Assess critical mass	Identify TA to be implemented cross-regionally	Develop actions to implement TA regionally or cross-regionally	Synchronize funding	Regional or cross-regional implementation of TA	Monitoring and evaluation of TA

S3-Innovation Model

BASE OF EVIDENCE → IDENTIFICATION → DEVELOPMENT → IMPLEMENTATION → Transformative activities for regional development → MONITORING

TOOLS

1	2	3	4	5	6	7
Quantitative and qualitative analysis; StressTest; Synergy Diamonds	EDW Entrepreneurial Discovery Workshops	cEDW cross-regional Entrepreneurial Discovery Workshops	ADW / cADW Action Development Workshops	ACIE Synchronized Funding Scheme	TACT Transformative Activities Cluster Toolbox	TAET Transformative Activities Evaluation Toolbox

Interreg
Alpine Space
S3-4AlpClusters

Smart Specialisation with Smart Clusters

Training Tool Kit –
Smart Specialisation with Smart Clusters

1. Base of Evidence

| Qualitative & Quantitative Analysis | Stress Test | Synergy Diamond |

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2. Identification

Entrepreneurial Discovery Workshop
regional / cross-regional
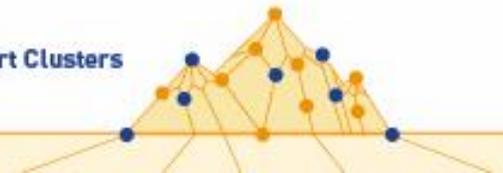
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3. Development

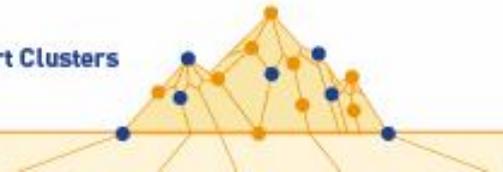| Action Development Workshop | Synchronized Scheme |

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4. Implementation

TA Cluster Toolbox

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5. Monitoring

TA Evaluation Toolbox

Background
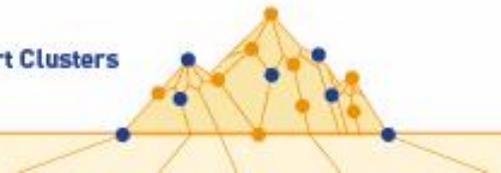
Qualitative and Quantitative Analysis

Smart Specialisation Strategies (S3) to meet structural challenges

Regional economic development focuses increasingly on the **identification of industrial transformation processes** that lead to the emergence of new value chains and related industries to support innovation and regional competitive advantages.

Smart Specialisation Strategies (S3) are a policy approach to address the desired transformation of economic structures by **considering opportunities and combining existing regional capacities** into unique innovative activities (Transformative Activities).

The implementation process of S3 highly depends on the **regional context** and requires priority setting and targeted actions. That also involves respective allocation of public funding.

Promising Transformative Activities need to be identified in an **entrepreneurial discovery process based on a solid base of evidence.** This includes a good knowledge about the status quo of the regional economic structures, performance and dynamics.

Objective

Qualitative and Quantitative Analysis
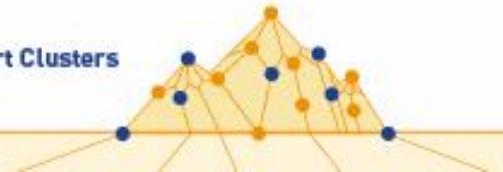
What is the status quo of the region?

The analysis of the **status quo of your region** facilitates a panoramic overview on productivity, competitiveness, innovation and critical mass in the region.

A **Base of Evidence** about the regional
economic structures, performance and dynamics

- is an essential **prerequisite** to **identify Transformative Activities**
  - draws on **quantitative data** as well as **qualitative analysis**
- includes (interregional / international) **benchmarking** that supports the identification of competitive advantages compared to other regions.

Having a **base of evidence about the region and its position in comparison to other regions** is a crucial starting point for the innovation model:

- It supports the **establishment of a common view** of the region for all stakeholders involved in the process.

- It supports to identify of **existing strengths** (capacities and resources) and to **determine a focus for the process**.
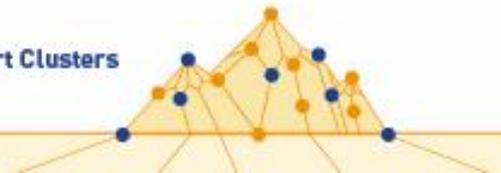
Components

Qualitative and Quantitative Analysis
a) Quantitative analysis based on statistical data
b) Qualitative contextual information
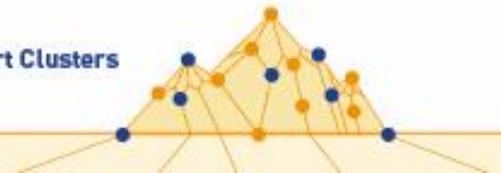c) Checklist with guiding questions
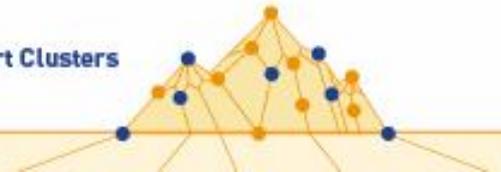
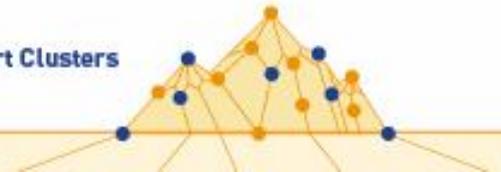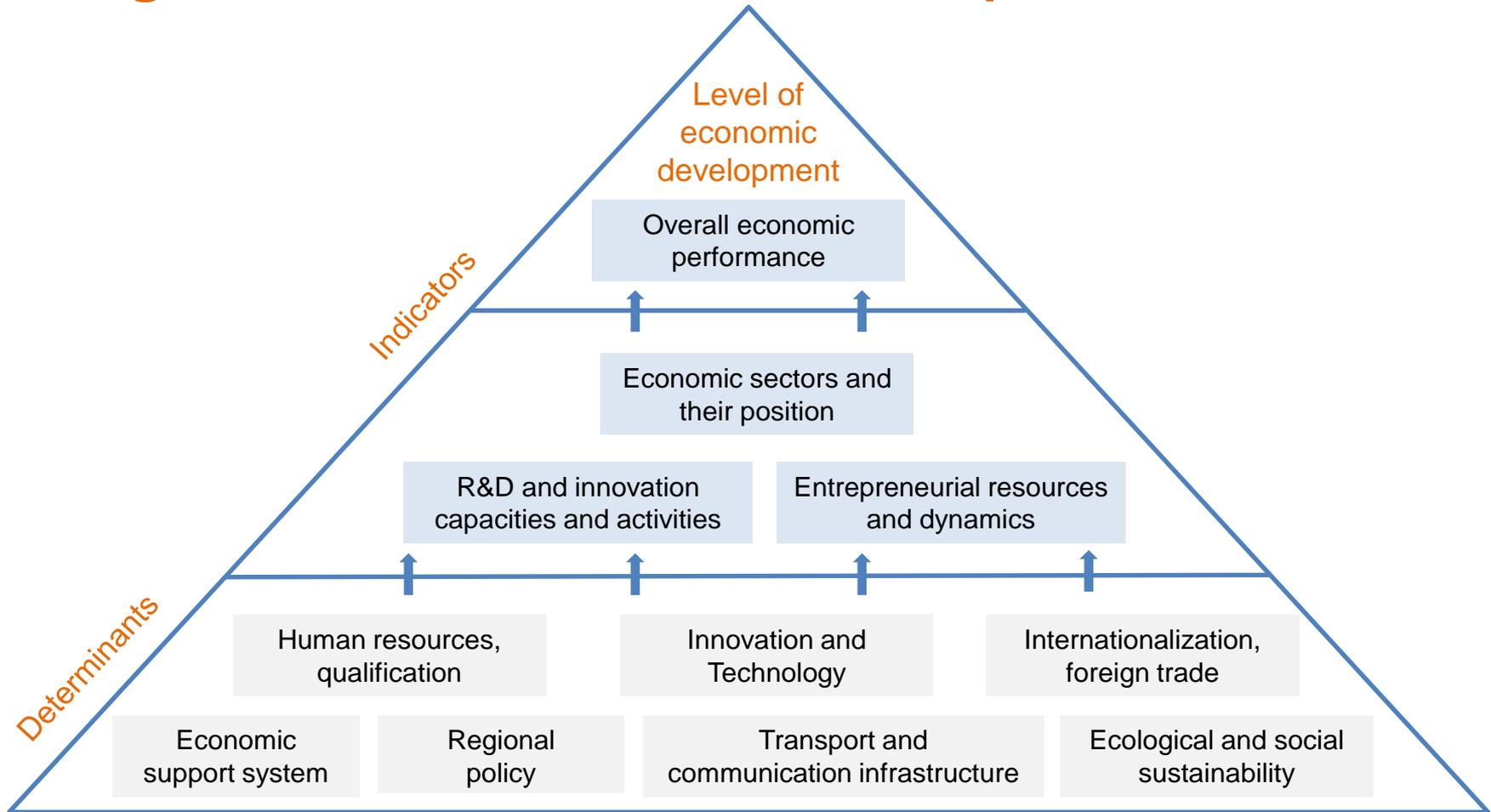# Conceptualizing and measuring regional economic development

Creating a profound base of evidence about the status quo of a region requires to consider the **conceptional basis** of regional economic development in order to identify relevant determinants, respective meaningful indicators and information needed.

The following slide introduces a conceptual model that distinguishes **different dimensions of regional economic development** to facilitate its **operationalisation** and **measurement**.

- **Indicators: Quantitative data** provides structured information about the regional economic performance and can be considered as **„result indicators"** (outcome) of the activities and efforts to achieve competitive advantage.

- **Determinants:** For a comprehensive overview of the regional economic system also the **framework conditions and specific location factors** have to be taken into account. Therefore, the quantitative assessment should be complemented by a **qualitative context analysis**.

Conceptualizing and measuring regional economic development

Level of economic development

Indicators

Overall economic performance

Economic sectors and their position

R&D and innovation capacities and activities

Entrepreneurial resources and dynamics

Determinants

Human resources, qualification

Innovation and Technology

Internationalization, foreign trade

Economic support system

Regional policy

Transport and communication infrastructure

Ecological and social sustainability

Interreg
Alpine Space
S3-4AlpClusters

Smart Specialisation with Smart Clusters

# A) Quantitative analysis based on statistical data

Statistical data is a useful source to provide formal and structured quantitative evidence for the assessment of the current regional economic structures and performance and their development over time.

The **quantitative analysis** contributes to a base of evidence for various relevant aspects, e.g.:

- overall economic performance
- economic sectors and their position
- entrepreneurial resources and dynamics
- R&D and innovation capacities and activities

An analysis of the economic performance and structures of a region by statistical data is best provided in form of **benchmarking** that allows an assessment of the region's position in comparison **to other regions**.

Additionally, the development of the parameters **over time** (longitudinal analysis) allows for a better understanding of the long term dynamics of the region.
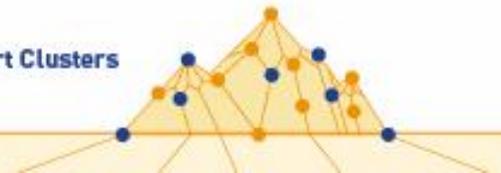
Potential parameters for the quantitative analysis

| Aspect	Rationale	Potential parameters (examples)
Overall economic performance	Analysis of the overall performance of the regional economic ecosystem	• Gross regional product (nominal, per capita, share on GDP, growth rates) • Corporate investments / foreign direct investments • Export data
Economic sectors and their position → specialisations	Identification of sectors/ industries with strong relative positions (specialisations)	Absolute and relative data **on sector level**: • Gross value added • Corporate investments / foreign direct investments • Export data **Sectoral location quotients** (for e.g. employment, patents, gross value added, export) → see next slide
Entrepreneurial resources and dynamics	Analysis of the entrepreneurial characteristics and business dynamics in the region	• Enterprise demography • Fast-growing companies • Job market data (employment per sector/industry) • Start up data (birth rates, survival rate,…)
R&D and innovation capacities and activities	Identification of scientific and technological specialisation	• R&D Quota, R&D Expenditures, R&D personnel (on sector level/scientific discipline) • Innovation data (e.g. Community Innovation Survey) • Number of Patents, scientific publications/citations • R&D-projects (national/international funded)
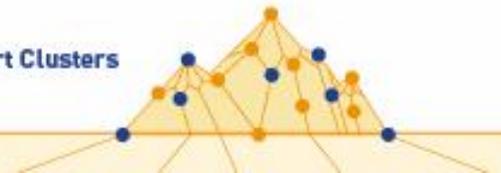
Sectoral location quotient (I)

The calculation of **sectoral location quotients (SLQ)** provides quantitative evidence about regional concentrations (specialisations) and unique characteristics of the region by comparing the sectoral share of a relevant parameter on regional level with the sectoral share of the same parameter on national level.

- ◉ An SLQ can be calculated for **any sector** where comparable data on regional and national level exist.

- ◉ Relevant sectoral parameters to be analysed in the context of regional economic development are e.g. employment, number of patents, export data.

Formula to calculate the location quotient:

$$SLQ = \frac{\left(\dfrac{regional\ sectoral\ parameter}{regional\ total\ parameter}\right)}{\left(\dfrac{national\ sectoral\ parameter}{national\ total\ parameter}\right)}$$

Value	Implication
SLQ > 1	Specific sector has a proportionally higher concentration in the region than on national level
SLQ < 1	Specific sector has a proportionally lower concentration in the region than on national level
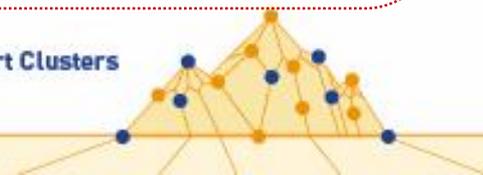
Sectoral location quotient (II) - example

The SLQ compares the sectoral share of a relevant parameter on regional level with the sectoral share of the same parameter on national level.

Example for the parameter "employment"
in industry sector "manufacture of basic metals" (M. metal) in a region:

$$SLQ_{M.metal} = \frac{\left(\dfrac{regional\ employment\ in\ manufacture\ of\ basic\ metals}{regional\ total\ employment}\right)}{\left(\dfrac{national\ employment\ in\ manufacture\ of\ basic\ metals}{national\ total\ employment}\right)}$$

$$SLQ_{M.metal} = \frac{\left(\dfrac{10.680}{496.719}\right)}{\left(\dfrac{72.534}{3.573.088}\right)} = \mathbf{1,96}$$

Regional concentration in the sector „manufacture of basic metals" is **higher** than on national level
(**→ indicator for specialisation**)
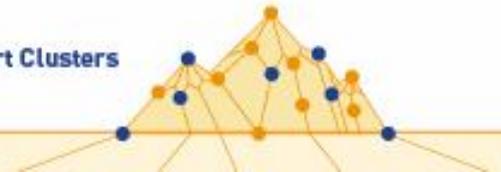
Benchmarking

International / interregional benchmarking by means of relevant parameters allows for assessing a **region's position** relative to other regions and enables the identification of competitive advantages as well as areas for improvement.

◉ A requirement for benchmarking is the **definition of an appropriate reference** to which the regional data is compared to. The choice also depends on the specific questions that are addressed with this analysis (e.g. neighbouring regions, regions with structural similarities, regions with strong economic linkages).

- A **cluster analysis** is a statistical procedure to aggregate statistical units (regions) into structural similar groups based on a set of structural variables (e.g. GRP per capita (proxy for economic development), share of employment/gross value added in different sectors (proxy for regional economic structure), population density (proxy for regional settlement structure).

- The S3 platform provides an interactive tool that identifies regions with similar structural conditions: http://s3platform.jrc.ec.europa.eu/regional-benchmarking

- The regional innovation scoreboard categorizes European regions based on their innovation performance: http://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en

◉ Interpretation of benchmarking results needs to **consider specific circumstances and differences** of the respective regions (e.g. size, economic structure), especially when absolute parameters are compared (e.g. GDP, R&D-expenditures).
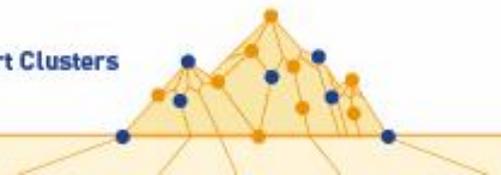
Data sources

Best source for the collection of statistical data on relevant parameters are **official statistics** published by **government agencies** or other public bodies (e.g. European Union – Eurostat, international organizations).
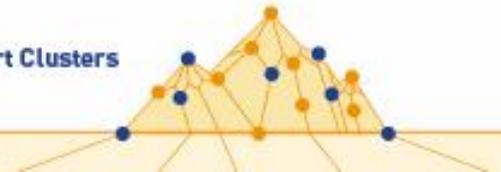
Special considerations for benchmarking:

◉ Benchmarking the regional performance in certain indicators provides best results if the comparison builds on the **same data source**. On European level, **Eurostat** provides relevant data on regional level and is therefore the recommended data source for benchmarking activities.

◉ If **different data sources** for the same indicator are used (e.g. international comparison), pay regard to the **explanatory texts (metadata)** to identify any differences e.g. in definitions and collection methods.

◉ **External experts**, specialized in benchmarking with access to specific databases can support regional benchmarking exercises.
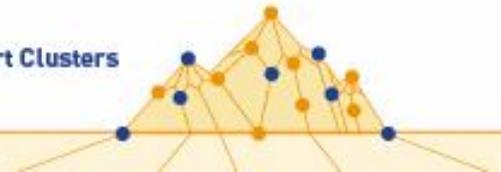
B) Contextual qualitative analysis

A comprehensive analysis of the economic performance and structures of a region includes also **contextual, qualitative information.**

- ◉ This qualitative evidence is based on **profound knowledge** from **regional experts**.

- ◉ This type of evidence is not easily observable in statistics and needs to **exploit tacit knowledge** of stakeholders involved in the regional ecosystem.

- ◉ Qualitative information and perspectives regarding relevant aspects can be gathered via **surveys, interviews or focus groups** with relevant regional stakeholders (see next slide).

Methods for a contextual qualitative analysis

|	Arguments for the method	Considerations
Survey	• Perspectives of a large group of stakeholders can be integrated and a variety of topics can be covered. • The questionnaire can be answered independently and anonymous by the participants.	• Sound questionnaire construction is crucial. • Limited method to provide in-depth information (why/how?). • Response rate might be a challenge.
Interview	• In-depth information can be gathered (follow-up-questions possible). • Personal contact to stakeholders creates awareness and builds trust.	• Interviews can be very time consuming (preparation, conducting interviews, analysis).
Focus Groups	• Inputs and perspectives of several stakeholders can be gathered at the same tame. • Discussion among the participants can provide for new insights. • Personal contact to stakeholders creates awareness and builds trust.	• Group composition (max. 12 persons) is crucial to enable an open discussion. • Mind competitive relationships between participants.
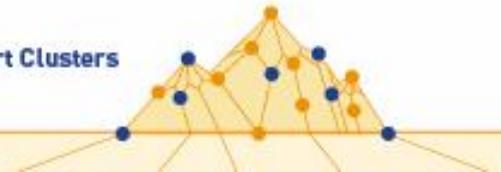
C) Checklist with guiding questions

The following slides provide **a checklist with guiding questions concerning specific relevant aspects** for the overall regional economic performance that can support the creation of a meaningful Base of Evidence:

The checklist is structured as follows:

- Economic structure and dynamics
- Internationalization
- Knowledge base and transfer
- Start-up Ecosystem
- Economic support structure
- S3-Priority Areas

The guiding questions for the different aspects are **best answered by a combination of both, qualitative and quantitative analysis** to gain a comprehensive understanding about the regional characteristics.
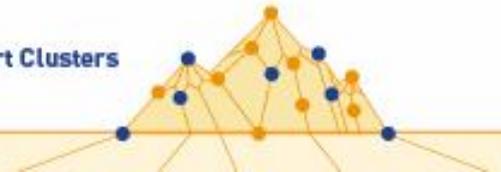
Guiding questions (I)

Economic structure and dynamics

⊙ What are the regional economic key sectors?

⊙ What are the historical roots of the economic structure in the region?

⊙ What are core competences of companies in the region?

⊙ Who are the leading companies / "(Hidden) Champions" in the region?

⊙ Which companies / economic sectors in your region are very active in R&D and technology development?

⊙ Is there a particular dynamic of specific sectors/clusters perceivable?
If so, what are the driving forces? What challenges are the sectors facing?

⊙ In which sectors are innovation networks/clusters established in the region?
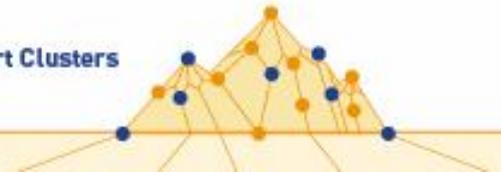
Guiding questions (II)

Internationalization

◉ How internationalized is the regional economy?

- Are there differences between the economic sectors?
- What are the most important export destinations?

◉ Are there international linkages for cooperation?

◉ What are barriers for internationalization?

Knowledge Base and Transfer

◉ What are core competences of universities/R&D organisations in the region?

◉ What are linkages between research organisations and companies?

◉ Are intermediate organisations present in the region that support knowledge transfer?
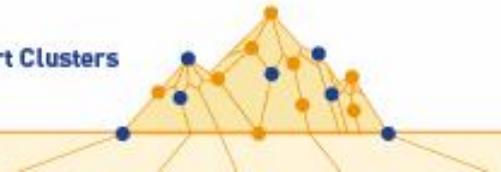
Guiding questions (III)

Start-up Ecosystem

- ⊙ Is there a support ecosystem for start-ups and entrepreneurs in the region?
  - If so, what support services are provided?

- ⊙ Are there specific regional funding schemes for start-ups available?

- ⊙ Is venture capital available in the region?

Economic support structure

- ⊙ Are intermediate organisations / agencies present in the region?
  - Do they have a specific mandate / focus?
  - What are their support activities?

- ⊙ Are regional funding schemes available?
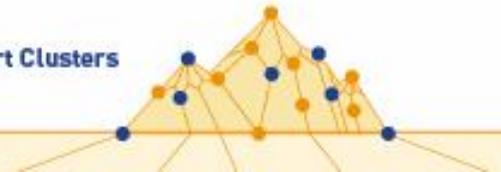
Guiding questions (IV)

S3-Priority Areas

◉ What are the priority areas defined in the S3?

- Are they based on existing strengths or do they constitute areas for further development and structural transformation?

◉ How are the priority areas characterized, also compared to other regions (competitive advantage)?

◉ What is their entrepreneurial basis and what is the relevance of R&D?

◉ What are their strengths and challenges?

◉ What are structural cross-regional/international links within these areas?
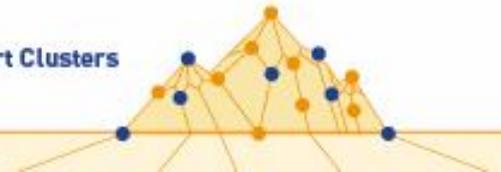
Documentation of the results

The results of the qualitative and quantitative analysis are an essential **input** for any discussion about structural change and Transformative Activities. It is crucial that **stakeholders** that are involved in these processes have a **common knowledge** and perspective about the region.

- ⦿ Therefore, it is helpful to prepare a document where the results of the analysis are **condensed and visualized** (tables, graphs).

- ⦿ These documents (e.g. pdf, slides) can be further used as **inputs for workshops** (e.g. Entrepreneurial Discovery Workshop).

- ⦿ Important quality criteria for the qualitative and quantitative analysis are **transparency and replicability** of the results. Therefore, data sources and methods applied should be documented in form of **metadata**.
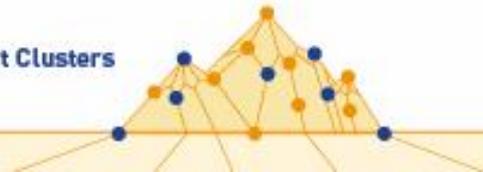
Qualitative and Quantitative Analysis: contribution to the process

The results of the qualitative and quantitative analysis of the region contribute to the overall process by providing a **Base of Evidence** (1. Action Line – Base of Evidence):

Analysis Outputs:

Qualitative and Quantitative Assessment
- Formal evidence (statistical data) about the regional economic performance is available and benchmarking allows for interregional comparison.
- Qualitative contextual information about the regional economic performance provide a deeper understanding of the structures and dynamics.
- Results are compiled in a document for further use.

StressTest	+	**Qualitative & Quantitative Analysis**	+	Synergy Diamond

Input for:

2. Identification

Entrepreneurial Discovery Workshop
regional / cross-regional

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**Smart Specialisation with Smart Clusters**
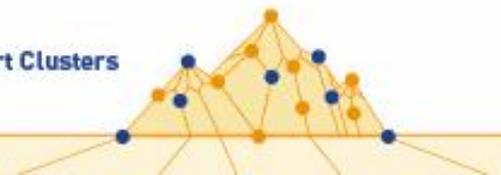
# Success Factors

Qualitative and Quantitative Analysis
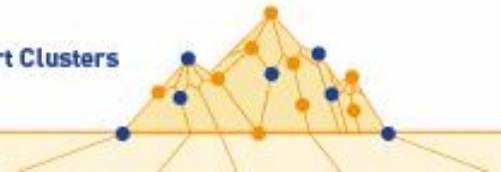
Success Factors

- A **synopsis** and **interpretation** of the results should consider both qualitative and quantitative data to provide a meaningful picture of the status quo.
- Consult **economic experts** with experience and knowledge in analysing regional data and information.
- Focus on data that highlights the **strengths and challenges** of the regions and that facilitates further discussions.
  - Avoid the compilation of extensive data and sophisticated analysis methods that doesn't serve as input and evidence for further discussions.
- The qualitative analysis is best done by capturing the **perspectives of different stakeholders** within the regional ecosystem.
- **Visualize** the data in a way that the key points are easy to capture.
  - To serve different preferences in conceiving information, tables as well as graphs should be integrated, accompanied by a short paragraph describing the data and its results.
- Prepare data sheets that can be complemented for **long term monitoring**.
 - Periodic compilations allow for tracing of developments and dynamics over time.
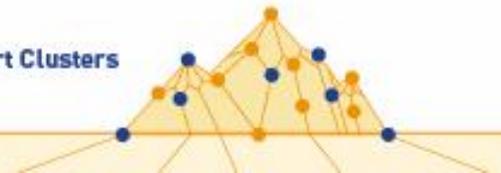
Contact and further Information

Qualitative and Quantitative Analysis
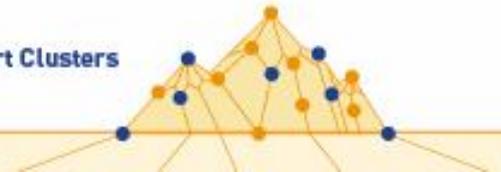
Further literature and information

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- Kotnik, P., Petrin, T. (2017): Implementing a smart specialisation strategy: an evidence-based approach; International Review of Administrative Sciences, 83(1), 85–105; https://doi.org/10.1177/0020852315574994

- Mahr, A., Hartmann, C (2014): Getting startet with the RIS3 Key ; S3 – Smart Specialisation Strategies; Download available in 7 languages: https://era.gv.at/object/document/494
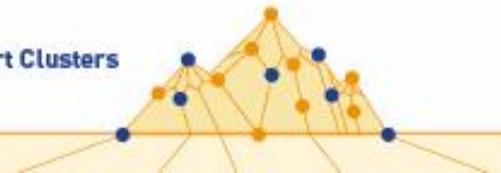
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S3-4AlpClusters Partners

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