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RIS4CIVIS

Research and Innovation Strategy for the CIVIS Alliance

D1.1 Benchmarking Report

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About RIS4CIVIS

"RIS4CIVIS" is a 3-year project funded by the European Commission under the Horizon 2020 "SWAFS" programme. **RIS4CIVIS aims to** support the Research and Innovation dimension of the CIVIS European University in line with its shared, integrated, long-term strategy and in synergy with its education dimension. The project aims to enable the CIVIS Alliance and other European Universities to pave the way and pool out their expertise to address the 21st-century challenges through world-class R&I.

RIS4CIVIS will develop an integrated, long-term R&I Strategy, based on the member Universities' complementary strengths, but also addressing obstacles that stand in the way of deeper R&I cooperation. **RIS4CIVIS** therefore focuses on developing a long-term Research and Innovation Strategy that will:

- Take into consideration the important roles that academia, industry, government, civil society and the environment play in R&I (Quintuple Helix model);
- Be fully in line with the CIVIS Mission Statement, including our civic mission and educational dimension;
- Build on the cooperation and results that have so far been achieved within our Alliance;
- Address current societal challenges
- Integrate the upcoming European Research Area cycle synergistically with the new cycle for the European Higher Education Area;

To meet its objectives, the project is structured in six 'Transformational Modules' such as:

(1) The development of a Common Research and Innovation Strategy,
(2) Sharing Infrastructures,
(3) Reinforcing Academia-Business R&I Cooperation,
(4) Strengthening Human Capital,
(5) Mainstreaming of Open Science,
(6) Embedding Citizens and Society.

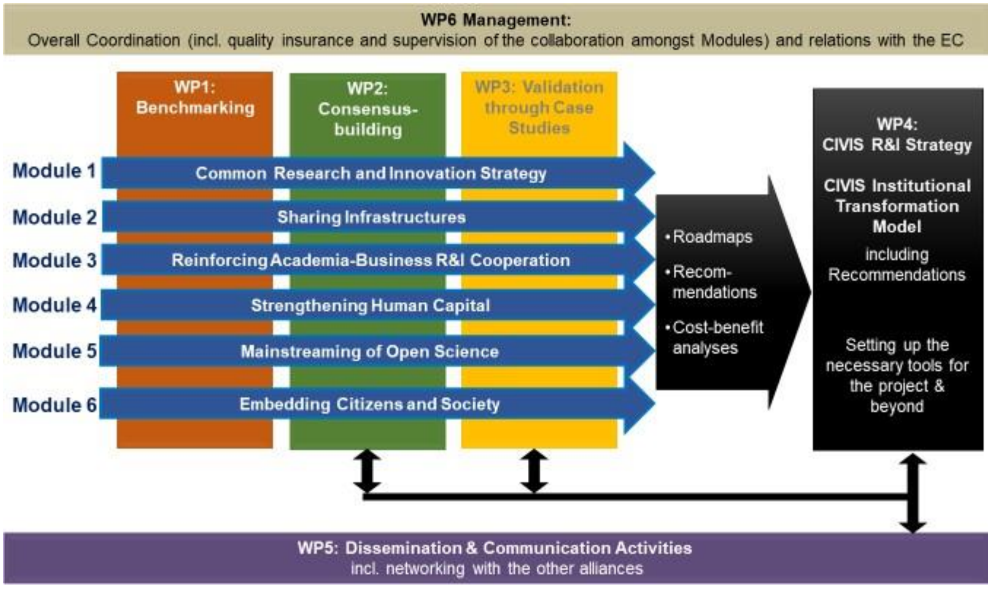
WP6 Management:
Overall Coordination (incl. quality insurance and supervision of the collaboration amongst Modules) and relations with the EC
WP1: Benchmarking
WP2: Consensus-building
WP3: Validation through Case Studies
WP4: CIVIS R&I Strategy
CIVIS Institutional Transformation Model
including Recommendations
Setting up the necessary tools for the project & beyond
Module 1
Common Research and Innovation Strategy
Module 2
Sharing Infrastructures
Module 3
Reinforcing Academia-Business R&I Cooperation
Module 4
Strengthening Human Capital
Module 5
Mainstreaming of Open Science
Module 6
Embedding Citizens and Society
•Roadmaps
•Recom-mendations
•Cost-benefit analyses
WP5: Dissemination & Communication Activities
incl. networking with the other alliances

Figure 1. RIS4CIVIS Organizational Structure

Executive Summary

The present report aims at providing an overview of the work carried out in the 6 Modules part of the RIS4CIVIS project. In particular, it will analyse the activities that took place during the first 6 months of RIS4CIVIS. This work is summarised in the Work Package 1 (WP1). The purpose of WP1 is to enable all Modules to achieve a common, joint and comprehensive understanding of the legal, regulatory, political, financial, procedural, systemic or other situation in relation to their respective topics, taking into consideration factors that are both internal to each University (Task 1.1) as well as circumstances that are external to each University (Task 1.2).

The Objectives of WP1 are:
To create a shared basis for consensus-building, by establishing an atlas, inventory or overview of:

- The current practices within each CIVIS Alliance member with respect to each of the Transformational Modules,
- The National situations (legal, political, funding) affecting each Alliance member with respect to each of the Transformational Modules.

In this report, the conclusions drawn, and the proposals developed originate from each module and constitute the basis for further consideration. The six RIS4CIVIS Modules are analysed in order to compile a benchmarking analysis to be used as a baseline for the implementation of the Consensus Building phase (WP2) to follow.

Introduction

Description. The present report aims to provide all necessary information regarding the work that took place the first six (6) months in the framework of the first work package (Work Package 1- WP1) of the RIS4CIVIS project. The main goal of WP1 is to develop a common, joint and comprehensive understanding of the legal, regulatory, political, financial, procedural, systemic or other situation in relation to each CIVIS Alliance Members that would incorporate factors both internal (Task 1.1) as well as external to each University (Task 1.2).

In order to reach the objective for RIS4CIVIS, the project is divided in **six Transformational Modules** as can be seen in the figure below. All 6 Modules ran simultaneously during the WP1. Depending on the topic addressed, the Modules may develop common vocabularies and typologies in order to reach a common understanding of the situation in each country. The data and documents assembled including the glossary can be seen in Annex 8.2.

Aims. The aim of WP1 is to establish a shared basis for **consensus-building** which can be achieved by **developing an atlas, inventory or overview of:**
- **Current practices** within each CIVIS Alliance member in regard to the topic covered in each Module (can be seen in figure 1.)
- **National situations** (legal, regulatory, political, financial, procedural, systemic) that affect each university-partner again in regard to the topic covered in each Module (can be seen in figure 1)
This activity includes the identification of legal and governance barriers as well as external funding sources.

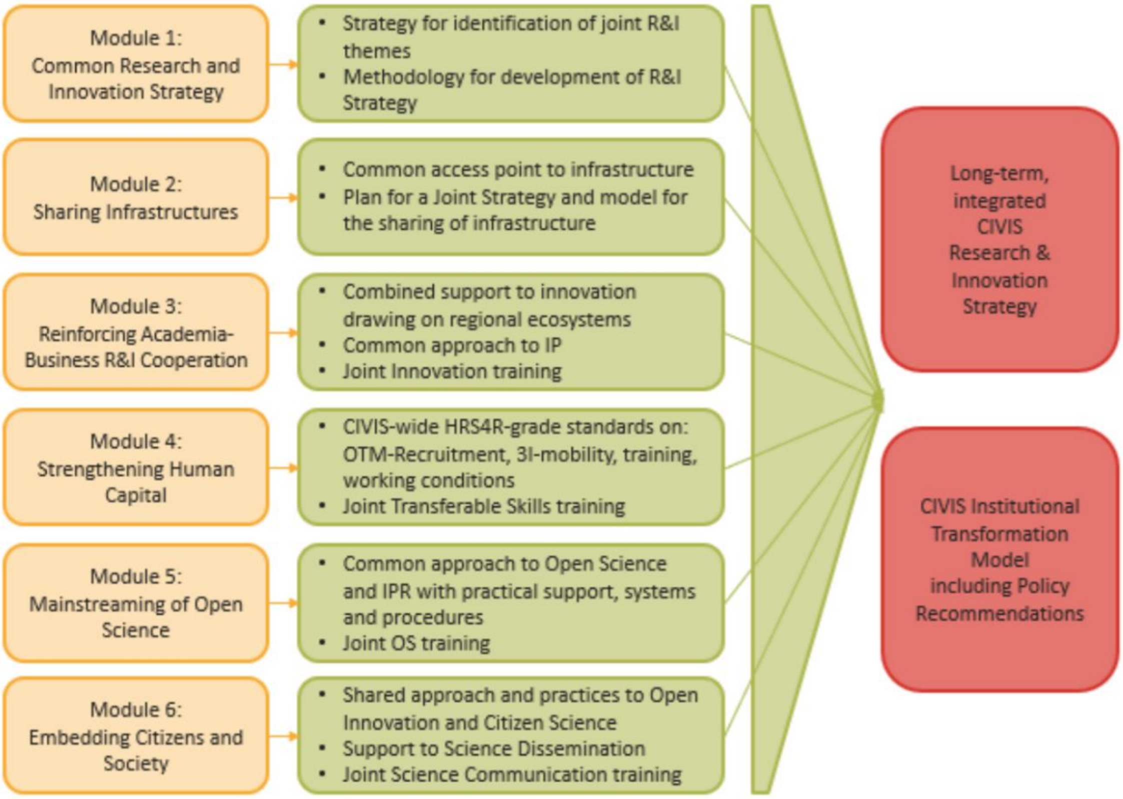
Module 1:
Common Research and Innovation Strategy
• Strategy for identification of joint R&I themes
• Methodology for development of R&I Strategy
Module 2:
Sharing Infrastructures
• Common access point to infrastructure
• Plan for a Joint Strategy and model for the sharing of infrastructure
Module 3:
Reinforcing Academia-Business R&I Cooperation
• Combined support to innovation drawing on regional ecosystems
• Common approach to IP
• Joint Innovation training
Module 4:
Strengthening Human Capital
• CIVIS-wide HRS4R-grade standards on: OTM-Recruitment, 3I-mobility, training, working conditions
• Joint Transferable Skills training
Module 5:
Mainstreaming of Open Science
• Common approach to Open Science and IPR with practical support, systems and procedures
• Joint OS training
Module 6:
Embedding Citizens and Society
• Shared approach and practices to Open Innovation and Citizen Science
• Support to Science Dissemination
• Joint Science Communication training
Long-term, integrated CIVIS Research & Innovation Strategy
CIVIS Institutional Transformation Model including Policy Recommendations

Figure 2. The six transformational Modules around which the work for RIS4CIVIS is structured

Glossary

Accelerator: Organizations that encourages the growth of existing companies with an idea and a business model. These programs build on the foundations of start-ups to catapult them to investors and key influencers.
Areas of regional smart specialisation strategy: 3 thematic smart specialisation (S3) platforms: Agri-Food, Energy and Industrial Modernisation.
Benchmarking: Comparative analysis of results or processes with a specified reference value or reference process.
Citizens (such as in **Citizen science**): Active and "locational" set of people participating to a research/science project/activity that directly addresses local/regional/national or international objectives/challenges; can include both novice, students and professional classes of people.
Citizen science: practices in which Science is conceived as the result of integral collaboration between professional researchers and the citizens. This mutual collaboration in scientific research overpasses the simply volunteer participation by its active incorporation to one or several steps of the scientific processes, e.g., data collecting, monitoring, result interpretation, etc.
Civil society: multitude of associations around which society voluntarily organizes itself and which represent a wide range of interests and ties.
CIVIS Hubs: CIVIS Hubs are inter- and transdisciplinary thematic education and research areas around which educational, research and outreach activities areas are being organized. Five Hubs: 1. Health, 2. Cities, territories and mobilities, 3. Digital and Technological transformation, 4. Climate, environment and energy, 5. Society, culture, heritage were identified based on CIVIS's missions and values, closely connected to major societal challenges and linked with the UN Sustainable development goals. Four out of the five Hubs have launched so far (all but Digital and Technological transformation).
Distributed Research Infrastructures (RI): Facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They can include either: 1. Major scientific equipment (or sets of instruments), 2. Knowledge-based resources such as collections, archives and scientific data. RI are implemented along different organizational models, and accordingly include core sites for experiments and measurement sessions, coordination and management, data banks, physical sample repositories, etc.
Entrepreneur: Innovative founder who carries at his/her own economic risk.
ERC Panel: European Research Council panels evaluate ERC grant proposals. There are 27 ERC panels to cover all fields of science. Social Sciences and Humanities (6 Panels, SH1–SH7), Physical Sciences and Engineering (10 Panels, PE1– PE11), Life Sciences (9 Panels, LS1–LS9).
HRS4R: HR strategies for researchers supports research institutions and funding organisations in the implementation of the Charter & Code in their policies and practices.
Incubator: Organization that offers a collaborative work environment for nurturing and guidance of start-ups to become independent. Incubators can provide funding, classes, and workshops, while others allow start-ups to but in some cases also in-house services such as law and accounting or research and development networks.
Innovation: The introduction of something new and which addresses identified need(s). Process from idea creation to market introduction and acceptance.

Innovation Capabilities: The umbrella term "capabilities" encompasses the various skills and resources of an organization for creating and managing innovation. The aspect of capabilities relates primarily to people, as innovation depends to a large extent on the capabilities of both individuals and teams as a whole. Thus, it includes on the one hand the know-how and practical skills of the people who work for the organization. On the other hand, however, the aspect of capabilities is also directed towards the totality of the available information and tacit knowledge in the organization as well as its other resources and available financial capital, all of which may be required to create innovation.

Innovation Culture: Culture is the consistent, observable pattern of behavior in an organization. It is the sum of all practices, processes, habits, values, structures, incentives, and people that the organization has.

Innovation Management: The term refers to the handling of all activities required to "introduce something new". In practice, this means developing and prioritizing ideas, as well as implementing them, for example by introducing new products or new internal processes.

Innovation Strategy: Strategy reflects the plan an organization has to achieve long-term success. Ultimately strategy is about making a conscious choice among a set of viable options.

Innovation Structures: Structures enable the effective use of the aforementioned capabilities. In practice, this includes the organizational structure, the processes and the infrastructure of the organization. The right structures can act as a multiplier and enable the organization to operate and innovate much more effectively.

IPR: Intellectual Property Rights. The most well-known types are copy rights, patents, trademarks, and trade secrets.

Key Enabling Technologies: investments and technologies that allow European industries to retain competitiveness and capitalise on new markets (e.g. nanotechnology).

Knowledge Triangle: interaction between research, education and innovation, the key drivers of a knowledge-based society.

Open innovation: based on the fundamental idea that useful knowledge is now widespread throughout society; an organization that practices open innovation will utilize external ideas and technologies as a common practice and will allow unused internal ideas and technologies to go to the outside for others to use in their respective businesses. See also "**Social innovation**".

Open Lab: A place to learn, work, and share. Open to all interested parties and not limited to employees. It facilitates the realization of projects and programs within a heterogeneous group of partners, and commonly, from an interdisciplinary approach. Different open labs (one per university) have specifically been designed in the framework of CIVIS.

Open science: aims to make the primary outputs of publicly funded research results (i.e., publications and the research data) publicly accessible in digital format with no or minimal restriction

Public, as for e.g., organization, places: defined as being part of the **public sector** by a legal framework.

Publics: refer to a circumstantial cluster of people, which attend a particular event or activity in a "passive way" (as opposed to in the frame citizen science activities); it also has an adjective sense as detailed below.

Regional Smart Specialisation Strategies: strategies which set priorities in order to build competitive advantage by developing and matching research and innovation own strengths to business needs in order to address emerging opportunities and market developments in a coherent manner, while avoiding duplication and fragmentation of efforts.

Research Infrastructures (RIs): facilities, resources and related services that are used by the scientific community to conduct top-level research in their respective fields and covers major scientific equipment or sets of instruments; knowledge-based resources such as collections, archives or structures for scientific information; enabling Information and Communications

RIs as defined in the framework of CIVIS: facilities that provide resources and services for research communities to conduct research and foster innovation.

R&I strategies: Strategies drafted by institutions that highlight their aims and goals and set objectives regarding scientific competency for the following years.

Science/Research Communication: communication that aims at increasing public visibility of a project and its results using accessible language (e.g., coverage in TV, radio, print and online media).

Science/Research Dissemination: actions that ensure that the projects results are available to all kind of publics including the scientific community, schools, policy makers, industry, etc. – using scientific language prioritizing accuracy.

Science/Research Outreach: a variety of activities (possibly interactive) led by research institutes, universities, as well as other institutions such as science museums, which aims are to fostering public awareness (and understanding) of science and making informal contributions to science education.

Single-sited RIs: central facilities geographically localised in a single site or in a few dedicated complementary sites designed for user access, whose governance is European or international.

Social innovation: new ideas that meet social needs, create social relationships and form new collaborations. These innovations can be products, services or models addressing unmet needs more effectively.

Technology-based infrastructures such as Grid, computing, software and communication, or any other entity of a unique nature essential to achieve excellence in research. Such infrastructures may be "**single-sited**" or "**distributed**" (an organised network of resources).

1 Module 1: Common Research and Innovation Strategy

1.1 *Objectives*

Module 1 - Common Research and Innovation Strategy has the following main objectives as stated in the description of the RIS4CIVIS project:

1. to develop a methodology of CIVIS R&I agendas and strategies that would allow for the CIVIS Alliance to respond quickly and flexibly to emerging societal problems and new opportunities.
2. based on the above methodology, to develop a CIVIS strategy that will guide its long-term cooperation in terms of R&I, and that will also enable the CIVIS Alliance to participate in European-level policy-making on R&I such as co-creation of future work programmes.
3. to document the methodology so that it can be used within CIVIS by (and with) other European universities or consortia of universities to develop their own high quality, reactive R&I agendas and strategies.

1.2 *Overview*

To meet the aforementioned objectives and in the framework of WP1, the Module 1 team crafted a report that focuses on **mapping the policies** followed by each CIVIS university-partner **in regard to R&I strategies**.

For the benchmarking phase of RIS4CIVIS, the Module 1 team had to perform certain activities in order to:

i. Identify each CIVIS Alliance member research clusters and the corresponding R&I strategies
ii. Identify areas where CIVIS can obtain academic excellence in order to address societal challenges though research, education and innovation
iii. Study how each CIVIS Hub develops its research agenda.

The aforementioned activities result in the development of three corresponding **outcomes**:
1. CIVIS research cluster
2. Future directions for R&I strategies and
3. Diagram of R&I agendas development within each CIVIS Hub.

From the work carried out as it will become evident in the following sections,

- the **1st outcome** was **clearly produced**,
- in regard to the **2nd outcome** certain **potential directions are identified** and
- concerning the **3rd outcome**, all universities were asked to investigate if their R&I activities overlap with the themes of the 5 CIVIS Hubs. The responses showed that only AMU has a strategy where this overlap can be identified. The other universities do not, at least not for the time being, have outspoken R&I strategies where any overlap with the hubs can be identified.

1.3 Work Carried out

1.3.1 Meetings

The work carried out from the Module 1 team in the framework of WP1 included several meetings between the Module 1 members, the distribution and completion of a questionnaire as well as of an additional summary of information in the form of an excel sheet. The figure below shows the timeline around which the work in Module 1 took place.

Table 1. Dates & deadlines regarding Module 1

28/01/2021	• 1st meeting • Presentation of draft questionnaire
25/02/2021	• 1st meeting • Presentation of draft questionnaire
25/03/2021	• 3rd meeting • 1st round of reports regarding the current situations in each CIVIS institution was submitted
06/05/2021	• 4th meeting • Update of data collection • Module leaders' presentation of report template
21/05/2021	• Summary report submission
28/05/2021	• Report submission to WP1 leaders

1.3.2 Methodology followed for mapping R&I strategies

Model for reporting

The data collected via the **google sheet** and the **questionnaire** provided the Module 1 team with comparable data that could be easily translated into tangible information with tables and figures. The models for reporting also offered the possibility for expanding the answers via free text that included more detailed descriptions about certain situations and strategies that take place in each institution.

Questionnaire

The questionnaire focused on five (5) main areas:

(1) Mapping of R&I strategies per university
(2) The structure of R&I strategies
(3) Development of R&I strategies
(4) Monitoring of the implementation R&I strategies
(5) Funding and collaboration of R&I strategies

In addition, all partners were also asked to write a short summary of how their respective university works with R&I strategies and agendas. These are annexed to this deliverable.

1.4 Tasks & Outcomes

1.4.1 Mapping of existing initiatives & best practices within CIVIS regarding R&I strategies

The Current situation regarding R&I strategies in each CIVIS university along with any identified barrier and possible recommendations to overcome are detailed in table 1.

R&I organization patterns.

Basically, two main types of **organization** were found in the framework of **R&I**:

- **UAM, AMU, UT, NKUA** have a **central office** headed by a **vice rector for R&**I that is in charge of developing, implementing and monitoring general strategies for R&I. **SUR** also has a **central office** with similar duties although it is not clear if it is headed by a vice rector for R&I or by another chief administrator. These five CIVIS universities represent one type of organization.
- **SU, ULB and UB** have more local and **decentralized** organization of R&I activities and represent the other organizational pattern.

R&I Strategies.

During the mapping of R&I strategies currently established at each CIVIS Alliance member:

- **6 out of the 8 partners** reported that they have **official central R&I strategies** and agendas at a general overall level. The remaining two, SU and ULB, do not have central R&I strategies of that sort.

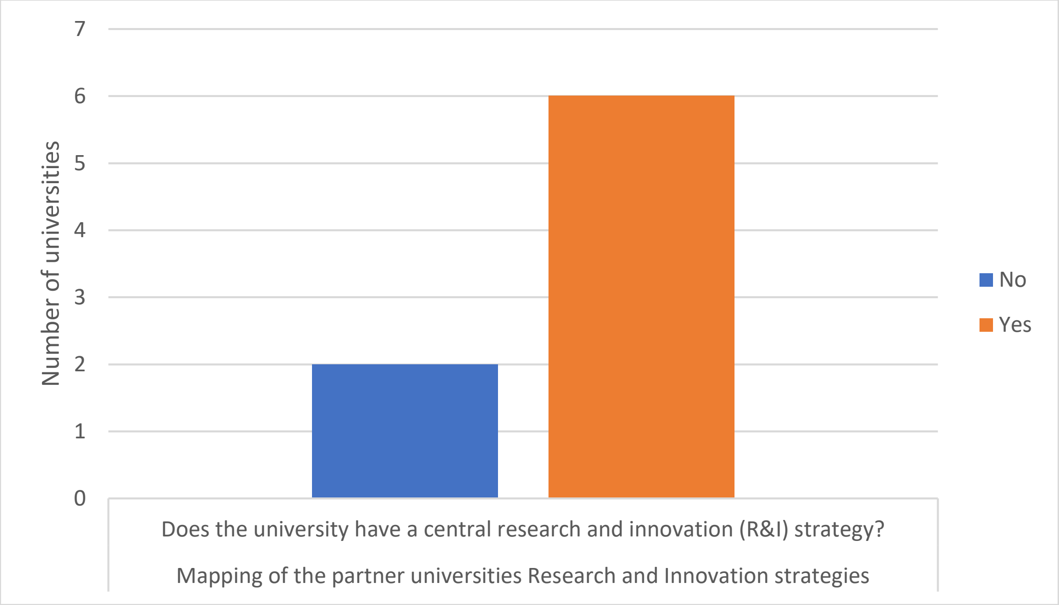

Figure 3. Central R&I Strategies.

Regarding the two universities that do not have a central R&I strategy, the strategies and agendas they followed are as described below:

- For ULB, they stated that the rely on the excellence of the R&I activities and hence, most internal funding opportunities reinforce general tools (e.g. equipment, technological platforms, Ph.D., post-doc) and do not support specific R&I domains.
- For SU, there is no specific R&I strategy established. The R&I related activities are organized as general research activities.

Similar to the organization pattern, concerning **R&I strategies** we also see two clear patterns:

- **Overall strategies for research.** This is an approach followed by **SU, ULB,** which do not have specific R&I strategies developed by central units but overline R&I approaches at their general strategies. **UT** and **UB** follow a similar pattern, but they explicitly mention R&I in their general strategies (instead of just overlining them).
- **R&I specific strategies.** On the other hand, **AMU, NKUA, SUR and UAM** have specific R&I-focused strategies in their official strategy documents.

It is worth mentioning, that despite the two different approaches, a commonality between **all CIVIS members** is the existence of **central offices** that **support** researchers and professors in their efforts of establishing **R&I projects**. Even in the universities that do not have R&I central units, central support offices are established.

In conclusion, even the universities that do not have centrally formulated R&I strategies and agendas, value such activities highly, but view them as activities that should be formed through local initiatives and not be defined at central levels.

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Structural Organization of R&I Strategies.

This part of the deliverable describes **who is responsible for developing the R&I strategies** at an institutional level as well as how the process of developing these strategies is organized.

1 Central Administrative Units

- **6 out of the 8 universities** part of the CIVIS Alliance **have a central administrative unit** responsible for the R&I strategies.

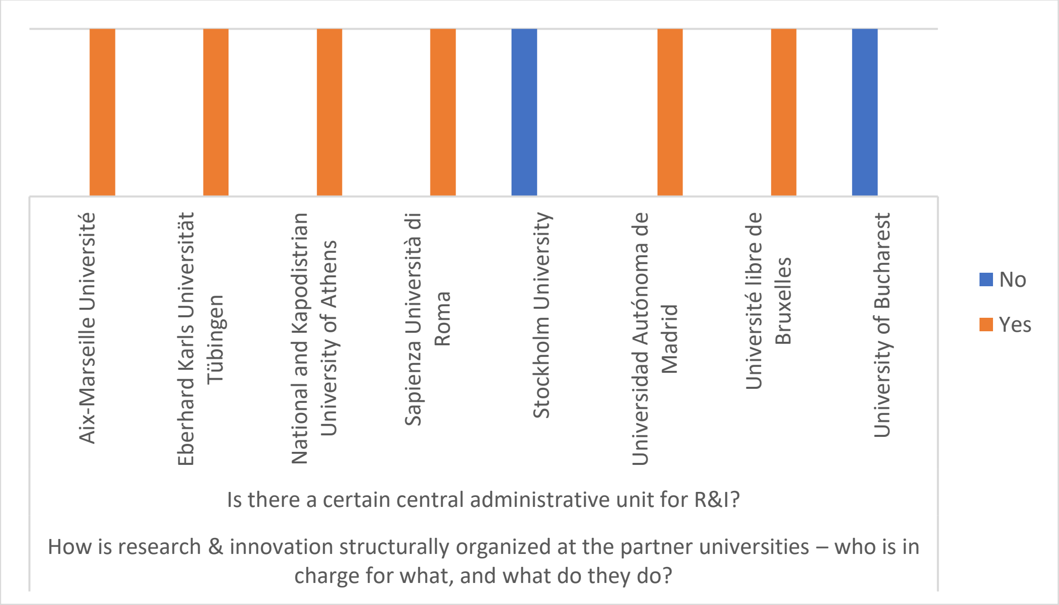


Figure 4. Central Administrative Unit in regard to the CIVIS R&I Strategies

SU and UB report that there is no central administrative unit for R&I strategies. However, they have decentralized offices that support R&I agendas.

In particular,

- At **SU**, R&I strategies are academic decisions. There is a central administration office, the REIS (Research, Engagement and Innovation Services) Office, responsible for research and innovation support as well as collaborations and partnerships with external parties.
- **UB** incorporates R&I as part of the **research department**. Furthermore, the university has:
  - an **administrative department for research**,
  - **offices** for research projects management, structural funding, innovation and technological transfer and
  - the **Research Institute of the University of Bucharest**,

- The **most common approach** for the structure of conscientiousness in regard to the R&I strategies is by **having vice rectors in charge of R&I activities on a central level**. **UAM, AMU, UB, UT** and **NKUA** all have **vice rectors for R&I**.

SUR also has **a type of central unit** although they have **not** reported that a **vice rector** is in charge. However, local support is also offered to the researchers.

Aix-Marseille has a **central policy and organization** for **R&I strategies**, but they also have **organised support to researchers at local levels.** R&I is also carried by a **Vice-Rector for Research** as well as **other different Vice-Rectors**, each in charge of technology transfer and innovation and of technological platforms. At the **administrative level**, several **Directorates**, **offices** and **organizations** are involved in the R&I strategy, such as the **Research and Development Directorate (DRV)**, the **A*Midex foundation**, and the **Economic and Social Partnerships Direction (DPMSE)**. These administrative units even though **mostly centralized**, their **staff is distributed** in the various AMU's campuses in order to facilitate on-site interactions and activities.

NKUA has a **Special Central Unit** currently **under development**. At an **administrative level**, responsibilities are processed though the:

- **Vice Rector of Research**,
- **Special Account of Research Grants (SARG),**
- **Quality Assurance Unit (QUA)** which is responsible for Central monitoring as well as setting and monitoring Key Performance Indicators and
- **NKUA's Company for Property Utilization and Management.**

Specifically, the **R&I strategies** are recommended to the **Rector and Vice-Rectors**, which are then **communicated to the Deans** and the different **departments** for annotations. The **final decision** is being made by either the **Senate or the Rectors Committee**.
NKUA's practice offer similarities with the approach followed by Aix-Marseille.

- In conclusion, **most partners** do have **central units** with special responsibility for **organizing R&I** strategies and activities and the head of the unit has more of an administrative role in the development of R&I strategies. Commonly, **in charge** of the R&I strategies are mainly the **Rector** and the **Vice-Rector** for Research and Knowledge transfer as well as the **research council.**

2 Centralised or decentralised R&I strategies

Although there are central units in charge of R&I activities and strategies at most partner universities at the same time efforts are made at a local level. In the case that a university does not have central units responsible for the organization of R&I activities, the structural R&I-related work takes place in a decentralised manner.

- In all university-partners except for SU and ULB, the **head** of a **central unit** is the one **in charge of R&I strategies**
- All partners except for NKUA also have **decentralized responsibilities** at **department** and **individual professor levels**

As a conclusion, it was established that in the majority of cases, the responsibility is shared among the involved parties. For example, the professors are responsible for particular projects but the overall responsibilities for strategies and agendas are usually placed at more central levels depending on how the university has structured their work with R&I strategies.

Developing R&I Strategies.

As can be seen in the figure below, the responses received from the institutions showed that in:

- 6 out of the 8 universities, the **development of the R&I strategies** was performed in a **multi-source approach** that involved external and internal experts as well as scholars employed at the university.

For example, some institutions (i.e. SU) stated that the university owns all the processes of initiating research but also have collaborations with the industry, agencies of the civil society, politicians and other universities.
In other institutions (i.e., ULB) where the R&I strategies are partly centralised and partly decentralised, all the experts mentioned below are involved in their development.

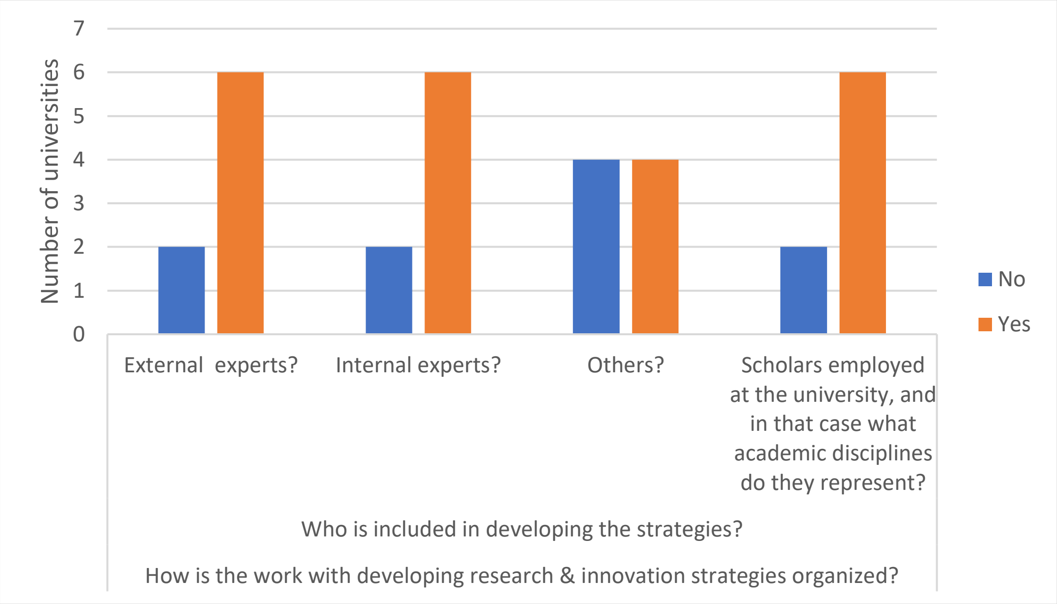


Figure 5. Who is involved in the development of the CIVIS R&I Strategies

Education is central for all partners in their strategy formulations, although not all explicitly relate education to strategies for R&I.

Monitoring of R&I Strategies.

Regarding the revision and monitoring of the R&I strategies, this information was collected from the following questions part of the questionnaire:

- Is there a central unit that conducts monitoring activities?
- How is the implementation of the R&I strategies followed up?
- How often R&I strategies are revised?
- How often those involved in developing them meet?

As can be seen in the figure below, 5 universities state there is a central unite established for monitoring R&I strategies and activities. In these universities, frequent meetings take place in regard to the monitoring activities. In relation to how monitoring activities are organized all partners except for SU and UB also have particular routines for monitoring R&I strategies.

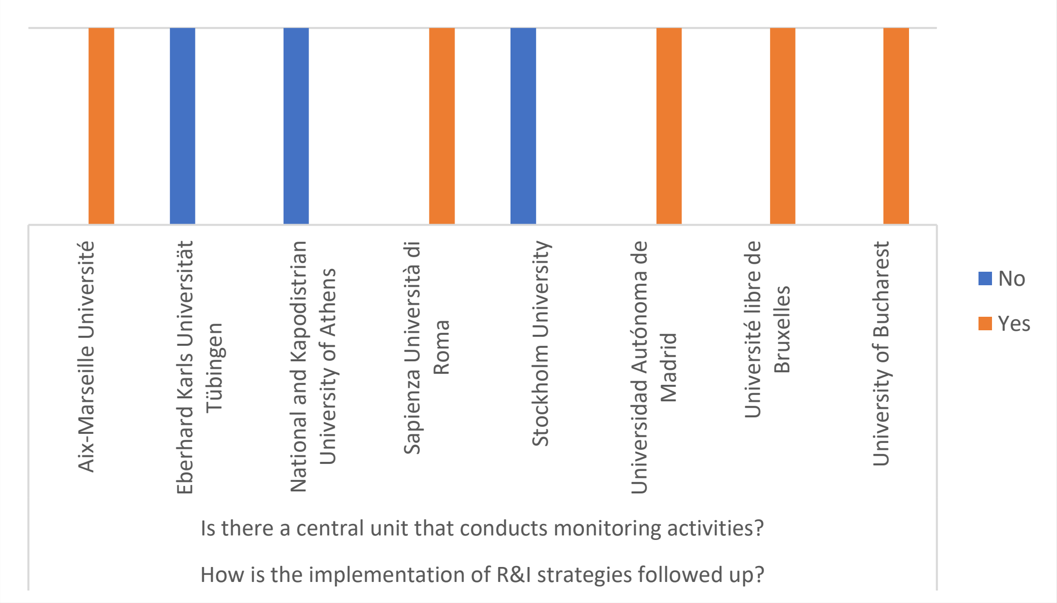


Figure 6. Central unit for monitoring activities of the CIVIS R&I Strategies

- All partners but UT, NKUA and SU have a central monitoring unit.

- In general, it appears as the universities update their general strategies on a 3-5-year basis and the same seems true for the R&I strategies as well.

More specifically,

1. in **AMU**, the R&I activities are monitored by several Directorates:
    i. the Directorate for Research and Development (DRV) and its administrative cluster staff dedicated to contracting,
    ii. the Directorate for Continuous Improvement (DAC) and
    iii. the Directorate for Financial Affairs (DAF)

AMU has a particular evaluation system involving both external and internal experts.

2. in **SUR**, the R&I activities are monitored by a **Strategic Support and Communication Division** at the central administration level which is supports the governance of the University by:
    a. the **collection and processing information** and statistical data necessary to **guide strategic choices** and
    b. **communication** aimed at the various **audiences and stakeholders**.

Sapienza has a six-year strategic plan where objectives are summarized in a three-year performance plan that is being monitored.

3. in **UAM**, the R&I activities are monitored by a **Special Technical Commission** that works with following up procedures and developments.

4. in **UT**, the R&I activities are monitored by the **Administrative Research Department** in collaboration with the **vice rector for R&I**.

5. in **UB**, the R&I activities are monitored by the **vice-rector of research.** Specifically, they have a set of distinct indicators that are evaluated annually by a monitoring committee coordinated by the vice rector of research.
6. in **NKUA**, a yearly monitoring system is in place where the involved parties discuss the indicators for success in order to establish whether the implementation of the R&I strategies is proceeding as planned.
7. in **SU**, since most activities are decentralized it also means that all projects and strategies are local and normally monitored at local levels in relation to agreements regarding how activities are funded.

Indicators for R&I activities

All strategies and activities are monitored through general indicators such as gender balance, international funding, publications, recruitments and external funding.
In **SU** and **SUR**, **indicators** might depend on **special agreements with funders of particular projects and programs.**

AMU states that **indicators** of importance include:

- **international rankings,**
- the number of **international symposiums** organized by research teams,
- **agreements** for short- and long-term **mobility** of external researchers,
- the **number of invited researchers,**
- **hosting of visiting foreign professors,**
- the number of **PhD students** and **PhD defences, patents, start-ups, industrial partnerships** and **PhD projects involving an industrial partner,**
- number of **European funded projects and grants**

In addition, the **number of collaborations** is considered an important indicator for all partners except SUR, SU and UAM. SU, however, plans to incorporate this for the government's governance system and also for resource allocation in the future.

UB incorporates **internal fellowships** and **grants for researchers** at different stages of their careers as important indicators.

The **type of funding** is an additional **indirect indicator**. The type of funding can also **affect** the **rankings** and the reviewing procedures of a university. A higher degree of external funding will for most partners lead to a higher score in rankings.

Hubs, European Initiatives and R&I Strategies

Another dimension of R&I strategies investigated was the relation between the R&I strategies developed, the 5 CIVIS Hubs and European Initiatives. Regarding European Initiatives, they are central for all partners in their respective strategy formulations although not all express EU initiatives in alignment with R&I strategies. AMU is the only university that has R&I strategies clearly connected to specific EU initiatives.

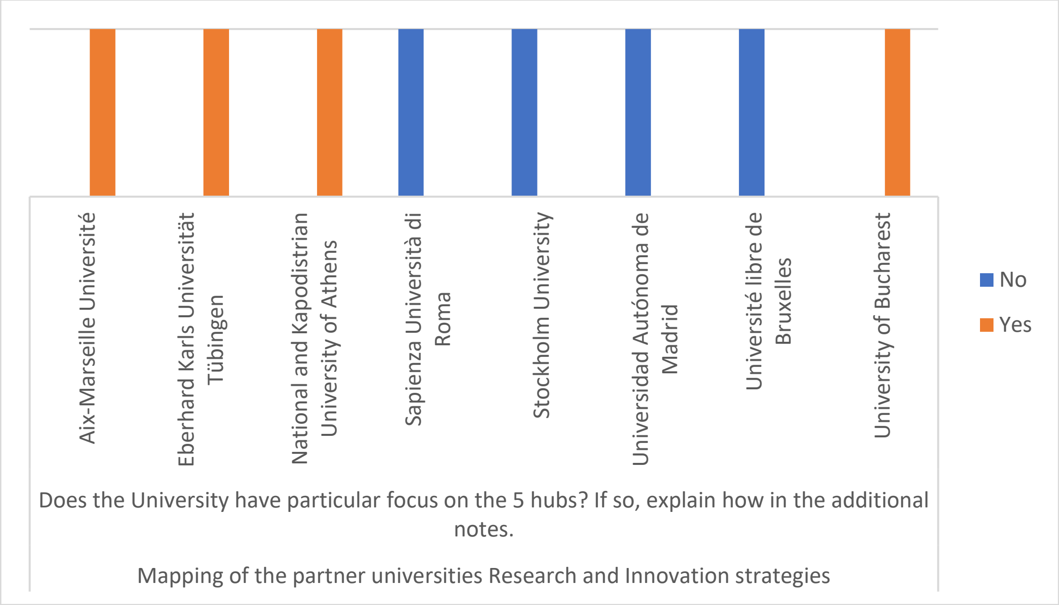


Figure 7. Relation of the 5 CIVIS Hubs in regard to the CIVIS R&I Strategies

- **AMU** seems to have a particular focus in organizing research in relation (but not limited to) to the 5 CIVIS hubs. Stating that at least **3 Institutes** ("Instituts d'Etablissement") plus 2 currently under development are involved in **HUB1** (Climate, Environment and Energy), **2** are involved in **HUB2** (Society, Culture, Heritage), **5** focus on **HUB3** (Health) and 1 is under development, and several address challenges linked to **HUB4** (Cities, territories and mobility) as well as **HUB5** (Digital and technological transformations in their actions).
- Similar is the practise of **NKUA** via its **Centers of Excellence** and **core facilities** that cover **HUB1** (Climate, Environment and Energy), **HUB2** (Society, Culture, Heritage), **HUB3** (Health) and **HUB5** (Digital and Technological Transformations)
- Similar notes come from **UT** and **UB** which both suggest a **correlation** between their **R&I strategies** and the **CIVIS Hubs**.
- **SUR** reports that the 5 Hubs are **not developed with a particular focus**, but since it is a multidisciplinary University, all five Hubs **are relevant to the University**. European initiatives are **not** explicitly **mentioned** in **Sapienza R&I Strategic Plan**. Nevertheless, Sapienza by the means of its **administrative offices** provides **support** to its professors and researchers by organizing specific events/activities in regard to R&I.
- **Neither SU nor ULB** showed any association since they have no central strategies for R&I. The same hold true for **UAM**. In the framework of Module 1, centrally approved and officially announced R&I strategies at each university were investigated. SU doesn't have, at least at this point, a central office that is in charge of R&I activities. SU is very decentralized when it comes to developing and defining strategies for R&I as well as teaching. There are actions implemented at several departments, institutes and centres that do carry out activities that can be related to the hubs, and it is likely that along with the development of the CIVIC Alliance, these actions/activities will be communicated in a more developed way. For the time being, initiatives have been taken to collect information in this regard. Still, since SU is a decentralized organization it means that R&I activities are not generated through top-down strategies but from bottom up approaches. **ULB** may have **no direct association** between the **5 CIVIS Hubs** and their **R&I strategies** but a significant part of their resources is directed at helping researchers to participate to European programs,

through its **European office** and **funding schemes** it supports applications and teams that have applied.

The table below aligns each university with the 5 CIVIS Hubs. As can be seen:

- **AMU** associates its RIs with all the hubs
- **NKUA** shows an association with 4 out of the 5 Hubs
- **UT**, **SU** and **UB** both suggest some **correlation** between their **R&I activities** and the **CIVIS Hubs**.
- **SUR** reports that the 5 Hubs are **not developed with a particular focus**, but all five Hubs **are relevant to the University based on their multidisciplinary structure.**
- **UAM and ULB** stated no association with the Hubs.

Table 2. Alignment between the CIVIS Alliance and the CIVIS Hubs.

	AMU	NKUA	ULB	UB	UAM	SU	SUR	UT
HUB1 (Climate, Environment, Energy)	🟩	🟩	*	*	*	🟩	🟩	
HUB2 (Society, Culture, Heritage)	🟨	🟨	*	*	*	🟨	🟨	
HUB3 (Health)	🟦	🟦	*	*	*	🟦	🟦	
HUB4 (Cities, territories and mobilities)	🟧		*	*	*		🟧	
HUB5 (Digital and Technological Transformations)	▨	▨	*	*	*	▨	▨	

*To be clarified in WP2 – Consensus Building

Also, it is noteworthy that European challenge-based programmes (e.g., AI, Green Deal) are central for all partners in their respective strategy formulations although not all expresses EU initiatives together with R&I strategies.

Communication of R&I Strategies

Another important part of Module 1 activities focused on the ways the partners communicate their strategies. As can be seen in the figure below, common answers included internal policy documents, external/internal website and other not specified ways.

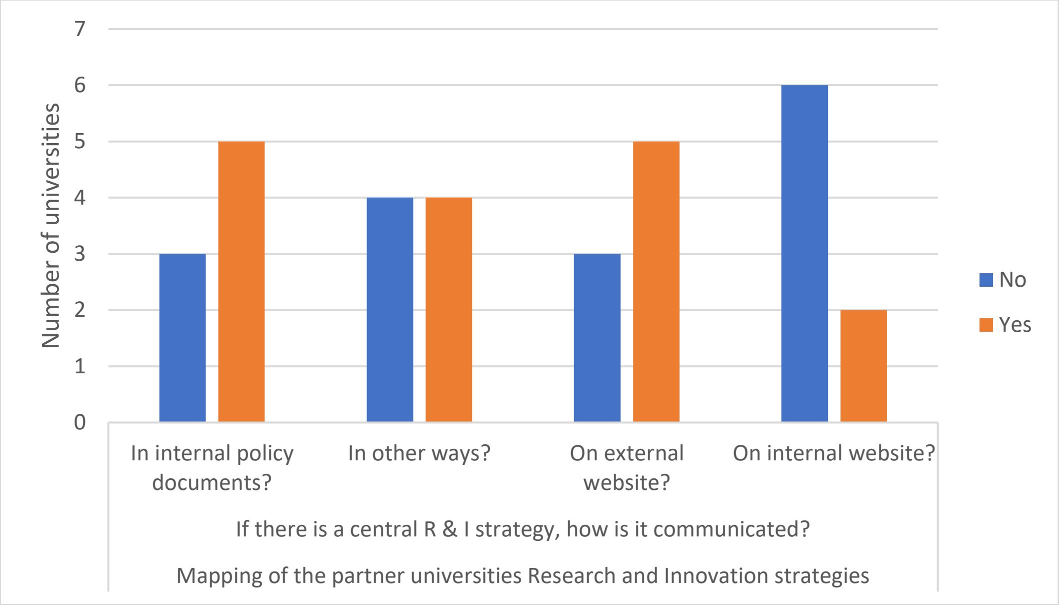


Figure 8. Communication ways in regard to CIVIS R&I Strategies

- **AMU** communicates their strategies on **internal** and **external websites**, via **internal policy documents** for communication of R&I strategies and through other not specified ways.
- **UT** communicates their strategies on **internal** and **external websites**, via **internal policy documents** for communication of R&I strategies
- **UAM** has **external websites** for communication as well as **internal policy documents**
- **SUR** has **external websites** for communication
- **UB** communicates its R&I strategies via **external websites**, **internal policy documents** for communication of R&I strategies and other not specified ways.
- **ULB** and **SU** have **no communication policies** since they have no central R&I strategy
- **NKUA** communicates its R&I strategies via **internal policy documents** and through in other not specified ways

1.4.2. Legal & governance barriers, national context &e external funding

Funding

R&I activities tend to be funded through a mix of sources. Types of funding sources include resources provided from industry, public agencies or partnerships and internal or state funding.

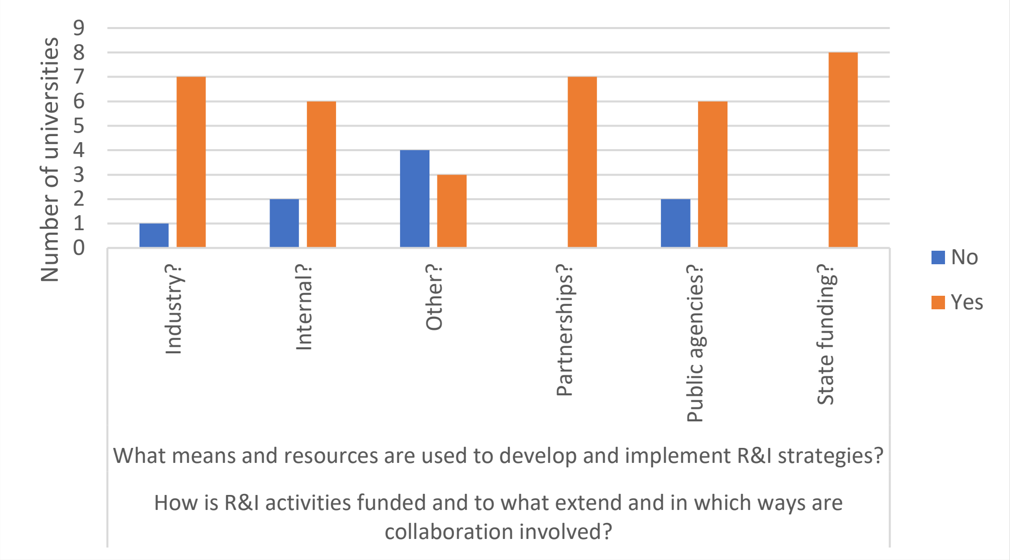


Figure 9. Funding sources in regard to CIVIS R&I Strategies

As can be seen from the figure above:

- All **8 universities** receive **state funding**
- **All but one** (UB) receive funding via their **partnerships and the industry**
- **6 out of the 8** universities receive funding from **public agencies and internal resources**
- **3 universities** stated they have **other alternative funding** sources such as international funding, sponsorship/patronage and private foundations.

Since there is no central strategy at Stockholm there are **no** particular procedure for **internal funding**. However, R&I activities are supported by **local initiatives** in the form of internal seed money with the purpose to further their project and at later stages to receive/ apply for **external funding**. In some cases, **central or partnership funding** is also offered **by the university** in order to match funding from external partners. The normal practise for Stockholm, is that **only externally funded projects are developed and implemented.** Thus, **the research heavily relies** on the **funders**, which is considered a **barrier** that needs **to be removed**.

All partners but ULB say that the **type of funding** has an **impact** on the direction of the **development** of the **R&I strategies and activities.** In most cases, the relationship between research and funding is quite a **dynamic process.**

As a summary, an overview of the current situation in each CIVIS Alliance member regarding Module 1 activities can be seen in the following table.

Table 3. Overview of current situations in regard to Module 1

University	Current Practices
AMU	**R&I Strategies** Central R&I Strategies • central R&I Strategy Structure of R&I Strategies • has vice rectors for R&I as well as other different Vice-Rectors. • has a central policy and organization for R&I strategies. • also has organised support to researchers at local levels. • several Directorates, offices and organizations (e.g., Research and Development Directorate, A*Midex foundation, Economic and Social Partnerships Direction) in support to R&I (mostly centralized but their staff is also distributed in the various campuses) Developing R&I Strategies • has a particular evaluation system involving both external and internal experts. Monitoring R&I Strategies • regular monitoring meetings • R&I plan and related activities, are monitored by i. the Directorate for Research and Development and its administrative cluster staff, ii. the Directorate for Continuous Improvement and iii. the Directorate for Financial Affairs
	Hubs + R&I Strategies • linked with i. HUB1 (Climate, Environment and Energy), ii. HUB2 (Society, Culture, Heritage) iii. HUB3 (Health) iv. HUB4 (Cities, Territories and Mobilities) v. HUB5 (Digital and Technological Transformations)
	Communication of R&I Strategies • internal and external websites • internal policy documents • other ways
	Funding sources for R&I Strategies • On an annual basis, AMU receives recurrent funds from the government and also from the administrative region. • AMU collects its own resources (grants) through responses to regional, national (e.g., ANR, PIA), European or international calls for projects (research units or institutions), and through research contracts with public and private, national or international organizations. • Aix-Marseille Foundation A*Midex: calls launched by the Foundation itself, and also through the AMU's Institutes (Very strong at the local scale but not the only source).

NKUA	**R&I Strategies** Central R&I Strategies • central R&I Strategy (resembles ULB & Stockholm situation) Structure of R&I Strategies • has vice rectors for R&I • has central organization for R&I • has a Special Central Unit currently under development • at an administrative level, responsibilities are processed by the: **i.** Vice Rector of Research **ii.** Special Account for Research Grants (SARG) **iii.** Quality Assurance Unit (QAU) **iv.** NKUA's Company for Property Utilization and Management. • similarities with Aix-Marseille practices • the Senate or the Rectors Committee make the final decisions Monitoring R&I Strategies • regular monitoring meetings
	Hubs + R&I Strategies linked with • HUB1 (Climate, Environment and Energy), • HUB2 (Society, Culture, Heritage) • HUB3 (Health) • HUB4 (Cities, Territories and Mobilities) – under development • HUB5 (Digital and Technological Transformations)
	Communication of R&I Strategies • internal policy documents • other ways **Funding sources for R&I Strategies** The main sources of funding at NKUA are: • State funding • European, international and national funds (i.e.: The Partnership Agreement for the Development Framework, 2014-2020 European Structural and Investment FundESIF, Horizon 2020). • Partnerships with public and private sector bodies. • Funding coming from the exploitation of the University's assets which is mostly used for Research Infrastructure and scholarships (Special funds for research in Covid –related subjects has been allocated)

UB	**R&I Strategies** • Central R&I Strategies • central R&I Strategy • Structure of R&I Strategies • no central administrative unit for R&I strategies • incorporates R&I as part of the research department • has a vice rector for R&I and an administrative department for research that supports R&I related efforts. Monitoring R&I Strategies • regular monitoring meetings • R&I activities (via a set of distinct indicators) are monitored by a monitoring committee coordinated by the vice rector of research, in an annual basis • Similar with Tübingen practises
	Hubs + R&I Strategies • There is an association
	Communication of R&I Strategies • external websites • internal policy documents • other ways **Funding sources for R&I Strategies** • State funding • Internal

UAM	**R&I Strategies** Central R&I Strategies • central R&I Strategy • establishment of "joint" institutes with other research centres • collaboration with society and companies, in training and research programs, as well as through joint research and innovation laboratories. • proposes in Strategy 2025 a series of topics aimed at improving its research and its strategic area Structure of R&I Strategies • has vice rectors for R&I Monitoring R&I Strategies • regular monitoring meetings • R&I activities are monitored by a Special Technical Commission
	Hubs + R&I Strategies • no association
	Communication of R&I Strategies • external websites • internal policy documents
	Funding sources for R&I Strategies • Private Foundations • State Plan for Scientific and Technical Research and Innovation and R&D Regional Programs • Management related to the UAM Foundation • Programs corresponding to other Ministries, not directly related to Research or Universities • Mainly, National (Alianza4U) and International (CIVIS) Partnerships UAM Internal Programs,

ULB	**R&I Strategies** Central R&I Strategies • no central R&I Strategy Structure of R&I Strategies • R&I strategies are the responsibility of the Rector • R&I strategies are partly centralised & partly decentralised • REIS office Developing R&I Strategies • internal & external experts & scholars are involved in R&I strategy development Monitoring R&I Strategies • weekly informal meetings between vice-rector and rector monthly meetings between internal advisors and research administration unites and the vice rector • 3-5 times per year formal meeting in the research council including also external experts. • Similar with Stockholm practises
	Hubs + R&I Strategies • no association
	Communication of R&I Strategies • The strategy based on excellence is not communicated very explicitly but is very clear in each internal call for projects as well as in the general communication by the Rector and the vice-Rector for research and knowledge transfer.
	Funding sources for R&I Strategies • State Funding • Industry • Public agencies • Partnerships • sponsorships/patronage

SUR	**R&I Strategies** Central R&I Strategies • central R&I Strategy • support for basic research, participation in competitive calls, in line with the provisions of the University Strategic Plan 2016-2021 • cooperation between academia, business, public administration/policy-makers and civil society to develop joint programmes regarding R&I • model based on "open science, open innovation and open to the world." Structure of R&I Strategies • Has a type of central unite & no report of vice rector for R&I Developing R&I Strategies • has a Strategic support and communication Division at central administration level • has a six-year strategic plan where objectives are summarized in a three-year performance plan Monitoring R&I Strategies • regular monitoring meetings (every two weeks) Indicators for R&I strategies • indicators might depend on special agreements with funders of particular projects and programs.
	Hubs + R&I Strategies • no association
	Communication of R&I Strategies • external websites
	Funding sources for R&I Strategies • main funding: international funding • State funding • Industry • Partnerships • Internal

UT	**R&I Strategies** Central R&I Strategies • central R&I Strategy Structure of R&I Strategies • have vice rectors for R&I. Monitoring R&I Strategies regular monitoring meetings
	Hubs + R&I Strategies There is an association (not specified)
	Communication of R&I Strategies • internal and external websites • internal policy documents **Funding sources for R&I Strategies** • Seed funding by the university but mostly external grants. • State funding • Industry • Public Agencies • Partnerships • Internal Funding

SU	**R&I Strategies** Central R&I Strategies • No central R&I Strategy Structure of R&I Strategies • no central administrative unit for R&I strategies • a central unit only offers support to individual bottom-up initiatives • the university owns all the processes of initiating research • it also has collaborations with the industry, agencies of the civil society, political decision-making bodies and other universities • has offices for research support and service as well as units for innovation and entrepreneurship Indicators for R&I strategies • indicators might depend on special agreements with funders of particular projects and programs.
	Hubs + R&I Strategies • no association as there is no central strategy
	Communication of R&I Strategies • no communication policies as there is no central strategy **Funding sources for R&I Strategies** • State funding (resources allocated to the university are divided to departments and are normally used for initiating contacts and establishing networks.) • Industry • Public agencies (i.e. VINNOVA, that has the task to fund R&I activities to which researchers can apply for funding) • Partnership with industry, public organizations or civil society organisations are the most common sources for funding of R&I activities The actual work with developing strategies and implementing them is likely to be financed by external resources

1.5 Suggestions & Future Steps

Suggestions

In order for a common R&I strategy to be developed, alignment of each and every university research priorities with the ones of the Hubs should be established.

All in all, the process of defining a solid and common R&I strategy should lead to define the impact we expect from this R&I strategy, a foreseen portfolio of activities common to CIVIS, measurable expected outcomes in terms of R&I, dedicated resources, measurable deliverables and finally milestones within a defined timeframe. The monitoring of this strategy should also include indicators on digitalisation and environmental sustainability, aligning it with the EU political priorities. In addition, the R&I strategy could address challenges as defined in the UN Sustainable Development Goals and link research, technology and innovation policies for transformative change.

Synergy between each CIVIS member should also be a central cornerstone. This means that the R&I agenda to be developed should be open, all-inclusive and should comprise objectives and resources that can be implemented and followed by all CIVIS members to allow for simultaneous progression.

The R&I agenda could include a roadmap that would set specific goals and objectives of the consortium and would define/prioritize R&I activities that need to be performed in order to achieve these objectives. For example, a three-year (or to further discussed) work plan through which the roadmap of R&I priorities will be implemented could also be of help.

Future Steps

The main research clusters of each university and the general characteristics of the R&I strategies (i.e. central/decentralised strategy, central administrative unit, who is in charge of the R&I activities, development/monitoring of the R&I strategies) have been identified during the WP1 phase. However, further investigation regarding the particular links between the R&I strategies and the 5 Hubs at a university level should take place. Even though this mapping transpired in the framework of WP1, the result was that the links were not very clear (with the exception of some universities such as AMU).

The future steps should focus on identifying clear links between each university and the 5 Hubs. Then, the strategies implemented in each facility/department/etc of the university linked with the Hubs should be mapped. Finally, the mapped research clusters and strategies should be delivered in a conceptual framework that allows for joint comprehension.

Additional future steps include, the identification of the characteristics of the R&I strategies implemented in each Hub. The details to be mapped should include: how each Hubs develops its research agenda, what are the implemented procedures, how efficient/effective are they etc. Identifying ways, the CIVIS WP4 can contribute to the agenda-setting in the Hub should also be examined.

The Horizon Europe prioritises the development of a Research and Innovation Strategy in order to ensure that the long-term vision will be implemented via tangible roadmaps with measurable objectives.

As part of the work to be carried out in Module 1, strong cooperation with the other modules should take place. In particular, collaboration with Module 2 (Sharing Infrastructures), Module 3 (Reinforcing Academia-Business R&I cooperation) and Module 6 (Embedding citizens & society) needs to be strengthen in order to address societal challenges through research, education and innovation (at a CIVIS level). Moreover, identifying the areas (and document the selection criteria of these areas) in which the universities can enhance their academic excellence is also a good step moving forward.

In relation to EU initiatives, where applications are likely to be assessed in a standard common EU way, it can be of great importance to find joint ways to meet such requirements in successful ways.

Furthermore, in terms of overall performance in R&I, charts that summarise the size, researcher landscape, R&I income and innovation performance of each university can be made for easier comprehension of the current situations. This step would allow for easier alignment of the R&I strategies in the CIVIS level.

The work carried out in Module 1 focused on identifying and describing the structures involved in defining the R&I strategies of each university, rather than presenting the strategies themselves. For more information on the respective strategies of each university, please refer to the synthesis presented in the annex of this document.

2 Module 2: Sharing Infrastructures

2.1 Module 2 Objectives

The main aim of Module 2 was to establish a strategy that would allow for joint use of the RIs that are available in all CIVIS Alliance members. In order to achieve this aim, Module 2 implemented the following activities:

1. identification and mapping of the RIs (including e-infrastructures) that are available in the CIVIS Alliance Members
2. design of methods that would allow sharing of the RIs both within the CIVIS Alliance and with external relevant stakeholders. For this activity, two distinct approaches were followed: i. first the creation of a common information access point of RIs manged by each CIVIS Alliance members that would address financial, legal, regulatory, logistical and other barriers and ii. second the development of a joint strategy for RIs development and usage that would address the aforementioned obstacles and would also propose an economic model.

2.2 Module 2 Overview

During the benchmarking phase of the project, the **mapping of existing availability of strategic RIs** part of the CIVIS Hubs (1. Climate, Environment, Energy, 2. Society, Culture and Heritage, 3. Health, 4. Cities, Territories and Mobilities and 5. Digital and Technological Transformations) was established. The identification of **potential RI-related funding opportunities** (at European and national) was also ascertained during the Benchmarking phase of Module 2. The precise methodology of this phase will be explained in detail in the next section of the report ("Explanation of the work carried by each partner university within the Modules").

In the framework of accomplishing the aforementioned aims, Module 2 activities focused around the following:

- **A map of the strategic RIs.** This outcome will include an overview of the **current situations,** of the **RIs accessibility** (indicated by common nomenclature) and a **list of similar/complementary RIs** in each CIVIS university.
- **A map of the main policies regarding the ownership and usage of the RIs** in each CIVIS university.
- **A map of current and potential funding opportunities** regarding the RIs.

2.3 Work Carried out

2.3.1 Meetings

From the beginning of WP1, Module 2 members had 4 meeting with each having a specific agenda.

Table 4. Dates & deadlines regarding Module 2.

Meeting	*Participants*	*Key Points*
13/01/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• **defining the main categories/**structure of the RI mapping (conceptual framework) • **defining the tools** to be used for the mapping
28/01/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• **defining the questionnaire** format to be used for the RI mapping • **scout for funding opportunities** at regional, national as well as European level that would allow for the improvement of the RIs part of the CIVIS Alliance. (lead by Julien Favier (AMU) and Gastón Garcia Lopez (UAM)) • **defining future steps and deadlines**
20/04/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• **sharing a first analysis of the survey results** (presentation by Ciro Franco). • **sharing practices in view of the next steps** (Julien Favier presented AMU's RI management model). • **starting the activities related to scouting for RI funding opportunities** (Gastón Garcia Lopez presented the relevant opportunities such as the ERA-Net calls.) • **defining future steps and deadlines**
26/05/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• comments and feedback regarding the **Module 2 Report**.

2.3.2. Methodology followed for mapping RI

(1) Common terminology

In order for a homogenized process to take place, certain terms were defined in the framework of RIS4CIVIS. In particular, the common definition of RIs that was shared among the CIVIS partners defines RIs as a facility that provide resources and services for research communities to conduct research and foster innovation. For the establishment of this terminology, Module 2 team took into consideration information from the European Commission website related to Research Infrastructures, and the final definition they settle on complies with the one found in the European Charter for Access to Research Infrastructures - Principles and Guidelines for Access and Related Services which states that:

*"**Research infrastructures**" are **facilities, resources and related services** that are used by the scientific community **to conduct top-level research** in their respective fields and **covers major scientific equipment** or sets of instruments; knowledge-based resources such as collections,*

archives or structures for scientific information*; enabling Information and* ***Communications Technology-based infrastructures*** *such as Grid, computing, software and communication, or any other entity of a unique nature essential to achieve excellence in research. Such infrastructures may be “****single-sited****” or “****distributed****” (an organised network of resources)*.

(2) Axis utilized for RI mapping

After defining shared definitions, the Module 2 team began the process of mapping the RIs by first identifying the axons under which the mapping will take place. The RI mapping was decided to be based on two main axes: 1. The 5 scientific hubs part of the challenge-based approach followed by CIVIS (figure below) and 2. The European Research Council (ERC) domains and sectors (Table 6) and 3. Smart Specialization Strategies (Table 7).

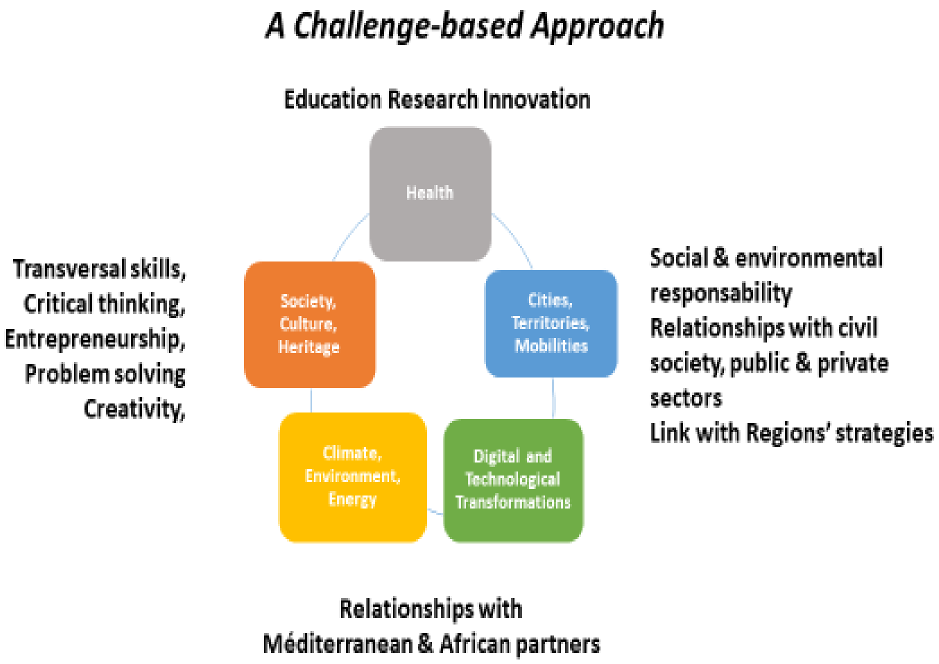

A Challenge-based Approach
Education Research Innovation
Health
Society, Culture, Heritage
Cities, Territories, Mobilities
Climate, Environment, Energy
Digital and Technological Transformations
Transversal skills, Critical thinking, Entrepreneurship, Problem solving Creativity,
Social & environmental responsability
Relationships with civil society, public & private sectors
Link with Regions’ strategies
Relationships with Méditerranean & African partners

Figure 10. The five (5) scientific hubs relevant to the present mapping.

(3) Questionnaire

The aim of the developed questionnaire is to map the available RIs at each CIVIS institution. The questions, part of the questionnaire, were structured in a way that extracted information regarding the main:

1. **features**
2. **rules**
3. **requirements**
4. **criteria**
5. **access fess**
6. **barriers**

In relation to the use of RIs by other CIVIS institutions as well as external stakeholders. Its format was organized in the 5 following sections:

1) Infrastructure general sheet (that included 15 questions)

2) Specific features of the Research Infrastructure (that included 7 questions)

3) Research Infrastructure Users (that included 5 questions)

4) Possible barriers to a shared use of the RI (that included 14 questions)

5) Activities performed by the use of the equipment (that included 5 questions)

In total, the questionnaire included 47 questions (the aforementioned 46 plus one that asked for the email address of the person who filled in the questionnaire, in conformity with the GDPR).

In detail,

1. the **first section, Infrastructure general sheet,** included questions that extracted the following information:

- Type of Research Infrastructure: Core strategic RI, RI financed by external funds (i.e. by European funds or other), RI financed by contractors (i.e. for specific projects or research activities), "single-sited" or "distributed" Infrastructure
- Relevant ERC Sectors
- Relevant CIVIS Hubs
- Relevant Key Enabling Technologies (KET)
- Relevant regional Smart Specialization Strategy (S3) area
- Laboratory / equipment web page.

2. the **second section, Specific features of the Research Infrastructure**, included the following key details:

- Research Infrastructure description
- Services provided
- Access requirements/criteria to access
- Link to usage regulations (if available)
- IR access fee
- Link to access fee regulation (if available).

3. the **third section, Research Infrastructure Users,** aimed at collecting the following data:

- Average yearly number of internal and external users
- Typology of external users
- Yearly clinical use of the RI and percentage of time for the clinical use.

4. the **fourth section, Possible barriers to a shared use of the RI**, focused on extracting data regarding the following:
   - access policy and in particular any possible limitation depending on the user's affiliation to the RI institution, country or to other institutions/countries
   - language of the main documents related to RI access (webpage, access application form, etc.)
   - user promotion activities audience
   - any internal regulations which would need some modification in order to allow an open usage of RIs within CIVIS
   - differences in the access policy among academic and industrial users
   - management of industrial property issues with industrial users
   - possible need for modifying intellectual property management or any other aspects related to industrial or external user access in order to implement an open usage of RIs within CIVIS
   - other possible relevant barriers to an eventual shared use of RIs within CIVIS
5. the **fifth section, Description of activities performed by the use of the equipment**, includes the following information:
   - research activities
   - technology transfer and innovation activities
   - third mission activities
   - educational/training activities

(4) Additional Information
For an efficient mapping of the RIs, some additional qualitative information was requested from each institution. That information responded to the following questions:

1. **General description of the RI institutional strategy** (totally decentralized or centralized management model or both the models coexist? How does it work?)
2. **Brief description of any use Regulations at a central level**, if available
3. Presentation of **any informative and communication tool** aimed at promoting the use of RIs internally or, if relevant, also to external stakeholders
4. Description of the **approach followed by the institution when completing the questionnaire**

2.3.3 Methodology followed for mapping potential funding opportunities

For this objective, the potential funding opportunities at a regional, national and European level were mapped. The aim of this activity was to enable the CIVIS alliance to improve the potentials of its RIs. This task was coordinated by UAM and AMU. The steps followed to map the funding opportunities include:

- Preliminary analysis of European funding opportunities relevant to the CIVIS Alliance
- Preparation of a first draft overview document

Module 2 members have been requested 1. to provide their feedback on the above document and 2. to also adding funding opportunities eventually available at national and local level and capable to foster cooperation with foreign institutions.

2.4 Tasks & Outcomes

The overall outcomes for Module 2 are as follows:

i. Mapping of RIs
ii. Definition of conceptual framework for documentation and categorization of the RIs
iii. Development of a glossary to enable easier communication between the CIVIS partners
iv. Examining RI access policies in each CIVIS University (i.e. access requirements, criteria, fees)
v. Identifying legal, logistical and financial barriers regarding the joint use of the RIs by all CIVIS partners as well as external parties.
vi. Surveying for funding opportunities at regional, national as well as European level that would allow for the improvement of the RIs part of the CIVIS Alliance. This is a task completed in cooperation with the CIVIS Funding Task Force.

2.4.1 Mapping of existing initiatives & best practices within CIVIS regarding RIs

The current situation in the CIVIS Alliance members in the framework of RIs as depicted by the mapping that took place as part of Module 2 activities is as follows: The majority of the RIs mapped are **open to the academic community, at internal and external level, and to any kind of users or partners**.

Access fees. As shown by the RI mapping, the universities part of the CIVIS Alliance either have no access fee or as is the case in most of the RIs, the access fee follows an on-demand approach and is regulated on the basis of different rules and criteria. These criteria include the following examples:

- Scientific relevance and excellence of the research project
- Mandatory training of users
- Ethics authorization
- Technical requirements
- Availability of the RI
- Mutual collaboration and reciprocity
- Guidance and permanent authority of the permanent scientists in charge of the RI

The conclusion drawn regarding the **costs to access RIs**, is that the **fees vary widely depending** on the **research projects** as well as on the **specific negotiations** and agreements between the parties. In case of **external users**, normally a **fee is applied** but this does not represent an obstacle to the RI access. From the replies the Module 2 team received, they established that there is **no difference** in the **access policy** for **academic and industrial users**, except for the fact that the access **fee is higher** for **industrial users.**

External users

In most cases regarding the use of the RIs by external users, they are subject to paying an access fee or reimbursing the expenses. The cost could depend on the framework of the work carried out using the RI (i.e. in the frame of academic or institutional collaboration or in the frame of collaborative projects or contracts).

Some noteworthy facts regarding the access fee policies are 1. that RIs pricing in some cases must be validated at an Institutional level and 2. that in the case of Digital Infrastructure, free access is guaranteed.

Access Requirements

From the questionnaire as well as the additional qualitative information requested from the CIVIS Alliance members, the Module 2 **team** concluded that the access requirements in regard to RIs are generally open**, considering that:**

- The majority of the mapped RIs already have an open-access policy to other universities, research centers and private organisations.
- Some RIs are even open to students for the purpose of performing hands-on training activities.
- Generally, the access by external or non-national users is not influenced by the universities' access policies. However, in some cases for non-EU users, more strict access conditions are applied mostly regarding security reasons.
- In most cases, no restrictions are applied to industrial users.

The general openness of RIs is also confirmed by the **RI use promotion activities/tools**. In most cases RI promotion activities are addressed to international users. In fact, at a general level, the documents related to access (webpage, access application form, etc.) are also available in other languages (e.g. English) in order to facilitate the access to non-national users. This is a very common practice.

The mapping of the RIs was based on 3 axes:

1. Hubs

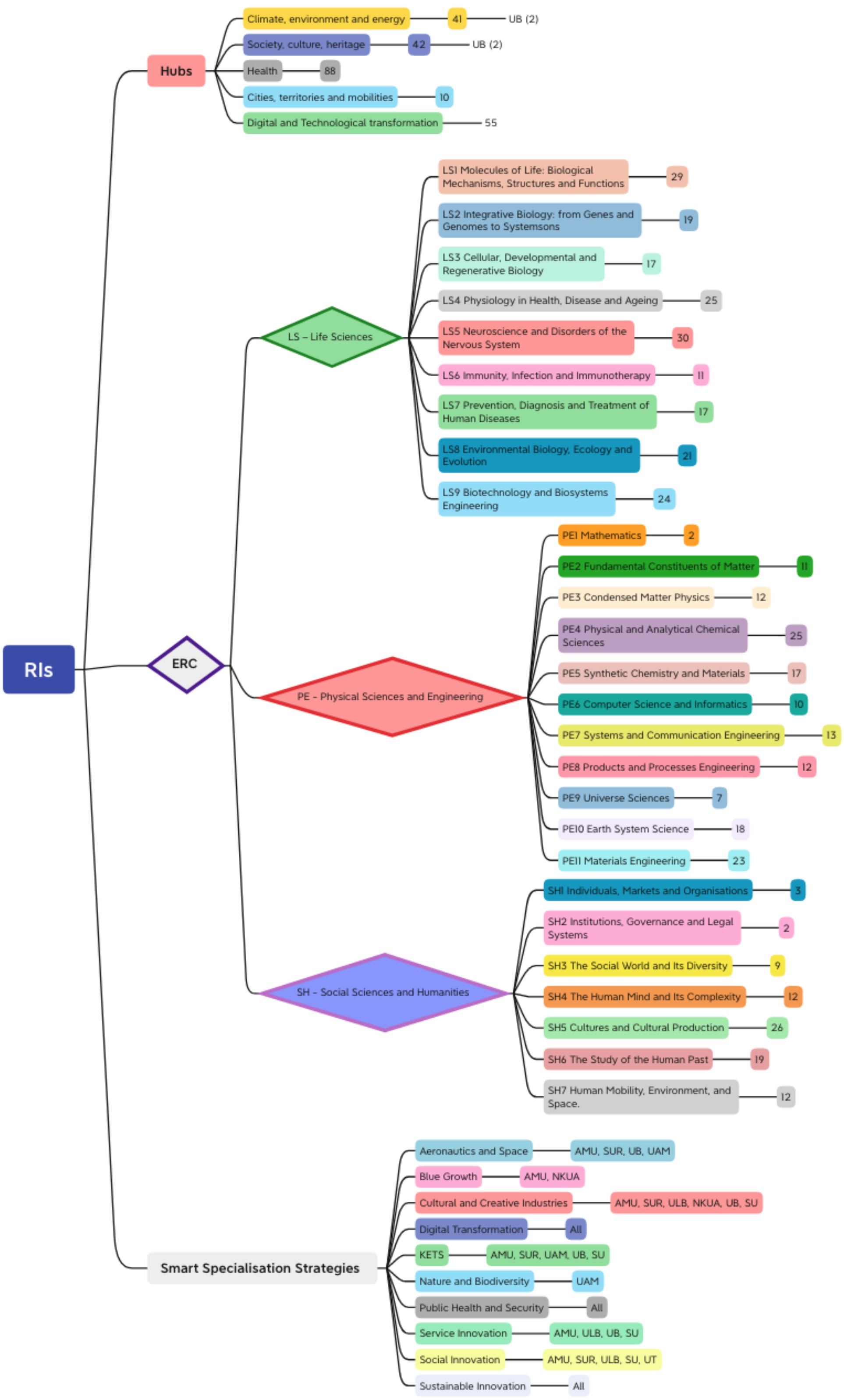
Table 5. RIs mapped, by CIVIS Hubs

CIVIS Hubs	Research Infrastructures
Climate, environment and energy	41
Society, culture, heritage	42
Health	88
Cities, territories and mobilities	10
Digital and Technological transformation	**55**

2. ERC Domain & Sectors

Table 6. RIs mapped, by ERC domains and sectors

ERC Domains	Research Infrastructures
LS – Life Sciences	89
PE - Physical Sciences and Engineering	60
SH - Social Sciences and Humanities	56
ERC Sectors	**Research Infrastructures**
LS1 Molecules of Life: Biological Mechanisms, Structures and Functions	29
LS2 Integrative Biology: from Genes and Genomes to Systems	19
LS3 Cellular, Developmental and Regenerative Biology	17
LS4 Physiology in Health, Disease and Ageing	25
LS5 Neuroscience and Disorders of the Nervous System	30
LS6 Immunity, Infection and Immunotherapy	11
LS7 Prevention, Diagnosis and Treatment of Human Diseases	17
LS8 Environmental Biology, Ecology and Evolution	21
LS9 Biotechnology and Biosystems Engineering	24
PE1 Mathematics	2
PE2 Fundamental Constituents of Matter	11
PE3 Condensed Matter Physics	12
PE4 Physical and Analytical Chemical Sciences	25
PE5 Synthetic Chemistry and Materials	17
PE6 Computer Science and Informatics	10
PE7 Systems and Communication Engineering	13
PE8 Products and Processes Engineering	12
PE9 Universe Sciences	7
PE10 Earth System Science	18
PE11 Materials Engineering	23
SH1 Individuals, Markets and Organisations	3
SH2 Institutions, Governance and Legal Systems	2
SH3 The Social World and Its Diversity	9
SH4 The Human Mind and Its Complexity	12
SH5 Cultures and Cultural Production	26
SH6 The Study of the Human Past	19
SH7 Human Mobility, Environment, and Space.	12


RIs
Hubs
Climate, environment and energy
41
UB (2)
Society, culture, heritage
42
UB (2)
Health
88
Cities, territories and mobilities
10
Digital and Technological transformation
55
ERC
LS – Life Sciences
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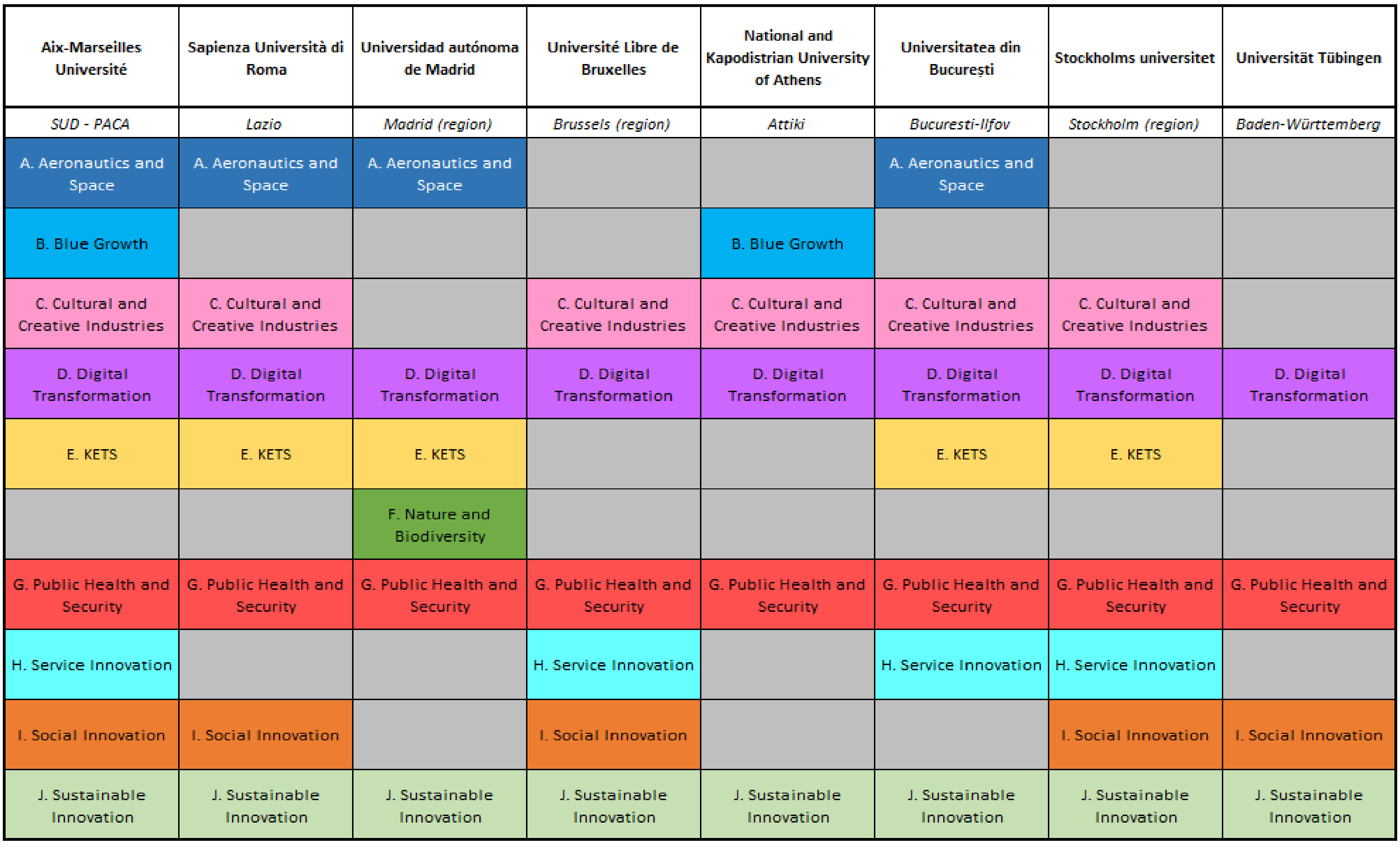
25
LS5 Neuroscience and Disorders of the Nervous System
30
LS6 Immunity, Infection and Immunotherapy
11
LS7 Prevention, Diagnosis and Treatment of Human Diseases
17
LS8 Environmental Biology, Ecology and Evolution
21
LS9 Biotechnology and Biosystems Engineering
24
PE - Physical Sciences and Engineering
PE1 Mathematics
2
PE2 Fundamental Constituents of Matter
11
PE3 Condensed Matter Physics
12
PE4 Physical and Analytical Chemical Sciences
25
PE5 Synthetic Chemistry and Materials
17
PE6 Computer Science and Informatics
10
PE7 Systems and Communication Engineering
13
PE8 Products and Processes Engineering
12
PE9 Universe Sciences
7
PE10 Earth System Science
18
PE11 Materials Engineering
23
SH - Social Sciences and Humanities
SH1 Individuals, Markets and Organisations
3
SH2 Institutions, Governance and Legal Systems
2
SH3 The Social World and Its Diversity
9
SH4 The Human Mind and Its Complexity
12
SH5 Cultures and Cultural Production
26
SH6 The Study of the Human Past
19
SH7 Human Mobility, Environment, and Space.
12
Smart Specialisation Strategies
Aeronautics and Space
AMU, SUR, UB, UAM
Blue Growth
AMU, NKUA
Cultural and Creative Industries
AMU, SUR, ULB, NKUA, UB, SU
Digital Transformation
All
KETS
AMU, SUR, UAM, UB, SU
Nature and Biodiversity
UAM
Public Health and Security
All
Service Innovation
AMU, ULB, UB, SU
Social Innovation
AMU, SUR, ULB, SU, UT
Sustainable Innovation
All

Figure 11. xmind figure that maps the RIs using the following 3 axes: 1. Hubs, 2. ERC domains/sectors and 3. Smart Specialization Strategies

3. Smart Specialization Strategies

Table 7. *Smart Specialization Strategies implemented in each CIVIS member. No reliable estimate of the number of RIs by Smart Specialisation Strategies areas could be provided.*



Aix-Marseilles Université	**Sapienza Università di Roma**	**Universidad autónoma de Madrid**	**Université Libre de Bruxelles**	**National and Kapodistrian University of Athens**	**Universitatea din București**	**Stockholms universitet**	**Universität Tübingen**
SUD - PACA	*Lazio*	*Madrid (region)*	*Brussels (region)*	*Attiki*	*Bucuresti-Ilfov*	*Stockholm (region)*	*Baden-Württemberg*
A. Aeronautics and Space	A. Aeronautics and Space	A. Aeronautics and Space			A. Aeronautics and Space		
B. Blue Growth				B. Blue Growth			
C. Cultural and Creative Industries	C. Cultural and Creative Industries		C. Cultural and Creative Industries	C. Cultural and Creative Industries	C. Cultural and Creative Industries	C. Cultural and Creative Industries	
D. Digital Transformation	D. Digital Transformation	D. Digital Transformation	D. Digital Transformation	D. Digital Transformation	D. Digital Transformation	D. Digital Transformation	D. Digital Transformation
E. KETS	E. KETS	E. KETS			E. KETS	E. KETS	
		F. Nature and Biodiversity					
G. Public Health and Security	G. Public Health and Security	G. Public Health and Security	G. Public Health and Security	G. Public Health and Security	G. Public Health and Security	G. Public Health and Security	G. Public Health and Security
H. Service Innovation			H. Service Innovation		H. Service Innovation	H. Service Innovation	
I. Social Innovation	I. Social Innovation		I. Social Innovation			I. Social Innovation	I. Social Innovation
J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation	J. Sustainable Innovation

The end result of the mapping based on the 3 aforementioned axes can be seen at the figure below. The figure maps the number of RIs included in the CIVIS Alliance. In the first two axes, Hubs & ERC, the number of available RIs is seen in the figure. In the last axis, Smart Specialisation Strategies, the universities that have RIs involved in these fields are mentioned, and NOT the number of the RIs available.

Some additional ways to map the RIs are as follows:

1. Based on funding

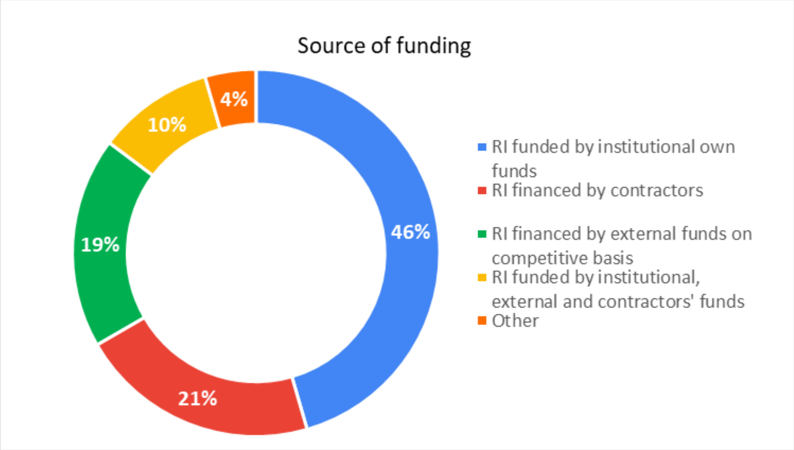


Figure 12. RIs mapped, by source of funding (in percentage)

2. RIs mapped (single-sited or distributed)

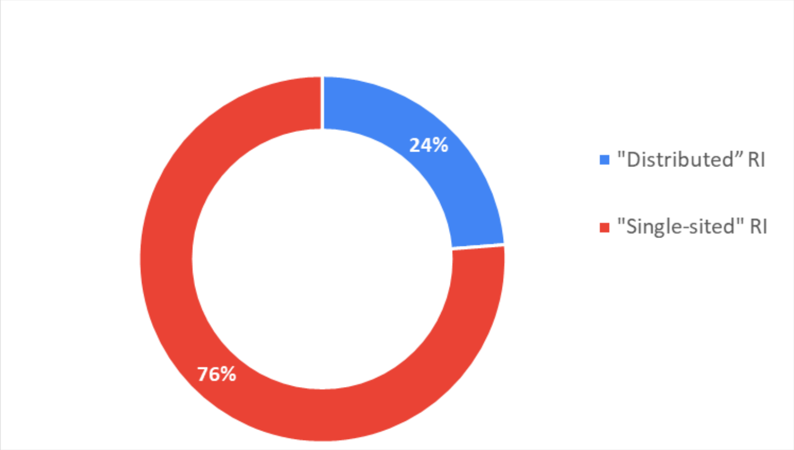


Figure 13. RIs mapped (single-sited or distributed, in percentage)

3. RIs mapped based on Key Enabling Technologies

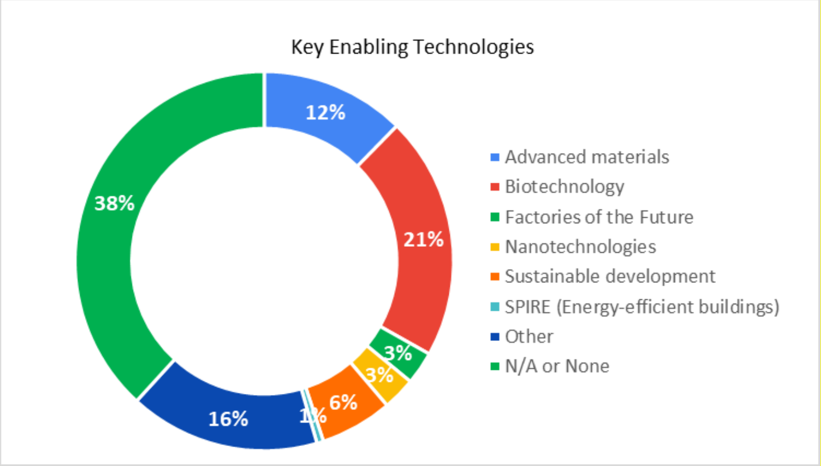


Figure 14. RIs mapped, by Key Enabling Technologies (in percentage)

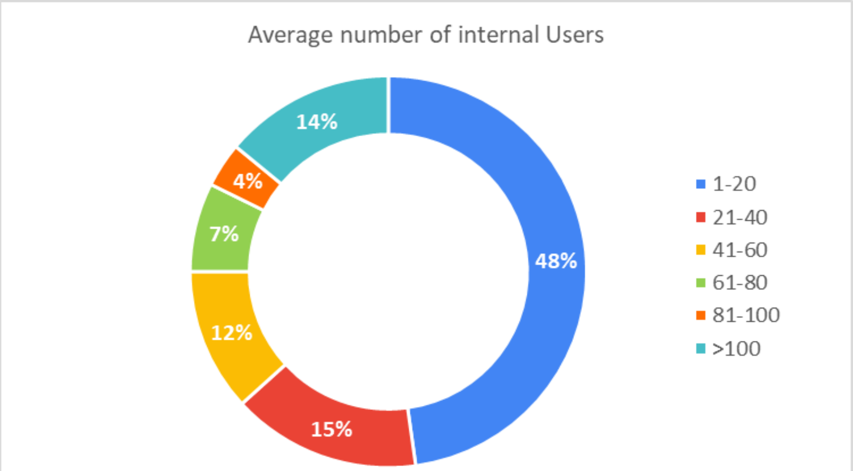


Figure 16. RIs mapped, by average number of internal users (in percentage)

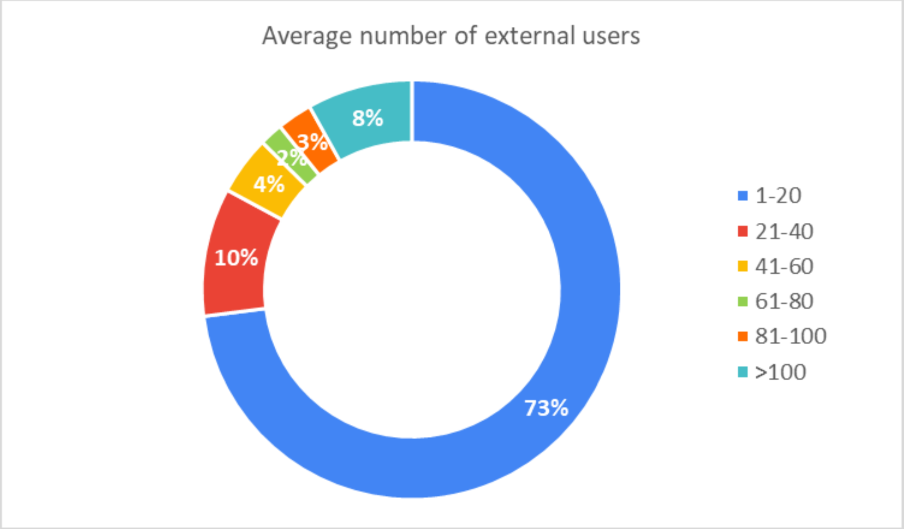


Figure 15. RIs mapped, by average number of external users (in percentage)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

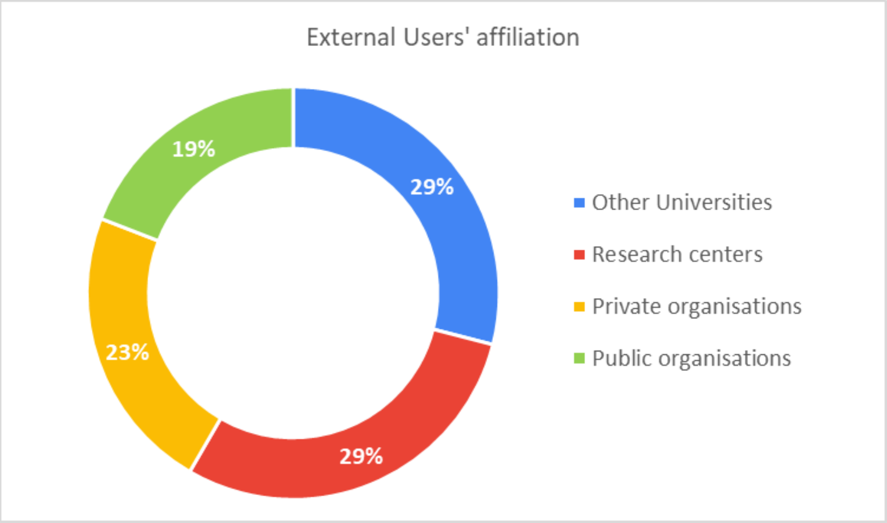


Figure 16. RIs mapped, by average number of external users' affiliation (in percentage)

Detailed information regarding each CIVIS Institution is reported below (as were reported in Module 2 report):

Aix Marseille University - AMU

1. General description of RI institutional strategy

- RIs have been structured through a label **« Plateformes Technologiques du site d'Aix-Marseille»**, created in 2016.
- AMU has 62 labeled RI (facilities, scientific equipment, sets of instruments, resources or services that are used by the research communities to conduct research and foster innovation in their fields)
- **Each RI is managed in a decentralized way** (locally by a responsible in charge of the RI and a steering committee which decides the strategical development and maintenance of the RI).
- However, **the label is managed in a centralized way at the University level**. The label is accorded for 3-years (renewable). Each RI of the label is sharing a common convention to ensure optimal quality of services and a costs management application.

By being labeled, the platforms can benefit from different services supporting their development, visibility and access within a common framework of regulations. The main objectives of the AMU's Label are:

- To promote and disseminate the high-level technologies to the academic and industrial sector, as well as the scientific and technical skills of RI, to provide relevant services to research laboratories and the socio-economic world's needs;
- To help and support RI in the development of their economic model and support their developments in terms of quality management.
- To provide a certified regulation framework for greater efficiency and responsiveness;
- To provide the RI an adapted pricing system associated to a pricing tool (TaPla) designed by the University services to facilitate the interactions with companies and laboratories for RI owners;
- To promote training and workshops on the RI.

Although the label is focused on technological RI, developments are now in progress to propose other types of RI including open science database, especially for the social science sector.

List of local funding to support Aix Marseille University RI:

- EQUIPEX Plus: funding for the acquisition of major scientific equipment
- A*Midex support to the « Label Plateformes Technologiques du site d'Aix-Marseille»: financing of human resources
- A*Midex Funding for Teaching and Research Interdisciplinary Platforms (TRIPS): to start in 2021
- A*Midex support for the acquisition of structuring facilities and equipment
- A*Midex support to attract highly skilled research engineers

The University RI can also benefit from the "Contrat de plan Etat-Région" (CPER), as well as from the European Regional Development Fund (ERDF) for financing IR.

2. Brief description of any use Regulations at a central level

No Use Regulations at a central level.

3. Communication tools

- A central website https://www.univ-amu.fr/fr/public/les-plateformes-technologiques (used 1. to provide information to industrials and academics looking for services and 2. as a management tool to categorize RI by sector, discipline, localization etc.)
- Graphical designers and engineers are now rebuilding this website to allow for up-to-date developments including multi-platform integrations on tablets, smartphones.
- Additionally, templates for the websites of each RI are now in development, with 2D/3D descriptions, as well as virtual and augmented reality tools for specific RI.

National and Kapodistrian University of Athens - NKUA

1. General description of RI institutional strategy

- NKUA has 3 distributed Core Facilities (3 running, 2 more are under development).
- **Each RI is managed in a decentralized way.**

In particular, the Senate after taking into consideration the proposal of the Vice Rector of research, appointed one coordinator for all horizontal RIs (Core Facilities), in order to monitor the progress of the implementation of actions related to the organization of the RIs and the procurement of individual equipment. Additionally, in accordance with NKUA's decisions and planning, the coordinator is responsible for the establishment of the RIs in the premises provided in a case-by-case basis and the monitoring of the implementation of the approved use regulations of the RIs. The coordinator may cooperate with all the relevant services of the University, when necessary, and make recommendations to the appropriate management bodies of NKUA as well as of the Special Account of Research Grants (SARG) regarding the implementation or extension of actions related to the RIs. It should be noted that all funding regarding the RIs is managed by the SARG.

2. Brief description of any use Regulations at a central level

- The Use Regulation conforms the procedures for the use and operation of two categories of research equipment, mainly of high value (>75,000,00€).
- These categories are distinguished by the way in which the supply of equipment is funded and include equipment acquired through:

(a) horizontal financial actions relating to an academic unit (Sector, Department or School), such as the support actions from co-financed Programs or from Public Investments Programs regarding RIs.

Use Regulations of category equipment (a):

1. The relevant academic unit (Sector, Department or School) appoints a Scientific Director per equipment or project as well as an assistant Scientific Director and it also decides where the RI will be established. The Scientific Director is in essence responsible for the use, operation and maintenance of the equipment. This decision can be modified when necessary (i.e. retirement, inability to meet the responsibilities etc.)
2. All scientific equipment must be accompanied by an "equipment book"

(b) funding from faculty members (research programs and other funding managed by the Special Account of Research Grants-SARG).

Use Regulations of category equipment (b):

1. Faculty members who, as Scientific Directors of research programs or other projects (e.g. provision of specialised services, clinical studies, contracts) procure and install equipment in academic units of NKUA, are automatically defined as the Scientific Director responsible for the use, operation and maintenance of this equipment for as long as the project lasts. They recommend to the SARG the assistant Scientific Director and they have the exclusive use and responsibility of operation, maintenance and repair of the equipment throughout the project.
2. The equipment shall be installed as a matter of priority in the premises of the academic unit in which the Scientific Director belongs with permission from the relevant body, if there is availability on site. If this is not possible, then the equipment may be installed in the premises of another academic unit at the request of the Scientific Director and approval by the relevant body.
3. All scientific equipment must be accompanied by an "equipment book".

3. Communication tools

NKUA's RIs are currently communicated through:

1. The work of the Centers of Excellence (https://en.uoa.gr/research/centers_of_excellence/)
2. The Office for Attracting Funding (https://funding.eadppa.gr) part of NKUA's Company for Property Utilization and Management (https://eadppa.gr). In particular, via the events the Office for Attracting Funding organizes for each of NKUA's School (internal communication to NKUA's academic members) as well as through the informative seminars it arranges (external communication)
3. The Special Account for Research Grants (http://www.elke.uoa.gr)
4. NKUA's website (https://en.uoa.gr/research/)
5. Mailing lists
6. Press Office (internally to the faculty members and personnel)

7. Internal policy documents
8. Newsletters faculty members receive from the rector

University of Bucharest – UB

1. General description of RI institutional strategy

- **Each RI is managed in a decentralized way,** largely due to the diversity of RI fields identified and due to the geographical distribution of the faculties within the city (several locations outside Bucharest, too).
- The University identified:
  1. 2 RIs in Social and Cultural Heritage (coordinated by the same team),
  2. 2 RIs in Energy, Environment and Climate Change, and one in Eco-Nanotechnologies and Advanced Materials.

Apart from the latter, UNIREM, classified as RI of national relevance, the others are members of ERICs (European Research Infrastructure Consortium), thus being more oriented towards European collaborations within their field, than on a centralized approach, within the UB.

The strategy is also influenced by the structure of the University of Bucharest. The RIs identified are connected to departments of Chemistry, Biology, Sociology, as the UB lacks dedicated departments of Technologies, Medicine, or Economy.

2. Brief description of any use Regulations at a central level

No Use Regulations at a central level.

3. Communication tools

- Comprehensive presentations in the Engage in the European Research Infrastructures System (EERIS) platform https://eeris.eu/
- Dedicated websites
- National and European networks of collaborators
- Public outreach events

Université libre de Bruxelles - ULB

1. General description of RI institutional strategy

- The RI institutional strategy includes the development of already established platforms that brings together expertise and cutting-edge equipment in order to make them available to other research institutions as well as to companies.
- The platform is composed of teams from different laboratories, research institutes or faculties that can offer integrated services by combining cutting-edge equipment, technological expertise and interdisciplinary scientific expertise
- ULB currently has 12 technology platforms, most of which are active in the fields of life sciences and engineering.
- Platforms receive a small incentive budget on a yearly basis. They are referenced on the institutional website.
- Platforms are managed **in a decentralized way**. Each platform has its own steering committee and its own governance strategy.

- The Technology Transfer Office (TTO) provides support to draft collaboration agreements with scientific or industrial partners.

2. Brief description of any use Regulations at a central level

- Regulations may vary according to the funding program. Specific measures may apply depending on the conditions imposed by the public funder if the research is funded by a national, regional or European project.
- Regarding intellectual property generated during the collaboration, conditions are generally specified in a collaboration agreement, particularly concerning copyright, patents and licenses. These conditions vary according to the type of research that is conducted or the field of research.

3. Communication tools

- ULB technology platforms are promoted on the ULB technology transfer office website https://www.ulb.be/fr/expertises-plateformes-technologiques/technology-sharing
- A brochure is also available https://www.ulb.be/medias/fichier/platforms-ulb-web-complet_1563280820500-pdf?ID_FICHE=78828&INLINE=FALSE
- Communication is also provided via ULB TTO LinkedIn account https://www.linkedin.com/company/ulb-tto/

Universidad Autónoma de Madrid - UAM

1. General description of RI institutional strategy

- Scientific infrastructures at UAM are managed by combining a decentralized model, with a lot of autonomy for each RI, and coordination of different key transversal aspects by a central, transversal unit.
- RIs existing at UAM could be found at: https://www.uam.es/uam/investigacion/infraestructuras-servicios-cientificos
- The way RIs are organized combine many different instruments and services under a few large units. Therefore, the number of units is very small, but this is due to the fact that some of them contain different services which in other institutions may be visualized as separate RIs.
- Both models (centralized and decentralized) coexist, in an evolving environment in which more coordination is being implemented, while keeping the necessary flexibility.
- Each of the RIs at UAM has a director and its own organization.
- There exists a central unit coordinating all RIs in terms of budget and other crucial aspects (e.g., strategy, management model definition, etc.) in which a coordinated approach is more efficient. A transversal scientific advisory committee has been created.

2. Brief description of any use Regulations at a central level

- User regulations are implemented at the level of each RI under a flexible general framework, mainly linked to administrative matters. For example, access to CMAM (one of the UAM RIs, hosting an ion beam accelerator with its corresponding beamlines and complementary experimental tools) is regulated as indicated in Beamtime (uam.es).

- Access fees, whenever applicable, are linked formally to the yearly approval of university budget, as they are an integral part of the ´´income´´ chapter, based on estimates of the access numbers.

3. Communication tools

- RIs have their respective webpages and do promotion actions on their own, with a large level of autonomy.
- There is an institutional webpage where all RIs may be visualized and access to the respective specific webpages is granted (https://www.uam.es/uam/investigacion/infraestructuras-servicios-cientificos).
- There is a project in progress that aims to offer a comprehensive online catalogue of RI services. With the implementation of a transversal SAC some other joint promotion actions may be identified and adopted.

Sapienza Università di Roma - SUR

1. General description of RI institutional strategy

- **Implements a strategy to create a technological platform** that will:
    i. support business,
    ii. share technology resources and skills,
    iii. foster growth and internationalisation processes, with a strong multidisciplinary orientation

(as established by the Smart Specialization Strategy (S3) of Regione Lazio and the National Industry Plan 4.0)

- **Sapienza Research Infrastructure (SRI)**:
    i. was established in 2020.
    ii. consists of laboratories and large equipment aimed at supporting research activities of excellence within the University as well as innovation, technology transfer and business incubation activities.
    iii. is a technological platform at the service of both internal and external users of the University, including companies operating at regional, national and international levels.
    iv. is a tool for sharing technological resources, skills, collaborations and support in the processes of innovation and internationalization, in any ERC sectors and according to Regione Lazio Smart Specialization Strategies.
- In an **organization level**:
    i. Management and Coordination Committee includes members of the Medium and Large Scientific Equipment Commission and is chaired by the Rector or their delegate.
    ii. It has 3 thematic areas: Human and Social Sciences; Life Science; Science & Engineering.
    iii. It has 2 technological areas: Fabrication & Manufacturing; Nanotechnology.
- Types **of equipment** part of SRI (80 equipment in total)
    i. "Large equipment" acquired through a yearly call for the purchase of equipment targeted to Sapienza researchers (16 large scale equipment).

ii. "Medium equipment" acquired through a yearly call for the purchase of equipment targeted to Sapienza researchers and deemed relevant for SRI, based on the opinion of the Medium and Large Equipment Commission (64 medium scale equipment).

iii. Equipment or instrumental platforms of strategic interest to Sapienza and relevant to SRI, according to evaluation by the Management and Coordination Committee of SRI.

2. Brief description of any use Regulations at a central level

In April 2020, Sapienza Academic Senate formally approved the Regulation of Sapienza Research Infrastructure (SRI). It is publicly available at the following link: https://www.uniroma1.it/sites/default/files/field_file_allegati/sapienza_research_infrastructure_sri_.pdf.

The **main principles and rules** are as follows:

1. The management and administrative responsibility of the equipment remains with the scientific department that purchased. The relevant scientific department:
   - Decides on the Scientific Manager of the equipment.
   - Decides on the minimum percentage of availability for research services to internal and external Sapienza communities.
   - Decides on the tariff for internal users and for external users.
   - Maintains organizational autonomy from a technical-scientific point of view.
   - Plans and harmonizes its activities in accordance with the objectives of the three-year strategic plan of Sapienza.
   - Assumes management responsibilities and defines methods of use.
2. There is a dedicated page on the facility's website, linked to the SRI portal which reports all the information for users, such as:
   - Scientific manager, laboratory, room and building where the instrumentation is installed.
   - Model, type, characteristics, services available, methods and rules of use, rates.
   - Calendar of use and availability of the instrumentation.
   - Technical staff and contacts.

Joining SRI involves:

- Adherence to the "quality management model".
- The Scientific Responsible undertakes annually to respond to the University monitoring on the use of the equipment.
- Possibility of accessing the "support for the maintenance of SRI equipment" yearly financing line.
- The use of the SRI instrumentation by any internal or external user of Sapienza must be explicitly mentioned within the research outputs resulting from the related activities (e.g. publications, patents, technical reports, ...), citing "Sapienza Research Infrastructure".

Here below **services and advantages offered by SRI** are reported:

- SRI provides services for researching tools, for accessing the reference web page, for requesting use and research services through the web platform on the University website.

- SRI identifies and promotes technical-scientific synergies between the different areas within the proposed activities, organizes dissemination, information, networking events with SRI users and stakeholders.
- Through agreements and conventions, SRI supports access to / from other IRs at both local and national and international level.

3. Communication tools

1. **Web section of Sapienza:** https://www.uniroma1.it/en/pagina/research-infrastructure that includes all the relevant SRI information. Regarding this section:
    i. it is partially available in English,
    ii. it groups research infrastructures belonging to SRI, in 5 main scientific categories: nanotechnologies,
    iii. life sciences,
    iv. social sciences and humanities,
    v. physical sciences and engineering, rapid prototypes and
    vi. additive manufacturing.
2. In addition, a **new section devoted to SRI** (https://research.uniroma1.it/) will be made available within the Research Portal of Sapienza Università di Roma, that will be **released in June 2021.**

Stockholm University - SU

1. General description of RI institutional strategy

General

- National and regional organizations, networking with other universities, close contact with government authorities to e.g. influence strategies for future research needs, are support actions implemented in building relevant RIs that will be utilized as resources for conducting research.
- There is a national collaborative organization between the larger research universities to monitor, be proactive and ensure a national access to RIs of national interest. Stockholm University therefor has a **University President Advisor on RIs.**

Funding

- **Funding sources:**
    i. The Sweden the Swedish Research Council (VR) has the responsibility to fund RIs of national interest (partly administrated for ERICs)
    ii. Further national funding sources for RIs (e.g.: Riksbankens Jubileumsond-specifically funds RIs within the Humanities.)
- The strategies implemented for RI funding and usage are based on the researcher's needs to conduct world leading science.
- The model for funding is **mainly decentralized to the departmental and faculty level**
- The university provides strong support on funding applications and post-reward administration.
- The President of SU can both strategically and financially support certain RIs when centralised management is needed.

2. Brief description of any use Regulations at a central level

- For RIs that receive funding from governmental funding agencies, use regulation are affected by the legal system in Sweden.

- SU cannot accept any commitments for joint infrastructures that conflict with national, regional or local priorities. Further information regarding this situation will be provided in the Consensus phase, which is planned to include a more in-depth analysis of the existing barriers.

3. Communication tools

- All RIs that have funding from The Swedish Research Council are required to have dedicated websites.
- Local RIs are listed at SU's website in the relevant research area (Humanities and Science).

Universität Tübingen - UT

1. General description of RI institutional strategy

General

- **UT:**
   i. introduces interdisciplinary platforms, which promote networking and set new agendas,
   ii. builds research-driven core facilities, which enhanced research infrastructure,
   iii. encourages both internal and external interdisciplinary cooperation and collaboration.
- The University has established research buildings in recent years for e.g. molecular biology, for the neurosciences, for ophthalmology, and for geo-environmental research.
- UT has both shared core facilities and individual laboratories
- UT has central research-driven core facilities in the areas of:
   i. Life sciences addressing omics-technologies and bioinformatics
   ii. Chemistry and physics
   iii. Digital humanities
   iv. Medicine
   v. Natural sciences
   vi. Social sciences
   vii. humanities
- The RIs are designed to offer the best working conditions and infrastructure, the core facilities pool instruments for joint usage and motivate scientists and scholars to share expertise and develop collaborative projects.

Funding

- With the support from the state and federal Ministry of Research, Science, and the Arts, and from foundations, the University has been able to invest millions of euros in building a first-rate research infrastructure.
- New major funding initiatives include several new research buildings, e.g.:
   i. the M3 Research Institute (Malignoma – Metabolome – Micro-biome),
   ii. the new Interfaculty Institute of Biochemistry,
   iii. the Cyber Valley Campus for research on artificial intelligence and machine learning (established in proximity to, and in cooperation with, the Max Planck Institute for Intelligent Systems).

- State and federal funding as well as investments by prominent foundations, allowed for the establishment of facilities worldwide that recruit both top performers and the most promising young researchers.

2. Brief description of any use Regulations at a central level

- In general, UT's RIs follow a partially centralized model with guidelines and booking systems
- For a certain number of Instruments there is no use regulation at central level or "booking system" available. There are or will be soon (for the new upcoming core facilities) documents available containing the terms of use and use of labs, that state regulations concerning the access and the concerning access fees to that facilities.

3. Communication tools

No specialized tool for promotion at the moment – but the core facilities are prominent part of the universities home page, describing the research context and providing links to the separate facilities one can get in contact for access requests.

https://uni-tuebingen.de/en/research/research-infrastructure/

2.4.1.1 Results of scouting for RI funding opportunities

The funding opportunities were mapped based on the following 3 axis (note that Digital Europe programme was not scanned, as it was decided to stay focus on Horizon Europe):

1) *Horizon Europe – Pillar II Thematic Clusters (limited to Work Programme drafts 2020-21)*

2) *European Partnerships*

3) *Research Infrastructures*

Table 8. Funding opportunities based on Horizon Europe – Pillar II Thematic Clusters (limited to Work Programme drafts 2020-21)

1 Horizon Europe – Pillar II Thematic Clusters (limited to Work Programme drafts 2020-21)	
CLUSTER 1 - HEALTH	1) HORIZON-HLTH-2022-STAYHLTH-02-01: Personalised blue print of chronic inflammation in health-to-disease transition 2) HORIZON-HLTH-2021-DISEASE-04-02: Building a European innovation platform for the repurposing of medicinal products 3) HORIZON-HLTH-2021-DISEASE-04-05: A roadmap towards the creation of the European One Health antimicrobial resistance partnership (OH AMR) 4) HORIZON-HLTH-2022-DISEASE-06-04-two-stage: Development of new effective therapies for rare diseases 5) HORIZON-HLTH-2021-CARE-05-02: Data-driven decision-support tools for better health and care delivery and policy-making 6) HORIZON-HLTH-2021-TOOL-06-03: Innovative tools for use and re-use of health data (in particular electronic health records and/or patient registries) 7) HORIZON-HLTH-2022-TOOL-11-01: Optimising effectiveness in patients of existing prescription drugs for major diseases (except cancer) with the use of biomarkers 8) HORIZON-HLTH-2022-TOOL-12-01-two-stage: Computational models for new patient stratification strategies 9) HORIZON-HLTH-2022-IND-13-02: Scaling up multi-party computation, data anonymisation techniques and synthetic data generation 10) HORIZON-HLTH-2022-IND-13-04: Setting up a European Smart Health Innovation Hub
CLUSTER 2 - CULTURE, CREATIVITY AND INCLUSIVE SOCIETY	1) HORIZON-CL2-2021-HERITAGE-01-04: Preserving and enhancing cultural heritage with advanced digital technologies 2) HORIZON-CL2-2022-DEMOCRACY-01-01: Artificial intelligence, big data and democracy 3) HORIZON-CL2-2022-HERITAGE-01-05: Towards a competitive, fair and sustainable European music ecosystem 4) HORIZON-CL2-2022-HERITAGE-01-06: Increase the potential of the international competitiveness of the European filmmaking industry
CLUSTER 3 - CIVIL SECURITY FOR SOCIETY	1) HORIZON-CL3-BM-2021-01-01: Enhanced security and management of borders, maritime environment, activities and transport, by increased surveillance capability, including high altitude, long endurance aerial support 2) HORIZON-CL3-DRS-2021-01-01: Improved understanding of risk exposure and its public awareness in areas exposed to multi-hazards 3) HORIZON-CL3-DRS-2021-01-04: Enhanced assessment of disaster risks, adaptive capabilities and scenario building based on available historical data and projections
CLUSTER 4 - DIGITAL INDUSTRY AND SPACE	HORIZON-CL4-2022-DATA-01-02: Cognitive Cloud: AI-enabled computing continuum from Cloud to Edge HORIZON-CL4-2021-DIGITAL-EMERGING-01-01: Ultra-low-power, secure processors for edge computing HORIZON-CL4-2021-DIGITAL-EMERGING-01-05: Open Source Hardware for ultra-low-power, secure processors HORIZON-CL4-2021-DIGITAL-EMERGING-01-31: Functional electronics for green and circular economy HORIZON-CL4-2021-DIGITAL-EMERGING-01-06: Advanced optical communication components HORIZON-CL4-2021-DIGITAL-EMERGING-01-07: Advanced Photonic Integrated Circuits

	HORIZON-CL4-2021-DIGITAL-EMERGING-01-13: Academia-Industry Forum on Emerging Enabling Technologies
	HORIZON-CL4-2021-DIGITAL-EMERGING-01-14: Advanced spintronics: Unleashing spin in the next generation ICs
	HORIZON-CL4-2022-DIGITAL-EMERGING-01-19: 2D materials-based devices and systems for biomedical applications
	HORIZON-CL4-2022-RESILIENCE-01-13: Smart and multifunctional biomaterials for health innovations
CLUSTER 5 - CLIMATE, ENERGY AND MOBILITY	HORIZON-CL5-2021-D1-01-01: Improved understanding of greenhouse gas fluxes and radiative forcers, including carbon dioxide removal technologies
	HORIZON-CL5-2021-D1-01-09: The contribution of forest management to climate action: pathways, trade-offs and co-benefits
	HORIZON-CL5-2022-D1-02-01: Verification and reconciliation of estimates of climate forcers
	HORIZON-CL5-2021-D3-02-10: Innovative foundations, floating substructures and connection systems for floating PV and ocean energy devices
	HORIZON-CL5-2021-D5-01-06: Next generation digital aircraft transformation in design, manufacturing, integration and maintenance
CLUSTER 6 - FOOD BIOECONOMY, NATURAL RESOURCES AGRICULTURE AND ENVIRONMENT	HORIZON-CL6-2021-BIODIV-01-01: European participation in global biodiversity genomics endeavors aimed at identifying all biodiversity on Earth
	HORIZON-CL6-2021-BIODIV-01-03: Understanding and valuing coastal and marine biodiversity and ecosystems services
	HORIZON-CL6-2021-BIODIV-01-20: A mechanism for science to inform implementation, monitoring, review and ratcheting up of the new EU Biodiversity Strategy for 2030 ("Science Service").
	HORIZON-CL6-2021-BIODIV-01-22: Impact and dependence of business on biodiversity
	HORIZON-CL6-2021-BIODIV-01-08: Supporting the development of a coherent and resilient Trans-European Nature Network
	HORIZON-CL6-2022-BIODIV-01-01: Observing and mapping biodiversity and ecosystems, with particular focus on coastal and marine ecosystems
	HORIZON-CL6-2022-BIODIV-01-02: Building taxonomic research capacity near biodiversity hotspots and for protected areas by networking natural history museums and other taxonomic facilities
	HORIZON-CL6-2021-CLIMATE-01-03: Key polar processes driving regional & global climate change
	HORIZON-CL6-2021-GOVERNANCE-01-14: User-oriented solutions building on environmental observation to monitor critical ecosystems and biodiversity loss and vulnerability in the European Union

2 European Partnerships

Table 9. Funding opportunities based on European Partnerships

Co-programmed partnerships and co-funded partnerships	**Institutionalised partnerships**	**EIT Knowledge and innovation communities (KIC)**
1) European partnership for chemicals risk assessment (Co-funded) 2) Fostering an ERA for health research (Co-funded) 3) Health and Care Systems Transformation (Co-funded) 4) Personalised Medicine (Co-funded) 5) Rare Diseases (Co-funded) 6) One Health AMR (Co-funded) 7) High Performance Computing (Co-programmed) 8) AI, data and robotics (Co-programmed) 9) Photonics Europe (Co-programmed) 10) Clean Steel - Low Carbon Steelmaking (Co-programmed) 11) Made in Europe (Co-programmed) 12) Carbon Neutral and Circular Industry (Co-programmed) 13) Global competitive space systems (Co-programmed) 14) Geological Service for Europe (Co-funded) 15) Built environment and construction (Co-programmed) 16) Towards zero-emission road transport (2ZERO) (Co-programmed) 17) Mobility and Safety for Automated Road Transport (Co-programmed) 18) Zero-emission waterborne transport (Co-programmed) 19) European industrial battery value chain (Co-programmed) 20) Sustainable, Smart and Inclusive Cities and	1) Global Health EDCTP3 2) Innovative Health Initiative 3) Key Digital Technologies 4) Circular Bio-based Europe 5) Clean Hydrogen 6) Clean Aviation 7) Europe's Rail 8) Single European Sky ATM Research 3 9) Smart Networks and Services 10) Metrology	1) Climate 2) InnoEnergy 3) Digital 4) Health 5) Food 6) Manufacturing 7) EIT Raw materials 8) Urban Mobility 9) Cultural and Creative Industries

Communities (Co-programmed) 21) Clean Energy Transition (Co-funded) 22) Accelerating farming systems transition: agro-ecology living labs & research infrastructures (Co-funded) 23) Animal health: Fighting infectious diseases (Co-funded) 24) Environmental Observations for a sustainable EU agriculture (Co-funded) 25) Rescuing biodiversity to safeguard life on Earth (Co-funded) 26) A climate neutral, sustainable and productive Blue Economy (Co-funded) 27) Safe and Sustainable Food System for People, Planet & Climate (Co-funded) 28) Water4All: Water security for the planet (Co-funded) 29) Innovative SMEs (Co-funded) 30) European Science Cloud (EOSC) (Co-programmed)		

3 Research infrastructures

Table 10. Funding opportunities based on Research Infrasctructures

Preparatory phase of new ESFRI project	Provision for access and services	Development of RI technologies
1) HORIZON-INFRA-2021-DEV-02-01: Preparatory phase of new ESFRI Research Infrastructure projects	1) HORIZON-INFRA-2021-SERV-01-01: Research Infrastructure services for rapid research responses to infectious disease epidemics 2) HORIZON-INFRA-2021-SERV-01-02: Research Infrastructures services to support research addressing cancer 3) HORIZON-INFRA-2021-SERV-01-03: Research Infrastructures services for a sustainable and resilient agriculture and agro-ecological transitions 4) HORIZON-INFRA-2021-SERV-01-04: Research Infrastructures services for responding to climate-related risks on the environment 5) HORIZON-INFRA-2021-SERV-01-05: Research Infrastructures services enabling the development of materials for a circular economy 6) HORIZON-INFRA-2021-SERV-01-06: Research Infrastructures services for sustainable and inclusive Global Value Chain and Europe recovery from socio-economic crises 7) HORIZON-INFRA-2021-SERV-01-07: Research Infrastructures services advancing frontier knowledge 8) HORIZON-INFRA-2022-SERV-01-01: Enabling research infrastructure services for better use of imaging data to address challenges in thematic research areas	1) HORIZON-INFRA-2021-TECH-01-01: Interdisciplinary digital twins for modelling and simulating complex phenomena at the service of research infrastructure communities 2) HORIZON-INFRA-2022-TECH-01-01: R&D for the next generation of scientific instrumentation, tools and methods

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

2.4.2 Legal & governance barriers, national context & external funding

Barriers identified as part of the work carried out in Module 2 can be seen in the table below:

- **limited machine time**, which in most cases is not extendable: high number of use requests during the year could not be satisfied
- the **lack of personnel**, is a very common barrier, creating additional workload issues
- obstacles to **sharing some RIs emerged from the survey** but are generally **not** considered as **insurmountable**
- access limitations due to **national legislation** (mostly for security reasons and dependent on the RI type).

However, it is worth noting that a general open use of RIs was identified as part of the work carried out in this Module. Thus, no regulation modifications are needed since RIs are already open to foreign users. As a consequence, at a general level, **no significant regulations or other aspects have to be modified** in order to implement an open use of RIs within CIVIS. **Access** within **CIVIS** would be possible on the **basis of scientific collaboration** agreements that can be established with potential users. A more specific and detailed analysis of possible obstacles will be carried out in the consensus phase (WP2).

- The general impression is that the **access fees** are a limiting factor only in some users.

In conclusion, the **following main aspects** were identified:

- Quite widespread **openness of available RIs** both to non-national users as well as to external industrial users
- At a general level, **access policies do not imply obstacles** to a shared use of the RIs
- **No particular restrictions** imposed by the national regulations
- **Quite different situations referred to IPR management** as possible cause of obstacle to the sharing of RIs. Nevertheless IPR, at a general level, if well addressed by internal regulations, is not a problem
- **RI legal regulation:** the access conditions are based on the institution's or RI's internal policies. The regulations related to the use of RIs is decided in most cases from the internal management committees.

Usually, a contract has to be established between the university and the industrial user to preserve the **confidentiality of sensitive data** (i.e. agreements on: confidentiality clause, non-disclosure agreement, Material Transfer Agreements)

2.5 Suggestions & Future Steps

Some proposed suggestions as indicated by the survey participants in regard to joint RI usage in the context of CIVIS Alliance include:

- **To possibly activate a small "travel grant" scheme** and to nurture collaboration by small grants for collaborative research aimed to cover student and researcher exchange, experimental costs etc. Even a small grant could be a significant stimulus
- **To scout and identify possible means for reasonably reducing** administrative processes.
- Development of a **network that would enable sharing of the expertise between RI providers and users** (e.g. planning and organising joint training opportunities) at a CIVIS level
- activate a **small "travel grant" scheme** and to nurture collaboration by small grants for collaborative research aimed at contributing to cover student and researcher exchange costs, experimental costs, etc.
- The **usage regulations** of the RIs are often available on the institutional web site or on demand, but, in some cases, they still need to be defined. Thus, a smooth access to RIs, in many cases, could be affected from the **lack of a dedicated web page.**
- The lack of awareness regarding the RIs leaves room for further efforts of both **enhancing the awareness** by the RI owners as a resource and tool for research cooperation with external users as well as for fostering an efficient use of the RIs.

An important future action that will be established in the framework of RIS4CIVIS is the creation of a CIVIS label.

This label can be used by all RIs identified in the Alliance members for shared use (complete or partial) and would be valid for a limited number of years (eventually renewable). This can ensure **high quality and openness of services provided from the labeled RIs**.

The **benefits** of using this label would be:

- Benefiting **from different services supporting its development,**
- **Visibility**
- **Access** within a common framework.

Its main objectives are:

- **To clearly identify RIs open** to access by researchers of other CIVIS institutions
- **To promote and disseminate** high-level technologies to the academic and industrial sector, as well as the, to provide relevant services to research laboratories and, eventually, external stakeholders' needs
- **To foster S&T collaborations** among CIVIS partners
- **To create a critical mass of resources and competencies capable to foster joint participation in international calls** for proposals aimed at funding RIs
- **To share scientific and technical skills** and expertise
- **To provide a certified regulation framework** for greater efficiency and responsiveness (transparency and quality management assurance)
- **To organise dissemination, information, networking events, as well as training activities**, targeted to internal users and stakeholders

It would be supported by a **common web platform** aimed at sharing the relevant following information for users, such as:

- Scientist and laboratory in charge
- Location where the equipment is installed
- Model, type, characteristics
- Services available
- Access requirements, criteria and regulations
- Access fee
- Shared calendar of use and availability of the instrumentation
- Technical staff and contacts.

Each RI would be managed in a decentralized way, i.e. locally by the scientist in charge of the RI. This means that each labeled RI would:

- Maintain organizational autonomy from a technical-scientific point of view
- Assume management responsibility and defines methods of use.

The policies that govern the use of the RIs are generally open to academic, internal, external, as well as any additional third-party users. The general openness of RIs is also confirmed by the RI use promotion activities/tools. In most cases RI promotion activities are addressed to international users.

As a summary, the table below provides an overview of the current situation, the barriers mapped and the proposed suggestions regarding legal, logistical and financial aspects, identified in the framework of the work carried out in Module 2.

Table 11. Overview of the current situations and the identified barriers & suggestions in the CIVIS Alliance regarding the usage of the RIs.

Domain	*Current situation*	*Obstacles*	*Suggestions*
legal	• Quite widespread **openness of available RIs** both to non-national users as well as to external industrial users • **No particular restrictions** imposed by the national regulations • **Quite different situations referred to IPR management** • **RI legal regulation:** the access conditions are based on the institution's or RI's internal policies (mainly decided from the internal management committees). • **no significant regulations or other aspects have to be modified** • **no difference** in the **access policy** for **academic and industrial users**	• obstacles to **sharing some RIs as** emerged from the survey are generally not considered as insurmountable • access limitations due to national legislation (mostly for security reasons and dependent on the RI type) • usage regulations affect smooth access to RIs (some cases) • **Quite different situations referred to IPR** management • industrial IPR agreements may slow down collaboration or service delivery (due to the time required to draw up an agreement)	• clearly define usage regulations for smoother access • Address **IPR management by** internal regulations so as not to become a barrier

	• the majority of institutions declare that IP is easily discussed most of the time • establish a contract between the university and the industrial user to preserve the confidentiality of sensitive data (i.e. agreements on: confidentiality clause, non-disclosure agreement, Material Transfer Agreements)		
logistical	• **Widespread use of English** for the RI websites and promotion	• **limited machine time** and **lack of personnel** • administrative complexity of agreements and contracts • lack of clarity on administrative workflow that offers paid services for external members • fee policy and fee information tools are not publicly available in many cases. • web links regarding access fee regulations are available in a minority number of cases • the lack of awareness regarding the RIs	• further developing use regulations for each RIs, in particular fee regulations • **reducing paperwork** • **further developed web sites of the RIs** (for promotion and transparency) • **enhance awareness**
financial	• the **fees vary widely depending** on the **research projects** and the **specific negotiations** between the parties. • **external users** normally have to pay an access **fee** • the access **fee is higher** for **industrial users**	• access fees (in some cases)	

3 Module 3: Reinforcing academia-business R&I cooperation

This Module has collected information on innovation management activities. Confidential internal university data shall not be published within the chapter of Module 3 in this version of the report. Consequently, data was anonymized without loss of content. The confidential version of the Module 3 report shall only be accessible to the coordinators and shall not be published.

3.1 Objectives

The objectives of Module 3 are:

- To develop a joint process to detect, assess, support and accompany innovation within the CIVIS Alliance
    - Connection of ecosystems: access by each CIVIS innovator to the combined regional and national ecosystems (and Regional SSS) of *all* Alliance members, as well as to the European ecosystem;
    - Connection of Competences: ability for each CIVIS innovator to obtain personalised assistance and mentoring from the most appropriate specialist in the Alliance.
- To assist the CIVIS Alliance universities to enhance any innovation capacity they have established

This Module is focused on the "innovation" side of the CIVIS Alliance, linking business and research and on academia-business cooperation. In addition, this Module contributes to a long-term R&I strategy for the CIVIS Alliance.

A detailed description of specific steps that took place in the benchmarking phase of Module 3 can be found in the additional documents submitted (Questionnaire M3, Response RIS4CIVIS Module 3 Questionnaire, Extended version of Evaluation RIS4CIVIS Module 3, Dynamic Glossary and presentations held within Module 3).

3.2 Overview

In the framework of WP1, the Module 3 team was tasked with:

- Screening existing procedures/methodologies/centers/measures within the CIVIS Alliance that would specifically focus on:
    - Rules on ownership of IPR
    - Ways of addressing any obstacles between IPR and open innovation practices
    - Ethical aspects that arise from academia-business cooperation
    - Prevalence/value/success of innovation and how this is assessed
- Benchmarking of regional innovation systems (smart specialisation strategies, knowledge triangles, social innovation etc)
- Screening for courses/classes/training linked with innovation, business, public and private funding, transferable skills, etc.
- Screening of training opportunities that are implemented in association with businesses.

As a result of the work performed to support the aforementioned tasks, the following files were created:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

- An atlas of "innovation" practices with the CIVIS Alliance (The results can be seen in form of the tables below)
- An atlas of regional innovation ecosystems (The results can be seen in form of the tables below)
- An atlas of regional innovation ecosystems (The results can be seen in form of the tables below)
- An inventory of training related to innovation and entrepreneurship including those implemented in cooperation with businesses (The results can be seen in form of the tables below)
- An overview of the instruments and the innovation capacity available at each university-partner can be seen in tables 13 and 14 that provide analytical information of the innovation administrative and research facilities.
- Moreover, an atlas of regional innovation ecosystems serving as an inventory of the available training opportunities is also provided below in the form of table 16.

3.3 Work Carried out

Similar to Modules 1 and 2, in the framework of Module 3 the work carried out included 1. several meetings between the team members as well as 2. the data collection, for which a questionnaire was developed and distributed.

The methodology applied included the identification of a status quo and screening of current Innovation Management activities during the benchmarking phase. The results of this first phase created a shared basis for further plans in the consensus-building phase. In the first phase, during the benchmarking, the current situation of each university was assessed. The tailor-made questionnaire served as a primary tool for data collection. The results of the questionnaire were used in order to build a common ground and understanding of innovation management and innovation measures between the eight partner universities of CIVIS. For further refinements and adjustments meetings and exchanges of feedback took place. In addition, data from each CIVIS university that are implemented in the framework of innovation management activities concerning national situations (legal, political, funding) were collected. Within the regular meetings, the identified findings were discussed, and future plans were developed.

For the individual enhancement regarding innovation management fields, a tandem matching was seen as a good approach by the representatives of Module 3. The tandem matches were based on the results of the benchmarking phase and the screening of specific barriers as well as best practices. In further workshops, which will take place in the consensus-building phase (WP2), each tandem will define their short-term, mid-term and long-term goals related to innovation management. For the transfer of knowledge collaborating in tandems has been identified as an efficient way by all Module 3 representatives during the benchmarking phase.

3.3.1 Meetings.

In the first phase of benchmarking, a shared basis for consensus-building was created. Table 12 provides an overview of all meetings that took place within Module 3. The meetings served as an information and communication platform.

Table 12. Dates & deadlines regarding Module 3.

Meeting	*Participants*	*Key Points*
21/01/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• Introduction to Module 3 • Definition of tasks & objectives of Module 3 • Timeline and organization of work
28/01/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• Scope of benchmarking & data collection • Definition of the main categories (Questionnaire) • Definition of the format & contribution to impact
Exchange of Feedback loops	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	• Introduction and discussion of the questionnaire • Guidelines for answering the questionnaire
28/04/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	**Refinement and Consensus building phase Meeting:** • Presentation of findings and recommendations • Discussion of findings and recommendations
21/05/2021	All representatives of CIVIS partner universities (AMU, NKUA, SU, SUR, UAM, UB, ULB, UT)	**Further refinement and Consensus building phase Meeting:** • Mapping of specific barriers, weaknesses, challenges and strengths • Collection of feedback on the draft-version summary • Common terminology of innovation (dynamic glossary, shared online)

3.3.2 Questionnaires.

The purpose of the Module 3 questionnaire was to gain deeper insights into the innovation landscape of the CIVIS Alliance members. The information collected would allow for a reliable set-up of the benchmarking process for Module 3. The questionnaire contained two parts: (A) General Information and (B) Assessment. This structure was essential in order to analyse key indicators of innovation management. As can be seen from the figure below, the four (4) key elements of innovation management are 'innovation capabilities', 'innovation structures', 'innovation strategy' and 'innovation culture' (cf. glossary for the terms definitions). Therefore, the questions were formulated in regard to these elements.

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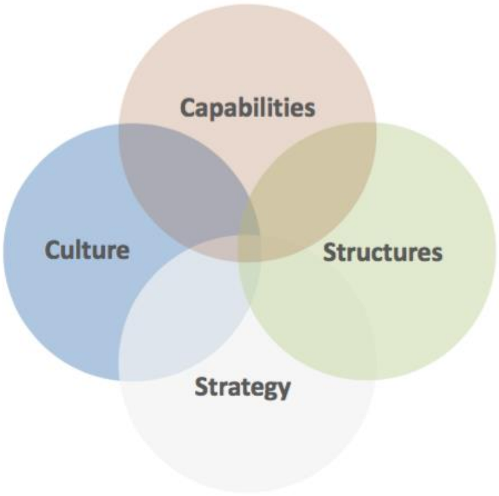


Figure 17. Key elements of innovation management.

3.4 Tasks & Outcomes

3.4.1 Mapping of existing initiatives & best practices within CIVIS regarding academia-business R&I cooperation

Innovation Management

Based on the questionnaire and the refinement of the findings, it was possible to assess the current state of innovation management initiatives within the eight CIVIS partner universities. The figure below shows the summarized data of the four key elements of innovation management: “innovation capabilities”, “innovation structures”, “innovation strategy” and “innovation culture”. On the y-axis the coding can be seen: 1 (excellent), 2 (good), 3 (moderate), 4 (poor). The bars in turquoise show the summary of all averaged data on “Innovation Capabilities”, “Innovation Structures”, “Innovation Strategy”, and “Innovation Culture”. The white bars illustrate the standard deviations. All these mean values including the standard deviations are sorted by performance. When looking at the summarized data on the assessment of factors concerning “innovation capabilities”, “innovation structures”, “innovation strategy” and “innovation culture” it seems that the eight universities consider the situation as good to moderate. But the standard deviations show that there are some statistical outliers in every field and no real overall homogeneity.

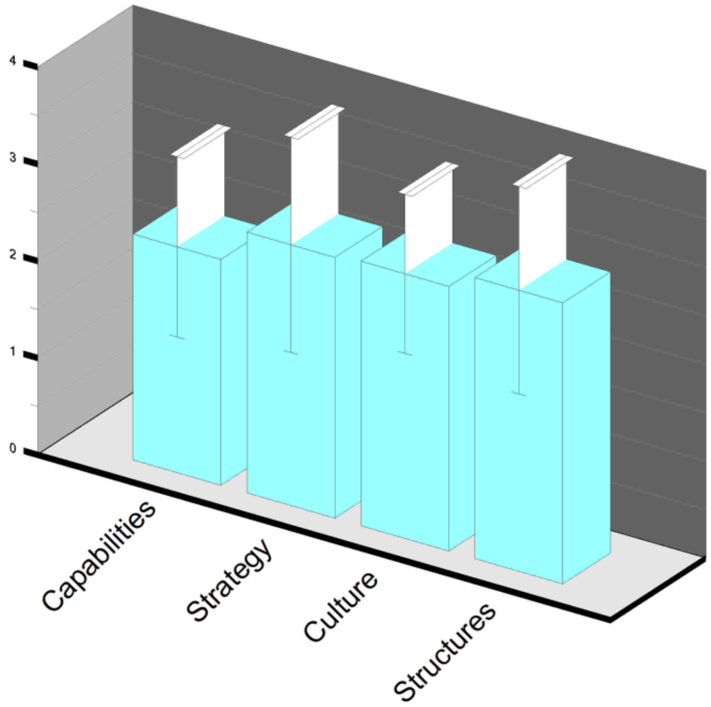


Figure 18. Summary of all Averaged Data on “Innovation Capabilities”, “Innovation Structures”, “Innovation Strategy”, and “Innovation Culture” including Standard Deviations (1- excellent, 2- good, 3- moderate and 4- poor).

The figure below summarizes various skills within the four key elements of innovation management. Innovation skills assigned to the capital letter A (e.g. A2) serve as general information. Innovation competences assigned to the capital letter B (e.g. B1) deal with the assessment of the questionnaire.

Innovation Capabilities

A2 Human Resources (Admin and Faculty)
B1 Financial Support of Innovation
B2 Qualification of Innovation Managers
B15 Identification of Exploitable Results
B16 Exploitation of Results
B17 Start-up Support
B20 Funding of Interaction with Industry

Innovation Structures

A1 Institutions (Admin and Faculty)
A6 Regional Ecosystem
B8 Availability of Space
B9 Regional Ecosystem
B10 Comprehensiveness of Regional Ecosystem

Innovation Strategy

A3 Areas covered by Internal Units
A4 Training Programmes for Transfer Measures
A5 Types of Innovation Measures
B3 Support of Innovation
B7 Knowledge Triangle
B11 Training Measures for Transferable Skills
B12 Innovation Strategy
B13 Universities Innovation Strategy at Political Level
B18 Opportunities to Interact with Industry

Innovation Culture

B4 Innovation Culture
B5 Acceptance of Innovation Measures by Students and Researchers
B6 Acceptance of Innovation
B14 Awareness of Innovation-related Measures
B19 Willingness to Interact with Industry

Figure 19. Innovation Measurments (Innovation skills assigned to the capital letter A (e.g. A2) serve as general information. Innovation competences assigned to the capital letter B (e.g. B1) deal with the assessment of the questionnaire.)

1. Innovation Capabilities measures as can be seen in the figure below include the following:

1. Financial support (B1 from figure 21)
2. Qualification of innovation managers (B2 from figure 21)
3. Identification of exploitable results (B15 from figure 21)
4. Exploitation of results (B16 from figure 21)
5. Start-up support (B17 from figure 21)
6. Funding of interaction with industry (B20 from figure 21)

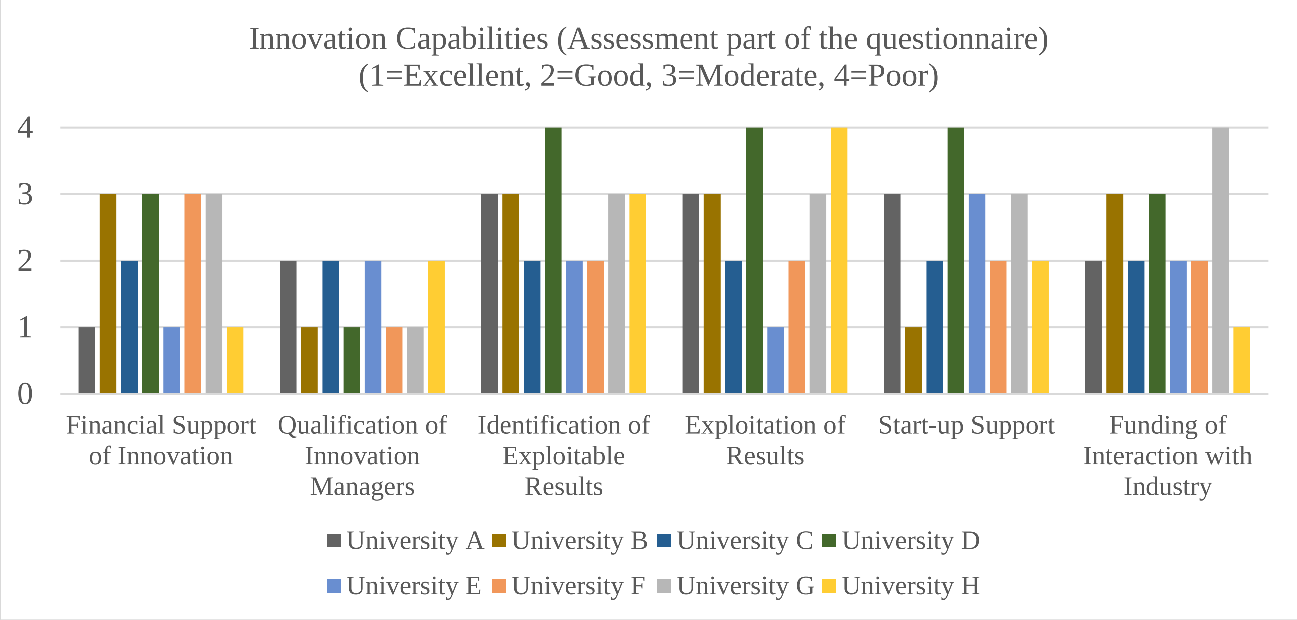


Figure 20. Mapping and results of Innovation Capabilities aspects. (1= Excellent, 2= Good, 3=Moderate, 4=Poor and 5= Non-existent).

- **5 out of 8** universities consider the **"innovation capabilities"** of their universities to be **good** (2 moderate and 1 poor)

2. Innovation Structures measures as can be seen in the figure below include the following:

1. Regional Ecosystem (B9 from figure 21)
2. Availability of space (B6 from figure 21)
3. Comprehensiveness of Regional Ecosystem (B10 from figure 21)

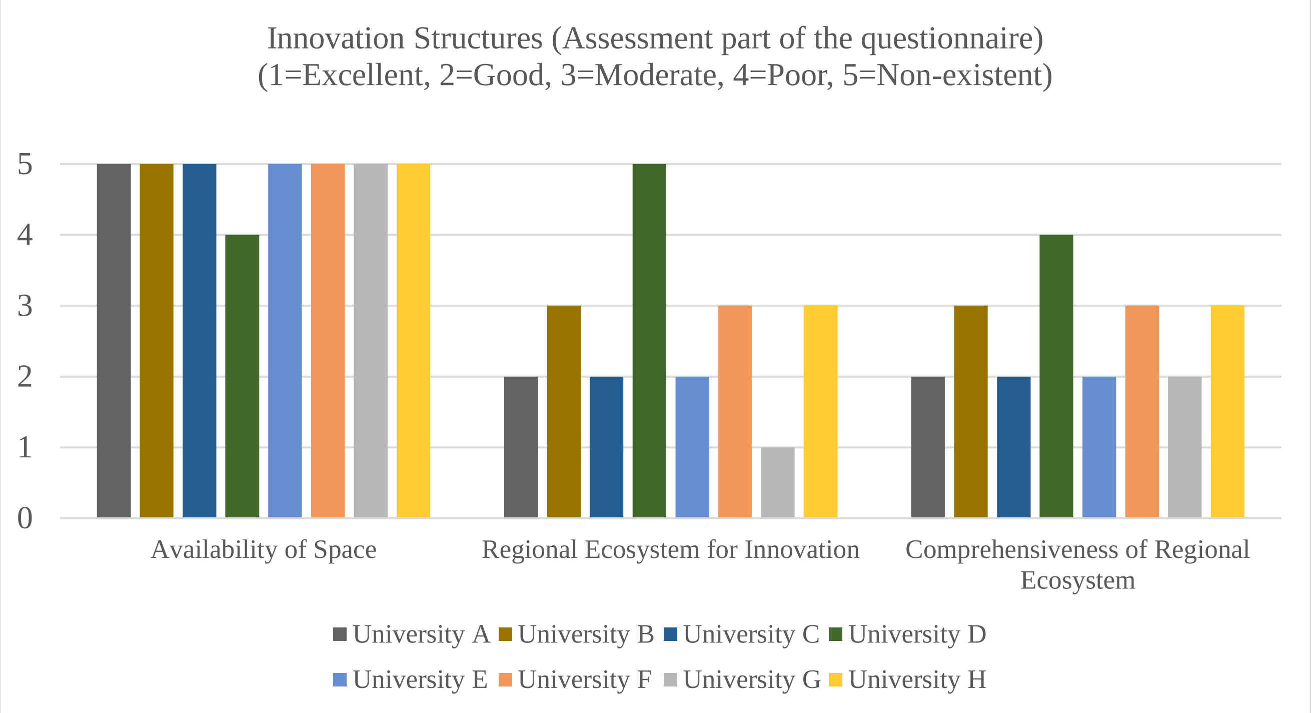


Figure 21. Mapping and results of Innovation Structures aspects. (1= Excellent, 2= Good, 3=Moderate, 4=Poor and 5= Non-existent).

- **4 out of 8** universities consider their **"innovation structures" moderate**, while the rest **4** assess this measure as **'poor'.** It is noteworthy, that from the list mentioned above the measurement **"availability of space"** is the indicator that **lowers the scores/assessment.**

3. Innovation Strategies measures as can be seen in the figure below includes the following:

1. Support of innovation (B3 from figure 21)
2. Knowledge triangle (B7 from figure 21)
3. Training Measures for transferable skills (B9 from figure 21)
4. Innovation strategy (B12 from figure 21)
5. Universities innovation strategy at political level (B13 from figure 21)
6. Opportunities to interact with industry (B18 from figure 21)

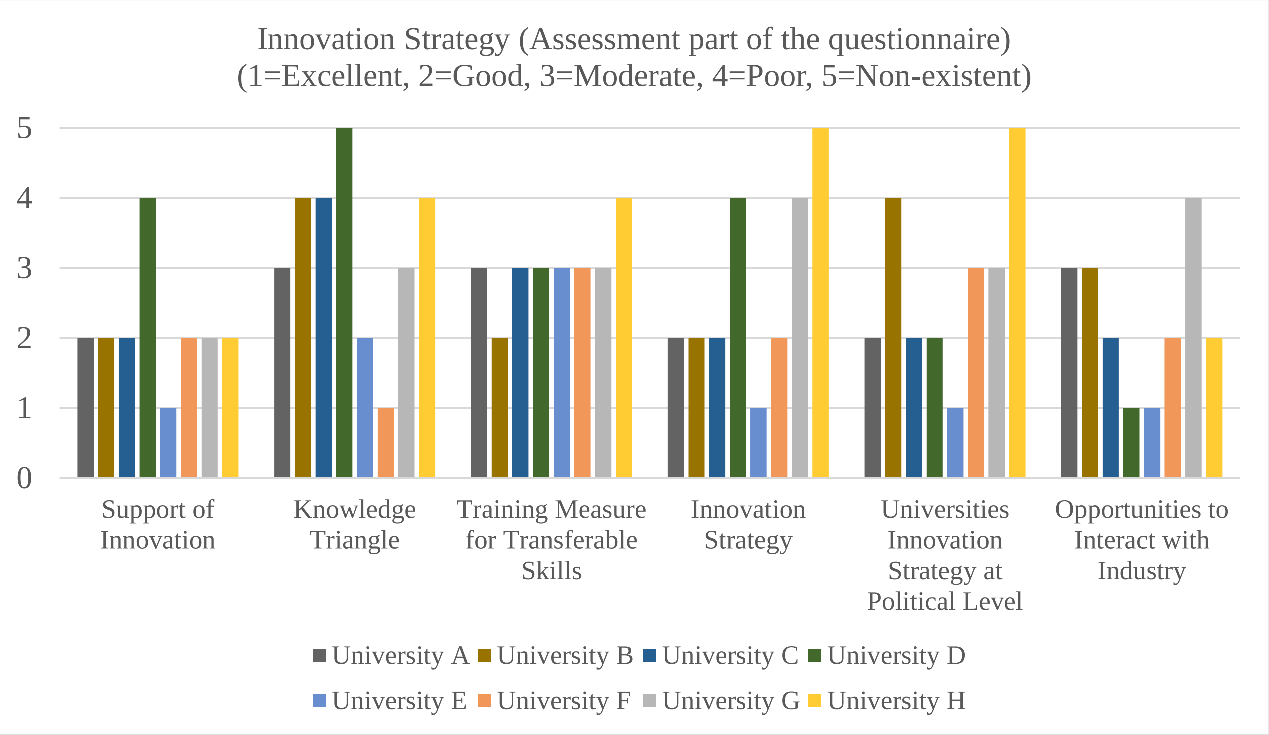


Figure 22. Mapping and results of Innovation Strategy aspects. (1= Excellent, 2= Good, 3=Moderate, 4=Poor and 5= Non-existent).

- **6 universities** identify their **"innovation strategies"** as **good**, 1 as excellent and 1 as poor.

4. Innovation Culture measures as can be seen in the figure below includes the following:

1. Innovation culture (B4 from figure 21)
2. Acceptance of innovation measures by students and researchers (B5 from figure 21)
3. Acceptance of innovation (B6 from figure 21)
4. Awareness of innovation-related measures (B14 from figure 21)
5. Willingness to interact with industry (B19 from figure 21)

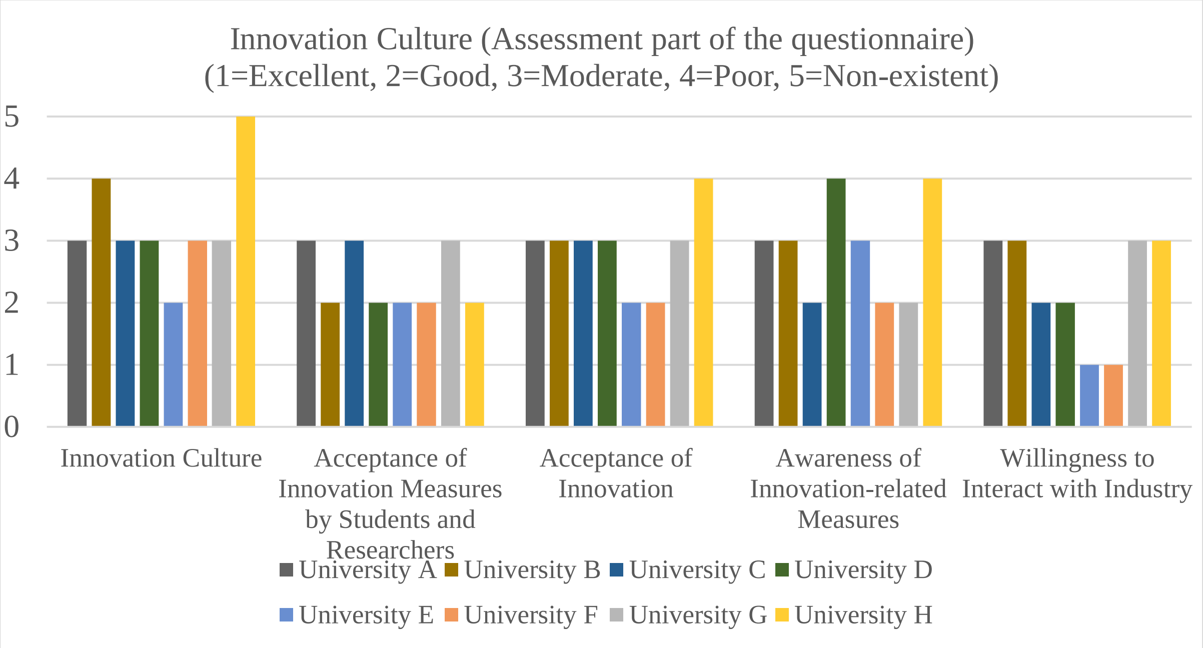
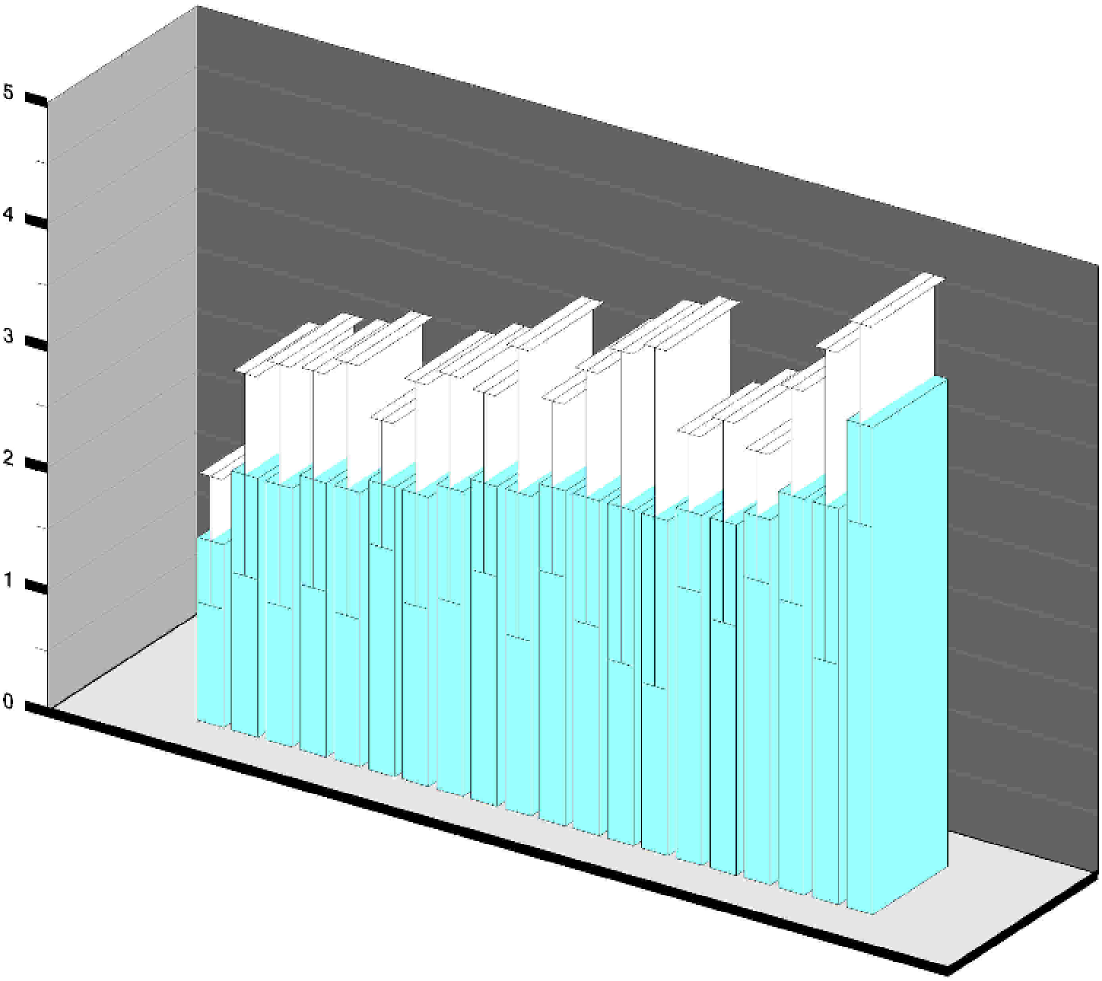


Figure 23. Mapping and results of Innovation Culture aspects. (1= Excellent, 2= Good, 3=Moderate, 4=Poor and 5= Non-existent).

- **5 out of 8** universities consider the "innovation culture" of their universities to be **moderate** (1 poor, 1 good and 1 non-existent)

The figure below provides a summary of all Averaged Data Including Standard Deviations for specific Innovation measures.



B2	B3	B1	B19	B18	B5	B20	B17	B10	B9	B15	B16	B13	B12	B14	B11	B6	B4	B7	B8

Figure 24. Summary of all Averaged Data Including Standard Deviations, where B2: Qualification of Innovation Managers, B3: Support of Innovation, B1:Financial Support of Innovation, B19: Willingness to Interact with Industry, B18: Opportunities to Interact with Industry, B5: Acceptace of Innovation Measures by Students and Researchers, B20: Funding of Interaction with Industry, B17: Start-up Support, B10: Comprehensiveness of Regional Ecosystem, B9: Regional Ecosystem, B15:Identification of Exploitable Results, B16:Acceptance of Innovation, B13: Universities Innovation Strategy for Transferable Skills, B12: Innovation Strategy, B14: Awareness of Innovation-related Measures, B11: Training Measures for Transferable Skills, B6: Acceptance of Innovation, B4: Innovation Culture, B7: Knowledge Triangle and B8: Availability of Space. (1= Excellent, 2= Good, 3=Moderate, 4=Poor and 5= Non-existent).

The tables below provide a detailed map of the general information in terms of innovation instruments in each CIVIS Alliance member.

Table 13: Innovation Instruments (Resources Administration & Faculty, Innovation Areas, General information Questionnaire) part of each CIVIS Alliance Member (Innovation- Research: Responsibility in the field of Innovation Research, Innovation- Administration: Responsibility in terms of administration and innovation facilities, HR- Research: Human Resources allocated in the Research area, HR-Administration: Human Resources allocated in Administration and Personnel Management, Areas-Innovation Management: All fields covered by Innovation Management, Areas-Contracs to Enterprises: Business contacts, Areas- Technology Transfer Office (TTO): All activities covered by the technology transfer office, Areas- Strart-up Support: All activities covered by the Start-up Support, *one-stop shop for industry and actors in innovation: Support for Communication between researches and companies)

CIVIS University	**Innovation - Research**	**Innovation – Admin**	**HR - Research**	**HR - Admin**	**Areas – Innovation Management**	**Areas - Contacts to Enterprises**	**Areas – Technology Transfer Office**	**Areas - Start-up Support**
University A	1. Center for Management and Research Studies, 2. University Research Team in Management Science specializing in Logistics, 3. Economics and Sociology Laboratory, 4. Sports Science Faculty, 5. Institute of Public Management and Territorial Governance, 6. Doctoral Schools, 7. Faculty of Economics and Management	1. One-stop shop for industry and actors in innovation, 2. Department of Research and Valorization, 3. Institute for Creativity and Innovation	Many	87	Courses on Invention, Intellectual Property and Innovation, Contracts for Research Collaborations and/or Services, Upscaling of Innovative Projects, Entrepreneurship	Negotiation, Contracting, First Contact to Business, Business Relation, Networking, Training on-site	Management of IPR and Technology Transfer (Technology Transfer Accelerators, Incubators), research collaboration incl. Legal support (Department of Research and Valorization, University's Spin-off)	Support, Promotion and Management of Start-up Initiatives incl. On-site Incubators (Incubators, Entrepreneurship Programme for students) and Accelerators (one-stop shop for industry and actors in innovation, Accelerator A, Startups Community-Startup Incubators & Accelerators, Startup Center and Innovation Lab)

University B	1. Laboratory of Investment Application, 2. Laboratory of International Strategic Management and Competitiveness, 3. Laboratory of Entrepreneurship Development	1) Center for Research, Innovation and Entrepreneurship: a) Technology Transfer Office and b) Business Accelerator	3 Professors	2 FTE (TTO and BA)	Commercialization, Training, Networking, Coaching, Mentoring (TTO), Coaching, Training, Networking, Mentoring, Office Space (BA)	Commercialization, Networking, Training (TTO)	Management of IPR (TTO)	Coaching, Training, Networking, Mentoring, Office Space (BA)
University C	1. Business School of Economics and Management, 2. Faculty of Law and Criminology, 3. Polytechnic school, 4. Doctoral School	TTO		30	Assistance for Upscaling of Innovative Projects, Technology Transfer Management Services	Proactive Technology Offering, Technology Platforms Marketing, Contract Negotiations, Commercialisation	Management of IPR, Support with Legal Documents, Scouting, Licensing, Transfer-related Communication	Student Start-up Accelerator (Incubator for Entrepreneurs) Entrepreneur Coaching (Entrepreneurs Programme), Spin-off Incubation (Business & Innovation Center, Center of Biotechnology)
University D	Faculty of Natural Sciences, Faculty of Economics	NONE (TTO planned for 2021, employing 3 FTE)	Professors have no special training in innovation management but Innovation training is	NONE (3 planned for 2021)	NONE	NONE	NONE	NONE

			fully integrated in regular curricula					
University E	Various Faculties and Departments	1. Innovation Unit, 2. Foundation, 3. Center for Innovation and Knowledge Transfer, 4. Business Innovation School, 5. Non-profit foundation and collaborative research initiative (innovative scientific, technological entrepreneurship, technology transfer)	1 Professor (Head of Innovation Unit)	Staff (Foundation)	Innovation Management, IP Support (Foundation, Center for Innovation and Knowledge Transfer)	Negotiations, Speed Meetings, Networking	Management of IPR (Center for Innovation and Knowledge Transfer)	(Entrepreneurship and Innovation training center; Science Park)
University F	1. Various Departments, 2. TTOHO	TTO	TTO	1. Various Departments, 2. TTOHO	Managing and Exploitation of Results, Scouting, Establishment of Rules and Policies (TTO)	Management, Promotion and Conclusion of Agreements, Enhancement of Collaboration, Implementation of Technological	Protection and Management of Patents, Exploitation and Industrialization, Licensing and Cooperation Agreements (TTO)	Support, Promotion and Management of Start-up Initiatives, Monitoring and Assessment Activities, Management of Approval Processes (TTO)

						Development Programmes, Development of Research Results for Production (TTOHO)		
University G			Innovation and Entrepreneurial Research	Innovation Advisor, Business Development	Innovation Management, IP Support (Innovation Office)	Enhancement of Collaboration (Coordinators)	NONE	Start-up Support (Innovation Office, Holding Company)
University H	1. Department for Strategy and Management	TTO, Industry Liaison Office, Technology Transfer Task Force	2 Professors	TTO (7), ILO (3), Start-up Support (4)	Entrepreneurship (SUS), Transfer (ILO and TTO), Innnovation Funding (ILO) Commercialization, Training, Networking, Coaching, Mentoring (TTO)	First Contact for Business (ILO, TTO), Negotiation, Contracting, Exploitation, Business Relation and Networking	IPR, Business Relations, First Contact, Transfer	Design Thinking, Business Model Canvas, Ideation, Hackathon, Lean Start-up

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Table 14: Innovation Instruments (Innovation Measures, General information Questionnaire) part of each CIVIS Alliance Member

CIVIS University	Types of Innovation Measures - Advisory Office	Types of Innovation Measures - Innovation School	Types of Innovation Measures - Open Working Spaces	Types of Innovation Measures - Maker Labs	Types of Innovation Measures - AR - VR Labs	Types of Innovation Measures - Other
University A	Incubators, Technology Transfer Accelerator	Graduate School of Management (Entrepreneurship Week)	Coworking Spaces (one-stop shop for industry and actors in innovation, Entrepreneurship Center and Programme for students, Technology Transfer Center & Accelerator)	FabLab (University, Incubator), Prototype Construction (Academic institution Movement and Neurosciences) Lab, Lab of the Research Unit attached to the National Scientific Research Center, Lab of the interdisciplinary Nanoscience Center)	Virtual Reality Centre (Academic institution Movement and Neurosciences), eBRAINS	NONE
University B	TTO, BA	BA (Lean startup, Business model canvas, Startup team, Market analysis, Pitching, Business planning, Business planning financials, Marketing and branding, Digital management Legal issues, Accounting Internationalization, Sales IPR, HR recruiting)	BA	BA (3D printer)	NONE	Center for Research, Innovation and Entrepreneurship (Board of Advisors, Mentors, Collaborating with several intl. Patent Attorneys)

University C	Advisory services for the scientific community, relating to partenarial research and IPR protection as well as technology transfer (TTO)	Creation of intellectual capital in the field of technological innovation. Micro and macro effects of technological innovations as well as the analysis and study of innovation management within companies and society in general (Theory of innovation and entrepreneurship)	Incubator for Entrepreneurs, Innovation Center, Advanced Engineering Center, Urban Center for social interaction and knowledge exchange	FabLabs, Urban Center for social interaction and knowledge exchange, Advanced Engineering Center	NONE	Technology Platforms combining cutting-edge equipment, technological expertise, and inter-disciplinary scientific expertise across the faculties
University D	Student Entrepreneurial Society, Research Centers with each Faculty	External experts implement creativity-based learning tools	Student Entrepreneurial Society (1 Room)	NONE	NONE	Open Lab projects
University E	Center for Innovation and Knowledge Transfer, Innovation Unit	Digital Innovation Courses (Entrepreneurship and Innovation training center)	Entrepreneurship and Innovation training center	Entrepreneurship and Innovation training center (Digital Prototyping Labs)	School of Engineering (AR & VR)	Open Courses (Entrepreneurship and Innovation training center)
University F	TTOHO	NONE	Research and Service infrastructure of the university	Research and Service infrastructure of the university	Social and Cognitive Neuroscience Laboratory	NONE
University G	Advisory Offices	NONE	Office Space	NONE	NONE	NONE

University H	Graduate School, TTO, ILO	TTO, GS, ILO (upcoming)	Startup Center, InnoSpace (upcoming)	Startup Center, Inno-Space (upcoming)	Startup Center, Inno-Space (upcoming)	NONE

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Training

A screening of the courses/classes/trainings related to innovation, entrepreneurship, business, transferable skills, etc. offered in each CIVIS Alliance member took place in the framework of Module 3. For easily accessible information, the table below shows the inventory of the related training programmes within CIVIS.

Table 15: Innovation Instruments (Inventory of trainings related to Innovation, General information Questionnaire) in every CIVIS Alliance Member

CIVIS University	Training Programmes - Negotiation	Training Programmes – Sales	Training Programmes - Legal	Training Programmes – Start-ups
University A	Support for Communication between researches and companies (one-stop shop for industry and actors in innovation), Internal training with business engineers and project managers (University's Spin-off), Training Program/Workshop for students and employees (Incubators)	Support for Sales Pitches between researches and companies (one-stop shop for industry and actors in innovation), Internal training with business engineers and project managers (University's Spin-off), Training Program/Workshop for students and employees (Incubators)	Licensing, IPR (Technology Transfer Accelerator), Contracting (Department of Research and Valorization with IP Offices), Doctoral Training for "Invention, IP and Innovation"	Programme from Ideation to Start-up Creation; Embrace Entrepreneurship: Spirit and Skills, Boosting Team Creativity; Creating a Start-up: Awareness Training
University B	NONE	NONE (planned for May 2021)	Data Protection, Commercialization, IPR	Lean startup, Business model canvas, Startup team, Market analysis, Pitching, Business planning, Business planning financials, Marketing and branding, Digital management Legal issues, Accounting

				Internationalization, Sales IPR, HR recruiting
University C	NONE	Marketing courses, Course of Advanced Entrepreneurship (MA in Business Engineering, Business School of Economics and Management)	Courses related to IP, innovation and technology rights (MA in Law, Faculty of Law and Criminology)	Course of Advanced Entrepreneurship (MA in Business Engineering, Business School of Economics and Management), Ecosystem for Entrepreneurs
University D	Curriculum at the Faculty of BA, Student Entrepreneurial Society	Strategic Marketing and Sales Management for students, Student Entrepreneurial Society	Faculty of Law	Ideation and Hackathon (Student Entrepreneurial Society, Innovation Hub)
University E	NONE	NONE	NONE	(Entrepreneurship and Innovation training center)
University F	Training Programmes for Negotiation Techniques by unskilled Researchers	Training Programmes for Sale Techniques by unskilled Researchers	Dissemination of Good Practice and Culture about Patent Opportunities and Patent Protection, subsequent Licensing and Copy Right / Know How Exploitation (TTOHO and TTO)	Dissemination of Good Practice and Culture about Patent Opportunities and Patent Protection, subsequent Licensing and Copy Right / Know How Exploitation (TTOHO and TTO)
University G	NONE	NONE	Advice on Innovation (Patent Bureau)	Start-up Support (Holding Company)
University H	1-2-1 Negotiation Training	1-2-1 Sales Training	External Expertise	Medical Technology Start-up School, Entrepreneurship, Business plan Workshop

Ecosystems

Regarding the existing ecosystems in the universities-members of the CIVIS Alliance the data collected is shown the figure below.

Table 16. Innovation ecosystems per University.

	Innovation Ecosystem
University A	VC, Business Angels, Advisors on Business Plans for Start-ups, Various Offices to lend in Open Spaces, Regional or Municipality Grants
University B	Maker spaces, Patent Attorneys, Other accelerators/incubators, Business angels/VCs, Executives/Entrepreneurs Innovative corporates, Other TTOs/universities, Research centres Ministries of education/development Regional authorities
University C	Regional/pararegional financing agency (Regional institute for research and innovation A, Regional institute for research and innovation B), Advisors for Business Plan for start-ups, VC and Business Angels, Regional Development Agency (Start-up and Innovation Hub), Competitiveness poles (Aerospace cluster and association of companies, research organisations, training centres, Collaborative Medical Device Centre, Logistics, Sustainable innovation Accelerator, Competitiveness cluster in mechanical engineering, agri-food innovation cluster), IP-Agency, EICs (...), Office Spaces to lend
University D	Innovation Clusters
University E	K-node Ecosystem (Entrepreneurship and Innovation training centre)
University F	NONE
University G	Many
University H	Maker spaces, Patent Attorneys, Other accelerators/incubators, Business angels/VCs, Executives/Entrepreneurs, Innovation Training (Regional Business Development), Start-up Support (Chamber of Commerce)

3.4.2 Legal & governance barriers, national context & external funding

After the evaluation of the information received from the questionnaires, specific barriers and weaknesses were identified.

Table 17. Identified weaknesses, barriers and challenges regarding academia-business R&I cooperation

Response	**Frequency of responses (on 8 universities)**
Lack of trainings on innovation for students, researchers and administrative staff	5
Lack of collaboration with industrial partners	4
Lack of financial support regarding entrepreneurship and innovation management activities	4
Lack of or no coherent innovation strategy	4
Complexity of international innovation management activities	3
Lack of innovation culture	3
Lack of physical space for developing multi- and transdisciplinary innovation ideas	3
Lack of exploitation of results and implementation	3
Discrepancies in terms of property rights (service invention) between universities/ inventors/ researchers	2
Shortage of TTO and Entrepreneurship teams	2

The main barriers include:

- **Lack** of **training opportunities** related to innovation management
  It was suggested by the participants to include students, researchers and administrative staff in innovation management training offers.
- **Lack** of **collaboration** with **industrial partners** and of the **financial support** regarding innovation management activities
- A **missing innovation strategy** or **no coherent strategy** was mentioned by **half of the respondents.**
- As a result of the point/barrier mentioned above, a lack of innovation culture could be seen in 3 of the universities.
- The complexity of international innovation management activities
- Lack of physical space in order to develop multi- and transdisciplinary innovation ideas

It should be noted that nearly all universities have a kind of a TTO or a unit that does comparable IP support work.

3.5 Suggestions & Future Steps.

Based on the current situations identified in the universities as part of Module 3, a transferable skills scheme was created referred to the Innovation Accompaniment Programme of the Grant Agreement. The matchmaking proposals were developed for transferring knowledge and skills as seen in the figure below. Based on the information provided by the universities in the framework of Module 3, in the benchmarking phase, the module 3 team came up with the following complementary university pairs in order to achieve the best transfer of knowledge possible between all the CIVIS partners (see figures 28 and 29). This recommendation was discussed and accepted by all the representatives of Module 3. This future step was proposed during the WP1 phase as a result of the work carried out in Module 3, but it will be further explored and implemented during the WP2.

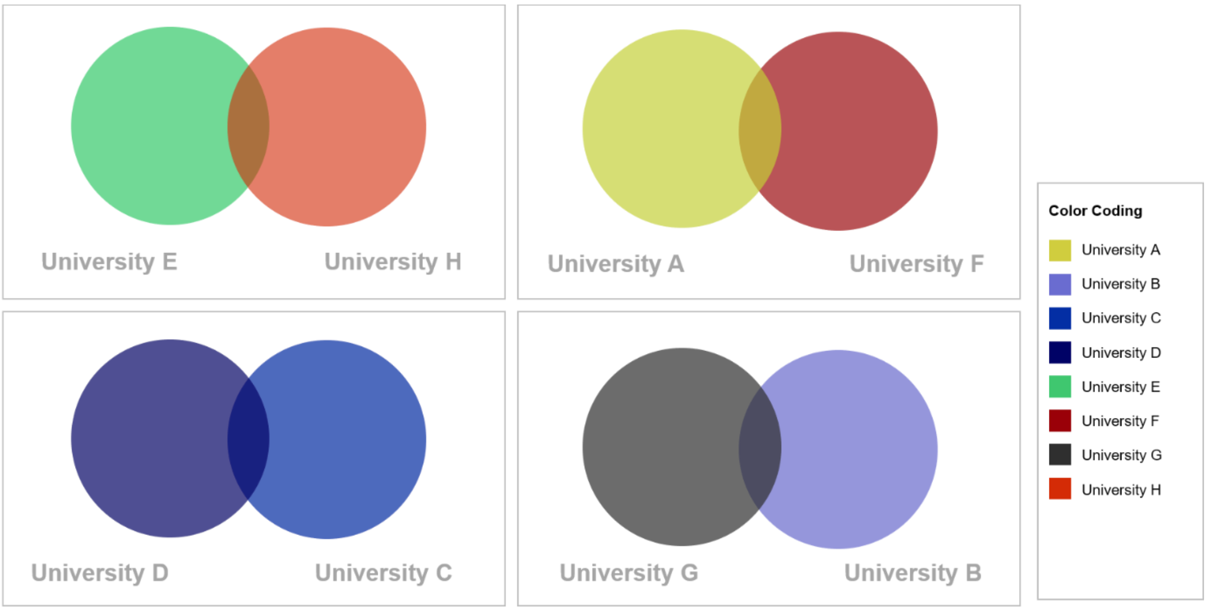
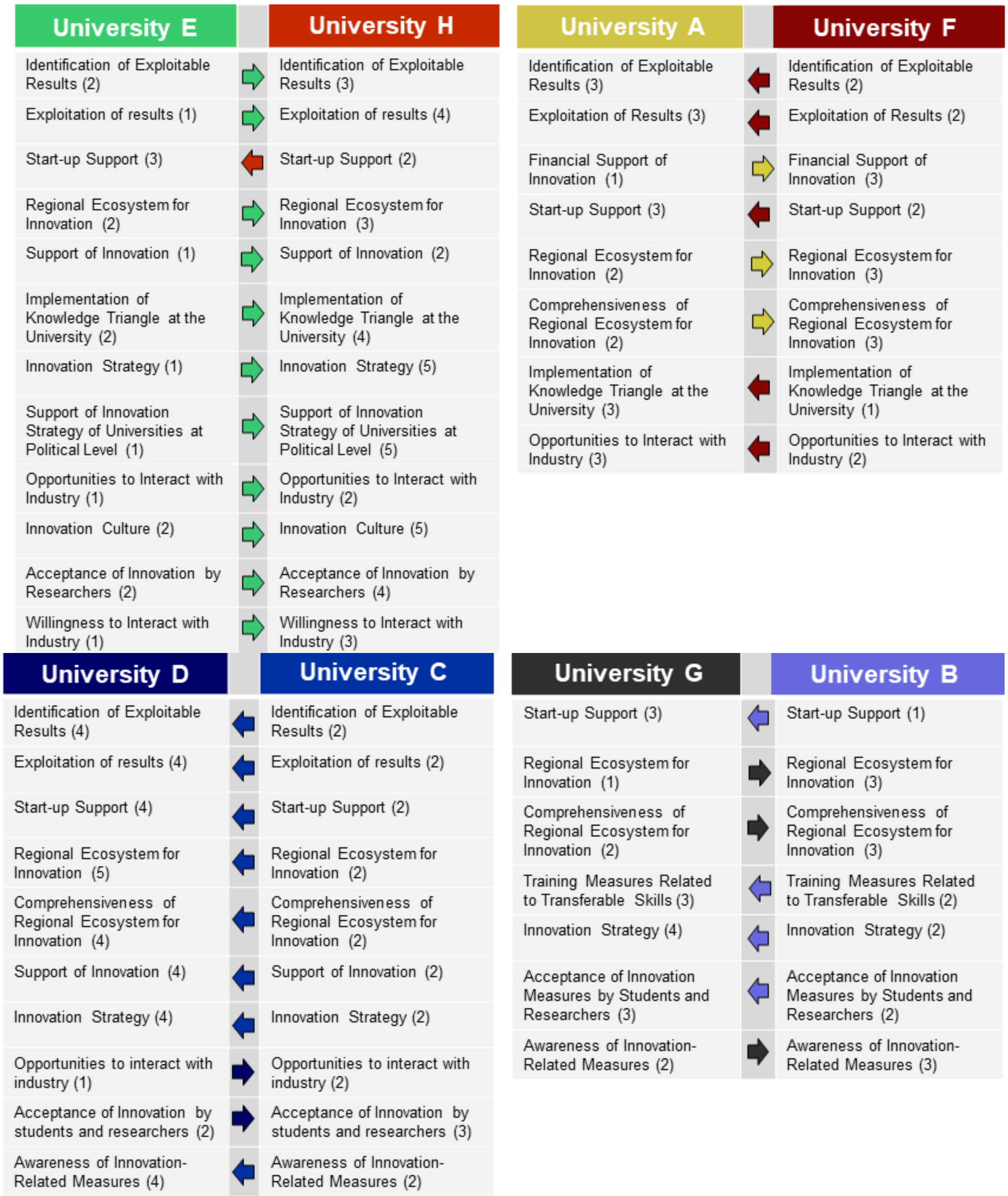

University E
University H
University A
University F
University D
University C
University G
University B
Color Coding
University A
University B
University C
University D
University E
University F
University G
University H

Figure 25. Matchmaking based on complementary skills of CIVIS universitiesHR (Module 4)

In particular, the figure below outlines the main differences and similarities of the CIVIS partner members. It illustrates the complementary skills the universities can exchange in order to achieve improved results and enhance the current practices followed. As a result, the university-pair that can be seen in the figure above were created. This way of transferring knowledge has been aligned within the Module 3 meetings and has been accepted by all representatives.



University E		University H
Identification of Exploitable Results (2)	→	Identification of Exploitable Results (3)
Exploitation of results (1)	→	Exploitation of results (4)
Start-up Support (3)	←	Start-up Support (2)
Regional Ecosystem for Innovation (2)	→	Regional Ecosystem for Innovation (3)
Support of Innovation (1)	→	Support of Innovation (2)
Implementation of Knowledge Triangle at the University (2)	→	Implementation of Knowledge Triangle at the University (4)
Innovation Strategy (1)	→	Innovation Strategy (5)
Support of Innovation Strategy of Universities at Political Level (1)	→	Support of Innovation Strategy of Universities at Political Level (5)
Opportunities to Interact with Industry (1)	→	Opportunities to Interact with Industry (2)
Innovation Culture (2)	→	Innovation Culture (5)
Acceptance of Innovation by Researchers (2)	→	Acceptance of Innovation by Researchers (4)
Willingness to Interact with Industry (1)	→	Willingness to Interact with Industry (3)

University A		University F
Identification of Exploitable Results (3)	←	Identification of Exploitable Results (2)
Exploitation of Results (3)	←	Exploitation of Results (2)
Financial Support of Innovation (1)	→	Financial Support of Innovation (3)
Start-up Support (3)	←	Start-up Support (2)
Regional Ecosystem for Innovation (2)	→	Regional Ecosystem for Innovation (3)
Comprehensiveness of Regional Ecosystem for Innovation (2)	→	Comprehensiveness of Regional Ecosystem for Innovation (3)
Implementation of Knowledge Triangle at the University (3)	←	Implementation of Knowledge Triangle at the University (1)
Opportunities to Interact with Industry (3)	←	Opportunities to Interact with Industry (2)

University D		University C
Identification of Exploitable Results (4)	←	Identification of Exploitable Results (2)
Exploitation of results (4)	←	Exploitation of results (2)
Start-up Support (4)	←	Start-up Support (2)
Regional Ecosystem for Innovation (5)	←	Regional Ecosystem for Innovation (2)
Comprehensiveness of Regional Ecosystem for Innovation (4)	←	Comprehensiveness of Regional Ecosystem for Innovation (2)
Support of Innovation (4)	←	Support of Innovation (2)
Innovation Strategy (4)	←	Innovation Strategy (2)
Opportunities to interact with industry (1)	→	Opportunities to interact with industry (2)
Acceptance of Innovation by students and researchers (2)	→	Acceptance of Innovation by students and researchers (3)
Awareness of Innovation-Related Measures (4)	←	Awareness of Innovation-Related Measures (2)

University G		University B
Start-up Support (3)	←	Start-up Support (1)
Regional Ecosystem for Innovation (1)	→	Regional Ecosystem for Innovation (3)
Comprehensiveness of Regional Ecosystem for Innovation (2)	→	Comprehensiveness of Regional Ecosystem for Innovation (3)
Training Measures Related to Transferable Skills (3)	←	Training Measures Related to Transferable Skills (2)
Innovation Strategy (4)	←	Innovation Strategy (2)
Acceptance of Innovation Measures by Students and Researchers (3)	←	Acceptance of Innovation Measures by Students and Researchers (2)
Awareness of Innovation-Related Measures (2)	→	Awareness of Innovation-Related Measures (3)

Figure 26. Evaluation of the questionnaire, list of complementary skills of CIVIS universities.

The future steps and suggestions identified in Module 3 can be found in the figure below. The Requirements of the Grant Agreement such as interconnecting innovation ecosystems and competences within the CIVIS Alliance are addressed through this methodology planned for the consensus-building phase.

Lean processes should be implemented in terms of matching partner universities to share best practices and maximize outcomes. The figure below also demonstrates the next steps within Module 3. There are two paths proposed, each path is a so-called POWERTRAIN.

POWERTRAIN 1 and runs at the same time as POWERTRAIN 2. Therefore, regular brief meetings of all partner universities in combination with matching tandem partners are recommended.

The tandem matching is based on the results of the first questionnaire and specific mapping of barriers and best practices plus availability of each university. It should run 3 months, concluding a presentation of the main results. After the first round of tandem matches and based on the findings, a second matchmaking is planned. The first-round process has already been launched as part of WP2. The Module 3 leader attending each tandem meeting to provide guidance and summarize the discussions.

In POWERTRAIN 2, further Co-Lab options will be built. In the last meeting, it was discussed that each university will add specific proposals in terms of innovation management training and teaching tools, joint 3rd party funding and other relevant proposals. One university has already handed in detailed information regarding innovation ecosystems.

Other participants proposed current and future entrepreneurial programmes and innovation related workshops with international impact. Additionally, a folder online "Library of best practices" was created.

Furthermore, the elaboration of an innovation management handbook is planned in order to provide a transparent, easily comprehensible description of innovation management tools and activities. The Dynamic Glossary, which was elaborated within the last few months, serves as a basis for a common understanding of innovation management terminologies.

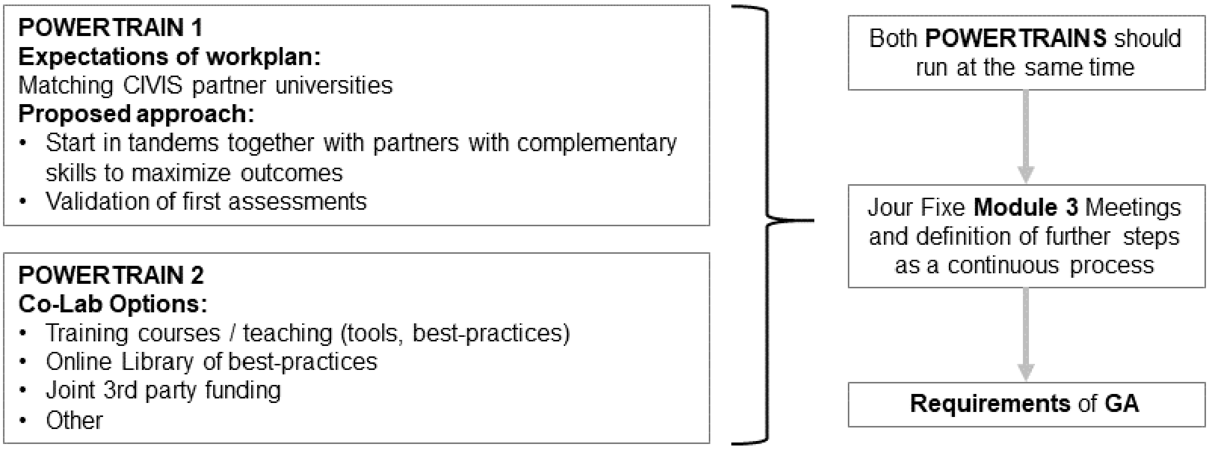

POWERTRAIN 1
Expectations of workplan:
Matching CIVIS partner universities
Proposed approach:
• Start in tandems together with partners with complementary skills to maximize outcomes
• Validation of first assessments
POWERTRAIN 2
Co-Lab Options:
• Training courses / teaching (tools, best-practices)
• Online Library of best-practices
• Joint 3rd party funding
• Other
Both POWERTRAINS should run at the same time
Jour Fixe Module 3 Meetings and definition of further steps as a continuous process
Requirements of GA

Figure 27. Recommendation and future steps of Module 3

Moreover, the table below shows an overview of information collected on current practices, barriers and suggestions during the second round of the questionnaire for each university.

Table 18. Current Practices, barriers and suggestions part of the additional information collected during Module 3.

	Current Practices	Barriers	Suggestions
University A		**National** • Limited collaborative incentives • Limited financial support to «entrepreneurship school» at Universities • Complicated innovation ecosystems **Legal** • Limited collaborative incentives	• Create collaborative Incentives between academia-industrial partners • More trainings on innovation • Additional financial support in buildings, linked with industry, dedicated to innovation • simplify innovation ecosystem with one stop shop for Universities services offer
University B	• top management that fosters innovation • knowhow of labs/departments in technologies/projects/publications development • strong team (TTO + Entrepreneurship)	• No innovation culture among researchers • Limited IP knowledge • Small team (TTO + Entrepreneurship) in relation to university's size • Fragmented government funding • National IP law ("service invention" making often debatable on who owns what between university and inventor/researcher)	• Initiative for TTO funding by the government • Startup development of innovation ecosystem • Growing international interest in TT
University C	No additional information was provided	No additional information was provided	No additional information was provided
University D	**Innovation Capabilities** • Big part of the academic staff involved in innovation projects • Internal scholarship program attracting national and foreign researchers	**Innovation Capabilities** • Limited funding resources (unpredictable) • Limited research opportunities • National standards favor publications rather than patent applications as indicators for promotions	

	• National funded projects available for permanent teaching positions • Funding mostly available from national competitions **Innovation Structures** • Internal units coordinated by innovation specialists • Research centers at faculty level **Innovation Strategy** • University's expertise is sought out by industry (to address problems and perform small contracts for services) • National funded projects implemented in consortia with industry (e.g. Technology Transfer to the economic agent program, bridge grants) • Bottom-up initiatives **Innovation Culture** • Hubs that develop R&I ideas and build start-ups • Training at faculty level on building start-ups and writing proposals	**Innovation Structures** • No university campus as a common space for developing innovation ideas • Building are used for teaching activities (with a few exceptions) • Legal and national barriers regarding the regional ecosystem • Limited funding resources • Lack of unified innovation strategy • Lack of knowledge at an administrative level of legalities **Innovation Strategy** • Inconsistent funding opportunities at a national level • Academia-Industry interactions cover 2-3 research fields • Lack of a coherent innovation strategy • Bottom-up initiatives ensure limited attraction of innovation funds • Students accept training only as part of their duties **Innovation Culture** • Underdeveloped innovation culture and technological transfer	
University E	No additional information was provided	No additional information was provided	No additional information was provided
University F	• Has a TTO • Administrative staff and professors have	• Limited exploitation of results	Enhance public intervention in order to

	experience regarding innovation • Good at scouting exploitable results • Public funding stimulates academia-industry interactions • Implementation of relevant projects • Strat-up support is a key pillar	• Limited financial support (dependent on local context of enterprises) • Limited public intervention • Developed innovation initiatives at regional level with limited university-interactions • Researchers may lack legal/business expertise and negotiation techniques • Lack of systemic strategy in academia-business interaction opportunities • Regional ecosystem dependent on regional economic framework	increase academia-business collaboration
University G	• Many innovation supporting actors • Innovation encouraged by the government • Innovation support in administrative department office for research, engagement and innovations services • High internal qualifications and skills of innovations support • Entrepreneurial research and student courses in-house at department of economy • Researchers and teachers own the rights to all inventions made at the university (teachers' exemption-law from 1949)	• Limited resources for innovation support • Limited interaction in regional innovation ecosystem • Limited awareness of innovation support among researchers • Lack of a TTO and no IPR • Outreach among researchers • Internal communication • Difficulties in developing social innovations beyond initial steps • High demands on researchers • Difficult to prioritize innovation activities • Limited time dedicated on business development of innovation • Researchers and teachers own the rights to all inventions made at the university (teachers'	

		exemption-law from 1949) • Public access to official documents • Limited confidentiality (very challenging when patenting procedures) • Procurement makes it challenging to access consultants with specific entrepreneurial skills that can support researchers	
University H	• Motivated & committed staff interested in innovation • Excellent employee qualification • Strong skills in research fields • Excellent practices in social sciences • Good academia-public & academia-private sector interactions • Good financial support of innovation (partner industry) • Good Funding programmes to enhance innovation	• Lack of innovation strategy • Lack of innovation strategy • Limited result exploitation • Limited staff with innovation management background • No innovation space & tools (technology-based, software) • Lack of space (think tanks, meeting & workshops rooms) • Decision-making processes are time-consuming • Lack of strategic support for innovation • Lack of computer equipment (remote working, internet, video cameras, headsets) • Bureaucratic obstacles and hierarchical decision-making on an organizational level • National & legal barrier: Slow development of services due to legal barriers (e.g. data protection, IP)	• Improve result exploitation & research outcomes • Foster innovate thinking • Develop innovation strategy • Upgrade innovation equipment, tools & space • Push & license innovation processes in research and teaching fields

		• Lack of investment in training & education regarding innovation • Limited performance-based compensation (national barrier) • Limited confidence of top-level management regarding cutting down bureaucracy	

4 Module 4: Strengthening Human Capital

4.1 Objectives

The objective of Module 4 is to develop high-quality, sustainable and harmonized standards in the Alliance in regard to the HRS4R (Human Resources Strategy for Researchers) for the following areas:

- OTM-R (Open, Transparent & Merit-based recruitment) including non-discrimination and equality
- Triple-I Mobility (1. International, Intersectoral, Interdisciplinary). In this topic virtual mobility, recruitment and the issue of brain drain will also be discussed
- Training and Career Development, including a range of courses, training and learning resources offered by the CIVIS universities on transferable skills
- Working Conditions to make the CIVIS universities more "attractive" for recruitment opportunities

This Module focuses on analyzing how National legislations affect each member of the CIVIS Alliance at an individual level in regard to its HR management.

4.2 Overview

In the framework of **WP1 (Benchmarking),** the Module 4 team collected information and performed analysis regarding:

- The current situations and the best practices of the CIVIS members that already have the HR Excellence in Research award (or are in the process of obtaining the HRS4S label)

It should be noted that as part of the Module 4 activities, the CIVIS Alliance members agreed to complete/update the OTM-R document that is requested by the European Commission in order to obtain the HR Excellence Award. Currently, within the Alliance, 5 members have the award and other 3 have expressed their interest and are willing to put in the work in order to obtain it in the coming years.

In order to obtain this award, the universities must follow certain requirements, the most important one being the alignment of their HR policies with the principles outlined in the "Charter & Code of researchers". As a result, their HR strategy will have researchers at its core.

- Analyse the use the CIVIS members make of EURAXESS
- Map the training opportunities offered by the members in regard to career development
- Map the hosting situations in the universities
- Map the working conditions in the universities
- Map the triple-I and virtual mobility in the universities

As a result of the work performed to support the aforementioned activities, the following deliverables were created:

- A map of the HR policies about OTM-R, mobility, working conditions and trainings/career development
- Analysis of the use of the EURAXESS website the universities make
- A list of transferable skills training opportunities offered by the members

The mapping regarding the first deliverable is depicted in the tables presented in this report. Details regarding the EURAXESS posting process can also be found in the table below.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

An inventory of the available training opportunities is also provided in the form of a table (see table 20).

4.3 Work Carried out

Similar to the other Modules, in the framework of Module 4 the work carried out included several meetings between the team as well as the distribution of a questionnaire.

4.3.1 Meetings

During the 6 months that WP1 activities were taking place, 4 thematic meeting occurred in the framework of Module 4. The themes of these meetings were around 1. Mobility, 2. Trainings and Career Development, 3. Working Conditions and 4. OTM-R.
These topics are interrelated and are all part of the HR excellence in research process as can be seen in the figure below.

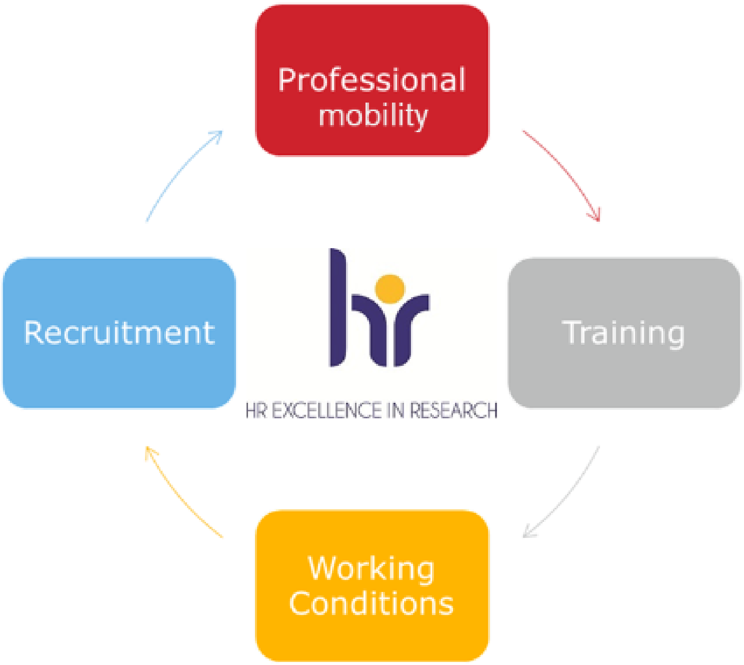


Figure 28. HR Excellence in Research

The meetings contributed in providing an overview of the current situation regarding the aforementioned 4 topics in each CIVIS university and to enable transfer of information. In addition, the Module leader held individual meeting with some of the universities representatives in order to refine certain aspects of the data they submitted. An additional meeting was held to consolidate the data collected, discuss any barriers identified and suggest possible solutions for the future. These aspects were also analysed in the Module 4 report as a result from the answers collected from the questionnaire.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

The deadlines set in the framework of Module 4 are shown in the table below.

Table 19. Dates & deadlines regarding Module 4.

Deadlines	**Key points**
10/02/2021	Suggestions for questionnaire
15/02/2021	Last version of the questionnaire
19/02/2021	Feedback/validation of questionnaire by all partners
Week of the 8th March	1st Meeting on Training and Career Developments Share among the partners the finding/good practices
Week of the 22nd March	2nd Meeting on Mobility
Week of 5th April	3rd Meeting on Working Conditions
Week of 10th May	Data consolidation
31/05/2021 (updated date: 23/06/2021)	Submit the Report

4.3.2 Questionnaire

Due to the nature of the deliverables, the questionnaire was structured to collect information on researchers' mobility, training and career development, working conditions and recruitment policies.

The structure of the questionnaire was based on two European Documents, the European Charter of Researchers and the Code of Conduct for recruitment. Before the final approval, the Module leader received feedback from the Module 4 team and modifications were made before the validation of the questionnaire.

An issue raised during data analysis was a result of the decentralisation of some of the CIVIS universities which made it difficult to identify policies, strategies and other initiatives. In addition, the time required to collect and analyse the data was also a matter of concern. Therefore, once again, the Module leader had to have additional meetings with the universities' representatives to further harmonize the results.

4.4 Outcomes & Deliverables

4.4.1 Mapping of existing initiatives & best practices within CIVIS regarding RIs

4.4.1.1 OTM-R.

The OTM-R checklist (Open, Recruitment, Merit-based document), is a European Union document required when applying for the HR Excellence Award. The ORM-R checklist is available to every university that intends to apply for this Award.

- 5 out of the 8 universities have the HR Excellence Award
- 5 out of the 8 universities (the same as above) have a specific HR strategy for researchers

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

(1) OTM-R system

The **OTM-R documentation** is **published online** and is **accessible** to researchers. Similar with the availability of several other documents, the OTM-R documentation is **mainly** provided in the **national language** of the institutions, **hindering** thus full **accessibility**. At an internal level, the partners clearly state the **rules for appointments** via 1. internal guides, 2. checklists and 3. information meetings for recruiters.

Regarding the training provided at an institutional level by the HR departments, the availability **differs** between each university. In particular,

- **4 out of the 8** universities provide **periodic trainings** on OTM-R related topics
- **4 out of the 8** universities (the same as above) also provide **courses** on **transferable skills** (i.e. gender and e-tools courses)

For the monitoring process and the **optimal candidate selection** certain indicators could be developed through HR departments (i.e. acceptance rates of offers by the first- ranked candidates.)

- **1 out of the 8** universities has an **external expert** that validates jobs appointments and promotions
- **4 out of the 8** universities have a **monitoring** mechanism in place for determining whether the most **suitable candidates** apply to their job offers

Regarding tools for recruitment, the CIVIS Alliance members utilize e-recruitment tools at a **similar** rate. The universities either develop and implement their **own tool** (less common) or as is the case in the majority of the members, they use a **web-based system**. These tools offer several advantages seeing as they make jobs applications more accessible and less burdensome. The **recruitment strategies** implemented by the CIVIS members in combination with the **publication of the vacancies enable** researchers from abroad as well as underrepresented groups to **apply** for the job position at hand.

All CIVIS universities have either a **clear OTM-R documentation** for recruitment policies or **other designated documents** and regulations in which recruitment rules are specified.

All CIVIS universities utilize the **OTM-R system** with the **support** of **Committees, Social audits, Quality Units,** etc.

(2) Advertising and application phase (Euraxess)

The questionnaire filled in as part of this Module, provided information regarding the **communication channels** used within the Alliance to **advertise** their **vacancies**. **Euraxess** is by far the most used tool with **Linkedn**, **intranets** and **extranets** also being utilized at an increased rate. **Mass media** advertisement is also implemented in some cases.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

Specific templates are created regarding the **different positions** which usually follow **strict guidelines** and are fully **compliant** with the **Euraxess criteria**. Currently, these templates include:

- the **necessary information** regarding the **job position**
- the **specific qualifications** to fulfil the position.

However, the CIVIS partners could agree to introduce the **CIVIS logo** in their templates or Euraxess posts (after the necessary discussion and approval of the Commission) to keep **promoting** the CIVIS Alliance. The templates can also be part of a joint good practices' library used for consultation. The Euraxess centre replied to this demand saying that for the time being the introduction of the CIVIS Alliance logo in the vacancy templates is not feasible. However, Euraxess is planning a revamp of the website and confirmed to the Module Leader that branding the vacancies with the Alliance logo could be possible in the near future.

Similar to the **tools** used for recruitment, systems and resources can be used for the application phase for a **smoother process**. In this regard, e-tools could help ease the paperwork. The universities that utilize an electronic system allow the applicants easy reuse of the data saved in the system from previous applications.

(3) Selection and evaluation phase

Every university has appointed **selection committees**, the composition of which committees is clearly stated in the recruitment regulation and in national legislation. These committees evaluate candidates based on merit criteria in all cases. These criteria however cannot be clearly evaluated in certain instances (i.e. assessment of publications by quality and not quantity).

Some Universities use different policy rules for researchers internally hired and for researchers **funded from external funds**. In those cases, the **regulations of the external funders** may apply. A checklist for supervisors hiring candidates on external funds could be made available to provide guidelines and organize selection in a transparent manner.

All universities have rules concerning the appointment of **selection committees**.
All universities (but one) implement proactive policies to reach gender balance in committees

(4) Appointment phase

An issue identified by many universities is that they do not have the necessary resources to provide information/feedback to all applicants after the recruitment process is finished. Often universities are able to inform candidates about the end of the process or about unsuccessful applications, but **detailed feedback** on CVs or interviews appears to be much complex. Concerning this, it is worth mentioning that providing feedback is not a compulsory process and is dependent on legal restrictions as well as on internal guidelines. In some cases, if the process takes place within a public call, it is possible that candidates find the results and some feedback in the public portal of the institution, others may produce automatic feedback and assessment reports that are made available at private or/and public level, but only in few universities.

Nonetheless, in **every university**, if complaints arise, candidates have the option to **appeal the decision**. The process for this differs in each member of the Alliance.

4.4.1.2 Triple-I Mobility.

(1) Intersectoral Mobility

In some way or another **all CIVIS Alliance members implement** programs/activities or relevant actions in the framework of **Intersectoral mobility**.

In particular, the universities:

- have a specialized **intersectoral mobility program**
- establish **actions/activities** that focus on **intersectoral mobility**. These activities can include: transfer agreements, framework contacts, swaps of scientific staff between academia-industry as well as calls for proposals that focus on fostering collaborations or
- develop **collaborations** with companies, incubators and business accelerators
- have **Excellence and Innovation Centres**, **technological platforms** and **regional development associations** that are all involved in encouraging transfer of knowledge between academia and industry
- have **Open Labs** that connect academic and industrial partners
- (two universities in particular) have **Foundations Programs** that aim at bridging the gaps between academia and industry. Specifically, one of the universities, organises an **open event** that focuses on the **dissemination of technologies** and **scientific-technological capabilities** of researchers to the private sector. This is considered a **good practice** that could be implemented by the Alliance in order to help identify the most common/specific research skills sought by the industry.

Funding

The **funding resources** for this type of programs are mostly **external**. In particular, they are a result of **EU, national and regional programs** (e.g. MSCA, EraNET and industrial Ph.D. calls at regional level). However, few universities hold **calls for gaining funding resources** regarding mobility or offer **Industrial Ph.D./post-doc fellowships**.

It is noteworthy that one of the universities has a particular program that aims at integrating scientists from industry into the university's research activities.

It also should be documented that the CIVIS Alliance is working in enhancing **intersectoral mobility** through a **joint MSCA COFUND project, the CIVIS3i**.
The **Technology Transfer Office/ Innovation Services** offered by all CIVIS partners aim to support research in identifying funding resources, set up companies or projects (spin-offs) or manage patents.

(2) International Mobility

All the members of the CIVIS Alliance have an **international mobility program.**
Some universities have a single program, but others implement a variety of programs that mostly perform tasks under the authority of an International Relations Office and/or the Research Department.
In regard to this type of mobility, there are many similarities identified between the CIVIS Alliance members.
Actions regarding this type of **mobility** include:

- bilateral agreements with national or international universities,
- joint supervision schemes for doctoral candidates,
- Visiting Professors programs

Funding

Even though similarly to the **funding opportunities** for intersectoral mobility, financing from **European programs** that foster international mobility (Erasmus+, MSCA) is an important financial resource, mostly targeted with external funds, the funds for international mobility have a different focus.

Specifically,

4 out of 8 CIVIS universities concentrate **internal funds** to foster their own mobility by offering opportunities to both incoming or outgoing researchers, via fellowships or short mobility initiatives.

Brain Drain

The **brain drain issue** is identified as an existing source of **concern** by **all members** of the Alliance mainly due to the **lack of funds**, **resources** and **opportunities** for researchers. Actions developed by the universities to combat this issue include:

In the 5 out of the 8 universities, the development of excellence programs in the form of calls for proposals that aim at keeping promising researchers in the university. The aforementioned calls address 1. researchers who intend to apply to an ERC grant during the upcoming year or 2. researchers who were not funded under the MSCA post-doctoral fellowships but whose project receive a Seal of Excellence.

Even though national legislation is in place, the different types of funding as well as the cultural issues that arise, are often considered as an obstacle.

A proposed action is the transfer of knowledge regarding these types of calls. Even though national legislation is in place, the different types of funding as well as the cultural issues that arise, are often considered as an obstacle.

In the 2 of the 8 CIVIS universities, the policies to reverse brain drain are mainly taken by national governments. These actions, however, are not sufficient enough to reverse the issue.

(3) Interdisciplinary Mobility

This type of mobility was trickier to map. All university-partners follow interdisciplinary approaches, specifically materialised in technological platforms and research institutes. However, the related policies/strategies in placed within the Alliance vary thus, arises the issue of the fact that interdisciplinarity if not fostered equally in all universities.
In particular,

- **4 out of 8 universities** actively foster **interdisciplinary approaches via calls for proposal, incentives, workshops, training opportunities and research groups**
- **The other 4 universities** implement a **'no barriers but also no incentives'** approach. A more **direct and active approach for interdisciplinarity** could be **proposed** as an efficient **harmonisation action.**

(4) Virtual Mobility

Some of the CIVIS universities have their own virtual platform through which they offer virtual seminars and workshops, discussion forums and resources, while others have periodic virtual trainings organised from departments and faculties.

Due to the COVID-19 pandemic, all universities within CIVIS adapted their programs to offer trainings in on-line teaching, ICT tools and collaboration platforms.

4.4.1.3 Training and Career Development.

Almost all CIVIS universities have **training** dedicated to **Ph.D. candidates, post-docs, and academics.**

The training opportunities offered can be seen in the table below.

Table 20. Training offered by the CIVIS Alliance members.

	Research Skills Training Clusters	Generic Transferable Skills Training Clusters	Teaching Programs for Researchers (Courses)
Research	Research Ethics Research Integrity Research management Research funding Open Access		Academic Integrity
Digital/Data	Data Management Data Mining	Digital competences	
Legal	Intellectual property		
Managerial		Academic and Scientific communication Management & supervision Stress & time management Design thinking	Assessment and evaluation Developing course material Effective coordination
Teaching & Pedagogics		Languages / Foreign languages Teaching and pedagogic training	Teaching methods Innovative teaching strategies Teaching with technology
Other		Career development training entrepreneurial courses CV writing	

Regarding the **generic transferable skills**, the **courses** are commonly taught in the **main language of the university**. However, a **small part** of them are taught in **English**. **Courses** taught in English are considered a **good practice** seeing as not all the universities have courses in every cluster mentioned above. Therefore, this can promote **inter-institutional mobility**.

(1) Teaching programs for researchers

In the framework of becoming an academic, there are certain teaching and pedagogic skills one should learn.

Most universities have training on these transferable skills, but few have a program aimed at providing **support, training and career development assistance** combined.

- This training could be either **mandatory or voluntary** depending on the university.
- **Some universities** offer **compulsory** initial **training** for incoming researchers or Ph.D. candidates.
- **Other Institutes** practise a more **optional approach**, even though special insistence is given to recently hired staff and **partial release** from **teaching** is granted to **attend the trainings**.

In addition to these training programs/courses, two universities have developed a **mentorship program**:

- The first one, pairs newly arrived staff with senior academics, promotes active learning, helps develop career objectives and supports integration.
- The second one, aims to attract highly promising female early career researchers to an academic career by offering them support for their academic work, individual career planning and opportunities for gaining overarching professional competences. This university will also install a **mentorship hub** to gather other mentorship initiatives and has a **fellowship call** addressed to academics.

A third university is **testing mentorship** at a **lower level** and with a **reduced group of applicants for ERC laureates**. In that respect, this could be a **future action** implemented at a greater scale through the Alliance members.

The benchmarking activities that took place in the framework of WP1 showed that there are no specific and targeted policies towards developing training programs addressed to researchers in coordination with other universities. In this respect, the CIVIS project could play an essential role by organising virtual workshops through the CIVIS platform as well as by fostering trainers' mobility which could help universities to develop in-house training based on courses already taught within the Alliance.

(2) Career development support program

Most universities of the Alliance do not have an independent career development program, but they take actions and establish initiatives that focus on this topic.

Actions and activities provided in the framework of career development include:

- Career Days,
- Career counselling provided by HR departments or supervisors,
- Trainings on **professional skills,**
- **Coaching sessions,**
- **Funding opportunities,**
- **Tools to identify career objectives and practical guides** on career pathways.

It is useful to differentiate between a career development strategy at two levels. The first one involves monitoring processes and harmonisation of research careers as well as promotions for early-career and senior researcher categories at institutional level. The second one comprises of the career development strategy followed by the researchers with the help of the universities. It is difficult to see a clear harmonisation of the career development strategy at the first level due to the amount of resources available at the partner universities. However, the Alliance could agree to share the same tools and resources to harmonise their respective career support initiatives.

- **1 out of the 8** CIVIS universities has an **online platform** designed to indicate **professional paths**, inform about **career steps**, and make easier the **planning** of one's doctoral degree.
- **2 out of the 8** CIVIS universities are testing their **own individual career development plans,** using a document where researchers can analyse their short- and long- term goals. A possible template could be developed for the whole Alliance.

Regarding career orientation and policies that aim at enhancing job opportunities for early-stage researchers, in academia and in the industries, the members of the CIVIS Alliance implement the following actions/activities:

- Training programs available on funding, CV writing and mild mentorship support (i.e. Ph.D. buddy program)
- Job placements after Ph.D.
- **Small incentives** or are developing a **CV database** for priority hiring

4.4.1.4 Working Conditions.

(1) Contracts and social security

There are two types of **contracts** in all the universities: permanent and temporary.

In **permanent** contracts, the designation normally is: **Professor, Associate Professor** or **Lecturer**. Their characteristics are similar to a **civil servant function** and are **regulated** by **national governments.** This has both **advantages** (i.e. offering **transparency** in issues like salaries) and **disadvantages** (i.e. renders some universities to a less competitive level in comparison with other countries or the private sector). The CIVIS Alliance also suffers from national funds shortage which directly affects the amount of positions available in universities, hence, researchers end up facing a clear **paucity of professorships**.

In **temporary** contracts, the general term used is **researcher**, which comprises Ph.D. candidates or research assistants, post-docs and other fixed-term type of contracts. These contracts can last between one and six years depending on the university, the duration of the project and working hours, whether full-time or part-time. This type of contracts **may require** teaching duties, thus, the researcher will not be completely dedicated to research. Only one partner of the CIVIS Alliance does not contemplate research as a full-time job, due to national legislation.

Funding. Contacts can either be **funded externally** (i.e. MSCA, ERC, European or national funds) or with **internal funds** from the university. **Externally funded contracts**, also known as **fellowships**, have a **scholarship/grant dimension** and follow the regulations and **requirements** of the **funding body**, hence, researchers are **not under direct contract** with the University.

Externally funded contracts have certain **advantages** (vs. internally funded ones):

- the salary and dispositions in the Grant Agreement are far more advantageous considering the **higher salaries and tax exemption**.
- they are also more profitable for universities as they are exempted too from taxes.

The **internally funded** contracts follow the national legislation (here both the institutional budget of the universities and national calls are included), which implies that, compared to fellowships, they are **not so competitive**.

In any case, opportunities after a fixed-term contract are not promising, something that enhances **brain drain and job instability** for researchers. Some universities are trying to reverse this situation by providing training on funding and career development, setting up Excellence programs and specific committees to follow-up and support fellows at the end of their contracts.

All researchers, whether permanent or temporary, are covered by the **social security** of the country and have certain rights such as **parental leave, health insurance, invalidity, occupational diseases, pension and unemployment insurance**.

With that said, the policies implemented by the CIVIS universities in terms of **social funds** and other similar advantages differ. Certain **initiatives** to **support** this topic include:

- Maternity fund to top up social security benefits,
- Health promotion hour,
- Psychological counselling,
- Family allowances,
- Extension of Ph.D. contracts after maternity leave,
- Support for researchers' partners, etc.

For **easier integration** of foreign researchers to their new work environment several **actions** are implemented, such as:

- **Research incentive funds** to finance equipment or start of the project,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

- **Mini-credits or funds** for doctoral thesis and specialised calls for proposal designed internally to attract international researchers,
- **Bursary schemes** for early-stage researchers,
- Universities' own **hosting system** (i.e. (de)centralised Welcome days, guides for career and integration in the country),
- **Support** in finding accommodation or filling administrative paperwork.

The **centralised Welcome Desk as well as a Ph.D. buddy program** have been identified as good practices to be implemented by the rest of the CIVIS Alliance.

In the majority of the universities (**all but one**), the **working hours** are **divided** between **teaching and research**. Specifically, the allocation of hours in the two fields depends on the type of contract as well as university. The one CIVIS university that does not combine both fields, offers instead the possibility to do research on top of full-time teaching duties.

(2) Work-life balance

National laws make for some differences in regard to work-life balance policies implemented by each university. However, the similarities outweigh the differences. Certain **initiatives** are conceived in order to help researchers **keep work-life balance**, such as:

- Flexibility to organised working hours,
- Homeworking,
- Partial release from teaching,
- Sabbatical leave,
- Health promotion hour,
- Nurseries,
- Parental leave,
- Summer activities for children of the university's staff,
- A special regional program for supporting researchers with families by providing networking, job opportunities and training to researcher's partners (offered by 2 out of the 8 universities).

It is noteworthy, that women appear to be the most affected group by these policies, as they tend to leave their research career after **the defence of the Ph.D. thesis or restrain from requesting promotions** due to the difficulties in finding an equilibrium between starting a family and maintain a job that requires periodical publications, constant networking and flexibility for mobility purposes, not to mention the instability of employment under certain contracts. This is a topic that should be further analysed in the framework of the Alliance, seeing as every CIVIS member should utilize tools to help balance gender within the research career.

- **Every CIVIS university complies** with the **European standards** regarding **work-life balance**.
- **Women** appear to be the **most affected** group.

(3) Diversity

Diversity is an **umbrella term** that includes many different fields such as:

- **Recruitment,**
- **Social rights,**
- **Gender equality.** Transfer of knowledge regarding Gender Equality plans within CIVIS in order to reinforce them in view of its mandatory condition for the next HEUR calls should be a future discussion point.
- **Accessibility.**

Therefore, many different strategies are applied in order to address them. These measures include:

- Policies followed by **HR during recruitment** (i.e. gender has to be taken in consideration when offering a job position)
- The number of promotions of women must be stable and growing to **revert** the '**leaking pipeline'** phenomenon
- **Antidiscrimination, integrity and ethics trainings** for recruitment committees
- **Projects** to encourage **women in STEM**
- Specific **calls for disabled researchers**
- Promote **equality** through **educational programs**
- 2 out of the 8 universities have a **Gender advisor or Equal Opportunity Officer**, who advises on politics and measures to help support diversity and work-life balance aspects either at institutional or at faculty level

It should also be noted that every university will be applying a **Gender Equality plan** which will be a mandatory requirement for the upcoming Horizon Europe calls.

- **Every CIVIS university** takes action **against** any kind of **discrimination** in the work environment.
- In addition, they all have a **Code of Ethics or a Committee for Equal Opportunities** signed by the Authorities of the university generally referring to recruitment policies.

The table below shows, among others, the number of universities that implement OTM-R related action (1st row), Triple-I (2nd row: Intersectoral; 3rd row: International; 4th row: Interdisciplinary) mobility approaches. The 5th row provides details regarding the training and career development. The 6th row provides information regarding the working condition implemented by the CIVIS Alliance members.

Table 21. Number of universities implementing certain approaches/practices

		Yes	***Partially***	***No***
OTMR	**OTM-R training procedures**	**2/8** (25%)	***3/8** (37,5%)*	***3/8** (37,5%)*
	Monitoring recruitment applications	***1/8** (12,5%)*	***4/8** (50%)*	***3/8** (37,5%)*

	Assessment system of OTM-R deliverables	***1/8*** *(12,5%)*	***4/8*** *(50%)*	***3/8*** *(37,5%)*
	Feedback to applicants	***~1/8*** *(10%)*	***~5/8*** *(60%)*	***~ 2/8*** *(30%)*
TRIPLE T	**Intersectoral Mobility Program**	***5/8*** *(62,5%)*	***3/8*** *(37,5%)*	**--**
	Funding Units for intersectoral mobility	***3/8*** *(37,5%)*	***3/8*** *(37,5%)*	**2/8** (25%)
	Technology Transfer Office/ Innovation Services	***8/8*** *(100%)*	**--**	**--**
	International Mobility Program	***5/8*** *(62,5%)*	***3/8*** *(37,5%)*	**--**
	Brain Drain	***5/8*** *(62,5%)*	***3/8*** *(37,5%)*	**--**
	Interdisciplinary mobility	***3/8*** *(37,5%)*	***4/8*** *(50%)*	***1/8*** *(12,5%)*
	Transferable Skills Training Catalogue	***4/8*** *(50%)*	***4/8*** *(50%)*	
	Teaching programs for researchers/Ph.D. candidates	***4/8*** *(50%)*	***3/8*** *(37,5%)*	***1/8*** *(12,5%)*
	Career development support program.	**2/8** (25%)	***4/8*** *(50%)*	**2/8** (25%)
	Orientation Programs for early-stage researchers	**--**	***6/8*** *(75%)*	**2/8** (25%)
	Remuneration in accordance to national legislation	***5/8*** *(62,5%)*	***3/8*** *(37,5%)*	**--**
	Inclusion Policies	***5/8*** *(62,5%)*	***1/8*** *(12,5%)*	**2/8** (25%)

The **current practices implemented by the CIVIS Alliance members** in regard to **OTM-R, Mobility** and **training opportunities** can be found in the tables below.

AMU

Table 22. Current practices implemented by AMU in regard to OTM-R, Mobility and training opportunities

	Working Conditions	***Mobility***	***Training & Career Development***	***Future Steps***
AMU	Extensive building renovation works Policies • Contrasted situation depending on the status of the research employees. • Very centralised French legal system • Diversity policies • Gender equality policies • remuneration according to the law • Contract-based staff practices vary widely Benefits • Flexible working conditions (time, place, organization) work-life balance • Access to AMU’s social policy & social security cover. • Calls for proposals towards handicap Ph.D. candidates open every year as part	• Euraxess to facilitate the interaction with incoming researchers. • Program for training through mobility (at intersectoral/ international or interdisciplinary level.) Intersectoral mobility • Partnership frameworks with the private sector • Open Labs, • CISAM initiative, • European projects, • Specialised calls for proposals International mobility • Junior and senior researchers’ mobilities, • Visiting professor program, attractiveness chairs (Chaires	Training • Coaching and training services dedicated to H2020/ Horizon Europe (to increase participation) • Different experimentation programmes • The Staff Development School (under development) aims at strengthening the training program while providing researchers with more offers. • Specific research training (ethics, sustainable development, tools for research and new methodologies, and funding courses.) • Transferable skills offered (communication, IT, and management.) • Good teaching program	• HRS4R Action plan • Simplification of internal procedures • Common ‘internationalization’ of the university. Recruitment • Internationalize all recruitment processes • Standardization to enhance transparency • Increased visibility • Recommendations on recruitment criteria (part of HSR4R Action plan) HR • Make HR questions and quality of life at work as central points of its policies • Further training development on supervision and management skills, • Develop actions in the HRS4R plan • Finalize comprehensive and visible OTM-R policies (part of HSR4R Action plan) • New possibilities for staff and students’

of the A*Midex programme. • Specialized support services • Mentorship system for ERC candidates Recruitment & OTM-R • In line with OTM-R • offers are published on GALAXIE and Euraxess • assessment by Selection Committee • Feedback provided to candidates upon demand. • Several recruitments occurred through the AMU's dedicated spin-off company HR • Established HRS4R • HR questions and quality of life at work as central points of its policies	d'Excellence, A*Midex), • Joint Ph.D. supervision, European and residency programs. • Internal funds dedicated to this. Interdisciplinary mobility Interdisciplinary institutes	especially for Ph.D. candidates Career Development • A*Midex calls for projects to support researchers • Modulation schemes for researchers involved in H2020/ Horizon Europe projects	discussions and interactions around diversity. Career Development • Implementing a common mentorship program. • Enhancement of job opportunities for Ph.D. candidates and post-docs • Wider and centralised mentorship program • Enhanced access to AMU's training offer

In more detail,

Recruitment policies

- Several recruitments occurred through the AMU's dedicated **spin-off company,** Protisvalor. Recruitment examples that took place this way include short-term, for up to four years, researchers that occurred either under private law or in the framework of European research projects or in the context of public-private collaborative projects.
- The selection committee for application assessment is comprised by at least 50% of members external to AMU, and at least 40% of members from each gender. Offers are published on GALAXIE and Euraxess.
- In 2020 a pilot action was conducted among selection committees in the framework of the recruitment of lecturer-researchers of Science Faculty. This action aimed at educating evaluators about of gender bias in recruitment decisions.
- A similar but more developed training is also being experimented in three research units and in the Doctoral Schools.
- AMU's recruitment processes for Ph.D. candidates and contract-based research staff vary between disciplines and research units.
- Ph.D. candidates were also recruited in the framework of the MSCA COFUND DOC2AMU project (H2020). All DOC2AMU offers are published on Euraxess with clear information on the selection process and criteria, and feedback is automatically provided to candidates who are not selected.
- Even though contract-based staff practices vary widely according to scientific disciplines, many research units already publish job offers internationally.

Future actions planned from AMU's part concerning recruitment includes the **internationalization of all recruitment** processes through Euraxess, by the provision of **vacant positions in English.**

In addition, the situation regarding **recruitments' selection criteria** should be improved. Currently, selection criteria tend to focus on 'traditional' academic criteria such as research publications when criteria such as skills and experience in teaching, valorisation/ dissemination of research, open science practices, and mobility experience should be key.

Furthermore, standardization to enhance transparency of the recruitment processes while maintaining the flexibility of the research units that should not be burdened with excessive constraints in this field is also included in the future steps to be made by AMU.

AMU prioritizes HR questions and quality of life as central points of their policies mainly organised by Vice Rector for Human Resources and Estate and Vice Rector for Campus Life, Quality of Work Life, and Workplace Safety.

In general, AMU could benefit from innovation on research assessment and, as the rest of the CIVIS Alliance members, pushes on internationalization of vacancies to attract external talent and enhance transparency on the recruitment process. All in all, AMU supports OTM-R, enforces gender balance policies in terms of training and committees' composition and advocates for running tests at a smaller scale regarding feedback and training in order to set a course plan.

Mobility

AMU has a solid program dedicated to training through mobility, at intersectoral, international and interdisciplinary level. Intersectoral mobility is fundamentally based on partnership frameworks with the private sector that foster swaps of scientific staff between the universities, businesses and industries. Open Labs, CISAM initiative, European projects, and specialised calls for proposals to reinforce collaboration with the non-academia sectors are also part of this program.

International mobility is exercised through junior and senior researchers' outgoing and incoming mobilities, e.g., visiting professor program, attractiveness chairs (Chaires d'Excellence, A*Midex), joint Ph.D. supervision and European and residency programs. Internal funds dedicated to these types of mobility are a strong asset in AMU's strategy.

For interdisciplinary mobility, AMU has interdisciplinary institutes that foster calls for proposals, new synergies, and other initiatives such as evaluation systems for interdisciplinary project results.

More information and visibility for mobility as well as emphasizing a broader spectrum of skills and experience will be included in AMU's future policies. Further efforts will aim at enhancing researcher's employment as these may lack from the necessary visibility. In this line, the new LPR law ("Loi de Programmation de la Recherche") will allow promoting more professorships positions at universities for priority hiring.

Training and Career Development

The training scheme available for researchers is extensive and it incorporates specific research training such as ethics, sustainable development, tools for research and new methodologies, and funding courses. Further transferable skills are offered as well, such as communication, IT, and management. The Staff Development School ("Ecole des Talents"), which is currently under development, aims at strengthening AMU's training program while providing researchers with more offers. It is also worth mentioning that AMU's training offer includes training on fighting sexual violence targeting the research units' administrative managers, and training on LGBTI-phobia.

Different experimentation programmes that aim to strengthen the training offered to researchers are also in place. These programmes as the Chaires of Excellence for young researchers of A*Midex (AMU's foundation), the DOC2AMU (COFUND programme) for Ph.D. students, the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

Staff Development School ("Ecole des Talents"). It should be noted that A*Midex calls for projects to support researchers are also established.

However, AMU's training offer still has a few blind spots. For instance, Ph.D. supervisors are not provided with pedagogical training, the training of research support staff needs to be improved when it comes to supporting incoming international researchers, internationalization should be broadened (e.g., linguistic skills, expertise on housing, banks, insurance, visa, etc.) and researchers should receive training in order to develop their management and soft skills. In the future, AMU aims at strengthening access to the trainings offered seeing as contract-based Ph.D. students theoretically have access to AMU's training plan but in practice this is not always the case.

On the career aspects, national legislation, rules on researcher careers, poor availability of regulation documents in English and lack of guidance in the recognition of mobility are still hindering a more extensive program within AMU.

AMU offers a mentorship system for ERC candidates, who are supported and advised by AMU's former ERC laureates. This system is currently being expanded to other European calls for projects dedicated to Research and Innovation, also as a mean to enhance networking opportunities for our laboratories.

Additionally, AMU has established a 'Pépinière d'Excellence' call for projects that targets young researchers who have never obtained significant funding to conduct a research project.

At this point, it should be noted that the different measures in place at AMU are considered good practices that could be the focus for further transfer of knowledge among the universities.

Working Conditions

Flexible working conditions (time, place, organization) ensure an appropriate work-life balance for researchers, who all (including doctoral students and Protisvalor-recruited staff) have access to AMU's social policy as well as to social security cover.

Researchers' remuneration follows the law, which helps with transparency but renders the university to a lower competitive level in comparison to other countries. The salary difference between researchers hired on external funds and researchers hired by the University is still high and it is present in all CIVIS universities.

Diversity policies in AMU are recognisable and the university has implemented numerous actions to raise awareness on discrimination. Calls for proposals towards handicap Ph.D. candidates open every year. Different experimentation programmes are being conducted within AMU, which enable diversity such as the Chaires of Excellence for young researchers DOC2AMU (COFUND programme) for Ph.D. students, and the Staff Development School ("Ecole des Talents").

NKUA

Table 23. Current practices implemented by NKUA in regard to OTM-R, Mobility and training opportunities

	Working Conditions	*Mobility*	*Training & Career Development*	*Future Steps*
NKUA	• Well-established network of faculty members • Career development sessions (organised on request) • Has a Special Account for Research Grants and a Unit for Attracting Funds • Limited autonomy from the governmental structures, • 2 main types Contracts • Remuneration often depends on the kind of contract received and not on salary grids. • Strategies for equality Benefits • Social rights linked to Greek national legislation • Some policies target at facilitating work-life balance • Nurseries, telework, sabbatical leave and flexi-time for full-time faculty members. Recruitment & OTM-R	• European programs (Horizon 2020 & Erasmus+) • Bilateral agreements • Partnerships with national and international universities • Cooperation with local government, business, companies Intersectoral mobility • 15 centres of Excellence • A dedicated Centre of Research, Innovation and Entrepreneurship, which incorporates a Technology Transfer Office, a Businesses accelerator • Core facilities Interdisciplinary mobility • 15 centres of Excellence • No specific units or policies	• No centralised training and career development program. • Courses, workshops and seminars for research ethics, data mining, education • The courses are not specifically targeting researchers,	Career development • Develop a more centralised and specialised program addressed to researchers. • Provide guidance on researchers' career path, rights and procedures of the university • Make tools available to researchers *for improved career perspectives* HR • Develop an HR strategy for researchers • Establish policies on gender equality • Develop a strong gender plan for HEUR calls for proposals Recruitment & OTM-R • Reinforce the training on OTM-R to its HR departments, • Establish a communication strategy to attract foreign researchers

• Recruitment policies are dependent on national legislation. • Monitoring committee • Implementation of OTM-R based strategies • A quality control system that is administered by designated staff. • Reports for all stages of the recruitment process HR • No HR strategy for researchers • Lack of resources and structures to monitor working conditions at institutional level.	actively encouraging it Virtual mobility • Collaborative platform • Online platform addressed to all its community and general public, • Video lectures		• Insert English as a tool for internationalisation.

Recruitment policies

NKUA has a committee that monitors policy, internal guides and rules for recruitment and makes vacancies available to the public. Therefore, it implements **open, transparent and merit-based strategies**. Furthermore, the university established a quality control system that is administered by designated staff. For monitoring purposes, NKUA implements reports for all stages of the recruitment process. Nonetheless, the university could i. reinforce the training on OTM-R policies to its HR departments, ii. strengthen its communication strategy to attract foreign researchers and iii. provide guidance on researchers' career path, rights and procedures of the university, also looking at English, as a tool for internationalisation. Even though currently NKUA doesn't have an established **HR strategy** for researchers, it's in their future plan seeing as developing one would in fact help to achieve even better working conditions.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

Mobility

NKUA heavily relies on European programs, such as Horizon 2020 and Erasmus+, as well as, on bilateral agreements and partnerships with national and international universities. It should be noted, that NKUA's 15 **centres of Excellence and core facilities** offer great **opportunities** regarding **triple-I activities** as well as **training**. Through the aforementioned Excellence Centres interdisciplinarity is well achieved, although there is not a specific unit or policies actively encouraging it. Regarding virtual mobility NKUA has a **collaborative platform** that is used to support horizontal actions within the university, furthermore they have an online platform available to the community and general public that offers open video lectures.

Training and Career Development

Courses, workshops and seminars for **research ethics** and data mining, as well as educational modules and **career development sessions** are still taught but these might not be frequent and only organised on request. The courses do not specifically target researchers, but a broader scheme to support this sector is being developed. A **future action** is to make certain tools available to researchers in order to develop career objectives, a mentorship program or joint training initiatives taping on pedagogic skills for researchers.

Working Conditions

Concerning working conditions, NKUA faces **limited autonomy** due to the governmental structures, the lack of resources and the structure set to monitor these conditions at institutional level. The contracts in NKUA are divided between those co-funded by national or European funds or the Greek Ministry of Education and those hired at an institutional level through specific research programs. Hence, remuneration often depends on the kind of contract received and not on salary grids. The researchers do enjoy the social rights linked to Greek national legislation and some policies targeted at facilitating work-life balance (e.g. nurseries, telework, sabbatical leave and flexi-time for full-time faculty members). As for diversity, NKUA has been implementing many positive strategies and actions that aim at **gender equality** and raising the awareness of the academic community on issues of equality (e.g. research programs on gender, data and studies on Horizontal and Vertical Separation phenomena and the Glass Roof, Accessibility Unit, etc.). All in all, NKUA has good working conditions, although having an HR strategy for researchers would in fact help to enhance these conditions.

UB

Table 24. Current practices implemented by UB in regard to OTM-R, Mobility and training opportunities

	Working Conditions	Mobility	Training & Career Development	Future Steps
UB	Benefits • Researchers benefit from some fiscal facilities. • A flexible approach regarding the working office hours for researchers and national programs • Internal funding Recruitment & OTM-R • The recruitment for teaching and research positions is carried out through public competition • Posts on Euraxess, ANCS jobs, and national media. • Processes conducted in compliance with the national legislation • Adopted and implemented the Code of ethics and conduct. • 3 offices for ethical aspects: • No guidelines for young researchers regarding OTM-R • No data repository	• Erasmus+ mobilities • Active bilateral agreements with higher education institutions, • No information sessions on international mobility opportunities	Training • Erasmus+ mobilities for teaching and training, • Training-related actions (workshops, summer schools) organised by CARFIA and other departments Career Development • In-house programs to professionally stimulate young researchers (programmes offered by ICUB). • Career counselling services for undergraduates and M.A. students	• Establish a policy for the development of the teaching and research career. • Extend career counselling for academic staff (teaching and research). • Develop systematic information sessions on international mobility opportunities. • Improve training activities (both in number and type) • Compile a catalogue of transferable skills training • Joint development of training and career development offer.

	• No have a centralized feedback mechanism **HR** • Has not yet implemented HRS4R.

Recruitment policies

UB announces their research positions (temporary, for the duration of specific grants) and vacancies on Euraxess, ANCS jobs (a Romanian job market portal for research), and national media. The selection and recruitment processes are conducted in compliance with the national regulations and legislation, the provisions of ethical, transparent and diversity policies. They have adopted and implemented the Code of ethics and conduct and have 3 offices for ethical aspects:

1. Ethics Committee,
2. Research Ethics Committee,
3. Center for Action, Resources, Training for Academic Integrity of the University of Bucharest (CARFIA).

Training-related actions (workshops, summer schools, etc) are regularly organised by CARFIA and other departments of the UB. Nonetheless, there is no official **guideline for young researchers** to raise awareness / understanding of the OTM-R principles.

Mobility

UB has active bilateral agreements with higher education institutions, thus creating a favourable framework for stimulating the mobility of staff and students. However, there are no systematic information sessions on **international mobility opportunities**.

Training and Career Development

In terms of training and career development, UB has a moderate but strong offer, seeing as it supports the development of young researchers' career and strongly relies on Erasmus+ mobilities for **teaching and training**, which are actively encouraged. Improving training activities (both in number and type) and compiling a catalogue of transferable skills training requires further development. In these two regards, UB could benefit from the resources of the CIVIS Alliance and the joint development of training and career development offers.

It should be noted that UB offers internal funding (through its departments and ICUB) to support the professional development of doctoral candidates and postdoctoral researchers through grants dedicated to research activities. Career counselling services are provided for undergraduates and M.A. students. UB has not yet extended this practice to all categories of academic staff (teaching and research).

Working conditions

Concerning **working conditions,** at the national level, researchers benefit from some fiscal facilities. UB has a flexible approach regarding the working office hours for researchers and national programs. It also offers internal funding (through its departments and ICUB) to support the professional development of doctoral candidates and postdoctoral researchers through grants dedicated to research activities.

ULB

Table 25. Current practices implemented by ULB in regard to OTM-R, Mobility and training opportunities

	Working Conditions	*Mobility*	*Training & Career Development*	*Future steps*
ULB	- Proactive policy intended to limit the instability of externally funded employment - Management Committee for senior researchers - HR Excellence Award - Gender equality policy - Work-life balance policies - Offers published on EURAXESS Jobs. Benefits - Social security, - Official salary scales seniority rules, - Pension, - Access to facilities and services for staff (hospital, mental health support, day-nursery, restaurants, sports halls, etc.) - Belgian legislation on flexibility - Social funds (maternity & Solidarity Fund) - Sabbatical leave is possible for academic staff and senior research staff.	- External funds for mobility of researchers - Joint Ph.D. supervision - Research groups - Partnerships - Welcome Desk Intersectoral mobility - Not extremely popular - Moderately decentralised due to individual grants run by the departments in some cases. Interdisciplinary mobility - 8 interdisciplinary institutes - Future steps: interdisciplinary training or virtual exchanges with other universities. Virtual mobility - Virtual platform	- Centralised program dedicated to researchers - Working mentorship program (DANA program) - Peer support workshops - Career development resources and tools	- Increase visibility of the career development tools - Increase awareness for engaging researchers in setting a career development plan. - Increase collaboration with non-academic partners (to improve the training offered) - Plans to improve the Welcome events - Plans to improve the awareness regarding the ULB policy on EURAXESS Jobs, etc. - Develop an e-recruitment tool

Recruitment & OTM-R	
•The recruitment procedure was revised •Guidelines for the recruitment of researchers on external funding were also developed. •Regulations are clear and in line with OTM-R principles, •OTM-R policies are not always known by University research staff and by applicants.	

Recruitment policies

With regards to the recruitment and selection procedure, ULB disseminates and provides qualitative information to applicants (prior to the selection) and to the newly hired staff. All research jobs/fellowship offers have to be published on **EURAXESS Jobs**.

The recruitment procedure for the academic staff and the assistants (working part-time on both doctoral research and teaching), who are paid by the University budget, was entirely revised, incorporating the content of the application file, the steps of the procedure (ranking and short-listing, interview, public lecture, etc), the composition and the appointment of the selection committee, the feedback given to the applicant at each step of the recruitment/selection process, the appeals, etc. Guidelines for the recruitment of researchers on external funding were also developed.

Even though regulations are clear and in line with **OTM-R principles**, they are not always known by the University’s research staff or by the applicants. In the next few years, ULB will work on the development of an e-recruitment tool in order to lower the administrative burden for applicants and to improve the information regarding the applicants and university staff.

Mobility

The University heavily relies on **external funds for mobility** of researchers, but also invest in its own programs to set up short mobility for incoming and outgoing researchers, including a visiting professors’ program and a solidarity fund. The rest is based on joint Ph.D. supervision, research groups, as well as partnerships with other universities. As for intersectoral mobility, the program depends on researchers themselves and their interest in embarking on a private sector experience, hence, the program itself is not extremely popular and is moderately decentralised due to individual grants run, in some cases, by the departments. Also, researchers tend to favour academia or non-oriented research, relegating private sector in most cases to a second option. Concerning **virtual and interdisciplinary mobility**, ULB has a virtual platform and eight interdisciplinary institutes, although these two types of mobility could be enhanced either by **interdisciplinary training** or virtual exchanges with other universities.

The university provides information and support through its **Welcome Desk**, which hosts welcome days for researchers, helps them with administrative paperwork and accommodation and pairs Ph.D. candidates recently arrived in Belgium with senior Ph.D. students.

Training and Career Development

During the benchmarking period, many of ULB assets have been identified, in particular, in the **training and career development** section due to a centralised program dedicated to researchers and a working mentorship program that no university has implemented so far, the DANA program. This action goes hand in hand with peer support workshops and career development resources and tools provided by the university, to better support researchers in their own self-assessment of career objectives. Both, the program and the tools that asses career development are two potentially promising future actions as they could be implemented in every Alliance member.

Working Conditions

All ULB researchers enjoy the rights and benefits applicable to their status, such as social security (including grant holders), official salary scales and seniority rules, pension, access to facilities and services for staff (hospital, mental health support, day-nursery, restaurants, sports halls, etc.). Moreover, Belgian legislation on flexibility is applicable to members of research staff covered by said legislation (part-time, parental leave, etc). On top of this, ULB has developed **social funds**, such as the maternity fund and a Solidarity Fund for academics in risk. Newly hired academic staff are now offered an installation allowance and partial release of teaching. Sabbatical leave is possible for academic staff and senior research staff. ULB has a proactive policy intended to limit the instability of employment for researchers who depend on external funding in the form of a **Management Committee for senior researchers** on external funding (CGPFE) which is in charge of the follow-up of end-of-contract administrative procedures for senior researchers.

UAM

Table 26. Current practices implemented by UAM in regard to OTM-R, Mobility and training opportunities

	Working Conditions	*Mobility*	*Training & Career Development*	*Future steps*
UAM	HR Excellence Award. Policies • Remuneration follows national, regional legislations and collective agreements • Accessibility program and numerous initiatives for gender policies Benefits • Ramon y Cajal and Beatriz Galindo programs to stabilise researchers' employment contracts. • Social security rights and benefits • Nurseries, a school, initiatives for children Recruitment & OTM-R • Based on internal and external regulations • Vacancies/calls are internationally communicated via Euraxess and mass media • e-recruitment tools use	• Cohesive centralised program for mobility. • Welcome Desk • Relying on externals funds such as Erasmus +, MSCA national funds Intersectoral Mobility • Centralised program International Mobility • Joint double degrees and mobility partnerships Interdisciplinarity Mobility • Research groups	Training • Cohesive program for training • Transferable skills training (teaching methodologies and digital competences) • Issues its own training certificates • Digital platform Career Development • Research promotion program • InnoUAM talks • Courses for networking, work integration, CV writing etc	• Improve indicators to asses quality control on OTM-R policies • Gather information on whether the most suitable candidates apply • Development of a mentorship program • Adding specific research training (research data management, intellectual property or ethics)

Recruitment policies

On **recruitment** policies, UAM has a good system based on internal and external regulations that are publicly available, hence, providing transparency and accountability. The application process is also effortless thanks to the e-recruitment tools used, even though some improvements can be made.

Mobility

The mobility field is in general terms moderate, relying on externals funds such as Erasmus +, MSCA national funds, joint double degrees and mobility partnerships to foster international collaborations and projects. The university has set up its own Research promotion program through which researchers can be informed of new funding opportunities and calls for proposals, can receive personalised advice and support with applications as well as other administrative processes.

The **Welcome Desk** from UAM also reinforces the latter, although the management of visas and residence permits are still a burden due to the Spanish system. The University also foster interdisciplinarity via its research groups.

As for intersectoral mobility, the centralised program is heavily based on encouraging business research projects, calls for proposals that prioritize **young female researchers** and experimental development of projects. It is worth mentioning the InnoUAM talks that disseminate technologies and scientific capabilities of researchers from UAM to companies.

Training and Career Development

In the field of career development and training it is possible to mention the extensive offer on transferable skills, specifically in **teaching methodologies and digital competences** available in the catalogue. UAM issues its own certificates. In general, UAM could benefit from offering specific research training, for example, on research data management, intellectual property or ethics. Availability of the courses has proved to be efficient thanks to the digital platform. The career development program is however slightly less strong. Future actions include the **development of a mentorship program** or a more individualized type of coaching in combination with other tools and resources for researchers regarding career development. UAM, in the context of the HRS4R, aims at creating platforms or specific tools regarding individual career development plans. In fact, a good practise has been recognised in this field: the **guide for research career**, which offers information on the professional option on the Spanish research landscape.

Working Conditions

UAM researchers enjoy full social security rights and benefits. Some other social funds based on the commitment of the university to make the research environment better have been created, such as nurseries, a school, as well as other initiatives for children also available on campus. Moreover, UAM has a good **accessibility program** and numerous initiatives that address inclusion and gender policies. Remuneration follows national and regional legislations as well as collective agreements, however, there is not much flexibility and only few performance incentive tools exist. The university also offers other advantages to such as the Ramon y Cajal and Beatriz Galindo programs **that stabilise researchers' employment contracts**.

SUR

Table 27. Current practices implemented by SUR in regard to OTM-R, Mobility and training opportunities

	Working Conditions	*Mobility*	*Training & Career Development*	*Future steps*
SUR	Policies • Based on national regulations and social advantages. • Remuneration in accordance with national legislation • Code of Ethics: which defines the rules of conduct and rejects discrimination Benefits • Health insurance, parental leave, invalidity, insurances and family allowances. • Access to part-time, teleworking, smart working, nurseries, sabbaticals, psychological and nutrition counselling Recruitment & OTM-R • Internal regulations • Transparent and accountable • The vacancies are publicly available • Notifications and individual feedback/ individual reports are available	External funds or co-funds to promote mobility Intersectoral mobility • Transfer agreements, framework contracts, scientific agreements International mobility • Many running international research programs • Based on bilateral agreements/partnerships, external funds • Excellence programs. • Research office International office. Interdisciplinary mobility • No funding programmes • Promotes initiatives at enhancing it virtual mobility • Exercised only within the university campus	Trainings • Continuous training of administrative staff • Training on professional integration or fundraising • Virtual platform with an extensive training offers (virtual seminars, skills development trainings, open lectures, etc.) • Transferable skills training (ethics, technology transfer, patents, teaching and research management.) • Workshops on innovative teaching, exam design, IT platforms, etc. Career Development No support programmes	• Working on a gender equality plan • Development of virtual mobility. • Implementation of a centralised monitoring program for career development

Recruitment policies

SUR has internal regulations, illustrating OTM-R policies, published on its website. There are several documents, in Italian and some in English, detailing the recruitment of different types of researchers, including Ph.D. candidates and research fellows, which provides **transparency and accountability**. The vacancies are publicly available and aim at attracting foreign talent and underrepresented groups.

Furthermore, SUR has a committee that performs an overall comparative assessment, based on the evaluation of each candidate. Remuneration occurs in accordance with national legislation, but it results from sectoral bargaining agreements. Additional committees evaluate candidates based on the merit criteria defined in the call description. On top of the committees, SUR has a person in charge of the procedure to verify and guarantee that all criteria are satisfied.

Mobility

SUR has many running international research programs, both addressing outgoing and incoming researchers. The university provides external funds or co-funds to promote mobility through programs such as MSCA or calls for proposals such as CIVIS3i.

Regarding International mobility, SUR has many running international research programs based on bilateral agreements/partnerships, external funds such as Erasmus +, visiting professors' program, joint Ph.D. and **Excellence programs**. **Excellence programs** are in place to prevent the brain drain by retaining high quality researchers. This is in line with the CIVIS objectives that are set to provide further opportunities for researchers in terms of job stability and available funds. Regarding International mobility enhancement, SUR could benefit from a Welcome office through which all the administration, housing and practical information on career paths could be centralised Concerning virtual mobility, there are no programs organised in collaboration with other universities. In this regard, the CIVIS Alliance is supporting the development of virtual mobility.

Concerning virtual mobility, there are no programs are organised in collaboration with other universities. In this regard, the CIVIS Alliance is supporting the development of virtual mobility.

Training and Career Development

SUR offers transferable skills training (**ethics, technology transfer, patents, teaching and research** management.) It has good teaching courses and workshops that may be of interest for other universities. These are compulsory for incoming teachers and guarantee the continue development of **competence and knowledge for researchers.** Among the courses there are workshops on innovative teaching, exam design, IT platforms, etc. However, there is no support program for career perspectives for students although all Ph.D. candidates and researchers are backed by their supervisors.

Even though the university has **good mobility and training programs**, more steps could be taken to enhance career development support and to develop tools and resources in order to achieve a more individualised assistance regarding the support offered to students and researchers. The implementation of a **centralised monitoring program in general, as well as the utilization of** tools and other resources for supervisors, newly hired staff and researchers regarding career development could also be enhanced.

Working Conditions

The researchers at SUR enjoy good working conditions based on national regulations and social advantages. Whether researchers are hired by internal or external funds with a full professor or a fix-term researcher contract, Italian law covers **health insurance, parental leave, invalidity, insurances and family allowances**. In addition to this, researchers are offered advantages such as to part-time work, teleworking, smart working, nurseries, sabbaticals and psychological and nutrition counselling. The remuneration is, in general, in accordance with national legislation, but it results from sectoral bargaining agreements. This, as is the case in many CIVIS universities, can be both a measure that provides transparency but that also renders the university to a less competitive level when compared to other universities or the private sector.

Similar to other CIVIS universities, SUR could also benefit from the transfer of knowledge brought by Module 4.

SU

Table 28. Current practices implemented by SU in regard to OTM-R, Mobility and training opportunities

	Working Conditions	*Mobility*	*Training & Career Development*	*Future steps*
SU	Policies • Contracts are both permanent and fixed-term • Work-life balance policies are present • Gender equality policies • Remuneration depends on market factors • No salary grids to rely on (salaries in the private sector remain more competitive.) • Conduct work environment surveys • No HR Excellence Award but want to start the process Benefits • National legislation and collective agreements within the Swedish social security: pension, health care, paternity leave, etc. • Sabbatical leave, flexi-time, health promotion hour or free working hour) Recruitment & OTM-R • Clear principles regarding recruitment • National legislation stipulates that only objective factors, (merit and skill) should be	• Decentralised policies • Exchanges of personnel (adjunts) between academia and industry • Support by regional associations Intersectoral mobility • Innovative environments • Exchanges with private companies (i.e. Eriksson or IBM) • Industrial Ph.D., joint research projects and other external degree projects • Individual research grants from various funding agencies • National and international collaborative projects with academia and industry • Specific bilateral projects with industry International mobility • No centralized program bilateral agreements,	• Decentralised policies regarding training • Workshops on research, assessment and evaluation or models of educational development • Transferable skills trainings • Trainings developed by the Student office through the career portal	• Stronger plan targeting career development based on the HR strategy for researchers • Development of a centralised Welcome desk that can provide standard information and support

considered in the appointment of posts within the public administration. • e-recruitment tool HR • HR departments offer support with the administration of the contracts • Facilitates housing and visa information, • Language courses are provided locally • Support for researcher's partners.	alliances with other universities, • Joint Ph.D. programs, etc. • A scholarship foundation • The office for Research, Engagement and Innovation Services (REIS) Interdisciplinary mobility • one initiative to support cross-faculty research (in faculty of Human Sciences. • some new strategies could be implemented by creating joint training initiatives Virtual mobility • Online teaching, • Courses on how to teach online, what platforms to use, strategies, etc.	

Recruitment policies

In this regard, SU as an equal opportunity university has clear principles regarding **recruitment**, which are set to be open and fully transparent. For example, equal distribution means that at least 40 % of any given group (i.e. within any category of employees at the workplace) should be of either sex. If one sex is under-represented, active measures can be taken in the recruitment process. To this account, national legislation stipulates that only objective factors, such as **merit and skill**, should be taken into account in the appointment of posts within the public administration. In addition, SU uses experts to validate offers and on top of that, it is supported by an **e-recruitment tool** that helps to keep the administrative burden to the minimum. This e-recruitment tool saves candidates data for next time and advertises jobs in a linear manner. SU plans on starting the relevant process in order to obtain the HR Excellence Award.

Mobility

SU researchers' general mobility is based on a blend between external funds and internal funds, the latter, mostly co-financed. Examples of intersectoral collaboration can be found in innovative environments and in exchanges with private companies like Eriksson or IBM, industrial Ph.D., joint research projects and other external degree projects. These range from individual research grants from various funding agencies to national and international collaborative projects with academia and industry, and specific bilateral projects with industry. In fact, **exchanges of personnel** (adjunts) between academia and industry, both in and out, are common at SU. Likewise, SU researchers can be employed outside the university through **secondments**.

Regarding international mobility, there is no centralized program but multiple actions and activities at different levels: bilateral agreements, alliances with other universities, cotutelle, joint Ph.D. programs, etc. SU counts with an extensive record of funding in the framework of research projects financed by external bodies.

In regard to **virtual mobility,** SU has some activities dedicated to online teaching, there are courses on how to teach online, what platforms to use, strategies, etc On interdisciplinarity mobility just one initiative was found in the Human Science department.

The office for Research Engagement and Innovation Services (REIS) within the University can be considered a structure that helps to identify sources of funding for intersectional mobility, informs researchers about the calls and provides support to research proposals.

Training and Career Development

In the realm of **training**, decentralization is present once again, although there is an exception regarding the **teaching training** scheme which is mandatory for newly hired staff. Workshops on research students learning, assessment and evaluation or models of educational development are some of the courses offered. These enable participants to fulfil the formal requirements for tenured employment as lecturers or professors at the university. This tops up the **transferable skills** offer, mostly gathered in the clusters of research ethics, intellectual property, business entrepreneurship and career development organized through two different central offices and on the request of the different departments. The latter is directly linked with a **weak career development program** based solely on trainings developed by the Student Office through the career portal and advise offered by the faculties' HR department level.

Working Conditions

HR at each department provides support regarding the administration of the contracts. However, all contact with the migration agency, social security and other such agencies is done individually. SU facilitates housing and visa information, but language courses as well as support for researcher's partners are provided locally.

SU applies **national legislation** and **collective agreements** in their full length in order to make available all advantages within the Swedish social security (e.g. pension, health care, paternity

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

leave, etc.). Matters of certain character and dignity are negotiated with Trade Unions. Contracts are both permanent and fixed-term. Some policies regarding **work-life balance** such as sabbatical leave for Head of departments, flexi-time, health promotion hour or free working hours for researchers to plan as they deem necessary are also offered.

Remuneration depends on market factors such as supply and demand, hence, there are no salary grids to rely on as these are set on individual basis. In any case, salaries in the **private sector remain more competitive**. Stockholm University regularly conducts work environment surveys to see if there are any measures that need to be taken in order to create a safe and all-inclusive work environment.

UT

Table 29. Current practices implemented by UT in regard to OTM-R, Mobility and training opportunities

	Working Conditions	***Mobility***	***Training & Career Development***	***Future steps***
UT	Policies • Abides to the German labour law and collective agreements of the federal states • Different types of contracts Benefits • German social security (health insurance, parental allowance, unemployment benefits, maternity leave etc.) • Work-life balance policies at UT (maternity leave, working hours, telework, part-time regulation, sabbatical leaves, etc.) • Mentorship program for women on research • Welcome days. • Local interest groups (Staff Council and the Equal Opportunity Officer, the Disabled person representative) • Inclusion policies • Workshops, projects, trainings, etc. • Policies for recruitment in line with OTM-R • Published checklist for recruitment and	• Program mainly financed by external, national and international funds. • Decentralised development of activities • Different units are involved in the running of all the initiatives, • Welcome Desk Intersectoral mobility • Collaborations with industry, • Staff exchanges with cooperative doctoral networks initiative: Industry on Campus International mobility • Intramural funding formats within the Excellence Strategy • Programs (Horizon Fellows, MSCA or Erasmus +) • Mobility partnerships, international networks Interdisciplinary mobility • Core Facilities, • Collaborative Research Centres, • Training groups • Doctoral networks	Training • Research and transferable skills courses • Certificates from the doctoral school are granted if certain courses are followed. Career Development • Orientation for early-stage researchers • Platform to support career perspectives • Teaching courses for Ph.D. candidates/post-docs/tutors/mentors. • Individual career development plans, • Feedback for Ph.D. candidates	• Further centralisation • More inclusion initiatives • e-recruitment tool

selection process of academics & HR • Established HRS4R, • HR staff is regularly trained and informed about legal requirements • Members of the Equality Office/ staff involved in recruitment are also trained in the area of OTM-R	• Clusters of excellence. • Internal start-up funding

UT provides a guide detailing all regulations for fixed-term contracts which also offers orientation for researchers (also available in English).

Recruitment

Since the university is aligned with the HRS4R, the policies for recruitment are in compliance with the open, transparent and merit-based procedures set to assess researchers. Guidelines for appointment and selection processes are published and widely communicated within UT. In addition, the HR department has published a comprehensive checklist for the recruitment and selection processes of academics. The staff in the HR department is **regularly trained** and informed about legal requirements. Members of the Equality Office as well as Faculty and Research staff involved in recruitment and selections processes are also trained in the area of OTM-R. The burden of administrative procedures for applications will be limited thanks to the development of an **e-recruitment tool.** External candidates and underrepresented groups are encouraged to apply and are informed of the outcomes of the selection process, although no particular feedback is given as it is restricted by law.

Mobility

Regarding the field of mobility, UT has a good program mainly financed by external, national and international funds. The development of the activities is decentralised. Thus, different units are involved in the running of all the initiatives, although a Welcome Desk is available to provide assistance in finding accommodation and to also support networking events.

Concerning intersectoral mobility, they have established an initiative known as Industry on Campus. This initiative aims at integrating motivated scientists from the industry into the university research activities. This is considered a good practice that can also be implemented by the rest of the CIVIS universities in order to strengthen business-academia relations.

In regard to international mobility, intramural funding formats within the Excellence Strategy are pursued by UT. This supports international exchanges for both incoming and outgoing researchers. In addition, they have a program specifically addressed to Horizon Fellows, which aims at keeping high level researchers at UT.

Interdisciplinary mobility is also actively fostered thanks to Core Facilities, the establishment of **Collaborative Research Centres**, training groups and **doctoral networks** or clusters of excellence. There is also an internal start-up funding dedicated to accelerating interdisciplinary initiatives regarding applications for larger national funding institutions.

Virtual mobility was improved during the COVID-19 pandemic, especially on courses related to teaching methodologies. However, joint virtual programs with other universities are not present.

Training & Career Development

- **Research and transferable skills** courses in ethics, bibliography, open access, publishing, data preparation, communication, languages and entrepreneurship as well as literature management workshops, are available
- **Orientation for early-stage researchers** is moderately provided through a wide range of workshops: job hunting, interview preparation, fundraising, etc.
- Counselling sessions, individual career development plans, feedback for Ph.D. candidates and a mentorship program for women on research are accessible at UT.

There is also a platform designed to indicate professional paths, inform about career steps and ease the planning of a doctoral degree.

Working Conditions

The university abides by the German labour law and the collective agreements of the federal states. The researchers are hired under different types of contracts depending on project duration and level of seniority. However, all of them enjoy German social security, which includes, health insurance, parental allowance, unemployment benefits, maternity leave etc. The latter is also part of the many work-life balance policies at UT, among which there are flexible working hours, telework, part-time regulation, sabbatical leaves, etc. A guide detailing all regulations for fixed-term contracts which also offers orientation for researchers (also available in English) as well as Welcome days are provided for further support. In addition, there are local interest groups, such as the Staff Council and the **Equal Opportunity Officer**, the Disabled person representative that help protect researchers' interests. There are inclusion policies at UT but perhaps more initiatives towards this field could be implemented (e.g. workshops, projects, trainings, etc.).

3.4.2 Legal & governance barriers, national context & external funding

Obstacles and barriers were identified in every CIVIS Alliance member during the benchmarking phase. It is worth mentioning that each barrier affects the individual universities in a different degree.

There is a decentralisation/fragmentation obstacle quite difficult to overcome, as it depends on the culture of the university, that affects mobility and training. This fact impacts faculties/departments asymmetrically, depending on their level of engagement, activity and resources devoted to training or mobility. A centralised training program would: 1. help define a strategy, 2. ensure a quality standard, and 3. broaden the scope of the program. Regarding the International mobility program, the decentralisation experienced is at a lesser degree compared to the Intersectoral mobility program. However, some of the CIVIS Alliance Members rely on the departments/faculty for mobility support, thus providing homogenous support and services becomes more difficult.

A very common identified obstacle is 'Brain Drain'. The **brain drain issue** is identified as an existing source of **concern** by **all members** of the Alliance mainly due to the **lack of funds**, **resources** and **opportunities** for researchers. Even though national legislation is in place to avert this issue in some cases, the less competitive level of national financing for research positions is clear. Additionally, cultural issues are also considered an obstacle. Some actions that could be developed by the universities to combat this issue include knowledge transfer regarding Excellence calls for proposal or other types of incentives that could help to retain researchers, including better work-life balance policies or networking through the creation of further mobility opportunities within the Alliance.

Another common barrier was identified in the field of **contracts**. Specifically, the **paucity of professorships** as a result of national funds shortage that can directly affect the amount of positions available in universities. National funding is also lower in competitiveness if compared to funds coming from the private sector or international public organizations such as the European Commission, as mentioned above. Researchers, therefore, tend to accept more advantageous offers elsewhere which contributes in intensifying the brain drain issue.

Last but not least, not many programs have been identified within the partners regarding orientation of early-stage researchers. Some universities propose training on funding and PhD buddy programs, but few, if any, have career support or further job opportunities to encourage the pursuit of a research career after the PhD thesis.

Barriers particular to each university:

AMU:

Limited actions can take place for fixed-terms researchers and lecturer-researchers regarding recruitment and career development due to the very centralised French legal system. For this reason, alternative solutions were identified such as recruitments occurring through AMU's dedicated spin-off company – Protisvalor.

- Even though Euraxess is utilized, the delivery of support services and administrative procedures for research staff remains burdensome, especially for incoming international Ph.D. students and researchers. Researchers in particular, struggle with French administrative processes with the support they receive varying across research units, according to their different stages of internationalization.

- Similar to a variety of other CIVIS universities, remuneration occurs according to national law, which helps with transparency but on the other hand decreases the university's competitive level in comparison to other countries. National legislation creates obstacles also in regard to career perspectives. Limited availability of regulation documents in English and the lack of guidance in the recognition of mobility are still hindering increased mobility programmes in AMU. The training of research support staff needs to improve concerning skills like linguistic skills, expertise on housing, banks, insurance, visa, etc.

NKUA:

- There is no direct Institutional support and framework of collaboration. Instead, the mobility is initiated and maintained by the already established collaborations of faculty members
- Funding opportunities and research programs cover 40% of the operational expenses of NKUA seeing as governmental support is not sufficient.
- Bureaucracy. Slow adaptation to new legislations.
- There are no resources for a career development program specifically dedicated to researchers.
- Limited autonomy from the governmental structures (Ministry of Education).
- Does not have an established HRS4R yet (under development).

UB:

- Work and residence permits are difficult to obtain for non-Europeans. The equivalence of diplomas is also burdensome.
- Due to the large dependence of funding on national grants, the salary level is lower (by comparison with the Western European countries).
- Hiring researchers with salaries is more difficult than offering fellowships.
- Lack of a common campus and the administrative fragmentation of the university represent barriers in developing better working conditions. For example, office space is limited, and shared use of equipment is not well developed. As a consequence, cooperation among researchers from different disciplines is also reduced.
- Only a small part of the administration is able to communicate in English and foreign researchers need to have their personal documents legally translated in order to finalize the employment procedure.
- There are no official **guidelines for young researchers** to raise awareness/ understanding of the OTM-R principles. Other obstacles that were identified during the activities of Module 4 is that a robust system for backing and storing research data in a secure way (data repository) is missing as well. In addition, a quite significant barrier is the fact that the process of selection does not have a centralized **feedback mechanism** (for example, there are no statistics on complaints). Lastly, the UB has not yet implemented HRS4R.

ULB:

- Delays in getting the job and residence permits.
- Shortage and highly expensive hosting offers in Brussels.

- Difficulty in finding funds for post- docs and Ph.D. thesis
- **Brain drain issue** (it produces more high-quality researchers who accept positions outside ULB than welcomes excellent researchers from outside for permanent positions).
- Lack of resources to provide individual career monitoring to all researchers and professors.
- No room for negotiations due to national legislation on pension and salaries.

UAM:

- Issues like the management of visas and residence permits are considered a barrier and occur mostly due to the national system.
- Lack of general resources hampers the development of further career support.
- Low competitiveness in terms of salary and no funding growth in research careers, thus limited positions available.
- Lack of salary flexibility, and few performance incentives tools.

SU:

- A barrier identified regarding mobility was that SU implements **decentralised policies, meaning that** the mobility and training programs mostly run through its faculties and departments which composes difficulties in the search of joint actions, initiatives and programs.
- Absence of information concerning activities carried out by the departments, makes difficult to know existing needs.
- Burdensome relocation process due to the amount of authorities involved (Migration agency/tax agency/Social security) when relocating from a third country.
- Not competitive in terms of salary to attract and retain researchers.

UT:

- Challenges often lie in the different responsibilities of the local authorities that have to be involved in a change of location. In some cases, dependencies between work or residence permits and the population registered are also difficult.
- Housing market.
- The training and career development scheme targets a very broad group, thus to a certain extend the training has stayed on a generalized level.

SUR:

- Italy is not competitive enough in terms of salary for attracting or retaining excellent researchers. Some researchers decide to leave because of salary levels.
- Bureaucratic level documents are in Italian and thus not entirely accessible.
- Information and visibility of initiatives and programs is not effective due to the size of the university and its location all around the city and the outskirts.

Table 30. Legal & governance barriers identified in the framework of Module 4 and suggestions to overcome them

	Barriers	Suggestions
Legal, Governance, Documentation	**Documentation** • Documentation providing information on recruitment procedures is mainly available in the national language of the country • Language barrier in the administration level (foreign researchers need to legally translate their personal documents in order to finalize the employment procedure) **Regulations** • National restrictions on the salary flexibility of public officials • Limited autonomy from the governmental structures (Ministry of Education). • Paucity of professorships due to national regulation or shortage of national funds • Complex procedures conditioned by national and international legislation • Non-permanent recruitment encouraged by the government.	**Regulations** • Programs should be specifically addressed to fill in the gaps in the national funding schemes

Barriers were also identified at an organizations/managerial level. These barriers and any potential recommendations to overcome them can be seen at the table below.

Table 31. Organizational barriers identified in the framework of Module 4 and suggestions to overcome them

	Barriers	**Suggestions**
Organisation	• Lack of a common campus • Some universities lack a data repository **Policies/ Structures** • Decentralization increases difficulty in monitoring initiatives • Lack of central policy at an institutional level. • Lack of structure/unit to monitor working conditions at institutional level **Coordination** • Lack of coordination between existing initiatives and activities • Absence of information concerning activities carried out by the departments • Often activities do not effectively reach all structures • The administrative fragmentation of the university (also affects working conditions)	**Policies/ Structures** • Centralised Welcome Centre/Desk • Campus office department, a set of basic documentation via online tutorials • Centralized administrative support • Set up an impartial, external listening unit to report potential management problems and prevent psycho-social risks (in some countries this is within the law) • Less time-consuming process (the time required for each body to make a decision means that the procedures take a long time)

3.5 *Suggestions & Future Steps*

Several suggestions were made in order to overcome the identified barriers. In particular, following the suggestions made regarding the barriers identified in the field of 'training' could lead in enhanced networking opportunities bringing together students and potential future employers and providing support in the search of external funding.

The suggestions made concerning 'career perspectives' would allow researchers to express their needs, which in turn helps universities to continuously improve the training offered.

The recommendations provided about 'Visibility and Awareness' would enhance the visibility of support services for Ph.D. candidates

An overview of the barriers identified at each aspect included in Module 4 as well as any suggestions made in order to overcome and an overline of the current situation followed at these fields is provided at the tables below.

Table 32.Barriers, Suggestions and Good Practices identified in the framework of Module 4, in the field of HR & resources

	Barriers	**Suggestions**	**Current Situation**
HR and resources	HR - Lack of HRS4R - Lack of experienced staff (regarding such focused issues) - The delivery of support services and administrative procedures for research staff (complex & burdensome) - Work overloads on research support services, particularly during project finalisation, or in the event of sick or maternity leave of a team member Resources - Lack of resources (governmental funding is not sufficient to cover every managerial need) - Budget for advertisement. - Few performance incentives tools Finance - Poor funding resulting from national calls - Lack of financial resources to improve working conditions (from government): funds, research incentives	HR - Develop a Staff Development School to provide advanced skills-based trainings to research staff in management positions. - Training to improve HR support services & to harmonise HR strategy - Ph.D. recognition at staff level other than academic - Welcome days for Ph.D. and for newly hired staff (in person &virtual). - Centralised welcoming unit for international researchers, helping with visa matters, work permits, residence permits, accommodation, non-EU citizens' rights, Insurance, taxes, etc. (before and after arrival) plus Extensive Welcome Guide - HRS4R, to keep the administrative burden to a minimum, monitoring of most suitable candidates' indicators, training of staff - The CIVIS partners could agree to introduce the **CIVIS**	HR - Individual follow up from HR/Research department of small groups of researchers to test training programs - Management Committee for staff funded on external funds Resources - Nurseries - Support for researcher partners - Extension on the requirements of research experience up to a year for calls for proposals to avoid discriminating researchers that spend time on maternity leave - International Research Card (allows access to several facilities and services on campus and offers discounts) Finance - The researcher-lectures salary shall increase of about 90 euros a month over the next seven years (new Law LPR)

		logo in their templates or Euraxess posts to brand and promote CIVIS • Transfer of knowledge on research incentives either financial or HR • Dedicated structure within the HR department to deal with foreign staff member issues might be really helpful in attracting more specialised personnel. Resources • Provide more resources for a career support office (aim: coordinating activities from all departments and promotion of other activities • HR department-developed document detailing regulations for fixed-term contracts which offers orientation for researchers alongside the original guidelines and specifies points which remained open in the guidelines Finance • More funds to provide enhanced positions • More funds to provide better conditions (more permanent jobs/more opportunities after end of contract)	

Table 33. Barriers, Suggestions and Good Practices identified in the framework of Module 4, in the field of trainings.

	Barriers	**Suggestions**	**Current situation**
Training	• Courses mostly in university's main language • Absence of a centrally training (not necessarily a barrier but could create difficulties)	• Open courses for improved training and mobility • Increase collaboration with non-academic partners to ensure that skills training meets the demands in societal sectors. • Ph.D. alumni network for developing active training practices • Collaborations with socio-economic partners • Offer training on Research data • Develop a long-term strategy for the various training and support initiatives to increase Continuing Professional Development opportunities for the researchers and to combat the fragmentation	• Training for administrative staff on management and accounting of research projects • Ad hoc training on European projects • Continuous training for grant writing and applications (focused on particular calls and discipline) • Soft skill training for Ph.D. candidates and researchers • Tools and training to improve international funding identification • English-language training courses

Table 34. Barriers, Suggestions and Good Practices identified in the framework of Module 4, in the field of career perspectives & recruitment.

	Barriers	**Suggestions**	**Current Situations**
Career perspectives & Recruitment	Career Development • There is no evaluation/appraisal system for academics • No career development program set specially dedicated to researchers • Paucity of professorships • Few performance incentives tools PhD/ Post-doc/Fellows • No existing post-doctoral status at the national scale • Postdocs and Ph.D. candidates' recruitments proceed without a selection committee • Opportunities for fellows at the end of their contract Recruitment • Gap in attracting foreign researchers • No room for negotiation regarding pension and salary • Brain Drain • Lack of a unified policy that allows for the implementation of the OTM-R strategies • Involvement of many people in the practical steps of the recruitment process which may influence interviews • International researchers' settlement in the administrative point (visa) • Recruitment committees often not appropriate (e.g. gender balance)	Career Development • A career development scheme should be adapted to the needs of the university • Increase awareness among early career researchers regarding the preparation of their career development. • Develop centralised support to career development Recruitment • Propose a welcome path to all newcomers: systematic meeting with the HR • Welcome package • Update/ establish Recruitment practices with a broader spectrum of skills and experience • For monitoring process and the optimal candidate selection certain indicators could be developed through HR departments (i.e. acceptance rates of offers by the first- ranked candidates.) • Assessment centre for deeper evaluation in appointment phase • More transparency to avoid the possibility of job appointments for a particular person • Greater diversity (i.e. gender) • More transparency in the recruitment process	Career Development • Individual career follow-up would be a good practice, but it is difficult due to: 1. Researchers' community size 2. Costs 3. Resources • Extension of contract for Ph.D. candidates equal to the time spend on maternity leave • More opportunities for researchers-Lecturers to access professorship positions. • Survey of former Ph.D. candidates to review career development Recruitment • Templates for job applications • Recruitment measures for gender equality • Welcome Centre based on the EURAXESS network • Key forms and documents in the recruitment procedure in English • Programs including specific support for attracting people with disabilities. • Internal University regulations for clear and specific recruiting procedures • Ethical code that indicates gender balance and non-

• Unpredictability of the national calls in some countries • Translations of personal documents, legalizations, work permits, recognition and equivalence of study diplomas • Losing women after the thesis or during the post-doc period (i.e. due to mobility, pressure to publish, family etc) • Opportunities to open new positions are directly linked to public funding (currently: decreased budget)	• More professors’ positions and number of lecturers promoted to professors • Encouraging researchers to apply for external funding creating committees to assess end of contracts or bursary schemes for early-stage researchers and internal calls for proposal, among others	discrimination as fundamental principles • A welcome “package” provided to new research personnel to support their research start (10k euros) • Acceptance rate of offers by the first-ranked candidate • Good research job opportunities

Table 35. Barriers, Suggestions and Good Practices identified in the framework of Module 4, in the field of working conditions.

Working Conditions	• Lack of cooperation among researchers from different disciplines Facilities • Limited office space • Limited joint use of equipment	Contracts • Extension on contract conditions. • Ph.D. candidates – extension based on sick leave and parental leave. • Facilitate flexible work practices, (i.e. remote working) • Partial release from teaching for newly appointed academic staff Qualifications • Specific time to develop accreditation to direct research Support/Benefits • Sabbatical leave • Co-financing projects with the EU • The opportunity for Ph.D. candidates to have 20% for administrative and teaching tasks on the department • Foster team-building initiatives. Facilities • More office spaces and places to facilitate cooperation and stimulate multidisciplinary work	Support/Benefits • Further resources for incoming researchers • Sabbatical programs for researchers. • Establishing cross-disciplinary Education and Research schools. • Strict salary scales for seniority and job description • Clear welcome package on the rights of the recruited researcher • Transparency portal providing information on university activities and organisation • The health and security at work of all staff regularly surveyed by dedicated National Committees • Support centre against harassment for students, including Ph.D. candidates

Table 36. Barriers, Suggestions and Good Practices identified in the framework of Module 4, in the field of mobility, visibility & mentorship.

	Barriers	**Suggestions**	**Current Situations**
Mobility	• Intersectoral mobility can occur at department/faculty level thus, the central offices act as a support mechanism • National legislation creates mobility issues	• Interdisciplinarity mobility needs to be improved in some fields such as Health and Law • Wider range of research programs financed on internal funds to encourage the exchange of experience and mobility of researchers. • Increase the number of tools available to researchers to travel • Facilities to host researchers • Greater degree of independency from national legislation and governmental policies	• Interdisciplinary research groups • International Researchers' Guide • Centralised office to manage all aspects of mobility grants • Housing office to support accommodation • Co-financing of mobility projects and set up of own mobility initiatives/fellowships. • Training on mobility opportunities • Research collaboration and networking for academics, Ph.D. candidates and post-docs • Joint Ph.D. programs, European Doctorate label
Visibility and awareness	• Limited visibility of existing initiatives among researchers. • Researchers do not know where to go for advice on their career path.	• Develop a one- stop shop that would gather all services in charge of Ph.D.-related processes • Awareness raising on the value of mobility • Better information supply on the research environment for each university	
Mentorship & peer support		• Experiment a mentorship system for researchers • Create a service support group, that on a voluntary basis, will be the temporary replacement of people on sick leave or maternity leave • The Ph.D. Buddy Programme aims to bring together doctoral	• Mentoring program for newly hired academic staff • Mentorship system for ERC candidates • Mentoring project for female researchers • Peer writing course. A peer-to-peer dynamic to keep track of their writing

		candidates who are at the beginning of their doctoral studies with more experienced doctoral candidates	• Intervision session for Ph.D. supervisors, peer support on monthly basis. • Support provided to Ph.D. candidates and first year researcher-Lectures to develop their teaching skills.

5 Module 5: Mainstreaming of Open Science

5.1 Objectives

The key objective of Module 5 within the RIS4CIVIS project is to implement a common CIVIS approach to Open Science (OS) that would also support research by utilizing relevant systems and actions. This approach in addition to the common Policy on OS, would include OS trainings for researchers, administrative staff, libraries and technical staff. The work of the module builds on the activities of the CIVIS OS TF developed in 2020, including early surveys of OS practices and policies in CIVIS universities, but moves further from these results, which are now integrated in the general R&I strategy discussed in the RIS4CIVIS project. The two teams working on OS practices within CIVIS, the CIVIS OS TF and the Module 5 team in RIS4CIVIS, engage complementary actions, and future work of the two will be carefully divided in order to avoid any possible overlap.

During the Benchmarking phase, the aim of the module was to get a comprehensive mapping of the OS landscape in the CIVIS Alliance.

5.2 Overview

In the framework of **WP1 (Benchmarking),** the Module 5 team mapped the Open Science policies and practices implemented in the CIVIS Alliance.

The work carried out during the Benchmarking phase of Module 5 lead to the production of 2 reports (a shorter and a longer version of the same report) as well as the development of the updated OS Survey.

5.3 Work Carried out

Similar to the other Modules, in the framework of Module 5 the work carried out included several meetings between the team members, exchange of emails, work on documents shared by module members on a cloud platform, and the distribution of a questionnaire.

5.3.1 Meetings.

In the framework of WP1, the following meetings took place:

Table 37. Dates & deadlines regarding Module 5.

Deadlines	***Key points***
27/01/2021	1. The introduction of the Benchmarking phase of the RIS4CIVIS (WP1–months 1-6: January-June 2021). 2. Address the relation between the CIVIS Task Force (TF) OS and Module 5 in the RIS4CIVIS project. 3. Based on the documents collected and produced in the CIVIS TF OS, agree upon a new survey of OS policies and practices for the CIVIS Alliance. 4. Discussion of the proposed timeline. 5. General discussion: M5 in the RIS4CIVIS project and the workflow of M5.
24/03/2021	1. A follow up discussion on the relation between the OS TF in CIVIS and the Module 5 OS team in RIS4CIVIS. 2. First update of last year surveys on OS in CIVIS (a merged version of the two surveys was produced as the version 3.1 of the document). 3. Discuss new questions to add in a new questionnaire.
22/04/2021	1. Discussion of the work done in the Module, including the workflow and a deadline for the analysis of the questionnaire. 2. Discussion of the two calls on OS (HORIZON-WIDERA-2021-ERA-01-41: Global cooperation on FAIR data policy and practice and HORIZON-WIDERA-2021-ERA-01-45: Support to changes in the assessment of research and researchers to reward the practice of open science).
21/05/2021	1. Report summary of the survey data collection. 2. Agree upon the report of the benchmarking phase of the Module.
June	Findings report

5.3.2 Questionnaire

The questionnaire on Open Science (OS) policies and practices maps 83 aspects of OS in CIVIS, along the following general categories: Cultural Change, Future of Scholarly Communication, Research Data Management (RDM), European Open Science Cloud (EOSC), Education & Skills; Recognition & Rewards, Next Generation Metrics, Research Integrity, Citizen Science, Open Education.

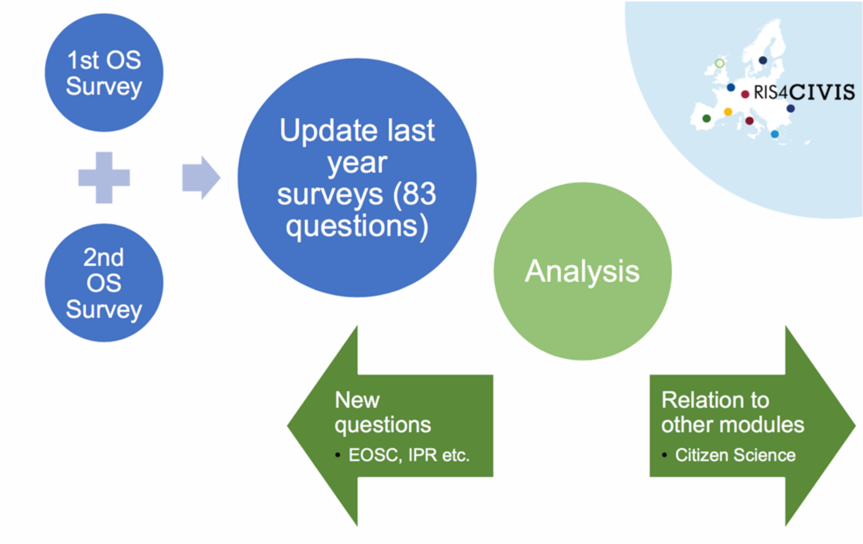

1st OS Survey
2nd OS Survey
Update last year surveys (83 questions)
Analysis
RIS4CIVIS
New questions
• EOSC, IPR etc.
Relation to other modules
• Citizen Science

Figure 29. Questionnaire on Open Science (OS)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

5.4 Outcomes & Deliverables

5.4.1 Mapping of existing initiatives & best practices within CIVIS regarding R&I strategies

5.4.1.1 Cultural Change.

Regarding the policies and practised implemented by the CIVIS Alliance Members in regard to Open Science/ Open Access, the following conclusions were drawn:

(1) Open Science (OS).

- **3 out of the 8 universities (NKUA, AMU, UAM)** have **established OS practises** that lead to the implementation of a programme of cultural change, OS advocacy and training, and an OS communication strategy.
- **3 out of the 8 universities (ULB, SU, UT**), implement **OS cultural change**, advocacy and communication strategy either in a **partial manner** (limited to OA and RDM) or **fragmented manner** (varying according to faculties/ departments).

It is noteworthy, that the situation at UAM is of interest because an OS leader has been established to implement OS practices.

(2) Open Access (OA).

- **5 out of the 8 universities (ULB, AMU, SU, UT, SUR)** have an **OA policy.**
- **3 out of the 8 universities (NKUA, UAM, UB)** are **planning on developing an OA policy** which encourages OA but does not mandate it.

All the universities of the CIVIS Alliance either have a formal policy on OA or are currently developing one, which shows a commitment towards OA.

(3) Open Education (OE).

Most universities offer open courses and other OER resources:

- ULB, AMU: MOOCs
- UAM: EDX courses
- UT, NKUA: home repositories

5.4.1.2 Future of Scholarly Communication.

According to the EU policies for OS, the main feature on which the future of scholarly communication will be based is OA for all published research outputs. The EU OS Policy Platform recommends that each Member State develops OA policies. The main recommendations for OA are:

- Trusted repositories should be developed that adhere to the FAIR data principles (Findable, Accessible, Interoperable and Reusable data).
- These repositories should provide long-term archiving functionalities and clear, consistent and easily accessible and machine-readable information.
- The authors must make their data and software appearing in their OA publications FAIR.
- In addition, all publications must include a statement of FAIR compliance for the source data underpinning their claims and the license for its reuse.
- Finally, full text and data mining rights of the published outputs must be ensured.

The two main directions for implementing OA policies are:

(a) the Golden Open Access route, which supports the publication of research results to existing scientific journals under Open Access terms and hence covering the Author Publication/Processing Charges (APC) when requested by the publisher and

(b) the Green Open Access route, which supports the self-deposit to open access and trusted repositories. (Source: *EU Open Science Policy Platform final report* "Progress on Open Science: Towards a Shared Research Knowledge System" April 2020).

(1) Supporting Open Access.

- **6 out of the 8 universities (ULB, UT, NKUA, SU, UAM, SUR) promote and encourage the use of ORCID IDs** for their researchers & support new forms of scholarly publishing such as: OpenEdition, Peer Community In, SciPost, Erudit, Open Library of Humanities, Knowledge Unlatched, ArXiv, SCOAP3.
- **3 out of the 8 universities (SU, AUM, UT) financially support** particular **OS projects** such as: DOAJ – Directory of Open Access Journals, DOAB – Directory of Open Access Books, Fair Open Access Alliance, Sherpa Romeo.
- **4 out of the 8 universities (ULB, SU, AMU, UT)** are **members of OA supporting associations**, like LIBER (Academic and Research Library association) or SPARC Europe.

(2) Institutional publishing initiatives and repositories.

- **5 out of the 8 universities (ULB, SU, AMU, UT, NKUA)** have **University Press** or platforms for **supporting OA-publishing** (like OJS for journals or OMP for monographs) and have written/ approved OA policies regarding the publishing platform.
- **Almost every university** has **institutional repositories for publications.**
- About **half of the universities** have a **research data repository**

The table below provides an overview of the current practices implemented by the CIVIS Alliance members in regard to open access/ open science policies, scholarly communication and training opportunities.

(3) Author Publication/Processing Charges (APC) and transformative agreements.

- Most of the universities have monitoring systems for APC (or soon to-be-developed).
- Five out of the 8 universities have transformative agreements (SU has 24 transformative agreements)
- Only SU has chosen the golden route to OA by paying APCs for their researchers.

5.4.1.3 Research Data Management (RDM) & European Open Science Cloud (EOSC)

Data Management Plans (DMPs) describe "the data management life cycle for the data to be collected, processed and/or generated" (source: https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross- cutting-issues/open-access-data-management/data-management_en.htm) and represent an essential tool for the implementation of research projects at every university. In regard to the CIVIS Alliance members:

- 4 out of 8 CIVIS universities have data repositories (a fact that should be follow-up in the further)
- Metadata collection: All of the universities (with the exception of NKUA) do not focus on the metadata component of the research results.
- In general, research data is not currently part of the research assessment in the CIVIS universities, and this is worth monitoring for future developments, especially in relation to the improvement of institutional repositories.

The European Open Science Cloud (EOSC) represents a rather new initiative for hosting and processing research data at a European level. Concerning this:

- Most of the CIVIS universities are not currently implementing EOSC related actions
- Out of the 8 CIVIS universities (SU, UAM, and NKUA) are already part of the EOSC.

5.4.1.4 Education and Skills.

- 5 out of the 8 universities (ULB, AMU, UT, SU, UAM) offer training regarding OS/OA and one (1) university (NKUA) currently develops some training opportunities
- In none of the Universities the trainings are mandatory.
- There is no monitoring of the outcome/ impact of the trainings.

Additional information and examples regarding some of the trainings currently offered on OS are as follows:

- **ULB:** Open Access, Research Data Management, Fair Data, Data Management Plans
- **AMU:** Open Access, Data Management Plans, Research Data Management
- **UT:** Open Access, Research Data Management, Research Integrity
- **NKUA:** preparation phase of training for researchers (field related)

5.4.1.5 Recognition and Rewards & Next Generation Metrics

Regarding Recognition and Rewards as well as Next Generation Metrics, there are no developments at CIVIS Universities.

5.4.1.6 Research Integrity

- Concerning communication and policies, there are different and heterogenous degrees of development among CIVIS universities.
- In some CIVIS universities there are boards or codes about research integrity, but they're mainly linked with ethics rather than with OS.
- In general, reproducible research and innovation (RRI) is not present in CIVIS universities' research agenda.

5.4.1.7 Citizen Science

A more thorough mapping of Citizen Science practices in CIVIS was done in the framework of Module 6 of RIS4CIVIS.

However, in the framework of Module 5, the following were identified:

- No formal policy regarding citizen science in any of the universities of the CIVIS alliance.
- No dedicated structure/ unit in any of the universities.
- Most universities develop citizen science related actions even though none is explicitly labelled citizen science (ULB involved in Usquare project).
- Heterogeneity of the organizations: scientific culture unit (AMU), university museum (UT), library (NKUA), vice rectors (SUR).
- A need to increase visibility and raise awareness

Table 38. Current practices in the CIVIS Alliance members regarding open access/ open science policies, scholarly communication and training opportunities.

	Open Policies/Actions	*Communication & Dissemination*	*Education and Skills*
AMU	• OS policy at the national level • Institutional OS policy • HRS4R certification (including OS section in their action plan) • Signed Berlin declaration in favour of OA or a national equivalent • Established OA policy • A copyright law enables researchers to retain the right to disseminate their articles on OA. • Offers MOOCs	• Has University Press or platforms • Members of OA supporting associations • Financially support OS projects	Offer training in some of OS dimensions

NKUA	• OS policy at the national level • Institutional OS policy (under development) • Signed Berlin declaration in favour of OA or a national equivalent • Planning an OS policy which is expected to include OA • Planning an OA mandate • Home repositories	• Has University Press or platforms • Promote and encourage the use of ORCID IDs part of the EOSC.	Training in some of OS dimensions (under development)
UB	• National OS policy is currently in development • Planning an OS strategy		Not available
ULB	• No OS policy • Academic authority or advisor dealing with OS issues but not devoted to OS • Planning an OS policy which is expected to include OA • Have HRS4R certification (including OS section in their action plan) • Signed Berlin declaration in favour of OA or a national equivalent • Established OA policy • Institutional OA mandate • Legislation mandating OA to publications presenting research funded by public funding. • A copyright law enables researchers to retain the right to disseminate their articles on OA. • Offers MOOCs	• Has University Press or platforms • Promote and encourage the use of ORCID IDs • Members of OA supporting associations	Offer training in some of OS dimensions
UAM	• Appointed a senior OS leader and created an OS unit in the library • HRS4R certification (including OS section in their action plan) • Signed Berlin declaration in favour of OA or a national equivalent • Planning an OS policy which is expected to include OA • Legislation mandating OA to publications presenting research funded by public funding (not yet integrated) • EDX courses	Promote and encourage the use of ORCID IDs part of the EOSC.	Offer training in some of OS dimensions

SUR	• Planning an OS strategy • HRS4R certification (including OS section in their action plan) • Signed Berlin declaration in favour of OA or a national equivalent • Established OA policy • Planning a fund for OA publication fees (APC) • Legislation mandating OA to publications presenting research funded by public funding.	Promote and encourage the use of ORCID IDs	Not available
SU	• No OS policy • Academic authority or advisor dealing with OS issues but not devoted to OS • Signed Berlin declaration in favour of OA or a national equivalent • Established OA policy • Fund for OA publication fees (APC) • Golden route to OA by paying APCs for their researchers.	• Has University Press or platforms • Promote and encourage the use of ORCID IDs • Members of OA supporting associations • Financially support OS projects • 24 transformative agreements • Part of the EOSC.	Offer training in some of OS dimensions
UT	• No OS policy • Academic authority or advisor dealing with OS issues but not devoted to OS • Established OA policy • Fund for OA publication fees (APC) • Home repositories	• Has University Press or platforms • Promote and encourage the use of ORCID IDs • Members of OA supporting associations financially support OS projects	Offer training in some of OS dimensions

5.4.2 *Legal & governance barriers, national context & external funding*

All in all, the work carried out in the framework of Module 5 yielded no significant barriers regarding the mapping of open science activities within the Alliance. Certain recommendations to enhance current practices were made as can be seen below.

5.5 Suggestions & Future Steps

The table below shows the strengths identified as part of the Module 5 aspects in the CIVIS Alliance as well as proposed recommendations to enhance the current situation.

Table 39. Strengths and recommendations identified in the framework of several Module 5 aspects.

	Strengths	Recommendations
Cultural Change	**OA:** Established/to-be-developed formal policy on OS and OA	Participate in international initiatives that promote OA and OS, like LIBER, SPARC Europe. **OA:** • Nominate a leader to monitor an OS strategy at the university level • Identify a unit dedicated to implement the OS/OA strategy
Future of Scholarly Communication	The majority of CIVIS members support new forms of scholarly publishing	• Installation/participation to platforms that provide OA e-publishing services. These services should cover the whole life cycle of scholarly communication • Develop repositories, based on FAIR data principles, to host the publications and manage the research data of their communities. • Set up 1. an initiative for the training of the research communities of CIVIS members in the domain of FAIR data and 2. an initiative for defining the requirements for metadata interoperability and for research data management workflows among the CIVIS members. • Financially support particular organizations that publish OA resources (e.g. Arxiv, SciPost, Peer Community In, etc.)
Research Data Management (RDM)	• A range of services for researchers on the management, preservation and dissemination of research data are provided • Dedicated FTE/ work related to RDM in CIVIS	• Further investigation of the details of the identified strengths (services for researchers) and exploring the possibility to connect training opportunities at CIVIS level (i.e., build on already existing expertise and provide a unified RDM system that could encourage further collaboration between researchers.)

European Open Science Cloud (EOSC).	Three universities are already part of the EOSC.	• Training session/ presentation of the EOSC within the OS group (both the TF OS in CIVIS and the M5 OS in RIS4CIVIS).
Education and Skills	A significant number of trainings are either available or are currently under development.	• Make some courses (or perhaps a sort of overview course) mandatory. • Use the "Open Science Skills visualisation" by LIBER to implement the benchmarking
Research Integrity	• Research integrity is addressed in most CIVIS universities from an ethical perspective. • HRS4R is linked with research integrity.	• Further investigation on how ethics codes/ academic integrity groups relate to OS policies and practices. • The concept of RRI should be clarified and analysed in more detail.
Open Education (OER)	• The OER strategy developed at UT • A system of training and funding in place	Collaborate with the other Modules in order: • To develop OER common resources (i.e. with infrastructures with Module 2), • To expand the communication network of CIVIS (i.e. with Modules 3 and 6), • To promote OS and OER in career development (i.e. with Module 4).
Citizen Science		Create a single-access point of contact in CIVIS universities for Citizen Science (in collaboration with Module 6).
Recognition and Rewards & Next Generation Metrics		• Obtaining HRS4R (those that do not have yet) or developing OS in HRS4R 2nd label (with Module 4) • Establish an award for CIVIS Best Practices in OS. • Common table of indicators to measure OS research activity and scientific production

6 Module 6: Embedding Citizens and society

6.1 Objectives

The objectives of Module 6 are to develop and share common tools, practices, concepts, policies and trainings that open research to citizens and society, increasing the quality and efficacy of:

- **Science Communication**
- **Citizen science**
- **Open innovation**

This Module is strongly linked with: Module 1, Module 3, Module 4 seeing as HRS4R also have a citizen science component and Module 5. In future steps, the work of this Module will also be linked to the CIVIS Open labs which have been successively opened by each of the Alliance's universities since Spring 2020. The role of these Open labs is to connect local and regional stakeholders to students and academic staff in order to address together local challenges.

6.2 Overview

The Module is based on the 3 following aspects: 1. Citizen Science, 2. Science Communication and Open Innovation. This can also be proven by the line the findings/outcomes follow in the next sections.

During the benchmarking phase, the Module 6 team carried out the following activities:

Inventory and analysis of policies implemented in:

- Citizen science
- Open innovation
- Science Communication
- Methodologies for assessing public interest in understanding/accepting research activities

The **expected outcomes** are:

- Inventory of citizen science strategies and identification of the best practices
- Inventory of open innovation practices
- Inventory of citizen engagement/public communication of science strategies and identification of the best practices
- Inventory of outreach strategies to local communities and identification of the best practices
- Inventory of impact assessment method

6.3 Work Carried out

Similar to the work carried out in the previous modules, the steps followed to address the activities of Module 6 includes a variety of meetings and the distribution of a questionnaire.

6.3.1 Meetings

The meetings mostly revolved around the development of the questionnaire and the data collection and analysis.

In particular, 7 meetings took place in the framework of Module 6 (as can be seen below):

Table 40. Dates & deadlines regarding Module 6

Meetings	*Participants*
11/12/2020 ***11/01/2021*** ***28/01/2021*** ***09/03/2021*** ***16/03/2021*** ***13/04/2021*** ***10/05/2021***	• Malin Stenberg de Serves - Stockholm University • Ciro Franco and Andrea Riccio - Sapienza Università di Roma • Elisabeth Baier - Universität Tübingen • Mihnea Dobre - University of Bucharest • Vanessa Gemis - Université libre de Bruxelles • Geladas Nikolaos and Fotini Venetsanou - National and Kapodistrian University of Athens • Delphine Mercier, Isabelle Galvez, Hannah Robin, Alice Novello - Aix-Marseille University • Javier Baena – Universidad Autónoma de Madrid

6.3.2. Questionnaire

The questionnaire was divided into 4 sections that collected information regarding the following aspects:

General Information

-**Citizen science** (infrastructure, systems or policies to enable public participation in science and innovation, as well as ethical aspects of public participation in science)

-**Science communication** (training on the public communication of science, science communication helpdesks, specific public events, and outreach activities)

-**Open innovation** (policies that ensure a balance between commercial and non-commercial exploitation of innovation, as well as methodologies to promote non-commercial exploitation. Change the vision of Universities into the Society)

Similar to approaches followed in other Modules, it was agreed that each university would complete the questionnaire in the best way they seem appropriate. The questionnaire aimed to obtain a general view of civil actors' participation and involvement in University activities. Its focus is on Citizens Science, Science Communication, and Open Innovation in the context of CIVIS-Alliance.

6.4 Outcomes & Deliverables

6.4.1 Mapping of existing initiatives & best practices within CIVIS regarding Citizen Science strategies

6.4.1.1 Citizen Science

Categories of strategies and actions implemented

The Module 6 team identified the following categories of strategies/actions implemented in the framework of citizen science:

- Training the university staff on issues related to Citizen and Science (1)
- Organizing scientific discussions through online forum, social media, blogs, etc. (2)
- Development of a list of potential social partners (3)
- Development and/or availability of general and specialized tools for the collection/analysis/storage of data by citizens (4)
- Training of citizens for their engagement in a research project (5)

The following conclusion drawn regarding the implementation of the aforementioned strategies is that they **significantly differ** from a university to another.

As is presented in the figure below, the two strategies often used are the "Organizing scientific discussions through online forum, social media, blogs, etc." and "Development of a list of potential social partners.", however, only by 3 and 1 universities respectively.

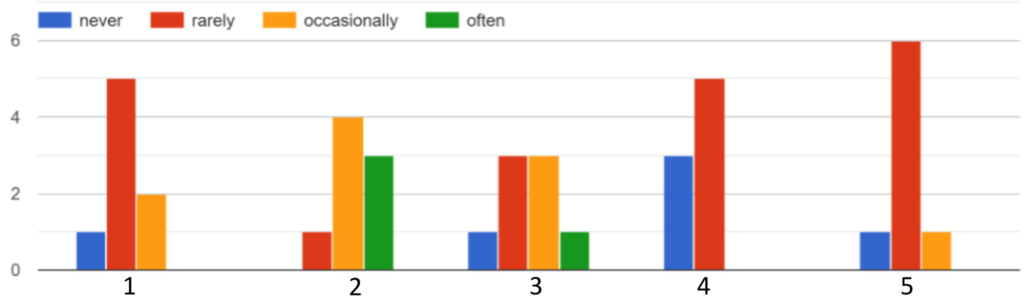


Figure 30. Organizing scientific discussions through online forum, social media, blogs, etc.

Common places dedicated to science communication, citizens science and open innovation.

All the universities affirm to have a **place dedicated to science communication, citizens science and open innovation.** In some cases, the participation is devoted to particular groups (e.g.: specific stakeholders).

Number of Citizens and sort of social categories usually engaged

No "official" estimation of the number of citizens or the types of social categories involved in the initiatives carried out was established.

Geographical scale of citizens involvement (based on a multiple-choice question)

- **7 universities (AMU, NKUA, ULB, UAM, SUR, SU, UT)** affirm '**city**' as the geographical scope of their interventions
- **5 universities (AMU, NKUA, ULB, UAM, UT)** affirm '**district**' as the geographical scope of their interventions
- **4 universities (AMU, ULB, UAM, UT)** affirm **'area'** as the geographical scope of their interventions
- **4 universities (NKUA, ULB, SU, UT)** affirm **'country'** as the geographical scope of their interventions
- **1 couldn't make this calculation (UB)** due to the lack of structure or mechanisms to assess this data

The main sources of funding (based on a multiple-choice question)

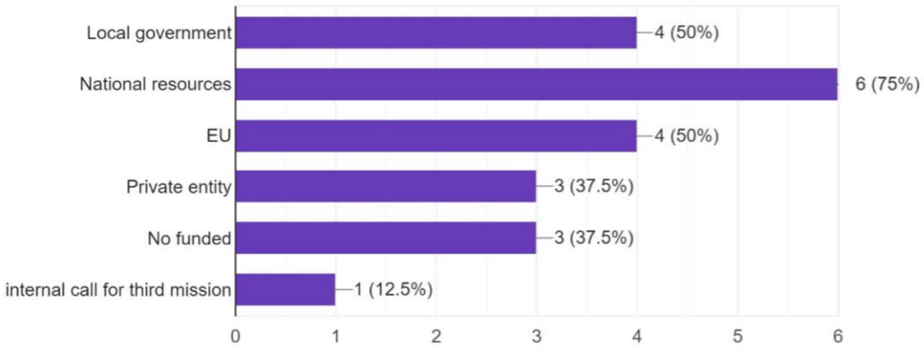


Figure 31. Main sources of funding

- **6 universities (AMU, NKUA, ULB, UAM, SU, UT)** stated **'national resources'** as part of their sources for funding
- **4 universities (AMU, ULB, UAM, UT)** stated **'local government'** as part of their sources for funding
- **4 universities (UB, ULB, SU, UT)** stated **'EU'** as part of their sources for funding
- **3 universities (NKUA, ULB, UAM)** stated **'private entity'** as part of their sources for funding
- **1 university (SUR)** stated '**internal call for third mission**' as part of their sources for funding

Practices implemented during Citizen Science projects

For answering this question, the following categories were agreed upon:

- Project Blog for information, registration and data updating
- Online forums; online (or in-person) discussions
- Strategies boosting citizens' interest
- Feedback on project results provided to citizens who participated
- Open access to publication of the results
- Code of conduct that all participants are aware
- Measures of controlling biases caused by citizens' participation
- Evaluation of the CS projects

The conclusion drawn from the answers provided was that there is a variability of resources at each university. The closest common practice identified is the decision to publish the results in open access format (which is not actually a citizen science action).

Additionally, 6 universities declare lacking of initiatives/spaces to present the results and receive feedback from the citizens who participated in projects.

Social Impact of CS projects

The categories identified in this aspect are the following:

1. Enhance science community interaction
2. Enhance community policy interaction
3. Enhance science-policy interaction
4. Education
5. Behavioural change
6. Enhance evidence

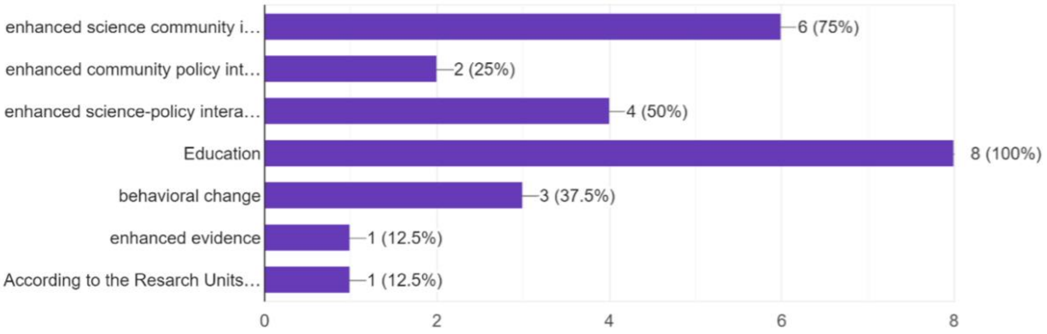


Figure 32. Social Impact of CS projects

- The results showed that CS projects have a significant impact in the **Education** dimension (**all the universities** stated this)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

- **6 universities (NKUA, UB, ULB, UAM, SU, UT)** stated that CS projects enhance **science-community interaction**
- **4 universities (ULB, UAM, SUR, UT)** stated that CS projects enhance **science-policy interaction**
- **2 universities (ULB, SU)** stated that CS projects enhance **community-policy interaction**
- **3 universities (UB, ULB, UAM)** stated that CS projects impact **behavioural change**
- **1 university (ULB)** stated that CS projects **enhance evidence**

Dimension assessed after the conclusion of a project

From the questionnaire, the Module 6 team concluded that the following categories are the most assessed after the end of a CS project:

- Scientific (objectives, data, quality, contribution to scientific knowledge, publications).
- Citizen participation (alignment with the research process, degree of involvement, knowledge acquired. Scientific literacy, behaviour, motivation).
- Social-ecological and economic (active participation, cooperation, synergies-results regarding the social and ecological impact and the possibility of innovation).

More data regarding the number of universities that follow this practice can be seen in the figure below.

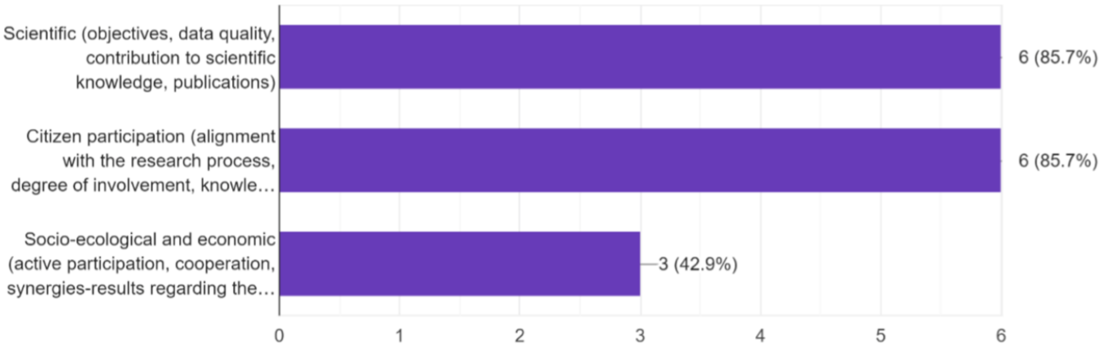


Figure 33. Dimensions most assessed after the end of a CS project.
In particular,

- **6 universities (NKUA, UB, ULB, UAM, SU and UT)** assess the **Scientific category**
- **6 universities (NKUA, UB, ULB, UAM, SU and UT)** assess the **Citizen participation category**
- **3 universities (UB, ULB, UAM)** assess the **socio-ecological & economic category**

More details regarding the current situation in the framework of **Citizen Science** at each university is provided below.

AMU

Categories of strategies and actions implemented:

- 43% of the Research Units (a total of 36 Research Units and one school were surveyed) indicated a lack accessible training on Citizens Science.
- Scientific discussions regarding initiatives for citizen science are either occasional or non-existent.
- ~44% of the Research Units indicated they have lists of potential partners they can collaborate with, in the framework of citizens science projects (mainly Research Units specialized in Social & Human or Economy & Political sciences Units**)**
- 40% of the Research Units indicated a lack of general specialized tools for data collection/ analysis/ storage acquired in the context of citizens science projects.
- 46% of the Research Units indicated a lack training provided to citizens when they engage in a research project.

Common places dedicated to science communication, citizens science and open innovation:

AMU has common places dedicated to science communication. Such spaces, for instance, include:

- The «Ateliers d'AMU» which is dedicated to workshops and is open to the general public and schools.
- The «Cité de l'Innovation et des Savoirs Aix-Marseille» which is also open to general public.
- The Research Units themselves (e.g., welcoming schools, occasional scientific events dedicated to public)
- Local partnerships (e.g., Museums)

Although many different citizens science projects are being conducted by the AMU's research teams, it is worth mentioning that none of the above places are fully dedicated to hosting citizen science activities (where the public actively takes part in research activities). In fact, the way citizens participate to projects greatly vary from a project to another. The Open labs granted by CIVIS may contribute to create new virtual and/or physical spaces where to actively involve citizens.

Level civil participation & Number of Citizens and sort of social categories usually engaged.

The number of participants in each CS action is firmly linked with each project, according to AMU responses, and in several cases difficult to measure.

Geographical scale of citizens involvement.

The geographical involvement is usually at the local and regional scales.

Main sources of funding.

- Local public organizations
- Internal funding dedicated to the Science Dissemination Unit, AMU's research staff: "Bourses aux projets CST", students (FSDIE)

- A*MIDEX, the University Foundation, which encourages science dissemination actions by allocating part of its funding to it, mainly *via* its Institutes.

Social Impact of CS projects.
Education is the area mostly impacted by CS.

Dimension assessed after the conclusion of a project
At the end of a CS project, citizens participation is the dimension potentially most evaluated.

NKUA

Categories of strategies and actions implemented.
NKUA often carries out scientific online discussions.

Common places dedicated to science communication, citizens science and open innovation & Level civil participation.
It has common places dedicated to science communication (open museums, libraries, and gardens) which are open to the general public, and around 30- 500 citizens are usually engaged.

Geographical scale of citizens involvement.
The geographical scale of citizens involvement is at district, city, and country level.

Main source of funding.
The main sources for funding CS projects are national and private.

Social Impact of CS projects.
The aspects mostly affected by CS is science-community interaction and education.

Dimension assessed after the conclusion of a project.
The evaluation of those projects is made by the number of publications in scientific journals and presentations in scientific congresses.

UB

Common places dedicated to science communication, citizens science and open innovation:

1. The Botanical Garden of the University of Bucharest organizes events that are open to the general public.
2. Summer schools that target future students are organized regularly (e.g. "UB Summer University" and "**Măgurele Summer School of Science and Communication")**

Level civil participation & Number of Citizens and sort of social categories usually engaged.
The research community, including students, are engaged in those activities, but there is not a mechanism nor a structure to collect and assess the number of participants or their motivation.

Geographical scale of citizens involvement.
Due to the lack of a mechanism to assess the geographical scale of citizens involvement data, this aspect can't be defined for UB.

Main source of funding.

The main source for CS project funding is the EU.

Social Impact of CS projects.

The aspects which are most impacted by these projects are science-community interaction, education, and behaviour change.

Practices implemented during Citizen Science projects.

The CS practices often carried are open access publication of the results and code of conduct that all participants are aware of.

Dimension assessed after the conclusion of a project:

- The evaluation is focused on scientific, citizen participation and socio-ecological and economic dimensions.
- From a scientific point of view, the assessment is based on the objectives, data quality policy impact, publications and dissemination of policy briefs that.
- The Socio-ecological and economic impact is assessed by the level of active participation, cooperation, and synergies results.
- During the CS follow-up, alignment with the research process, degree of involvement, behaviour, and motivation are taken into consideration.

ULB

Categories of strategies and actions implemented:

- scientific discussions through online forum, social media, and blogs,
- the development of lists of potential social partners.

Common places dedicated to science communication, citizens science and open innovation:

1. FabLabs,
2. Museums,
3. InforSciences activities (e.g. Printemps des Science, activities organized for schools),
4. Université des enfants,
5. Specific initiatives at the faculty level (e.g. The Institute of European studies organises an AGORA for intersectoral dialogue),
6. Media (magazine Esprit Libre, Facebook and other social media).

Level civil participation & Number of Citizens and sort of social categories usually engaged.

The number of citizens engaged depends on the projects.

Geographical scale of citizens involvement.

The geographical scale of citizens involvement is at district, city, area, country levels, depending on the project.

Main source of funding.

The main funding comes from local, national, EU and private entity levels.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

Social Impact of CS projects.

Aspects impacted by CS projects include science-community/ community-policy/ science-policy interactions, education, behaviour change and evidence.

Practices implemented during Citizen Science projects:

- Project blog for information, registration, data uploading
- Online forums and discussions
- Feedback on project results provide to citizens who participated
- Open access publication of the results,
- Evaluation of the CS project.

Dimension assessed after the conclusion of a project.

Seeing as the majority of CS activities are linked with EU-funded projects, the evaluation criteria are set by DG RTD and the evaluation is performed in the following fields: into scientific, citizen participation and socio-ecological and economic.

UAM

Categories of strategies and actions implemented:

- Limited activities regarding **Citizens Science** (only a few initiatives registered)
- Apps were created for data collection regarding the improvement of acquired knowledge and the profile of participants (protecting sensible data).
- Workshops for children are conducted focusing on research topics.

Common places dedicated to science communication, citizens science and open innovation.

Common places dedicate to science communication (a physical location for the scientific communication unit)

Level civil participation & Number of Citizens and sort of social categories usually engaged.

The number of citizens involved is not systematically assessed.

Geographical scale of citizens involvement.

The geographical scale of citizens involvement is at is district, city, and area levels

Main source of funding.

The main funding comes from local government, national resources and private entities.

Social Impact of CS projects.

Aspects impacted by CS projects include science-community and science-policy interactions, education, and behaviour changes.

Practices implemented during Citizen Science projects:

- Open-access platforms (web and social networks)
- Absence of protocols, best practice codes, courses (could influence the limited participation of leaders in relevant initiatives)

Dimension assessed after the conclusion of a project.
The evaluation is focused on scientific, citizen participation and socio-ecological and economic dimensions.

SUR

Categories of strategies and actions implemented:

- The development of lists of potential social partners

Common places dedicated to science communication, citizens science and open innovation.

- A common place in the university dedicated to science communication.
- Saperi&Co, a research centre devoted to cross-fertilization with stakeholders

More in detail, Saperi&Co. connects virtually several labs and competences, but it is also a physical space, located in Sapienza Campus, hosting a fablab, a coworking space, and a training room to foster collaboration within the university and with external stakeholders. (https://web.uniroma1.it/saperi_co/en)

Level civil participation & Number of Citizens and sort of social categories usually engaged.
The number of citizens who participate in CS activities depends on the activities implemented.

Geographical scale of citizens involvement.
The geographical scale of those initiatives is at city level.

Main source of funding.
The main funding comes from an internal call for a third mission. Some of the projects do not receive any funding.

Social Impact of CS projects.
Aspects impacted by CS projects include education and science-policy interaction.

Practices implemented during Citizen Science projects.
The practice most implemented during CS projects are open access publication of the results.

SU

Categories of strategies and actions implemented:

- Organizing scientific discussion through online forums, social media,
- Developing of a list of potential social partners.

These initiatives are carried out occasionally.

Geographical scale of citizens involvement.
The geographical scale of those initiatives is at city and national level.

Main source of funding.
The main funding comes from national and EU sources.

Social Impact of CS projects.

Aspects impacted by CS projects include science-community and community-policy interactions, as well as education.

Practices implemented during Citizen Science projects.

Publication of results in open science journals, and the evaluation of CS projects

Dimension assessed after the conclusion of a project.

The evaluation is focused on scientific, citizen participation dimensions.

UT

Categories of strategies and actions implemented:

1. Organizing scientific discussion through online forums, social media, blogs, etc.,
2. Service Learning, Lectures open to citizens,
3. Involvement of patient organisation and primary schools.

Common places dedicated to science communication, citizens science and open innovation.

- Established common places dedicated to science communication:
  1. Webpage, social media, press, studium generale
  2. University Library
  3. University research days
  4. Museum of the university with alternating exhibitions (science-related)
  5. Magazines (e.g. Attempto Journal)
  6. Newsletters of different institutes/schools.

Level civil participation & Number of Citizens and sort of social categories usually engaged.

The most engaged citizens are students and educators.

Geographical scale of citizens involvement.

The geographical scale of those initiatives is at district, city, area and national levels.

Main source of funding.

The main funding comes from local, national, and EU resources. Some UT initiatives are not funded by any institution/government.

Social Impact of CS projects.

Aspects impacted by CS projects include science-community and science-policy interactions, as well as education.

Practices implemented during Citizen Science projects.

- Occasional practices:
  1. Blog for information, registration, and data uploading
  2. Online forums,
  3. Feedback on project results provided to citizens who participated,
  4. Open access publication of the results

Dimension assessed after the conclusion of a project.

Evaluation occurs at: a scientific dimension (objectives, data quality, contribution to scientific knowledge, publications) and citizen participation (alignment with the research process, degree of involvement, knowledge acquired. Scientific literacy, behaviour, motivation).

6.4.1.2 Science Communication

Science Communication practices

According to responses, the most frequent science communication practices:

- For **6 universities (NKUA, UB, ULB, SUR, SU and UT)** is **"organization of lectures, exhibitions, seminars on campus open to the public"**
- For **6 universities (NKUA, ULB, UAM, SUR, SU and UT)** is **"organizing school visits on campus"**

The conclusion drawn was that there is a variety of actions developed among the universities, representing the work that must be carried out in the **future** in the framework of RIS4CIVIS in order to **harmonized CS initiatives in the eight universities**.

The willingness of scientists to participate in science communication

- **6 universities (AMU, NKUA, ULB, UAM, SUR and SU)** evaluate researchers' willingness to participate in science communication as **good**.
- **1 university (UB)** evaluate researchers' willingness to participate in science communication as **excellent**.
- **1 university (UT)** evaluate researchers' willingness to participate in science communication as **moderate**.

Recognition by the universities on the efforts of their scientists in promoting science communication

Only a few universities have recognitions for science communication effort (e.g. annual awards). One recent change was produced by the Spanish administrations in favour of its recognition by incorporating "sexenieos the transferencia", a recognition obtained by researchers after an official evaluation of these activities.

Frequency of research dedicated to investigating society needs and citizens perception of science

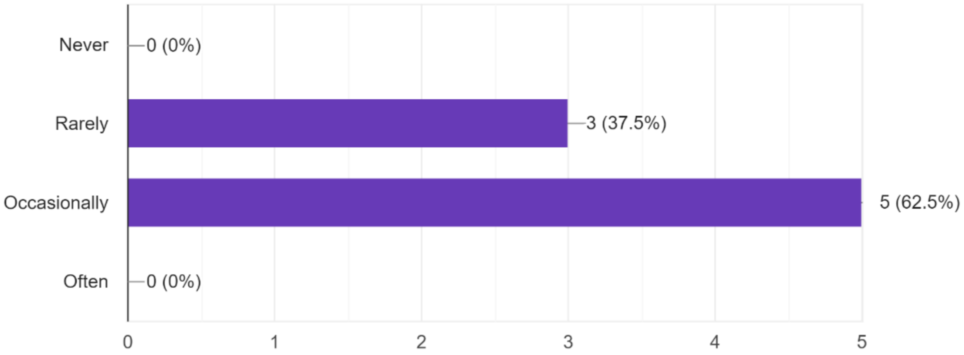


Figure 34. Frequency of research dedicated to investigating society needs and citizens perception of science

- **5 universities (AMU, UB, ULB, UAM, SU) occasionally** carry out research in order to address societal needs
- **3 universities rarely (NKUA, SUR, UT)** carry out research in order to address societal needs

The existence of protocols or procedures focused on social demands

- **4 universities (UB, ULB, UAM, UT)** have **protocols** and procedures that **focus on social demands**

Researchers training in communication skills

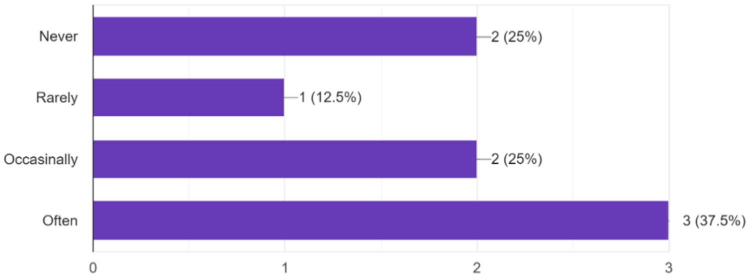


Figure 35. Frequency of training sessions in communication skills

- **3 universities often** hold training sessions regarding communication skills
- **2 universities occasionally** hold training sessions regarding communication skills
- **1 university rarely** holds training sessions regarding communication skills
- **2 universities never** hold training sessions regarding communication skills

Areas of knowledge related to scientific dissemination

- **All universities** confirm **"arts and social science"** as an area of knowledge engaged in scientific dissemination.
- **8 universities (AMU, NKUA, UB, ULB, UAM, SUR, SU, UT)** confirm "**Science**" as an area of knowledge engaged in scientific dissemination.
- **5 universities (AMU, NKUA, ULB, UAM, SUR)** confirm **"technology"** as an area of knowledge engaged in scientific dissemination.
- **2 universities (NKUA, SU)** confirm **"economy"** as an area of knowledge engaged in scientific dissemination.

More details regarding the current situation in the framework of Science Communication at each university is provided below.

AMU

Science Communication practices:

- Organization of school visits on campus
- Posting articles on a blog or an app
- Creating podcasts/videos related to scientific topics
- Organization of lectures, seminars in collaboration with various agencies
- Conducting workshops in schools
- Workshops/events in public places (parks, etc.)

Recognition by the universities on the efforts of its scientists in promoting science communication.

1. Lectures-researchers ("Maîtres de Conférences") benefit from an equivalence system through which the hours they spend into science dissemination are accounted towards their teaching load
2. A specific training certificate can be delivered to PhD students significantly involved in these activities,
3. Contracts "Missions complémentaires" can be set up for PhD students who want to engage themselves in short-term missions,
4. The EJD local programme (EDJ for "Emploi Jeunes Doctorants"), which can fund PhD students' during their thesis, has made it mandatory to perform dissemination/ outreach activities during their doctoral contract.

The willingness of scientists to participate in science communication.

Research participation in science communication is considered good.

The existence of protocols or procedures focused on social demands.

- External media (interface with society) follow specific procedures in order to interview AMU's Rector and Vice-Rectors. For such occasions AMU's Directorate for Communication (DIRCOM) is considered their contact point.

- On the other, requests from schools, Museums, public libraries, or other public entities must be directly addressed to the Scientific Culture Unit (AMU's Directorate for Research and Valorization).

Researchers training in communication skills:

- Training sessions regarding communication skills take place for PhD students, and other researchers, at least once a year.
- Ad-hoc training (of 10 hours or so) is also given in the frame of specific programs (e.g. European Researcher Night, "13 Minutes Marseille"). During these sessions, researchers are trained to communicate their research work depending on the type of workshop.

Areas of knowledge related to scientific dissemination.

Generally, the areas that seem to most engaged in science dissemination are science and technology, followed by arts & social science.

NKUA

Science Communication practices:

- Open lectures,
- Exhibitions,
- Seminars,
- School visits on campus

Recognition by the universities regarding the efforts of its scientists to promote science communication.

Mainly ethical recognition.

The willingness of scientists to participate in science communication.

The willingness of researcher to participate in science communication is good.

Frequency of research dedicated to investigating society needs and citizens perception of science.

In rare occasions, initiatives are established in order to address demands that comes from society.

Researchers training in communication skills.

There is no training for researchers in communication skills.

Areas of knowledge related to scientific dissemination.

The areas tightly linked with science dissemination are (shown in order of impact-most implicated first): 1. health, 2. arts & social science, 3. law, 4. economy, 5. science, and 6. technology.

UB

Science Communication practices:

- Workshops and events in public places.

Recognition by the universities on the efforts of its scientists in promoting science communication.

Recognition of science communication efforts is made via monthly newsletters and social media platforms.

The willingness of scientists to participate in science communication.

Researchers are extremely motivated to participate in science communication.

The existence of protocols or procedures focused on social demands.

Usually, the media contacts each researcher/ expert individually to present their expertise/professional opinion on specific topics/cases.

Frequency of research dedicated to investigating society needs and citizens perception of science.

In general, there are no protocols implemented to deal with demands that come from society. However, on occasion research is conducted to address society's needs and citizens' perception of science.

Researchers training in communication skills.

There is no training for researchers to develop communication skills.

Areas of knowledge related to scientific dissemination.

The areas that engage the most in scientific dissemination are science, and Humanities related fields of knowledge (Philosophy, History, Foreign languages, etc.)

ULB

Science Communication practices:

- Publication of articles in no scientific newspapers and magazines,
- Media development,
- The origination of lectures, exhibitions, seminars on campus open to the public,
- Organization of schools' visits on campus,
- Publication of articles in a blog or app,
- Create podcasts/videos, related to scientific topics,
- Organization of workshops/events in public places.

Recognition by the universities on the efforts of its scientists in promoting science communication.

Recognition of science communication efforts is given in a symbolic way. Scientific communication can bring symbolic perks in some occasions but holds no weight when nominations and promotions are concerned.

The willingness of scientists to participate in science communication.

The willingness of researcher to participate in science communication is good.

The existence of protocols or procedures focused on social demands.

There are protocols set in place that deal with society's demands, mostly via a contact list/database of experts per topics that is provided by ULB's Communication Service to the Journalists. This contact list is created based on the willingness of the researchers.

Frequency of research dedicated to investigating society needs and citizens perception of science.

Occasionally research is done to address society's needs and citizens' perceptions of science.

Researchers training in communication skills.

Occasionally, training for researchers on the fields of communication skills is carried out (e.g. Workshops "communiquer sa recherche" (https://portail.ulb.be/fr/recherche/publications-organisation-de-conferences-et-communication/communication-grand-public/formations-communiquer-sa-recherche).

Areas of knowledge related to scientific dissemination.

The areas that engage the most in scientific dissemination are Arts & Social Sciences, Health, Science, and Technology.

UAM

- A Science Dissemination Unit is under development.

Science Communication practices:

1. Publication of articles in no scientific newspapers and magazines (including collaboration with The Conversation Magazine),
2. Development of media,
3. Organization of school visits on campus,
4. Publication of articles in blogs and apps,
5. Creation of podcasts/videos related to scientific topics,
6. Organization of lectures,
7. Seminars in collaboration with various agencies,
8. Participation in international actions (e.g.: Research Night).

Recognition by the universities on the efforts of its scientists in promoting science communication.

Recognition by the university in this aspect is considered limited (although course certificates are available).

The willingness of scientists to participate in science communication.

The willingness of researcher to participate in science communication is high.

The existence of protocols or procedures focused on social demands.

Flexible relationship with the Press Cabinet of the University.

Frequency of research dedicated to investigating society needs and citizens perception of science.

Occasionally research is conducted to address society needs and citizens' perception of science. Although, there are no specific procedures for it.

Researchers training in communication skills.

Training on science communication skills is offered. Examples:

1. A course that provides a certificate of expert
2. A summer course

Areas of knowledge related to scientific dissemination.

The areas most involved in this field are: health, followed by arts & social sciences, science, and technology.

SUR

Science Communication practices:

- The organization of lecture exhibitions, seminars on campus open to the public,
- The organization of school visits on campus
- Workshops in schools.

Recognition by the universities on the efforts of its scientists in promoting science communication.

There is no recognition by the university regarding the development of those activities.

The willingness of scientists to participate in science communication.

The level of willingness of researchers to participate in science communication is considered good.

The existence of protocols or procedures focused on social demands.

There are no procedures by the university to deal with demands that come from society.

Frequency of research dedicated to investigating society needs and citizens perception of science.

In rare occasions, research is conducted to address social needs and citizens perception of science.

Researchers training in communication skills.

In rare occasions, researchers are training to develop communication skills.

Areas of knowledge related to scientific dissemination.

The areas of knowledge most engaged in science dissemination are science, followed by arts and social science, health, and technology.

SU

Science Communication practices:

- Publication of articles in scientific newspapers and magazines, as well as blogs and apps
- Organization of open lectures, exhibitions, and seminars
- The operation of a website on open science, elaboration of podcasts/videos related to scientific topics, as well as participation in international actions (e.g.: Research Night).

Recognition by the universities on the efforts of its scientists in promoting science communication.

In terms of recognition of the efforts in social dissemination, there is no strategy from the university in this sense. At the same time, the level of acceptance of actions on social innovation by students and researchers is good.

The willingness of scientists to participate in science communication.

Many scholars at SU regularly communicate their research to a larger general public, and it is common that they are contacted by media, different organizations and industry to give expert comments.

Researchers training in communication skills:

- Occasionally training on communication skills is carried out. Such initiatives include:
    1. "Researchers meet media", (a half-day course including interview practice) carried out two times/year.
    2. Media training on demand.
    3. Training sessions on how to write popular science texts.
    4. Sessions as part of the university's doctoral education program.

Areas of knowledge related to scientific dissemination.

The areas most involved in science dissemination are arts & social science, law, economy, and science.

UT

Science Communication practices:

- Publication of articles in no scientific newspapers and magazines,
- Organization of lectures,
- Exhibitions,
- Seminars on campus open to the public.

Recognition by the universities on the efforts of its scientists in promoting science communication.

The UT recognizes the efforts on science communication by introducing an annual award, the Tübingen Prize for Knowledge Communication, which is part of the University's excellence strategy. The prize is awarded once a year and honours the communication achievements of the winner in the previous calendar year. The award is based on a call for applications.

The willingness of scientists to participate in science communication.

The level of the willingness of researchers to participate in science communication is moderate.

The existence of protocols or procedures focused on social demands.

UT has protocols for dealing with social demands (the Public Relations department).

Frequency of research dedicated to investigating society needs and citizens perception of science.

In rare occasions, research is conducted to address society's need and citizens' perception of science.

Researchers training in communication skills:

- For Early- and Mid-Career Researcher the Graduate Academy offers regular courses in communication: https://uni- tuebingen.de/en/178290.
- Post-Doctoral training for open science,
- Junior Academy.
- an established and comprehensive certificate program offering training in "Science Communication and Media Competence" with a large variety of courses and additional training opportunities
- close collaborations with coordinators and media officers at UT's Collaborative Research Centres and Clusters of Excellence to offer tailor-made workshops and support for specific needs and individual communication projects. A special focus in this regard is put on formats of visual science communication
- trainings for postdocs and doctoral students,
- interdisciplinary pilot seminar bringing together undergraduate students of rhetoric and medicine to develop visualizations to communicate results of the global COVIDSurg (https://uni-tuebingen.de/en/research/support-for-junior-researchers/researcher-development-graduate-academy/qualification/certificate-programs/science-communication- and-media-competence/)

Areas of knowledge related to scientific dissemination.

The areas of knowledge most engaged in scientific dissemination activities are arts & social science, and science.

6.4.1.3 Open Innovation

Frequency of events, open invitations, open innovation competitions organized by the universities

- **3 universities (AMU, UB, ULB)** declare to organize these **events occasionally**
- **5 universities (NKUA, UAM, SUR, SU, UT)** declare to organize these **events rarely**

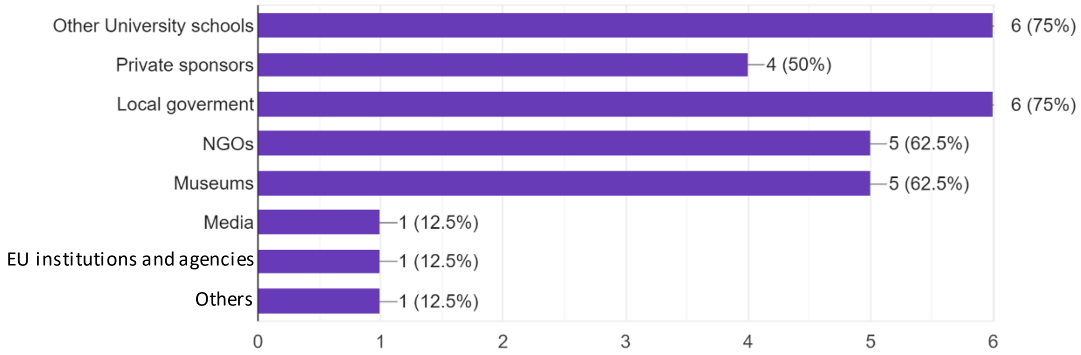


Figure 36. Frequent collaborators

- **6 universities** stated that their most frequent collaborators are "**other universities schools**"

- **6 universities** stated that their most frequent collaborators are **"local government"**
- **5 universities** stated that their most frequent collaborators are "**NGOs and Museums"**
- **4 universities** stated that their most frequent collaborators are **"Private sponsors"**

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs

- **1 university** didn't have the relevant information in order to provide an answer **(couldn't provide an answer)**
- **1 university** stated that the strategy **depends on the initiative**,
- **1 university** affirms calls via **mass media.**
- **3 universities** make **direct contact** with industries, entrepreneurial partners, and other stakeholders to establish partnerships.

Existence of procedures for the recognition

- **7 universities** do not have a procedure to recognize the efforts in participating in CS actions.
- **1 university** has a procedure to recognize the efforts in participating in CS actions.

Level of recognition by the Universities on the effort of its members in social innovation

- **7 universities** declare that the recognition is moderate.
- **1 university** declares that the recognition is poor.

Actions carried out to promote students' involvement in social innovation

- **6 universities** (Actions include: Lectures, participation in projects, volunteer, an area dedicated to developing actions to attract students, internal calls (e.g.: "Students entrepreneurial society"-UB, "ULB engage"-ULB), as well as promotion of events, workshops, seminars.

Types of open sources created by the Universities

- The most common open sources created are libraries, repositories, websites, open courses, followed by e-services, infrastructures, virtual exhibitions and common laboratories.

Experimental learning and community-based research in the field of social innovation.

- **4 universities** (AMU, ULB, SU, UT) have funds for experimental learning and community-based research.

Existence and types of Service-Learning Programs or projects

- **6 universities (AMU, UB, ULB, UAM, SUR, UT)** have **service-learning programs** or project implemented.

Level of acceptance of social innovation measures/actions by students and researchers.

- **4 universities** declare moderate acceptance levels by students and researchers
- **3 universities** declare good acceptance levels by students and researchers
- **1 university** declare poor acceptance levels by students and researchers

Existence of projects in which students are asked to solve social problems (locally or internationally) after their contact with stakeholders in addition to the traditional curriculum.

- **4 universities rarely** perform project that address societal issues
- **4 universities occasionally** perform project that address societal issues

More details regarding the current situation in the framework of Open Innovation at each university is provided below.

AMU

- Innovation in incubators and education has become one of the levers of the AMU initiatives.

Frequency of events, open invitations, open innovation competitions organized by the universities

Events/competitions are occasionally organized. (CIVIS project helped to boost the initiatives in this field)

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs:

- Events or competitions
- External collaboration
- To attract social stakeholders to Open Labs, AMU's offices and structures contact directly companies. After being identified, these local business actors were strongly encouraged to apply for the CIVIS Open Lab call in AMU.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition of the efforts to promote open/social innovation is considered moderate.

Actions carried out to promote students' involvement in social innovation:

- Activities/ projects in social/ open innovation are mandatory for students engaged in related educational programs.
- For other students, this may be encouraged in some circumstances but not regularly and as something essential for their training and professional experience.

Types of open sources created by the Universities:

1. as repositories,
2. as open edition, open-source browser plug-in to enable direct access to electronic resources,
3. as a blog dedicated to open science practices,
4. as e-infrastructures to support research analysis in Human & Social Sciences.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

Unities and funds for experiential learning and community-based research in the field of social innovation.

AMU has established units and funds for experiential learning and community-based research in the field of social innovation.

Existence and types of Service-Learning Programs or projects:

1. IDeAL ((Integration and Development at Aix-Marseille through Learning)
2. DREAM-U (for Student Civic Engagement).

NKUA

Frequency of events, open invitations, open innovation competitions organized by the universities.

Events/competitions are rarely organized. (CIVIS project helped to boost the initiatives in this field).

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

NKUA rarely organizes events in this field. When organized the events receive collaboration of other universities or schools. Civil society is attracted to open labs via mass media.

Existence procedure for the recognition.

The university has no procedure of recognition for the effort made on social innovation.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition of the efforts to promote open/social innovation is considered moderate, even though the university has no specific procedure that addresses this aspect.

Actions carried out to promote students' involvement in social innovation

The actions carried out for motivating students in social innovation are considered poor (e.g. lectures, participation in a few projects, and volunteer work.)

Types of open sources created by the Universities:

1. open libraries,
2. websites,
3. open courses.

Unities and funds for experiential learning and community-based research in the field of social innovation.

NKUA doesn't have units/ funds/ service-learning programs for experiential learning and community-based research in the field of social innovation.

UB

Frequency of events, open invitations, open innovation competitions organized by the universities.

Events/competitions are occasionally organized. (CIVIS project helped to boost the initiatives in this field)

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

Civil society is attracted to Open Labs through competitive calls.

Existence procedure for the recognition.

UB does not have any procedure of recognition.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition of the efforts to promote open/social innovation is considered moderate.

Actions carried out to promote students' involvement in social innovation

- Some actions are implemented to involve students in social innovation actions.
- Events are organized annually within Student Entrepreneurial Society with the support of the Unibuc Robotics laboratory from the Faculty of Mathematics and Informatics and the ABACUS Association - University of Bucharest Innovation Hub.
  Such as:

A competition addressed to students in all cycles of education (bachelor, master, and doctorate) - https://hub.unibuc.ro and www.facebook.com/UniBucSAS). The goal is to turn interests and concerns of UB students into ideas and business teams through innovative technologies. The competition aims to bring students concerned with research, from all scientific fields of UB, together with students passionate about technology or business.

Types of open sources created by the Universities

There are no open sources created by UB. However, at a lower level (faculty, department, project-based), open resources are created, either for pedagogical purposes or for the general public. Due to the high fragmentation of these resources, they are difficult to assess.

Unities and funds for experiential learning and community-based research in the field of social innovation.

There are no units and funds for experiential learning and community-based research in the field of social innovation.

Existence and types of Service-Learning Programs or projects

- Service-Learning programs are implemented through collaboration with affiliated NGO's (e.g. Bucharest Student Chapter – Society of Exploration Geophysics)
- Students are trained and are willing to innovate if new requirements become part of their duties (they tend to prefer credit-based activities).

ULB

Frequency of events, open invitations, open innovation competitions organized by the universities.

Events/competitions are occasionally organized. (CIVIS project helped to boost the initiatives in this field).

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

Civil society is attracted to Open Labs through web information & individual contacts (e.g. via well-established contact between a researcher and an organization).

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition of the efforts to promote open/social innovation is considered moderate (even though no recognition procedure is in place).

Actions carried out to promote students' involvement in social innovation.

Plans to engage students in social innovation are carried out via "ULB engagée", although it is still in early stages.

Types of open sources created by the Universities:

1. Institutional repository providing open access to the scientific publications authored by ULB researchers (https://difusion.ulb.ac.be/)
2. Open-access library (Digithèque https://digitheque.ulb.ac.be/), providing open access to digitized material coming from the ULB libraries' collections and to books published by the University Press
3. Virtual exhibitions about prestigious ULB researchers (https://bib.ulb.be/fr/documents/digitheque)
4. Other open sources: ECOLE (https://www.ulb.be/fr/l-ulb-et-l-ecole/plateforme-collaborative-ulb-e-col-e).

Unities and funds for experiential learning and community-based research in the field of social innovation.

- There are units that support experiential learning and community-based research in the field of social innovation, e.g.:
    1. Policy-lab/ ecoles plurielles (https://www.ulb.be/fr/l-ulb-et-l-ecole/les-ecoles-plurielles)
    2. "Mini-arc": a research program in human & social sciences funded by the University.

Existence and types of Service-Learning Programs or projects

- ULB Engagée (https://engagee.ulb.be/) is the service-learning program organized by ULB.

UAM

Frequency of events, open invitations, open innovation competitions organized by the universities.

Events/competitions are rarely organized. (CIVIS project helped to boost the initiatives in this field).

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs:

- The main collaborators are other universities and schools, private sponsors, local government, NGOs, and museums.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

- Civil society is attracted to these actions through direct and targeted contact.

Existence procedure for the recognition.

There is no recognition procedure in place.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition for the effort on social innovation is considered poor.

Actions carried out to promote students' involvement in social innovation:

- Relevant Actions are organized and disseminated by the Unit of Volunteering and Cooperation for Development and several Service Learning projects.

Types of open sources created by the Universities:

1. Libraries
2. Repositories,
3. Infrastructures,
4. Common laboratories.

Unities and funds for experiential learning and community-based research in the field of social innovation.

There are no funds allocated for developing experiential learning and community-based research.

Existence and types of Service-Learning Programs or projects:

- Established initiatives on service-learning programs

SUR

Frequency of events, open invitations, open innovation competitions organized by the universities

Events/competitions are rarely organized.

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

The main collaborator is the local government.

Existence procedure for the recognition.

There is no recognition procedure in place.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition for the effort on social innovation is considered moderate.

Actions carried out to promote students' involvement in social innovation

1. Open badges,
2. Internal call for students' initiatives that supports seed funding for cultural or social actions. (In 2020 over 60 projects were funded, with an overall investment of almost 180.000 euros.)

Types of open sources created by the Universities:

- a repository for publication that allow open access, ruled by open access policy.

Unities and funds for experiential learning and community-based research in the field of social innovation.

There are no units and funds for experiential learning and community-based research in this field.

Existence and types of Service-Learning Programs or projects.

A service-learning program is being developed through CIVIS.

SU

Frequency of events, open invitations, open innovation competitions organized by the universities

Events/competitions are rarely organized.

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

Dissemination initiatives are performed in cooperation with other universities, private sponsors, local governments, NGOs, museums and media.

Existence procedure for the recognition.

There is no recognition procedure in place.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition for the effort on social innovation is considered good.

Types of open sources created by the Universities:

1. Libraries,
2. e-services,
3. Infrastructures,
4. Websites.

Unities and funds for experiential learning and community-based research in the field of social innovation.

SU has established units for experiential learning and community-based research in this field.

UT

Frequency of events, open invitations, open innovation competitions organized by the universities.

Events/competitions are rarely organized.

Actions carried out to attract civil society (citizens, NGOs, local governments, local businesses, students...) to the Open Labs.

The main collaboration is established with other universities and schools, private sponsors, local government, NGOs, and Museums.

Existence procedure for the recognition.

There is no recognition procedure in place.

Level of recognition by the Universities on the effort of its members in social innovation.

The recognition for the effort on social innovation is considered moderate.

Actions carried out to promote students' involvement in social innovation:

- Workshops
- Seminars
- Events

Existence and types of Service-Learning Programs or projects:

- Experiential learning and community-based research initiatives: Service-learning projects (offered via UT's Career Service) and World Citizen School.
- Service-Learning programs are offered by UT through Career Service.

6.4.2 Legal & governance barriers, national context & external funding

As part of the questionnaire, the universities had to fill in any obstacles they encountered. The identified barriers were:

- Insufficient financial funding
- Not enough integrated into education
- Citizen science is time-consuming
- Little appreciation in academia
- Little appreciation in policy
- Not enough experience in volunteer coordination
- Science communicators not involved
- The citizen involvement in science project is practically unknown in our university

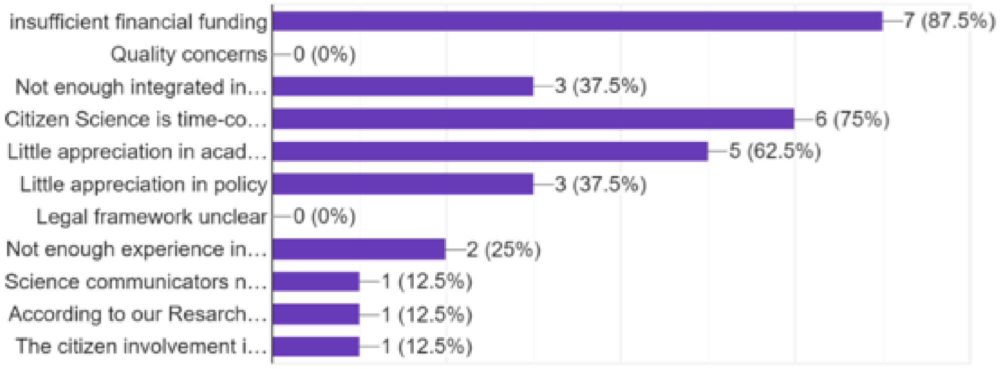


Figure 37. Identified Obstacles as part of the work carried out in Module 6.

- **7 universities (all but SU)** identified insufficiency of financial funding as an obstacle

- **6 universities (all but NKUA and SUR)** identified the belief that CS projects are time-consuming as an obstacle
- **5 universities (all but AMU, NKUA and SUR)** identified the limited appreciation in academia of the CS projects as an obstacle

The barriers identified at each member regrading Module 6 can be found below:

AMU

In the aspect of **Citizen Science,** due to **insufficient financial funding** and the belief that CS is **time-consuming**, there is limited encouragement in regard to citizen involvement. Additionally, there is a lack of supporting resources (e.g. training dedicated to citizen science, common resources, etc).

Regarding **Open Innovation**, **projects** in which students are asked to address the **community's needs** after their contact with stakeholder are **rarely developed**.

NKUA

Similar to the obstacle faced by AMU, NKUA's biggest barrier in developing **CS initiatives** is **insufficient financial funding**.

In regard to **science communication**, a weakness identified was that **research** that investigates **society needs** and **citizens perception** is **rarely conducted**.

Once again, similar with AMU's barrier regarding **Open Innovation**, **projects** in which students are asked to address the **community's needs** after their contact with stakeholder are **rarely developed**.

UB

In the aspect of **Citizen Science,** due to the lack of a mechanism to assess the geographical scale of citizens involvement data, this aspect can't be defined for UB.

In addition, and similar to the identified obstacles from other universities, UB states that due to **insufficient financial funding** and the belief that CS is **time-consuming**, as well as **little appreciation in academia** there is limited encouragement in regard to citizen involvement.

ULB

Similar to the other responses, regarding **Citizen Science,** the biggest obstacles include **insufficient financial funding**, the belief that citizen science is **time-consuming, little appreciation in academia** (at a policy level) as well as **limited integration in education**. According to survey results, citizen involvement in science project is practically unknown in ULB, except for a co-create project from Innoviris.

UAM

The biggest obstacles for developing CS actions are **insufficient financial funding**, **not enough integration in education,** the belief that citizen science is **time-consuming, the little appreciation in academia,** and the **absence of science communicators involvement**.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101016691.

SUR

The biggest obstacles for developing CS actions are **insufficient financial funding**, **not enough integration in education, little appreciation in policy,** and **not enough experience in volunteer coordination.**

SU

The biggest obstacle identified in terms of citizen involvement is the **little appreciation at academia and policy levels**, as well as the idea that the CS is **time-consuming.**

UT

The biggest obstacle identified is **insufficient financial funding**, the belief that citizen science is **time-consuming,** the **little appreciation in academia, not enough experience in volunteer coordination.**

6.5 Suggestions & Future Steps

Suggestions

In order to enhance and bind the public's participation in science, research and innovation (citizen science), the public's perception of the relevance of science, research and innovation (science communication) and the public's acceptance of science, research and innovation (open innovation), some suggestions are presented below:

1. The establishment of methodologies to be put in place by each CIVIS Alliance member to assess public interest in understanding/acceptance of research activities and results.
2. The development of a best practice documentation which should increase social participation in the Universities (Citizens Science) as well to promote the existence of unified structures for Science dissemination and Open Innovation.
3. Harmonize aspects concerning Citizens Science, Science Dissemination, and Open Innovation among the universities.
4. The development of a shared approach as well as of a common training programme of the staff regarding citizen science
5. The development of common strategies in order to incorporate society into the Universities and to improve the image of the Universities by the society.
6. Implementation of common activities in Science Dissemination, Citizens Science and Open innovation across the CIVIS Universities. This indicates that in some cases common Science dissemination structures must be implemented.
7. Production of books and manuals regarding good practices in Science dissemination, Citizens Science and Open Innovation.
8. The inclusion of open research information on the universities' website (i.e. department's website, library's website etc) that will be set to inform the public of the research that takes place in the university.

Future Steps

Regarding the enhancement of citizen science, science communication open innovation the future steps in Module 6 will be:

- The further analysis of Citizens science projects inventoried in the framework of WP1 by interviewing several of the project leaders to document their experience, to also better frame the citizen impact of their activities. This step would allow the Universities to identify good practices in this field, and possibly extend the scope of existing projects to the scale of the Alliance.
- The enhancement of accessibility training on Citizens Science for researchers and citizens.
- The establishment of citizens training when engaging them in a research project.
- the increase of specialized tools for data collection, analysis and storage acquired in the context of citizen science projects,
- Proposing common methodologies to be followed by each CIVIS Alliance member in order to assess public interest in understanding/acceptance of research activities and results.
- Promoting the existence of a unified structure for Science dissemination and Open Innovation.
- Frequently organising events, open invitations, open innovation competitions

7 Conclusion

The following table provides a general overview of the findings per Module.

Table 41. General Overview of the findings per Module.

Module	Conclusions	Barriers	Suggestions
Module 1 (R&I policies)	• 2 R&I strategies-related patterns followed by the universities. They either have an: i. overall strategy for research that overlines R&I approaches at their general strategies or that explicitly mentions R&I in their general strategies (instead of just overlining them). or they implement: ii. R&I specific strategies. In this case, the universities have specific R&I-focused strategies in their official strategy documents. • Most partners have central units responsible for organizing R&I strategies and activities. • The head of the unit has more of an administrative role in the development of R&I strategies. • In most cases, in charge of the R&I strategies are mainly the Rector and the Vice-Rector for Research and Knowledge transfer as well as the research council. • In most cases, the development of the R&I strategies is performed in a multi-source approach • The majority of the partners have a central monitoring unit. • In general, the universities update their strategies on a 3-5-year basis • Education is central for all partners in their strategy formulations in relation to research, although not all explicitly relate education to strategies for R &I. • All partners (but one) say that the type of funding has an impact on the direction of the development of the R&I strategies and activities	The impact the type of funding has on the direction of the development of the R&I strategies and related activities	• identify particular and clear links (if available) between the R&I strategies of the 8 universities and the 5 Hubs for all universities • develop a solid and common R&I strategy at the CIVIS level

Module	Conclusions	Barriers	Suggestions
Module 2	• Quite widespread openness of available RIs both to non-national users as well as to external industrial users • RI legal regulation: the access conditions are based on the institution's or RI's internal policies. The regulations related to the use of RIs is decided in most cases from the internal management committees. • Usually, a contract has to be established between the university and any industrial user to preserve the confidentiality of sensitive data • At a general level, the documents related to access (webpage, access application form, etc.) are also available in other languages • The access fees vary widely depending on the research projects as well as on the specific negotiations and agreements between the parties. • There is no difference in the access policy for academic and industrial users, except for the fact that the access fee is higher for industrial users. • Funding opportunities offered by ERA-Net calls, schemes co-funded by European Commission jointly with Member States	• Quite different situations referred to IPR management as possible cause of obstacle to the sharing of RIs. • The majority of funding is often limited to institutions performing research in specific fields.	• Establish a CIVIS label with the aim of ensuring high quality and openness of services provided from the labelled RI. • Intellectual Properties Rights (IPR) to address

Module	Conclusions	Barriers	Suggestions
Module 3	• Universities consider the situation in terms of “innovation capabilities”, “innovation structures”, “innovation strategy” and “innovation culture” from good to moderate. Note: statistical outliers exist in every field and there is no real overall homogeneity. • The level of innovation management activities differs • Each university has different strengths and weaknesses	• Lack of trainings regarding innovation for students, researchers and administrative staff (most frequently mentioned) • Lack of collaboration with industrial partners • Lack of financial support regarding entrepreneurship and innovation management activities • Lack of a coherent innovation strategy • Complexity of international innovation management activities • Lack of innovation culture • Lack of physical space for developing multi- and trans- disciplinary innovation ideas • Lack of exploitation of results and implementation • Discrepancies in terms of property rights (service invention) between universities/ inventors/ researchers • Shortage of TTO and Entrepreneurship teams (least frequently mentioned)	• Certain key elements of innovation management should be encouraged by each university • Potential for lean processes shall be identified and their implementation encouraged • Maximization of skills among CIVIS universities through sharing of best-practices • Improvement of knowledge transfer in Innovation Management fields • Enhancement in innovation management fields, through tandems • Definition of short-term, mid-term and long-term goals related to innovation management • Development of roadmaps of funding programmes and timelines • Increase of the availability of innovation spaces and hubs • Raise awareness for innovation management activities to improve the innovation culture • Enhancement of the innovation strategy through a guideline to build individual innovation strategies • Elaboration of an innovation management handbook

Module 4	OTM-R • All CIVIS universities have either a clear OTM-R documentation for recruitment policies or other designated documents and regulations in which recruitment rules are specified. • All CIVIS universities utilize the OTM-R system with the support of Committees, Social audits, Quality Units, etc. • All universities have rules concerning the appointment of selection committees. • All universities (but one) implement proactive policies to reach gender balance in committees • Some universities produce automatic feedback and assessment reports that are made available at private or/and public level. In every university, if complaints arise, candidates have the option to appeal the decision. The process for this differs in each member of the Alliance. • The OTM-R documentation is published online and is accessible to researchers. • At an internal level, the partners clearly state the rules for appointments via 1. internal guides, 2. checklists and 3. information meetings for recruiters.	• The OTM-R documentation is mainly provided in the national language of the institutions, hindering thus full accessibility. • Language barrier in the administration level (foreign researchers need to legally translate their personal documents in order to finalize the employment procedure) • National restrictions on the salary flexibility of public officials • Limited autonomy from the governmental structures (Ministry of Education). • Paucity of professorships due to national regulation or shortage of national funds • Complex procedures conditioned by national and international legislation • Non-permanent recruitment encouraged by the government. • Lack of a common campus • Decentralization increases difficulty in monitoring initiatives • Lack of central policy at an institutional level. • Lack of structure/unit to monitor working conditions at institutional level • Lack of coordination between existing initiatives and activities • Absence of information concerning activities carried out by the departments • Often activities do not effectively reach all structures • The administrative fragmentation of the university (also affects working conditions)	• Programs should be specifically addressed to fill in the gaps in the national funding schemes • Centralised Welcome Centre/Desk and administrative support • Campus office department, a set of basic documentation via online tutorials • Centralized administrative support • Set up an impartial, external listening unit to report potential management problems and prevent psycho-social risks (in some countries this is within the law) • Less time-consuming process (the time required for each body to decide means that the procedures take a long time)

	Triple-I Mobility 1. Intersectoral Mobility. All CIVIS Alliance members implement programs/activities or relevant actions in the framework of Intersectoral mobility. Funding. The funding resources for this type of programs are mostly external. 2. International Mobility. All the members of the CIVIS Alliance have an international mobility program. Funding. In most cases, the universities concentrate internal funds to foster their own mobility. 3. Interdisciplinary Mobility • 4 out of 8 universities actively foster interdisciplinary approaches via calls for proposal, incentives, workshops, training opportunities and research groups • The other 4 universities implement a 'no barriers but also no incentives' approach. A more direct and active approach for interdisciplinarity could be proposed as an efficient harmonisation action. 4. Virtual Mobility. Some of the CIVIS universities have their own virtual platform through which they offer virtual seminars and workshops, discussion forums and resources, while others have periodic virtual trainings organised from departments and faculties.	• Intersectoral mobility can occur at department/faculty level thus, the central offices act as a support mechanism • National legislation creates mobility issues	• Interdisciplinarity mobility needs to be improved in some fields such as Health and Law • Wider range of research programs financed on internal funds to encourage the exchange of experience and mobility of researchers. • Increase the number of tools available to researchers to travel • Facilities to host researchers • Greater degree of independency from national legislation and governmental policies

	Working Conditions. • Every CIVIS university complies with the European standards regarding work-life balance. • Every CIVIS university acts against any kind of discrimination in the work environment.		• Support for HSR4R application for all

	Training and Career Development.		
	(1) Teaching programs for researchers. Most universities have training on these transferable skills, but few have a program aimed at providing support, training and career development assistance combined.	**(1)** • Courses mostly in university's main language • Absence of a centrally training (not necessarily a barrier but could create difficulties)	**(1)** • Open courses for improved training and mobility • Increase collaboration with non-academic partners to ensure that skills training meets the demands in societal sectors. • Ph.D. alumni network for developing active training practices • Collaborations with socio-economic partners • Offer training on Research data • Develop a long-term strategy for the various training and support initiatives to increase Continuing Professional Development opportunities for the researchers and to combat the fragmentation
	(2) Career development support program. Most universities do not have an independent career development program, but they take actions and establish initiatives that focus on this topic.	**(2)** • There is no evaluation/appraisal system for academics • No career development program set specially dedicated to researchers • Paucity of professorships • Few performance incentives tools	**(2)** • A career development scheme should be adapted to the needs of the university • Increase awareness among early career researchers regarding the preparation of their career development. • Develop centralised support to career development

Module 5 (Open Science)	Cultural Change. 1. Open Science (OS) • Some universities implement OS cultural change, advocacy and communication strategy either in a partial manner (limited to OA and RDM) or fragmented manner (varying according to faculties/ departments). • Others have established OS practises that lead to the implementation of a programme of cultural change, OS advocacy and training, and an OS communication strategy. 2. Open Access The universities: • Either have an OA mandate (or it is under development) • Or have an OA policy (or planning on developing an OA policy which encourages OA but does not mandate it) 3. Open Education (OE) Most universities offer open courses and other OE resources Education & Skill The majority of the universities (all but 1) offering training regarding OS Citizen Science • No formal policy regarding citizen science in any of the universities of the CIVIS alliance. • No dedicated structure/ unit in any of the universities.	• Knowledge about OS practices and policies is very fragmented and increasing the awareness of all academic actors about these aspects is essential for promoting OS in its entirety.	• Participate in international initiatives that promote OA and OS, like LIBER, SPARC Europe. • Nominate a leader to monitor an OS strategy at the university level • Identify a unit dedicated to implement the OS/OA strategy • Installation/participation to platforms that provide OA e-publishing services. These services should cover the whole life cycle of scholarly communication • Develop repositories, based on FAIR data principles, to host the publications and manage the research data of their communities. • Set up 1. an initiative for the training of the research communities of CIVIS members in the domain of FAIR data and 2. an initiative for defining the requirements for metadata interoperability and for research data management workflows among the CIVIS members. • Financially support particular organizations that publish OA resources (e.g. Arxiv, SciPost, Peer Community In, etc.) • Further investigation of the details of the identified strengths (services for researchers) and exploring the possibility to connect training opportunities at CIVIS level (i.e., build on already existing expertise and provide a unified RDM system that could encourage further collaboration between researchers.) • Training session/ presentation of the EOSC within the OS group (both the TF OS in CIVIS and the M5 OS in RIS4CIVIS). • Make some courses (or perhaps a sort of overview course) mandatory. • Use the "Open Science Skills visualisation" by LIBER to implement the benchmarking between

	• Most universities develop citizen science related actions even though none is explicitly labelled citizen science. • Heterogeneity of the organizations: scientific culture unit, university museum, library, vice rectors. • A need to increase visibility and raise awareness		the CIVIS universities regarding the training sessions offered • How ethics codes/ academic integrity groups relate to OS policies and practices. • The concept of RRI should be clarified and analysed in more detail. • Increase the collaboration with other Modules in RIS4CIVIS as well as with already existing initiatives and programs (e.g., promote OS and OER in career development-M4, Citizen Science - M6, OER-M2, expand communication network of CIVIS-M 3 & M6, etc.), • Obtaining HRS4R (those that do not have yet) • Establish an award for CIVIS Best Practices in OS. • Create a single-access point of contact in CIVIS universities for Citizen Science (in collaboration with Module 6). • To develop a common table of indicators to measure OS research activity and results. • Establish an award for CIVIS Best Practices in OS.

Module 6	Citizen Science 1. Categories of strategies and actions implemented There is no common strategy often used by the universities regarding this aspect 2. Common Places All the universities affirm to have a place dedicated to science communication, citizens science and open innovation. In some cases, the participation is devoted to particular groups (e.g.: specific stakeholders). 3. The main sources of funding • national resources • local government • EU • private entity 4. Practices implemented during Citizen Science projects • A variety of practices • The closest consensus identified is the decision to publish the results in open access format (which is not an actual citizen science action). 5. Social Impact of CS projects • CS projects have a significant impact in the Education dimension (all the universities stated this)	• Lack of initiatives/spaces to present the results and receive feedback from the citizens who participated in projects. • Insufficient financial funding • Not enough integrated into education • Citizen science is time-consuming • Little appreciation in academia • Little appreciation in policy • Not enough experience in volunteer coordination • Science communicators not involved • The citizen involvement in science project is practically unknown in our university	• The further analysis of Citizens science projects inventoried in the framework of WP1 by interviewing several of the project leaders to document their experience, to also better frame the citizen impact of their activities. This step would allow the Universities to identify good practices in this field, and possibly extend the scope of existing projects to the scale of the Alliance. • The enhancement of accessibility training on Citizens Science for researchers and citizens, • The establishment of citizens training when engaging them in a research project., • The increase of specialized tools for data collection, analysis and storage acquired in the context of citizen science projects, • Proposing common methodologies to be followed by each CIVIS Alliance member in order to assess public interest in understanding/acceptance of research activities and results. • Promoting the existence of a unified structure for Science dissemination and Open Innovation. • Frequently organising events, open invitations, open innovation competitions

	6. Dimension assessed after the conclusion of a project • Scientific • Citizen participation • Social-ecological and economic Science Communication practices There is a variety of actions developed among the universities, representing the work that must be carried out in the future in the framework of RIS4CIVIS in order to harmonized CS initiatives in the eight universities.		

8 Annexes

8.1 Data Summary

Module	*Meetings*	*Documents Produced*	*Authors of the Report*
Module 1	**4**	**2**	**2**
Module 2	**4**	**2**	**15**
Module 3	**5**	**8**	**3**
Module 4	**3**	**2**	**11**
Module 5	**4**	**3**	**9**
Module 6	**7**	**6**	**14**

8.2 Documents created

Module	*Documents created*
Module 1	RIS4CIVIS Project Questionnaire Module 1 RIS4CIVIS Module 1 Report
Module 2	RIS4CIVIS Project Questionnaire Module 2 – Sharing Infrastructures RIS4CIVIS Module 2 Report
Module 3	1. Blank RIS4CIVIS Module 3 Questionnaire 2. Response RIS4CIVIS Module 3 Questionnaire (Excel table with anonymized raw data) 3. Extended version: Evaluation of RIS4CIVIS Module 3 Questionnaire (document produced, collected data must be rendered anonymous) 4. Dynamic Glossary (Consensus building in terms of Innovation Management terminologies) 5. Presentation 1 (Introduction to Module 3) 6. Presentation 2 (definition of the next steps and discussion of the questionnaire) 7. Presentation 3, document produced data; rendered anonymous (response to the questionnaire, evaluation, identification of best practices) 8. Presentation 4 (identification of specific barriers, weaknesses, challenges) 9. Module 3 Report for WP1
Module 4	RIS4CIVIS Project Questionnaire Module 4 RIS4CIVIS Module 4 Report
Module 5	RIS4CIVIS Project Survey Module 5 RIS4CIVIS Module 5 long version Report RIS4CIVIS Module 5 short version Report
Module 6	1. Short and extended questionnaire forms discussed by all M6 members 2. Final questionnaire in text format 3. Final questionnaire in the google form and internal version for each University 4. Glossary of terms used in the questionnaire 5. Individual short reports of the procedure and relevant data 6. Module 6 Report for WP1

8.3 Research & Innovation strategy per university

Aix Marseille Université - AMU

As a preamble it is worth mentioning briefly some specificities of the French research organization and of the Aix-Marseille site. First, many national organisms are involved in the management of academic research. In addition to universities, some of the main players are CNRS which is involved in almost all the disciplinary fields of scientific research, INSERM in biomedical activities, INRAE for agronomy and ecology, CEA for energy-related activities. Therefore, the research units of Aix-Marseille site are composed of researchers belonging to these different organisms, and the R&I strategy of AMU is defined and implemented together with these partners. Aix-Marseille University has been selected as one of the nine French universities of excellence (IDEX) and receives a specific financial support (26M€/year) to boost the quality of research and education of the site. At last, AMU is the largest French University (111 research units) and its research addresses almost all the disciplinary fields. Based on this large expertise, interdisciplinary activities are then actively promoted at AMU.

The Research & Innovation strategy of Aix-Marseille University is based on three main pillars: Excellence, Interdisciplinarity, Valorization.

Excellence. The first motivation is to perform high quality research at the best international level. To do so, top scientists need to be recruited, state of the art equipment must be available and innovative research projects must be funded. We set a call to fund between 2 and 4 tenure tracks per year, including salary and research funding, to attract the best international scientists. We also provide a minimum of 170 PhD fellowships based on scientific selection criteria. We support the acquisition of scientific equipment and promote the use of these equipment by internal and external partners, and most of the time that's an access with fees to help maintaining the equipment at a high level of operation. Dedicated teams of experts support the researchers to optimize their success rate to the national and European calls for projects (information, lobbying, networking, implementation, financial …). We also created 18 institutes of research and education gathering the expertise of different research units to address some societal challenges with interdisciplinary approaches. These institutes are also the place to test and implement the best practices for the strengthening the links between education and research. They represent the key topics of the site and increase the visibility of these activities. The thematic of some of them are linked to the international strategy of AMU which is the Mediterranean area and the connection with Africa.

Interdisciplinarity. That's the DNA of the site. Since many years AMU has a very strong policy to promote interactions and collaborations between the different disciplinary communities of the site. such collaborations are extremely active between health and science & technologies and lead to the creation of new research teams. The institutes are one of the outcomes of this policy and they gather now the expertise from humanities and social sciences. AMU also leads global studies of the interdisciplinary processes, including the evaluation of what is an interdisciplinary research and the implementation of an observatory of the interdisciplinary activities.

Valorization. The development of applied research based on high level scientific expertise is strongly encouraged as well as the collaborations with industrial partners. We set up global contracts with major national industrial players to favor the collaborations with the research units of the site. Joint laboratories between one or more research units and a company are also created to boost technological innovations and their transfer in specific fields of activity. We also created the City of Innovation and Knowledge of Aix-Marseille (CISAM) to be the gateway between the academic skills of the site and all the socio-economic players, as for instance, companies, start-ups, business angels, museums, collectivities or associations.

National and Kapodistrian University of Athens - NKUA

NKUA comprises of about 125.000 undergraduate and postgraduate students, over 2.000 members of academic staff and approximately 1.300 administrative and secretarial staff and specialized personnel. NKUA has a central R & I strategy which was published in 2019 and its axes and deliverables are meant to run from 2019 until 2028. NKUA's R&I activities are mainly focused on excellence and interdisciplinarity which is facilitated through its 3 core facilities, 15 Centers of Excellence (CoE), eight schools, 42 departments, 372 educational and research laboratories, 76 clinics and 5 research university institutes. The management of academic research is based on a variety of national institutions and in many cases the university itself has little autonomy.

The R&I strategies implemented at NKUA are based on the following main axes: 1. Facilities, 2. Staff and 3. RIs.

The structures involved in R&I strategy implementation include 15 CoE, 5 newly established departments, 3 core facilities, the Centre of Research, Innovation and Entrepreneurship (ARCHIMEDES), the Quality Assurance Unit and the Special Account for Research Grants. As part of the university's strategy, annual revision of the research needs of the Departments and research groups takes place in order to invest in any new necessary instruments and cover the needs that arose in the past year.

Facilities. The link between the 15 Centers of Excellence, the 5 newly established departments with the themes of the 5 Hubs can be seen in the table below. The 15 Centers aim at investing in interdisciplinary cooperation, at accelerating the development of novel methods for innovation and research and at promoting basic sciences, as well as collaborative disciplines, modern technological fields and subjects related to the environment and sustainable development. They have a socioeconomic impact and are considered important tools for the private sector and governmental entities. Furthermore, NKUA has founded a Center of Research, Innovation and Entrepreneurship (including a Technology Transfer Office & a Businesses accelerator), the ARCHIMEDES Center. ARCHIMEDES Center aims at enhancing the research capabilities of NKUA and is part of the valorisation process. Another part of the valorisation is the Special Account for Research Grants (SARG), which is directed by the Research and Management Committee and is responsible for managing the research grants of the projects acquired by faculty members of the University, as well as for the allocation of big research equipment to the CoEs. Funds for ARCHIMEDES may also come from the Special Account of Research Grants, as well as donations and from projects from the Partnership Agreement for the Development Framework (ESPA). Therefore, SARG also plays a role in R&I strategy implementation. Lastly, the Quality Assurance Unit (QAU) is also an important part of NKUA's R&I strategies. QAU mobilizes, informs, and trains the staff about topics related to research and innovation. It is also responsible for connecting NKUA's research teams with teams from around the word creating thus a network of researchers.

In NKUA, facilities regarding High-Performance Computing systems and storage and Big Data Analytics are under development.

Staff. NKUA's academic, administrative and secretarial staff as well as its specialized personnel are always up-to-date regarding R&I hot topics and this is achieved by the organization of informative seminars and meetings from the Office for Attracting Funds (funding.uoa.gr) which belongs to the University's Enterprise of Property Management, by arranging educational seminars for the research staff and by offering personalized support to NKUA's research community.

RIs. Similar to the CoE, the RIs can also be aligned with the themes of the 5 Hubs as can be seen in the table below. The three core facilities have one coordinator who is responsible for these horizontal research infrastructures. Currently, the supply of the additional necessary equipment and instrumentation is completed and the regulations regarding usage of this equipment is approved by the Senate.

Table 42. The link between NKUA's core facilities, Centers of Excellence (CoE) and departments with the themes of the 5 Hubs

Hub 1 (Climate, Environment and Energy)	**Hub 2 (Health)**	**Hub 3 (Society, Culture, Heritage)**	**Hub 4 (Cities, Territories, Mobility)**	**Hub 5 (Digital and Technological transformation)**
CoE Agri-food and Food Authenticity	**CoE Drug Design and Development** CoE Agri-food and Food Authenticity	**CoE Exploitation of Orthodox Heritage and Interreligious Dialogue**	**CoE Blue Growth - Maritime Entrepreneurship - Marine Environment-Insular Policy**	**CoE Digital Humanities**
CoE Bioactive Natural Products	RI Medical core facility (AKISA)	**CoE Multilingualism and Language Policy**	Department of Ports Management and Shipping	**CoE Digital Heritage**
CoE Energy-Renewable Sources and Transport	**RI Natural Sciences core facility (School of Science)**	**CoE Digital Humanities**		**CoE Digital Transformation through the Humanities and Social Sciences**
CoE Climate Change - Adaptation and Mitigation		**CoE Digital Heritage**		Department of Informatics
CoE Disaster and Crisis Management		**CoE philosophical Research**		Department of Digital Industry Technologies
RI Natural Sciences core facility (School of Science)		RI Humanities core facility (PEP Attikis)		Department of Aerospace Science and Technology
Department of Agricultural Development, Agrofood and		Department of Digital Art and Cinema		

Management of Natural Resources				
CoE for the Basic Research				
CoE for Educational Research and New Technologies in Math and Science Education				

University of Bucharest – UB

The University of Bucharest (UB) is one of the most important educational, research, and cultural institutions in Romania, acquiring, in its over 150 years of existence, a strong national and international reputation. Our institution promotes activities related to fundamental, experimental, and applied research, inter-, multi-, cross-, and trans-disciplinary research, along the national and European priorities. It aims to provide viable solutions and services for the society, economy and to contribute, thus, to the progress of knowledge.

The research fields are grouped around the faculties within the university and follow the four main axes defined at the European level: Exact Sciences, Life, environment, and earth Sciences, Socio-Economic Sciences, and Humanities.

The research strategy of the UB is an organic part of the development strategy of our institution (a university of advanced research and education), and it aims to identify opportunities and to implement research excellence initiatives. The goal is to develop all research fields accordingly to the specific of our faculties, research centers, and the Research Institute of the University of Bucharest (ICUB). Therefore, we aim to establish a balance between the fields with immediate results - sometimes with quantifiable results that are also translated in financial terms - and research areas dealing with fundamental problems, which do not target businesses and industry, and hence find less applications on the existing market. The ultimate goal of this strategy is to enhance jointly the individual and institutional development, and to reduce the current gap between the UB and other similar top institutions worldwide.

- To increase the competitiveness of the UB in fundamental and applied research (ranked 1 at national level and on an ascendant trend in international rankings). This will be done by taking the following actions:
  - To develop the human resource: training and keeping researchers at the UB, as well as the recruitment of researchers with proven scientific potential (from the country and abroad);
  - To increase the quality and visibility of research results produced by researchers from the UB. To valorise research results and increase the competitiveness of the public and private economic sector;
  - To attract funding from national and international competitions;
  - To develop strategic collaborations in key areas of RI and to provide support for emerging RI fields at international level (e.g., Digital Humanities or ArcheoSciences in the field of Social Science and Humanities), with demonstrated potential for growth and impact of their research results;
  - To develop a research infrastructure that will address all research needs from all the fields represented within the UB.

- International cooperation achieved through a systematic increase of the attractiveness of the UB through the ICUB, as a hub for project development, national and international collaborations between the university and non-academic sector (public and private), and a host institution for top researchers from Romania and abroad.

- To consolidate the RI institutional culture. This implies that more members of the UB academic community will take action to promote the key objectives of the institutional research strategy of the UB. At the same time, the research strategy is expected to enhance the research plans of faculties and other research structures within the UB.

Université libre de Bruxelles - ULB

The R&I strategy of ULB is formally the responsibility of the Rector. It has always been to rely on the **scientific excellence of its academics**, through favoring their **autonomy and independence** in the development of their research. This results in a decentralization of research strategy within research groups and faculties, with **Academic freedom being considered as particularly important**. As a consequence, there is no strong instrument aiming to orient or guide the domains of research at the university level. Rather, we have developed a number of instruments to **empower our researchers** in their activities: the search for funding at different levels (regional, national, European and global), the management of their grants, the administrative support and the infrastructure that can host their research. In addition, ULB has developed a number of internal research funding schemes that can either support some initiatives that are difficult to fund through external sources (e.g. technological platform shared across research groups, research institute hosting researchers studying a particular domain, mobility) or complement external funding (PhD, Postdoc funding, etc.). ULB has also developed a financial instrument to support teams and projects that were well ranked through external applications (e.g. ERC, EU, Belgian FNRS) but not financed, which encourages researchers to apply.

Although the largest shared of research funds is obtained through external funding, the Rector has some autonomy in supporting some specific R&I initiatives, especially if these actions can **leverage larger impacts in some specific domains that are viewed as being strategic for the institution**. In order to achieve this, the Rector can rest on two main bodies: the research council in one hand that can help and support decision on research priorities, and the technology transfer committee in the other hand that can inform decisions on the valorization of research.

Given the decentralization of the R&I strategy, the recruitment of new academic staff is particularly important. The number of openings for new academic staff depends on a general balance between the faculties, and **the selection and recruitment of the new academic staff is mostly driven by the faculties**, according to their education and research development strategy and needs. However, every year, the Rector can recruit a limited number of academic positions, and therefore **stimulate some specific research and education domains in the long-term interest of the institution**.

The link between education and research is omnipresent at ULB but not always explicitly mentioned. Lifelong training is also quite important and often associated to R&I activities in attempting to develop ecosystems covering research, education, training, knowledge transfer, collaboration between university and external partners.

Universidad Autónoma de Madrid - UAM

The UAM 2025 strategy, approved by the Governing Board, constitute the reference framework to outline the most important aims of our University, establishing future actions to carry out according to our identity signs. The most important actions covered revolves around promoting **research culture**, **innovation**, and **knowledge transference** to reach social and economic development.
The UAM considers as fundamental actions holding our researchers with a robust support policy, incorporating new researchers, and setting up joint institutes with other research centres, as the *Consejo Superior de Investigaciones Científicas* (Spanish National Research Council - CSIC).
The UAM also encourage technological innovation and transference through the collaboration between society and enterprises in training and research programs, as well as fostering joint research & innovation laboratories.

Research. The UAM 2025 Strategy proposes a series of topics oriented to improve research, considering as a strategic area and related to (1) the organizational structure of research (research groups, unities and infrastructures); (2) the research infrastructures (coordinating all existent in our campus); (3) the strategic planning of research, (developing attacking talent programs; and promoting research career, generating an evaluation and monitoring culture, according to internal plans per fields); (4) the research management, including informatization, data unit, the International and European Research Projects Office, and the Ethical Committee in Research; and (5) the promotion of scientific culture, with open access and gender equality.

Innovation. Concerning innovation, our strategy includes actions oriented to organizational structures for innovation and transference, promoting an entrepreneurship and innovation culture, advancing innovative ecosystems, and strengthening activities in the frame of Madrid Scientific Park.
Based on the principles settled in our strategy and result of the collaboration and the efforts with UAM and the *Consejo Superior de Investigaciones Científicas* (CSIC) we have been able to configure the *Campus de Excelencia Internacional UAM+CSIC (CEI UAM+CSIC)* a prestigious campus of superior education, research, and innovation, with an international projection.

Sapienza Università di Roma - SUR

Background: Sapienza Università di Roma, a multidisciplinary research context.
Founded in 1303, Sapienza is the oldest university in Rome and the largest in Europe. Its mission is to contribute to the development of a knowledge society through research, excellence, quality education and international cooperation. With over 700 years of history, more than 115,000 total students, 3,300 professors, 2,200 officials, technicians and librarians in addition to 1,600 employees in its university hospitals, Sapienza is one of the largest University in Europe. Sapienza includes: 11 faculties, **58 university departments**, 1 school for advanced studies, 1school of aerospace engineering, 1 online university, 18 museums, 2 university hospitals, 50 libraries.

Scientific research activity at Sapienza covers an extremely **broad spectrum of disciplines**, reaching levels of excellence in many areas, including archaeology, physics and astrophysics, humanities and cultural heritage, the environment, nanotechnologies, cell and gene therapy, design, aerospace, social and economic sciences.

Sapienza has been awarded in 2020 the "**HR Excellence in Research**" award, a recognition by the European Commission for its commitment in implementing the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.

Research strategy: fostering research and enhancing its quality, also at an international level.
Scientific research is one of the University's main drivers. Therefore, supporting basic research with concrete supports and promoting its continuous improvement is certainly a strategic objective of Sapienza. Excellent research also requires a policy for the purchase of large scientific equipment aimed at providing university with an instrumental park of international level, open to researchers from Italian and foreign universities.

This framework includes joint actions with international universities of recognized prestige for research collaborations, the promotion of researcher mobility and research collaborations through specific University funds for the support of incoming visiting professors. A special attention is given to the training of young researchers, in particular through the enhancement of PHD students skills. In this context, the University supports training initiatives aimed at encouraging the entrepreneurship of students and graduates, the valorisation of research results and their transfer to society with the creation of spin-offs and start-ups.

More in detail, Sapienza's Research and Innovation strategy includes the following operational objectives: 1. Support basic research 2. Enhance and increase technological innovations, infrastructures and tools for excellent research 3. Enhance and develop third-party activities mission 4. Monitor the scientific production of teachers 5. Define reward mechanisms for scientific production 6. Reduce the number of inactive professors and researchers 7. Enhance competencies to attract financial resources 8. Support participation in competitive calls 9. Enhance university patent asset 10. Promote university spin-offs and start-ups 11. Promote researcher mobility policies mainly aimed at ensuring a favourable working environment for researchers 12. Improve the international attractiveness of teachers 13. Enhance research doctorates.

R&I actions launched by the new governance of Sapienza.
In line with the aforementioned Research and Innovation strategy, the concrete actions launched by the new governance of the University, starting from 2021, specifically concern:

- **Support for fundamental, basic and applied research** through simplification of calls and internal procedures, greater openness to young researchers, strengthening of University internal funding
- **Launch of new tools and services** to support Sapienza community in implementing collaborative research
- **Strengthening of international collaborative research**
- **Coordination and networking actions** for the support and strengthening of research
- Promotion and **support for transdisciplinary and interdisciplinary research**

- **Support for scientific computing** (High Performance Computing - HPC) and Data Analytics (Big Data)
- Launch of **enhancement plan for research laboratories**
- **Strengthening of technology transfer** and business incubation activities
- **Simplification and revision of procedures** in order to harmonize, speed up and make transparent the administrative processes supporting research and technology transfer activities.

Stockholm University - SU

Background: Research funding in Sweden.

Central government is the largest financier of research at higher education institutions. The most important central government financiers outside the direct state contributions for research and postgraduate education to higher education institutions are the research councils, the Swedish Agency for Innovation Systems and other research-funding agencies. Funding for research also comes from private research foundations, the EU, municipalities and county councils, in some cases with a special focus on basic research.

In Sweden, industry invests large amounts in research and development. However, a very large fraction of this R&D investment is activated within industry itself. Although a smaller part is used to support collaborations with higher educational institutions on applied research projects, this source of financing is not very important for our fundamental research projects.

Excellence and Basic research.

Stockholm University is a prominent research university in the humanities, law, social and natural sciences, characterized by both independent and strong basic research and applied research. This provides a solid basis and good opportunities to meet the global societal challenges and to build new knowledge. The university grants all its tenured faculty members time for research.

Stockholm University has identified 16 multidisciplinary profile areas, each of which includes several large and strong research environments with comprehensive education. Together, these profile areas demonstrate what we are: a research university largely characterized by independent basic research with strong ties to society at large.

The free project grants, which account for most of the external funding of basic research, are a top priority for the university. They are absolutely crucial for breadth, versatility and excellence, as well as to facilitate the growth of new ideas and new fields of research.

Collaborations.

International research collaboration is fundamental to Stockholm University’s operations and an integral part of scholarly excellence.

University researchers are free to establish the collaborations and working methods that best benefit the development of knowledge, which in turn provide good conditions for running projects on the absolute research front.

Collaboration between research universities in Sweden has great potential and is increasingly important. The complete, nationally leading and internationally very prominent, academic environment that Karolinska Institutet, KTH and Stockholm University form together is promoted and utilized. This applies both to concrete internal collaborations and international contexts, as well as relations with public actors in the region.

Stockholm University aims to be a driving force in national and regional collaboration on infrastructure issues and to offer a suitable, high-quality infrastructure.

Open science.

Stockholm University also aims to be a driving force in the transition to open science, both in regard to open access to publications and open research data.

Universität Tübingen - UT

Innovative. Interdisciplinary. International. Since 1477.

These have been the University of Tübingen’s guiding principles in research and teaching ever since its foundation. With its long tradition of over 500 years, the University is one of Europe’s oldest institutions of higher education and has been setting standards in all fields of research across the sciences and humanities. In 2012, it was declared one of Germany’s Universities of Excellence by the German federal and state governments.

Around 500 professors and 5,200 faculty members conduct research at our 7 faculties and teach our over 27,400 students in more than 200 subjects. The wide range of study programs is continually being expanded to include innovative new fields such as nanoscience, media informatics, medical technologies, scientific ethics, and machine learning. Our academics are supported by roughly 2,700 staff members. With an additional number of around 10,300 employees working at the Tübingen University Hospital, the University and its Hospitals are the biggest employer in the area. In 2017, the University of Tübingen was awarded the "HR Excellence in Research" Logo by the European Commission for its commitment in upholding ethical and professional standards, fair and transparent selection and recruitment procedures, and creating excellent working conditions for scientists.

Our structures are supported by a culture of commitment and cooperation, which makes collaboration possible across the boundaries of not only disciplines and faculties, but also institutions. The University’s outstanding international reputation has enabled us to attract numerous top-level independent research institutions to Tübingen, including 4 institutions of the Max Planck Society, 5 German Centers for Health Research, and 2 Institutions of the Leibniz Association. They help create a vibrant research environment which is complemented by a number of strongly research-based companies. The short distances within our university town facilitate it for researchers to meet. The University also fosters close relationships with over 500 research and exchange partners, maintains 2 external research stations as well as 3 branch offices and is a member of 3 international multilateral networks.

Outstanding achievements in basic research combined with a strong focus on potential applications make the University of Tübingen stand out across a broad spectrum of disciplines.

This especially includes the University's 9 core research areas with their high density of complex collaborative research projects: Neuroscience, Artificial Intelligence and Machine Learning, Language and Cognition, Plant Molecular Biology, Microbiology and Infection Research, Translational Immunology and Cancer Treatment, Geoscience and Environmental Science, Human Evolution and Archaeology as well as Education and Media.

Research - Relevance – Responsibility. Open to New Challenges and a Global Scope of Action.

Determined to position itself at the forefront of new scientific developments, the University recognizes that success will depend primarily on its willingness to be open and responsive to new challenges. The University's readiness to adapt to rapidly changing demands on research enables it to attract top researchers and, as a result, to train and nurture top students and early-career scientists. In the coming years, a strong focus will lie on the transfer of knowledge to society and economy, the creation of an awareness of global connections and the expansion of the social commitment of science and research. Specifically, the university has set itself five main goals:

1. **Strengthening research excellence:** We want to embed the spirit of excellence across the University and recruit internationally-renowned researchers. That way, the University of Tübingen will establish itself in the long term as one of the foremost research institutions in the world.
2. **Further developing a collaborative research environment:** The University will expand its first-class infrastructure and form networks in order to increase the competitiveness of our research areas.
3. **Ensuring ChangeAbility:** We want to keep the University flexible and capable of acting in order to be able to engage rapidly and effectively with selected new research paradigms as well as with technological and social developments.
4. **Promoting global awareness in research and teaching:** We want to offer all members of the University and especially our students the opportunity to acquire a high degree of intercultural and problem-solving skills. This will be necessary to face the enormous environmental and social challenges of our time so as to act responsibly in a globalized and connected world.
5. **Expanding social commitment:** The University seeks to make relevant contributions to current debates and promote new forms of research communication, public relations and knowledge transfer.