

## Interreg Alpine Space 2014-2020

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## Contents

1. Introduction.....	3
2. Executive summary.....	5
3. Recommendations.....	7
4. Implementing inter-regional collaboration in R&I .....	9
Identification of common priorities .....	9
Mechanisms for promoting inter-regional collaboration in R&I .....	10
Funding programs.....	18
ANNEX - Interregional collaboration in research and innovation .....	21
What – Research and innovation .....	21
Why – The rationale for collaboration .....	22
Who – Subjects involved .....	22
How – Collaboration mechanisms.....	25



## 1. Introduction

The aim of this Policy Brief is to provide public administrations (PAs) of the Alpine macro-region (AR) recommendations to enhance transnational and transregional collaboration in research and innovation (R&I), with specific emphasis on the Smart Specialization Strategy (S3/RIS). Specifically, the Policy Brief will provide a methodology for the design and implementation of a common S3/RIS policy, based on the identification of shared approaches and common R&I priorities. Moreover, PAs will obtain a roadmap to activate S3 transnational mechanisms with the aim of sustaining mutual learning, sharing good practices, and fostering the collaboration in R&I projects.

When considering inter-regional cooperation in research and innovation it is important to take into consideration the complexity of the framework in which these collaborations take place, in terms of:

- the diversity of public and private organizations involved.
- the differences in the legislative framework regulating public and private R&I in the AR countries.
- the plurality of funding programs available to sustain R&I at the EU, national and regional level.
- the many problems which arise when designing and managing collaboration projects involving similar organization (i.e., firms) or between different organizations (such as firms and universities).

The Policy Brief is primarily addressed to PAs operating at national and regional level, which are responsible for the design and implementation of S3. Moreover, R&I is carried out for the most part by research institutions and firms. PAs are considered for their role as funders and regulators, which influences the amount of public and private resources invested in R&I and their direction, i.e., the areas on which these resources are addressed. The emphasis of the Policy Brief is on the identification of common R&I investment priorities across AR regions and, most of all, on the mechanisms that may support the collaboration between PAs and relevant stakeholders in addressing these priorities.

The recommendations contained in this Policy Brief build on the results obtained from previous A-RING activities. Specifically, the output of the AT1.3 on Transnational R&I Focus report, the output of the AT1.4 on Research & Innovation laboratory (Alpine S3 Lab) and the AT1.5 about the design of a Strategic Research and Innovation Agenda (SRIA).

The Policy Brief provides a synthesis of the results so far achieved and develops proposals based on the suggestions and information gathered from the stakeholders involved in the previous phases of the A-RING project as well as the results of other Alpin Interreg projects about R&I.

The Policy Brief is organized around three main issues:

- The identification of the areas and topics that are more likely to be at the basis of collaboration;
- The analysis of the institutional mechanisms that are more effective in promoting interregional collaboration and stakeholder involvement;
- The identification of the funding programs that may be used to sustain the collaboration.

The Annex provides a general overview of the main problems involved in transnational and inter-regional collaborations in R&I.



## 2. Executive summary

The aim of this Policy Brief is to provide public administrations (PAs) of the Alpine macro-region (AR) **recommendations to enhance transnational and transregional collaboration** in research and innovation (R&I).

The Policy Brief provides a **synthesis of the results so far achieved** by the A-RING project and develops proposals based on the suggestions gathered from the stakeholders involved in the activities of the project.

The emphasis of the Policy Brief is on the **mechanisms to start and support the collaboration** between relevant stakeholders in addressing common priorities.

There is an increasing convergence of R&I priorities of Alpine regions around three broad issues: **a) digital transformation; b) sustainability; c) mobility**. The most promising topics are: artificial intelligence; industry 4.0 and production transformation; circular economy solutions; renewable energy sources and cleaner production; smart mobility.

The policy brief suggests two types of cooperation mechanisms with a different degree of complexity, stakeholder involvement and efficacy:

- 1) **information sharing;**
- 2) **structured dialog.**

It also reviews the **funding programs** available to support the implementation of these mechanisms and of the resulting collaborations in R&I projects.

**Information sharing** is aimed at improving knowledge and trust between stakeholders and facilitate coordination. It can be considered as a preliminary step towards the starting of a structured dialog. Two information sharing mechanisms are suggested:

- **Matchmaking parley**, aiming at defining common areas of interests among different stakeholders.
- **Seed lab**, aiming at generating ideas for joint project/activities.

A **structured dialog** is a tool to promote the collaboration on specific topics.

The **Alpine S3 Lab** is proposed as a structured dialog involving PAs and other stakeholders aimed at implementing R&I collaborations.

The Alpine S3 Lab is a process developing in three phases: starting phase; structuring phase; working phase. It is a **bottom-up process** initiated by interested stakeholders and **involving the AG1** of the EUSALP governance.

**Funding** is essential for both:

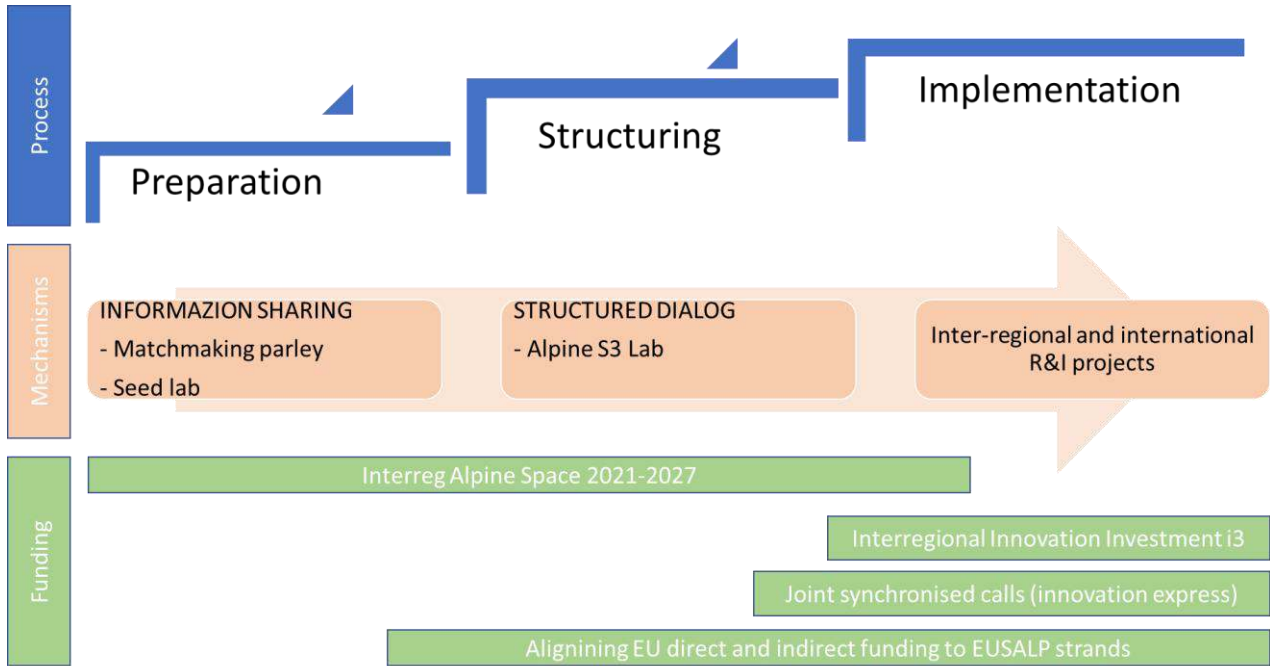
- a) supporting the cooperation mechanisms;
- b) sustaining R&I collaboration projects.

In general, EU funding programmes show a low degree of integration with macro-regional strategies.

The Policy Brief reviews some of the funding programs which may support R&I collaborations: Interreg Alpine Space 2021-2027; Interreg Interregional Innovation Investment (I3). Moreover, the Policy Brief suggests

strategies for the alignment of regional funding programmes.

Here below is a graphical presentation of the suggested mechanisms and funding programs.



### 3. Recommendations

#### Bottom-up approach

The Policy Brief emphasizes the importance of following a bottom-up approach in promoting R&I collaborations and the need for incentives and mechanisms to involve relevant stakeholders.

#### Identification of common priorities

The results of the A-RING Alpine S3 Lab make it clear that the identification of common priorities is the result of a process requiring the active involvement of interested stakeholders and should reach a meaningful granularity. The process is based on cooperation mechanisms which were tested in the A-RING project and are illustrated below.

#### Information sharing

When considering information sharing the key issue is not to try and design a new platform but using in an effective way the many platforms that are already in place at the EU, national and regional level. This requires competences in:

- a) understanding the information needs of stakeholders;
- b) collecting the information from available sources;
- c) analysing data according to the stakeholders' aims.

## Matchmaking

The experience of the A-Ring partners in implementing matchmaking parleys and seed labs point out to the importance of PAs commitment in these mechanisms. Although they are addressed to interested stakeholders, political will is essential in creating a favouring and welcoming ground and ensuring continuity for the collaboration efforts among the various stakeholders.

## Implementing the Alpine S3 Lab

The Alpine S3 Lab has several advantages as a tool for promoting R&I collaborations:

- The Lab does not require the set-up of new organizations or legal entities (such as consortia, associations, etc.).
- The Lab is set-up for a specific time period, according to the aims of the collaboration project.
- The Lab relies on the involvement of PAs and stakeholders interested in a specific topic and that are expected to contribute to the organization of the Lab and provide the necessary resources to carry-on its activities.
- The Lab involves the EUSALP AG1 leader and members; this is important to validate the Lab, support the interested members in the organization of the Lab and provide guidance about its activities.



## 4. Implementing inter-regional collaboration in R&I

### Identification of common priorities

The focus of AT1.2. of the A-RING project was to identify the R&I topics (priorities) for which the cooperation between PAs is more likely to enhance R&I in the AR.

The analysis conducted in AT1.2 and the subsequent meetings with different stakeholders showed that up to now there has been limited R&I cooperation in the AR. At the same time, the analysis revealed limited presence of EUSALP topics and priorities in the S3 of EUSALP countries and regions in the programming period 2014-2020.

For this reason, it is important to understand what the shared S3 topics are among the AR members and to foster inter-regional cooperation towards their pursuit. This was the aim of the activities in WPT2 that were addressed at promoting a better communication between PAs towards the alignment of their R&I priorities. The study revealed that at present there is a high demand for more communication and more involvement in the existing platforms and discussion forums and that few PAs are currently cooperating and taking part in those forums and platforms to find common solutions (dt1.4.2 p.59).

The identification of R&I priorities identified by countries and regions in their S3 is of key relevance for promoting inter-regional collaborations.

The results of the activities carried out under WPT1 revealed that **there is an increasing convergence in R&I priorities of AR regions around three broad issues: a) digitalization and digital transformation; b) sustainability; c) mobility.**

Within these broad areas, second level topics have been identified which are generally present in R&I priorities of AR regions:

- a) artificial intelligence, industry 4.0 and production transformation.
- b) circular economy solutions, renewable energy sources and cleaner production.
- c) smart mobility.

Together with these topics which are of general interest for the AR countries and regions there are a few topics of special interest to some countries: a) life sciences, medicine, health innovation (for France and Germany); b) tourism (for France and Italy).

These topics have been identified for being not only interesting for the present of each region, but even more so in the next programming period.

The increasing relevance of digital transformation and ecological transition in R&I strategies across region and their transversality in terms of sectors and applications are both interesting features for the possibility to find common grounds for collaboration across regions and stakeholders within EUSALP. However, as clearly highlighted by the stakeholders who participated to the Research and Innovation Laboratory, the identification of common topics at the basis of inter-regional collaboration must necessarily rely on a much finer specification of innovation priorities and objectives and on the identification of partners who have specific competences and are willing to invest time and resources on them.

A list of more specific priorities and of the EUSALP regions that may be interested to their development is provided in the appendix of the DT1.4.1, as a result of the Research & Innovation Laboratory. It is an example of how to identify common priorities, based on the filtering of information using the EC-JRC S3 Platform. The latter Platform, as well as other sources of data and information, may be used to identify common priorities in R&I policies or stakeholders working on the same topics (we will review these sources in section 4.1).

## Mechanisms for promoting inter-regional collaboration in R&I

### Information sharing

The availability of information about R&I policy at regional level and about R&I capabilities of relevant stakeholders are at the basis of the actions to promote inter-regional collaboration in R&I.

Despite the many platforms and websites available to this aim, many stakeholders complained about the lack or relevant information. For example: “Some stakeholders from Business-type Organizations ask for more visibility from Higher Education and Research Organization to engage in common projects. Indeed, they often regret the lack of knowledge they have on the current projects in Research Organizations” (dt1.4.2 p. 60).

In general, the question is not the absence of information per se, but the effort which is needed to retrieve them. Referring to the above-mentioned statement, the activity and output of higher education institutions and research organizations (such as the participations to EU projects, publications, patents, etc.) are generally well documented and publicly available. However, the retrieval and use is not straightforward and easy; it requires to collect data from different sources and implies specific expertise on the organization of these sources and the way to extract information.<sup>1</sup>

In theory it would be useful to have accessible platforms that allow to easily retrieve the following information:

- ➔ A map of S3 specialization priorities with search possibilities based on keywords or different classification systems. To be effective this map should provide information at a detailed level about technological or product/service areas. For example, not just ICT or artificial intelligence but the application of artificial intelligence in a specific service.
- ➔ A map of R&I capabilities of research institutions and firms with specific information about human resources, research, and innovation facilities (such as laboratories), R&I activity (such as the participation to EU, national or regional calls), output (such as scientific publications, patents, new product, or services, etc.). Also in this case, the platform should allow a search based on keywords and classification system and retrieve information at a high level of detail.

Several attempts have been done so far to build such platforms. We review those who are specifically relevant for R&I collaboration in the EUSALP.

<sup>1</sup> Examples of relevant sources of information about research activity and output are: CORDIS, the database containing information about EU projects directly funded by the commission; SCOPUS or Web of Science, which are the largest repository of scientific publications; ESPACENET or PATSTAT which are among the many databases of worldwide patents. These databases are publicly available but the extraction of information about who is doing what in specific technological or scientific domains is not straightforward and may require specific competences about

### Platforms on S3

The most important platform mapping regional priorities on S3 is the Smart Specialization Platform eye@S3 developed by JRC and publicly available at: <https://s3platform.jrc.ec.europa.eu/>

The platform allows to select territories and topics. There is a specific search facility to easily select the territories belonging to macro-regional strategies. Description of specialization areas are based on three aspects: economic domains; scientific domains; policy objectives. All these three aspects are based on classification systems. The main shortcoming of the platform is high level of descriptors. They allow the selection of broad areas but not of specific technologies or sectors.

A systematic analysis of the information contained in the eye@S3 database is provided as a result of AT1.2 and is available on the DTQ1.21 report.

### Platforms on R&I capabilities

Platform of knowledge is a technological public platform that is mainly dedicated to supporting AGs leaders, members, the EUSALP board, the EU team and related people, to connect them and facilitate knowledge and dialogue, while making different targets (policymakers, stakeholders, researchers, citizens) aware about EUSALP as well as its projects, results and impact. It is a kind of report board about all projects in the Alpine Region, where it is possible to find documents, results and recommendations generated from various financed projects. As previously stated, the platform provides access to different datasets connected to different research, offers survey tools and offers strategic tools.

The platform is no more updated and is accessible to: <https://www.alpine-region.eu/p/dashboard>.

RE-SEARCH ALPS (an Interreg project) was the most comprehensive project aimed at collecting information on R&I in the AR. RE-SEARCH ALPS aimed to gather, consolidate, harmonise, and make available to different target groups data about laboratories and research and innovation centres active in the seven countries that constitute the Alpine Area. The platform aimed at collecting information on both, regional priorities on S3 and R&I capabilities of private and public institutions in the AR. The project aimed at providing a search engine which allowed users to directly query the dataset and obtain geo referenced data as result. The data will be properly visualized thanks a visualizer developed in the project. The project addressed hot and challenging Big Data issues, such as big data integration (to join data sources), entity recognition and linkage in large amount of data (to discover the same Institution represented in different sources), data cleaning and reconciliation (to address issues related to different representation of the same real object). Information about the project is available in the following website: <http://researchalps.eu/><sup>2</sup>

In theory, the RE-SEARCH ALPS platform represented the optimal solution for information sharing in R&I; in practice it suffered the same problems of the many attempts to construct such kind of databases.

Other platforms with the same aim but more limited scope have been constructed as part of the activities of Interreg Projects. One such platform is the Alpine space knowledge Atlas which gathers information in the field of Smart Living technologies. The aim is to map knowledge and cooperation in the field of Smart Living

<sup>2</sup> More information about the project and the characteristics of the platform may be retrieved in the following publications by Francesco Guerra and Margherita Russo (Guerra et al., 2017; Guerra et al., 2019).

(SL) Technologies: it visualizes tech leaders, solutions, innovation & business development approaches in an accessible, digital knowledge database and visual matrix. The platform is not publicly accessible.<sup>3</sup>

Besides the attempts at constructing knowledge platforms in the EUSALP many databases are available at national and regional level to map the R&I priorities or the R&I capabilities. A list of the relevant databases is provided on the website of the RE-SEARCH ALPS at the following link:

<http://researchalps.eu/index.php/datasets/>

The datasets are organized by countries.

The databases show a high degree of diversity in terms of the entities considered (people, projects, structure, etc.) the level and nature of classification of scientific and technological fields and the retrieval functions.

It is also worthwhile mentioning that some of the links are no more valid and some of the databases are not updated.

This points out to the main problems that emerged so far from the many attempts at creating comprehensive platforms mapping R&I capabilities at territorial:

- The first is the difficulty in accessing and integrating different types of data (on people, structures, output, etc.) which are available from different sources and organized in different ways.<sup>4</sup>
- The difficulties in integrating the many classification systems for scientific and technological knowledge and in connected them to the relevant key words. In general, the level at which technologies are described are too general to identify specific capabilities which are useful when looking for partnership.

Given the above-mentioned problems and difficulties, the major cost of such platforms is not in the initial design but in the maintenance and updating. On the contrary, in most cases these platforms were created within projects that had resources for the design phase but not for the subsequent maintenance and updated.

The need for information sharing on R&I policy and capabilities is a fundamental one and emerged also during the A-RING meetings. Moreover, it also emerged the scepticism about the idea of constructing such a platform and the idea of trying and exploit as much as possible the existing ones.

“Indeed, some stakeholders would like the implementation of a new platform or a shared data base to provide enough and updated information to every type and size of stakeholder. However, others would like first to explore the ecosystem of existing platforms because implementing new tools has a cost and need monitoring and evaluation. Moreover, they would like to understand why existing platforms are currently under-exploited and under-updated before implementing a new solution.” (dt1.4.2 p. 62).

<sup>3</sup> According to the website of the project (<https://www.alpine-space.org/projects/care4tech/en/home>): “Interested stakeholders have the possibility to access the AS Knowledge Atlas by submitting a formal request with Carinthia University of Applied Sciences under: [j.oberzaucher@fh-kaernten.at](mailto:j.oberzaucher@fh-kaernten.at)”.

<sup>4</sup> These questions are discussed by Guerra et al. (2017).

Indeed, the final recommendations on this issue are the following.

When considering information sharing the key issue is not to try and design a new platform but using in an effective way the many platforms that are already in place at the EU, national and regional level.

The availability of relevant information seems the first and, as such, the critical step for implementing collaborative projects between PAs and relevant stakeholders; however, the experience gathered during the A-RING activities suggests that the critical step is not the availability of information but the involvement of interested stakeholders in a structured dialog to exchange information about their aims and expectations. The set-up of information sharing mechanisms is a prerequisite to define the information needs and the subsequent retrieval and analysis of relevant information.

The critical resources for information sharing are not the platforms for information retrieval but the competences in:

- a) understanding the information needs of stakeholders;
- b) collecting the information from available sources;
- c) analysing data according to the stakeholders' aims.

We suggest the implementation of two mechanisms for information sharing, which has been used and tested in A-Ring, and which can be considered as preliminary steps towards the starting of a structured dialog:

- **Matchmaking parley**, aiming at defining common areas of interest;
- **Seed lab**, generating ideas for joint project/activities.

A **matchmaking parley** is aimed at defining the common areas of interests among different stakeholders (academia, businesses, societal actors) and put forward the most relevant topics that will then be addressed through the seed lab.

**Seed Labs** provide spaces to generate ideas without any specific target in mind. A seed Lab may be targeted at:

- supporting the Alpine Region markets by supporting innovation and research within the region, joining partners with similar interests, facilitating the emergence of start-ups, and understanding the needs of local companies
- generating networks and collaborations by enlarging regional research networks, linking large companies and SMEs as well as companies and research actors (universities or research organisations)
- enhancing learning by establishing synergies with other EU projects on research and innovation, building capacities, skills, and knowledge through knowledge transfer, generating insights in interdisciplinary



working groups with representatives from the triple helix.

The details about the implementation of matchmaking parleys and seed labs are provided in output A.T1.5.

The experience of the A-Ring partners in implementing matchmaking parleys and seed labs point out to the importance of PAs commitment in these mechanisms. Indeed, although they are addressed to interested stakeholders, political will is essential in creating a favouring and welcoming ground and ensuring continuity for the collaboration efforts among the various stakeholders.

## Structured dialog: the Alpine S3 Lab

The organization of structured dialogues is an important pillar in fostering mutual understanding, transferring knowledge, and enabling joint innovation and policy making. Within the A-Ring project several dialogue events were organized:

- S3 labs
- Alpine region talks
- A-RING Caravan

These events, organized at regional level, involved people from industry, academia and public administration as well as citizens according to the quadruple helix model. The challenge is to extend these forms of structured dialogs to promote and implement inter-regional collaboration between PAs and other stakeholders.

To this aim we suggest using the methodology developed within the **Alpine S3 Lab**, which is a structured dialog based on the following features:

- It is initiated by interested stakeholders following a bottom-up approach.
- It relies on the competences and prerogatives of AG1 for structuring and organizing the dialog process.
- It relies on the resources of the stakeholders involved to carry on the relevant activities.

The basic workflow of the process was designed and experimented during WPT1. It is based on the following main steps (see DT1.4.1 Research and Innovation Laboratory, p. 10):

### 1. Starting phase

PAs or other interested stakeholders send a request to EUSALP AG1 for an Alpine S3 Lab on a specific topic.

- a. The request should specify not only the topic but also the aims of the collaboration and, when known, potential partners.

### 2. Structuring phase

PAs or other stakeholders presents and discusses the request with the AG1 members in order to:

- a. Approve the request to start a specific Alpine S3 Lab
- b. Collect the interest of members to be involved in the Lab
- c. Set up a preliminary task force composed of the requesting stakeholders and interested AG1 members that will be responsible for the organization of the Lab and the scheduling of meetings.

### 3. Working phase

The task force will define the activities of the Alpine S3 Lab and schedule the meetings with the involved stakeholders according to the needs and aims of the collaborative project. In general, these activities may refer to: a) the exchange of knowledge and information about the topic by the partners involved; b) the search for additional partners; c) the design and implementation of the collaboration project; d) the search for and application to funding programs to sustain the collaboration. The resources needed to carry-out these activities will be provided by the partners involved in the Lab.

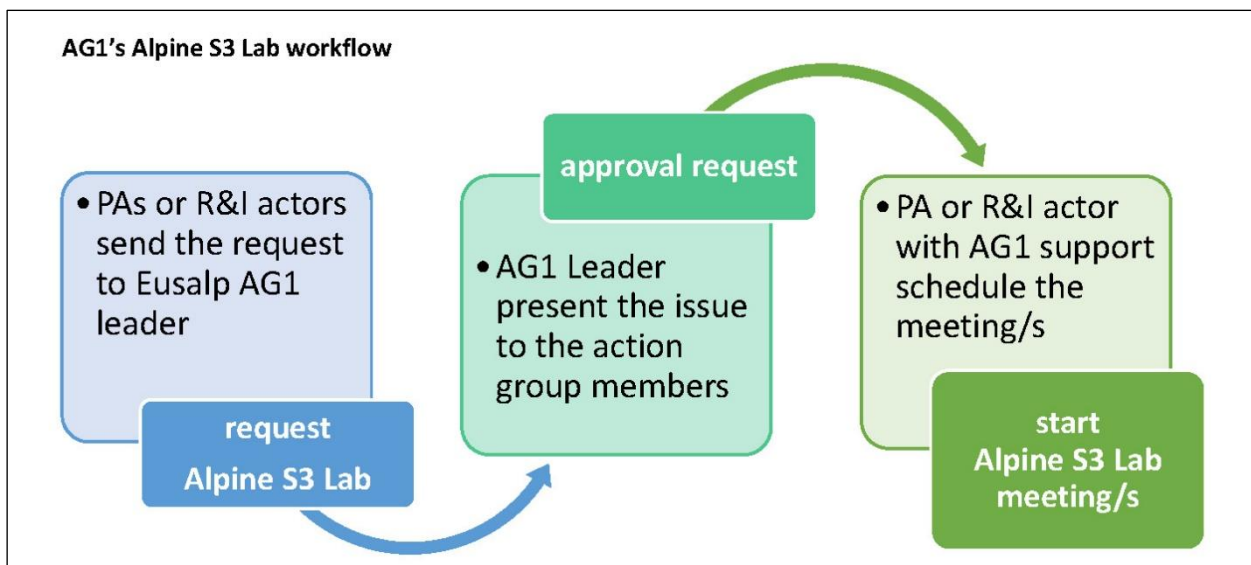
It is up to the task force (composed of the AG1 leader, PAs representatives and relevant stakeholders) to decide about its organization: i.e., whether or to appoint one of the members to lead the Lab or share the management of the Lab.

During the A-RING activities three tools have been foreseen and experimented to support the implementation and delivery of the Alpine S3 Lab. They may be used by the task force as a reference for the organization for the Lab work, according to the specific goals of the Lab:

- Alpine Transnational Live Learning (ATLL) Sessions
- Policy Pilot Live Scenarios
- S3 Implementation Webinars

These tools are described in detail in the Deliverables DT2.2.1 and DT2.2.2. They were primarily addressed to PAs and focus on the alignment of S3 priorities. Moreover, they can also be used as general reference tools to support the dialog and collaboration of different types of stakeholders.

Here below is a picture describing the starting phases of the Alpine S3 Lab.





The Alpine S3 Lab has several advantages as a tool for promoting R&I collaborations:

- The Lab does not require the set-up of new organizations or legal entities (such as consortia, associations, etc.).
- The Lab is set-up for a specific time period, according to the aims of the collaboration project.
- The Lab relies on the involvement of PAs and stakeholders interested in a specific topic which are expected to contribute to the organization of the Lab and provide the necessary resources to carry-on its activities.
- The Lab involves the EUSALP AG1 leader and members; this is important to validate the Lab, support the interested members in the organization of the Lab and provide guidance about its activities.

## Funding programs

Macro regional strategies do not come with their own funding; as a result, their implementation depends on the mobilization of funding from different sources. The success of MRS is ultimately linked to their capacity to ensure that EU, national, regional, and private funds are aligned with the priorities of the strategy. Bridging the gap between the MRS's needs and funding opportunities will therefore be a critical challenge for 2021-2027.

A-RING is primarily addressed at promoting R&I collaboration within the framework of the Smart Specialization Strategy.

The European Structural and Investment funds (ESI Funds) offer significant financial resources and a wide range of tools and technical options that could help ensure synergies and complementarity between different regions. Nevertheless, the coordination between the MRS and ESI Funds programmes has, so far, been limited and mainly concentrated on European Territorial Cooperation (Interreg) programmes. Cooperation among ESI Funds national/regional programmes from different countries is a new concept requiring a change in mind-set. These programmes are essentially inward-looking, even when cooperation/coordination with programmes in the macro-region could increase the effectiveness and the impact of actions.

The directly managed EU programmes (e.g., Interreg, LIFE, Erasmus, Horizon EU, Connecting Europe Facility - CEF) represent another potential funding source as these often promote transnational cooperation. MRS key implementers provided a limited number of examples of synergies between the MRS, and some directly managed EU programmes, notably with LIFE, CEF and Horizon. The strengthening of those synergies requires a case-by-case approach, as directly managed EU programmes cover the entirety of the EU-27, not always the third countries belonging to MRS, and are not geographically focused.

The embedding of MRS in direct and indirect EU funding programs is still limited. In most of the EU funding programmes' priorities and investment strategies there is no direct reference to MRS, or they do not mention concrete macro-regional activities to be supported.

An interesting tool that emerged during the project is represented by the new Interregional Innovation Investments instrument (I3). The instrument provides funding for mature joint innovation projects and supports stakeholders involved in smart specialisation to develop and set up such projects in value-chain investment portfolios.

It represents an opportunity to support interregional portfolios of companies' investments bringing innovation to the market at high technology readiness and reshaping EU interregional value chains. Derived from interregional pilot actions, it complements, but does not replace, traditional funding for cross-border and transnational cooperation in the field of innovation (2021-2027). The first calls are underway.

Here below is a scheme connecting the most relevant funding programs with the activities to be supported.



Activity	Financial instruments
Collaboration mechanisms (Information sharing, structured dialog)	<ul style="list-style-type: none"> <li>• Interreg Alpine Space 2021-2027</li> <li>• Interreg Interregional cooperation (component 4):               <ul style="list-style-type: none"> <li>• INTERACT</li> <li>• ESPON</li> <li>• Interreg Europe</li> </ul> </li> <li>• Vanguard Initiative</li> </ul>
R&I collaboration projects between interregional stakeholders	<ul style="list-style-type: none"> <li>• Interreg Alpine Space 2021-2027</li> <li>• Interreg Interregional Innovation Investment (I3) (component 5)</li> <li>• Alignment of regional funding programs               <ul style="list-style-type: none"> <li>- Joint Synchronized Calls (Innovation Express 2021)</li> <li>- Inter regional cooperation projects (using EU direct funding programs connected with EUSALP strands)</li> </ul> </li> </ul>

• **Interreg Alpine Space**

The Interreg Alpine Space transnational cooperation programme is still the biggest contributor to the Alpine macroregional strategy's implementation. It includes several regions of seven Alpine countries (including Switzerland and Liechtenstein). All the priorities are relevant for promoting R&I collaboration between Alpine regions:

Priority 1 - Climate resilient and green

Priority 2 - Carbon neutral and resource sensitive Alpine region

Priority 3 - Innovation and digitalisation supporting a green Alpine region

Priority 4 - Cooperatively managed and developed Alpine region

Priority 4 in particular, aims at enhancing institutional capacity of public authorities and stakeholders to implement macro-regional strategies and sea-basin strategies, as well as other territorial strategies

<https://www.alpine-space.eu/>

• **Vanguard Initiative**

It is a network of 30 EU regions which are politically committed to revitalising European industrial growth by leading by example in boosting growth, competitiveness, and innovation in their regions. This should be done by improving the alignment between regional areas of strength and enabling co-investment, on the basis



of regional smart specialisation strategies<sup>5</sup>. Vanguard regions seek to exploit complementarities identified in smart specialisation strategies in order to develop world-class clusters and cluster networks, in particular through pilots and large-scale demonstrators.

<https://www.s3vanguardinitiative.eu>

- **Interregional Innovation Investments (I3)**

The Interregional Innovation Investments instrument (I3) aims at promoting innovation through Smart Specialisation and interregional collaboration. The I3 supports stronger interregional cooperation in investments and makes sustainable connections by linking regional ecosystems in shared smart specialisation areas, vital to accelerate market uptake of research results and stimulate innovation.

It funds interregional innovation investments projects under shared smart specialisation priorities in the following thematic areas: green and digital transition and smart manufacturing which take place in the S3 participating regions. It aims to use the untapped potential of investments in innovation where the public and private sectors, as well as research and business from different countries and regions, can work together. I3 instrument is implemented by the European Innovation Council and SMEs executive agency (EISMEA) based on a biannual work programme.

The agency implemented two strands of the programme in 2021:

- Strand 1 - Financial and advisory support for investments in interregional innovation projects
- Strand 2 - Financial and advisory support to the development of value chains in less developed regions

[https://ec.europa.eu/regional\\_policy/de/policy/themes/research-innovation/i3/](https://ec.europa.eu/regional_policy/de/policy/themes/research-innovation/i3/)

- **Innovation Express 2021**

Represented a pilot joint call for proposals implemented within the framework of the four macro-regions of the European Union initiated by the EUSBSR Policy Area “Education, Science and Social affairs” and the EUSDR Priority Area “SME competitiveness”.

The Innovation Express 2021 pilot call is particularly interesting as it represents an effective mutual learning experience between managing and funding authorities in the participating regions aiming to setting up cross-regional collaborative projects by using existing (regional) funding programmes. Particular attention has been also paid to supporting links between candidates with complementary (cross-sectoral) fields of expertise in order to address shared challenges or pursue international market opportunities through collaborative efforts. The ARDIA-Net Project identified the “Innovation Express Funding as the most appropriate scheme for promoting interregional cooperation in R&I. The ARDIA-NET project also produced some Policy Memo on the “Options for cross-regional funding schemes within the Alpine Region”.

<https://innovation-express-2021.b2match.io/>

<sup>5</sup> The political leadership in every partner region has undertaken this commitment by signing a joint declaration, known as the Milan Declaration.



## ANNEX - Interregional collaboration in research and innovation

### What – Research and innovation

#### Research

The distinction between research and innovation, the characteristics of these two activities and the link between them are not always well understood.

Research activity, more often referred to as research and development (R&D) is aimed at new findings, based on original concepts or hypotheses. Although it is a planned and budgeted activity, R&D is largely uncertain about its final results or at least about the quantity of time and resources needed to achieve them. As a result, R&D is characterized by the following features (OECD, 2015): novel, creative, uncertain, systematic, transferable and/or reproducible.

Within R&D three types of research activity are included: basic research, applied research and experimental development. Basic research is an experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view. Applied research is an original investigation undertaken to acquire new knowledge regarding a specific, practical aim or objective. Experimental development is the systematic work, drawing on knowledge gained from research or practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes. The presence of the five features mentioned above distinguishes experimental development from innovation, though the two activities are closely related. The question of uncertainty (about time, budget and results) is particularly relevant for the collaborative relations between research institutions and firms. Firms, especially SMEs, are willing to invest when there is sufficiently certainty about the results that will be obtained and the time to get them. The degree of uncertainty about results is higher in basic and applied research. That is the reason why almost all the R&D expenditure of firms is on experimental development while basic and applied research is generally financed with public sources. The characteristics of research activity is also responsible for some of the problems arising in the collaborations between research institutions and firms. These problems were highlighted in the meetings and workshops with AR stakeholder and will be discussed in detail at the end of this section.

#### Innovation

Innovation has to do with putting new or significantly improved products on the market or finding better ways (through new or significantly improved processes and methods) of getting products and services. Innovation is in large part carried out by firms. Moreover, in recent times there is an increasing role of public administrations (especially those at local level) to introduce or promote innovation in the organization and delivery of services to citizens. The role of public administrations is specifically relevant in promoting social innovation which is increasingly recognized as a key factor for the digital and ecological transitions.<sup>6</sup>

<sup>6</sup> Social innovation is a very broad concept that refers to the design and implementation of new solutions that imply changes in people behaviour, processes, products and organizations, which ultimately aim to improve the welfare and wellbeing of individuals and communities. Local administrations are considered as key actors in promoting and implementing social innovation.

Although there may be overlaps between research and innovation and sometimes research results may be immediately translated into valuable innovation, the latter (i.e innovation) may not be associated with research and comprises activities which are not considered as research. These activities may include: the acquisition and application of existing knowledge; the acquisition of machinery, equipment and other capital goods; the training of people or changes in organizations and processes; marketing activity to introduce new products and services (OECD, 2015, p. 60).

The distinction between research and innovation is specifically relevant in the case of software development given the pervasive role of information technology in innovation. Software development is an innovation-related activity that may incorporate, under specific conditions, some R&D. For a software development project to be classified as R&D, its completion must be dependent on a scientific and/or technological advance, and the aim of the project must be the systematic resolution of a scientific and/or technological uncertainty (for example: the development of a new operating system or a new language; the creation of more efficient algorithms; etc.). Most of the software development are the application of existing knowledge to provide new business applications or new functionality to existing application programs. As such they belong to the real of innovation but do not involve research activities.

### Why – The rationale for collaboration

In general, the rational for the collaboration in R&D and innovation is for the **pooling of similar resources**, to achieve critical mass or economies of scale, or for the **sharing of complementary resources** which may be beneficial to improve the likelihood of gaining results or the efficiency and efficacy of research and innovative projects. There is an abundant literature on the role of physical distance in influencing the likelihood of observing collaborative relations and their expected outcomes (Boschma, 2005). In theory, the choice of partners should be based on their pertinence to projects' objectives, irrespective of physical, institutional or cognitive distance; in practice, all these distances play a significant role in influencing the likelihood of observing collaborations in research and innovation. That is why most of the collaborations involve similar organizations within close geographical boundaries.

The rational for promoting inter-regional and international collaborations are primarily based on the same premises of collaborations in general: similarity or complementarity.

- In the case of similarity, the rationale for cooperation is that of reaching economies of scale by pooling similar resources or exchanging information on common problems to find better solutions or to speed up the R&I processes.
- In the case of complementarity, the rationale for cooperation is to share different resources that complement each other to achieve effective results if specific R&I problems.

Moreover, the larger the spatial scale in finding partners, the higher the likelihood of finding the appropriate partner. In the case of macro-regional strategies, the additional incentives for collaborating should be the sharing of similar problems and issues and the belonging to an area with common cultural features and heritage.

### Who – Subjects involved

Research and development (R&D) activity is carried out for the most part by public research institutions and



by firms. Specifically, public institutions are mostly involved in basic and applied research while firms are mainly involved in experimental development. Innovation is mostly the realm of firms, though there is an increasing role of PAs not only in facilitating or supporting firms' innovation but also in being directly engaged in innovative activities.

When considering the mechanisms to enhance the cooperation in R&I we must take into account the incentives that public research institutions, firms or local municipalities may have for engaging in inter-regional and international relations.

Together with the advantages of collaborations in R&I there are also costs and disadvantages which are to be considered and that are increasing with the physical distance and the degree of dissimilarity between partners. In evaluating those costs and disadvantages it is important to consider the specificity of the output which is the result of research and innovation activity: i.e., scientific, and technological knowledge as well as knowledge on new or improved products, services, or processes. Given the characteristics of knowledge as an intangible resource and a public good there are specific problems arising in its production and exploitation. The first is the **attribution problem**, i.e., finding a straightforward and measurable relation between the partner's effort in a project and its results; the second is the **appropriability problem**, i.e., the distribution to partners of the benefits arising from project's results. These problems become increasingly relevant as we move from basic research to experimental development up to the innovation activity.

In general, the following regularities are observed when considering the empirical evidence about R&I collaborations.

1. Public research institutions are more likely to collaborate with each other with the aim of sharing similar or complementary resources in basic or applied research. The output of these activities are publications in which it is easier to identify the contributors. Moreover, there are seldom immediate applications of relevant economic value, which reduces the appropriability problem.
2. Collaborations between firms and public research centres are gaining more and more importance given the increasing relevance of research activity to sustain innovation (de Mello et al., 2016). The problems that hinder the possibility of collaborations between firms and universities arise from the different objectives and incentives that characterize universities and firms and their employees. These problems are especially relevant in the case of SMEs. The nature of these difficulties and the ways to overcome them are discussed at length in the "Transnational R&I Focus Report" resulted from AT1.3 and are synthesized at the end of this section.
3. Collaborations between firms are more likely when involving partners with complementary resources rather than the pooling of similar ones to reach economies of scale. Firms tend to invest in experimental development or innovation activities which are as close as possible to their economic exploitation in new products or services. For this reason, when including firms, collaborations for research and innovation may incorporate relevant attribution and appropriability problems.

PAs may play different roles in R&I as they can act as performers, funders, and regulators. We already mentioned the potential role of municipalities in social innovation. PAs at all levels may be involved in innovation activities aimed at improving or modifying their organization, their internal processes and the services provided. This role has become increasingly relevant with the implementation of the digital and ecological transitions.

Given that the A-RING project is mainly concerned with enhancing the collaboration within S3, in this Policy



Brief we emphasize the role of PAs as founders and regulators, specifically for their responsibility in the design and implementation of S3.

S3 was conceived as a place-based policy aiming at promoting regional growth and transformation. As such each region (or country) designed the S3 policy taking into account its own characteristics and strengths. The S3 guide (Foray et al., 2012) underlined the importance of considering potential inter-regional collaborations when evaluating and choosing the specialization areas. However, very few regions mentioned this aspect on their S3 documents, and none of them explicitly considered the inter-regional relations in the criteria for choosing the specialization areas (Iacobucci and Guzzini, 2016).

There is evidence that also for the programming period 2021-2027 the S3 developed by Alpine regions paid little attention to the alignment of investment priorities to EUSALP strands. For this reason, the Policy Brief emphasizes the mechanisms for promoting ex-post collaborations through the **involvement of relevant stakeholders**.

The stakeholders which are more directly involved in R&I projects are universities, public research institutions (PRO) and firms.

The relation between universities and firms has become one of the key factors for innovation. Universities contribute to innovation in several ways; the two most important are the quality of the education process and the valorisation of research results. In the last twenty years, the involvement of universities in knowledge transfer and innovation has grown considerably as to be considered as an additional mission - the “third mission” – together with the traditional ones of education and research. Almost all universities invested in the creation of technology transfer offices (TTOs) with the aim of facilitating the interaction with firms and external institutions, supporting the creation of spin-offs, and promoting the valorisation of research results.<sup>7</sup> Besides the investment made on this area by universities and public research institutions, several policies have been implemented at the EU national and regional level to promote and support technology transfer activities.<sup>8</sup>

Notwithstanding the significant progresses made during the last decades in favouring technology transfer activities there are still several problems and gaps which prevents the full exploitation of university-firms’ relations. These problems and gaps clearly emerged from the consultations with stakeholders carried out within the activity A T1.3 and summarize in the National Focus Reports. All experts from academia and from the business sector agree on the fact that cooperation between universities and firms is vital for innovation. Moreover, they also underlined that there is room for improvement.

Stakeholders mentioned a few general problems, which refer to all types of institutions and firms and problems referring specifically to the relation between academic institutions and SMEs.

Among the general problems, the one more often mentioned are: a) the differences in the institutional missions between academia and the business sector; b) the lack of incentives for academic researchers to be

<sup>7</sup> An overview of the activities of Italian universities in technology transfer is provided by the annual report of NetVal, the association of universities for the valorisation of research (<https://netval.it/>). Founded as an informal network between universities in 2002, NetVal subsequently became an association in 2007, and extended its membership to include non-university members. At present NetVal associates 64 Universities, 15 Public Research Bodies (EPR), 13 Scientific Hospitalization and Care Institutes (IRCCS).

<sup>8</sup> For Austria: <https://www.bmbwf.gv.at/en/Topics/Research/Research-in-Austria/Strategic-focus-and-advisory-bodies/Key-topics/Knowledge-and-technology-transfer.html>;



involved in innovation activities; c) the specialization of university research which makes it difficult to create interdisciplinary teams; d) the different perceptions by the academicians and businesspeople about the importance of time in getting results.

The problems in university-firms' relations are specifically important when involving SMEs. SMEs are relevant in all AR countries and regions and are expected to play a key role for innovation and the fulfilment of EUSALP aims. In theory, they could greatly benefit from the collaboration with academia given the lack of internal resources and capabilities to carry our R&D activities autonomously. However, the stakeholders from all countries underlined the specific difficulties that arise in the relations between academia and SMEs. The most important ones are associated with the lack of internal competences in SMEs needed for fruitful collaborations with external partners. Moreover, the innovation model of SMEs is generally based on the DUI (i.e., doing, using and interacting) mode, which rely on the learning by doing inside the firm or the relations with suppliers and customers. It is a model with rely on little or no investment in R&D. This results in a cultural gap between SMEs and academia about the role and nature of research and innovation. It is not a case that some stakeholders highlighted the difficulties in communicating between SMEs and academia, let alone cooperate.

The problems and gaps in promoting the collaboration between business and academia are reported in detail in the “Transnational R&I Focus Report” that also highlights the specificities for each country.

In this Policy Brief it is worthwhile focusing on the actions that PAs may put in place to remove or at least **reduce the problems in business-academia relations** and especially in the relations between academia and SMEs.

The stakeholders suggested the following supporting mechanisms:

- a) The organization of **networking events and workshops** to promote contacts and communication between academia and the business sector. However, these meeting should be focused on very **specific topics** so as to raise the incentives of people from academia and the business sector to participate and get results.
- b) The provision of **funding programs** (even small ones) to promote the collaboration between universities and firms. These programs should provide incentives also for cross-border cooperation.

The proposals about information sharing and structured dialog mechanisms (detailed in section 4) and of the funding schemes (detailed in section 5) moves along these indications.

## How – Collaboration mechanisms

Macro-regional strategies are expected to provide a platform for enhancing interregional collaboration by neighbouring regions and countries interested in addressing common problems.

The collaboration on S3 may take place in two ways, which have different significance and relevance: ex-ante, i.e., before the definition of regional priorities; ex-post, i.e., once the S3 has already been defined. EUSALP was set up in 2015 after the design of the S3 for the programming period 2014-2020. For this reason, the only way to strengthen the collaboration on R&I in the previous programming period was based on the identification of overlapping themes and topics chosen by AR countries and regions. This is what has been done in the initial phases of the A-RING project, specifically under AT1.2.

The starting of the new programming period for 2021-2027 offered countries and regions the opportunity to



take into consideration EUSALP aims and priorities within their S3 and explicitly coordinate the choice of the specialization areas to align them with EUSALP themes and objectives and to enhance the potential collaborations with EUSALP countries and regions. This has been done during the previous phases of the project by considering the indications of PAs representatives on the S3 priorities for the next programming period.<sup>9</sup>

When considering the **mechanisms** that can be used to promote and implement the collaboration in R&I projects, they can be classified in four types which offer an increasing degree of involvement and efficacy.

### 1. Information sharing

The first step in promoting the collaboration on R&I is the availability of information about potential areas of collaboration and potential partners.

When considering collaboration on S3 there are two level of information which are relevant:

- The first is about the specialization priorities chosen by countries and regions which allow them to identify the presence of potential overlapping and synergies.
- The second is about the research and innovation capacity of each region which allows PAs and relevant stakeholders to identify potential partners for collaborations (universities, research centres, firms, PAs). For each subject it is necessary to have information on the following aspects: human resources; laboratories and research facilities; R&I activity; R&I output.

Section 4 of the Policy Brief reviews the platforms which are at present available for mapping S3 specialization areas of EUSALP regions and on their R&I capabilities. The same section highlights several information sharing mechanisms which have been used and tested within the A-Ring activities.

### 2. Structured dialog

Dialog and meetings between administrators and stakeholders are important mechanisms to favour mutual understanding and promote collaborations. Interreg projects (such as A-RING) are effective facilitators of such structured dialog. It is important to provide continuity to this dialog which is obtained when organizations interested in the same R&I topics agree on a structured dialog, i.e. regular meetings on specific topics and with pre-defined results to be obtained. Section 4 provides a specific proposal (the Alpine S3 Lab) for a structured dialog involving PAs and other stakeholders aimed at implementing R&I collaborations in the AR.

### 3. Permanent organizations

The creation of permanent organizations is the most effective way to promote or reinforce collaborations between PAs. By permanent organizations we do not refer to the setup of new institutions (which are excluded in the macro-regional strategies) but to formal agreements between PAs and relevant stakeholders to set up different types of legal arrangements, such as associations, consortia, etc... Besides the governance bodies of EUSALP (general assembly, executive board, action

<sup>9</sup> As a further development of this project, it would be useful to analyse whether EUSALP is mentioned in the 2021-2027 S3 documents recently approved and to what extent the institution of EUSALP has influenced the S3 choices of the countries and regions involved in the strategy.

groups, etc) there are several permanent organizations involving EUSALP institutions or stakeholders. The more notable are the Alpine Convention and the Alpine Space Programme which have the role of observers within EUSALP. A-Ring suggests the elaboration of a Strategic Research and Innovation Agenda (SRIA) for the Alpine region. The proposal is discussed in detail in the A.T1.5 Blueprint elaboration.

#### 4. Funding schemes

The most effective way which has so far been used to promote inter-regional collaborations within the EU is through the set-up of funding programmes requiring the involvement of stakeholders belonging to different countries. Macro regional strategies were set-up with no additional or funding programs. As a result, PAs and stakeholders involved in the strategy are requested to use available programmes to implement R&I collaborations. This is not always easy for different reasons. In the case of funding programmes managed directly by the Commission (such as Horizon Europe) the choice of partners should be based on R&I excellence and there are no incentives in finding partners belonging to the same macro-region. In the case of programs managed at country or regional level (such as Structural funds' ROPs) it is not easy to coordinate the calls and even more difficult to share resources to implement joint calls. In general, direct, and indirect funding programmes were not designed to take into consideration or to favour the collaboration between PAs belonging to the same macro-region and the embedding of macro-regional strategies within the funding programs is not straightforward. Moreover, the provision of "measures for international collaboration represent a criterion to be fulfilled as one of the enabling conditions to support 2021- 2027 regional smart specialisation strategies.

