



WORK PACKAGE 3

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Table of Contents

List o	of Tables and Figures
Exec	utive Summary5
1.	Introduction
	1.1 What is the Aim of RIS4CIVIS?61.2 The Benchmarking (WP1) and Consensus-Building (WP2) Phases.71.3 The Case Studies Phase (WP3): Objectives and Work Processes.8
2.	Analysis per Module
	Module 1: Common Research and Innovation Strategy.11Module 2. Sharing Infrastructures.20Module 3: Reinforcing Academia-Business Research and Innovation Cooperation33Module 4: Strengthening Human Capital.45Module 5: Mainstreaming of Open Science.59Module 6: Embedding Citizens and Society.68
3.	Conclusions







List of Tables and Figures

T .			
Int	troc	luct	on
	uu	ucu	UII

Figure 1.	The RIS4CIVIS	Organizational	Structure	7
0		0		

Individual Module Reports

Module 1: Figure 1. Entry Point for the RIS4CIVIS Module 1 WEB Portal	15
Module 1: Figure 2. Research Fields with Corresponding Research Groups	16
Module 1: Figure 3. Example of the Research Group List View	17
Module 1: Figure 4. Local WEB Page of one the Research Groups	18
Module 2: Figure 1. Logo CIVIS RIs	23
Module 2: Figure 2. List of Labelled RI Participants	24
Module 2: Figure 3: Interface of the CIVIS RIs Dataset	28
Module 2: Figure 4: Interface of the Sharing Research Infrastructures Platform	29
Module 2: Figure 5: Access to RI Sheets by Localisation	.30
Module 3: Figure 1: Module 3 Approaches in WP3	35
Module 3: Figure 2: RIS4CIVIS Innovation Strategy Matrix	36
Module 3: Figure 3: Fundamental Innovation and Start-Up Trainings	38
Module 3: Figure 4: Start-up and Innovation Training Workshop in October 2022 in Stockholm	41
Module 3: Figure 5: Draft of Course Plan of joint RIS4CIVIS start-up and Innovation trainings	41
Module 4: Figure 1. Number of Applications per University	48
Module 4: Figure 2. Participant Feedback	48
Module 4: Figure 3. Division in Relation to Faculties, Gender, Study Positions and Universities	53
Module 5: Figure 1. An estimated Timeline, as presented in a Cross-Module Meeting (Modules 4, 5	i.
and 6) in Madrid (May 3, 2022, i.e. month 17 of RIS4CIVIS)	61
Module 5: Figure 2. Screen Capture with the Internal Document (represented as a Webpage)	62
Module 5: Figure 3. Screen Capture with the Homepage of the Open Science resource in Moodle	62
Module 6: Figure 1. Figure 1. Screenshot of the Experts Community Platform	.69
Module 6: Figure 2. Experts Database and the Number of Representatives by Universities	73







Executive Summary

The present deliverable provides an overview of the work carried out by the six Modules during Work Package 3 ('Validation through Case Studies') which has run between month 14 (April 2022) and month 32 (September 2023) of the RIS4CIVIS project. The deliverable consists of three parts: 1) an introduction to the RIS4CIVIS project and its main objectives; 2) six Module analyses with detailed information and description of the implementation of case studies; and 3) a final part summing up the most important recommendations for future work within the CIVIS Alliance.

WP3 has been organized through two main tasks: 1) *The Pilot Implementation of the Case Studies* and 2) *Cost-Benefit Analyses*, and this deliverable gives detailed information about the implementation of case studies within the six Modules – including their specific objectives, their work processes, the obstacles and hinders encountered, (new) possibilities that have surfaced, the many findings and recommendations – as well as a Cost-Benefit Analysis. At the end of this deliverable, a conclusion with the most over-arching and significant recommendations for future research and innovation strategies is offered.

The main objectives and tasks of WP3 have been to *design, implement* and *test* the different case studies that were defined by the six Modules at the end of the 'Consensus-Building Phase' (WP2). In sum, based on the results of WP2, the objectives and aim guiding the work during WP3 have been:

- To validate our roadmaps;
- To confirm our recommendations;
- To develop corresponding cost-benefit analyses.

In addition, two other objectives have been guiding the work processes within WP3:

- To facilitate and reinforce research collaborations within the Alliance;
- To come up with recommendations on what is feasible and desirable for WP4 'CIVIS R&I Strategy'.

This deliverable presents the preliminary results and outcomes from the chosen WP3 tasks and consists of a compilation of the reports produced by each Module, providing a comprehensive overview of the initial implementation of the CIVIS Research and Innovation Strategy and the lessons learned.

The many conclusions drawn originate from each Module and constitute the basis for further consideration and implementation. The pilot case studies and their outcomes presented in this deliverable together with the results of the Cost-Benefit Analyses, will be used as foundation and springboard for WP4 ('CIVIS Research and Innovation Strategy and Institutional Transformation Model').







1. Introduction

1.1 What is the Aim of RIS4CVIS?

RIS4CIVIS is a three-year long project funded by the European Commission under the Horizon 2020 'SWAFS' programme with an aim to support the Research and Innovation dimension of the CIVIS European University (from here on referred to as the CIVIS Alliance) in line with its shared, integrated, long-term strategy and synergy with its education dimension.

The project has as its aim the enabling the CIVIS Alliance -as well as its African partners and other European universities- to pave the way and pool out their expertise to address the 21st Century challenges through world-class research and innovation. In sum, RIS4CIVIS aims at developing an *integrated, long-term Research and Innovation Strategy* that is based on the member Universities' complementary strengths, while also addressing obstacles that stand in the way of deeper Research and Innovation cooperation. More specifically, RIS4CIVIS is dedicated to 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 Research and Innovation;
- 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 these objectives, the project has been structured in six 'Transformational Modules':

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









Figure 1: The RIS4CIVIS Organizational Structure

1.2 The Benchmarking (WP1) and Consensus-Building (WP2) Phases

The very first work package of the RIS4CIVIS project (WP1: the 'Benchmarking Phase', which was coordinated by the National and Kapodistrian University of Athens [NKUA]), served to develop an atlas or an inventory of:

- The current practices within each CIVIS Alliance member in regard to the topic covered in each Module, and;
- The national situations (legal, regulatory, political, financial, procedural, systemic) that affect each university-partner again in regard to the topic covered in each Module. This activity included the identification of legal and governance barriers as well as external funding sources.

Based on the results from WP1, the second work package (WP2: 'Consensus-Building Phase', which was coordinated by Universidad Autónoma de Madrid [UAM]) aimed at developing roadmaps determining the path to follow between the current status of CIVIS Research and Innovation Cooperation as well as formulating desired endpoints. The roadmaps included the following:

• Short-term actions/standards/procedures to be immediately implemented throughout the Alliance;







- Identification of obstacles that can be overcome in the medium-term, how they can be overcome, and what our Research and Innovation Cooperation should look like in the medium-term;
- Identification of long-term obstacles that need to be addressed in order for each Module to reach its desired end-points, and how these should be addressed.

1.3 The Case Studies Phase (WP3): Objectives and Work Processes

Based on the results from the two first WPs, the following objectives for the WP3 (which has been coordinated by Stockholm University [SU]) were chosen:

- To design, implement and test the different case studies;
- To validate our roadmaps;
- To confirm our recommendations;
- To develop corresponding cost-benefit analyses.

To inaugurate the work within WP3, an in-person kick-off meeting was organized in Brussels in late March 2022, with five out of six Module leaders present together with the WP3 team and the Management team (based at AMU). At this meeting, the Module leaders were invited to present their possible case study (or studies) as well as a preliminary cost-benefit analysis. Initially, one case per Module was encouraged, but as most of the leaders and their module teams had several possible cases in mind, it was decided that a small number of cases was to be accepted. And since the work process within WP3 to a large extent has been organic, the number of cases has come to differ greatly between the Modules: some have only one or two, others have four or even five. This difference, it should be noted, is much due to the overarching objective(s) and desired endpoints of the specific Modules.

At the first meeting in Brussels, the WP3 team emphasized that WP3 is about *testing concrete cases*, and doing so through a *collaborative process*, with the aim to install and solidify joint research strategies and innovations. It was also emphasized that the very *methodologies* used and developed within and through each case study were to be of importance, that is, *how* the cases were to be carried out, was to be a crucial result.

During the WP3 phase, the case studies work has been carried out by the representatives participating in the Modules, and at times Modules have relied on the participation of external experts. In most of this work, all of the universities within the alliance have been represented and involved in the work processes. As for meetings, each Module work group has held internal meetings monthly or bi-monthly and each Module leader has met with the WP3 team bi-monthly. Based on these individual meetings with the WP3 team, Module leaders have also produced short reports on the progress of each case study. These bi-monthly meetings and reports have constituted the very basis for the WP3 team reporting back on the overall work progress in each Module at the Executive Committee meetings that have been held every second month, with all six Module leaders and the Management team present. This continuous dialogue has helped the WP3 team and the Management team assess the validity and progress of the case studies. The WP3 team has also participated in or audited at several workshops and meetings that







the Modules held with experts and/or students as part of their case studies. This involvement has helped the WP3 team follow and understand the development of the various case studies and, not least, the work (and solutions) that these cases have entailed along the way.

After the first in-person meeting held in Brussels in late March 2022, most of the meetings have been held via ZOOM except for some meetings being held in hybrid format (as when several Module leaders were gathered at UAM in Madrid in May 2022, at SUR in Rome in September 2022, at SU in Stockholm in October 2022, at UT in Tübingen in May 2023, and at AMU in Marseille in June 2023). Moreover, several hybrid and in-person *cross-Module meetings* have been organized in order to identify transversal aims and implement common actions across Module activities. These cross-Module meetings and joint collaborations have involved all of the six Modules, but in particular they have involved Modules 4, 5 and 6, as described in the individual Module reports below.

During the 'Validation through Case Studies' phase, most of the six Modules have been working closely with their experts on the design of their case studies' content. As of September 2023, all but two of the initially chosen case studies have been implemented and finalized and each of the cases is presented in detail in the next section of this deliverable. In addition, through the indeed fruitful and synergetic cross-Module activities, new and additional cases have been added to the already existent ones, and some of these cases are still being implemented and tested. These too will be described in the next section.

It should be emphasized that many of the outcomes, and the *work processes* that the chosen case studies have generated, have already proven to be useful for the Alliance, solidifying the collaboration, relations and networks between our universities (and beyond).

The presentation and description of the work carried out within each Module is structured into two parts: (i) part one contains a presentation of the cases, the work process and its results, and (ii) part two contains a Cost-Benefit Analysis. The first – and longer – part of each report includes:

- Description of Case Studies;
- Description of the Work Process;
- Obstacles, Hinders and (New) Possibilities;
- Results;
- Recommendations and Conclusions.

As will become evident in the following six presentations of the Modules, their case studies and their progress, some Modules followed a rather straight-forward approach, whereas others – due to their objectives – were more of an exploratory nature. Some of the case studies and their endpoints were clear from the beginning, while others formed more organically throughout the course of this WP.







Besides the already set case studies, all of which were sketched out during the first in-person meeting in Brussels in March 2022 and later decided on during the summer that followed, additional cases – many of which are cross-Module activities – have been formulated, tested and implemented during the later part of the WP3 phase. These additional cases prove that our collaboration has been both synergetic, constructive and fruitful. It should be noted that some of these additional cases, due to the fact that they emerged 'organically' from the collaboration, are still ongoing and that they will therefore continue to be implemented and tested after the submission of this deliverable.

Throughout the project, and perhaps especially so throughout the WP3 phase, it has become very clear that the involved University representatives are engaged and indeed willing to help facilitate and reinforce research collaborations within the Alliance. Yet, it needs to be noted that physical meetings are crucial for this to happen: the pandemic hit as the RIS4CIVIS project was launched, and after more than a year of meeting only digitally, the getting together in Brussels in March 2022 proved with all clarity that in-person meetings are crucial for collaboration (and change) to happen. The following workshops and meetings held at many of the partner Universities (e.g. UAM, SUR, NKUA, UT and AMU) to which some of the Modules were invited proved as crucial, and this is why the WP3 team decided to arrange a full week of meetings, getting togethers and workshops in Stockholm in October 2022. At this event, some 50 representatives (in different positions) from the partner Universities participated, and for many of the Modules, this event became the very starting point for their case studies work. Hence, an important conclusion that is derived from WP3 is the importance of in-person meetings for our joint collaborations and efforts to thrive and succeed.







2. Analysis per Module

Module 1. Common Research and Innovation Strategy

PART I

1. Description of Case Studies

The identified case studies use the desired endpoints from the previous Work Package as its starting point. Following a broad discussion regarding research and innovation strategies of each CIVIS university during WP2, it was concluded that it was not feasible to formulate an actual common research strategy for the whole consortium. Instead, overlapping ambitions and goals for research were identified with the purpose to find a joint and constructive way forward. As previously reported by the end of WP2, the Module 1 collaboration agreed on the two following desired endpoints:

- Establish research collaboration based on emerging bottom-up excellent research generated in academic freedom;
- Establish systematic information about research profiles, researchers and research support units at the partner universities in order to ease for researchers with similar interests to get in touch, and also for research support staff to establish contact in order to develop joint projects and programmes with potential to support research collaboration across universities.

Bottom-up research requires a common will, expertise and prerequisites such as funding in order to actually result in high quality research. The case studies therefore need to increase the knowledge exchange concerning ongoing research and competences available at each CIVIS university. Collaborations are simply not possible unless researchers are aware of each other and their corresponding activities. In addition to finding each other the researchers also need to get involved in actual scientific discussions. Last but not least, funding opportunities need to be identified in order to move from a scientific discussion to joint efforts. Through the EU and e.g., the Horizon programme, funding is available for European collaborations and the goal should therefore be to use this funding source for starting new collaborations.

Given this background, two components were identified as possible contributors to foster bottom-up initiated collaborations within the CIVIS consortium. As stated in the desired endpoints in the WP2 report, it is desirable to build a database containing information on existing research groups and ongoing research at each CIVIS university. In addition to this gathering of information, activities are needed to ensure interactivity between researchers.

Due to time constraints, Module 1 needed to prioritize and it was decided upon to focus on establishing an online database on research groups and activities. The question of arranging new meeting activities to initiate scientific discussions is however not forgotten but simply left for the future. Once it was concluded to build a database, thorough discussion regarding details followed. The working group







concluded that the database needed to be searchable and relatively easy to set up due to time constraints. Furthermore, it was crucial to find a common data structure suitable for all the involved universities. Last but not least it was decided that there has to be a way to keep the database up to date even after the end of the project.

2. Description of the Work Process

The work related to the case study has been based on dialogues, physical and digital meetings between all participants. In between the meetings, each individual Module leader worked locally together with IT-staff, research support functions and others.

One key activity was a physical workshop arranged at Stockholm University in October 2022. The purpose of this meeting was to brainstorm and to agree on a more detailed common goal. During this workshop, it was concluded that it is fairly straight forward for researchers to find international colleagues within their own scientific discipline. However, today's research questions often tend to be more and more multidisciplinary and mission oriented which makes it much more complex to find suitable future collaborators. In order to make academic research contribute to the solutions of our global challenges in the best possible way new research constellations need to be established. The database suggested by Module 1 should make this difficult task easier.

If researchers are to be identified in a database, not via their scientific discipline, but rather their expertise it was concluded that qualitative descriptions on research groups, activities and competences were needed. Descriptive texts would also make the database searchable, thereby drastically increasing the value for the researchers.

Early on it was recognized that the number of research groups within the CIVIS Alliance is very large. To store information on all of these in a database, a well-defined data structure is needed. Following the Stockholm workshop, a number of digital meetings took place to discuss and agree upon a suitable structure. It was decided that the database structure should follow each university's organizational structure, from university level to research group level. The representatives in Module 1 agreed on a four-level structure corresponding to University – Faculty – Department – Research group. The entities listed here have slightly different names at the different CIVIS university but the proposed data structure can still be used to map the hierarchy of each organization.

Once the data structure was decided upon, the task to collect actual data followed. Early in the working process the question of how to maintain such a proposed database was raised. The working group identified a risk that the future database would be constructed but later not maintained which would lead to a situation with rapidly declining data quality. With this is mind, it was concluded that the most up to date information at each university is the information that is publicly available at each university's webpage. After additional meetings, Module 1 therefore agreed that the database should reuse the research group information already available at the open web pages.







Once these key decisions were made, assignment of key roles for future work were discussed. The representative of each university in Module 1 was assigned the role of data manager for their corresponding data. This role comes with a responsibility of collecting data and also maintaining the data quality. The responsibility for the underlying IT infrastructure was assigned to AMU.

Due to the limited amount of available time, the success of the project was strongly dependent on finding easy ways to collect, share, store and display the data. Therefore, data was collected in Excel spreadsheets at each university and later collected by Stockholm University. Following a quality control of all data in Stockholm, it was then forwarded to the IT team in Marseille. Thanks to the involvement of the IT team, it was early identified that the case study of Module 1 has substantial overlaps with the case study in Module 2 regarding research infrastructures. The most resource efficient solution was therefore to share the underlying IT infrastructure with Module 2. Following this decision, a discussion focused on knowledge exchange between Module 1 and Module 2 also took place.

Even though the data collection at each university was associated with some complications and obstacles, see section 3, 'Obstacles, Hinders – and (New) Possibilities', the Module soon came to a point when it was time to construct a demo version of the database and its corresponding user interface. A web portal hosted by AMU was set up and access was given to all participants in Module 1. After demonstration of this web portal, each university was given some time to evaluate it. Following this trial period, the Module was once again gathered in a digital meeting to give feedback on this first version. The resulting feedback was forwarded to the IT team who made some alterations to the first version in accordance with the collected user experiences.

In parallel to the technical development in Marseille, Stockholm University evaluated the userfriendliness of the web portal. By the end of the process, the database was published with all the available information. Even though the database and its corresponding web portal is published, it still remains to launch the service to a wider group of stakeholders.

3. Obstacles, Hinders – and (New) Possibilities

The development of the Module 1 database has in general gone according to plan. However, some challenges did arise along the way at each university and there is still room for improvement. The current version of the web portal is to be considered a demo rather than a final version. It should be emphasized that developing a research information database of this kind is usually a project that takes several years even with substantially more human resources than what was available this time.

Agreeing on the overall goal of the case study was a fairly straight forward process and the participating universities could easily reach consensus. The most challenging part has been the actual data collection. The complications can mainly be divided into three parts:

- Data availability
- Language issues
- Legal complications







Data Availability

The data were collected from each university's website and the content as well as the structure of these websites vary quite a lot. Descriptions are not publicly available for all research groups at each university and the extent and level of detail in the descriptions vary. Experience from similar data services clearly show that it is extremely difficult to work with improving data quality without actual displaying the current state of information. It was therefore decided upon that all data should be added to the database and displayed in the web portal even if the quality was of lower standard. After the available data were collected and structured accorded to the desired standard it was concluded that there were several research groups who completely lacked a qualitative description. Given the project's management model where the Module representative from each university is responsible for the data quality of their organization, it is up to each university to work with improving the data and filling the gaps.

Language Issues

Even though most of the CIVIS universities have web pages in English, this is not the case for all universities nor all research groups. Since the final database is supposed to be searchable it is important that the information is available in a common language. The task of translating information has caused a delay for some universities, but all the information is now available in English. Once again, since each university is responsible for their own data quality, the responsibility of translating the information has also been distributed on the Module's representatives.

Legal Complications

There are always legal aspects to take into consideration when sharing data. The Module tried to minimize this problem by using information that is already available on each university's webpage. Even though this most likely was a wise decision it did not eliminate the legal issues completely. Currently, there is still one university that needs further internal legal discussions before data can be shared with the other CIVIS universities but the remaining complication is most likely to be solved by collecting consents from the involved researchers.

(New) Possibilities

Due to time constraints the full potential of the database could not be realized. In its current form it should be useful for researchers trying to find collaborators around multi-faceted complex research questions but additional functionalities could also be added at a later stage. The similarities between the database of Module 1 and Module 2 are obvious and the possibility to link the two to each other has been discussed. The user experience has been a strong focus when developing the web portal and this is something that is deemed to be crucial if the database is to be valuable for the end users i.e., the researchers. The participants of Module 1 concluded that there was a clear risk that integrating the two databases into one could lead to a higher complexity and consequently a worse user experience. Therefore, it was decided that the databases should be kept separate at this point in time.

As identified already in the beginning of this work package, research funding is crucial in order to establish new collaborations. Consequently, it would most probably be valuable to relate information on available funding opportunities to the new Module 1 database. This could probably be done by using







open data from e.g., the European Union's Funding and Tenders portal. This task is, however, a future one.

Finally, one can conclude that even though the university representatives in Module 1 are researchers or other staff with a research background, no larger group of end users have had the chance to give systematic feedback on the developed database. Such an exercise would most likely give valuable information on how the database could be used and developed to maximize the benefits of it.

4. Results

A database containing qualitative descriptions of research groups at each CIVIS university is now published online with a user-friendly web interface¹. Currently there are approximately 1.100 research groups in the database along with searchable, descriptive texts and hyperlinks to their local webpages at each university. The database is published using the same technical platform as in RIS4CIVIS Module 2, see Figure 1.



Figure 1. Entry Point for the RIS4CIVIS Module 1 Web Portal

¹ https://civis.opendatasoft.com/pages/ris4civism1/







The interface contains short texts functioning as an introduction to the service along with some key numbers relating to the content of the database. Since one of the main purposes of the web portal was to foster multidisciplinary research collaborations, the text-based search function is crucial. This search field is supposed to function as an entry point for researchers looking for possible collaborators especially around challenge- and mission-based research questions.

After launch, all the Module 1 participants were asked to evaluate the functionality of the service. It is obvious that the web portal could function as a tool for researchers when it comes to finding relevant research groups in fields outside of the users' own expertise. As an illustration, Figure 2 contains an example of research fields which appear when a certain search term is entered. The results clearly show that the web service returns research groups from different fields but with a certain research topic in common.



Figure 2. Research fields with corresponding research groups resulting from a search using the term « climate ». The identified research groups are all involved in research relating to climate but represent a variety of different research fields ranging from science (chemistry, geology, mathematical modelling) to social sciences (economics, sustainability, education) and the humanities (climate history).

The web service searches will return names and descriptions of a number of research groups related to the entered search term complete with hyperlinks to their local web page, see Figure 3. By using the hyperlinks and visiting the local webpages of the different research groups, additional information on e.g., individual researchers and/or ongoing research projects can be found. Figure 4 shows one such example from the research group « Open Baltic Sea » displayed in the research results in Figure 3. Besides providing additional information, the local web pages are usually also the ones which are most up to date.

An important thing to consider when setting up a database as the one used in the Module 1 case study is to think about maintenance and how to keep the data up to date. The information in the database is administered by the technical IT team in Marseille and the individual CIVIS universities may add or edit their information in the database simply by e-mailing the technical team. A data template is available in order to minimize the amount of manual work needed in Marseille when adding or editing the data.







Even though the web service is published online it is still to be properly launched. The web service needs to be easy to find and the desired end-users at each university also need to be informed about the service and its operation.

Research groups R	IS4CIVIS module 1
Q climate	0
3 Number of re	8 seearch group
ENURRONMENTAL EDUCATION LAB The Lab aims at academic and educational cooperation for theory building and for sustainable development. Among its current research interests are: the design of innovative teaching and learning strategies and tools to address current sustainability challenges the forging of mutually constructive synergies among environmental and sustainability education and the environmental social sciences and humanities the integration of environmental clitzen science in formal, informal and non-formal educational contexts and the exploration of its learning potential the study of co-design of digital resources as meaningful learning experiences climate change communication and education narrative inquiry as research methodology for studying 'experience' and as professional development strategy in environmental and sustainability education National and Kapodistrian University of Athens School of Philosophy.	Open Baltic Sea Research on the open sea focuses on how the large-scale ecosystem dynamics of the Baltic Sea are changed by human impacts. Issues include eutrophication, fisheries and how environmental toxins are transported and dispersed in the sea the research is mainly carried out through marine modelling and analysis of existing data from various environmental issues and management processes to the odels link circulation patterns and nutrient cycling in all levels of the Baltic Sea food webs and ecosystems. The models allow scientists to create different scanarios for how the Baltic Sea changes depending on, for example, how fisheries are conducted, how the climate changes or how agriculture in the catchment area develop. Mothem University Ketste

Figure 3. Example of the research group list view resulting from a search using the term « climate ». Each group's descriptive text is displayed and accompanied by a button which takes the user to the group's local web page at its corresponding university.









Figure 4. Local web page of one the research groups resulting from a search using the term « climate ». The local web pages often contain more information compared to what is available in the RIS4CIVIS Module 1 database and they are easily found by following the hyperlinks displayed in the web portal

5. Conclusions and Recommendations

The case study has shown that combining already available information into a common, searchable web portal may be valuable as a tool for researchers to find new possible collaborators especially when exploring multidisciplinary research questions. A passive web service is however not enough to truly







achieve collaborative research. Activities and fora are needed in order to make sure that researchers also meet and discuss. Establishing ways for researchers to communicate and interact in the future will be critical if the full potential of the now published web service is to be realized. Research funding is also needed if actual research projects are to be initiated. The European Union offers several different possibilities for funding of joint research projects and it would therefore be desirable to also bring funding opportunities into the RIS4CIVIS Module 1 database. This could in principle be done as along as the research programmes provide the research community with open and preferably machine-readable data on calls and tenders. The working group of RIS4CIVIS Module 1 would therefore strongly encourage the European Union and the Horizon programme to continue their work on making research data and research information FAIR (Findable, Accessible, Interoperable and Reusable) and open.

Finally, it should be emphasized that IT-services such as the one set up in this case study often turn inaccurate and less valuable if not properly maintained. The setting up of such a service might be achieved by working within the scope of a project but the long-term operation needs continuous resources, financial as well as human, to operate. One should also bear in mind that it might take some time for researchers to realize the value in services such as the one described in this report. With that being said the actual use of the web portal should be monitored and evaluated before making additional decisions regarding future development.

PART II

Cost Benefit Analysis

The cost of developing the web service described in this report has to be considered to be very low in relation to the objectives. The human resources used all originated from the Module 1 working group together with the technical team in Marseille. The IT-platform chosen for the web service was already available at AMU which meant no additional infrastructural costs. The benefits of the web portal can only be estimated at this stage of development. The service is published but not yet launched so there are no available statistics on researcher usage. However, given the low development costs the benefits would quickly outweigh them if only a few new research collaborations could be established with help of the service.

An accurate cost benefit analysis would also need to take the long-term operation of the service into consideration. No detailed plan regarding the long-term operation has been formulated which means that the costs of operation are unknown as of today. Worth noticing is that the running costs of the service without further development with respect to data coverage and data quality is minimal. This implies that the future developers will be able to control the costs of the service and they may act in accordance with a future budget without the risk of putting themselves in a situation where the running costs are high but the benefits are low. Some future human resources are however highly desirable in order to maintain the current quality of the service. A crude estimate is that each CIVIS university would need to invest approximately 100 working hours per year in order to keep the data quality at its current level. This task would include updating the information in order to ensure that the content of the database is accurate and relevant.







Module 2. Sharing Research Infrastructures

PART I

1. Description of Case Studies

Research Infrastructures (RIs) are at the core of the knowledge triangle of research, education and innovation and therefore play a vital role in the advancement of knowledge and technology and exploitation and in the construction of an efficient Research and Innovation environment.

Based on these premises, the object of Module 2 has been to find a way to seamlessly share CIVIS Alliance members Research Infrastructures. In particular, the main aims of the Module are:

- To map and identify research infrastructures including e-infrastructure that the CIVIS Alliance could have available to it in order to implement its long-term joint Research and Innovation Strategy;
- To design practical methodologies to be developed for sharing these infrastructures within the CIVIS Alliance and with other relevant stakeholders.

Following these main aims, the Module 2 has aspired to:

- Make research infrastructures open and accessible to all researchers;
- Increase awareness regarding RI availability throughout CIVIS community;
- Enhance visibility of RIs also towards non CIVIS users;
- Foster networking between RIs;
- Foster cooperation with private sector/Industry, as desired user of RI;
- Guarantee RI access within a common framework and shared principles;
- Benefit from different services supporting RI development;
- Share competencies and expertise at a CIVIS level;
- Define in a clearer and more transparent way RI usage regulation in order to make the RI access smoother.

In order to achieve these aims, the Module activities in the two previous WPs have been focusing on the following steps:

- 1. The benchmarking of open Research Infrastructures (WP1) of CIVIS institutions interested in being part of the RIS4CIVIS strategy. In this phase the Module mapped, through an online survey, and analysed the RIs main features, rules, requirements, criteria and cost to access, as well possible barriers hampering the use of RI by other CIVIS Alliance members and by other stakeholders;
- 2. The 'Consensus-Building phase' (WP2) aimed at defining a CIVIS Research Infrastructure Strategy for sharing relevant research infrastructures through two endpoints:







- Defining a *proposal for a common access point* to information on open Research Infrastructures available, covering the financial, IP, legal, regulatory, logistical or other conditions of use;
- Designing a *joint strategy for the creation of a CIVIS Research Infrastructure Network* (for the short term) containing possible measures and actions for removing the current barriers (financial, IP, legal, regulatory, logistical or other) and also proposing (at a long term) a model for sustainability through the creation of a CIVIS Research Label.

The current case-study phase (WP3) aims therefore to implement, to test and to validate these endpoints through two main components:

- 1. The release of an online database and an interactive Platform that promote the access and the share of open CIVIS Research Infrastructures, enhancing their visibility throughout the Alliance scientific community and towards external stakeholders;
- 2. The creation of a CIVIS Research Infrastructure Network/Label, based on acceptance of the principles and the requirements set in the 'CIVIS Research Infrastructure Charter for Research Infrastructure access and use' and on a procedure leading to the awarding of CIVIS RIs label (possible implementation of the label after the end of RIS4CIVIS project onwards).

The case studies have been identified starting from the analysis of the results emerged during the previous WPs, and, in particular, considering the heterogeneity and the difficulties in accessing the RIs knowledge and visibility as well as the opportunity to share ideas, proposals, methodologies and activities in order to reinforce the synergies within the Alliance.

The selected case studies will permit to actually verify the benefits and the potential barriers, testing and choosing the best solutions for the creation of an open way/path to easily share RIs between the CIVIS Alliance and towards external users.

2. Description of the Work Process

2.1. Establishment of One Single Information Access Point to CIVIS open RIs by the Use of a RI Interactive Platform

The first component of the case studies proposed by Module 2 includes the establishment of one single information access point to CIVIS RIs using a joint dataset and online interactive platform. This access point includes RIs available to joint use, even if only partially, by any user belonging to CIVIS institutions and eventually to external users i.e., users not belonging to CIVIS Alliance, including CIVIS partner organizations and most of all businesses. In particular, the RIs listed can be accessible pending its own access modalities (e.g., calendar, fees, associated staff services).

The <u>dataset</u> and the <u>online interactive platform</u> have been implemented by CIVIS IT staff with the data gathered in WP1 (the 'Benchmarking' phase) by an online questionnaire that was initially organized in the trial of the IT-tool. The initial dataset evidenced the need for improving and 'cleaning' the quality







of the data/information already included (i.e. English proof reading, avoid of duplication of keywords and of empty fields) and the addition of some information, like, for example, the ERC standard keywords.

The methodology to improve the quality of the IT-tool has been shared during the meeting of Module 2 team. In particular the main suggestions and instructions to perform this cleaning activity have been presented by CIVIS IT staff and have been included in the <u>Document Guide for Scientists in charge of Research Infrastructures</u>. It has also been agreed to involve in this cleaning activity the same RI scientists in charge in order to engage them as much as possible in the improvement and in the management of the information related to their own RIs. The support for RI scientists in charge will be provided, as first front office, by the relevant Module 2 members or local support staff at the correspondent CIVIS Institution where the Research Infrastructure is located. Secondly, in particular in case of specific technical problems, the support will be guaranteed by CIVIS IT staff. Moreover, the process to involve RIs coordinators will be managed at a decentralized level, which means that each institution will identify the best way to spread internally instructions to RI coordinators, such as by email or by organizing a meeting with the interested parties. The involvement of the RIs scientist in charge was crucial not only for testing the process, but also to verify the sustainability of the update of the dataset after the end of the project.

Directly connected to the Dataset, the <u>Sharing Research Infrastructures Platform</u> is configured as an online showcase of infrastructural resources and competencies for the benefit of the entire CIVIS community. The Platform was released in December of 2022 and it includes 172 RIs. The Platform, based on the Opendatasoft software, provides to achieve the objective of enhancing the use through the sharing research infrastructures at the Alliance level. This platform collects information on each RI presented in a format of table with the possibility to filter using different categories (by Universities, ERC Sectors) or by keywords, with detailed information for each RI. It is possible in this platform to present RI on a map. Moreover, the platform has a dynamic character, meaning that it is possible to continuously update the information already shown and to add additional RI files. In order to publish Research Infrastructure, the IT tool is also compliant with FAIR principles. The update and the consolidation of its contents will be continuousl.

'Sharing Research Infrastructures Platform' aims to enhance the visibility and to facilitate the access and the share of open Research RIs not only throughout the Alliance Scientific community but also towards third parties and external stakeholders, including businesses, with the aim of fostering publicprivate interactions and technology-transfer practices. The Platform allows to find, using search filters, information about the main characteristics of the RIs (i.e., name, location, description, ERC keywords, etc.) and about their modalities for access (contact persons, services provided, access requirements, link to usage regulation). The main aims of the tool are the following ones:

- To promote awareness by the CIVIS scientific community about the RIs existing within the CIVIS Alliance for Research and Innovation activity;
- To enhance RIs visibility towards possible non CIVIS external users;
- To foster an efficient use of RIs;
- To strengthen Research and Innovation capacities by CIVIS institutions.







2.2. A Joint Strategy for the Creation of a CIVIS RI Network and of a CIVIS RI Label

The second component of the case studies includes a joint strategy for the creation of a CIVIS RIs network, at a short term and of a CIVIS RIs label, at a medium-long term. This label can be used by all CIVIS open RIs and committed to adopt common principles in support of RI opening/visibility. The proposed labelling model is based on a common set of principles, as defined in the <u>CIVIS RI Charter</u> for access and use and a procedure leading to the awarding of CIVIS RIs label.

In anycase, as for the management aspects and rules for access and use, each of the participating RIs for the label would be managed in a decentralized way, i.e. locally by the scientist in charge of the RIs. This means that each labelled RIs will maintain organizational autonomy from a technical and scientific point of view and assume management responsibility and define specific methods of use.

The application for the label will start after the end of the RIS4CIVIS project and will be on a volunteer basis. In this regard, it is also worth to underline that RIs not interested in the label awarding will also have the possibility to be visible within the RI on-line interactive platform. The label is awarded for three years.

To monitor the label procedure, once the process is started after the of the project, a Scientific Board will be established. More in details, the Board will include one scientific representative by each CIVIS Partner. Each scientific representative of the Board will be supported by one management/administrative unit belonging to the respective institution and appointed by the same institution. The Board will be in charge of the evaluation of the applications for label; monitoring the overall effectiveness, efficiency and impact of CIVIS Label model every three years; in possibly identifying CIVIS Alliance priorities in term of research infrastructures; in eventually proposing strategic actions for the development of a CIVIS Research Infrastructure.

The above-described procedure will apply from the end of the RIS4CIVIS project onwards (mediumlong term perspective). Furthermore, an appropriate brand of the label has been designed with the collaboration of the Communication team. The logo (selected by the Module 2 working group among six proposals) will facilitate the visibility of the CIVIS RIs label and it will also support the sense of belonging among the participating RIs. The use of the logo is already possible for the participating RIs, even though it is not mandatory in this pilot phase.



Figure 1. Logo CIVIS RIs







The aim of the case study is to test the procedure and to eventually adjust it in view of its formal adoption and the implementation after the end of the RIS4CIVIS project. It has been agreed to leave to the single institutions the decision on which RIs to involve in the pilot label phase. Some of the institutions, for example, organized an internal meeting with the RI coordinators explaining to them the main features and steps of the label process as well as the expected benefits. For these purposes Sapienza prepared and shared a presentation to be used by each CIVIS partner institution, also targeting it to the specific audience of each institution. This approach led to the identification of 22 RIs available to test the networking and label process:

University	Acronym of the RI	Extended name of the RI	ERC Panel	Scientist in charge
ULB	LiMiF	Light Microscopy Facility	LS1, LS3 LS5	Jean-Marie Vanderwinden
ULB	APFP	Analytical Platform of the Faculty of Pharmacy	PE4	Pierre Van Antwerpen
ULB	Micro-milli	Micro-milli platform	PE8	Pierre Lambert
ULB	СММІ	Center for Microscopy and Molecular Imaging	PE4, PE6, LS1, LS7, LS9	Denis Derycke
ULB	CIREM	Centre d'Instrumentation en REsonance Magnétique	PE4, PE5	Michel Luhmer
SUR	NMLab-SRI	NMR-based metabolomics Laboratory of Sapienza	LS1	Federico Marini
SUR	HYP-ACB-SRI	Platform for the Hypoxic Analysis of Cell Behavior (HYP-ACB)	LS1, LS2, LS3, LS4, LS5	Francesca Cutruzzolà
SUR	SAXSLab-SRI	SAXSLab Sapienza	LS1, PE	Luciano Galantini
SUR	MALDI-TOF-SRI	Matrix Assisted Laser Desorption Ionization Time of Flight MALDI – ToF	LS1	Alberto Boffi
SUR	SRI	POLYTEC PSV-500-3D-H Laser Scanning Vibrometer - LSV System	LS7, PE	Walter La Carbonara
SUR	LIRALab	Innovation laboratory for the detection, representation and analysis of architecture	SH5, SH6	Marta Salvatore
UAM	СМАМ	Centro de Micro-Análisis de Materiales	PE2, PE3, PE4, PE11, LS7, LS9, SH5, SH7	Gastón García López
AMU	CERIMED	European Research Center of medical imaging	LS7	Benjamin Guillet







AMU	NBT	Neuro-Bio-Tools	LS5	Eduardo Gascon
AMU	RPE	Plateforme pluridisciplinaire de spectrométrie RPE d'Aix-Marseille	PE2	Bruno Guigliarelli
AMU	SPECTROPOLE	Spectropole	PE4	Valérie Monnier
NKUA	PEP ATTIKI	Regional Business Program ATTIKI	PE4, PE5, LS1, LS2, LS3,	Nikos Thomaidis
NKUA	STHE (SoS)	School of Sciences	PE4, PE5, LS1, LS2, LS3	Nikos Thomaidis
NKUA	AMSAB (AKISA)	Athens Medical School Attiko Building	LS4, LS5, LS7	Nikos Thomaidis
NKUA	pMedGR	The Greek Infrastructure for Personalized Medicine	LS2, LS1, LS4, LS11, PE6	Nikos Thomaidis
TU	QBic	Research infrastructure Quantitative Biology Center		Sven Nahnsen
TU	Lisa+	Core Facility LISA+, Center for Light- Matter Interaction, Sensors and Analytics	PE2, PE3, PE4, PE5, PE9	Ronny Löffler, MarkusTurad, Monika Fleischer, Dieter Kölle, Udo Weimar

Figure 2. List of Labelled RI Participants

The scientists in charge of the 22 CIVIS RIs have also participated to an online meeting (held on March 14, 2023) presenting single RIs and sharing experiences and approaches in order to define common activities and to discuss about the future implementation of the CIVIS Research Infrastructures Joint Strategy. The participants agreed on the benefits of being part of a RIs network and shared some ideas and commitments to improve the networking activities like, for example:

- Improve the dissemination actions by sending to all the RIs included in the CIVIS database a summary of the activities, the Charter, the logo, the links to the platform and a short strategy explanation in order to broaden contacts to other universities, industries and researchers;
- Create clusters of similar subjects in order to promote synergies within the same technologies and know-how;
- Organize thematic seminars (topics: SSH, PE, Life Science) open to the whole CIVIS community;
- Organize training workshop focusing on the funding opportunities for Research Infrastructures in Horizon Europe;
- Strengthen the link with the CIVIS project, to reinforce and valorise the RIS4CIVIS main results.







3. Obstacles, Hinders - and (New) Possibilities

No major obstacles have been faced up till now. Nevertheless, during the work process the work team has identified some crucial aspects and potential obstacles for the successful implementation of the activities and for this reason, it has adopted some mitigation measures, including the collaboration with other work teams within RIS4CIVIS. The table below summarizes these aspects:

Potential Obstacles	Mitigations measures and eventual cross- Module activities
1. The need to have the availability of the technical requirements and skills for the gathering and the update of the IT-tools for the creation of one single information access point to CIVIS open RIs. This potential obstacle was due to the choice to engage the scientists in charge of the RIs in the integration of the information provided for the creation of the dataset and in the its updating, even after the end of the project. The engagement of the RIs Scientist in charge was, in fact, crucial for testing the process and also to verify the sustainability of the update of the dataset and the platform, and, to make it possible, it was necessary to adopt the appropriate technical and organizational measures.	1. The involvement of IT-staff (part of the WP4: 'CIVIS Research and Innovation Strategy') was essential to mitigate this potential obstacle. They suggest a technical solution based on Opendatasoft software with a dynamic character, meaning that it is possible to continuously update the information provided. Furthermore, a support service for the RI scientists in charge has been provided, as first front office, by the relevant Module 2 member at the correspondent CIVIS Institution where the RI was located and, secondly, in case of specific technical problems, by CIVIS IT-staff. Finally, the IT- staff created the <u>Document Guide for</u> <u>Scientists in charge of Research</u> <u>Infrastructures</u> , a sort of step by step tutorial to use and update the dataset.
 2. The need to define an appropriate and successful communication strategy capable: To enhance the visibility of the <u>Sharing</u> <u>Research Infrastructures Platform</u> not only throughout the Alliance scientific community but also toward external stakeholders, in particular businesses, with the aim of fostering public-private interactions and technology-transfer practices. To reinforce the creation of a CIVIS RIs network, make evident advantages and benefits deriving from CIVIS RI label both for applying RIs and for RI users, in terms of transparency, quality of procedures, openness of access, etc. 	2. The engagement of the communication team (WP5: 'Communication and Dissemination Activities') was crucial to better define the solutions to mitigate this potential obstacle. In particular they have supported the Module 2 team to define the logo of the CIVIS RIs label that will facilitate its visibility and support the sense of belonging of the participating RIs. Furthermore, the communication team has been engaged to prepare and to disseminate a leaflet to present the Sharing RIs online Platform to enhance the visibility of CIVIS open RIs not only to the Alliance scientific community but also to external stakeholders, in particular businesses, with the aim of fostering public-







	private interactions and technology-transfer practices
3. The need to 'tailor' the results (and the Platform and network) to the different research interests and features of the RIs participating. The Research Infrastructures covers, in fact, a large spectrum of scientific disciplines and it could create different needs and, consequently, solutions to face them.	3. The Module 2 team, to mitigate this risk, has included an ERC-keywords search filter in the Platform and promoted, through the organization of thematic webinars, the creation of clusters inside the network, organized into three ERC scientific domains: Physical Sciences and Engineering (PE), Life Sciences (LS), and Social Sciences and Humanities (SH).







4. Results

The main results achieved by the Module 2 team are the following.

• An <u>IT tool/database</u> and an <u>online interactive Platform</u> including all of the 172 open Research Infrastructures interested to become more visible to peer research communities in the Alliance, as well as to other potential partners out-of-academia. The 'Sharing Research Infrastructures Platform' is directly connected to the database and aims to enhance the visibility and sharing of open RIs not only throughout the Alliance's scientific community but also towards third parties and external stakeholders, including businesses, with the aim of fostering public-private interactions and technology-transfer practices. The Platform enables the search of information on main characteristics of the RIs and on how to access them.

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Universite libre de Bruielles	8	9 Stockh	Iolm University Brain Imaging	SUBIC	SUBIC provides assistance with settl.	SUBIC provides users with acces to a	SUBIC welcomes anyone with an aca	www.su.se/subic	www.su.se/subsc
Universidad Autonoma de Madrid	0	10 Sapier	iza Linguistic Centre	CLA	Teaching and certification of foreign	The Sapienza Linguistic Centre is sp	Yes, it is open to non CIVIS external	https://web.uniroma1.it/da/	
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Social Sciences and Humanities	30	38 Region	val RMN-based metabolomics	Regional RMN-based metabolomics	The facility includes two spectromet	The regional RMN-based metabolo	The facility is open to scientific com	None.	https://ian2.univ-amu.fr/plateforme
		19. Centre	pluridisciplinaire Microscopie	CP2M-PTA	Services include electron microscop	CP2M is equipped with powerful to	Requests for analysis and partnershi	Charte des Plateformes Technologiq	https://lt-chimie.univ-amu.tr/cp2m-3/
ERC Panel		20 Applic	ations des Sources Ultra-Rapi	ASUR-PTA	Among the services ASUR can provi	ASUR is a unique femtosecond laser	ASUR is open to both the academic	Charte des Plateformes Technologiq	http://lp3.fr/les-plateformes/asur/
Neuroscience and Disorders of the	26	21 Depart	tment of Human Neuroscience	Department of Human Neurosciences	assessment of Brain plasticity, brain	Three laboratories equipped with in			https://web.uniroma1.it/neuroscienz
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Molecules of Life: Biological Mechanisms,	24	23 Centre	d'instrumentation en REsona	CIREM	OREM is a Nuclear Magnetic Reson	The OREM provides NMR support t	Access to our facilities require a train	https://deen.ulb.be/	https://cirem.ulb.be/
Structures and Functions		24 High T	hroughput Screening	HITS/IPCdd	All-in-all, HiTS/IPCdd provides all th	The HiTS/IPCdd facility brings toget	HiTS/IPCdd is open to scientific com	None.	https://www.crom-marselle.fr/en/te
Physical and Analytical Chemical Sciences	24	25 Officin	e Museali - Polo Museale Sap	OM-PMS	Professional photographs; professio	The GM-PMS is the PMS laboratory	Yes, the percentage of external user	Access to UM-PMS is subject to the	https://web.uniroma1ut/polomuseal
Cultures and Cultural Production	20	26 Centre	d'imunophénomique	CIPHE	into details, CIPHE offers access to L.,	CIPHE is a facility hosted at the INSE	CIPHE is open to scientific communi	None.	https://ciphe.manseile.insemr.fr/en/

Figure 3: Interface of the CIVIS RIs dataset







• The definition of a joint strategy for the creation of a CIVIS RIs Network, at a short term and of a CIVIS RIs Label, at a medium-long term. The label is reserved for the currently 22 CIVIS open RIs committed to adopting the same general principles in terms of sharing and use regulation. The proposed labelling model is based on a common set of principles and requirements, in terms of transparency, quality of procedures, openness of access, etc. as defined in a project of <u>CIVIS RI Charter for access and use</u> and in a procedure leading to the awarding of CIVIS RIs label. At this moment, the CIVIS Research Infrastructures Label is being piloted in order to validate the awarding and maintaining of the label and to ensure its sustained use also after the end of the RIS4CIVIS project.



Figure 4: Interface of the Sharing Research Infrastructures Platform







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		Irlanda	Balania	Bielorussia
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Figure 5. Access to RI Sheets by localisation

These key findings and outputs are closely linked to the overall objective of the RIS4CIVIS project i.e., to produce an integrated, long-term Research and Innovation Strategy that will over time enable the members of the CIVIS European University to integrate their know-how, expertise and resources in the service of Research and Innovation that effectively addresses current and future societal challenges, at local, regional and international level. From this perspective, RIs are horizontal resources and drivers – operating in any Research and Innovation sector – for the development of a joint Research and Innovation Strategy at a CIVIS level, able to gather critical mass of competencies, foster networking, share competencies and expertise at Alliance level.







5. Conclusions and Recommendations

The activities and the results of the Module 2 activities are good examples in illustrating how small and medium RIs are also an essential part of the research landscape, although much less visible than large RIs at the European level, and how to increase their actual visibility and work towards common framework for access and use could be useful for:

- Increase awareness regarding RI availability throughout CIVIS community;
- Foster networking and the sharing of competencies and expertise between CIVIS RIs;
- Foster cooperation with each institution's private sector/Industry local landscape, as desired users of RI;
- Contribute to the construction of an efficient research and innovation environment in CIVIS, well integrated with its other territorial non-academic partners.

The proposed way to seamlessly share CIVIS Research Infrastructures could be easily replicated at a European level by other alliances or by other networks. Nevertheless, in order to make sustainable its implementation, it would be recommendable to bear the following suggestions in mind:

- Engage actively the RIs scientists in charge and other team members, not only as beneficiaries of the network but also as part of its creation and management;
- Find technical and organization measures that make the sharing of Research Infrastructures self-sustainable over time;
- Make evident the benefits of being part of the network and of accepting a common set of principles and requirements in terms of transparency, quality of procedures, and openness of access;
- Leave the participation on a volunteer basis and maintain organizational autonomy from a technical-scientific point of view and assume management responsibility and define specific methods of use;
- Create clusters of similar subjects to promote synergies within the same technologies and know-how.







PART II

Cost Benefit Analysis

In general, the overall added values of the existing network overtake the costs of the project. Indeed, to face the challenges given by the heterogeneity of the project, the importance of the innovation capability has emerged, in particular:

- To create a common background of common principles and requirements for the sharing of RIs among CIVIS institutions;
- To create a shared platform, jointly developed with all the involved institutions, starting from shared and common principles and common knowledge;
- To collect specific information on RI main features;
- To select common research topics;
- Benefits from different services supporting RI development;
- Sharing of competencies and expertise;
- Opportunity for fruitful networking among RIs.

In general, the costs include some obstacles connected with limited synergies between participants of the RIS4CIVIS and CIVIS projects, as well as with limited involvement of scientists in charge of the RIs in the pilot phase. For the future maintenance and improvement of the platform, the costs would include the following actions:

- The platform should include more tailored clusterisation of RIs and thematic areas;
- The future development and the accessibility of the platform;
- The IT support involvement in order to create more user-friendly access's procedures on the platform;
- Enhanced awareness regarding RI availability throughout CIVIS community by the implementation of an appropriate communication strategy;
- Enhancement of visibility of RIs also towards non-CIVIS users, in particular the Industry.

Strengths and weaknesses Analysis

Strengths	Create a shared platform, jointly developed with all the involved
	institutions
	Collected specific information on RI main features
	Create a common background of common principles and requirements for
	the sharing of RIs among CIVIS institutions
Weaknesses	The work should further involve Scientists in charge of the RIs in the pilot
	phase
	The platform should include more tailored clusterisation of RIs.







Module 3. Reinforcing Academia-Business Research and Innovation Cooperation

PART I

1. Description of Case Studies

The chosen Module 3 case studies were identified and discussed in the first two stages of this project: i.e., during the 'Benchmarking Phase' (WP1) and the 'Consensus-Building Phase' (WP2). The questionnaire-based 'Benchmarking Phase' (WP1) addressed the four core areas of innovation, namely *structures, capabilities, strategy* and *culture.* The results showed that the partner universities differ with respect to research and innovation cooperation between academia and business. This was to be expected, as all university partners have different histories, orientations and focuses, as well as financial capabilities or political and economic support available. Consequently, an important finding of the benchmarking process was that the partner universities are also heterogeneous in the four core areas of innovation management. From this, different strengths and weaknesses of each partner university emerged. The results of the benchmarking phase formed the basis for the consensus building phase (WP2).

During the 'Consensus-Building Phase', a benchmark-based tandem process was initiated. In eight tandem meetings (each running for two hours) the representatives of all universities were encouraged to participate actively. During these intensive meetings, general and university-specific topics on innovation management, best practice examples and innovation management tools could be exchanged and discussed in depth. This tandem process also served to narrow down the possible topics for the case studies. (For more detailed information, please see D2.1_Consensus-Building Report).

The knowledge exchange processes in the already completed phases of benchmarking and consensus building led to different desired endpoints (priorities) for the case studies.

List of Endpoints:

- Transfer of knowledge and knowhow (7)
- Exploitation of results and improvement of outcomes from basic and application-oriented research (6)
- Development and fostering of an innovation culture (5)
- Participation in larger EU projects (4)
- Start-up support (4)
- Development and formulation of an innovation strategy (3)
- Implementation and adaptation of an innovation strategy (3)
- Establishment of a patent portfolio and portfolio of market-oriented innovations (3)
- Awareness raising using innovation measures (3)







Even though the focus is indeed very much on the exploitation of research results, in the benchmarking and consensus building phases one could identify that the necessary prerequisites may not always be sufficiently in place. For example, transfer services are to be offered without pursuing an overall university planning, i.e. innovation strategy, and start-ups are to be promoted without paying attention to whether the ecosystem has already been sufficiently prepared for this. This is highlighted by the desired endpoints as these reflect the broad scope of topics connected to the transfer of research results and lead to the following requirements which must be met by the selected cases and their design.

Firstly, the individual goals and challenges of each partner must be considered when setting up the case studies. The cases must be chosen in a way that every partner can benefit and at the same time contribute to the desired capacity building at university and Alliance level. Secondly, the Module covers a wide range of topics. Hence, the case studies should be thematically broad and in a second step allow for the identification and integration of specific sub-topics. Thirdly, the scope of the topic covered by Module 3 requires the involvement of a broad range of experts from both university and non-university settings. The approach must ensure that short-term participation of university and non-university experts is possible.

In light of the aforementioned findings, the Module 3 representatives commonly agreed on choosing the following two cases for WP3:

Case 1: Defining an Innovation Strategy

• Creating a CIVIS Innovation Framework to identify university-specific and common challenges and propose joint actions to increase innovation capacity in the areas of technology and knowledge transfer.

Case 2: Building a Start-Up Ecosystem

• Building a CIVIS start-up Ecosystems Network to identify issues and challenges at the regional level that can be addressed together as an Alliance.

The chosen cases do fulfil the aforementioned requirements and thus meet the demands of the Module. By creating a common understanding of strategies for the innovation process and start-up ecosystems, Module 3 lays the basis for jointly working on specific topics of common interest while ensuring that these are addressed in light of the university's specific context.

2. Description of the Work Process

The timeline and detailed planning of the case study phase has been constantly adjusted to changing conditions to meet the demands and needs of the Module and of RIS4CIVIS in general. Nevertheless, the overall structure remained stable over the whole work package.







Addressing the cases was designed so as to continue the structured process established in WP1 and WP2. At the same time, it allowed the Module to initiate and implement arising topics resulting from the implementation of the cases study and to integrate (non-)university experts from different disciplines whenever needed.

The approach followed in WP3 has consisted of three phases. In phase 1, the workshop phase, the Module gave itself the task to create guidelines for defining an innovation strategy and building a startup environment generating a common understanding of these two topics. The results of the workshop phase were expected to provide the basis of the subsequent phases. Phase 2 was dedicated to the implementation and testing of the guidelines at university level. This phase should produce recommendations for refining the guidelines but at the same time allow to derive specific topics of common interests in the scope of the cases that shall be jointly worked on in phase 3. In phase 3, Module 3 refined the guidelines and jointly addressed the specific topics derived from the second phase and by doing this leveraged the heterogeneity of the members to improve the university specific and Alliance-wide innovation capacities. The design was expected to meet the requirements outlined in section 1.



Figure 1: Module 3 Approaches in WP3







The main work of the first phase was carried out during the one-week long in-person meeting held in Stockholm in October 2022. Here, in a set of interactive workshops, the Module designed matrices that will serve as guidelines to create innovation and start-up ecosystem strategies. To ensure that the views of all partners were incorporated, experts from all RIS4CIVIS universities participated in the workshops. The matrices are generic and thus can be applicable for every partner university.



Figure 2: RIS4CIVIS Innovation Strategy Matrix

During phase 2, which took place from November 2022 to February 2023, the matrices were tested at university level. This included in particular the development of a start-up ecosystem and innovation strategies as well as the review of existing strategies on the basis of the matrices. To ensure project progress, it was agreed that the strategies should be shared in a draft stage as approval of the strategies by university heads, as well as other university bodies to be involved, would conflict with the RIS4CIVIS timeline and thus endanger the progress of the Module. By March 2023, five universities shared drafts of newly developed Innovation and start-up ecosystem strategies. In a subsequent step, a synthesis of the strategies was carried out and topics of common interest were derived. The five topics are:

- 1. Incentives for scientists to act as innovators;
- 2. Assessment of innovation achievements;
- 3. Start-up and Innovation Trainings;
- 4. Innovation Labs and Incubators;
- 5. Bridging the technology readiness level (TRL).

The third and last phase of WP3 covers the time period from mid-March 2023 to the end of the project. On March 8, 2023, the Module approved the matrices after minor adjustments and decided to target the topics derived from the strategy building process in phase 2 in a set of online and hybrid meetings.






The topic of bridging the technology readiness level (TRL), was discussed in depth in an online meeting on May 3, 2023. The Module shared different (best) practice examples, ranging from the start-up Nona Maia that successfully improved the technology readiness of products for the preservation of art works (especially fabrics) to the beLab 2122 multi-year partnership between some of the leading academic institutions of the Rhine-Main-Neckar region and companies to identify exciting and novel disease modifying therapeutic targets and platforms.

The topics of a) Incentives for scientists to act as innovators; b) Assessment of innovation achievements; c) Innovation and start-up trainings; and d) Innovation Labs and Incubators were discussed in an on-site meeting in Tübingen from June 12 to 14, 2023. Based on (best) practice examples from the partner universities, the Module members discussed issues, challenges, tools and solutions at both Alliance and university levels. These thematic meetings enabled the Module to discuss common and university-specific thematic challenges in depth and with the relevant experts and to provide/suggest solutions to existing problems by sharing the experience of the different partner universities.

One requirement on the approach used in WP3 was that topics and initiatives that emerged apart from the structured approach of working on the specific cases can be integrated (see section 1) and by doing this allowing the Module 3 to fully exploit the potential of the RIS4CIVS cooperation. The Module has achieved this goal by flexibly and adaptively adjusting the planning of the individual phases and activities to the needs of the Module members. The many side initiatives highlight the success and one example of successful integration of arising topics are the Innovation and start-up trainings. The realising of the importance of start-up and innovation trainings emerged during the first meetings within WP3 and the Module integrated the topic in the Stockholm in-person meeting in October 2022. The Module held an interactive workshop on the topic and identified a set of fundamental innovation and start-up trainings that should be available for all stakeholders (especially students, researchers and staff) within the Alliance.









Figure 3: Fundamental Innovation and Start-Up Trainings

The anticipated need was confirmed by the synthesis of the strategies. As a joint action, Module 3 is currently working on a RIS4CIVIS training programme on innovation and start-up trainings for Ph.D. candidates and postdocs based on the innovation and start-up fundamentals (see figure 3). The program, consisting of eight modules, is scheduled to start in November 2023 and will be completed by February 2024. In addition, the Module discussed (and partly still evaluates) the following possible joint actions/activities:

- 1. Application for the HORIZON-WIDERA-2022-ERA-01-51 call;
- 2. Participation in the P4i Patents for Innovation International Summit and Expo; organized by the Universidad Autónoma de Madrid (2022);
- 3. Setting up a RIS4CIVIS innovation and start-up training programme;
- 4. Launch a dedicated workgroup on Innovation;
- 5. Participation in the P4i Patents for Innovation International Summit and Expo; organized by the Universidad Autónoma de Madrid (2023);
- 6. Application for the HORIZON-WIDERA-2023-TALENTS-02 call;
- 7. Application for the HORIZON-WIDERA-2023-ACCESS-02 call.

3. Obstacles, Hinders – and (New) Possibilities

The Module encountered different obstacles, most of which could be at least partially solved. In addition, new possibilities for cooperation could be opened up. The Module had to deal with a number of general obstacles:







1. The thematic scope covered by the Module must be considered very large. This resulted in different fields of expertise of the experts appointed to the Module by the partner universities and subsequently influenced and partly slowed down the progress from the beginning of WP1 to the transition from WP2 to WP3.

This obstacle was overcome in WP3 through the chosen approach and the thematically broad scope the cases of the case study cover.

2. The thematic scope also resulted in a need to integrate experts from different fields of expertise into the discussion on specific topics. The integration of these experts was a constant challenge. The reasons for this are manifold, include scheduling conflicts and, in some cases, a lack of personnel.

The Module aimed to address this problem by a pragmatic approach to the planning of meetings/workshops and a democratic and early selection of dates. It must be noted, however, that the required experts were not always available.

3. The heterogeneity of the members in terms of different aspects such as size, funding and, in particular, the strategic orientation, presented a challenge at the beginning of the Module's work, as a selection of concrete cases was difficult to achieve given this background.

This obstacle was successfully overcome thanks to the selection of cases that allowed the integration of different topics and a subsequent consolidation process that revealed very specific topics of common interest (see section 2).

4. The planning of a joint RIS4CIVIS training programme for Innovation and Start-Up trainings confronted the Module with a very practical obstacle: it was difficult for the Module to find a suitable format for a joint training programme that would meet the needs of the Module, especially in terms of the target group of Ph.D. candidates and postdocs and with respect to the timeframe. As the conditions of the BIP Call in the spring 2023 of the CIVIS Alliance have not proven suitable for Module 3, especially in terms of planning and implementation periods and the integration of postdoctoral students, a planned application had to be discontinued.

Module 3 bypassed this issue by changing the format of the training programme. Instead of a Blended Intensive Programme (BIP), Module 3 intends to offer an online-only programme. Unfortunately, the programme currently cannot be offered as a CIVIS course, as the requirements for such a programme are not yet in place.

The Module reached a common understanding of innovation and start-up ecosystems and the underlying strategy building process. This results in (new) opportunities for targeted cooperation and exchange on specific topics and to the possibility on leveraging the heterogeneity as a strength and thus realize the full potential of cooperation. The workshop on TRL and the Tübingen meeting, the discussion on joint







applications for EU-Funding programmes, and the initiative for joint innovation and start-up training exemplify the new possibilities that arose from the work of the Module.

4. Results

The work of Module 3, 'Reinforcing Academia-Business Research and Innovation Cooperation', has, across the three WPs, established a sustainable connection between the individual universities at the level of the Technology Transfer Offices (TTOs), the Industry Liaison Offices (ILOs) and the start-up support systems which were involved in the work of the Module at different times.

The three-phase approach for working on the cases had imbedded outcomes that needed to be reached before entering the next phase.

The first desired outcomes are the matrices that serve as guidelines for crafting innovation and start-up ecosystems. As part of the case 'Defining an Innovation Strategy', a matrix for crafting an innovation strategy was developed. The matrix served as a tool for the development of the strategies. By applying the matrix at university level, draft innovation strategies for the participating universities were developed. The universities with an existing innovation strategy could review it using the matrix. Furthermore, for the case 'Building a Start-Up Environment' a matrix for the development of a start-up ecosystem strategy was developed. With the help of the matrix, the Module members were able to draft new or to review existing strategies.

These matrices as well as the draft strategies are a first outcome of the Module. The synthesis of the strategies enabled the Module to work on specific topics that are of overarching relevance in relation to the innovation and start-up strategies and in the context of the individual situation of the participating universities.

The topics derived from the strategies (see section 2) were discussed in detail in online and hybrid meetings. In particular, university-specific opportunities, risks and proposed solutions were elaborated based on (best) practice examples. In addition, various EU funding programmes were presented and evaluated during these workshops. Currently, discussions and consultations on the application for EU projects are taking place. Possible applications will be rooted in the work of the Module Reinforcing Academia-Business Research and Innovation Cooperation.

The identified need for start-up and innovation trainings derived from the strategies as well as from the intensive discussions has led to two outcomes:

• First, a set of fundamental trainings that should be available at all partner universities was defined in an interactive workshop with the participation of relevant experts from all partner university (see section 2).









Figure 4: Start-up and Innovation Training Workshop in October 2022 in Stockholm

• Secondly, the work of the Module has resulted in actions for offering joint Innovation and start- up trainings. The current plans include a joint training programme for PhD candidates and postdocs. The programme is planned to consist of eight modules all envisioned to be given online and will thematically be routed in the predefined fundamental Innovation and start-up training programme. The envisioned start of the programme is at the end of 2023.



Figure 5: Draft of Course Plan of joint RIS4CIVIS Start-Up and Innovation trainings







In summary, the following results can be noted:

- Within WP3, a total of two matrices for the development of start-up and innovation strategies were developed. In the subsequent phase, ten drafts of innovation and start-up ecosystem strategies at the partner universities were developed.
- The topics derived from the strategies were discussed in greater depth in several workshops (hybrid and online) based on (best) practise example. This resulted in new impulses for the improvement of university-specific innovation capacities and joint actions.
- A set of fundamental innovation and start-up training courses that should be available to all members of the partner universities was defined. On this basis, a first joint training programme is currently being developed and implemented.
- Sustainable links have been established between the various institutions working at the partner universities in the field of academia-business cooperation. This opens up opportunities for future projects. The various side activities (e.g. discussion on applications for different calls dedicated to Innovation) highlight the new opportunities.

5. Conclusions and Recommendations

The work of Module 3 has highlighted that RIS4CIVIS partner universities are different in terms of size, funding, orientation, focus, etc. Consequently, this results in significant differences in the core areas of innovation structure, strategy, capability and culture. However, it also becomes clear that heterogeneity offers an opportunity for cooperation and collaboration.

Based on our work, the following (policy) recommendations mainly at university level can be derived:

- In order to strengthen and improve Research and Innovation collaborations between academia and industry, there needs to be a common understanding among partners about the innovation strategy that will be used for implementation. This includes a shared vision, a flexible plan, and support with diverse structures and existing capabilities of partners.
- Before universities are to act as start-up incubators, the conditions for a functioning start-up environment must first be created. This includes creating awareness for innovation, providing diverse educational formats, removing legal hurdles, and building an ecosystem of advisors and supporters.
- Since universities only act to a small extent as commercial enterprises, well-trained experts are needed in the international innovation business to support scientists in the upcoming challenges of a legal (including IP, business, tax and corporate law) and commercial (including negotiation, marketing, intra- and entrepreneurship, accounting and financial reporting) nature.

One a more general level, Module 3 recommends that opportunities that allow faster implementation of joint activities, e.g. joint trainings, are to be provided. Further, this Module has experienced how the process of implementing collaborative start-up and innovation training has been hampered by a lack of suitable funding formats and hence, these need to come into place. A planned application for the CIVIS







BIP Call had to be discontinued due to an unfeasible implementation timeline. In addition, the integration of postdocs into a BIP format is questionable.

The reasons for the timeline set by CIVIS are different academic cycles and the integration of the BIPs into the different organizational processes at the member universities. Since the BIPs require a similar administrative effort as regular semesters abroad, an integration of the BIP format into the existing organizational structures of the member universities is essential for an effective and efficient management of this type of program. In general, the effort needed to administrate the blended intensive programs is a major disadvantage of this format. Therefore, it is recommended to create framework conditions for funding forms that allow for a more flexible implementation of joint measures/activities. At the same time, we recommend to open the existing formats (e.g. BIP) to postdoctoral students. We expect this to improve the usability of the formats with regard to the integration of the specified target group and to ease the implementation of funded projects.

Furthermore, several obstacles show that RIS4CIVIS and CIVIS are complementary but not integrated projects. This is illustrated, for example, by the non-matching timetables for the implementation of the BIP calls issued by CIVIS. We recommend opening up opportunities to integrate RIS4CIVIS into the CIVIS structures as the research and innovation pillar of the Alliance. We expect that deeper integration will foster collaboration in teaching and training, e.g., in open science, science communication and innovation and start-up trainings at different levels, and reduce barriers for collaboration.

PART II

Cost Benefit Analysis

Besides research and teaching, transfer was established as an equally important pillar in European and national higher education policies. RIS4CIVIS supports the research and innovation dimension of the CIVIS Alliance, in line with its shared, integrated, long-term strategy and in synergy with its education dimension.

The RIS4CIVIS Module 3 addressed the challenge of reinforcing cooperation between academia and business in the field of research and innovation. The Module uncovered the heterogeneity of the CIVIS member universities when it comes to the various aspects of academia-business cooperation as one key challenge.

Within the RIS4CIVIS funding period, the Module was able to meet the challenge and to form the basis for continued cooperation in the field of academia business research and innovation cooperation. In the case study, the partners reached a consensual understanding on how to define innovation and start-up ecosystem strategies and in a subsequent process identified topics of common interest. This already let to joint actions to improve innovation capacity at university and Alliance levels. The case study has







shown that the creation of a common understanding and the inclusion of the university-specific situation opens up possibilities for cooperation.

The established connection of different entities at the partner universities working on academia business research and innovation cooperation are a major factor for prospective cooperation. These connections can be a valuable starting point for future projects. The thematic focus of the projects can be derived from the draft strategies developed in WP3.

The costs incurred are mainly related to staff costs of the persons actively participating in RIS4CIVIS Module 3 and, to a minor extent, to travel costs. All costs were spent in direct relation to the diverse activities of the module and were covered on the one hand by the Horizon 2020 research and innovation programme grant (agreement N° 101016691) and on the other hand by the participating universities.

In total the benefits associated with the work of Module 3 clearly exceed the costs of the project as the project lays the basis for future cooperation on the topic of building up innovation capacity at the respective universities and within the CIVIS Alliance. Nevertheless, the successful integration of RIS4CIVIS into CIVIS will be a critical factor in realizing the full potential of the groundwork done in RIS4CIVIS Module 3.







Module 4. Strengthening Human Capital

PART I

1. Description of Case Studies

The objectives of Module 4 have been to set up high quality and sustainable standards across the CIVIS Alliance on recruitment, mobility, training and working conditions. The benchmarking phase provided an overview of the practises to promote triple-I mobility, hosting international researchers, training and career development support, among others. The partner universities had different organizational structures and differed on the level of development of certain domains, but shared, in fact, similar obstacles and desired reinforcements for their institutions. Indeed, Module 4 considered that the working conditions and recruitment fields were too constrained by national law and other regulation to be addressed practically, therefore, it was preferred to focus on thematic meetings that entitle the indirect improvement of the research environment and, hence, working conditions of the researchers.

The consensus building phase served to set up common actions for desired objectives that were generally aimed to encourage collaboration and mobility, organize joint training programmes, standardise practises on career development and sharing good practises related to the HRS4R label. Taking these objectives in consideration, Module 4 selected a series of case studies that seemed feasible in the timeframe of the project and keeping in mind the resources available.

• Thematic Meetings on Topics related to the HRS4R Label

The aim of these meetings is to share knowledge and good practises on different subjects: sustainability, gender, HRS4R, Welcome Desks, etc. In CIVIS, most universities count with the HRS4R label or are in the process to obtain it, therefore, addressing topics within this scope is helpful for learning new practises or tools that can reinforce HRS4R action plans. Bilateral meetings that allow the identification of peers in the other institutions has proven to be a good strategy to boost collaboration and stronger ties in the Alliance.

The selection process for this case study was organic as the meetings have been organized almost from the beginning of the project. The implementation is rather easy compared to other case studies as the roadmap is clear. The main difficulty lied in the identification of interest and stakeholders and definition of content that must correspond to expectations and universities realities.

• Training – Science Communication, Career development and Open Science

Organizing training programmes requires a higher level of organization than the thematic meetings, but the benefits are more tangible and measurable. Module 4 has organized in collaboration with Module 5 and Module 6 two editions of a science communication course, has put together a career development programme and is working to implement an Open Science training. The strategies used to implement these programmes have differed from each other, something that allow us to better understand what works best and under which circumstances. The process to choose this case study was also quite sound







given the objectives of the Module and the fact that training is one of the least complex ways to collaborate.

• Career Development – RIS4CAREERS

The RIS4CIVIS pilot Career Support programme of CIVIS universities, RIS4CAREERS, aimed to support the reflexion on career development of researchers by providing access to training resources and in and out of academia mentorship support. This six-month-long programme has mainly focused on offering new perspectives on market insertion, entrepreneurship, communication and skills for third/fourth year Ph.D. candidates and early postdocs. This case study was chosen to raise awareness and experiment with the different initiatives present at each CIVIS university. The result of this case study has not been completely satisfactory as the resources needed to implement it were beyond what was foreseen on the first place.

• Mobility Opportunities Benchmark

Module 4 performed a benchmark on mobility opportunities available at CIVIS universities. These range from short to long term for either senior or younger researchers in multiple disciplines. The opportunities collected also include national ones, provided by different bodies, such as national research centres to embassies. The benchmarking provided a good list, but it was never published as the module encountered three obstacles: lack of friendly format to present the list, no resources available to update information and absence of a responsible officer to act as contact point in case of doubt/question. It is, however, important to stress how useful it would be to count with a mobility list. Not having a dedicated budget for mobilising researchers makes it necessary to count with external financing. There are two antecedents that point to this, the first, the call for proposal prepared in the CIVIS Horizon Europe expert group that funded 15 mobilities and was a complete success and the direct demand from CIVIS researchers during the Global CIVIS days organised in Tübingen in May 2023.

• Communication

There have been other initiatives that entitled collaboration between the universities, that is, listing resources of interest in the CIVIS website, such as job opportunities, EU projects and EURAXESS pages of each university. These initiatives were a one-time administrative work, therefore, further information is not needed in this sense. Perhaps, an idea to push forward the mobility opportunity list is to have it publish there.

As an added value, Module 4, by focusing on all these case studies has been able to enhance collaboration and to help researchers to move to other CIVIS universities.

2. Description of the Work Process

During the period covered by WP3, Module 4 has put in place the above mentioned case studies. Some of the work involved close collaboration with other modules, such as Module 5- Open Science and Module 6- Citizen Science.







Thematic Meetings

Module 4 had three thematic meetings, one in HRS4R, one for Welcome Desks practises and a last one on career development. There is a meeting on sustainability foreseen for September 2023. All these subjects play an important role in the integration and attraction of researchers to our institutions and is also deem a very relevant objective of <u>Module 4 of RIS4CIVIS</u> and also the <u>HR Strategy for</u> <u>Researchers</u>. Almost all universities from CIVIS were represented in all meetings. The topics have to do with EURAXESS, integration of researchers, initiatives for families, project management of the HRS4R, mentorship, training, etc. The idea behind the meetings is to continue with all themes in the HRS4R label context.

The organization of these meetings have been refined with time. In the beginning the frame of the meetings were left very general, thinking that that would provide more flexibility for universities to present what they thought interesting. However, it turns out that a more specific approach helps to define the topics better and to present according to expectations.

As an example of how the content is framed, here is the agenda for the sustainability meeting:

- Sustainability strategy at CIVIS universities: how are you organized?;
- Green transition: what activities/processes are in place in your university to make it 'greener'? (i.e. circular economy in the purchase routine, waste collecting; staff mobility/ professional trips; regards all students, researchers, administrative staff);
- Training: what kind of workshops/activities for staff/researchers/students have you in place?;
- How do you support trans- and inter-disciplinarity research on sustainability?

The cost/benefit of organizing these meetings is quite balanced, although measuring the results is rather hard since follow-up of further bilateral meetings is difficult if not reported. However, two direct results can be listed here: two universities have started the process to obtain the HRS4R label and one tool, developed by AMU, and discovered during the CIVIS Welcome Desk meeting to track in and out researchers will be implemented at Belgian national level. A good number of bilateral meetings have taken place regarding all these topics, which can be also deemed a key performance indicator to measure the level of success in this case study.

Training

In this context, Module 4 tried out different strategies to implement training. This allowed Module 4 to comprehend better when and how training is better received and organized.

Science Communication Programme – 1st edition Micro Programme and 2nd edition BIPS call for proposal. The CIVIS Alliance opened a first Erasmus+ call for proposal for distance learning in 2021, called Micro Programme. Professors from three universities were contacted to see if they agreed to submit a proposal on the topic of science communication. The positive feedback received, allowed Module 4 (ULB), Module 5 (UAM) and Module 6 (BU) to work on a training programme that would only be addressed to 25 Ph.D. candidates.







The call received no less than 154 applications from all CIVIS universities.



Figure 1. Number of Applications per University

There were some drop-outs during the implementation of the programme, ten in total. This also happened in the second edition of this programme and it is considered normal. The Micro Programme counted with 26 workshops in a period of five months with four hours a week of lectures. The evaluation of the programme by the participants was highly positive:



Figure 2. Participant Feedback

Some of the improvements suggested were:

- Better coordination between the universities and appointment of a contact person;
- Avoid rigid separation of both theoretical and practical blocks;







- Four hours per week lectures were too many hours per week, especially so for practical sessions where more 'homework' was necessary. Ph.D. candidates were quite charged in the end of the course which overlaps with the end of doctoral year;
- Boost social interactions in between Ph.D. candidates to create community (informal meetings, peer assignment to work in groups);
- Allow time to develop practical skills.

The success of the first edition encouraged CIVIS to open the 'Blended Intensive Programs' call for proposal (BIPs), an evolution of the Micro Programme call. The BIPs call, however, entitled a new important feature: mobility. Since collaboration had proven successful in the Micro programme, Module 4 supported a second proposal and opened it to other partner universities. Two universities joined the original developers, AMU and NKUA, which would make a total of five participating universities.

Both programmes counted with a minimal budget -5k to 8k- to be spent on lecturers and, in the BIPs case, to prepare the welcoming of participants to Universidad Autónoma de Madrid for a week. In the first edition, the professors evaluated 154 candidates, from which only 25 could be selected. In the second edition there was 80 candidates from which the lecturers chose 40, all with very different scientific backgrounds. The principles for the evaluation were:

- Be a PhD candidate enrolled at a CIVIS university;
- Motivation;
- Experience (priority would be given to those with less experience).

The evaluation would entitle the participation of lecturers, who would score participants according to the above requirements. Each participant would be evaluated twice by two different evaluators. Even if a clear ranking would come out of that first evaluation, soon it became necessary to go under a second one to allow a greater diversity of universities, gender and scientific disciplines. When organizing training in CIVIS the first-come first-served approach is rather unfair as internal communication plays an important role in when are participants registering. Also, larger universities will always have more chances to overrepresented, therefore a second evaluation for the purpose of diversity is almost mandatory.

Following the recommendation of the first group of participants, the lecturers made working groups based on interest, not on discipline, which aimed to boost interdisciplinarity and the sense of belonging to the CIVIS Alliance. This is also to share the workload for the more practical workshops, that is, podcast, videos, posters etc. A final project has been asked from each group, on top of a minimum of 70% attendance, including mobility. In the Micro Programme only individual work and attendance was evaluated to receive the ECTS certificate.







The final project consists of developing the practical elements of the programme (video, podcast, activities in front of the public, poster, etc.) and an event/communication plan that integrates both the main points of the theoretical lectures and the practical elements. The final project should pivot around one main topic (not necessarily scientific), for example, *Science for Everyone – Sustainability and Inclusion, Meet the Heroes of the Research Cosmos, Science Building the Future*, etc. In order to provide more context, the lecturers agreed to allow participants to withdraw inspiration from the MSCA Researcher's Night, which are projects that bring science closer to citizens.

In June 2023, 33 people attended the Madrid mobility week out of the 40 accepted participants. There, the participants recorded their videos and podcast and worked on a communication plan. In addition, UAM has invited all participants to its MSCA Researcher's night at the end of September 2023, where a stand could be reserved to showcase the BIPs final projects.

Please, find below the complete list of lectures provided:

- Communicating Science: Lessons from the History of Science;
- o Science in Popular Culture and Popular Science;
- Science Communication: A perspectives beyond outreach;
- Roundtable I: Scientific images in the history of science;
- Museums of Science and Technology;
- Communicate persuasively about your research;
- How to compose a scientific video?;
- Sharing knowledge and expertise in collaborations;
- Roundtable II: Citizen Science;
- Writing about science;
- o Managing your social media presence as a researcher;
- How to create a podcast?;
- Activities open to the general public;
- How to read scientific texts;
- Scientific Image and composition;
- Writing scientific articles workshop.

All in all, the programme has been successful. One thing to consider is to enlarge the target to postdocs as there has been also request from their side. The fact that Erasmus+ does not contemplate postdocs as students makes difficult to dispose of funding for their trainings. Administrative staff could be as well a good target for this kind of programmes.

• **Training in career development.** The first pillar of RIS4CAREERS is based on training. The programme has been developed in between the representatives of Module 4 and all courses have been specifically addressed to the participants of the programme, that is, late PhD candidates and postdocs, with a maximum of ten per university. The training has been divided into different categories/themes:







Name of the course	University				
Transferable skills					
Leadership and Communication	NKUA – cancelled (8 registered participants, 3 in the workshop)				
Innovative pedagogies	BU – not organised finally				
Visibility and academic social networking	AMU + ULB – not organized finally				
Networking workshops	CIVIS – held one but wasn't successful (during the kick off, many participants left the breakout rooms)				
Planning and optimizing your career					
Your Research Canvas	UT – 2 people participated (reserved places for RIS4CAREERS)				
Planning an optimizing your academic career (WEBCAST)	UT – Participants requested access, but then didn't go through the content				
Doctoral Days	UT – no records				
How to find your way in the market?	NKUA – cancelled (10 registered participants, 4 in the workshop)				
Reaching out to labour market and society					
CV writing peer support	CIVIS – cancelled, as no interest was gathered				
Communicating your research to the public, involving the audience	CIVIS – too place but no attendees from RIS4CAREERS				
Support your career development through mentorship, who to look for?	ULB – successful (20 registered participants, during kick off meeting)				
Support to research: EU projects					
RandI project writing: Collaborative project writing and networking in the context of Horizon Europe. Services and tools for supporting researchers	SUR – organised too late				
MSCA PF Infoday	CIVIS – took place but no attendees from RIS4CAREERS				
Embrace entrepreneurship	AMU – successful (10 places reserved for RIS4CAREERS, 7 were taken)				
Cooperation and Development, what opportunities for researchers?	ULB – took place but 14 participants registered, 5 in the workshop				







All the courses above come from different universities, some have been developed for RIS4CAREERS specifically and some have been 'opened' and have reserved a certain number of places for the participants of the programme. So far, the trainings that have known more cost/benefit are the latter. Communication with the postdocs has been challenging due to several circumstances that may be related to workload, lack of direct and fast benefit from the programme and lack of awareness on mentorship practises. A recommendation for future career development programmes is to organize a closer follow-up of participants with a more personal approach from the programme officers. This, however, requires human resources and a more detailed activities roadmap, an expertise that is perhaps not present in all universities.

In general, it is possible to say that the participants have not been as reactive as expected and, hence, some of the trainings had to be cancelled due to low attendance. The Module 4 then concluded that the trainings that worked better where those that were already taking place in the CIVIS universities, but that reserved places for RIS4CAREES participants. Ph.D. candidates were more receptive. Maybe there was too much flexibility regarding the attendance to the trainings which was done on a volunteer/interest basis.

• **Trainings in Open Science.** First, it is important to clarify that OS trainings focus much on national regulations and that most universities do not offer a complete programme that reaches all aspects of OS. After a meeting between AMU, UT and ULB, it was agreed to create a learning curriculum of OS at European level, in other words, what should exist at EU level for all universities and how could this be applied to CIVIS. The working group has put together an 'ideal' programme based on an EU paper: *Providing researcher with the skills and competences they need to practise Open Science*. After the ideal categories were shaped out, the group worked on identifying courses at each CIVIS university that could correspond to such classification. Gaps were found in open access licenses, fair data / data mapping and EU repositories training. However, it is possible that some courses identified briefly address these gaps, but not necessarily. Now, the working group will start organizing a real programme for the month of October. Ideally the group, with the help of the communication team, will launch a call for expression of interest to the whole CIVIS community, that is, researchers, administration, professors, etc.

This strategy is also another way to test training. In this case a webinar style training and completely open to all the CIVIS community, but with limited spaces could be a successful way to implement OS training.

Career Development

This case study for Module 4 consists of a career development programme based on two pillars: training and mentoring. The programme is addressed to postdocs and advanced Ph.D. candidates willing to analyse the job market and other possibilities for their career development, this can be MSCA postdoc to CIVIS3i, etc. Each university could decide if they preferred to address the programme to one or both targets. This was mainly because some universities had already programmes for PhD candidates and wanted to experiment further or because they were new to these concepts and wanted to try a more extensive format.







Universities were as well in charge of communicating the programme and collecting the interest of participants. This was in the end done in very different ways, therefore, the group of participants turned to be very heterogenic. A brochure was available for communicating the initiative. There were, in the end, 47 participants registered from all universities and they were all invited to a kick-off meeting that took place on January 16, 2022.



Figure 3. Division in Relation to Faculties, Gender, Study Positions and Universities

The first pillar of RIS4CAREERS is based on the training. A list of the courses available can be seen above. Regarding the mentoring, each participant was in charge to find a mentor. A list with all the laboratories, research centres, etc from CIVIS universities was made available to participants, along with a guide on how to find a mentor. ULB also provided a workshop on 'how to look for a mentor'.

Some of the tools that have been prepared in the framework of the programme are: a brochure with the description of the programme, <u>Content for the webpage</u>, a guide for a successful mentorship, a guide on how to look for a mentor, a Moodle space and a LinkedIn page.







3. Obstacles, Hinders - and (New) Possibilities

In general, Module 4 has faced many 'institutional'/'cultural' challenges and obstacles. The following hinders stand out:

- **Different organization systems and priorities** not only at university level, but also at national level hamper a greater harmonisation among CIVIS institutions. A possible solution to this issue is exchanging good practises and keep that activity in the long run. Universities could afterwards choose among those practises, ideas or initiatives that better fit the organization of their university;
- **Difficulties in standardising practises**. Some domains are not developed at the same level in all universities as is the case of career development. Also, CIVIS universities count with different legal frameworks, therefore standardising actions can only be based on recommendations found through good practices. Its real application will be therefore up to the universities themselves;
- Institutional strategies differ and compromise degree within the initiatives. The priorities for the universities are very different, thus, finding common ground is challenging. In this sense, training has proven to be the field with least obstacles. The main difficulties lie in the benchmarking of courses and, then, on the organization of cluster programmes, that is, examining what kind of content makes sense in a programme, duration, target selection, etc. Some universities have opted for opening already existing courses/workshops to CIVIS, however, this only makes sense if they are embedded in a CIVIS programme. It is always good to have more training, but individually opening trainings is not the main goal of CIVIS. Applying for funding to make training and mobility happen can be seen as a good practise, especially because there are no funds dedicated to this neither in CIVIS or in RIS4CIVIS;
- **Funding and human resources**. The fact that RIS4CIVIS did not count with funds for the mobility of researchers or for training organization made quite difficult the implementation of ideas and initiatives. In this sense, Module 4 had to be creative in designing solutions. The same issue applied to human resources. It is the case that most universities had to appoint representatives with an already defined task in the institution, therefore, the Alliance represented greater workload for them.

The most direct obstacles at the case study level have been:

• **Difficulty to engage with postdocs.** Especially when it comes to training, postdocs have not been quite responsive. It could be that the topic of career development is not enticing enough, in the sense that it is a training that focus on personal work and not on research, therefore the gain seems rather far and abstract/conceptual. The figure of a mentor is also rather unknown, although efforts to raise awareness arise from the HE institution and the EC alike. Another issue was the turnover for the trainings. There was most of the times enough participants to organize the meeting, however, on the day of the session, most would not appear. Whether this is related to the methodology used to communicate the trainings or whether the topic was not attractive enough is yet to be analysed.







• Organization of training and communication. In terms of administration, training requires a good degree of coordination, specially, if the training comes from different universities. There is an obstacle regarding the level of communication, first, between the universities, second, at internal level and thirdly, at CIVIS level. The latter is a major obstacle regarding over or under representation of participants of certain universities, which means that whoever shares the information first ends up having more participants. It has been proven that preparing all sorts of communication material and promoting in advance the launching of such programmes, helps.

In regards to opportunities available it is possible to consider the following:

- **Transition from RIS4CIVIS to CIVIS**. Currently, there is a need to look for common points to see where the results of RIS4CIVIS can fit better into the CIVIS project. This analysis will be a good opportunity to see research represented at CIVIS level and to integrate the Horizon Europe objectives into the Alliances projects.
- **Continuing exchanging practises in different domains.** This has been proven to be the best way to work together, create collaboration and form a community of practice. Identifying common points of interests could be a good point of start to organize thematic workshops.
- **Common training strategy for different profiles.** There is still a great need to form our future researchers in transferable skills, not only on their discipline of research.

4. Results

The most relevant result of Module 4 is perhaps the collaboration of Module 4, 5, and 6 in the implementation of a CIVIS programme on 'Science communication: sharing knowledge and creating connections' (see the <u>Blended Intensive Programmes or BIPs webpage</u>). This is the second time the programme is implemented (in 2022, it was structured as a <u>virtual mobility micro-programme</u>; this year the programme will include <u>a mobility week</u>) and it was expanded to include more universities to deliver courses and trainings. The large number of applications received for both editions indicate the interest of CIVIS young researchers (the programme was addressed to Ph.D. candidates in CIVIS universities) in this topic. (Please more detailed information below.)

After two editions, it seems that collaboration between the universities will continue to be organic. There have been discussions to translate this programme into a Master's degree in the future. This will probably happen if CIVIS takes over this initiative because one of their main objective is to create educational programmes at European level. There has been discussion of preparing a MSCA Researchers Night for CIVIS universities, which could be a good experiment and a future opportunity for collaboration.

Organizing training has been challenging, but quite insightful. Module 4 has learned what strategies work and which ones don't, at least those related to PhD candidates and postdocs. This knowledge can be certainly passed on to the Doctoral training stream in CIVIS.







Another tangible result from Module 4 is that at least two universities that did not have the HRS4R label are applying for it in the upcoming years. Some bilateral meetings have taken place to share good practices in the development of an action plan, renewal of the label and EU auditing. These are, of course, results on the making and have been reinforced by the thematic meetings that have been held throughout the project, such as the one on the Welcome Desks. Also, arising from the meeting on the Welcome Desks practises, a new tool to keep track of visiting researchers was found in one of CIVIS universities. At the moment, this tool has been presented at national level in one of the countries represented in CIVIS and will be implemented in the coming year by at least 4 other universities that are not within the CIVIS Alliance.

In terms of career development and mentorship, the results have been poor. The term mentorship and the activities that come with it are not well known. It is difficult to find mentors as there is no tangible gain that comes in a short period of time. Searching also for the right person is complicated, as it is monitoring and following up from the universities side (although there is also the question whether this is necessary as postdocs are also independent in their decisions of having or not a mentor). In general, researchers seem interested in acquiring one, but hesitated to have the first contact. It is worth mentioning, that universities that met with their participants at individual level discovered a great sense of loneliness and anxiety regarding future opportunities of employment, as positions in academia are lagging. In order to tackle that isolation, which is a true challenge, universities could reflect upon providing individual advise and a strong framework at university level for career development. Once a ground base is formed, it would be possible to imagine CIVIS as a catalyser to create community. Indeed, since there was not a solid base in CIVIS universities at individual level, the engagement of postdocs in training and mentoring was somehow weak. More activities to create community (LinkedIn has 24 members) could have been a solution, for example, but how to implement them with the resources available is still unconclusive as it is necessary to have someone acting as a contact point that feeds and organizes activities, content and social media.

5. Conclusions and Recommendations

The main lesson learned is that standardising practises and building strategies requires time and resources. If the long-term strategy is for the European University initiative to remain a part of the European Commission's Erasmus+ programme, research aspects should be better included within.

Regarding career development, researchers face common challenges related to funding, stability of contracts, lack of knowledge of possibilities outside academia and ways to access the private sector. Most CIVIS universities have in place some initiatives for career development under different formats, e.g. mentorship programmes for newly arrived staff, career support for PhD candidates, and soft skills development for outside of academia. However, these initiatives usually lack stability and are not regarded as a priority in Higher Education. This has, in any case, become a priority in the ERA policy agenda of 2023-2024, specifically, action 4.

Thanks to the lack of legal barriers, transferable skill training comes across as one of the least complex fields in which to develop collaboration. On Alliance level, there is a need for a clear framework, a







shared communication strategy and a focus on programmes rather than individual training courses. While Erasmus+ funds could be used to provide courses to Ph.D. candidates, at EU-level there is a lack of funding to organize similar training programmes for postdoctoral researchers. If the evaluation of research is going to change as per the latest <u>EU reports</u>, then the skills framework should be updated and reviewed accordingly in the training received by researchers at the beginning of the Ph.D.

- During the thematic meetings organized for the exchange of good practises, it was challenging to identify topics for discussion as some services offered in the universities find themselves at different stages of development, e.g. International Welcome Desks, Sustainability, etc.;
- Synergies between Erasmus+ and Horizon Europe programmes. The European University Initiative should consider Higher Education as a whole and not as a sum of its parts. A strategy for education should go hand-in-hand with a strategy for research. Funding instruments for soft skills should not distinguish between researchers, whether Ph.D. candidates or postdocs. The diversification of research careers and the difficulties to access academic job positions call for an education adapted to a continuously changing job market. If the goal at EU-level is to continue reinforcing research and cooperation with the private sector, then researchers should not be left out of further educational possibilities;
- Competence and Skills Framework for Researchers and Funds at EU-level. A coherent framework to promote employability and intersectoral mobility is necessary to support career development initiatives within Higher Education. This should include guidelines on what works and what is necessary in a career programme to support researchers who face challenges within and outside academia. This kind of soft skills curriculum should aim to improve the changes of upskilling and reskilling researchers. Furthermore, this should be accompanied by other strategies such as coaching or mentorship for outside academia to address the need of informed decisions when researchers face the labour market;
- **Instability of Researchers Contracts**. This is not a novel finding as the EU is already aware of this issue, however, RIS4CAREERS made this evident for CIVIS universities. Standardization of contracts is a difficult case as it depends on national legislation

PART II

Cost Benefit Analysis

In general, the cost/benefit of the project is well balanced in the case of Module 4. There have been many obstacles to the collaboration in strengthening human capital, some of which have been mentioned above. There is perhaps one that should be also considered and that is time. The project lasts three years, which barely show us the great possibilities of working together. There have been great benefits in the training field since it is now possible to discern when and how this works better and in which type of context. There may be some more experimenting needed, but this aspect of the project has worked well. Regarding thematic meetings and other exchanges of good practises, they are as necessary as they are useful.







In terms of case studies, the thematic meetings had greater benefits compared to the costs of organizing them with obstacles mostly relying on identifying participants and content. The benefits of this initiative are difficult to measure as the follow up corresponds to the universities themselves. The case study for training is more complex as there are many more aspects to it, namely, funding and operationalisation of content. Module 4 had different results depending on the frame, topic and participants of the trainings. Those lectures/workshops within a programme that delivered ECTS and required a minimum attendance for the whole programme had a greater success than those trainings that were created independently. Also, the trainings that were taking place already at a university and that were opened to CIVIS were also counting with more attendance than those exclusively created for CIVIS.







Module 5. Mainstreaming of Open Science

The main objective of Module 5, 'Mainstreaming of Open Science', in RIS4CIVIS has been to implement a common CIVIS approach to Open Science (OS), backed by practical support for researchers to develop OS practices and relevant systems and workflows within each CIVIS Alliance member. Work towards achieving this goal has started early on as part of the CIVIS Task Force on Open Science (2020-2022) and will continue with the CIVIS Open Science Expert Group (2023-), but the different structure of the participating institutions in CIVIS (11 universities) and RIS4CIVIS (eight universities) and the status of OS at international level reveal ongoing challenges. For example, related to the latter, OS is a very dynamic field, with diverse practices and large variety of topics and approaches that are commonly designated by the label "Open Science' (e.g., Open Access, Open Data, open infrastructures, evaluation and peer-review practices, etc.), and different levels in the implementation of OS policies at institutional, regional, national, and European levels. Module 5 in RIS4CIVIS has developed constant efforts to address such challenges and to contribute to the dissemination of good OS practices. In WP3 of RIS4CIVIS, this work was established in the form of four Case Studies.

PART I

1. Description of Case Studies

The work of mapping OS practices, policies, and infrastructures in CIVIS was carried out in WP1 of RIS4CIVIS (months 1 to 6; see the Module's Report for WP1). It was based on a questionnaire developed by <u>LERU</u>, with 83 questions, which covers the following OS categories: Cultural Change; Future of Scholarly Communication; FAIR (Findable, Accessible, Interoperable, Reusable) Data and Research Data Management (RDM); European Open Science Cloud (EOSC); Education and Skills; Recognition and Rewards, Next Generation Metrics; Research Integrity; Citizen Science, Open Education. Results were analysed in subsequent stages of the project, such that in WP2 (months 6 to 15; see the module's Report for WP2), Module 5 identified several desired endpoints, which can be subsumed to two general goals: (1) raising awareness about OS practices; (2) enhance the collaboration between universities within CIVIS.

The list with desired endpoints, corresponding to diverse Open Science categories (OS categories are listed in front of each endpoint, in bold; desired endpoints follow, in italics), includes:

- **1.** Cultural Change. *All the CIVIS universities have an OS policy*: a common framework for OS policy for all the participant Universities and each university will develop an OS strategy.
- 2. Cultural Change. One common OS Service, supported by OS coordination groups in each university of the Alliance. Each OS group will have an academic OS leader, to foster OS actions within the CIVIS universities.
- **3.** Future of Scholarly Communication. *Make publications open by default and provide a gateway to all CIVIS research outcomes* (e.g., local repositories harvested by OpenAIRE). Encourage the







transformation of institutional presses into open access publishing houses (monographs and journals).

- **4. Research Data Management.** *Mapping institutional repositories managing Research Data according to FAIR principles.*
- 5. Research Data Management. CIVIS training programmes on RDM.
- 6. Education and Skills. Creation of a common knowledge base on OS and raising awareness about open science practices.
- 7. Education and Skills. Creation of common courses to develop OS skills.
- **8.** Recognition and Rewards and Next Generation Metrics. *Establish an award for CIVIS Best Practices in OS.*
- **9.** Recognition and Rewards and Next Generation Metrics. *Common table of indicators to measure research activity and scientific production, from the OS perspective.* CIVIS universities include OS practices in their research evaluation and career assessment processes (link this to the HRS4R in Module 4).
- **10.** Recognition and Rewards and Next Generation Metrics. *Participation in international activities for the development of New Generation Metrics that take into account the whole research lifecycle and all the types of research outputs (e.g., DORA).*
- **11. Research Integrity.** *Raise the awareness of the CIVIS community on all aspects related to Research Integrity, including the use of Open research practices (ethics included).* RRI training for all PhDs and researchers.

The list reflects the diversity of OS landscape, but also the ambition of the CIVIS Alliance to act in promoting and implementing OS practices. Due to time constraints (the duration of WP3 in RIS4CIVIS from month 14 to month 32; see Figure 1), the Module had to prioritize and focus only on some topics from the desired endpoints. As such, four case studies were selected in WP3 (some of them were developed as cross-Module actions):

- 1. **Common CIVIS OS Knowledge Base** the creation of a CIVIS virtual space to include trusted information related to OS policies and practices (e.g., trainings, templates, case studies etc.).
- 2. **CIVIS Training Programmes in OS** adapting European recommendations and training programmes on OS to the needs of the CIVIS academic community.
- 3. **The CIVIS OS Award** constantly mapping the OS landscape in CIVIS needs to be joined with showcasing some of the best applications of OS, with an increased visibility in the case of a CIVIS OS award.
- 4. **Pilot Case Study on Research Assessment** testing the use of new metrics in research assessment process (possible link with Module 4 and the HRS4R award).









Figure 1. An estimated Timeline, as presented in a Cross-Module Meeting (Modules 4, 5 and 6) in Madrid (May 3, 2022, i.e. month 17 of RIS4CIVIS).

Implementing OS practices is a long-time process. On the one hand, the OS covers a broad range of topics and approaches. On the other hand, informing and engaging the academic community in debates about OS requires constant effort on a long-time span. Depending on national legislation (i.e., national OS policies), some of these efforts can find support in existing structures and programmes, while others require a still-wider set of actions. The best example is the topic of research assessment, which cannot be treated in isolation from the general practices of the international academic community. However, further allocation of resources (e.g., piloting case studies) and allowing alternative forms of evaluation to be carried out by individual institutions might remove some of the barriers.

2. Description of the Work Process

During the period covered in the current report, Module 5 has implemented the aforementioned casestudies. Most of the work was carried out in three smaller working groups, combining asynchronous (e.g., email, shared documents online) and synchronous (e.g., online video meetings) activities:







(1) The **Common CIVIS OS knowledge base** working group developed an already existing list with OS resources, which was initially prepared for internal use purposes. The list included CIVIS and non-CIVIS materials, and it was compiled to illustrate some of the existing good OS practices on the OS categories described above (see the OS categories in the reports of WP1 and WP2; see Figure 2). The collected resources are not only diverse (e.g., thematically, for different potential audiences, etc.), but also numerous, such that identifying the proper tools and



Figure 2. Screen Capture with the Internal Document (represented as a Webpage).

venues for dissemination represents a challenge. For this reason, a solution was searched together with the IT and the CIVIS Communication teams. The current consensus in the OS Knowledge base working group is to develop a mixed approach, with materials pertaining to a general audience to be included on the Module 5's webpage on the CIVIS website, while more advanced materials will be shared via the Moodle platform. The advantage of the Moodle platform is that it allows different levels of access (ranging from free public access, to access for specific individuals and groups). In addition, it offers a dynamic system of communication (e.g., upload and update of resources of different types). Not least, Moodle is the CIVIS online platform for education and adapting it to become a trustful resource for research-related materials can offer a more sustainable development of the digital component of the Alliance (see Figure 3).

(2) The CIVIS training programmes in the Open Science working group faced similar challenges. A catalogue with OS courses and training in CIVIS universities was prepared in collaboration with Module 4 of RIS4CIVIS. Making the catalogue available for the CIVIS community is not only desired, but it is expected to raise the awareness about OS approaches. Moreover, the working group has prepared a document with OS training matrix (see Annex 1). The document is intended to act as a basis for designing future CIVIS training programmes on OS-related topics. A joint use of the CIVIS website and the Moodle platform is envisaged to share the results of this case study.









(3-4) The working group on the Pilot case study on research assessment and the CIVIS OS Award faced several additional challenges. The most notable is the ongoing development of the European initiative CoARA (Coalition for Advancing Research Assessment: https://coara.eu/). As argued below, it is both a challenge and an opportunity. A challenge because it introduces another level of debate besides the institutional, local, and national discussions related to research assessment in the context of OS. An opportunity because it offers a new forum for discussions, one that is opened to large-scale transformations in the evaluation of research results. The calendar of these international developments was taken into account and the agenda of our working group was adjusted as such. For example, a notable result of the RIS4CIVIS working group was the submission of a proposal to form a CoARA working group on the topic of 'Research Assessment in European University Alliances (EUA) and international research performing organisations (RPO)' (see Annex 2). This is a significant achievement, as the initial draft of the proposal was signed only by CIVIS universities (4 of the participating universities), while the final proposal was supported by other 10 institutions (universities and research performing organisations). Moreover, as part of the constant effort of the working group to connect the discussions in the CIVIS Alliance with other similar initiatives, the group has presented a paper in the TORCH2 conference of the CHARM-EU Alliance (see Annex 3).

The RIS4CIVIS **Research Assessment** working group is developed as a cross-module activity, a collaboration between experts in Modules 4, 5 and 6, with the support of other experts from CIVIS universities that are not part of the RIS4CIVIS Modules. The collaboration between Modules 4, 5 and 6 was very fruitful so far (see also section 4. Results below). In brief, the first two case studies are currently searching for solutions to make the results available for the CIVIS community and for broader audiences. The last two-case studies are aligning with current discussions about research assessment reform at various levels (institutional, national, European), and they are expected to promote a longstanding transformation process, leading to the cultural change fostered by OS practices.

Testing and implementing case studies is a time-consuming process. It involves constant effort, but also requires a continuous dialogue with different actors involved in the process. These traits are visible in the work of Module 5, where persistent connections and developments at institutional, local, and national levels were taken into account while developing the four case studies at the Alliance level. As explained, European debates and frameworks have shaped and forced us to adapt the timeframe of our work. While some of the initial ambitions of the last two case studies (research assessment and OS Award) were reduced, the key gain was the alignment with similar initiatives at European level, especially in countries and institutions where these developments were only nascent before joining *CoARA*. The experience gathered in the process is an important asset for testing possible extensions of the selected case studies in Module 5 and for promoting future implementation of good OS practices in different contexts (Alliances of European universities, individual institutions, different national and local regulations of OS, etc.). Moreover, the collaborative work with other Modules is equally important to produce useful resources for the CIVIS Alliance, while developing common programmes (e.g., the 'Science communication' course: https://civis.eu/en/civis-courses/science-communication-sharingknowledge-and-creating-connections; see Section 4, below) and applying to European calls (e.g. several applications were submitted in 2023 by different groups in RIS4CIVIS and CIVIS as part of the Widera call).







3. Obstacles, Hinders - and (New) Possibilities

OS is facing different and many challenges: first and foremost, it is a very dynamic field, contributing with a variety of approaches to the practice of science and the dissemination of research results. Adapting to the current pace of international developments can be difficult, such that different levels of adoption of OS can be seen at national and institutional levels. This variety is well illustrated in CIVIS, too. Second, OS is very broad and most of the time – due to time constraints and resources available – it is possible to develop only some aspects (categories, as described above), but not OS in its entirety.

The team of Module 5 was aware of these problems before undertaking the task to develop the four case studies. For this reason, the selected cases were aimed to carry the ambition of mainstreaming OS by acting at two levels: on the one hand, to provide immediate access to OS resources (the first two case studies: OS Knowledge base and the OS Trainings) and, on the other hand, to promote the cultural change associated to OS (the other two case studies: OS Award and Research Assessment Reform). This solution goes beyond RIS4CIVIS (see figure 1). Establishing a single-access point with OS resources will help the CIVIS community to learn about, use, and develop more OS-related materials and workflows (as illustrated by the use of the Moodle platform, see figure 3). Promoting a dialogue with the CIVIS academic community on complex topics such as the change in the evaluation of research results and highlighting good OS practices through a CIVIS OS Award are meant to produce a cultural change. In order to develop all these actions, Module 5 will need to be in constant dialogue with different relevant stakeholders, not only within CIVIS, but also at national, and European level.

The biggest challenge in this respect is to make a smooth transition from RIS4CIVIS to CIVIS. Some of the good practices identified by Module 5 with respect to OS must be transferred to CIVIS, especially at the end of the RIS4CIVIS project (December 2023). In order to do so, an Expert Group on OS is envisaged in CIVIS.

4. Results

Results of Module 5 are of two types, some relate to the aforementioned cultural change that is expected to take place on the long run, while others indicate more concrete steps in promoting OS. Related to the latter, a revamped webpage on OS in CIVIS is expected to result from the current work in WP3. Resources on OS need not be scattered on the CIVIS website, but grouped on a single page, to facilitate access and to provide reliable information about OS. This is still in the making, but it is the immediate result derived from the work carried out in the first two case studies (the OS Knowledge base and the OS Training). Module 5 considers this as an important step in the dissemination of OS in CIVIS, which is expected to assist CIVIS community (and as long as the information is on the public website of CIVIS, the general public at large) to learn, adopt, and adapt OS practices to their current work in research or education. The use of the Moodle platform to share OS resources, news, and other types of materials is anticipated to grow gradually, such that implementing this action will take more time than currently available in RIS4CIVIS. In any case, the process – driven by the findings in WP3 – will start by the end of the project, and it will ground future work in promoting and disseminating OS resources.







Related to the cultural change goal, a first result of the working group on research assessment reform and OS Award was the submission of a working group proposal in the *CoARA* call (Annex 2). Our crossmodule action (Module 5 and Module 6, with the support of Module 4 in RIS4CIVIS) allowed us to be part of the dialogue between different (international) institutions on the topic of research assessment reform. We participated – individually, but also in smaller groups – in events hosted by other European University Alliances (e.g. the TORCH2 event; see Annex 3), national consortia or debates on OS, initiatives of transnational organizations (e.g. YERUN), or European initiatives, such as *CoARA*. The proposal to form a working group titled 'Research Assessment in European University Alliances (EUA) and international research performing organisations (RPO)' was submitted in the first call of the Coalition (on June 6, 2023).

The submission process was initiated with an *Expression of Interest* (submitted before April 27), and it was followed by the presentation of our proposal during the webinar of May 5. A dialogue was initiated afterwards, such that other institutions, either universities participating in other European University Alliances or broad national and cross-national research performing organisations, have joined the proposal. It was the only proposal of a working group focused on European University Alliances and the challenges EUAs are facing in implementing OS, especially in the area of research assessment reform. Despite not having selected by CoARA as a working group, it is important to note the high interest of other universities and research performing organizations in this proposal, which underlies the need to address the topic at the level of large-scale organizations – and not only at local, national or European level – acting as consortia, not as individual institutions.

Collaborative work was equally visible in the cross-module actions developed in RIS4CIVIS. We mentioned above the common work – and results – of the working group on Research Assessment Reform. Another collaboration between Modules 4, 5 and 6 is the implementation of a CIVIS programme on 'Science communication: sharing knowledge and creating connections' (see the Blended Intensive Programmes or BIPs webpage: <u>https://civis.eu/en/blended-intensive-programmes</u>). This is the second time the course is implemented (in 2022, it was structured as a virtual mobility micro-programme: <u>https://civis.eu/en/civis-micro-programmes/micro-programme</u>; this year the programme included a mobility week: <u>https://civis.eu/en/civis-courses/science-communication-sharing-knowledge-and-creating-connections</u>) and it was expanded to incorporate more universities to deliver courses and trainings. The large number of applications received for both editions indicate the interest of CIVIS young researchers (the programme was addressed to PhD candidates in CIVIS universities) in this topic.

Not least, the cultural change is promoted as a continuous action in CIVIS. On the one hand, the CIVIS OS Expert Group is expected to continue the work of Module 5. On the other hand, a dialogue with other structures in CIVIS was initiated and – to provide just an example – HUB5, Digital and Technological transformation (for CIVIS HUBs, see <u>https://civis.eu/en/activities/civis-hubs</u>) will include OS as part of a working group on Education and Research. This represents an important development, not only as a transition phase from RIS4CIVIS to CIVIS, but more importantly as a way of mainstreaming OS practices to the larger academic community in our Alliance.







5. Conclusions and Recommendations

As a SWAFS project, RIS4CIVIS was intended to analyse, test, and share results of the work carried out in each Module. Consequently, Module 5 has implemented the four cases presented above, and contributed to the policy recommendations of the project (see https://civis.eu/storage/files/briefing-note-module-5-mainstreaming-of-open-science.pdf), which is worth mentioning in the concluding section. The key policy recommendation is to provide a (funding) mechanism to support conversation on good OS practices at European level, including the European University Alliances. The recommendation is intended to encourage a global development of the OS, which – as explained in this report – is both diverse and broad. The current debates are carried out at different levels (institutional, national, international) and involve different stakeholders (researchers and educators, administrative staff, policy makers, NGOs etc.) and maintaining all voices in the debate requires time and effort. For this, human resource in terms of shared expertise and time to discuss around successful cases of applying OS practices is essential.

The lesson was well learned during the implementation of the RIS4CIVIS project, as the constant involvement of the OS experts was fundamental. Creating larger groups/ OS units in each university would be beneficial for a proper dissemination of the good OS practices. This would further allow better networking in CIVIS and successfully promote OS. Some steps in these directions were taken during the project (e.g. sharing information about OS on the CIVIS website, with more advanced resources accessible in a common Moodle platform), but this is an ongoing process, which needs to be carried out diligently through a variety of dedicated actions. In this sense, the OS Training Matrix (see Annex 1) can represent the framework of a future CIVIS OS Training program. Branching out from the Alliance to the larger European dimension is also desirable. While we appropriated some of the best OS practices available, we are also eager to contribute to the new discussions, such as the ones about research assessment reform in *CoARA*.

These are just a few examples of the actions developed and results achieved in WP3 in RIS4CIVIS (see especially sections 1, 2 and 4 or the current report), but the most important outcome is the creation of the OS group of experts. We are now in a better position to carry out common projects, as we have a better understanding of the way OS is implemented in different CIVIS universities. Thus, we aim to transfer our know-how to the next phase of CIVIS and to continue the development of OS as a way of properly doing science.







PART II

Cost Benefit Analysis

'Open Science' is a label describing a new way of doing science. It relies on the ongoing digital transformations of scholarship and on the free circulation of research results from the early stages of research production. OS is very collaborative, and practices are diverse (sometimes depending on disciplines and communities of practice) and change rapidly. As such, keeping track of all transformations in the OS landscape is not an easy task. Moreover, developing OS skills takes time and constant effort in developing training programs tailored to the needs of each individual and to the recent transformations of the OS. All these aspects uncover the complexity of a cost-benefit analysis. However, applying such analysis to the work of Module 5 should raise a different set of questions: Are the selected case studies relevant for the CIVIS community while promoting OS practices? What other audiences can benefit from the findings of Module 5? How to transfer the positive examples and the outcomes of RIS4CIVIS to CIVIS?

Answers to these and similar questions are provided in other sections of the report, but the conclusion of the report should be stated once more in this context: the key benefit of the activity of Module 5 in RIS4CIVIS is the creation of a group of experts in OS at the Alliance level. The concrete results derived from the activity of the OS group will be more visible as soon as the CIVIS website includes the OS knowledge base and the list of trainings, but the contribution towards the cultural change and mainstreaming of OS cannot be achieved without the constant transfer of know-how and guidance on OS practices. The costs associated with this activity – the RIS4CIVIS budget – are low compared to the benefits of expanding the work of the OS group at the Alliance level.

ANNEXES

Annex 1. The OS Training Matrix: Document 'Annex 1. RIS4CIVIS_Final-classif-trainings-OS.xlsx.' The matrix used to classify the existing OS training offers by the RIS4CIVIS member institutions was inspired from the EC recommendation reference paper (https://op.europa.eu/en/publication-detail/-/publication/3b4e1847-c9ca-11e7-8e69-01aa75ed71a1).

Annex 2. The application for a working group in the CoARA call: Document 'Annex 2. EoI1_Alliances_Working-Group_EoI-Full-Proposal-Form_FINAL.docx.' The document submitted in the CoARA call.

Annex 3. The slides of the presentation made in the TORCH2 conference (March 8, 2023): Document 'Annex 3. 2023.03.08 TORCH2 Conference. RAR in RIS4CIVIS_Final.pdf.' The presentation was authored by Fabien Borget (Aix-Marseille Université), Mihnea Dobre (University of Bucharest), Rafaella Lenoir Improta (Universidad Autónoma de Madrid) and it had the following title: 'Exploring a Path to Research Assessment Reform in a European University Alliance: RIS4CIVIS.'







Module 6. Embedding Citizens and Society

PART I

1. Description of Case Studies

The focus of Module 6 has been to increase public participation in science, public perception of the relevance of science, and public acceptance of science, across all of the CIVIS local communities. Our objective was to develop and share common tools, practices, concepts, policies and training that open research to citizens and society, increasing the quality and efficacy of three basic aspects:

- Science Communication (SC);
- Citizen science (CS);
- Open Innovation (OI), social innovations, and challenge-driven innovations.

Along the process of WP3, we decided to mainly focus on **Science Communication** and **Citizen Science** since they are most clearly related to embedding citizens and society, and overlap with topics from other Modules of the RIS4CIVIS project. As a result of the work carried out during the Consensusbuilding phase (WP2), a list of four desired endpoints and a roadmap on how to reach these aims was developed. The desired endpoints for Module 6 are:

- Promoting Network of CS/SD/OI experts;
- Developing a Common training program at the CIVIS level;
- Promoting Embedding Citizens and Society Politics;
- Designing strategies to engage citizens and society in science.

As the last action in WP2, the following case studies were defined for testing the validity of the endpoints and roadmap developed:

- 1. To create an Experts Database;
- 2. To set up training courses in Citizen Science and Science Dissemination;
- 3. To create Guidelines of Best Practices in Citizen Science and Science Dissemination (technical and political/management aspects);
- 4. To rise recognition of the efforts of Citizen Science and Science Dissemination actions. The purpose is to create a set of actions in the Alliance to recognize the efforts of researchers in carrying out Citizen Science/Science Dissemination initiatives: 1) a Science Dissemination and Citizen Science Award; and 2) a Research Assessment Reform.







Database of Science Communication and Citizen Science Experts

The purpose of this case study was to generate a network of Citizen Science, Science Dissemination and Open Innovation experts. This network started with the identification of a list of experts, which was later published in the CIVIS Digital Campus. The aim of this network was to promote new ideas on Citizen Science, Science Dissemination and Open Innovation: exchange good practices, activities, events, and projects, as well as identify challenges in these fields. The final aim of those experts' exchanges is to create Citizen Science/Science Dissemination strategies to boost initiatives in these fields. In the near future, this network shall support researchers and students willing to develop citizen science actions. and support the design of resources available for other actions such as courses and training actions, best practice manuals, etc. As a first start, exchanges between experts have been the first step to carrying out the two case studies, the Manuals of Best Practices and undertaking common training programs. In order to accompany the groups of experts respectively involved in these two cases in their interactions, the following actions were undertaken:

- Identification of experts in each university;
- Creation of a platform of social participation in research projects.



Figure 1. Screenshot of the Experts Community Platform.







The people involved in these actions, at the university level, aim to be experienced researchers, faculty members, and project officers in science communication/dissemination. The procedure of how we moved forward with this case study is described in the next section. We encourage our Alliance to complete and integrate new experts in the future and to integrate the current members of the Module 6 as experts in these topics.

Promoting and Carrying out Common Training Programmes at the CIVIS Level

The main objective was to promote common courses among the members of the Alliance. The achievement of this endpoint could enhance CS/SD activities in the framework of RIS4CIVIS, raising awareness, gaining competencies, and stimulating CS/SD actions. This also aims at getting more and better-engaged researchers in science dissemination activities towards the general public. So as to accomplish this endpoint the following actions were envisaged: to promote courses, trainings, seminars, and workshops in Citizen Science, Science Dissemination and Open Innovation in order to attract participants. On the one hand, Modules 3, 4 and 5 were supporting us to accomplish this endpoint with respect to joining forces to create a catalogue of training with all CIVIS universities (*Transferable Skills Catalogue*). On the other hand, Module 6 together with Modules 4 and 5 carried out a case study, promoting training courses in Science Communication for Ph.D. candidates. This case study is presented in the results section.

Guidelines for Good Practices in Science Communication and Citizen Science

The creation of a useful tool for a suitable promotion of Citizen Science and Science Dissemination actions was another fundamental aspect to be achieved within Module 6. For that purpose, we agreed to design a manual/documentation concerning identified practices that was to be published on the Digital Campus targeting the CIVIS community, academics, students and staff. The purpose was to make science more participative, easily available and understood by the general public, engaging society in CS, and SD actions, and supporting the translation of theory into practice in all CIVIS universities.

To do so, we have created a Good Practices Guidelines. It is a manual that provides some rationale, tips, and examples for developing Citizen Science and Science Dissemination campaigns. Several revisions from the Module 6 members and from experts' contributions have improved the guidelines and they are currently being edited and reviewed by experts a last time before being printed and formatted into a booklet.

Promotion and Recognition of CS, SD and OI Practices: (i) Science Communication and Citizen Science Award and (ii) Research Assessment Reform.

The need for recognizing the variety of outcomes and actions produced by academics is well known. Though, some that lack recognition are those related to Citizen Science and Science Dissemination. A substantial recognition and adequate financial support for these activities could provide real citizen engagement and growth of activities in the CIVIS Universities for that purpose.

The Module members developed proposals to both the Universities' and CIVIS' governance in order to implement these institutional changes. As a result, from this endpoint two case studies were derived: (i) Science Communication and Citizen Science Award and (ii) Research Assessment Reform.







The purpose of these case studies was to motivate researchers in participating in actions relating to citizen engagement in science and science dissemination. This could increase mutual understanding and recognition of benefits for both science and society and contribute to a resilient society and democracy, and eventually, benefit the UN's SDGs and EU's Open Science pillars through smart cooperation between science and society.

2. Description of the Work Process

During June 2022, the case studies were defined. Afterwards, the coordination team of Module 6 consolidated and presented the procedure of the five case studies. Aiming to facilitate the work in each case study, Module 6 representatives were divided into five working groups (one per case study), according to the representatives' preferences and expertise.

In July 2023, in an effort to consolidate the working groups, the Module 6 Coordination Team prepared and shared a Google form to be filled out by each representative indicating which case studies they would like to participate in. This form included the following items, for each case study:

- A summary of the case study objectives and steps;
- Mandatory question: Would you be willing to participate in the elaboration of this case study? (yes, no, maybe);
- Optional question: what other actions do you see needed to complete the work on this case study (if any);
- Optional question: other comments/suggestions related to this case study.

As a result, each working group is now composed of the following universities:

Experts Database	Training	Guidelines	Research Assessment Reform (Members from	Award (Members from Module 6)
NKUA	AMU	AMU	Module 6)	UB
AMU	UB	NKUA	NKUA	AMU
UT	ULB	UT	AMU	ULB
ULB	UT	UB	ULB	NKUA
UB	SUR	SUR	UAM	SUR
SUR	UAM	UAM		UAM
UAM				

The progress of each case study is summarized below.







Database of Experts

First, a form was set up for the IT team and sent to the experts in Citizen Science and Science Dissemination and Open Innovation in order to create a database of experts. To date, we have 55 experts who expressed interest in joining the database (for more details of the number of experts in each university, see figure 2). In order to decide the design of the database, Module 6 representatives presented examples of databases during the Stockholm meeting. Based on those examples, the contents and items that were to be included in the database was discussed and started to be defined. Module 6 then began to work with the CIVIS IT team to define the layout of the database. The next steps were to present the database and its purposes to the experts. By using a digital format, the objective is to facilitate the inclusion of new experts and provide at the same time a useful format for it. As we discussed in Stockholm in October 2022, it is conceived as an open repository of experts. During January and June 2023, meetings were held with the IT Team in order to construct a Platform for the Experts. As a result, the IT team has developed a beta version of the platform of Citizen Science and Science Communication. This version has been finalized and now we are discussing with the working group members to define platform details. The link access the the last to platform is: https://civis.opensocial.site/dashboard/betatest-0

First, you'll need to create an account using the signup page: https://civis.opensocial.site/user/register

After receiving the suggestions made by group members, the next step was to contact the experts. This contact was made by email where we have detailed (1) the aims of the case study, (2) the expert role in this case study, (3) the platform presentation, its tools, and instructions to sign up. We will also request their suggestions to improve the platform. We still need to receive responses of a relevant number of experts in order to feed the platform with them and to initiate the common activities within it.






👗 Experts DB Module 6 🗸	Data Automations Interfaces	
Trainings 🗸 🗸		
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Grid view copy	Aix-marselle Universite	
Experts questionnaire Module 6	Eberhard Karls Universität Tübingen	Count 3
	National and Kapodistrian University of	of At Count 10
	Sapienza Università di Roma	Count 10
	UNIVERSITY Universidad Autónoma de Madrid	Count 11
	UNIVERSITY Université libre de Bruxelles	Count 7
	University of Bucharest	Count 4

Figure 1. Experts Database and the Number of Representatives by Universities

Guidelines of Good Practices

To elaborate the document, the procedure was first to collect existing guidelines and manuals to act as inspiration for the Module 6 guidelines. During the in-person meeting in Stockholm in October 2022, some of the Module 6 representatives presented examples of guidelines. Based on those examples, we discussed and stated the contents/items to include in them. Pre-existing documents helped the working group to improve the final document.

In the following meetings, the working group presented ideas about the presentation of the guidelines. Based on the material selected and suggestions, a first draft version was created, which was shared with







the working group members who made suggestions. We organized a hybrid meeting with the members of the Guidelines working group, on May 25, 2023, taking advantage that some of the members were joining the Global CIVIS Days in Tübingen. This meeting was dedicated in improving the first versions and setting the deadline for the final version, which is planned for fall 2023.

Training

During the spring/early summer 2022, Modules 6, 5 and 4 designed and implemented a CIVIS joint micro-programme on Science Communication. The programme was designed to provide young researchers with the necessary concepts and tools to approach the dissemination of their current and future research activities to the public, and provide them with technical knowledge, an activity that is increasingly in demand by society, research centres, universities, and public administrations. The course registration was successful, with 154 candidates for 25 vacancies.

More recently, we worked together on the second edition of this course, now in CIVIS BIP (Blended Intensive Program) format. This case study is detailed in the Module 4 report, but to sum up, the course has been carried out in a blended format, with virtual sessions and one in-person meeting in Universidad Autónoma de Madrid for the practical classes about video, podcasts etc. This second edition had around 35 students from Sapienza Università di Roma, Université libre de Bruxelles, National and Kapodistrian University of Athens, Sapienza Università di Roma, Universidad Autónoma de Madrid, Stockholm University and University of Glasgow. More information on this programme are provided in the Module 4 section of this report.

Research Assessment Reform (RAR)

The RAR is a cross-module case study that has representatives from the Modules 5 and 6 working groups. We started working on this case study in September 2022, by defining the steps. Subsequently, references on research assessment reform were selected, as well as a collection of new criteria, metrics, and indicators was organized. To organize all the material gathered, a Google Drive has been created.

To date, the working group had online-meetings and two in-person meetings, one in Brussels in September 2022 and another one in October 2022 during the RIS4CIVIS event in Stockholm. Based on the material collected, a list of criteria, metrics, and indicators has been created, as well as details about the procedure of applying the RAR pilot.

To carry out this task, each working group member was responsible for listing the most relevant criteria, metrics, and indicators by the first week of December 2022. The lists were summarized by the Module 5 and Module 6 leaders and afterwards, a meeting was organized for the second week of December 2022 to present the first version of the criteria to be applied in the RAR pilot. Since March 2023, we have been working on creating a list of new criteria for assessing research careers (including qualitative CV). Nevertheless, after CoARA (Coalition for Advancing Research Assessment) started its action plan, we saw that our work on the creation of new criteria must be revised. We, as a group involved in this case study, are discussing future actions and decisions about it.







Some representatives of the RAR Working Group had been working on a Working Group proposal for the CoARA ('Challenges of the Research Assessment Reform in the European University Alliances'). The expression of interest was sent on April 27 and then presented on May 5 at a CoARA event dedicated to it. We sent out the full version on June 6. In this full version, three other university Alliances (4EU+, E3UDRES2, UNA EUROPA), as well as other international research institutions (CSIC-Spain, CNRS-France, Associazione italiana per la promozione della scienza aperta - Italy, University Medical Center Groningen – Netherlands, and The Leibniz Association – Germany) joined the proposal. Unfortunately, on July 17th, we received the information that our proposal had not been selected. Nonetheless, it is very relevant to continue discussions regarding research careers, evaluation criteria, local institutional structures, and national legislation inside of the CIVIS Alliance. For tackling various concerns resulting from all these topics it is fundamental to continue with the debate as a way to share good practices and encourage a faster and smoother transition to new evaluation practices.

Award

As a first step to configure the Award, the Module 6 representatives selected the current awards to be used as an example to create the RIS4CVIS Award on Citizen Science, Science Dissemination and Open Innovation. The details of the awards selected have been categorised as:

- Award Name;
- Organizing institution;
- Recurrence;
- Prix (money indicating amount / or another type of recognition describing which type);
- Aim;
- Eligibility (criteria election);
- Character (individual or collective research groups or laboratories);
- Evaluation Committee;
- Process of application.

During the in-person meeting in Stockholm in October 2022, and based on previous discussions with the representatives, cross-module members of the working group discussed the basis of the Award. Afterwards, the coordination group suggested to move forward with an Award for Science Communication. The decision was based on the expertise and experience in participating in evaluation committees in previous awards on this topic, and the scarce existence of awards in the case of Citizen Science and Open Science. In this sense we considered it important to test the case study by selecting one of the topics that is uniformly represented across the CIVIS members – namely Science Communication, that is not clearly the case of Open Science and Citizen Science. On May 30th, 2023, the coordination group sent to the working group members a proposal of the rules for formulating the applications, the criteria for evaluation and the type of prize. We received some suggestions and modifications and we worked on the final version, which was finalised at the end of August. The first call will be launched in September 2023, and the evaluators (including researchers from the experts' database) will have three weeks to evaluate the proposals. The result of the award will probably be announced during the RIS4CIVIS final meeting in late November in Brussels.







3. Obstacles, Hinders – and (New) Possibilities

Due to the large scope covered by 'embedding citizens and society', at the very beginning, we had difficulties in specifying the fields that would be covered by the work carried out in Module 6. After some meetings, we decided that Module 6 would work on Citizen Science, Science Dissemination and Open Innovation.

Another difficulty was setting up a common definition of Citizen Science, Science Dissemination and Open Innovation, due to the fact there is no consensus of an 'official' definition, mainly with respect to Citizen Science. To overcome this obstacle, after a large discussion, a <u>Glossary</u> of topics related to these three fields was developed by the Module 6 representatives.

Another problem faced was the asymmetries in terms of the development of Citizen Science and Science Dissemination fields among the universities as well as the different university regulations. One of the relevant barriers to overcome is the existence of asymmetries in the development of Citizen Science and Science Dissemination fields and their traditions in the various universities.

During the WP3 process, the selection of five case studies has been another challenge. This has been solved by distributing the Module 6 representatives into five working groups according to their preferences and expertise. The biggest challenge in this respect is to make a smooth transition from RIS4CIVIS to CIVIS. Some of the good practices identified by Module 6 with respect to Citizen Science and Science Dissemination must be transferred to CIVIS, especially at the end of the RIS4CIVIS project (December 2023). In order to do so, an Expert Group on Open Science is envisaged in CIVIS. The Open Science expert group should cover the Module 6 case studies as Citizen Science and Science Dissemination are Open Science dimensions.

4. Results

Across the WP1, WP2 and WP3, Module 6 identified two types of results, one related to concrete steps to promote Citizen Science and Science Dissemination, and another one concerning cultural exchange. Regarding the first type, during WP1, we created a Glossary of terms relating to Citizen Science, Science Dissemination and Open Innovation. As a result of the work done in WP3, we developed a database of Experts and consequently a Platform of Experts in Citizen Science and Science Dissemination (currently a work in progress), the Guidelines of Good Practices in Science Communication and Citizen Science, and finally, the Science Communication Award. In a cross-module scheme, the draft list of new indicators for research assessment and the proposal of a working group in the CoARA are outcomes derived from the Research Assessment Reform case study. We also have the two editions of the Course on Science Dissemination.

The selected case studies ran adequately and were able to be finished in the established period. It is quite important to consider the need for the continuity of the objectives after the end of the project, and this particularly so in the case of the Database of Experts and of the Science Communication Award. In the







development of Good Practices Guidelines, the final product is an endpoint that is accessible to researchers and the rest of the academic community without maintenance.

The second result is the cultural exchange that the RIS4CIVIS project has encouraged and stipulated. The collaborative work experience carried out during the three WPs has created strong relationships among university representatives, allowing the aperture and the possibility to further work together smoothly in different actions relating to Citizen Science and Science Dissemination.

An example of cultural exchange was the joint work that this Module carried out with Module 5 in the case study of Research Assessment Reform, a cross-module activity that led to a presentation of a proposal of a working group in CoARA. The work aimed at joining forces with different universities and countries and at finding more institutions to be part of this initiative. Another example is the work on the Science Communication programme that goes to the second edition with the perspective and potential to continue working together for more editions. Relating to the internal actions, the most recent (and biggest) result was the approval of the WIDERA proposal ScienceUs.

Those outcomes illustrate how much we have grown in less than three years, and demonstrate the potential of this group to achieve relevant future outcomes. We hope that we can continue to work together in this way, because it will be a big loss if all the efforts in those pilots remain only in this phase as most of them have good potentials to grow and provide more relevant results.

5. Conclusions and Recommendations

The key policy recommendation is to provide a (funding) mechanism to support conversation on Citizen Science and Science Dissemination good practices at the European level, including the European University Alliances. The recommendation is intended to encourage a global development of the Citizen Science and Science Dissemination as dimensions embedded in Open Science. The current debates (mainly on CS development) are carried out at different levels (institutional, national, international) and involve different stakeholders (researchers and educators, administrative staff, policy makers, NGOs etc.) and maintaining all voices in the debate requires time and effort. For this, human resources in terms of shared expertise and time to discuss around successful cases of applying Citizen Science and Science Dissemination practices are essential.

This lesson was well understood during the implementation of the RIS4CIVIS project, as the constant involvement of the Citizen Science and Science Dissemination experts was fundamental. For this reason, the creation of Open Science units in each university would be beneficial for basing the establishment of Citizen Science and Science Dissemination as fields of Open Science, and, at the same time, proper dissemination of Citizen Science and Science Dissemination good practices. This would further allow better networking in CIVIS and successfully promote Citizen Science and Science Dissemination. Some steps in these directions were taken during the project (e.g., sharing information about Citizen Science and Science Dissemination on the CIVIS website, the Experts Database and future Experts Platform, the Guidelines of Good Practices in Citizen Science and Science Dissemination, the training on SD and the integration of Citizen Science and Science Dissemination items in the new indicators list for assessing research). However, this is an ongoing process that needs to be carried out diligently through







a variety of dedicated actions. In this sense, the Platform of Experts in Science Communication and Citizen Science can represent the framework of a future CIVIS exchange of experiences and joint work. While we appropriated some of the best Citizen Science and Science Dissemination practices available, we are also eager to contribute to new discussions, such as the ones about research assessment reform in CoARA, and SD training.

These are just a few examples of the many actions developed and the results achieved in WP3 in RIS4CIVIS, but the most important outcome is the possibilities that the cultural exchange produced by the joint work within RIS4CIVIS. We are now in a better position to carry out common projects, as we have a better understanding of the way Citizen Science and Science Dissemination are implemented in different CIVIS universities, as well as the necessity to work together and disseminate Citizen Science and Science Dissemination as dimensions of Open Science. Thus, we aim to transfer our know-how on Citizen Science and Science Dissemination to the next phase of CIVIS and to continue the development of those fields having in mind Open Science as a way of properly doing science.

PART II

Cost Benefit Analysis

The balance of cost-benefit indicates that there was a good equilibrium between inputs. But it should be noted that the definition and execution of the different case studies provided an excessive workload for the Module members. However, the development of the RIS4CIVIS project has provided many benefits through the integration of the partners, the creation of synergies and the development of common actions that are meant to continue, in an autonomous way, even after the end of the project.

Module 6 addressed the challenge of reinforcing cooperation between society and academia and, in this regard, the Module work group soon came to realise that it was necessary to allow sufficient time to raise awareness about the importance of this objective among the research community and this is why we created an expert database, setting up an adequate network for detecting good practises and to define the basis for relations between academia and society. In conjunction, the creation of a Science Communication Award is formed by the need for recognition of the value of all activities serving to connect and involve citizens and society. The many benefits emanating from the case studies carried out within Module 6 are clearly higher than the costs, with the project and work processes having laid the basis for real and fruitful co-operations to occur. So, for example, there have been great benefits in the field of training (of junior scholars and scientists) by using BIP opportunities and the promotion of awards for Science Dissemination for recognising the work and efforts of scientists in embedding citizens and society will be beneficial. In addition, the ongoing Widera European project on Citizen Science that has been approved, involving the majority of the CIVIS Alliance members, is a clear example of cooperation on the topic of embedding society and academia. Without any doubt, the work within Module 6 during the WP3 phase has pin-pointed the rich heterogeneity that characterise the CIVIS universities when it comes to the various aspects of academia-society co-operation, but at the same time, this heterogeneity - and its asymmetries - have also provided an excellent possibility for mutual assistance and co-operation between us.







3. Conclusions

While the work processes and methods within the six Modules have differed, some being more or less straightforward (as in Modules 1 and 2) and/or more tentative, exploratory and organic (as in Modules 3, 4, 5 and 6), the obstacles and hinders met on the way are similar. These obstacles include time constraint, workload, lack of commitment, the diverse frameworks/university cultures, and the overall heterogeneity that characterise the Alliance. However, there are also similarities when it comes to strengths and the shared and affirmative experiences that have been made. These strengths and experiences include the sense of our heterogeneity as a richness and a possibility, the joint will to collaborate and to solve problems and the mutual desire to create, explore and sustain (new) work relations. As the versatile and productive work in the Modules has progressed, it has become clear that university representatives in their various constellations have come up with an almost never-ending string of new ideas to be tested, and that they – both within each Module and across Modules – have manage to foster a culture of sharing and collaboration.

And, as WP3 with its emphasis on designing, testing, implementing and validating concrete case studies comes to an end, and each Module have, based in their work and experiences, formulated their own and specific recommendations, there is a strong consensus across the six Modules regarding recommendations and lessons learnt that are decisive. In sum, all Modules stress the importance of the following issues that need to be handled as RIS4CIVIS comes to an end and these concern the absolute necessity of:

- Continuous coordination and maintenance to sustain the various tools and processes that have been produced;
- An allocation of continuous resources, time and funding; and
- Continuous communication and dissemination across the Alliance and beyond.

If all of these are in place, the overarching endpoint of the project – a functioning Research and Innovation Strategy for the CIVIS Alliance – will materialize, flourish and succeed. In addition to these three main issues and recommendations, there is also a strong consensus among the Modules that regards the necessity to look for common points and interests to see where and how the many results and insights of RIS4CIVIS can fit into the overall CIVIS project.

A final note concerns the importance of in-person meetings. In the Introduction part of this deliverable, it was emphasized that physical meetings have been crucial for real engagement and collaboration to occur. Meeting over ZOOM has worked well, but the physical meetings held have proven to be a key to sustain productive and innovative collaborations within the Alliance. Hence, an important conclusion that is derived from WP3 is the immense value of in-person meetings for our joint collaboration, efforts and work to fly. The energy, sharing of knowledge, problem solving and creativity that these meetings have incited cannot be over-looked, and hence a final recommendation is to continuously invest in physical get-togethers across the continent(s), with an emphasis on our travelling being environmentally sustainable.

