SMART_watch project
Interreg Central Europe

Final Publication

REGIONAL OBSERVATORIES FOR SUPPORTING THE DEVELOPMENT OF SMART SPECIALIZATION

Interreg
CENTRAL EUROPE
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SMART_watch

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SMART_watch project – Interreg Central Europe

May 2020

This is the SMART_watch final publication. It has been written by Confindustria Veneto SIAV, which has the co-ordination of the whole publication. It has been developed in cooperation with GAPR, FH JOANNEUM, ATI, University of Applied Sciences Wismar, University of West Bohemia, LAMORO, Lubelskie, INNOVA, Innovation Agency, JASA, TECES.

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PREFACE

We have found ourselves in a completely new setting pictured by the economy that is fighting with the pandemic challenge defining the 21 Century. COVID-19 has made us much more aware of the unpredictability of tomorrow. Being in a distance, we have never been so close recently. Proximity is teaching us a new vocabulary. We feel strong in picking-up the challenge due to the common effort. Networking and collaborative approach to the pursuit of solutions and opportunities have become key enabling factors that steer the hopes and success stories of many organisations. While businesses try to set-up new possibilities, build-up their resilience for future and explore new markets, their business environment needs to be even more knowledgeable in framing the support delivered. Smart specialisations in regions are opening up for the interregional add-value and look for the technological, cultural or economic relatedness and historical path-dependence of neighbouring regions. Is that the post-COVID code that we feel helps us to grow-back?
The EU is debating on the Component 5 and Interregional Innovation Investments that should accelerate market uptake and scale up innovation solutions in shared smart specialisation priority areas. We need to reinforce the position of regions and their businesses in global value chains and strengthen capacities and opportunities to integrate local actors in value chains of multinational companies (triple helix approach – SMEs, research institutions, public administration). Thus, we need to build our innovation ecosystems that are strong and able to promote collaboration inside and outside the region by matching business sector with research and business support capacities across borders.

This document describes our story how we succeeded in preparing for the interregional collaboration effort. It is a story of business support organizations that offer services to the businesses involved in smart specialisations. More importantly, we understand the modern role of BSOs as those serving their communities (business and social) and offering both free and paid service / data to their customers. However, in order to strengthen the meaning of their involvement into the local / regional / interregional economy and show their institutional potential to interact with the ecosystems, the name Regional Observatory is used. In other words, BSOs perform the role of chance providers and knowledge gates. As the ecosystems need the knowledge on the economy of the place and its actors, ROs are also responsible for the flow of information in the ecosystems and in-between them. Due to their original nature, they can be either technology / markets based or policy-linked.

We do hope that you will join us and we look forward to become a strong network offering new opportunities in the post-COVID world.

INTRODUCTION

The SMART_watch project was funded within the Central Europe Programme, between the years 2017 and 2020. The common challenge faced by all partners was the link between the Regional Innovation Strategies (from hence RIS3), their monitoring practices and the real needs of smart specialisations of end users. Prior to the application, partners realised a review on their territories, to investigate how markets are monitored and how strategic information for the companies is produced. The results of the survey showed that there was no methodical support on national level and hardly any tools for benchmarking. Each region gathered data but in different ways and structures, sometimes not having any monitoring institution. Monitoring was in some cases based on indicators and measures provided by the local authorities, while tools and services provided to market actors were not necessarily corresponding to the end users' needs.

As a consequence, the main objective of SMART_watch was to fill in this gap and improve the link between the RIS3 and end users. The way chosen by partners to do this was wrapped around two main goals: first of all, it was the elaboration of a model for Regional Branch Observatories (from hence ROs), equipped with a set of monitoring and benchmarking tools, available to all RIS3 stakeholders and smart markets' actors. Secondly, we initiated a network of ROs equipped with an efficient system of learning and knowledge management in partners' regions, based on the analysis of Smart Specialisation Strategies, their stakeholders and monitoring practices. This system was expected to be linked to partners' regions specific technologies areas, such as, for instance, health, life science, ICT, sustainable production techniques and Industry 4.0 and most importantly help the policy-makers to understand the processes underpinning the S3-based every-day business.

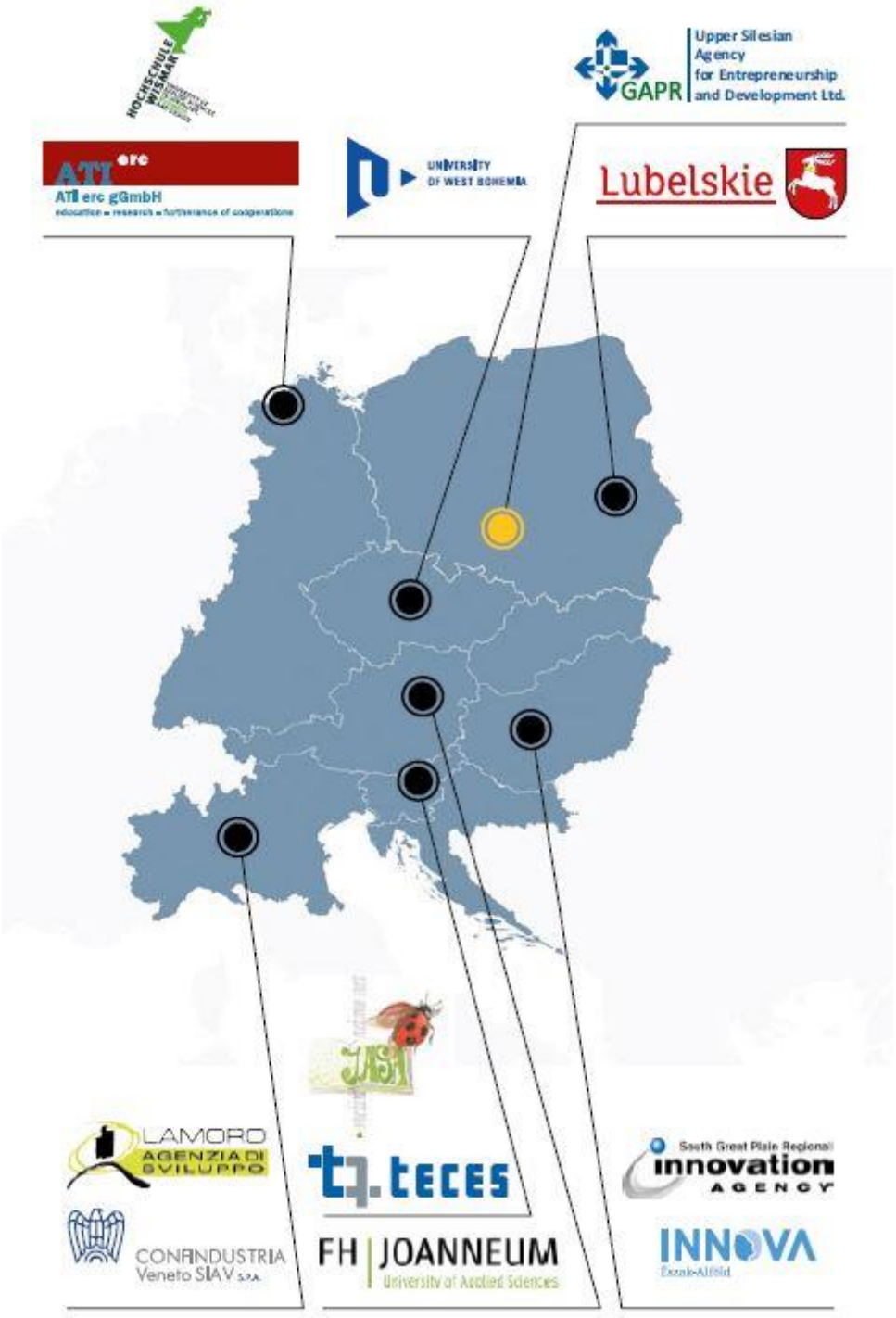
Moreover, the project life-cycle coincided with mid-term evaluation of RIS3. Consequently, partners have elaborated policy recommendations for the EU Commission, that are summed up in this publication, in view of the S3 reform. In fact, representatives of key actors related to RIS3 implementation from each partner region have been involved in the process of result production and of networking. The involvement of those actors ensures that results elaborated cover all RIS3 markets in Central Europe.

As a matter of fact, RIS3 topics were already tackled by several projects within Interreg frames and outside; however, hardly any of them was concentrated and dealt specifically with monitoring. Filling this gap became a significant challenge, concerning the mid-term evaluation of RIS3 and need for changes in the direction EU policy is heading. That is why SMART_watch may now provide for concrete and outstanding solutions, as Central Europe regions involved in this project cover 32% of EU member states. Besides that, the project produced outcomes which can be used as a benchmark for the entire European Union.

In fact, among the main results there is a set of tools for ROs such as a tailored on-line benchmarking ICT platform, a ROs' competence map, and the possibility to aggregate information on the relevant territories and markets. Results include also a ready-to-implement operational and functional model for ROs, enabling them to respond to end users' needs and providing a real support to the decision makers at regional, national and EU level. Moreover, the project framed a transnational network of ROs cooperating and enabling local, national and EU authorities to benchmark Smart Specialisation Strategies at an international level and to monitor RIS3 implementation.

SMART_watch partners are convinced that it will be possible to transfer the ROs' business, organisational and functional model to other territories and areas of S3 and contribute to the inclusion of other actors of the innovation ecosystem in Central Europe countries.

CENTRAL EUROPE REGIONS



let's lay the foundation: analyse our realities before building

THE ANALYSIS OF S3 IMPLEMENTATION MONITORING SYSTEMS

The starting point for this publication - and the field of analysis for the whole SMART_watch project - is the implementation of RIS3 in partner countries.

As it is known, national/regional research and innovation strategies for smart specialisation (RIS3) are integrated, place-based economic transformation agendas that basically do five things:

- They focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development;
- They build on each country's/region's strengths, competitive advantages and potential for excellence identified through the entrepreneurial discovery process;
- They support technological as well as practice-based innovation and aim to stimulate private sector investment;
- They get stakeholders fully involved and encourage innovation and experimentation;
- They are evidence-based and include sound monitoring and evaluation systems.

Referring to this concept, at first, the SMART_watch project examined the state of art of RIS3 implementation and the issues to be addressed by the Regional Observatories. This was done by investigating both the supply and the demand sides of RIS3 implementation in the regions of Central Europe (from hence CE).
In particular, the supply side (that is to say the analysis of partners' regional systems in terms of services and tools offered) was dealt with an investigation of the economy, the institutional support in the region, the evolution, the Smart Specialisations Strategy, the business institutional environment, the supply, the monitoring practices.
As for the demand side analysis, it was carried out with the purpose to investigate the requirements of the market in terms of services and tools, at present and needed. We will deal with the characteristics of the demand analysis later on.

The supply side of RIS3 implementation

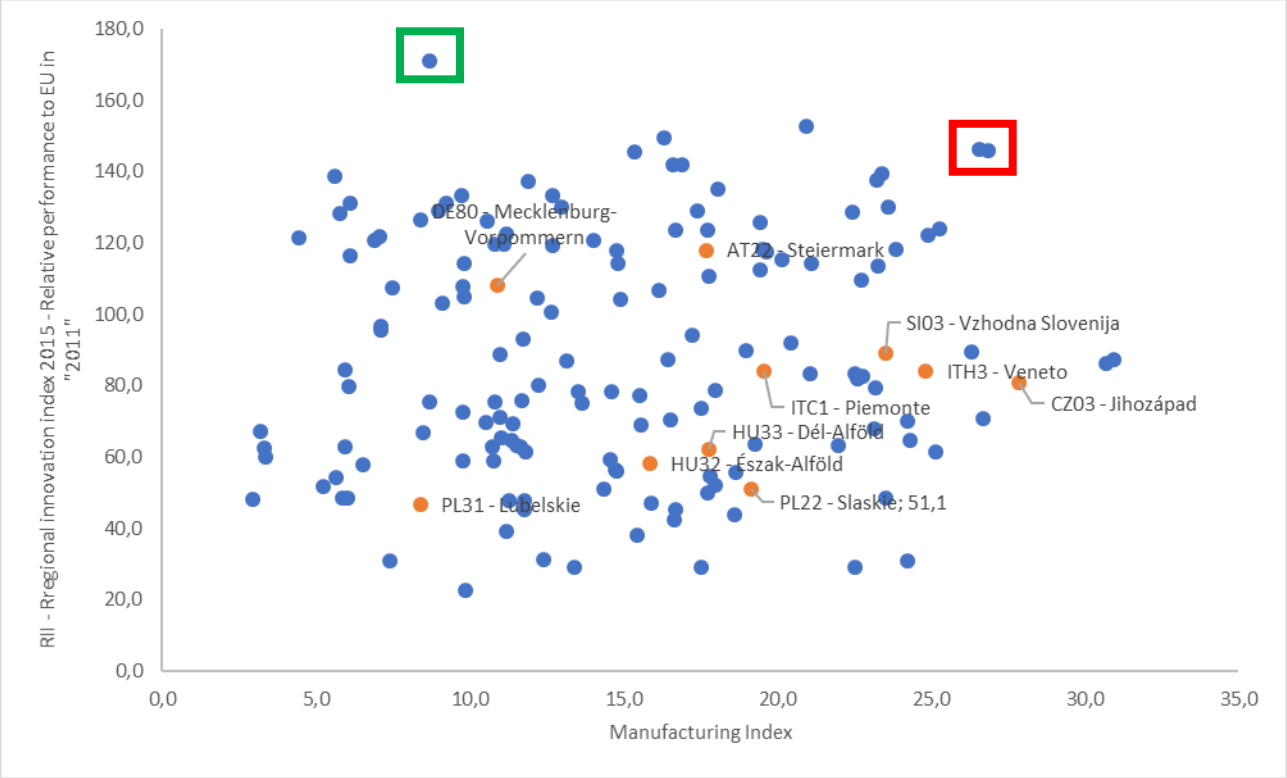
Let us go back to the supply side analysis. The investigation highlights the positioning of each region on the basis of the innovation index and manufacturing systems. The investigation of the Smart Specialisations of the various CE regions represents the basis of the monitoring of the services offered by the different agencies to support S3 implementation. The analysis takes into consideration 10 regions from 7 different countries in CE and classifies them according to their propensity to innovation and manufacturing.

To rank the different regions, two main indexes were used and matched:

1. The Manufacturing Specialization Index: this variable is measured for each region, by the ratio between the number of employees in manufacturing sector and the total number of employees in 2015.
2. The Regional Innovation Index, as described by the Regional Innovation Scoreboard published yearly by the European Commission.

Matching the data provided by the manufacturing and innovation indexes, the following graphic was created: the chart shows the position of the ten regions compared to the 155 European regions. In the upper right area, the two German regions, Stuttgart and Tubingen (in the red square), have a high manufacturing specialization combined with a high innovation index. In the green square, the Utrecht region is characterized by a high rate of innovation and low manufacturing specialization.

Graphic n. 1 *Matching manufacturing and innovation indexes*



Source: *SMART_watch - Interreg Central Europe*

Focusing the analysis only in the ten regions involved in SMART_watch, the investigation highlights the existence of four groups of regions. The largest is composed by regions with a high level of manufacturing specialization and an index of innovation close to the median value. The second group is characterized by regions with a high index of manufacturing specialization but innovation indexes below average. Two regions are characterized by having significantly different values compared to others. Steiermark has a significantly higher innovation index than other manufacturing specialization

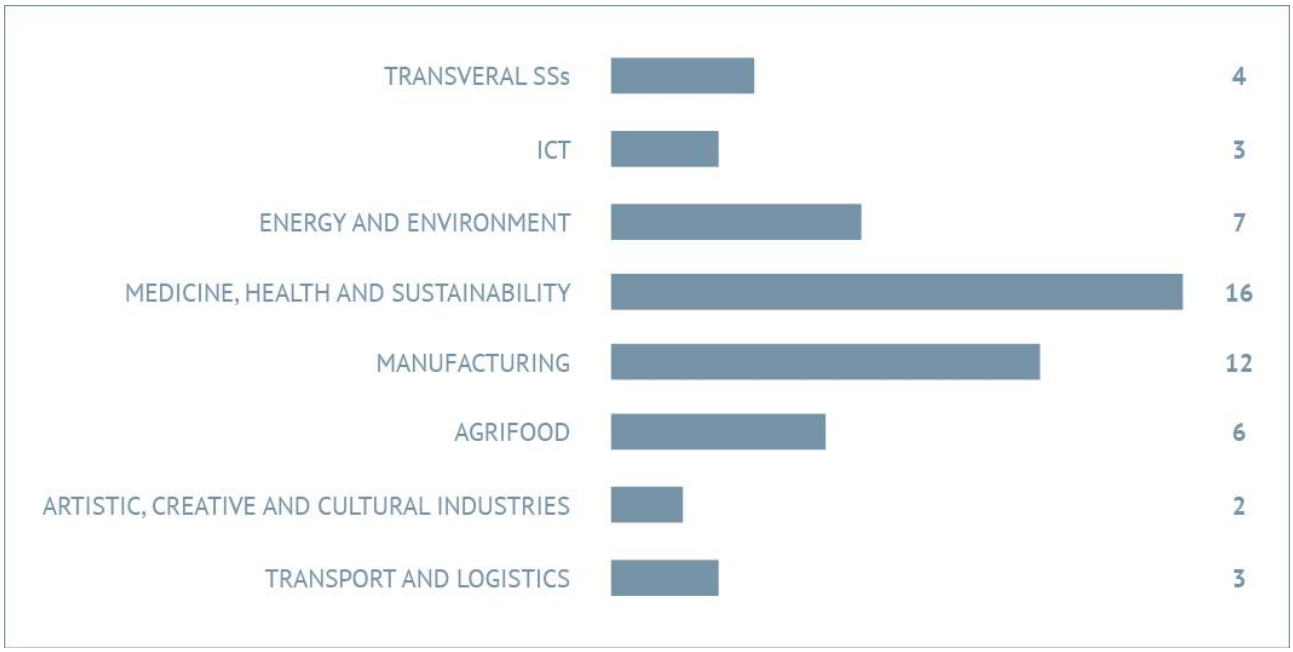
regions. Lubelskie is characterized by a low innovation index with a non-manufacturing production specialization. Finally, Mecklenburg-Vorpommern has a significantly higher innovation index than other non-manufacturing.

The regions dealt with have indicated a total of 53 Smart Specialisations, each one linked to specific economic areas, scientific domains and policy objectives. By aggregating economic and scientific domains and policy objectives, a short-list of shared macro areas was created, in view of a benchmarking activity and to facilitate auditors to work on desk and on spot at Regional Observatories' premises. Seven macro areas of specialisation emerged from the data aggregations, plus one cross-cutting and transversal area:

- **Transport and Logistic**
- **Medicine, Health and Sustainability**
- **Artistic, Creative and Cultural Industries**
- **Energy and Environment**
- **Agrifood**
- **ICT**
- **Manufacturing**

The results of this aggregation are the following:

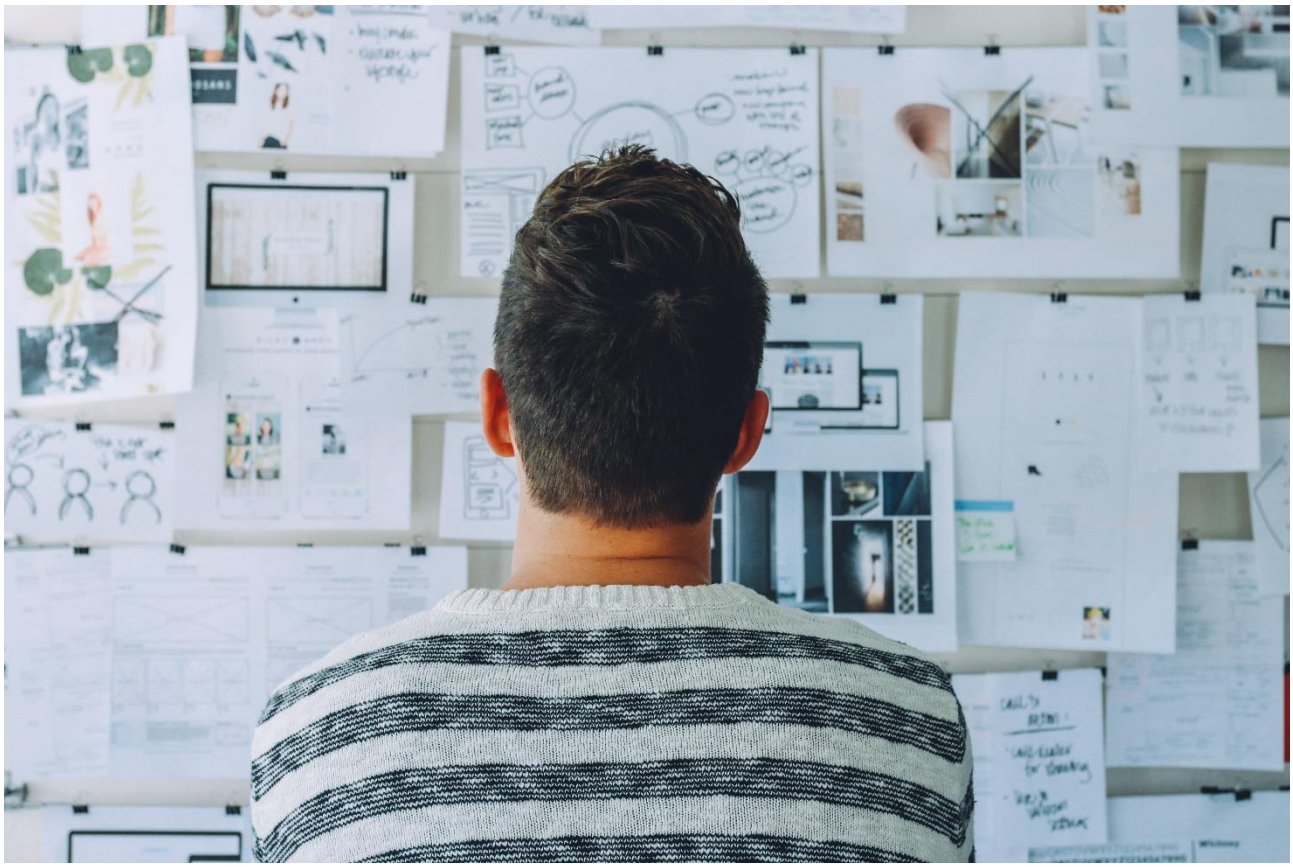
Graphic n. 2 *Areas of specialization aggregated*



Source: *SMART_watch - Interreg Central Europe*

Business institutional environment - the monitoring

Having observed the areas of specialisation, let us consider the overall situation of the RIS3 monitoring activity in each region.



The table below shows an interpretation of each regional monitoring system through 3 variables as captured in 2018:

- Institutional organisation and operative model designed;
- Methodology and monitoring evaluation system/process selected;
- Availability of knowledge and technology information platform for SSs chosen.

Table n. 1 *Monitoring systems in partner countries*

MONITORING SYSTEMS ANALYSIS

VARIABLE	ASSESSMENT RANGE		
	Being Finalised	**Rather Defined**	**Defined**
ORGANISATION	Észak-Alföld (Still under definition) Dél-Alföld (Still under definition) Jihozápad Plzn Region (RRA-PK) Budweis (South-bohemian Technology Park)	Veneto Region (Public-Private collaboration under systematisation)	Śląskie Voivodeship (3 SSs → 3 ROs dedicated) Piedmont Region 1 ROs (NUVAL) Lubelskie Voivodeship (Centralised syst. Marshall O.) Steiermark (Centralised SFG) Vzhodna Slovenija (National centralised NIP-Horizontal/Strategical) Mecklenburg-Vorpommern (Federate State centralised system)
	Informal	**Mixed System**	**Formally Established**
MONITORING & EV. METHODOLOGY	Észak-Alföld (Still under definition at regional - defined at national) Dél-Alföld	Lubelskie Voivodeship (being finalised) Veneto Region (Public-Private collaboration system for policies procedures & tech.	Piedmont Region (Ev. Unit+Monitoring Unit, Ext/Int) Steiermark (Centralised EPIS)
	(Still under definition at regional - defined at national) Jihozápad (predominantly informal)	Vzhodna Slovenija (institutionally defined (WHO), Process still under definition (HOW)	Śląskie Voivodeship Mecklenburg-Vorpommern (State system of result and impact indicator)
	Not Available	**Being Finalised**	**Fully Available**
SSs KNOWLEDGE PLATFORM AVAILIBILITY	Észak-Alföld (Under construction) Dél-Alföld (Under construction) Jihozápad (under construction) Vzhodna Slovenija (under construction)	Lubelskie Voivodeship (being finalised-transport info.) Veneto Region Under construction (almost ready)	Piedmont Region (Inn.Hubs+Tech. Platforms) Steiermark (Centralised WIBIS) Śląskie Voivodeship Mecklenburg-Vorpommern Regional S3 dedicated website

Source: *SMART_watch - Interreg Central Europe*

The analysis of the RIS3 and S3 highlights a wide variety of approaches in carrying out the "entrepreneurial discovery path" and in identifying Smart Specialisations. Some regions focused specifically on technological and scientific domains, in line with the RIS3 methodology; some others have preferred to use economic and sectoral domains, more related to specific value chains, particularly relevant at regional or transregional level.
A further focus is on the Innovative Ecosystem itself at regional level, transversally to technological / scientific and economic / sectoral domains. We refer here to SS System Science, Human Resources support, Networks for the transition to circular economy, Inclusive and Sustainable Society, Support for R&D.

The analysis of the S3 highlights as well elements of potential weakness linked to:

- The novelty of the mapping process itself; in terms of relationship and networking among different technological development actors and networks, as well as among the technological fields and business environment, including services and, in particular, KIBs;
- The lack of a common methodology applied at EU level. In fact, the European Commission itself provided only detailed procedural Guidelines and minimum criteria for each RIS3 Governance System, including interim/final assessment, evaluation or seamless monitoring.

A third element that can hamper the fully operationalisation and decreasing the overall impact of RIS3 policies is the repeatedly mentioned extent of the smart specialisations (from hence SS) selected that makes it necessary to propose an aggregation, in order to bring each SS in a common framework (although simplistic). This may cause repetitions and overlapping of single specialisations in order to cover all the related subdomains identified by regions.
This is also the result of a lack of a common classification system and a common reference language at EU level. For example, it is not easy to clearly establish the exact limits and boundaries in terms of technological contents, value chains and markets for specialisation domains such as "Health", "Energy", "ICT" and "Smart Manufacturing / Production". Some early trials were held by the JRC S3 Platform.

The methodology and the results of the supply and demand side analysis

In order to overcome at least part of the above-mentioned weaknesses, one of the steps though which the supply side analysis was carried out implied also the use of a methodology to investigate the different ROs: the Business Model Canvas. The Canvas is a strategic management template for documenting existing business models and enabling further strategic decision-making process. The Business Model Canvas is composed by 3 main blocks:

1. the activities that generate value for the organization;
2. the activities that determine of how the value is delivered;
3. the financial fundamentals where every business based its activities.

The original Business Model Canvas has been adapted for auditing the Regional Observatories (ROs). For the purposes of SMART_watch, the Business Model Canvas was articulated in the following issues:

- ***Value Propositions:*** *What value is provided by the ROs to its customers and how? What value should be provided by the ROs to its customers and how? - What is the rationale behind the strategic focus of the ROs? What are the key challenges related to sound delivery? What information is gathered by the ROs? Which services are offered by the ROs?*

- ***Key activities:*** *Is the RO capable of gathering relevant information? Is the RO capable of producing reliable information? Is the RO capable of delivering quality services based upon information?*

- ***Key Resources:*** *What is the structure of the ROs? How many employees are involved? What are the competences of the employees? How does the general budget of the ROs look like? Which tools are fundamental for the activities of the ROs?*

- ***Key Partners:*** *Who are the key collaborating entities? Who are the key sponsors? Who are the key subcontractors?*

- ***Customer Segments:*** *Who is the recipient of the services provided by the ROs? - Who are the most important recipients of the services provided by the ROs? Are the services targeted at the needs of certain business entities?*

- ***Customer Relationships:*** *What is the level of the ROs' credibility? - What is the level of customer loyalty? Which tools are used to maintain customer relationships?*

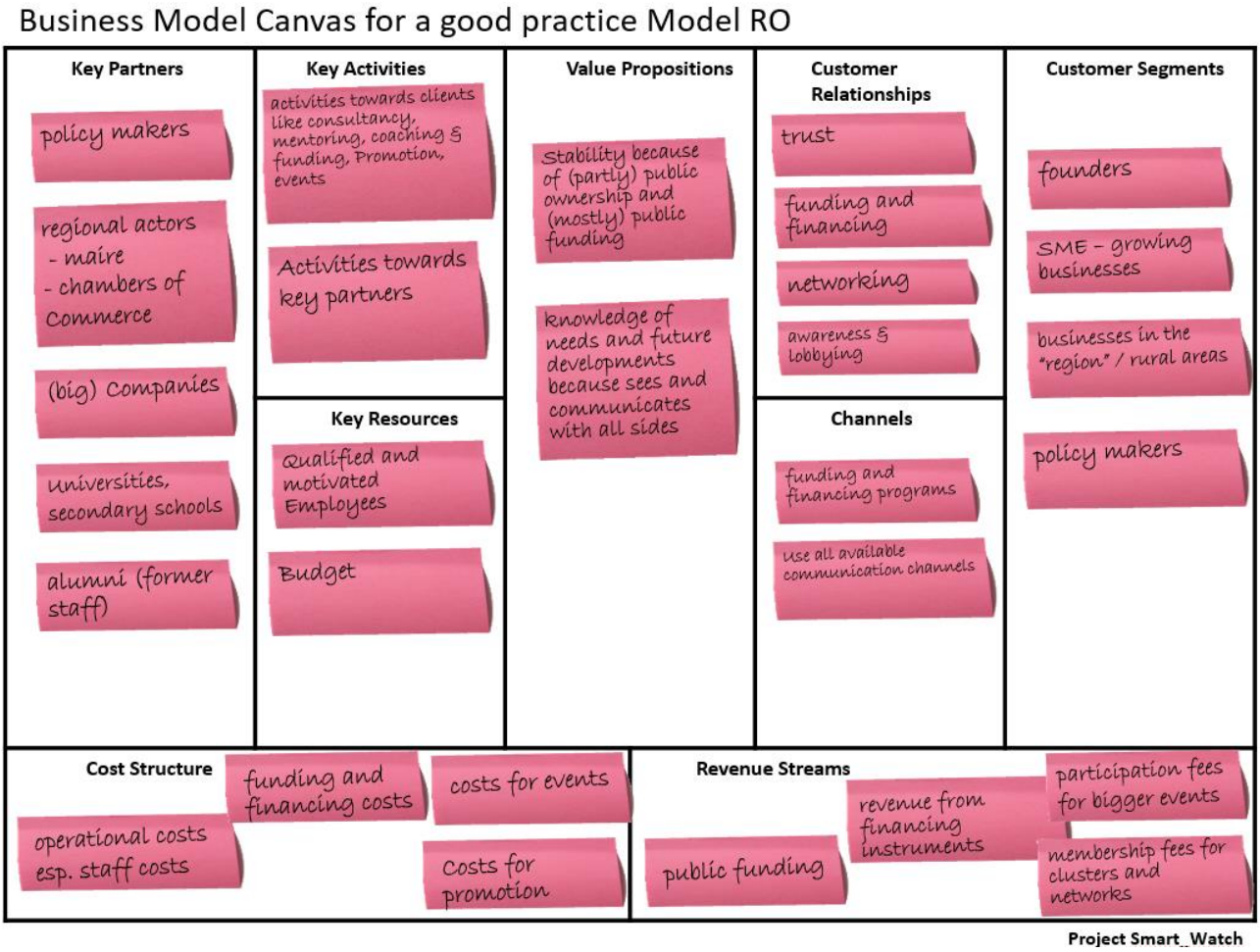
- ***Channels:*** *Does the location of the ROs impact the performance? - Through which channels does the ROs reach customers? Which channels work best? How are the channels integrated?*

- ***Cost Structure:*** *Which key resources are most expensive? Which key processes and activities are most expensive?*

- ***Revenue Streams:*** *What is the financial status of the ROs? For what do the customers currently pay? For what are the customers really willing to pay?*

An example of application of the Model Canvas to an ideal Regional Observatory is the following.

Figure n. 1 *Business Model Canvas for a good practice Model RO*



Source: *SMART_watch - Interreg Central Europe*

Figure n. 2 *Business Model Canvas for a good practice Model RO - extended*

SOCIAL & ENVIRONMENTAL COSTS			SOCIAL & ENVIRONMENTAL BENEFIT
Support for regional/local companies and products/services	Focus on that for funding and financing programs	RO could be a good practice example for a sustainable company	Especially support and promote sustainable, social and environmentally-friendly companies, products and services

Source: *SMART_watch - Interreg Central Europe*

In short, **KEY PARTNERS** are those that will help the ROs with the implementation of S3. The **KEY ACTIVITIES** can be grouped as operational activities that are mostly supportive, activities towards clients like funding and financing activities and consultancy, coaching, mentoring, training, expert analysis as well as networking and promotional activities. **KEY RESOURCES** are twofold: on the one hand it is the staff of a RO, so human resources, on the other hand, the financial means are vital, therefore a solid budget. **VALUE PROPOSITION** answers the question "what is the ROs offering?". **CUSTOMER RELATIONSHIP** describes how the ROs will communicate with their customers, that are entrepreneurs of all types like start-ups, spin offs, growing companies, especially in the selected fields. **CHANNELS** show the ways in which customers will be attracted and how the measures will be delivered to them and to a wider public. **CUSTOMER SEGMENTATION** will be necessary because it is impossible to support each and every company in a country/region. The **COST STRUCTURE** shows the kind of costs that the implementation involves, the available budget. This has to correlate with the **REVENUE STREAMS** that make clear where the money comes from. The extended version also takes into account the **social & environmental costs** and **benefits**.

The audits to gather information

The adaptation of the BMC implied also a common methodology for interviewing and data gathering through **audits**, and an IT tool for gathering data from institutions for the development of a benchmarking tool. By doing so, partners supported the collection of information and the comparison of the relations between Observatories and reference territories. The audit of each observatory was realised according the following stages:

1. Desk research related to identification of audited institution's main characteristics.
2. Pre-filling of the initial on-line audit report by the auditor (basic data, key services identified).
3. Initial audit report on-line validation by the audited institution (check-up concerning the pre-filled information, delivering detailed information on services and performance).
4. The in-site audit session, which implies individual semi-structured interview or small group semi-structured-interview (qualitative reflection upon the elements of the audited institution's business model, drafting the main part of the report).
5. Completion of the full on-line audit report by the auditor.
6. Full audit report on-line validation by the audited institution.

Audits were conducted using secure web-based tools. These tools are developed on the base of Open Source Frameworks taking into account best security techniques. Data processed with the ICT tool is only available for:

- the audited RO in the process of self-learning on the business model it operates;
- the audited ROs in the process of networking and their pursuit of the best practice based on benchmarking;

- the audited ROs in the process of analysing and forming the functional business model of the RO;
- the project consortium for building up the freely available web-based tool competence map (c-map).

Interviews and data gathering through 62 audits allowed the collection and comparison of the relation between Observatories and territories. Once completed with the information from the demand side, it was possible the development of the benchlearning tool**,** securing a cross-cutting mapping of regional specificities in all CE partner regions. With the key aim to offer an online standardized map of competences of Regional Observatories available in several countries of Central Europe, the final audits data have therefore been methodically selected, mapping the consortium's regional competences. Now, let us turn to the demand side analysis.

The demand side of RIS3 implementation

The market requirements and the demand side of S3 needs were investigated by the SMART_watch consortium by using a handful of techniques and methods. Stakeholders, practitioners, professionals and companies were involved in guided workshops, visits, good practice analysis and modelisation. This investigation brought out several elements. First of all, many ROs' existing services related to RIS3 implementation support the technology and knowledge transfer processes, or give information about the business and funding opportunities for SMEs. Moreover, the involvement in research and innovation projects is offered, thus allowing the contacts with universities and research centres and direct cooperation with large companies, is judged a plus.

Second of all, the demand analysis indicates that many services and datasets would increase the attraction of ROs' offering. These are expressed in terms of knowledge (e.g. knowledge and competence sharing), support (e.g. cooperation in product development or products' certification), access (e.g. to information or funding), training / education (e.g. certification of learning outcomes), communication (e.g. markets' benchmarking).

Besides that, stakeholders participating in the demand analysis brought out the main characteristics of the ideal RO. Most appreciated ROs are considered those which offer the following points:

- attention/support to network's participants and to network's participants external visibility, development and promotion;
- capacity to operate in favour of network members through both dedicated projects (at regional, national or EU levels) and ordinary mechanisms and processes;
- engagement and activation of the ROs at horizontal and vertical levels. The horizontal level encompasses the capacity to identify other channels and ways to foster and support innovation, while the vertical level is about the capacity to involve public institutions and second level aggregating bodies;
- capacity to have prompt answer to the specific demands of innovation of SMEs;
- support companies by relieving them of the bureaucracy and administrative complications that characterize the implementation of the development and research projects financed by public funds;
- collection of the needs expressed by companies in order to represent the interests of the business community to policy makers and stakeholders.

The SMART_watch on-line tool: c-map and benchlearning tool

By combining the results of the supply analysis and the demand investigation, partners were able to set up a tool to compare collected information, in order to make clear the relation between ROs and territories.

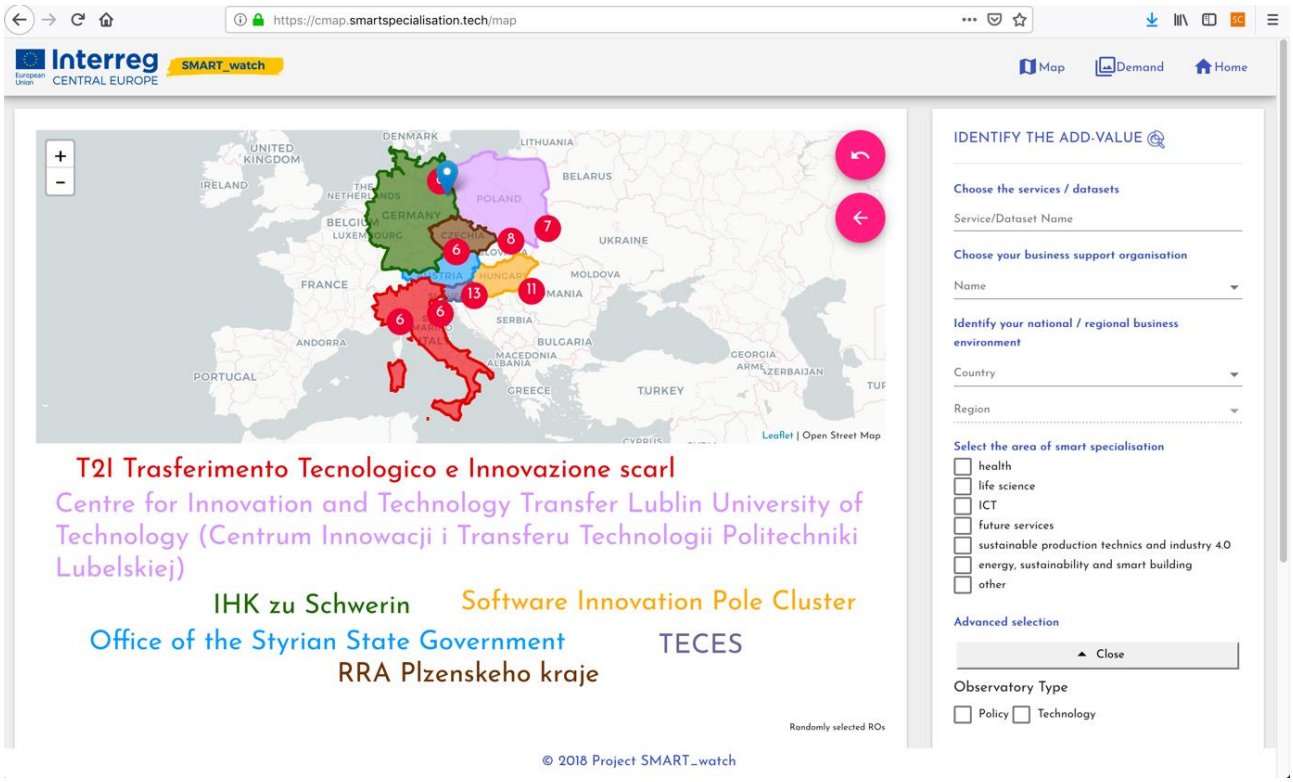
The key aim of the online benchmarking tool for competences mapping is about offering an on-line standardised map of competences of Regional Observatories available in several countries of CE as well as in the other countries of EU. Based on the audits of Regional Observatories, the specificity of services

and offered datasets is displayed in a functional mapping platform. Moreover, the on-line tool incorporates the demand overlayer, that is a set of information on the expectations reported by SMEs regarding the services and datasets needed. The goal of offering demand-side overlayer was multipurpose. As for the ROs, it should motivate them in tailoring and mastering services demanded by SMEs or discuss the quality/volume of services offered. The more the ROs know about the demand, the better they can fit their business models. The SMEs get a unique opportunity to speak on the opportunities they see with regards to niches in desired services/datasets. In many cases, it is not the single, business driven approach but rather a more business environment-based, be it technical or market, request. Most importantly, the benchmarking tool is a support to policy-makers and other regional stakeholders acting as institutional ecosystem responsible for the monitoring of RIS implementation. This should help the ROs to improve their performance in RIS3 implementation as well as monitoring.

Two key features were implemented in the on-line platform. The first one - called c-map - addresses the needs of SMEs to inform them on the offer of business support organisations in terms of competences, services and know-how. The second one - called benchlearning tool - enables the comparison within the reference groups and identifies possible areas of improvement of the ROs.

Accordingly, with the c-map the SMEs can easily navigate through the map of Europe looking for localisations of Regional Observatories, identifying Smart Specialisations targeted by the ROs, as well as browsing advanced features including the nature, dissemination level and price of the offer.

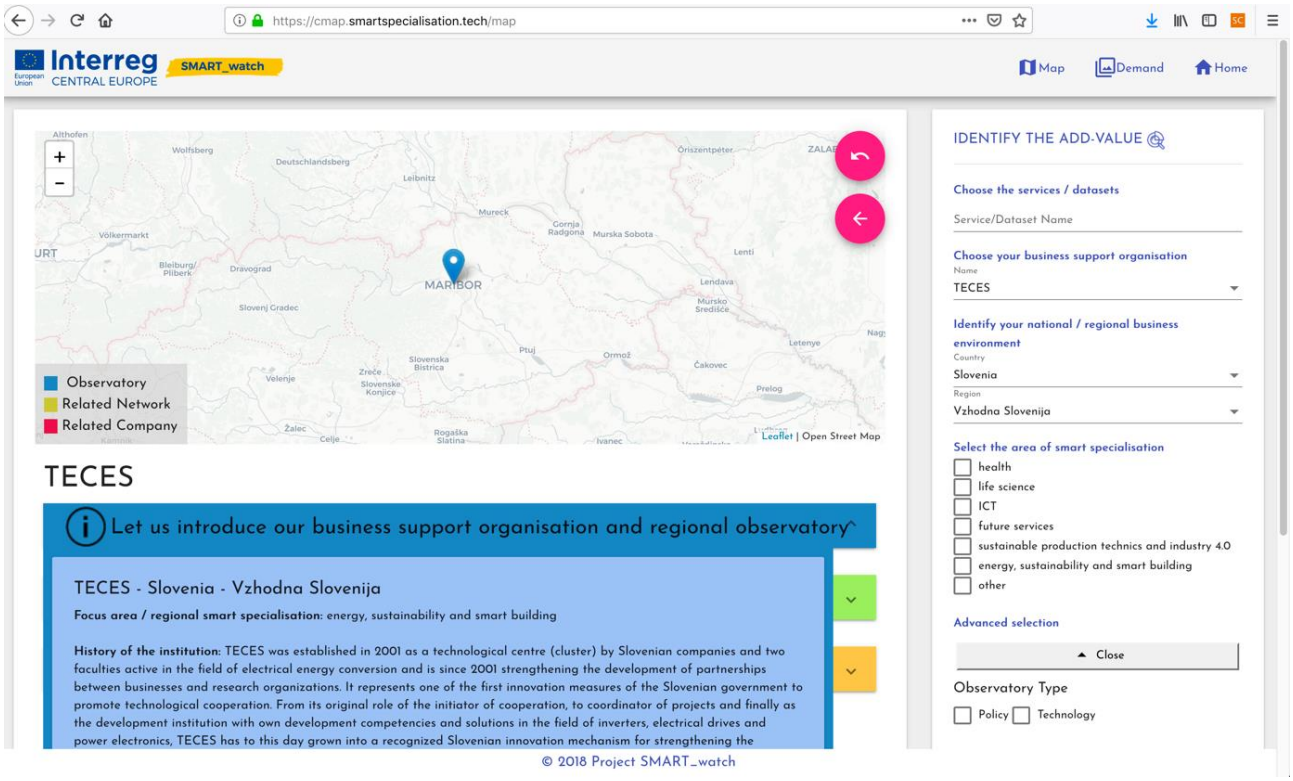
Figure n. 3 *A screenshot of the c-map*



Source: *SMART_watch - Interreg Central Europe*

It is possible to select directly the RO either with the geographical map or with the cloud of tags. It will lead visitors to some basic facts on the RO.

Figure n. 4 *A screenshot on how to select ROs*



Source: *SMART_watch - Interreg Central Europe*

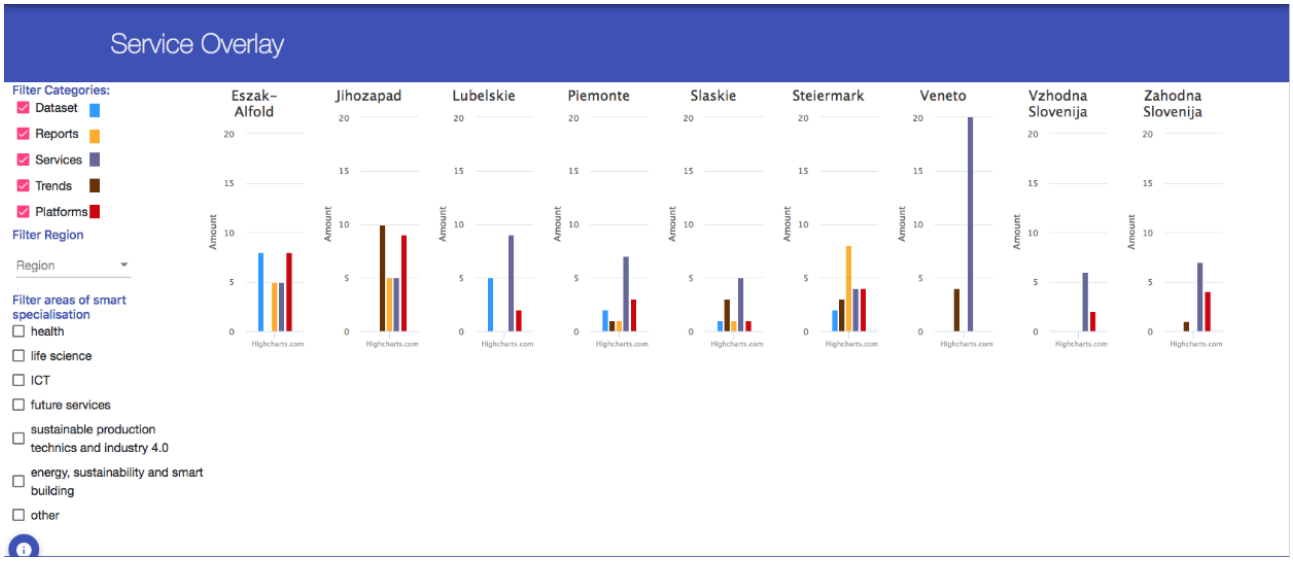
The c-map can be used freely by all the interested parties, including the EC, regional stakeholders interested in RIS3 as well as research organisations. The c-map has already been growing and it is intended to expand regarding more functionalities and areas covered.

Moreover, the tool allows to filter for categories (build up from the demand side results) regions and areas of Smart Specialisation. The information contained in the demand side analysis is matched with the data gathered in the audits (i.e. the supply side).

The filters applied to the c-map allow to select geographical coverage of the support, a particular RO and the type of services / datasets available. Selections of smart specialisation and types of ROs apply consequently. Further functionalities are displayed as business-card type of information: the short history of the RO, the add-value for business (including up-to-date and future services/datasets description) and collaborators.

For each region there is a diagram with the amount visible in the benchlearning platform within the section overlayer. On the left of the diagrams there are different filters for categories, region and areas of Smart Specialisation.

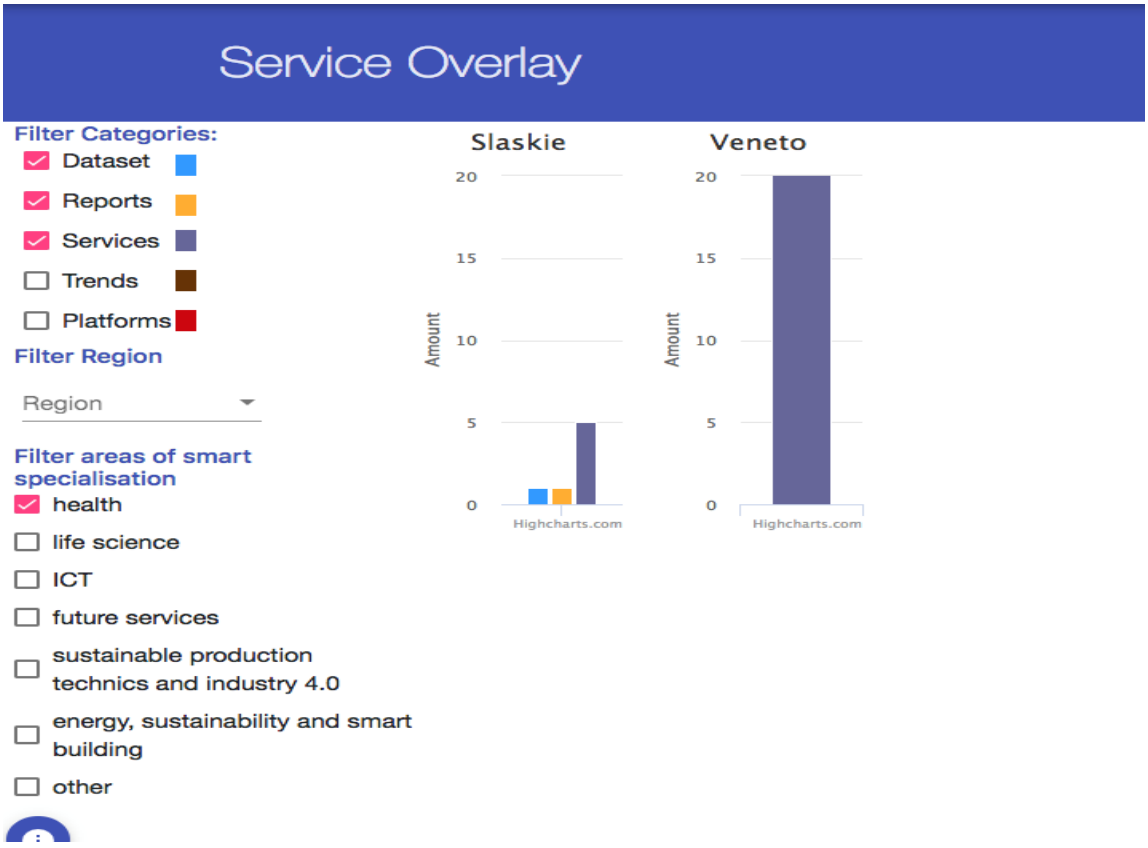
Figure n. 5 *The service overlayer - benchlearning platform*



Source: *SMART_watch - Interreg Central Europe*

Filtering can be done also by using categories, regions and areas of Smart Specialisation, as Figure 4 shows.

Figure n. 6 *A screenshot on filtering*



Source: *SMART_watch - Interreg Central Europe*

The functional and organisational frame for the Regional Observatories

Besides the on-line platform with the c-map and the benchlearning tool, the supply and demand analyses produced an outstanding result in terms of how to frame the RIS3 Observatory. In fact, the model for a RIS observatory describes the possible content of this structure, its functions, its values; the model brings out also an operational model for the RO, in terms of design and framework. It is important to say that the model is not a one-for-all practice: it has to be adapted to local conditions, territories and, above all, to local S3.

Whatever the case, here is a synthesis of the functional and operational model.

Table n. 2 *The functional model*

Services of RO	Must have	Nice to have
Funding and financing opportunities for companies (proof of concept, innovation projects, internationalisation projects)	Information	Offering it themselves as well
Management and strategic support for companies (audits)	Information	Offering short term management themselves
Innovation support for companies, maybe using existing Innovation Management tools.	Information	Doing innovation audits and offering innovation experts to companies
Technology and knowledge transfer processes	Information	Offering participation/access in/to transfer and innovation projects
Support on legal issues like Intellectual property issues	Information	Offering consultancy on legal issues
Access to international/national/regional networks like clusters, EEN, Infrastructure **(fablabs, innovation labs, incubators)**	Information	Offering those networks or infrastructure themselves

Source: *SMART_watch - Interreg Central Europe*

Table n. 3 *The operational model*

What	How	Why
Legal Form of the RO	Limited / Public	Easy to establish, clear structure and given processes
Owners and stakeholders	Public (national, regional, local) or Private/Public Partnerships with companies (big players) and/or educational sector (Universities)	The broader the better
Participation	Board, Advisory Board, Steering Committee, involvement via social media	Involvement of politics, interest groups and maybe even the civil society
Internationalisation	Via Participation (above) or Projects	To tackle the issue of globalisation more efficiently
Mission	Public Mission, public interest	Variable - more on the public side
Source of Fundings/Financing	Mostly public funds	Variable - (mostly) public funding is expected (till now)
Transparency/ Communication	Public reports (detailed, correct, informative, understandable, consistent)	Important for outside activities like policy makers, the public (tax payer) as well as internally for consistent work, for anti-corruption measure etc.
Relation with customers	Contract / notice	Both ways are viable
Support Programs	Public calls	Best use of the limited (public) budget, getting the most for the tax payers
Remedy	Civil court / public path	Both ways are viable
Legal and Liability	Insurance / Public	Both ways are viable
Supervision and Audits	First and second level controls, Audit and/or monitoring bodies, Court of Audits, Parliament(s), through ownership / boards, media (social media)	Sufficient control according to means

Source: *SMART_watch - Interreg Central Europe*

SMART_watch partners consider this ideal structure as a concrete basis to set up or to already functioning enhance the RO. Indications from the project include lean management and structure, the presence in staff of trainers, consultants and experts and of back office employees to give support. It is also important to integrate stakeholders, shareholders, counsels and the civil society as far as possible. The latter could encompass parties, interest groups, partners from the educational sectors like universities, business partners like big or particularly active companies.

For the ROs, communication, if well done, has a double benefit: it promotes the ROs and the policy it is implementing, but it also promotes companies and brings their point of view towards policy makers. What is important is to find the right balance between the different interests. Moreover, communication has to turn outwards towards the broader public but also internally towards their staff.

common goals, beyond differences: towards a transnational view

FROM TERRITORIES AND REGIONAL DEVELOPMENT POLICIES TO THE NETWORK OF REGIONAL OBSERVATORIES

In the first section, SMART_watch outcomes in terms of analyses of supply and demand of services and tools for dealing with RIS3 implementation have been presented. Besides that, the tools to check ROs' competences and to compare ROs - namely the c-map and the benchlearning tool - have been showed as well.
This second section is about one of the outstanding perspectives for SMART_watch partners: the creation of a sustainable and transnational network of ROs. This project outcome marks the transition from the actual practices for monitoring RIS3 implementation and innovation development to the proposal for a frame and a structure to reinforce and transform cooperation between organisations in charge to monitor and implement RIS3.

The SMART_watch transnational network: concepts and roles

The starting point for the elaboration of the SMART_watch proposal for a transnational network of ROs was the special prominence posed on the concept of monitoring and evaluation of RIS3 implementation. Monitoring and evaluation activities are important to improve strategies' performance and policy making especially when changing circumstances needs a tuning of the measures.

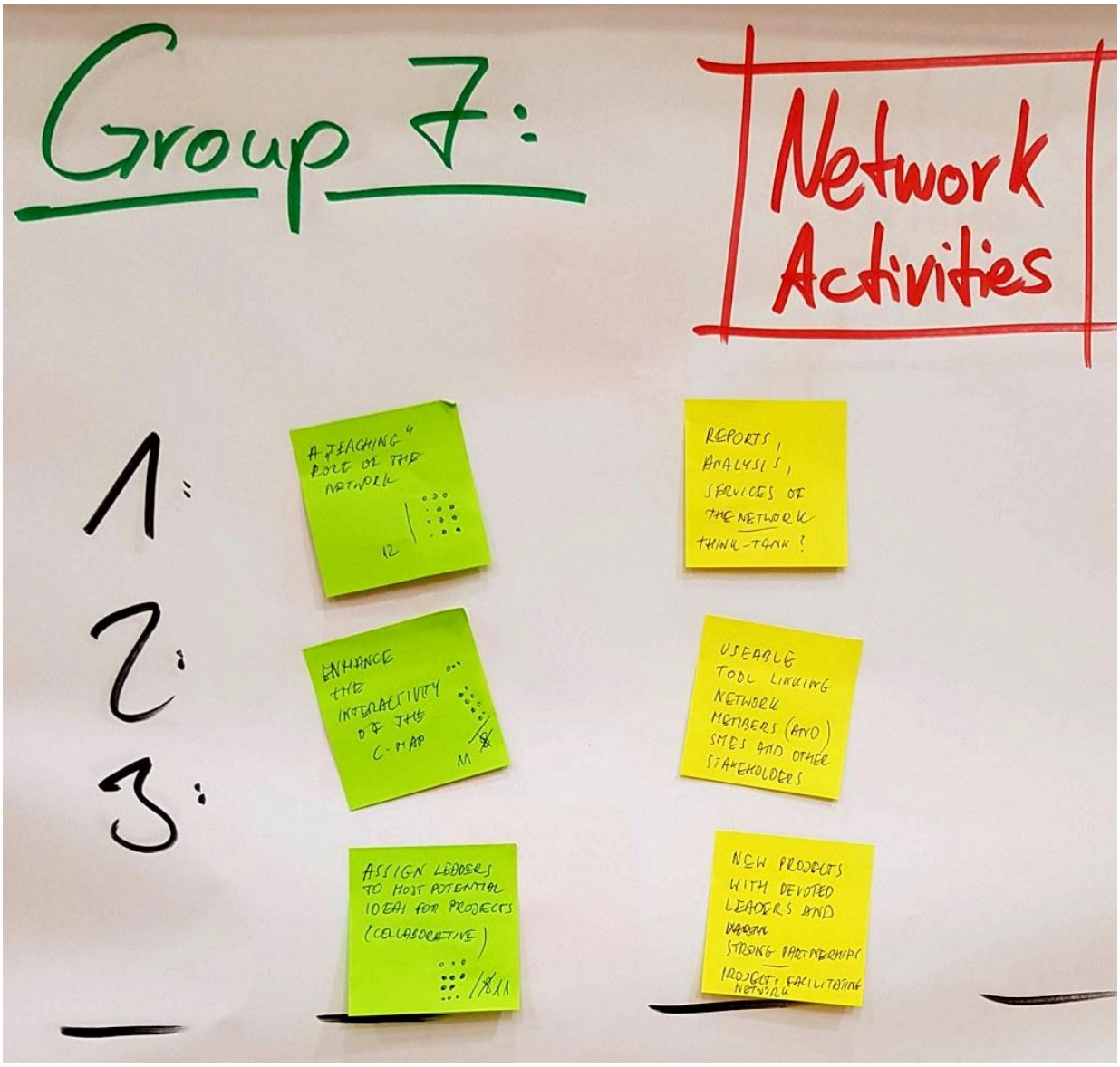
This is due to the fact that monitoring and evaluation mechanisms are a fundamental part of the RIS3, as they give the necessary qualitative and quantitative indication to measure the results obtained and the outcomes of the proposed interventions.
The monitoring mechanisms give information on the progress of the strategy with the aim of evaluating the implementation of the interventions and provide the necessary elements to make changes and improvements.

The evaluation activity refers to the process of analysing the effects on the territory of the implementation of the strategy, with the aim of controlling if the objectives of the RIS3 are reached.
To implement the monitoring and evaluation mechanisms it is necessary to define a system of indicators and existing indicators and official statistics, which supply data at a higher level of aggregation, generally do not provide useful information in this respect.

Having reminded that, let us consider the concept SMART_watch partners have in mind when they formulated their proposal for a network.
The stepping point for designing a concept, a strategy and a role for the ROs network was a simple definition: a network is the connection between individuals, groups, institutions, companies and regions. More in detail - and in relation to SMART_watch environment - a network refers to alliances of

independent stakeholders who temporarily join forces in order to achieve goals, create synergies and develop solutions to problems.
According to partners, participants in a network have several characteristics: for example, the stakeholders within a network bring in different abilities, motivations, and resources. Although they are connected via the network, they represent the nodes that use their mutual relationships with a certain degree of autonomy. The effects of synergy include information, experiences and ideas to be exchanged; moreover, sharing resources like equipment or premises can avoid parallel activities and investments.

The intended network of the SMART_watch project is expected to be a dynamic, target-oriented network, which deals with clearly defined tasks that are too complex to be handled by a single actor; resources of different actors are therefore combined and coordinated. The network the project partners are aiming for is characterised by a high degree of commitment to have a direct impact on the business processes of the actors involved.



SMART_watch meeting - Sharing networking topics, September 18th 2019 Turin, Italy

Within the SMART_watch network, that currently includes 113 different organisations, the following **articulation** is envisaged:

1) In the "**professional performance system**", the network participants and associated stakeholders work together to achieve the network objectives (e.g. creation of a “transnational European network for innovation support”). This implies the distribution of tasks, the agreement on quality standards, a continuous innovation culture.

2) For this to be possible, a functioning "**social and organisational development system**" must be created. This system deals with questions of identity formation, motivation promotion and the development of a strong network culture. This implies capable actors to achieve network’s objectives, mutual trust to secure successful cooperation, network identity and culture (also promoted by names, design and logos), commitment to network and moderation.

3) The "**strategy and decision-making system**" forms the framework for action for the "professional performance system". This includes the development of a mission statement/overall concept, the definition of internal rules and network control. This implies also the identification of the objectives to be achieved by the network, the creation of value for customers, the decision-making ability and the willingness to evaluate constantly the success of the network.

4) The "**operational management system**" is responsible for controlling the overall process. This encompasses the leadership building process, the adoption of clear planning and monitoring mechanisms, the resource balancing, the ability to change, the market orientation.

5) Finally, a well-functioning "**information system**" (e.g. information procurement, knowledge management, documentation) is required to ensure a high degree of transparency and effective communication between the network participants. This implies the use of technical equipment, the sharing of a platform, the transparency and efficacy of the information flow.

If above are the characteristics of the network articulation, there are as well several success factors that SMART_watch partners assume as necessary.

1) **Resources for lasting commitment**: one of the most important resources within a network is represented by the people who are willing to commit themselves over a longer period of time. In particular, the relationship work requires sustainable care in order to sufficiently motivate the actors involved and to ensure that the network objectives are achieved. In larger networks, this work usually cannot be carried out by volunteers, so that the use of professional forces is appropriate.

2) **Long-term orientation**: the creation of a solid basis of trust between the actors involved will take years. Building on this, the various goals can then be tackled. It is important to actively involve the actors and to take their interests and needs into account, even if these are not always directly linked to the achievement of the objectives.

3) **Moderating approach**: moderating work is considered an essential guarantee for successful network building. External moderators can ensure that the originally intended goals are continuously pursued by supporting the distribution of the various tasks and intervening in an appropriate manner.

4) **Positive orientation**: network goals should be formulated as positive states of change or impact goals. This expands the possibilities for cooperation and contributes to focusing on the goals. To achieve this, the framework conditions must first be examined and the needs and wishes identified so that appropriate and realistic goals can be developed.

5) **Division of work**: information and agreements or understandings of general interest are shared with all actors in the network. The concrete implementation of individual measures or the development of the associated concepts, on the other hand, may take place in smaller groups.

6) **Formal rules**: these are the prerequisite for long-term and effective cooperation. In particular, the adherence to agendas and schedules, the recording of decisions and the formulation and documentation of goals and measures are emphasized.

7) **Visible activity**: the activities and successes of the network must be communicated and visible within ROs' own region, the EU and the general public. Public relations work can make an important contribution to this.

About the mission of the network

The goal of the network is to receive a leadership in specialization by focusing the experience and knowledge of the network partners. Leadership should give the network attention and support from the political side, which should result in financial support at local, national and European level. As a consequence, the network should be a driving force for project planning and undertaking.
Moreover, leadership should make the network a reference point for knowledge transfer and skills development.

In addition to this, since the majority of ROs are directly or indirectly linked to economic development and thus to the political side, the further development of the regional innovation strategy is of great interest to the ROs. In fact, on one hand, the development of the RIS3 is a dynamic process and in a periodic way the strategy has to be monitored and evaluated. On the other hand, S3 has to be developed and the network could be very useful in co-designing the Smart Specialisation Strategy. To do this, the network intends to create a database of good and bad practices about S3 implementation and have access to the S3 platform.

Finally, part of the network mission deals with the continuous improvement, updating and use of the c-map and of the benchlearning platform.

The network characteristics - the pursuit of the ideal setting

Regarding the expected **benefits**, the network should capitalise from the European projects' partners are involved in, with the aim to learn from existing projects and work for more EU funds. Moreover, the network should benefit from a political issue: since the ROs are involved in economic development, they should not only monitor the RIS3 implementation, but contribute to its development as well, also with the collection and analysis of good and bad practices of S3 implementation.

With reference to **organisation**, the network should be managed by a professional manager with the help of an experienced and skilled staff. In general, the network should be organised according to a one-stop-shop principle, i.e. one position for all questions, requests and actions. Moreover, a cross-sectoral collaboration between the four fields of the Quadruple Helix Model (Government, Industry, University and Civil Society) should be applied to the network. More in detail, the organs of the network should be:

- The **Management board** that is formed by two directors who share leader tasks, distribute tasks to members and represent each other. The board is elected by the General Assembly for a period of two years. The board is responsible for representing the association and conducting its business activities. Moreover, the Management board prepares and manages the General Assembly, manages the association's assets, maintains the communication platform with support of all members and deliberates the admission of new members.

- The **specialised focus groups** are characterised either by sectors and field of activity or region.
- The **General Assembly** is the supreme body of the network, chaired by the board of directors. The Assembly establishes the guidelines for the work of the association and takes decisions on issues of fundamental importance. There are two kinds of members: regular members and the management board.

As for the **roles**, the network should have as a manager someone with a clear vision to push and motivate members. All participants should be active and proactive. Moreover, it seems useful to have also a communication manager, responsible for the networks' growth. Concerning the atmosphere in the network, this could be relaxed and friendly if participants get a profit from membership.

Concerning **members' input**, the network should capitalise on the Quadruple Helix fields practical knowledge, exploiting partners' and ROs' experiences and good practices. On the other hand, it could also be useful to have input referring to need from members, in terms of training, services and products.

With reference to **communication**, the network should rely on the experience and know-how of a professional communicator, responsible for addressing and motivating the network members to exchange ideas, practices and results. Communication should cover the different thematic areas linked to the different specialisations. Moreover, the range of media to be used should be vast, as well as the channels to address target groups.

As for the **activities**, the network should have remarkable performances referring to three areas: first, a teaching role related to ROs' services, perspectives and development plans. Second, spread and improve the c-map use, especially to boost ROs' and SMEs' interaction. Finally, communication should be used to present to the external world the networks activities in order to develop new projects and attract new funds.

Eventually, concerning the **network platform**, there is need for a professional moderation of such a tool, to arrange the topics, so that they deal specifically with decisions and problems of the network. The platform should be articulated and divided by themes to ensure a high level of user-friendliness. This also includes the design of the platform with main graphic elements that have great usability.
The platform could be used to distribute newsletters, information and invitations about events. Furthermore, there should be a free space on the platform to exchange new ideas or projects and to develop them.

SMART_watch partners imagine that members might be any business companies and institutions, regional authorities and key players providing knowledge, competences, contacts and infrastructure in the field of Smart Specialisation and innovative technologies who share and support the objectives of the network. Members are of two kinds: full members with voting and speaking rights and general technology partner without voting rights but with the right to speak, paying fees for promoting their technologies through the network.

SMART_watch meeting - Networking in practice, March 27th 2019 Kapfenberg, Austria

How to overcame differences between territorial systems and development policies

As it is known, when the Europe 2020 Strategy was designed and launched, the role of Smart Specialisation became central to the economic development and growth policy thinking. Smart Specialisation is understood as a framework that combines industrial, educational and innovation policies to promote new growth opportunities in the EU by selecting a limited number of prior areas based on the characteristics of regional markets and productive systems.

However, since regions and their productive systems are very different throughout Europe, their RIS3 are very distinct and so are their priorities and objectives. As a consequence, their monitoring systems and their organisational bodies seem individual as well.

Partners considered and compared first the priority axes of RIS3 in partner countries. Table 4 presents the results of this comparison.

Table n. 4 *Overview of common Priority Axis*

NUTS-2 regions	DÉL-ALFÖLD & ÉSZAK-ALFÖLD	JIHOZÀPAD	LUBELSKIE	MECKLENBURG WESTERN POMERANIA	PIEMONTE	SILESIA	SLOVENIA	STYRIA	VENETO
DÉL-ALFÖLD & ÉSZAK-ALFÖLD		Advanced technologies in the vehicle and other machine industries, Sustainable environment, Health and society wellbeing	Clean and renewable energies	Advanced technologies in the vehicle and other machine industries, Health and society wellbeing, Healthy local food, Clean and renewable energies, ICT and information services	Advanced technologies in the vehicle and other machine industries, Health and society wellbeing	Clean and renewable energies, ICT and information services	Advanced technologies in the vehicle and other machine industries, Healthy local food	Healthy local food, Clean and renewable energies	Advanced technologies in the vehicle and other machine industries, Healthy local food
JIHOZÀPAD	Mechanical Engineering, Natural resources, agriculuture and food, Health care - advanced medicine		Health care - advanced medicine, Digital Market Technologies and Electrical Engineering	Mechanical Engineering, Natural resources, agriculture and food, Transport means for the 21st century	Mechanical Engineering	Health care - advanced medicine	Mechanical Engineering, Natural resources, agiculture and food, Health care - advanced medicine, Transport means of the 21st c	Natural resources, agriculture and food, Transport means for the 21st century	Mechanical Engineering, Creatives, Natural resources, agriculture and food
LUBELSKIE	Low-carbon emission energy	Medicine & Health, IT & automation		Low-carbon emission energy, IT & automation	Bioeconomy	Medicine & Health, IT & automation, Bioeconomy	Medicine & Health, IT & automation	Low-carbon Technology	IT & automation
MECKLENBURG WESTERN POMERANIA	Energy and climate, Nutrition, Health and life sciences, Sustainable production techniques and new materials especially in engineering, ICT	Nutrition, Mobility, Sustainable production techniques and new materials especially in engineering	Energy and climate, ICT		Health and life sciences, Sustainable production techniques and new materials especially in engineering	ICT, Mobility, Energy and climate	Nutrition, Mobility, Sustainable production techniques and new materials especially in engineering	Mobility, Nutrition, Energy and climate	Nutrition, Health and life sciences, Sustainable production techniques and new materials especially in engineering

NUTS-2 regions	DÉL-ALFÖLD & ÉSZAK-ALFÖLD	JIHOZÀPAD	LUBELSKIE	MECKLENBURG WESTERN POMERANIA	PIEMONTE	SILESIA	SLOVENIA	STYRIA	VENETO
PIEMONTE	Mechatronics applications for consumer and industrial products, Life Sciences Technologies for Wellbeing and Health	Mechatronics applications for consumer and industrial products	New products and processes for green chemicals development	Mechatronics applications for consumer and industrial products, Life Science technologies for Wellbeing and Health		Business innovation in textile and fashion, food, style and design	Mechatronics applications for consumer and industrial products	Life Sciences Technologies for Wellbeing and Health	Business innovation in textile and fashion, food, style and design, Mechatronics applications for consumer and industrial products
SILESIA	Energy, ICT	Medicine	ICT, Medicine, Green economy	ICT, Mobility, Green Technology	Emerging industries		Medicine, Green Economy	Green economy	Green economy
SLOVENIA	SI_industry 4.0 - Smart Factories, Sustainable Food Production, Smart Mobility, Health / Medicine	SI_ndustry 4.0 - Smart Factories, Health / Medicine, Smart Mobility, Sustainable Food Production	Health / Medicine, SI_ndustry 4.0 - Smart Factories	Smart Mobility, Sustainable Food Production, SI_ndustry 4.0 - Smart Factories	Development of Materials as Products	Health / Medicine, Networks for the Transition to Circular Economy		Smart Mobility, Sustainable Food Production, Networks for the Transition to Circular Economy	Networks for the Transition to Circular Economy, Sustainable Food Production, SI_ndustry 4.0 - Smart Factories
STYRIA	Green Technology, Health and Food Technology	Mobility, Health and Food Technology	Green Technology	Mobility, Green technology, Health and Food Technology	Health and Food Technology	Green technology	Mobility, Green Technology, Health and Food Technology		Health and Food technology
VENETO	Advances technologies for manufacturing, Providing healthy and safe food	New technologies for creative industries, Advanced technologies for manufacturing, Providing healthy and safe food	Advanced technologies for manufacturing	New technologies for sustainable living, Advanced technologies for manufacturing, Providing healthy and safe food	New technologies for creative industries, Advanced technologies for manufacturing	New technologies for sustainable living	New technologies for sustainable living, Advanced technologies for manufacturing, Providing healthy and safe food	Providing healthy and safe food	

Source: *SMART_watch - Interreg Central Europe*

The analysis has shown that the content of an axis often has high similarities to axis of another region but were labelled differently. Moreover, lot of common priorities can be identified – all regions have at least one common priority in terms of content. This finding enables a new view on possible cooperation.

Reviewing the table above, a few priorities can be highlighted with high appearances:

- *Renewable energies – sustainable economy*
- *New technologies in engineering and manufacturing*
- *Health and Life Sciences*
- *Sustainable Food Production – nutrition – local food*
- *Medicine & Health*
- *IT – ICT – Smart Solutions*

As already claimed earlier, the regions are highly individual and different. However, Table 5 provides another view on the Smart Specialisation approach. A lot of common priorities can be identified – all regions have at least one common priority in terms of content. This finding enables a new view on possible cooperation. So far, the regions have shown only a few cross-border activities in terms of RIS3, due to the fact that they seem to be convinced that every region faces different content related challenges. This attitude could be neglected with respect to the provided short analysis of the priorities. Instead, the number of possible cooperation regions in the Smart Specialisation implementation is larger than expected.

Having considered RIS3 priorities, SMART_watch partners paid attention to the practices used in partner countries to monitor the strategy implementation.

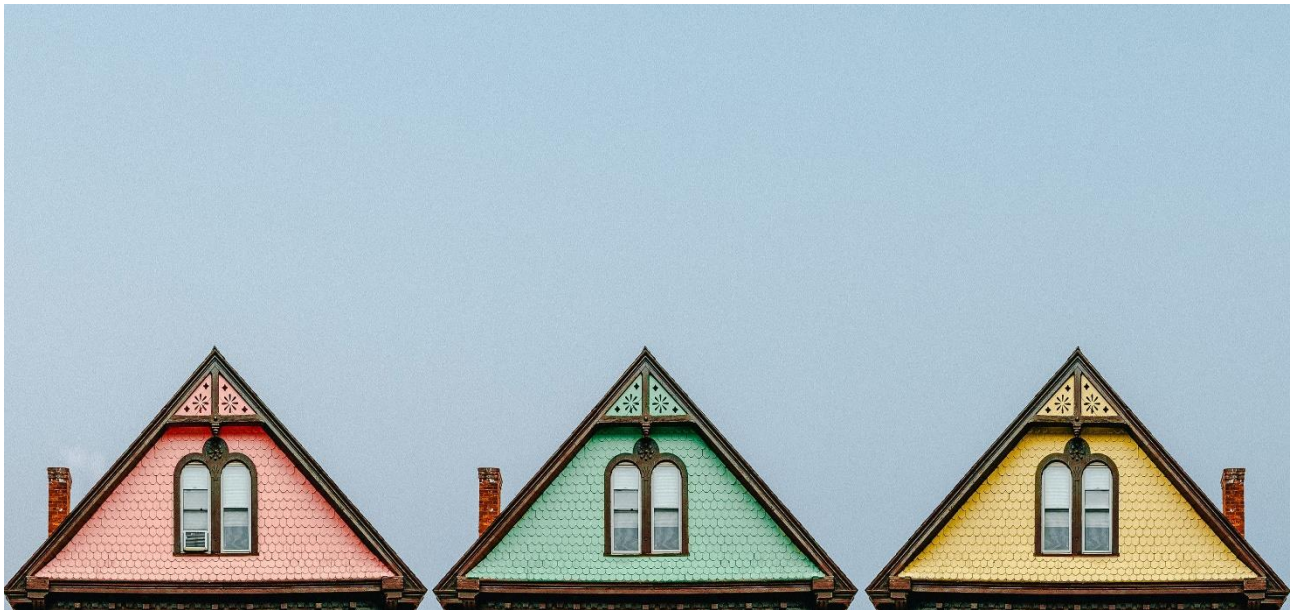


Table n. 5 *Comparison of monitoring systems*

Monitoring system characteristics	DÉL-ALFÖLD & ÉSZAK-ALFÖLD	JIHOZÀPAD	LUBELSKIE	MECKLENBURG WESTERN POMERANIA	PIEMONTE	SILESIA	SLOVENIA	STYRIA	VENETO
Precise articulation of Policy intervention	Intervention tools follow monitoring results	Basic functions of RIS3 implementation introduced	RIS supporting policy instruments formulated	Not applicable	Multi-level structure with clear bodies and respective tasks	Interventions dedicated to development of Innovation Ecosystems	Business Development Strategies included	No RIS3 document, but Economic Strategy 2025	Tables of consultation and credit tables implemented
Specific "Team" assigned being responsible	No responsible body on regional level; Monitoring: National Research Innovation and Development Office	Regional Innovation Council	Marshalls Office; Responsibilities shared according to respective tasks (monitoring, implementation)	Strategierat, Wissenschaft, Wirtschaft	Policy Unit, Management Committee, S3 Team	Management Unit of RIS, Implementation & coordination RIS	Strategic Development and Innovation partnerships in long-term aimed (SDIP) Ministry of Economic Development and technology		Steering group
Clearly defined Monitoring tools and activities	Not applicable	Smart Accelerator	Not applicable	Not applicable	Clear description of responsible tasks	Process including responsibilities described in timeline	Set of indicators, policy mix and action plan		Not applicable
Consensus on policy success and how to measure	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Defined milestones for Innovation Ecosystem	Continuous monitoring in policy mix implementation		Not applicable
Design according to data capabilities	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable		Not applicable
Design according to regional strengths and priorities	National strategy trying to cover regional strengths	Strategy and indicators according to key areas	Setting up three priorities to achieve objectives	Strategy developed for key priority areas	Indicators chosen according to priorities	SWOT, technology, environment and branch analyses conducted	Implementing responsible bodies along priorities		Indicators chosen according to priorites
Periodic Monitoring and Evaluation (iterative process)	On-going	Not applicable	On-going monitoring	On-going monitoring	Implemented by Management Committee (Evaluation and Monitoring Unit)	Ex-ante, mid-term and ex-post evaluation	Not applicable		Management team implemented for on-going data collection, annual questionnaire

Clearly defined data sources for used indicators	Sources given but no data base indicated for output indicators	Not applicable	Data sources named but not dedicated to indicators	Mainly Eurostat and national data bases	National and regional databases	Tailor-made evaluation with Smart indexes	Not applicable		National and regional data bases
Base values for all indicators (result, output & context)	Stated for context and outcome indicators	Information on values only at national level	Not applicable	Only used for result indicators	Base and predicted values included for all indicators	Base and target values for most indicators	Base and target values for all indicators		Base and predicted values included for all indicators
Effective relationships between all actors	Not applicable	National and regional platforms, coordinator as intermediate	Already included in strategy development	Working group with representatives from policy, business and university	Policy Unit, Management Committee, S3 Team, Thematic Working Groups	RIS Steering Committee as coordinator of all actors, Network of RIS Observatories	SDIP in support of Governemental Working Group		Regional Steering Committee with advisory functions
Clear information process to policy makers	Strategy and monitoring at political level	Regional RIS3 coordinator as intermediate to national strategy	Monitoring report published	Undersecretary of Ministry of Economics as head of Stretegierat	Policy Unit involved in monitoring	Annual presentation of monitoring results	Political level included in monitoring		Dissemination event and annual report
Clear information process to stakeholders	S3 support companies included	Regional innovation platform	Monitoring report published	One representative from NGOs for each priority in working group	Finpiemonte as intermediate to business	Stakeholders included in RIS network	SDIP contains enterprises, public institutions and universities		Dissemination event and annual report
Evaluation method included to assess objectives	Not applicable	Target values at national level for indicators	Ex-ante, midterm and ex-post annualy	Not applicable	Target values for indicators	Monitoring and evaluation structure given	Yearly monitoring		Target values for indicators

Source: *SMART_watch - Interreg Central Europe*

The results of the comparison brought out several similar approaches of the regions for the RIS3 implementation strategy and monitoring. For example, all regions appoint a responsible body for RIS3 implementation and monitoring. In most cases working groups, observatories, NGOs or other kind of institutions support those appointed bodies. Besides that, all regions developed a set of indicators using output and result indicators at least having indicated base and target values for most of them. The monitoring with those indicators is mostly designed as an on-going procedure.
The focus on used indicators was the stepping point to identify a common set of indicators for Central Europe partner countries.

By analysing the monitoring systems and the used indicators, it turned out that in most regions two different types are used: result and output indicators. RIS3 result indicators measure the direct impact of the implementation for the whole region, focussing on innovation, research or economics. In some cases, base values and target values are provided.
The second category of indicators are related to outputs. They measure project specific values and provide a certain amount as target value to be reached in the relative period. Examples are: number of patents, EU funded projects, persons employed in a specific sector, companies with new business products, clusters, R&D subsidies, supported networks and so on.

From common indicators to the Benchmarking tool

The Benchmarking tool uses the Common set of indicators described above as a database for the comparison of partner regions in the Central Europe Programme. This tool tries to provide an approach to benchmark the performance of the regions in the frame of Smart Specialisation implementation by using one Common set of indicators instead of following the respective national or regional monitoring systems. This ensures a better comparison since the same data are used to analyse the regional implementation in detail.
The implemented benchmarking can be seen as a combination of a competitive benchmarking that involves a comparison of processes with the participating competitors. Besides that, in combination with other tools created in the SMART_watch project, the tool supports the concept of benchlearning based on the idea to learn from external actors.

The SMART_watch proposal for a transnational Regional Observatory on RIS3

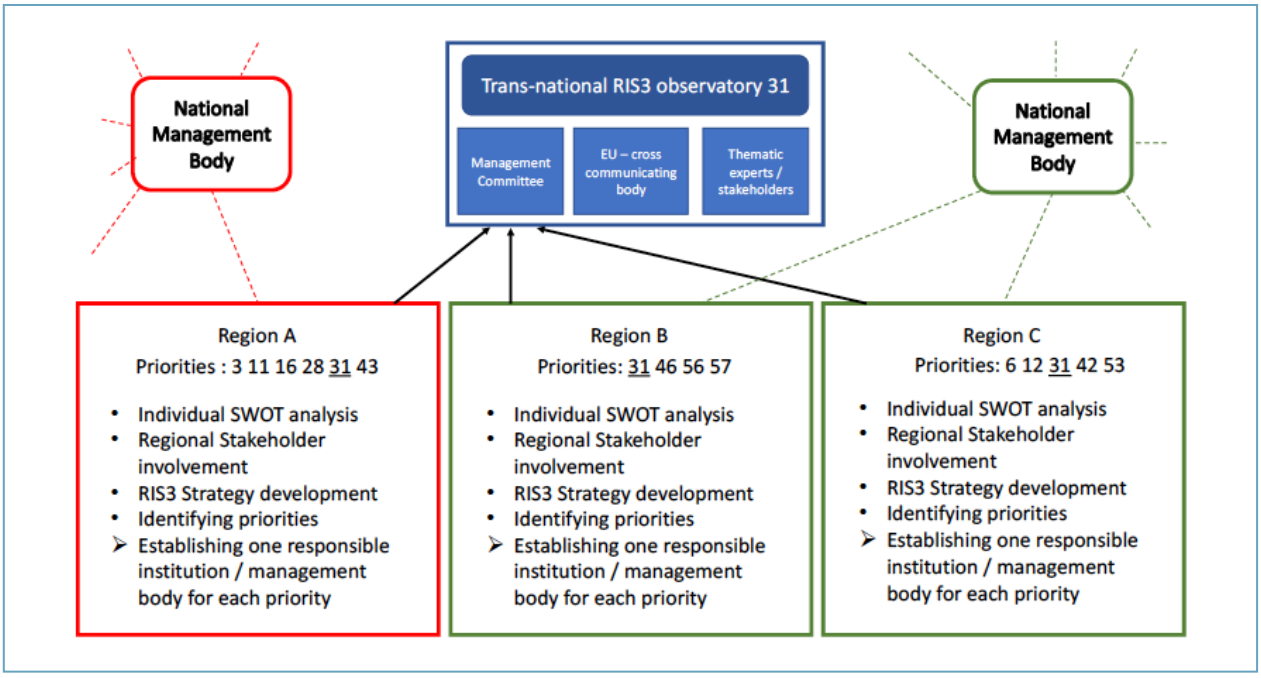
In previous pages, the characteristics of ROs derived from the supply and demand analysis have been presented. As an outcome of the networking activity and of the finalisation of SMART_watch results, partners were able to outline their idea of a transnational RO. SMART_watch partners consider the model of RIS3 observatory as a framework that encompasses all the actors involved in the Smart Specialisation implementation, their tasks and responsibilities as well as interactions between each

other and the overall structure. Partners developed guidelines to unfold a strategy to implement RIS3 and this strategy determines the structure of the observatory, identifying crucial activities, functions and aspects. Besides that, pivotal issues for the observatory are the realisation of an on-going monitoring system for the whole RIS3 implementation process and the networking approach.

One aspect to care about is the fact that Central Europe partner countries may have different approaches to RIS3 monitoring: only national systems, national and regional systems, only regional systems.
In a similar way, CE countries have different performances in implementing RIS3, as SMART_watch clarified by using the Common set of indicators and the Benchmarking tool. However, partners do not intend to assume that best performers automatically have the best monitoring systems, for many reasons which include the heterogeneity of the regions in terms of economic and innovation potential.

Though the regional and national levels cannot be excluded (considering the differences and dissimilarities between CE regions), the partnership prefer to concentrate on the development of a transnational RIS3 observatory with focus on thematic fields.
To justify a transnational observatory approach, the concept of clusters shall be introduced. Cluster are interconnected companies and institutions in a particular thematic field with a certain geographic concentration. Transferring this definition to RIS3, we can indicate in every region with an own strategy and priorities, several RIS3 clusters according to the amount of priorities.

As mentioned before, the national sphere should not be excluded from the overall structure. National bodies are integrated in the model below as well, but serve as a facilitator and coordinator for the regions.
Figure 7 below highlights the transnational RIS3 observatory model and the relations between the several actors involved.



Source: *SMART_watch - Interreg Central Europe*

Figure 7 connects several regions coming from different countries according to their chosen priorities. In this example, three regions are implemented coming from two different countries (highlighted in red and green). Following this model, every region is developing an own strategy, exploiting a detailed regional SWOT-analysis (or similar tools) to derive priorities – only the monitoring system will not be developed by the regions individually. The chosen priorities are represented by numbers (this model assumes that there is a unified set of priorities to choose from).

Another crucial aspect for every region is to find one responsible institution or representative in charge for one of the priorities. This includes representing the respective sectors in the region as well as supporting all participating actors in the field.
This proposal foresees for managing the observatory at least three main bodies: a managing committee, which consists of one representative from each included region for the respective priority. Figure ++ gives an example for the priority No. 31, which means that the Management Board in the illustrated example would be builded by the three representatives responsible to facilitate priority 31 in their region. The main activity for this committee is the general management of any actions related to their regions in the respective priority as well as coordinating the regional Smart Specialisation implementation in a cross-regional cooperative way.

The second body is the EU cross communication structure, which is mainly responsible for the external communication of results, action plans, events, success stories and so on. Furthermore, this body would have the responsibility to exchange all necessary information on European level.

Finally, the thematic experts / stakeholders who provide specific expertise.

As for a monitoring system for a transnational RIS3 observatory, SMART_watch proposal should follow the cluster policy cycle containing three stages: Analysis, Strategy and Action. The main challenge to develop an efficient monitoring system is probably to set up a useful and effective set of indicators. In the model, this task would be solely in responsibility of the Transnational RIS3 observatory, to allow a comprehensive comparison between individual performances. It is recommended to unify the used indicators for RIS3 implementation. This ensure a sufficient comparison between different regions even with respect to their individual priorities. Additionally, every thematic observatory should develop indicators trying to cover the respective priority.

look to the future:
what if it's just the beginning?

RECOMMENDATIONS AND CONCLUSIONS

The conclusive section of this publication is about the reflections and recommendations that SMART_watch partners made in order to support Smart Specialisation to promote new development opportunities in Europe. The section is structured in points to ease the understanding of the link between the proposals and the outcomes on the analyses carried out by SMART_watch partners.

- To begin with, as we have seen SMART_watch partners compared the priority axis of all regions, to focus on the thematic fields dealing with RIS3. This comparison shows that similar priorities could be found for every combination of the regions with differences indicated in the priority labels. On the other hand, the amount of priorities is different for the partner regions. Therefore, the recommendation is to unify the labels and provide a clearly described selection of priorities, with the purpose to have a unified set of priorities to choose from.

- In addition to this, partners compared and evaluated as well the structure of the regional / national strategies. Again, several similarities referring to how the monitoring systems are implemented emerged. Resulting from this, a high potential for cooperation and synergies between the regions can be derived. One crucial recommendation to be made from this overview is to unify the monitoring systems of the regions.

- In fact, at first sight the monitoring systems and their organizational bodies are highly individual and context-specific referring to their tasks in the monitoring and implementation of the regional Smart Specialisation Strategy. This may be a recommendation for the next funding period and Smart Specialisation period: to provide an approach to establish a more unified monitoring system over all NUTS-2 regions by the European Commission.

- Qualitative data and evidences (so-called because are produced through qualitative research design and methods) are a kind of "children-of-a-lesser-god" in RIS3 monitoring schemes (and not only in RIS3, in fact). More attention is today reserved to qualitative in evaluation (out of RIS3 boundaries) but only in recent times and still with difficulties in being considered – in its outputs – as credible and sound as quantitative approaches and methods. Nonetheless, relevant RIS3 monitoring dimensions (especially in perspective) like internationalization, networking, links with other EU Programmes, cooperation, responsiveness to industrial changes, governance, innovation diffusion are likely to be better overseen if qualitative approaches and methods are used in combination with quantitative ones. Qualitative research (the theoretical framework to be assumed) is not based on a unified paradigm and methodological concept but its distinguishing feature may be summarized in two elements:

    - research objects are not reduced to single and specific variables but they are studied and considered in their complexity and entirety;
    - research objects are studied in their everyday context.

  This is fully consistent with RIS3 being a strategy (implemented by a set of inter-connected and networked actors in a specific context by means of intentional and un-intentional processes) and not a funding instrument or a prescription to apply. Qualitative approaches use verbal and visual data (mostly collected through semi-structured or narrative interviews, Focus-groups or so-called *visual methods*) as evidence for monitoring and as basis for conducting RIS3 evaluations. In both cases data must be organized in terms of coding and categorizing in order to be analysed and enhanced for monitoring or evaluation purposes. Therefore, the recommendation is to progressively include qualitative approaches and methods in RIS3 monitoring systems and evaluations designs.

- Referring to monitoring RIS3 systems, the basic idea is another recommendation: to unify the used indicators to measure the Smart Specialisation implementation. Currently, the decision on the chosen indicators is still made by the regions individually, which leads to biased comparisons. Besides that, partner considered innovation driven processes to improve the indicators' sets currently used in existing systems. This may lead to an add-value of the current monitoring systems due to a larger framework. Moreover, digitalisation indicators were considered as well as potential and networking indicators.

- It should be noticed, that the proposed selection is only build on the monitoring systems of the participating regions. However, ideally the Common set of indicators and the deriving benchmarking tool should be improved by integrating more NUTS-2 regions of the European Union. By doing so, the selection of indicators has to be re-analysed regarding the overlapping and adoptable indicators.

- In the process of finalising indicators and monitoring systems a specific role is played - in SMART_watch vision - by the Transnational RIS3 observatories. In fact, SMART_watch partners designed their model for a RIS3 observatory which can operate beyond borders. To justify a transnational observatory approach, partners considered the concept of clusters which are interconnected companies and institutions in a particular thematic field with a certain geographic concentration. Transferring this definition to RIS3, we can indicate in every region with an own strategy and priorities, several RIS3 clusters according to the amount of priorities.

- Partners believe that the starting point for a sufficient set of indicators has to be at European level in dialogue with the Transnational RIS3 observatories. In fact, by elaborating a Common set of indicators, partners already introduced one approach to unify the indicators from a restricted number of regions as an example. Additionally, to the agreed indicators to measure Smart Specialisation implementation – and in agreement with the European level – the Transnational RIS3 observatories should add specific indicators according to their thematic fields. Here the recommendation is to expand a set with more indicators coming from different strategies that may also be able to measure Smart Specialisation.

- The final step for the Transnational RIS3 observatory to conclude the setting up phase for a set of indicators is to derive clear base-lines and target values for each indicator in each region. At this step, the heterogeneity of all regions under the observatory has to be considered. Each region has different base values and should have different target values according to their economic, innovative and competitive circumstances and potentials. The used data sources for each indicator have to be clarified at an early stage.

- The decision on the system implementation in detail needs to be derived at European level in order to guarantee the unification of the monitoring systems among all defined Transnational RIS3 observatories. Since the received data from all observatories should cover also all European regions, the monitoring system provides a comprehensive analysis and overview as well as fundamentals for future development for RIS3 implementation.

- Transnational RIS3 observatories should be connected in networks. The intended network of the SMART_watch project is expected to be a dynamic, target-oriented network, which deals with clearly defined tasks that are too complex to be handled by a single actor; resources of different actors are therefore combined and coordinated.

- Participants in a network should have several characteristics: for example, the stakeholders within a network bring in different abilities, motivations, and resources. Although they are connected via the network, they represent the nodes that use their mutual relationships with a certain degree of autonomy. The effects of synergy include information, experiences and ideas to be exchanged; moreover, sharing resources like equipment or premises can avoid parallel activities and investments. The network that project partners are proposing is characterised by a high degree of commitment to have a direct impact on the business processes of the actors involved.

- The network main objective should be to increase the efficiency of Regional Branch Observatories that monitor technology trends and market developments in the field of technology and Smart Specialisation. The network should maintain a stable cooperation platform of participants of the innovation sectors and supply them with a set of market - relevant monitoring and benchmarking tools. The network's activity is based on Smart Specialisation Strategies in project partners regions and it aims at elaborating knowledge management services and tools to generate products corresponding to the real needs of end - users. Besides that, the network provides suggestions to regional and national policy-makers for new perspectives and changes, strengthen innovation in Central Europe and increase transnational links for improving existing and developing new services.

- Within the SMART_watch network, the following articulation is proposed:

1. In the "professional performance system", the network participants and associated stakeholders work together to achieve the network objectives (e.g. creation of a "transnational European network for innovation support"). This implies the distribution of tasks, the agreement on quality standards, a continuous innovation culture.
2. For this to be possible, a functioning "social and organisational development system" must be created. This system deals with questions of identity formation, motivation promotion and the development of a strong network culture. This implies capable actors to achieve network's objectives, mutual trust to secure successful cooperation, network identity and culture (also promoted by names, design and logos), commitment to network and moderation.
3. The "strategy and decision-making system" forms the framework for action for the "professional performance system". This includes the development of a mission statement/overall concept, the definition of internal rules and network control. This implies also the identification of the objectives to be achieved by the network, the creation of value for customers, the decision-making ability and the willingness to evaluate constantly the success of the network.
4. The "operational management system" is responsible for controlling the overall process. This encompasses the leadership building process, the adoption of clear planning and monitoring mechanisms, the resource balancing, the ability to change, the market orientation.
5. Finally, a well-functioning "information system" (e.g. information procurement, knowledge management, documentation) is required to ensure a high degree of transparency and effective communication between the network participants. This implies the use of technical equipment, the sharing of a platform, the transparency and efficacy of the information flow.

- Basing on the demand side analysis in terms of services and functions carried out by partners, most appreciated observatories are considered those which offer the following points:

  - attention/support to network's participants and to network's participants external visibility, development and promotion;
  - capacity to operate in favour of network members through both dedicated projects (at regional, national or EU levels) and ordinary mechanisms and processes;
  - engagement and activation of the ROs at horizontal and vertical levels. The horizontal level encompasses the capacity to identify other channels and ways to foster and support innovation, while the vertical level is about the capacity to involve public institutions and second level aggregating bodies;
  - capacity to have prompt answer to the specific demands of innovation of SMEs;
  - support companies by relieving them of the bureaucracy and administrative complications that characterize the implementation of the development and research projects financed by public funds;
  - collection of the needs expressed by companies in order to represent the interests of the business community to policy makers and stakeholders.

- Therefore, the network's basic activities should include the following:

  - the establishment and maintenance of a cooperation platform;
  - the sharing of knowledge, contacts and competences;
  - the participation in public events and social media activities;
  - the participation in business networks and initiatives;
  - the publication of market-relevant facts, figures and news;
  - the promotion of the network and its values.

- The Transnational RIS3 observatory model is a well-argued proposal for cross-border and multi-scale cooperation of RIS3 implementation. From the theoretical perspective, the implementation is recommended for the next funding period. Nevertheless, the next steps would be to develop a detailed feasibility study on the model including actors from all participating levels.

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- The strengthening of monitoring and evaluation, especially in order to draw lessons and learning from their regular functioning and implementation, is one of the key-issues of post-2020 Smart Specialisation. Such a strengthening is going for sure to depend on design, development and methodological qualifications of monitoring and evaluation systems at both territorial and transnational level. But, in addition, it is also the deliberate consequence of a clear, explicit ad possibly shared definition of what, respectively, monitoring and evaluation are. In the current experience of RIS3, monitoring has generally been considered as also including, although very weakly in substantial terms, evaluation. However, exactly for this reason, evaluation – primarily focused on identifying and isolating RIS3 contribution to its intended effects at territorial level – received poor attention in practice. It is therefore important for the next programming period, this is the recommendation, to assume both monitoring and evaluation as distinct and specific areas of attention and investment. In fact, they are reciprocally related but different for aims, rationale and supporting methods. On this basis, both RIS3 monitoring and evaluation systems need to be implemented because, on one side, they are expected to open different perspectives on RIS3 effectiveness and quality and, on the other side, the added-value they can produce together and interlinked is much more relevant than the one produced by only monitoring or evaluation alone.

- RIS3 monitoring systems are largely focused, it is very common and diffuse, on outputs' observation and consistent with a traditional accountability perspective. This tradition, supported and nurtured by many EC publications especially referred to ERDF and ESI Funds, is based on principles like objectivity, coherence with explicit criteria, accountability. It is such a tradition, which allows for over-time comparisons among territories, to be behind the common indicators actually in use for monitoring RIS3 implementation. Nonetheless, in order to catch – especially for evaluation purposes – richer and wider dimensions of RIS3 logic and contents, other focuses should be introduced. These additional focuses are consistent with RIS3 being, as already underlined, a strategy and therefore much more than a funding instrument but, rather, a structured path for both achieving results (in terms of innovation, specialization, learning) and triggering processes and persisting contexts' modifications.

- Two focuses must therefore be added and this is the recommendation. One is on specialization process(es) and the second is on learning dynamics. The first aims at mapping, describing and understanding the evolutions and modifications in territorial specialization domains especially in terms of emerging sectors and industries as well as KETs. It's largely an experts-based activity which must be conducted continuously and with the involvement of different types of experts (belonging to universities, research centres, entrepreneurial associations and public institutions). The second one is about learning dynamics; this focus is on the identification and assessment of learning objects (RIS3 related, obviously), modes, uses and improvements. A mix of quantitative (typically indicators-based) and qualitative methods and techniques must be used for grasping and understanding learning dynamicity in all its complexity and multi-faced evidence.

- Monitoring systems and evaluations need sound and adequate infrastructures for being fully implemented, produce their outputs and therefore give their expected contributions to RIS3 effectiveness and responsiveness. This is the *recommendation*, to provide – mostly by public institutions, also in cooperation with private partners – such infrastructures. With *infrastructures* we basically refer to the following soft and hard elements:

    - dedicated human resources (with specific expertise and know-how not only in monitoring and/or evaluation but also, on one side, in RIS 3 logic, contents and implementation mechanisms and, on the other side, on territorial or sector-based innovation and technologies);
    - dedicated organizational resources (that is, for example, observatories – or equivalent organizations – suitably equipped in terms of funding, hard and soft assets, operational procedures);
    - tools (based on coherent methodological designs) for collecting, organizing and analysing data;
    - relevant actors and stakeholders' engagement (in order to make possible for monitoring or evaluation to take advantage from the *relational resource* represented by the subjects involved and/or interested in RIS3 processes, results and outcomes).

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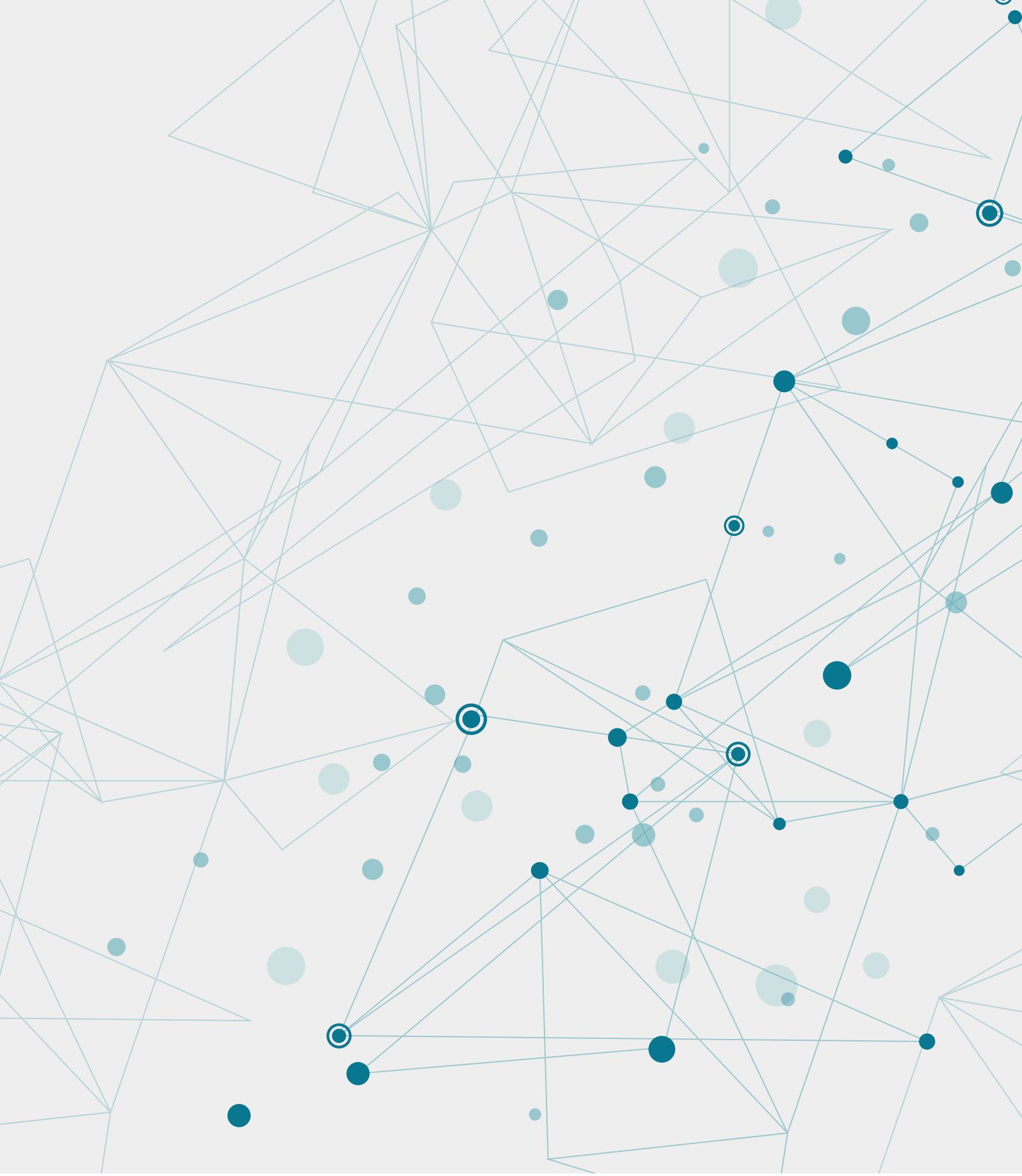

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