Ulysseus Research & Innovation Action Plan

An agenda for Ulysseus

Abridged version
April 2023

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This document is an abridged version of the *Ulysseus Research & Innovation Action Plan*. His author was Nick Harrap and it was originally completed in June 2022.

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This document is an abridged version of the **strategic agenda for Research & Innovation** of Ulysseus European University.

This agenda is the result of identifying the **capacities and synergies of the alliance members and barriers** to realising their full potential. Additionally, it suggests key objectives and actions to help overcome such barriers and realise the goals of the alliance.

Most importantly, **this document should not be seen as an end itself but rather a starting point** that can continually evolve to best achieve the goals of Ulysseus.

This report is the result of a thorough information collection exercise. Various techniques were put in place for its production including:

1. **A questionnaire** completed by each partner university

2. **Interviews with administrators and researchers** both online and in person

3. **Co–creation SWOT analysis** with administrative and policy employees, and researchers from each partner university

4. **Co-creation ideation session building** to develop concrete actions

These activities were supplemented by desk research and data analysis, the data sources were:

- **Horizon 2020 project and participation Dashboard**, available through the European Commission website Funding & tender opportunities: Single Electronic Data Interchange Area (SEDIA) **[1]**

- **Web of Science** (Incites dataset), 2017 to 2021, version update 04/03/22. Does not include MCI

- **Scopus (SciVal),** 2016 to 2021, version update 13/04/22. Includes MCI

[1] https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-dashboard

03. ULYSSEUS AND ITS COMMITMENT TO RESEARCH & INNOVATION

The start of Ulysseus goes back to 2020, when Ulysseus was selected as a European University alliance following the second Erasmus+ European Universities call (2020).

It comprises the following partner organisations:

* Haaga-Helia University of Applied Sciences (HH)
* Management Center Innsbruck (MCI)
* Technical University of Košice (TUKE)
* Université Cote D'Azur (UCA)
* Università di Genova (UniGe)
* Universidad de Sevilla (USE)

Haaga-Helia University of Applied Sciences
FINLAND

MCI The Entrepeneurial School
AUSTRIA

Technical University of Košice
SLOVAKIA

Université Côte D'Azur
FRANCE

University of Genoa
ITALY

University of Seville
SPAIN

03. ULYSSEUS AND ITS COMMITMENT TO RESEARCH & INNOVATION

Ulysseus pursues **5 key goals** to be achieved by 2030. **KG1** and **KG2** are most important for the Research and Innovation (R&I) strategy, although all are relevant:

KG1 **To modernise European Universities for more innovation and co-creation**, by developing a long-lasting Ulysseus territorial and digital Innovation Ecosystem composed by the Ulysseus community, representing the helix, and the Ulysseus campus.

KG2 **To contribute to regional and local development**, by implementing transdisciplinary and interlinked student-centred, flexible, and work-based European joint degrees and research and innovation activities, aligned with six regional and local R&D specific & transversal challenges.

KG3 **To reduce the competences gap**, by preparing highly-skilled digital, multilingual, and entrepreneurial European citizens through a range of combined innovative learning and teaching activities, with specific attention to career development and boosting competences that will be relevant in the future.

KG4 **To shape resilient, human rights respectful, and socially committed European citizens**, by enhancing knowledge and practice of European values, boosting citizen engagement through a number of outreach activities, promoting equality and inclusiveness, and tackling the under-representation of women in STEAM.

KG5 **To provide steady in-person and virtual mobility with automatic recognition and the massive use of the European Student Card**, as well as an intense international activity to promote Ulysseus as a highly attractive, competitive, and open to the world model of University.

With respect to R&I activities, the broad objective of Ulysseus **is to develop an innovation ecosystem that finds solutions to the key issues through a trans-disciplinary approach.**

03. ULYSSEUS AND ITS COMMITMENT TO RESEARCH & INNOVATION

The centres of activity for this approach within Ulysseus are the **Innovation Hubs (IH**). Each IH has a broad thematic area and is led by one of the partners, but they need to take advantage of the full range of capabilities at the different alliance partners. Activities will include European joint degrees, joint Erasmus+ and Horizon Europe projects, incubators for spin offs, joint research centres, and Living labs.

The **6 Innovation Hubs** (and lead partners) are:
· **Ageing and Wellbeing** (UCA)
· **Tourism, Arts and Heritage** (UniGe)
· **Artificial Intelligence (HH)**
· **Energy, Transport, Mobility and Smart Cities** (USE)
· **Digitalisation** (TUKE)
· **Food, Biotechnology and Circular Economy** (MCI).
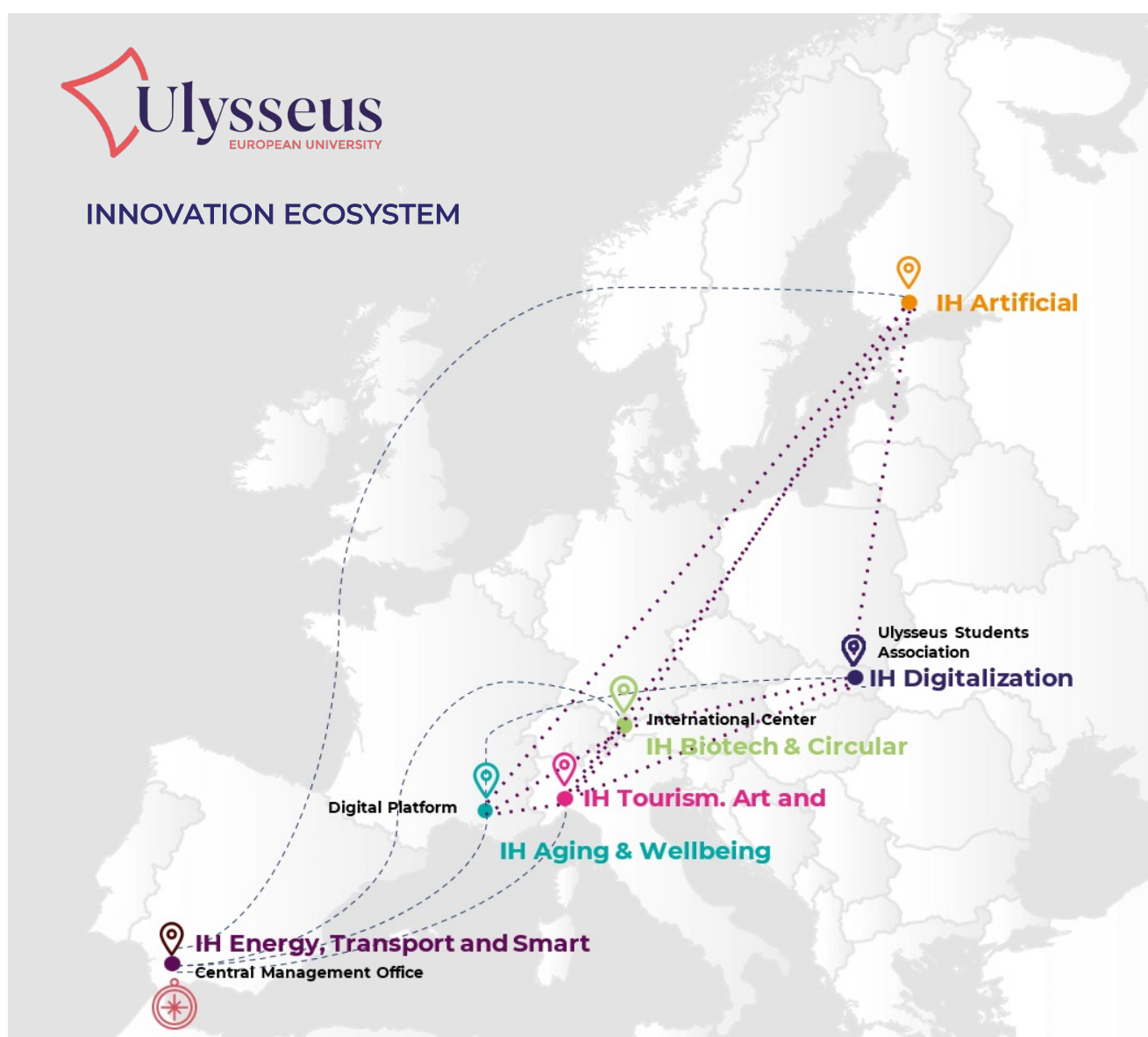
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In order to support the development of Ulysseus key goals related to R&I, the **COMPASS project**, financed by Horizon 2020, started in 2020. The support is focussed on 7 modules to transform universities with respect to R&I:

1. **Developing a common research and innovation agenda and action plan;**

2. **Strengthening human capital, enabling balanced brain circulation and gender balance;**

3. **Sharing research infrastructures and other resources** ;

4. **Reinforcing cooperation with non-academic actors**, especially academia-business cooperation;

5. **Mainstreaming of comprehensive Open Science** practices;

6. **Involvement of citizens, civil society and public/cities authorities in research and innovation**;

7. **Exploring joint structures across the European Universities** on technical activities common to all 'European Universities', facilitating collaboration in activities, obstacles, and solutions that could be common to all alliances, as well as clustering activities to share best practices on research and innovation.

Ulysseus Research and Innovation Agenda and Strategy

04. ULYSSEUS AS A WHOLE

All partners have, to varying degrees, a **hybrid R&I strategy**. With a broad overall strategy whose implementation is through more specific strategies developed in departments or faculties.

All partners engage stakeholders in the development of the strategy, although the mode of engagement varies, and align to other strategies such as regional Research and Innovation Smart Specialisation Strategies (RIS3)[2] and Sustainable Development Goals (SDGs)[3], while taking into account the needs of businesses. Monitoring of the strategy is undertaken by all and is done internally by dedicated departments or offices at the departmental or faculty level.

While an open and transparent recruitment process is common across the alliance, the status of the **Human Resources Strategy for Researchers (HRS4R)** [4] varies from nothing having been done, to currently planning, to official submission of the strategy. Training for career development is offered by all partners and includes science/research related courses and seminars such as research methods, information collection, and numeracy. There are also transferable skills courses and some training for project application and administration.

Open science initiatives are undertaken by all but one Ulysseus partner. However, the degree of implementation can vary, from having policies to actual mechanisms and platforms in place to support the policies.

Finally, and fundamental within the context of Ulysseus, all alliance partners have a **strategic objective to increase the international orientation** of their institution. This includes increasing the amount of collaboration and networks participated in, particularly in relation to European Union Framework Programmes (currently Horizon Europe).

This section considers some of the **capacities of the network that can be utilised to achieve the R&I and internationalisation objectives through the framework of Ulysseus.** This includes research strengths, collaborations, knowledge transfer, and research infrastructures and services. The section will end with an analysis of common motivations to participate in Ulysseus and identified potential bottlenecks to its implementation.

(2) https://s3platform.jrc.ec.europa.eu/what-we-do
(3) https://sdgs.un.org/goals
(4) https://euraxess.ec.europa.eu/jobs/hrs4r

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To understand the capabilities of Ulysseus it is important to have an analysis of the overall strengths in different research areas. This section will briefly present findings from three sources: Ulysseus **keywords, publication output,** and **European Framework Programme funding**.

01

Keywords

Comprehensive universities indicated that all topics are covered. By contrast, Technical and Applied Sciences universities do not cover all topics, but they do cover all the IHs. The only exception was Haaga-Helia that did not indicate any of the topics within "Food, Biotechnology and Circular Economy". However, additional topics submitted did indicate that there could be expertise that can contribute to this IH such as "Sustainable business (circular economy, sharing economy, climate business)".

02

Publication Output

Considering scholarly output across the alliance research from Medicine and Engineering has the greatest output when it comes to scholarly. Scholarly output is heavily skewed towards the traditional comprehensive universities. This is unsurprising as they are more focussed on research. However, the more applied and technical universities, as has been seen, have many capabilities across the areas related to the Innovation Hubs. They also have a strategic objective to increase research excellence. Regarding the impact, as an indicator of quality, a high number of high impact publications where researchers from Ulysseus have been an author. This again demonstrates that Astronomy, Physics and Biological/Medical Science are prominent and high impact in the research output of the alliance.

03

European Framework Funding

The current programme is Horizon Europe, however, Figure 6 , shows the proportion of funding received by thematic priority in Horizon 2020 (H2020). Ulysseus obtained the most funding through the European Research Council (ERC) and Marie-Sklodowska-Curie Actions (MSCA). These can include a range of different research areas and are not traditional collaborative EU research projects (although collaboration can take place). The total amount of funding that Ulysseus received through H2020 was €96,5 M, Again it is the case that this is concentrated in the comprehensive universities. In fact, except for the Ulysseus Compass project, neither Haaga-Helia nor MCI had a H2020 project. This emphasises the capacity for growth that there is within Ulysseus in terms of developing European collaborations through Horizon Europe.

An important objective of Ulysseus is to develop joint projects, furthermore a strategic objective of all partners is to increase the international orientation of the institution through international collaboration. With regard to the interactions between the alliance partners, Table 26 shows that 4 of the 6 partners have collaborated with another alliance partner.

The most intense relationship is between **UniGe** and **UCA**, perhaps demonstrating the importance of geography. The data in Table 26 is taken from the Incites dataset using the Web of Science which does not include MCI. Using SciVal (Scopus) MCI engaged in 176 international collaboration publications (Table 25) out of a total of 329 between 2016 – 2021, but none were with another Ulysseus alliance partner (this is reflected in Table 26) as is the case with Haaga-Helia.

Table 26: Intra Ulysseus collaboration based on publications (Web of Science, 2017 to 2021)

	University of Genoa	University of Sevilla	Universite Cote d'Azur	Technical University Kosice	Management Center Innsbruck*	Haaga-Helia University of Applied Sciences
University of Genoa	284	77	210	0	0	0
University of Sevilla	77	178	100	4	0	0
Universite Cote d'Azur	210	100	310	3	0	0
Technical University Kosice	0	4	3	7	0	0
Haaga-Helia University of Applied Sciences	0	0	0	0	0	0
Management Center Innsbruck	0	0	0	0	0	0
Total output	23 035	20 472	12 312	4 644	329	88

*Data based on SciVal Scopus (2016-2021)
These figures demonstrate that while there is collaboration between some of the partners, it is not very intense and therefore there is scope to increase it, and particularly to include those Ulysseus partners that are currently outside the collaboration network.

RESEARCH INFRASTRUCTURES

During the interviews research infrastructures (RIs) where often proposed as something that could be a benefit of the alliance. Having access to facilities that may not exist at a home institution could improve the quality and output of research and innovation activities. Furthermore, access to RIs at another partner could be another mechanism to develop new partnerships.

The types of facilities included are: Large scale research infrastructure, Laboratories, Testing platforms, Digital based, Data sets, Research centres and institutes, Innovation centres and Thematic areas with linked facilities. The research and innovation areas included are wide ranging and all Innovation Hubs are catered for.

An important consideration is access to the infrastructure for researchers or technical staff from another Ulysseus partner. Normally, it is indicated that access would be granted as part of a joint project, this would be expected, and not considered an additional benefit of Ulysseus. Some institutions stated that a researcher from a partner institution would have to contact them and then it could be arranged. However, to be efficient this would have to be more systematic.

RESEARCH SERVICES

The research services offered by an institution and the role of research managers is very important in how successful an institution is in generating research and innovation funding. It can be a core capability of a modern university.

Within the European research and innovation landscape such activities are very important with many facets beyond research offices in universities from European level associations[5] to national offices in Brussels[6] and of course the Horizon Europe National Contact Points (NCPs).

RESEARCH SERVICES

Within Ulysseus the common services offered include:

- Partner searches – building consortia
- Networking
- Proposal Writing
- Funding opportunities
- Project management
- Dissemination of information including info days
- Policy and R&D strategy information
- Subscription and management of European and International main portals and platforms
- Liaise with authorities and NCPs
- Research ethics
- Open Science
- Help with internal administration

Resources dedicated to research services was not sufficient and there was therefore a considerable burden on researchers. The implementation of the services varies amongst the Ulysseus partners. In some cases, there is a central offices that undertakes all the activities, and can also incorporate knowledge transfer activities. In at least on case the central services are split into pre-award and post-award activities. In other cases, while there may be a central office, the real support is offered at the departmental level.

An important question is how Ulysseus can harness the experience and knowledge, particularly with regard to the institutional knowledge, from six different mechanisms. Further work is required to map the structure of research services offered (centralised, departmental, pre and post award or combined etc) and the exact nature of the services offered, whether it is advice or actual assistance.

KNOWLEDGE TRANSFER

All Ulysseus partners have innovation offices, however in some instances these are part of the Research Services office. There are a wide range of different services offered, some of the common ones are listed below:

- Innovation managers
- IPR applications/register patents
- Liaising with technology seekers
- Start-up support and promotion
- Incubators
- Spin-off creation
- Education and support to entrepreneurship
- Financial support for ideas or investment model with shares
- Networks of knowledge exchange
- Meetings and innovation networks
- Training and mentoring researchers
- Innovation challenges from companies

Some partners can offer financial support to students or researchers to pursue their ideas. There are different modes for doing this from direct financial support to share options for investment.

During the interviews, and in the survey response, a good interaction with the local innovation ecosystem was claimed by all the institutions. However, these claim are difficult to verify. What is certain is that there are strategies at all the partners for engagement with the local ecosystem. Perhaps this can be stronger at more applied universities were lecturers often have business experience and there is normally a company involved in projects. Such interactions with the innovation ecosystem are important to understand the problems, for which solutions are required, that exist for companies and other societal actors.

MOTIVATIONS AND REQUIREMENTS

One of the main motivations to participate in the Ulysseus alliance **is to increase the international orientation of the institution**. A key mode for this internationalisation is participation in EU projects. Ulysseus, in this context, should be a settled structure where strong international partnerships can be formed. In addition to international research projects, participation should improve the career prospects with visits to other institutions and the possibility for an international PhD that can in turn increase the diversity within the partners in the alliance. Linking to other institutions means there can be access to a wider range of research infrastructures that are necessary for research. The mode of research is also an important motivation for participation as it is hoped that a transdisciplinary approach to solving company and societal problems can be established. For some institutions in the alliance linking to more research intensive partners is a way to improve the research culture within the institution.

In order to fully realise the motivations and objectives it was apparent that there are certain requirements that Ulysseus should have (see Table 29). These can be grouped into **two broad themes of support** (for **projects**, practical help during research visits and building connections) and **information** (about capabilities, problems to address, experience and learning, opportunities and resources available).

Table 29: Requirements identified for Ulysseus

PROJECT SUPPORT – CENTRAL OFFICE	• Overview of the expertise • Offer support at all stages of project life cycle • Finding partners, funding, implementation and closing project
INFORMATION SHARING	• Know the capabilities and capacities that exist at different partners • Use of online tools and in person
KNOWLEDGE TRANSFER	• Know the problems that companies want solved • Build connections so they can be included in projects • Wider societal problems
MUTUAL LEARNING	• Learn ways of doing from the experience of other partners
MOBILITY SUPPORT AND INFORMATION	• Opportunities available • Practical information when in another country • Also somewhere to meet
COMMON RESOURCES	• Need information and agreements on how to access research infrastructures

POTENTIAL BOTTLENECKS

However, there are potential bottlenecks to be part of Ulysseus which are listed on the table below

Table 30: Barriers to implementing requirements and realising objectives

Researchers' motivation	• Already have own projects and collaborations • Not clear what overall benefit is • Lack of awareness
Other commitments	• Travel and time away from home institution difficult with commitments such a teaching • Can depend on department
Administration and time costs	• Could be too bureaucratic • Needs the human resources • Time consuming
Coordination	• Challenging to create joint structures • Difficult to understand all initiatives • Time and interactions required

05. STRATEGIC OBJECTIVES & RECOMMENDATIONS

The following objectives and recommendations are the output of a co-creation event held on 28 April 2022 to determine concreate actions that needed to be taken to realise the full potential of the Ulysseus network.

Objectives can be broadly divided into **two themes**:
- **awareness and information**
- and **engagement with researchers, companies and society**

05. STRATEGIC OBJECTIVES & RECOMMENDATIONS

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OVERVIEW

OBJECTIVE 01
Coordinate the dissemination between partners on the capacities that exist in other institutions of the alliance

OBJECTIVE 02
Disseminate information and develop use requirements for the infrastructures of the institutions of the Ulysseus network

OBJECTIVE 03
Increase awareness of the local innovation ecosystem in partner institutions and their activities

OBJECTIVE 04
Benchmark and learn from other institutions to better understand the concepts and any local differences in their interpretation of ethics, open science, and gender

OBJECTIVE 05
Incentivise researchers to take advantage of the Ulysseus alliance, making it an attractive option for project development and to complement and extend their existing network

OBJECTIVE 06
Better understand the requirements of companies and social challenges, in order to promote the entrepreneurial and transdisciplinary approach of Ulysseus

OBJECTIVE 07
Make research mobility easier with the appropriate funding and support

OBJECTIVE 01

Awareness and information

Coordinate the dissemination between partners on the capacities that exist in other institutions of the alliance

- Need to create a **Central Ulysseus Projects Office** to act, amongst other things, as a central information point and collate and disseminate the information on capacities. The Innovation Hub Officers are, in effect, research and innovation managers, although they will not have the time or resources to undertake all the required activities.

- **Disseminate Research through MATCH4COOP** and **the research repository** and infrastructure capacity to make connections for projects.

- **Update Researcher Survey** to promote Ulysseus amongst the researchers. Ultimately, it should be combined with the **MATCH4COOP**.

- **Map Research and Innovation Services** at each alliance partner. This should determine how the support is structured (central, departments, separate pre and post award offices etc) and the actual support offered (whether it is advice or actual help with the proposal writing and project administration).

- **Inform Wider Communities** at the partners about each the activities of each Innovation Hub including workshops to showcase activity at all sites, encourage the use of **MATCH4COOP**, visits to all centres, use of other media to promote activities e.g. regular podcast, radio stations at the universities/media stations (YouTube etc).

OBJECTIVE 02

Awareness and information

Disseminate information and develop use requirements for the infrastructures of the institutions of the Ulysseus network

- **Partners to produce an offer of facilities**. Each Ulysseus partner should present an offer of the facilities and services that they will make available to be used by other researchers or staff in the alliance. The offer should include information on the activities and services (key words), the process required to book time and access, and the access cost (should preferably have beneficial Ulysseus rates). Research facilities can then be designated with a **"Certified Ulysseus facility"** label.

- **Development of an online, searchable directory with list of all certified facilities**. It should include: offer assessed and appropriate facilities designated "Certified Ulysseus facility"; Online platform/tool to see which Innovation Hub/Partner has which infrastructure available – searchable, filtered and thematic; Assess the need for a calendar- based booking system; create a single online portal for booking – with beneficial pricing for Ulysseus.

OBJECTIVE 03

Awareness and information

Increase awareness of the local innovation ecosystem in partner institutions and their activities

One of the objectives of Ulysseus is to develop transdisciplinary projects based on the societal problems that need solving, including those of companies. All the Ulysseus partners claim to have good links with the local innovation ecosystem. However, mechanisms need to be created so that researchers and research managers across the Ulysseus alliance are **aware of the issues and activities that are taking place**.

The main coordination of such activities would be through the Innovation Hubs, as the main links with the innovation ecosystem.

The recommendations are to

- **Create regular local ecosystem meetings to keep partners informed and ask for feedback**
- **Maintain a calendar of all the events** for all interested parties in Ulysseus
- **Networking sessions that all partners can attend**. Develop online sessions to reduce travel and increase participation.

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OBJECTIVE 04

Awareness and information

Benchmark and learn from other institutions to better understand the concepts and any local differences in their interpretation of ethics, open science, and gender

These issues are important for all aspects of the development of Ulysseus and much work is already being undertaken. The main issue to come out during the analysis is that there can be a lack of understanding of the issues and what is required. This is not an issue at all the partners in the alliance as some have developed concreate processes. Therefore, there needs to be a **series of seminars, events, teaching courses and case studies** to bridge the knowledge gap. It is also important to **benchmark the different understanding of the concepts** and reach agreement on **minimum requirements**.

OBJECTIVE 05

Engage stakeholders and build trust

Incentivise researchers to take advantage of the Ulysseus alliance, making it an attractive option for project development and to complement and extend their existing network

In order to achieve the objectives of the alliance it is a fundamental necessity that researchers are engaged in the activities and taking part in projects. Ulysseus offers a stable network with many competencies from which researchers can develop projects. Similarly, researchers already have their own networks that they are part of, indeed these networks can be seen as part of a researcher's research capacity. It is advantageous for Ulysseus to engage with researchers to take advantage of these capacities so other researchers can further develop their own networks. From this perspective, **engaging in Ulysseus should be seen as complementary, a pool of excellence to strengthen their existing networks.**

Therefore, engaging with Ulysseus should not have a cost of developing new connections or increasing administration. For this reason Ulysseus should have an offer to researchers that they have **access to wide range of potential partners and facilities**. Furthermore, there should be **high quality support for Ulysseus research and innovation activities**. This support should encompass the **entire project life cycle**:

- Identification of potential projects
- Identification of project partners and consortium building
- Identification of funding sources
- Support with proposal writing
- Support with project implementation administration
- Closure of the project.

As stated in **Objective 1**, this requires support to **research and innovation managers** and a **centralised office coordinated with the Innovation Hubs and the research and innovation services at the Ulysseus partners**.Such support to researchers would reduce the burden of project participation and would be an attractive feature of Ulysseus. The offer to researchers would then have to be promoted to the Ulysseus community, demonstrating the benefits.

OBJECTIVE 06

Engage stakeholders and build trust

Better understand the requirements of companies and social challenges, in order to promote the entrepreneurial and transdisciplinary approach of Ulysseus

This is very important as the model for Ulysseus is to encourage interactions between research, education and innovation activities in a transdisciplinary approach. To do this there needs to be awareness of the local innovation ecosystem and also engagement with it to understand the problems and develop the joint projects.

There are **improve engagement**, **several activities that could be done to** working with knowledge transfer offices and the associated partners from across the alliance. The activities include:

- **Job shadowing with companies** – exchange of lecturers and employees (staff exchange)

- **Internships for students in companies working on actual problem solving "cases".** The Internship should be a direct benefit for company involved

- **Develop staff exchanges with the associated partners**

- **Showcase and "pitch" events** by companies to researchers and Ulysseus wide "hackathons" with challenges from companies

- Develop a **system of technology procurement**

- **Central Ulysseus services and Innovation Hubs** to identify and "match make" between researchers and companies

OBJECTIVE 07

Engage stakeholders and build trust

Make research mobility easier with the appropriate funding and support

Mobility is **uniformly considered to be beneficial. It can create new ideas, transfer tacit knowledge, help career progression and develop new networks.** Brain circulation within the Ulysseus network should be advantageous. However, in practice it can be difficult, particularly for researchers who have other commitments such as teaching. In some institutions funding is available, in others it is not.

Therefore, **funding needs to be centrally sourced** by Ulysseus to fund intra-alliance mobility. **Erasmus+ can also be used for researcher visits** and this can be coordinated centrally by Ulysseus. This could be an attractive proposition for researchers and help promote Ulysseus in the researcher community of the alliance.

In order for Ulysseus to be considered an actual entity there should be a physical meeting point, perhaps an innovation hub building, for Ulysseus researchers and students at each partner. Here researchers and students could meet those from other institutions and get help and advice. Similarly, there should be and **online advice portal that includes a forum** where advice can be sought on stays at another Ulysseus partner (housing, social activities etc).

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