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WHITE PAPER ON COLLABORATION IN RESEARCH AND INNOVATION: CHALLENGES AND SOLUTIONS (D5.7)

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LIST OF ABBREVIATIONS

T4EU – Transform4Europe
T4ERI – Transform 4 European Research and Innovation
R&I – Research and Innovation
EEA – European Education Area
OS – Open Science

PREAMBLE

The White paper is a part of a process designed simultaneously to provide an analysis and to put forward guidelines for action in the field of enhanced university collaboration in Research and Innovation (R&I) under the European Universities Initiative at the background of collaboration between the member universities of the Transform4Europe European Universities Alliance active since 2020.

Transform4Europe (T4EU) is a university alliance of proven excellence in strategic collaboration. It has been awarded European funding to pursue joint strategies in education and mobility, focusing on collaboration between the universities and a wealth of non-university stakeholders from the surrounding regions in a multi-actor knowledge and innovation ecosystem. For the T4EU universities, the logical next step is to capitalize on this ecosystem to transform their achievements in research and innovation. Together, the diverse actors in the T4EU ecosystem can serve as powerful engines for the mutual development of innovation and performance capacities, jointly fostering both research of excellence and impact, and smarter, sustainable, competitive regions. The Transform 4 European Research and Innovation (T4ERI) project funded by the European Commission's Horizon 2020 programme under the call "Swafs: Support for the R&I Dimension of European Universities" is instrumental in achieving this objective.

T4ERI has devised new strategies to harness this untapped potential, with the focus mission digital and environmental transformation for smart, sustainable and inclusive regions. It is committed to developing a joint agenda for research and innovation, a joint strategy for attracting and retaining outstanding researchers, and a joint strategy to Open Science to all members of the T4EU ecosystem. True to the essence of the alliance, T4ERI aims at systematically collaborating with regional stakeholders from business and industry, culture, politics and civil society at every step of the process. By 2024, T4ERI has significantly increased collaboration in R&I across all disciplines, has made a step forward in ensuring conditions for joint access to key research infrastructure across the alliance, and has devised joint action plans to launch one or more major joint research laboratories further paving the way towards the European University of the future.

RATIONALE AND OBJECTIVE OF THE WHITE PAPER

The T4ERI White Paper summarizes the main learnings and key recommendations of the process of enhanced collaboration. It aims at providing a holistic analysis of all results, identifying legal, regulatory, and financial barriers to R&I cooperation among T4EU universities and elaborating recommendations to national and European policy makers.

Its main objective is to ensure that the outputs of the project respond to needs and help address key policy and societal challenges raised or reinforced in the current situation including the economic and social, regional impact of the dynamics of current challenges. The first step is to present it at the final inter-regional policy roundtable at the end of the project, planned to coincide with the final Stakeholder Assembly.

Last but not least, the document summarizes and presents the strategic orientations for the development of the T4EU Alliance and its research potential and capacity.

After describing what is at stake and analyzing the challenges which need to be considered, the White Paper sets out the action to be taken by the Alliance.

FOREWORD

The T4EU alliance was founded in 2020 by seven universities from different regions in Europe (Figure 1):

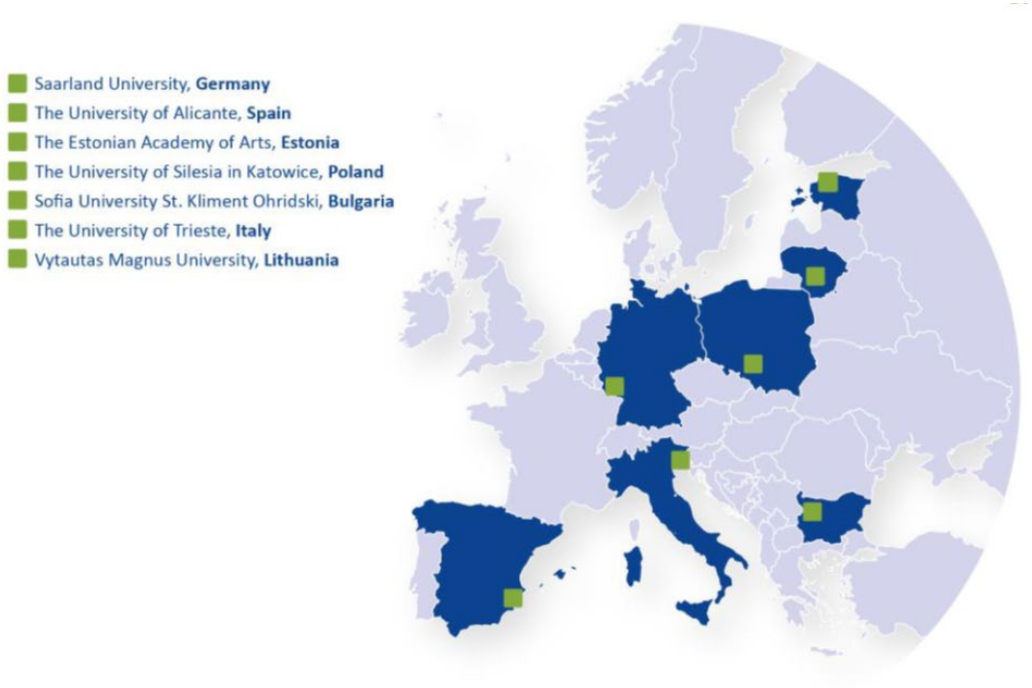


Figure 1. The seven partner universities of the T4ERI project

Under the European Universities Initiative of the European Commission, the T4EU partners have set themselves the ambitious aim to forge a new type of transnational inter-university collaboration and contribute to the development of the European Education Area (EEA).

Learn more about the Alliance: https://transform4europe.eu/

The partnership has been strengthened by the inclusion of three new members from three different countries in 2023:

1) Universidade Católica Portuguesa, Portugal,
2) University of Primorska, Slovenia,
3) Jean Monnet University Saint-Etienne, France.

All three new partners have specific excellence in at least one of the T4EU focus areas. Their strengths and expertise complete and balance the alliance's profile for the next stage of implementation (Figure 2):

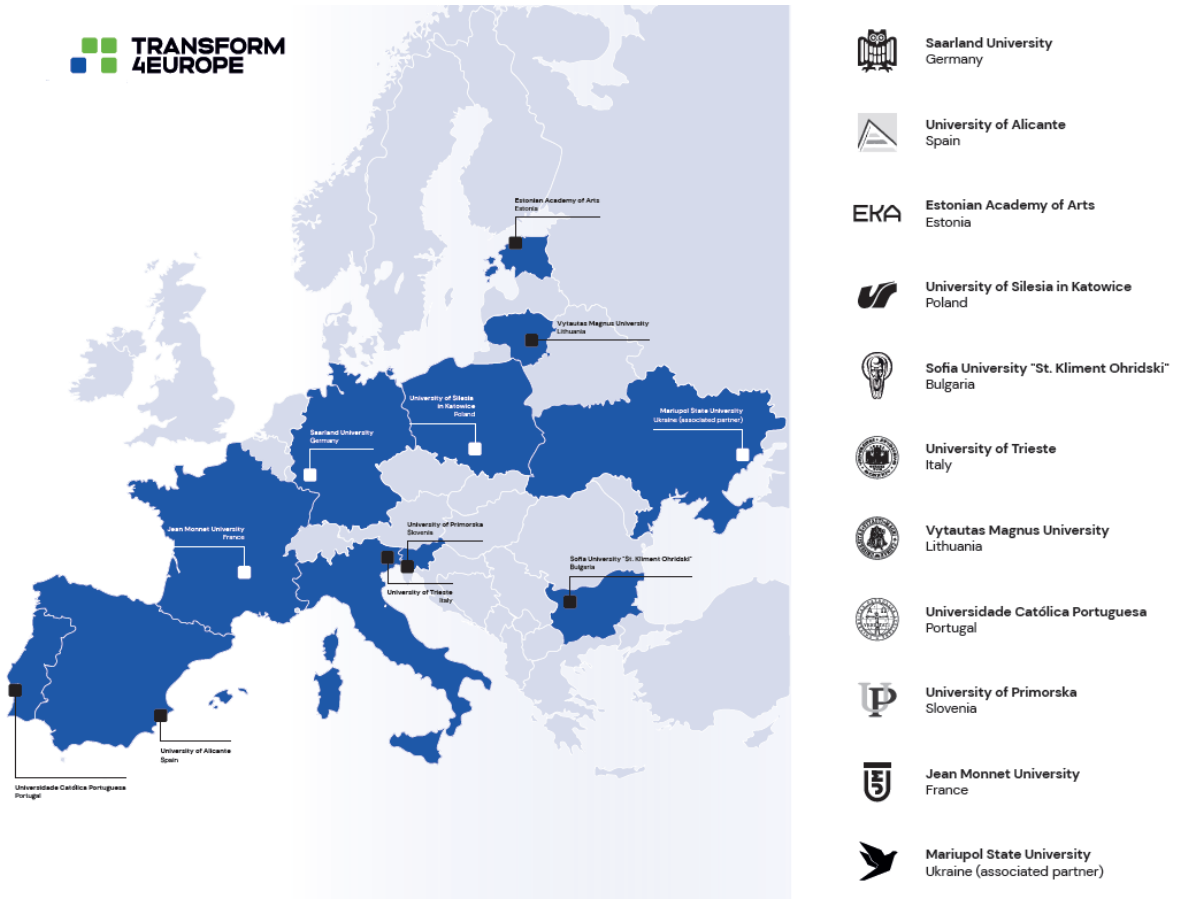


Figure 2. Ten partner universities and the associated partner within the T4EU alliance

We, as an alliance of academic institutions that share common values, aim both to expand opportunities for internal development in the field of R&I and to increase our potential through collaboration with academic and non-academic institutions external to the alliance. In this regard, to amplify the outreach of our activities and of the European university role model as such, the T4EU alliance will associate further partners in the coming years. A first step in this evolution process has been the close collaboration with Mariupol State University, Ukraine, that has led to their involvement as associated partner whose perspective of a university from a non-EU state that finds itself in extraordinary circumstances will enrich our alliance's work in many ways.

AN ALLIANCE OF ENTREPRENEURIAL-MINDED TRANSFORMERS

T4EU is a consolidated partnership composed of ambitious universities that share a common vision for European higher education and benefit from a high degree of complementarity in the pursuit of their common goals. All the members of the Alliance are deeply rooted in their regions, and we consider the diversity in size, background, expertise and profile of our alliance members as a strength. Collectively, we are in a privileged position to understand and address the needs, expectations and potential of the different actors within the EEA through a diversity of approaches and perspectives that fully represent the territorial and cultural diversity of Europe. The T4EU Alliance brings together ten universities with extensive experience in cross-border, intra-European and global cooperation, and in collaborating with and for our regions. Our complementary research foci allow us to concentrate our collaboration efforts on the following prioritized T4EU focus topics (Figure 3):

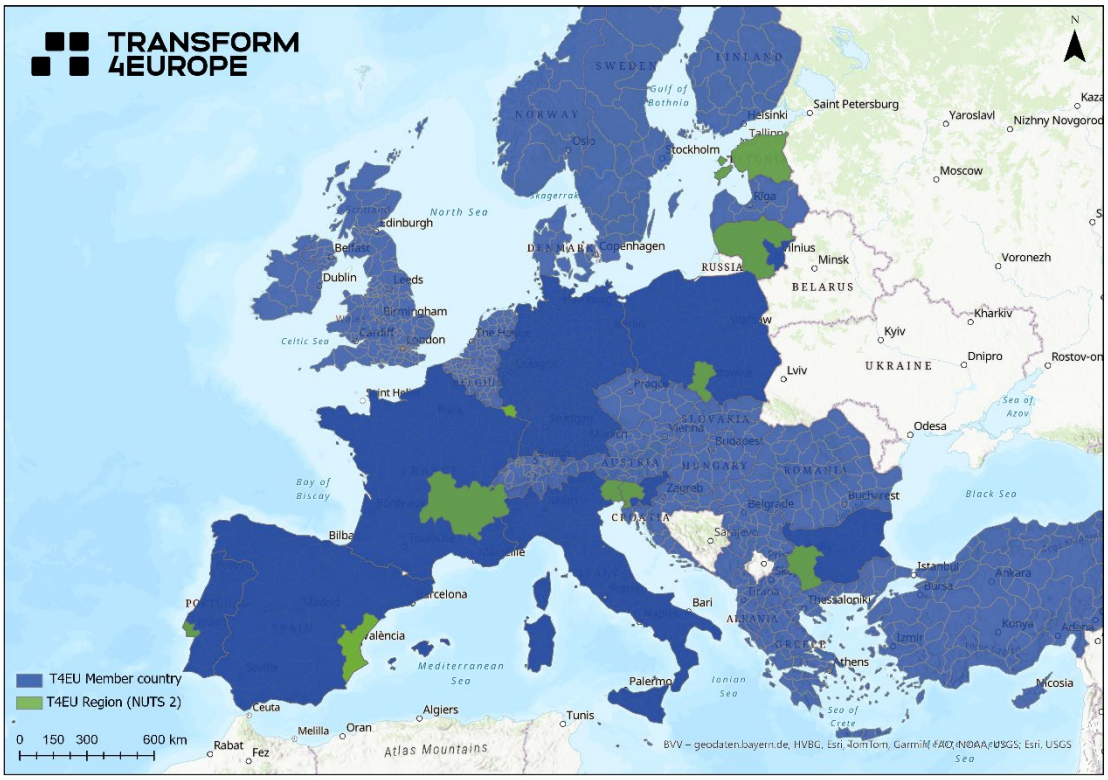


Figure 3. A map of the T4EU regions[1]

[1] Based on the description of Transform4Europe Smart Transformation Space (NUTS 2) – T4EU 1.0. D5.1. Smart Transformation Strategy paper. Data source: https://ec.europa.eu/eurostat/web/gisco/geodata/statistical-units/territorial-units-statistics

OVERALL OBJECTIVES OF T4ERI

The initial European University Alliance T4EU has defined a broad set of ambitious objectives, contributing to the collaboration of students, researchers and regional stakeholders from across Europe to generate new practice-oriented knowledge and knowledge entrepreneurialism for

- Digital transformation,
- Environmental transformation, sustainability, smart cities and regions
- Societal transformation, community building and inclusion.

jointly driving the development of Europe and the EEA through the regions[2].

The T4ERI project is pursuing the objectives already established by T4EU and aims at achieving the following long-term aims:

- to develop a strategic framework for collaboration in R&I in line with the Alliance's existing shared, integrated, long-term strategy,
- Define a pioneering, comprehensive and long-term joint R&I agenda and its strategic action plan with views on aligning and modernizing R&I at the partner universities,
- Increase the attractiveness of the T4EU partner universities to excellent researchers,
- Develop a common strategy ensuring involvement and engagement of citizens, civil society and public/private authorities in research and innovation.

The purpose of T4ERI is to further contribute to the R&I dimension of the 'European Universities', in line with their shared, integrated, long-term joint strategy and in synergy with their education dimension, using the T4EU Alliance as a test bed. Overall, the implementation of successful models for institutional transformation at R&I level, as well as support for this transformation will occur with respect for the autonomy and diversity of universities.

The T4EU consortium focuses on its long-term vision and cooperation across the various levels of the organizations and across different areas of activity, building on complementary strengths of the partners in the R&I dimension Joint strategies, Action plans and the Evaluation of pilot implementations in various fields of activity

[2] (The European University for Knowledge Entrepreneurs Mission Statement for the period 2023-33, https://transform4europe.eu/the-t4eu-mission/)

(based on the Horizon 2020 transformation modules) pave the way towards the vision of the "European University" of the future (Figure 4):

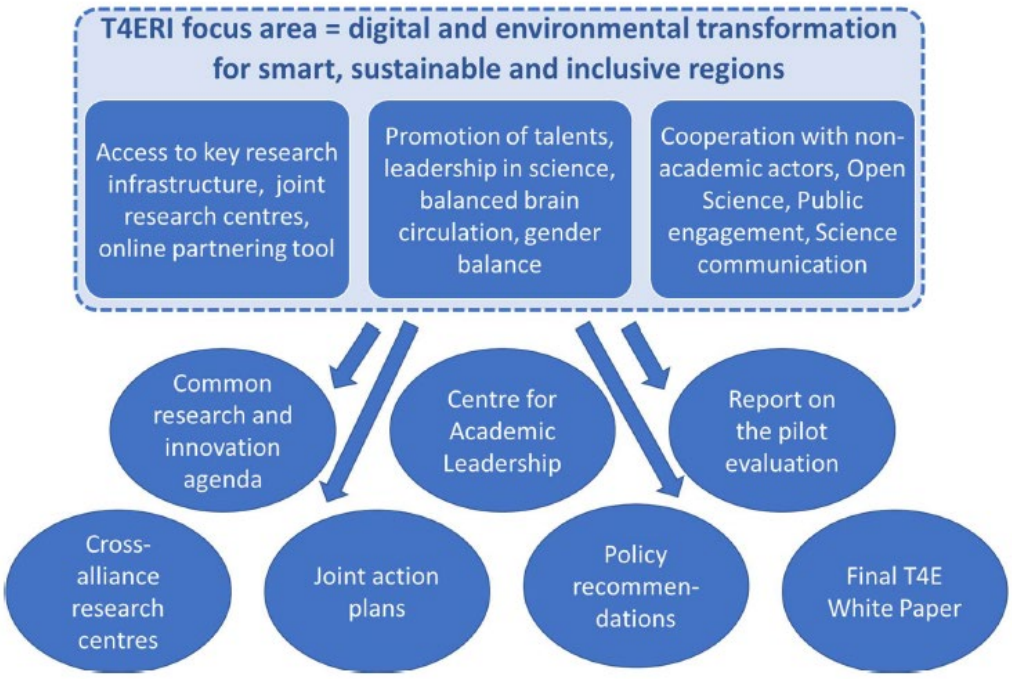


Figure 4. Long-term aims of the T4ERI project and selected concrete outputs.

SPECIFIC OBJECTIVES OF T4ERI

Additionally, a number of specific objectives have been defined which contribute to the achievement of the overall aim and general objectives as described above.

Specific Objective 1 *Related to WP2*

- Create a joint agenda for R&I in the T4E focus area of digital and environmental transformation for smart, sustainable and inclusive regions

Specific Objective 2 *Related to WP2*

- Enable access to research infrastructures and develop virtual collaborative research centres

Specific Objective 3 *Related to WP3*

- Develop strategies for strengthening human capital in research and innovation, including promotion of young talents and leadership in science

Specific Objective 4 *Related to WP3*

- Increase the attractiveness of the T4EU partner universities to excellent researchers by developing joint innovative standards for scientific [illegible]oving professional research support

Specific Objective 5 *Related to WP4*

- Develop the Science4All joint strategy for Public Engagement, Science Communication and Open Science ensuring involvement and engagement of citizens, civil society and public/private authorities in research and innovation

Specific Objective 6 *Related to WP5*

- Reinforce cooperation with non-academic actors, esp. stakeholders from the Regional Innovation Ecosystems

Figure 5. Specific objectives of T4ERI

BACKGROUND DOCUMENTS ON WHICH THE WHITE PAPER IS DEVELOPED

This document builds on the challenges, objectives and measures identified in the Thematic Strategic Directions being developed within the project. In this regard, the White paper presents key achievements and potential for development in the T4ERI focus areas as follows:

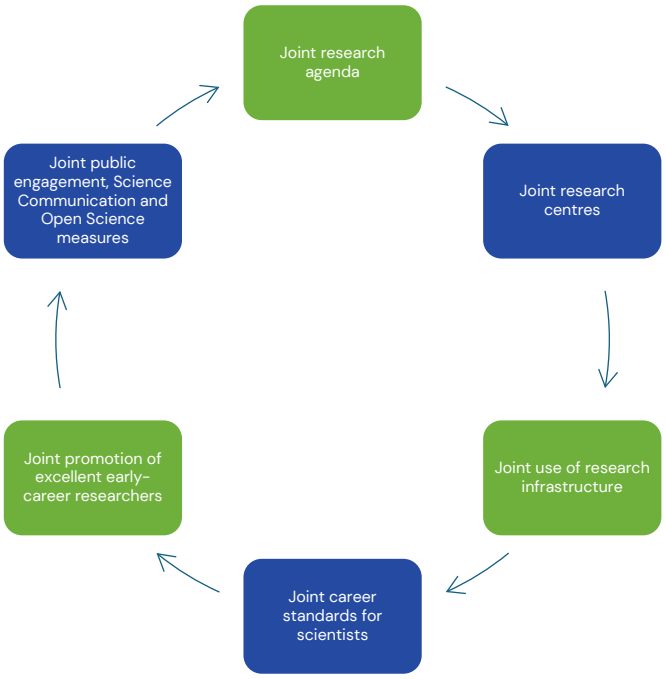


Figure 6. T4ERI key achievements

Our main drivers and pursuits have been:

MAKING EUROPE SMARTER

The European Union leads the world in many research fields, but only a few regions have effective innovation systems. Many European countries trail behind regarding R&I spending, capacity, and performance. Without innovation, the EU's Green Deal and digital transformation will only stay on paper. Therefore, there is a need for ecosystems that support entrepreneurship, research and development, and innovation. These will all require a far bigger commitment at the European level.

Coordinated by the University of Alicante, the T4EU Alliance created **a joint agenda supporting research and innovation for smart, sustainable, and inclusive regions**. Firstly, a comprehensive survey and analysis were conducted to understand the key research areas at the participating universities so that

potential collaboration possibilities and formats could be explored. Through surveys and activities, the challenges hindering joint R&I across all disciplines at T4EU universities were listed.

The following are the primary obstacles to collaborating in R&I:

Figure 7. T4ERI obstacles

Secondly, a strategic implementation action plan was created, describing the main performance metrics, actors, resources, timing and actions. This strategy shapes the Alliance's collaborative efforts in R&I until 2030, intending to transform European regions into smarter, more sustainable, and inclusive entities through digital and environmental advancements.

Source:
Joint Agenda for Research and Innovation in the T4E Focus Area of Digital and Environmental Transformation for Smart, Sustainable and Inclusive Regions (2030)
https://transform4europe.eu/the-t4eu-mission/

STRATEGY TO ESTABLISH INNOVATIVE AND COLLABORATIVE CROSS-ALLIANCE RESEARCH CENTERS, INCLUDING FUNDRAISING STRATEGY:

R&I are at the core of what will drive European technical, economic, social and environmental development in the future. In order to tackle the multi-faceted challenges European societies are facing, collaboration, exchange and interaction are key aspects to enable sustainable, long-lasting growth and prosperity. Open Science is considered an important steppingstone in contributing to tackling these

challenges. Additionally, given the important role of European regions for the development of their respective countries and the European integration, supporting the digital and environmental transformation of European regions will largely contribute to achieving the long-term goals of creating an innovative, inclusive and open European society.

THE BEST CAREERS FOR THE BRIGHTEST MINDS

This strategic orientation began by recognizing the need to attract and retain exceptional European researchers. Collaboration is crucial for R&I to thrive. We launched the "Transform 4 European Research and Innovation" (T4ERI) project to establish a vibrant research community throughout Europe. A crucial component of it has been Work Package 3 of the project: "The Best Careers for the Brightest Minds". It focuses on establishing common guidelines for scientific careers within the T4EU alliance. Led by the University of Silesia in Katowice, this report is based on discussions held during expert and partner group meetings from December 2021 to May 2023. The main goal is to make T4EU partners more appealing to top researchers and improve the quality of people working in research and innovation. To do this, new standards should be made where the best researchers feel fully supported and guided. Through surveys, interviews, and workshops, we gained valuable insights into the structure of scientific careers within the T4EU alliance.

KEY FINDINGS

The study revealed that researchers and PhD candidates face problems such as: not fitting in with the culture, being unable to join informal networks, and not getting enough help from mentors. Academic staff are constantly evaluated and put under pressure to share their work. They also worry about their job security and professional stability. They think they don't have the specialized knowledge to do good research. Anxiety and stress from constant reviews and too much work are also problems. Academic staff need more help and funding.

Based on these results, we came up with seven joint standards for jobs in science. These standards cover financial support, gender equality, stakeholder collaboration, mentorship, effectiveness of mentoring, Open Data skills, and support for non-academic staff.

This collaborative technique aims to attract world-class researchers and elevate Europe as a major scientific hub with the support of partner universities. Through

the adoption of collaborative standards, the T4EU alliance has the power to influence future research and innovation, leading to ground-breaking discoveries and positively impacting society.

Source:
D3.2. Joint Strategy for all Initiatives in WP3; Transform4Europe: Research and Innovations, September 12, 2023
https://transform4europe.eu/the-t4eu-mission/

SCIENCE4ALL

The T4EU Joint Strategy "Science4All" includes three different strategies:
1. T4EU joint strategy "Public Engagement in Research and Innovation",
2. T4EU joint strategy "Science Communication",
3. T4EU joint strategy "Open Science".

T4EU JOINT STRATEGY "PUBLIC ENGAGEMENT IN RESEARCH AND INNOVATION (PERI)"

By the end of the T4ERI project, the T4EU Alliance will have become a cemented community of partners & stakeholders which has internalised and nurtured common recognition, acceptance and understanding of the social importance and relevance of PERI, which is reflected by: (1) exposition of its commitments and involvements to/in PERI; (2) existence of the administrative resources and support mechanisms for PERI; (3) organisation (past, ongoing and planned) of PERI knowledge & competence building and awareness raising activities. By 2030, the T4EU Alliance will have turned into a recognised hub of expertise & excellence in PERI which is reflected by: (1) the Alliance being contacted by other corresponding hubs for reciprocal competence building and change of experiences; (2) the entrenchment of the fields of science in which PERI is particularly promoted and implemented (the scientific focus of expertise); (3) the implementation of concrete activities in PERI, especially those of pan-Alliance coverage and those that can serve as examples of the good practice in this field throughout Europe.

In light of the facts that at the European level the significance of PERI is not entrenched in the mentality of neither the academic community nor society, that work has still to be done to prepare an adequate environment (including financial, institutional and other support) for making PERI widespread, on the one hand. And on the other hand, PERI has clear and important social benefits as raising scholarly literacy of citizens, increasing trust in science, making it more effective. The T4EU

Alliance aims to contribute substantially to improving this situation, raising corresponding awareness, preparing the environment and making PERI work in Europe.

The following aims and tasks have been adopted:
Aim No. 1: To create a T4EU PERI Network that combines the Alliance's partners & stakeholders committed to mutual collaboration.
Tasks:
1) Create a T4EU Alliance initiative group for Network building activities.
2) Investigate fields of science which should be focused on by the Network.
3) Identify stakeholders that could commit to collaboration in PERI.
4) Align selected stakeholders and T4EU partners to synergetic collaboration in PERI.
5) Formalise the Network's commitment to collaboration in PERI.

Aim No. 2: To develop and facilitate the cooperation and involvement of partners in the T4EU PERI Network.
Tasks:
1) Collect, foster, share and spread information about the Network's involvement in PERI.
2) Access other PERI competence centres (especially intending to implement Task
3) Organise PERI knowledge & competence building and awareness-raising activities.
4) Incentivise researchers of the T4EU Alliance universities to participate in PERI, especially through formal recognition of their involvement in PERI.
5) Initiate concrete collaborations in PERI inside the Network.

T4EU JOINT STRATEGY SCIENCE COMMUNICATION

We see a future where every scientist, researcher, or scholar of the partner universities has excellent knowledge and skills of Science Communication, understands the benefits of it, and feels the motivation for it. Therefore, scientists will have access to Science Communication training material. The outcome of the Science Communication activities is an increased public trust and positive attitude toward science and scientists as well as a narrowed gap between the public and scientists.

Our mission in this area is to develop and implement an advanced and integrated Science Communication training programme for researchers at partner

universities in order to implement our vision: the knowledge, skills, and motivation of scientists in Science Communication.

The following aims and tasks are approved:
Aim No. 1: To improve scientists' skills in Science Communication.
Tasks:
1) Create an integrated training programme for scientists and researchers to improve their skills in Science Communication.
2) Encourage the applicability of the acquired knowledge and competencies of Science Communication in practice.
3) Build a network of communication specialists and scientists who will collaborate in raising awareness and interest in scientific knowledge.
4) Create a user-friendly instrument of Science Communication recommendations and guidelines for scientists.

Aim No. 2: To inspire society to seek scientific knowledge and enlarge its understanding.
Tasks:
1) Facilitate the process of seeking scientific information for the public.
2) Suggest communication tools to minimise the gap between scientists and the public.
3) Include the media in the Science Communication process.

T4EU JOINT STRATEGY OPEN SCIENCE

The vision of Open Science (OS) for the alliance partners comprises motivated researchers, skillful staff, and an overall consciousness and support for opening multiple areas of research activities and sharing codes, resources, data, publications, etc., for the sake of networking and joint academic activities.

The Alliance's mission is to raise awareness among its partners, align their policies, and share good practices to develop an overall framework for fruitful cooperation.

The following aims and tasks are included:
Aim No. 1: To raise awareness and motivation of researchers for Open Science.
Tasks:
1) Initiate an alliance group for Open Science networking activities.
2) Organise Open Science awareness-raising campaigns.
3) Include Open Science indicators in institutional self-assessment.

4) Create and share a digital document repositorium “How to Open Science”.
5) Incentivise researchers for Open Science via assessment and promotion.

Aim No. 2: To include fair and Open Data into staff reskilling and basic university education.
Tasks:
1) Promote a common understanding of FAIR and Open Data.
2) Ensure sharing of best practice experiences and recommendations.
3) Include data-related skills in staff capacity-building programmes.
4)Train new data-related professions: data stewards, data curators, data managers, and data librarians.

Source:
D4.2. T4E Joint Strategy “Science4All”, Transform4European Research and Innovation – T4ERI, 04.10.2023
https://transform4europe.eu/the-t4eu-mission/

CHALLENGES & BARRIERS

CHALLENGES

The challenges in the White paper are extracted from the strategic documents developed for the implementation of the project and cover a wide-spectrum analysis in identifying the difficulties and challenges in the construction of the European universities Alliance. The challenges are grouped in several categories, namely **social; legislative; cultural; infrastructural; economic**. Grouping them in this way allows the identification of challenges common to all participants and mechanisms to overcome them, so as to build a unified environment for the enhanced exchange of students, researchers and teachers for a better inter-university nexus between research and university entrepreneurship.

The documents that have been analyzed and whose challenges have been presented in this first stage of the development of the White Paper are the following:

1. Deliverable D2.5: Feasibility study on Tool for sharing Infrastructures; WP2 – Collaboration in Research and Innovation;
2. Deliverable D2.2: Joint agenda for R&I in the T4E focus area of digital and environmental transformation for smart, sustainable and inclusive regions Related WP 2 – Collaboration in Research & Innovation;
3. Deliverable D2.4.: WP 2: Collaboration in research and innovation; Task 2.3: Innovative and collaborative cross- alliance research centres dissemination of project's outcomes to science policymakers;
4. Deliverable D3.2: Joint strategy for all initiatives in WP3 – The Best Careers for the Brightest Minds;
5. Deliverable D3.3: Action Plan for all initiatives in WP3-The Best Careers for the Brightest Minds;
6. Deliverable D4.2: T4E Joint Strategy "Science4All" WP4 – Science4All

The European Research Area (ERA) is facing new challenges due to the increasing demands for Research Infrastructure (RI) in various fields, including environment and climate research, humanities, social sciences, and medical research.

INFRASTRUCTURAL CHALLENGES

Definition: Research Infrastructures are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They include: major scientific equipment (or sets of instruments), knowledge-based resources such as collections, archives and scientific data, e-infrastructures, such as data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation. They may be 'single-sited', 'virtual' and 'distributed'.

In view of this definition of research infrastructure the following challenges are identified:

- The lack of an adequate legal framework for establishing new European Research Infrastructures (RIs), simplifying the procedure for setting up an international legal entity and prioritizing investments in order to overcome the challenges for effective financing and operation;
- Differences are found in the importance of the national road maps in relation to the priority areas for economic development of the country, in which additional funding should be provided for conducting scientific research and the importance of including certain projects and scientific infrastructures in the road map for obtaining national or European funding. These differences are related to the legal and regulatory framework of each of the countries and determine the diversity of the available scientific infrastructure. On the one hand this is expected and customary as at the European level there should not be duplication of the infrastructures available to the partners in the alliance. On the other hand, it is a serious challenge to the unification of the legal and regulatory framework for access and use of the available infrastructure between the members of the alliance;
- The challenges for the future include consolidating and optimizing the European Research Infrastructure landscape, enhancing its capacity to support frontier research, and implementing an effective RI strategy in cooperation with (ESFRI) European Strategy Forum on Research Infrastructures of Member States and Associated countries;
- The challenges include promoting European RI as skills development actors, boosting its impacts, enhancing data production and sharing, and promoting its international presence.
- The Inventory of Key Research Infrastructure (D2.3) showed that there were nearly 500 key Research Infrastructures that could be potentially used by

the T4EU partner universities. Therefore, the challenge is to clearly prioritize the nature of the RIs, better coordinate the periods of utilization, and more efficiently use the identified RIs.

SOCIAL CHALLENGES

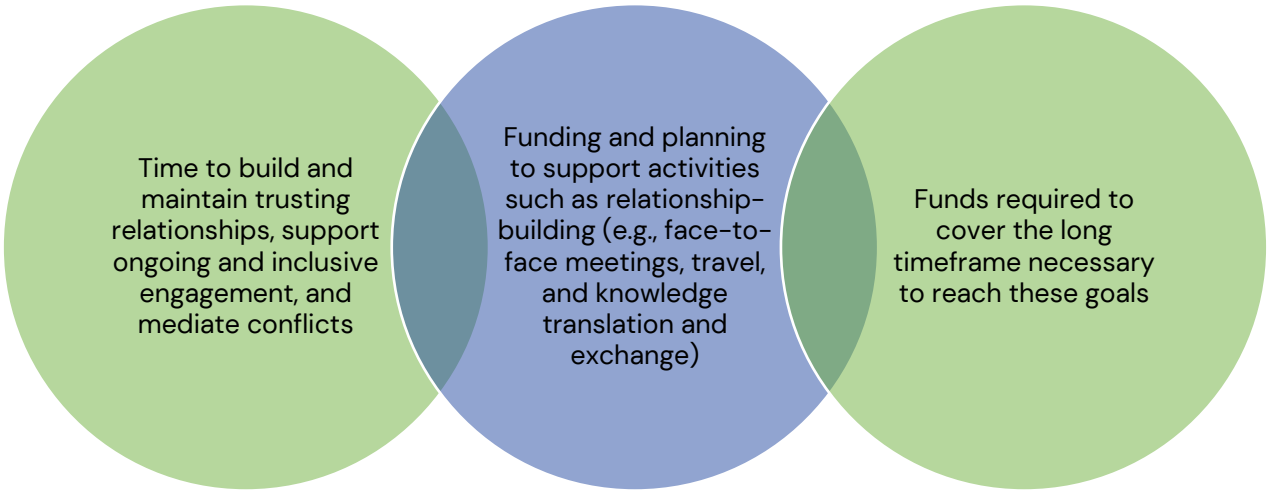
The social challenges are mainly related to the establishment of an effective collaboration in R&I at T4ERI Alliance and are defined as follows:

Figure 8. T4ERI social challenges

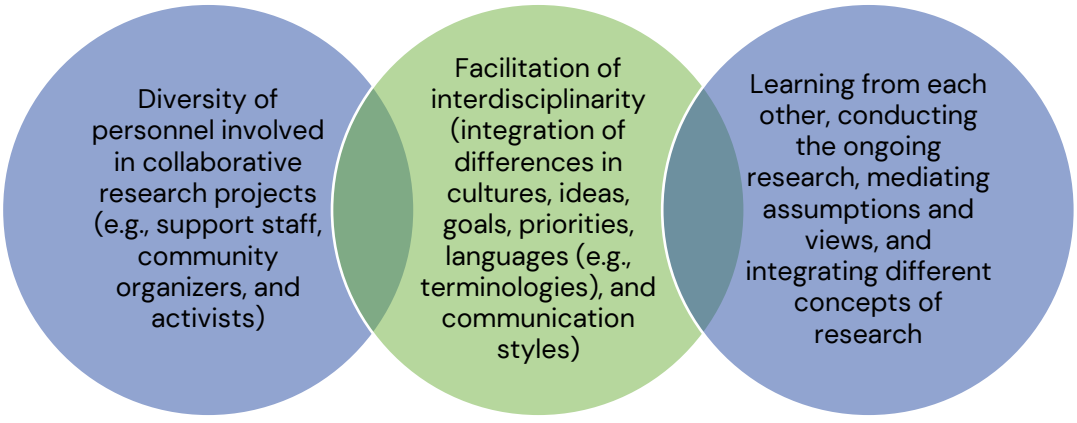
Overcoming these challenges requires an agreement in terms of governance, implementation, monitoring and sustainability in implementing the Joint Agenda 2030. Additionally, the universities need to give visibility to the Joint Agenda for R&I 2030 and integrate it into their institutional strategic planning related to R&I.

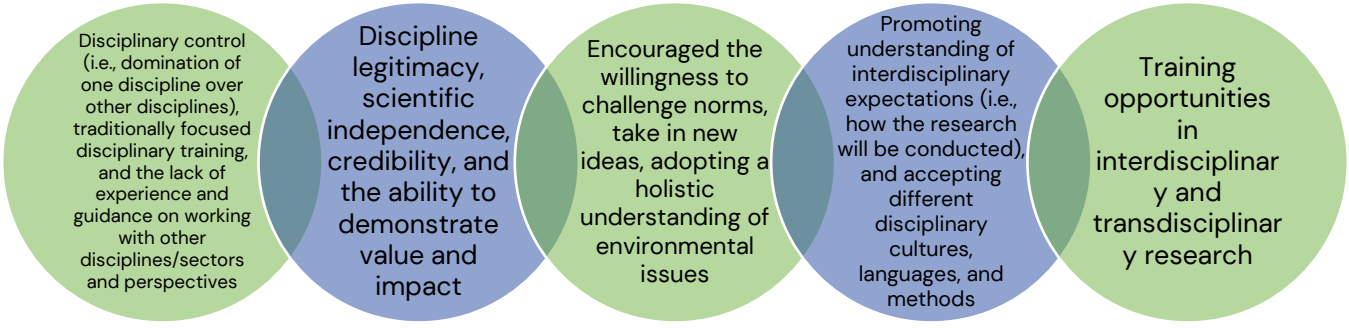
Another challenge is unifying the support for high-level and diverse science at the level of fundamental research, applied research, experimental development and artistic research. This needs to go along with creating liberal learning conditions for the individuals, developing partnerships and taking an active part in the life of the European citizens to advance its future and contribute to the global cultural and academic development. In achieving these goals, the following particular challenges are identified:

1. ALLOCATING TIME AND RESOURCES

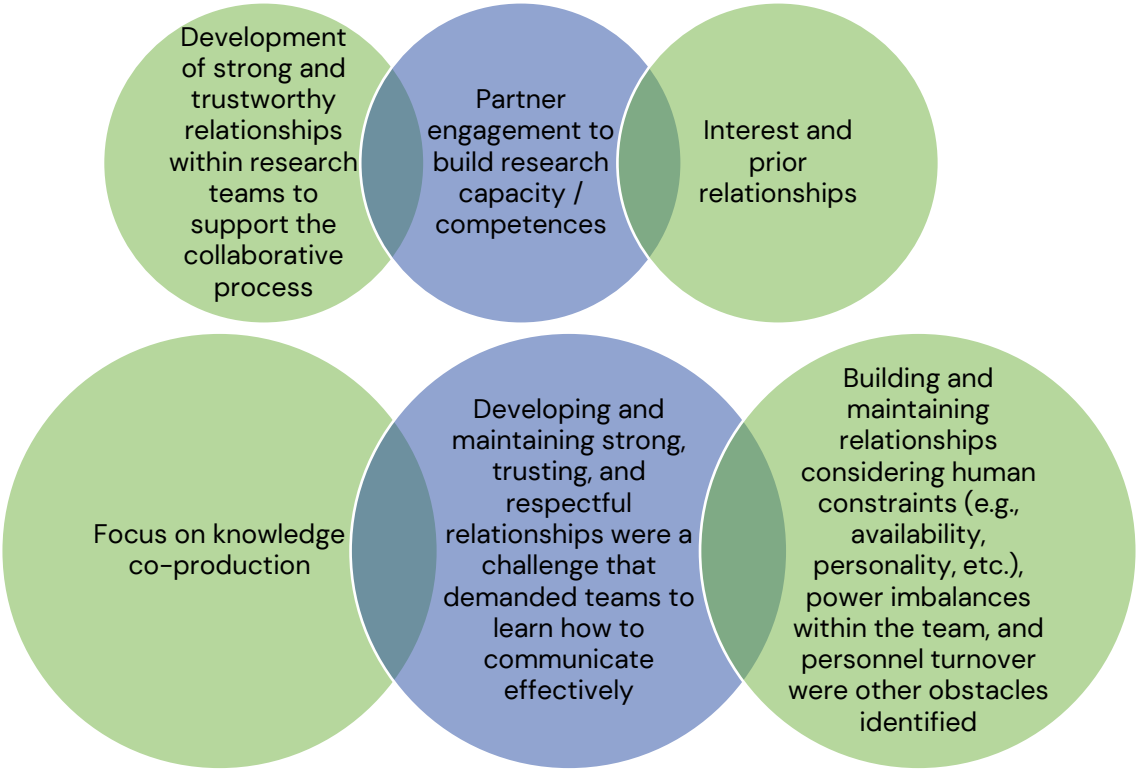


2. ADDRESSING DISCIPLINARY AND SECTORAL ISSUES

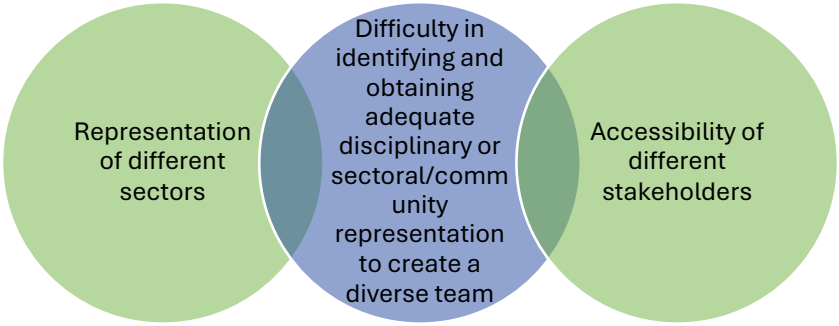




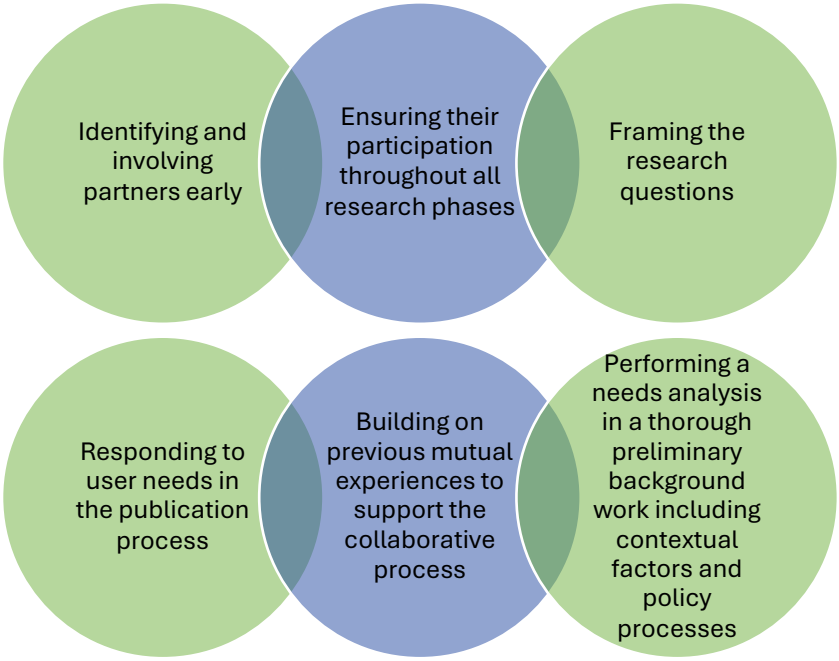
3. BUILDING RELATIONSHIPS



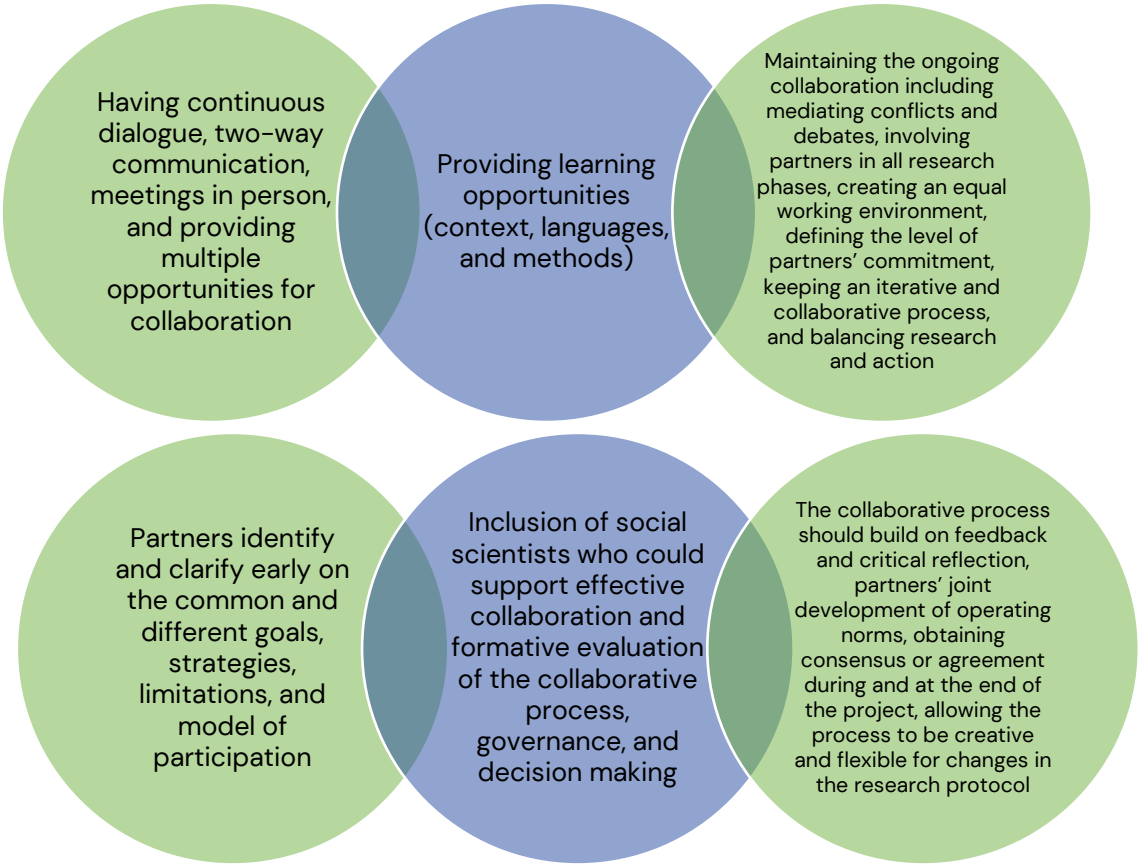
4. ENSURING REPRESENTATION



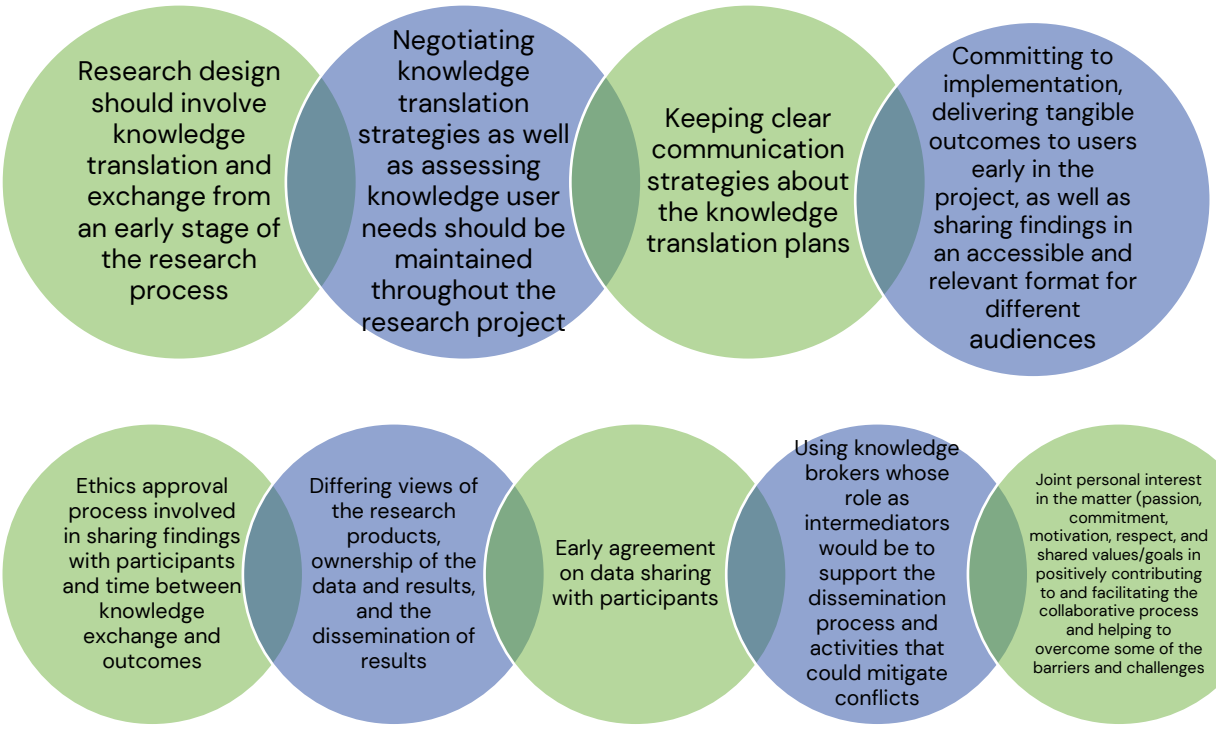
5. EMBEDDING PARTICIPATION IN THE RESEARCH



7. SUPPORTING ON-GOING COLLABORATION



8. DEVELOPING KNOWLEDGE TRANSLATION AND EXCHANGE



INSTITUTIONAL CHALLENGES

At a European level, sustainable growth is increasingly related to the capacity of regional economies to innovate and transform, adapting to an ever changing and more competitive environment. This means that a much greater effort is needed to create the ecosystems that encourage innovation, research and development (R&D), and entrepreneurship. These findings lead to the following challenges that need to be overcome in order the ecosystem to start working:

- Available funding to support interdisciplinary and collaborative research;
- Acknowledgments and reward systems (e.g., performance reviews);
- Adequate training on collaborative and interdisciplinary research to those participating in collaborative research;
- Institutional priority and support services for collaborative research (e.g., ethics review boards that advocate sharing results with participants, and/or policies that promote hiring community members for research purposes);
- Political climate (specific research collaboration policies, instruments, measures);

• Social and cultural structures, especially engagement structures to facilitate consultation with stakeholders.

The EU is a global leader in research in many fields. Well performing innovation systems are, however, found only in a few EU regions, while many others lag behind in terms of their R&I investments, capacity and performance. The diffusion of top R&D results across economic sectors and EU borders, and their transformation into innovative and marketable products and services is key for the EU economy. The EU needs to be able to compete with other more advanced and emerging economies in a fast changing economic and social environment. The T4EU alliance (bringing together Member States and regions under Smart Specialization Strategies - S3) is in a unique position to align its R&I priorities and policy objectives to those of the European Commission thus, contributing to delivering a smarter and more competitive, inclusive and sustainable Europe through Joint Agenda 2030 and the European university. The following common gaps in the area of R&I are found:

HUMAN CAPITAL:

- Some universities in the alliance, such as EKA, do not have a holistic strategy for the staff development of the R&I supporting staff;
- For UNISOFIA it is difficult to attract talents and young researchers in STEM;
- UNITS and UA stress on legal limitations to exchange personnel between the EU universities;
- USAAR stresses the need to improve networking opportunities across disciplines in terms of information on career opportunities outside the academia;
- USIL notices the high risk of brain drain and very limited resources;
- VMU recommends establishing and consolidating research units to focus on the research capacity and the research infrastructure, as well as on the more efficient funding of the research activities in the priority fields;
- For most universities in the Alliance it is necessary to improve the balance between teaching and research as well as to find adequate incentive mechanisms for scientists.

The structure of scientific careers within the T4EU alliance is complex and dynamic. While researchers and doctoral students/ PhD candidates express their commitment to the research excellence, they also identify the barriers and challenges impeding their full potential:

- Lack of the culture fit, exclusion from informal networks, and insufficient mentoring or lack of mentoring were identified as barriers for academic staff at all career levels (R1-R4).
- The conviction of lacking the expert knowledge essential to successfully conduct the scientific research applies to the academics on the early stages of their scientific careers R1 – R2.
- Anxiety and stress related to undergoing the continuous scientific evaluation both inside and outside the university applies to R4.
- Work overload, administrative ambiguity, and challenges in obtaining research funds were identified as challenges at different career levels.

Joint PhD programs are prioritized in the development of the second phase of the T4EU initiative. At that stage, joint standards for scientific careers in the T4EU alliance are formulated in order to foster an environment conducive to the research excellence and professional growth. The implementation of those joint standards is essential challenge for the alliance partners in working on:

- Financial and Organizational Resources for Development;
- Minimization of the gender biases and gaps;
- Promoting talent;
- Promoting leadership and entrepreneurship in science;
- Development of research support staff;
- Scientific Careers at all Experience Levels

The resources dedicated to research support vary extensively from one university to another within the alliance and the need for improving the research support services is a constant across the alliance.

COLLABORATION WITH THE SOCIO-ECONOMIC SECTOR

Collaboration with the socio-economic sector is a major institutional challenge which is in the focus of R&I. The following challenges are identified:

- Difficulties in building bridges between research and the socio-economic sector;
- Lack of specific activities to engage stakeholders in R&I activities;
- The market for products that can be produced depends on interactive dialogue and contract-oriented collaboration with business partners who have an interest in research results and technologies developed by the University.

A common institutional challenge is the coordination of the collective bodies created under the implementation of the results of the T4ERI (among which the

T4ERI partnering and matchmaking tool, the joint access to key research infrastructure across the alliance, the targeted joint action plans to launch major joint research centers relating to its focus mission, to attract and retain excellent junior and established researchers, and to foster engagement and involvement of civil society in research and innovation). The Joint Agenda Initiative Group, the Management Board and the Steering Committee have a responsible role to streamline resources, tasks and/or actions so as to accommodate to the potential new scenario of the Alliance.

The complex process of research and scientific collaboration, in contrast to the educational process, cannot be easily placed in normative frameworks and requires the implementation of specific activities involving different categories of participants and sharing specific infrastructure and resources. This implies collaboration at different levels. Its highest and most advanced level is the creation of a network of **joint research centers of excellence** within the framework of the alliance. Creating joint research centers requires to overcome several challenges:

- Alignment of strategic goals, priorities, and values, aiming at high quality research and science, effective leverage of the strengths and expertise of each participating university, identification of common research themes and creating a balance between specialization and interdisciplinary collaboration;
- Establishment of joint governance and decision-making procedures applicable for all joint research centers of excellence;
- Establishing an effective cross-alliance framework for funding and resource management;
- Clear and shared vision of the collaborative use of the available research infrastructure and facilities of the Alliance;
- Establishing shared Alliance principles for intellectual property management;
- Development of common principles and mechanisms for joint supervision, student and young researcher exchanges and collaborative research.

FUNDING CHALLENGES

European funding is important for universities to complement national funding as a source of income, but also as a platform for European and international academic cooperation. The EU is committed to invest a significant amount in the support of universities with the new multiannual financial framework, estimated at EUR 80 billion over the programming period 2021-2027.

The development, adoption and implementation of a comprehensive program for financing the research actors of the T4EU alliance is an important component of the overall concept for the sustainable development of the already established partnership. It involves mapping of the higher education funding mechanisms across partner universities of the Alliance, in particular research funding and an assessment of their effectiveness. Mapping of the national funding supporting the higher education institutions participating in the European Universities Alliances is also highly relevant. Government funding aimed at creating centers of excellence where researchers jointly work on a long-term research agenda has become a significant source of funding for fundamental and applied research.

On the basis of the mapping exercise, an action plan is to be developed for joint applications for EU-funding including Erasmus+, Horizon Europe, Digital Europe, the Recovery and Resilience Facility, the European Regional Development Fund (ERDF), the European Social Fund (ESF) or InvestEU. Based on the overview on the key research areas and research undertaken at all T4ERI universities different geographical configurations of researchers and collaborative institutional efforts can be supported for ensuring funding for research and innovation. A step-by-step approach should be applied based on the principles of scientific cooperation including:

- internal intellectual property regulations (IP) for the Alliance setting out the rules for staff, researchers, academic representatives, students regarding any IP that is generated, including disclosure, ownership and engagement with third parties.

COMMUNICATION CHALLENGES

Nowadays, there is a trend of society becoming increasingly distanced from the academic world, science, and scientific knowledge. The main problem is that researchers do not have sufficient time, skills, and motivation to communicate scientific news to the public. Science communication may not be adequately valued and rewarded, yet communication with multiple audiences is crucial to promote and popularize science in modern society. The main challenges related to Science Communication are:

- to improve scientists' skills in Science Communication;
- to inspire society to seek scientific knowledge and enlarge the understanding of it via facilitating the process of seeking scientific information for the public, promoting communication tools to minimize the

gap between scientists and the public and inclusion of media in the Science Communication process;
- to include Open Data in the programmes of staff reskilling and basic university education.

Open Science priorities are apart of the communication challenges to be overcome by the Alliance. Measures in Open Science include the following:

- Creation of Alliance group for Open Science networking activities;
- Organisation of Open Science awareness-raising campaigns;
- Including Open Science indicators in institutional self-assessment;
- Creating and sharing of a digital document repositorium "How to Open Science";
- Creating incentives for researchers for Open Science via assessment and promotion;
- Promoting a common understanding of FAIR and Open Data;
- Sharing of best practice experiences and recommendations;
- Including data-related skills in staff capacity-building programmes;
- Training for new data-related professions: data stewards, data curators, data managers, and data librarians.

APPROACHES

Modern high-technology and frontier research are complex, knowledge and resource intensive, and often boundary-crossing. Public research is nationally and internationally linked and parts of huge knowledge networks. The international collaboration of public research and companies plays an increasing role, both for the national competitiveness as well as for new knowledge creation in general. Globalization and internationalization of R&I have accelerated. Knowledge production and R&D are seen as key components of this development[3]. The understanding of the process of internationalization of R&D is the basis for policy making and taking strategic decisions particularly in the context of the European Research Area (ERA), which was launched in 2000. It aims at further integration of the European research system and achieving a higher degree of coordination and cooperation among the various players at all policy levels. Another aim is improved efficiency and effectiveness of still fragmented research efforts in order to strengthen Europe's international competitiveness. Internationalization of research can take various forms such as the mobility of researchers, collaboration between partners from different countries, research activities from institutions abroad, informal knowledge exchange, and systematic exploitation and application of foreign knowledge, for example by being present in other countries for know-how acquisition and networking. Most of these have been applied in various formats under the series of research programmes funded by the EU – the Research Framework Programmes, Horizon 2020, Mari-Sklodowska-Curie, etc. within the ERA.

COLLABORATIVE RESEARCH APPROACH

Laying the grounds for a new type of collaboration in research in innovation within the European Research Area is clearly a pathway to sustained research partnership and long-term integration of research infrastructure and human resources.

The collaborative approach, supported by all partner universities, ensures the shared commitment to the vision of T4ERI and reinforces Europe's position as a power-house of the scientific excellence.

The development of the joint strategy under the T4ERI project follows the **collaborative and inclusive approach**, in line with the principles of the T4EU alliance. The leading partner of the activities related to "The Best Careers for the

[3] European Commission 2007 The Commission Communication 'Towards a European Research Area'

Brightest Minds" is the University of Silesia in Katowice (Poland), with co-leading partners - the University of Trieste (Italy) and the University of Alicante (Spain). The strategy is based on inputs from all T4ERI partner universities, including Saarland University (Germany), Estonian Academy of Arts (Estonia), Sofia University St. Kliment Ohridski (Bulgaria), and Vytautas Magnus University (Lithuania).

To ensure the alignment and integration of interests in the alliance the partners conducted various cooperation activities from December 2021 to May 2023. The consultations provided valuable insights into the human resources diagnosis of the alliance and paved the way for the formulation of the joint strategy.

Internal and external factors were identified relevant for potential R&I collaboration and impacting **the collaborative research approach** at each institution level and instrumental in supporting collaborative research and partners engagement in joint actions.

INTERNAL FACTORS

1. Allocating Time and Resources - Time to build and maintain trusting relationships, support ongoing and inclusive engagement, and mediate conflicts; long timeframe funding and planning to support activities such as relationship-building; non-conflict distribution of funds among partners

2. Addressing Disciplinary and Sectoral Issues - Participation of representatives from different disciplines, with diverse expertise and experiences; Diversity of personnel involved in collaborative research projects (e.g., support staff, community organizers, and activists); Facilitation of interdisciplinarity; Learning from each other, conducting the ongoing research; Discipline legitimacy, scientific independence, credibility, and the ability to demonstrate value and impact; Encouraged the willingness to challenge norms, take in new ideas, adopting a holistic understanding of environmental issues; Promoting understanding of interdisciplinary expectations and accepting different disciplinary cultures, languages, and methods; Training opportunities in interdisciplinary and transdisciplinary research

3. Building Relationships - Development of strong and trustworthy relationships within research teams to support the collaborative process; Partner engagement to build research capacity / competences; Focus on knowledge co-production; Building and maintaining relationships considering human constraints

(e.g., availability, personality, etc.), power imbalances within the team, and personnel turnover were other obstacles identified

4. Ensuring Representation - Representation of different sectors; Accessibility of different stakeholders

5. Embedding Participation in the Research - Identifying and involving partners early; Ensuring their participation; Responding to user needs in the publication process; Building on previous mutual experiences to support the collaborative process

6. Supporting On-going Collaboration - Having continuous dialogue, two-way communication, meetings in person, and providing multiple opportunities for collaboration; Providing learning opportunities; Maintaining the ongoing collaboration including mediating conflicts and debates, involving partners in all research phases, creating an equal working environment, defining the level of partners' commitment, keeping an iterative and collaborative process, and balancing research and action; Partners identify and clarify early on the common and different goals, strategies, limitations, and model of participation; Inclusion of social scientists; The collaborative process should build on feedback and critical reflection, partners' joint development of operating norms, obtaining consensus or agreement during and at the end of the project, allowing the process to be creative and flexible for changes in the research protocol

7. Developing Knowledge Translation and Exchange - Research design should involve knowledge translation and exchange from an early stage of the research process; Negotiating knowledge translation strategies as well as assessing knowledge user needs should be maintained throughout the research project; Committing to implementation, delivering tangible outcomes to users early in the project, as well as sharing findings in an accessible and relevant format for different audiences; Ethics approval process involved in sharing findings with participants and time between knowledge exchange and outcomes; Differing views of the research products, ownership of the data and results, and the dissemination of results; Early agreement on data sharing with participants; Using knowledge brokers whose role as intermediators would be to support the dissemination process and activities that could mitigate conflicts; Joint personal interest in the matter contributing to and facilitating the collaborative process and helping to overcome some of the barriers and challenges

EXTERNAL FACTORS

1. Institutional - Available funding to support interdisciplinary and collaborative research; Acknowledgments and reward systems (e.g., performance reviews); Adequate training on collaborative and interdisciplinary research to those participating in collaborative research; Institutional priority and support services for collaborative research

2. Socio-Political - Political climate (specific research collaboration policies, instruments, mechanisms); Social and cultural structures, especially engagement structures to facilitate consultation with stakeholders

HUMAN CAPITAL & RESEARCH POTENTIAL APPROACH:

One of the main goals, forming the identity of the Alliance, is related to human capital necessary for the sustainable development of the regions including the formation of knowledge entrepreneurs.

A main objective is to strengthen human capital in R&I to nurture young talents and leadership in science by providing the comprehensive support and mentorship. It is essential to empower the academic staff and doctoral students/PhD candidates to flourish in their research endeavours and contribute to the advancement of knowledge.

The technical, legal and administrative matters challenging the development of joint PhD programs have been considered in the development of the new project, T4EU and this Joint Agenda, in Pillar II seeks to pave the way for the preparation of such Joint PhD programs.

The resources dedicated to research support vary extensively from one university to another within the Alliance. However, the need for improving the research support services is a constant issue across the Alliance and a need that has been addressed by Pillar III.

RELATIONSHIP WITH THE MARKET:

Regarding the insufficient collaboration with the socio-economic sector and lack of public engagement Pillar IV identifies the challenges associated with unlocking the Universities' R&I potential which are:

- Difficulties in building bridges between research and the socio-economic sector.
- Lack of specific activities to engage stakeholders in R&I activities.

- The market for products that can be produced depends on interactive dialogue and contract-oriented collaboration with business partners who have an interest in research results and technologies developed by the University.

The analysis of the responses received from the survey conducted among key stakeholders showed a very diverse level of experience in European projects but a common interest in participating in future joint research initiatives.

In general, all stakeholders approached were also interested in carrying out interdisciplinary and trans-disciplinary projects in the future with the members of the T4EU alliance. Some of these institutions have extensive networks of partner institutions that the Alliance can capitalize on by linking to these stakeholders.

Main objectives of the Alliance are to involve stakeholders from the Regional Innovation Ecosystems across the T4EU regions in the development of the joint T4EU strategy for research and innovation, to promote strategic collaboration with key regional and European R&I stakeholders, to open up participation in training activities to key stakeholders.

Another main aim is to inspire society to seek scientific knowledge and enlarge the understanding of it. Scientific knowledge, in principle, is intended to be applied to the well-being of society. Applying scientific knowledge helps meet people's basic needs and improve the quality of their life, safety, and other standards of everyday life.

Science Communication (SC) has enormous potential to contribute to public education and development. SC activities have to encourage society to seek scientific knowledge, increase awareness of science's origins, reveal how science is made, and show the benefits of its results for society. It also means understanding how scientific discoveries and news shape and change the world and human civilization. The higher the public engagement and motivation to pursue and understand scientific knowledge, the more rational decision-making and the quality of public discussions in society.

We envisage the development of training programmes that highlight the main methods of engagement in Science Communication activities, as well as the motivation of the public to seek an understanding of science and provide evidence. They can help society understand science's overall relevance in the modern world.

In order to reduce the barriers between science and society, academics - especially those working in public institutions - need to be more open, active and voluntarily involved in everyday public communication. Scientists should do more to inform the public about what science is and is not, how it is done, what the main results are, and how everyone benefits from it. This would be the best way to demystify science and open the horizon of future citizens in the same way as bringing society closer to science. SC should transfer scientific knowledge and evidence-based information to society and raise different stakeholder responses.

BUILDING THE MODEL OF THE EUROPEAN UNIVERSITIES ALLIANCE FOR THE FUTURE

THE WAY FORWARD: TRANSFORM4EUROPE UNIVERSITIES COLLABORATION

Our designed model of the European Universities Alliance is to be constructed on four pillars which sustains a new architecture of sustained research collaboration:

PILLAR I: STRENGTHENING HUMAN CAPITAL & RESEARCH POTENTIAL /D2.2/

● AIM 1.1 Promoting new approaches to interdisciplinarity and excellence in R&I at alliance level

● AIM 1.2 To position the T4EU Alliance as a European University Alliance of excellence and reference in R&I with a solid joint R&I potential

● AIM 1.3 To develop a long-standing collaboration and to facilitate the engagement of researchers across the alliance in joint R&I activities

PILLAR II: BOOSTING JOINT PhD "LINES" /D2.2/

● AIM 2.1 To pave the way for the establishment of the Joint Doctoral Programme in the second phase of the T4EU initiative

● AIM 2.2 To support the creation of the Joint Doctoral School for the new project T4EU

● AIM 2.3 To co-create a European and innovative first concept for the Joint PhD tracks

PILLAR III: STRENGHTENING RESEARCH SUPPORT SERVICES /D2.2/

● AIM 3.1 To optimize the process of fundraising for R&I

● AIM 3.2 To increase transparency, simplify research management complexities and reduce administrative burden to Researchers

● AIM 3.3 To enhance R&I proposals preparation skills among the researchers of the Alliance

● AIM 3.4 To improve R&I projects management competences of research managers and researchers

● AIM 3.5 To facilitate the access to top-quality Research infrastructure

We believe that this sustainable partnership needs to achieve measurable high-quality research and scientific results related to the effective integration of our resources, both human and physical. It should contribute to overcoming the challenges and propose solutions to our regions in the process of their transformation. To achieve this, it is necessary to develop a comprehensive architecture that facilitates the implementation of effective research collaboration both between the partners within the framework of the Alliance, which form the research core, and between all interested parties participating in the broad Smart transformation network. This architecture includes the following main elements (Figure 9):

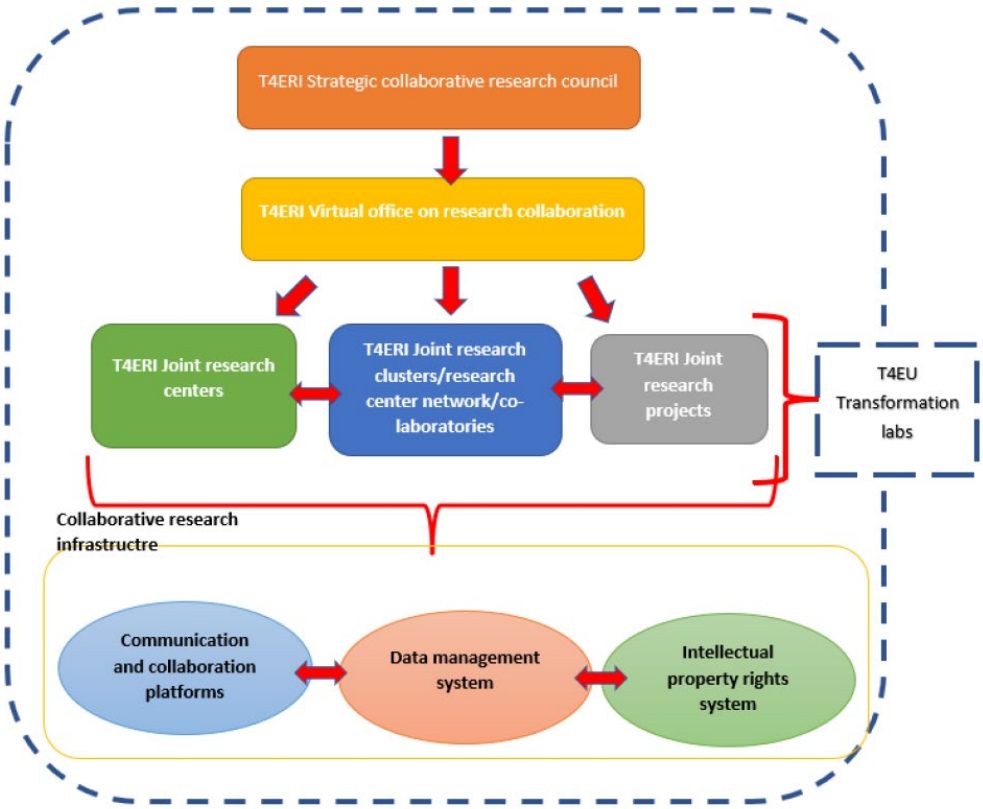


Figure 9. Model of comprehensive architecture of T4ERI research collaboration.

PILLAR IV: COLLABORATION WITH THE SOCIO-ECONOMIC SECTOR / PUBLIC ENGAGEMENT /D2.2/

● AIM 4.1 To promote strategic collaboration with key regional and European R&I stakeholders

● AIM 4.2 To maximize the impact and transfer of R&I results from most promising research conducted at alliance level to the regions

The ambitious objectives for enhanced cooperation can be achieved if sustained by another horizontal pillar:

CROSS-CUTTING PILLAR: GOVERNANCE, IMPLEMENTATION, MONITORING AND SUSTAINABILITY /D2.2/

● AIM 5.1 To monitor the implementation of the Joint Agenda for each of the Pillars

● AIM 5.2 To align the progress of all T4ERI strategies (Figure 10):

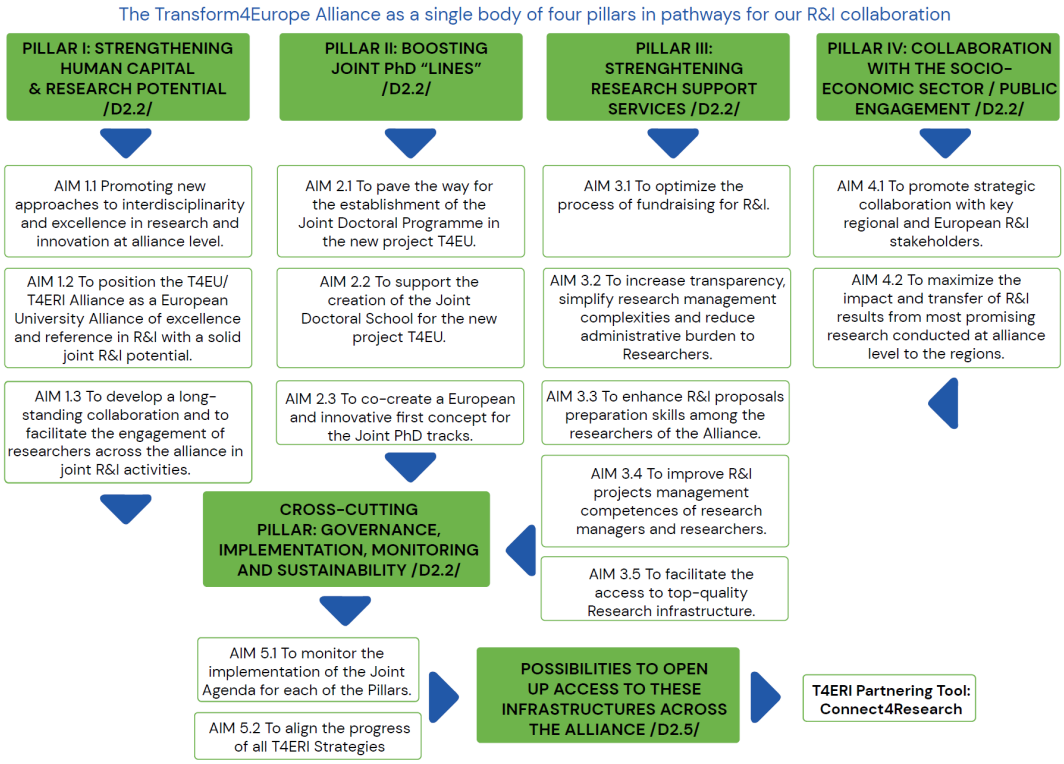


Figure 10. Cross-cutting pillars.

POSSIBILITIES TO OPEN UP ACCESS TO THESE INFRASTRUCTURES ACROSS THE ALLIANCE /D2.5/

To meet the current developments in R&I in Europe and to enable European Universities Alliances to be real actors of policy change, the Alliances needs clearer prioritization, better coordination, and more efficient use of their Research Infrastructures.

In this spirit, T4ERI partners, considering all the relevant context at EU and national level and after putting together the inventory of Research Infrastructure available and potentially to be shared among members of the Alliance, have jointly developed first a concept, then a viable solution for infrastructure-sharing across the T4EU alliance: the *T4ERI Infrastructure-sharing tool* so as to facilitate access and optimize resources and maximize user-friendliness. It has been incorporated to the T4ERI Partnering Tool: Connect4Research.

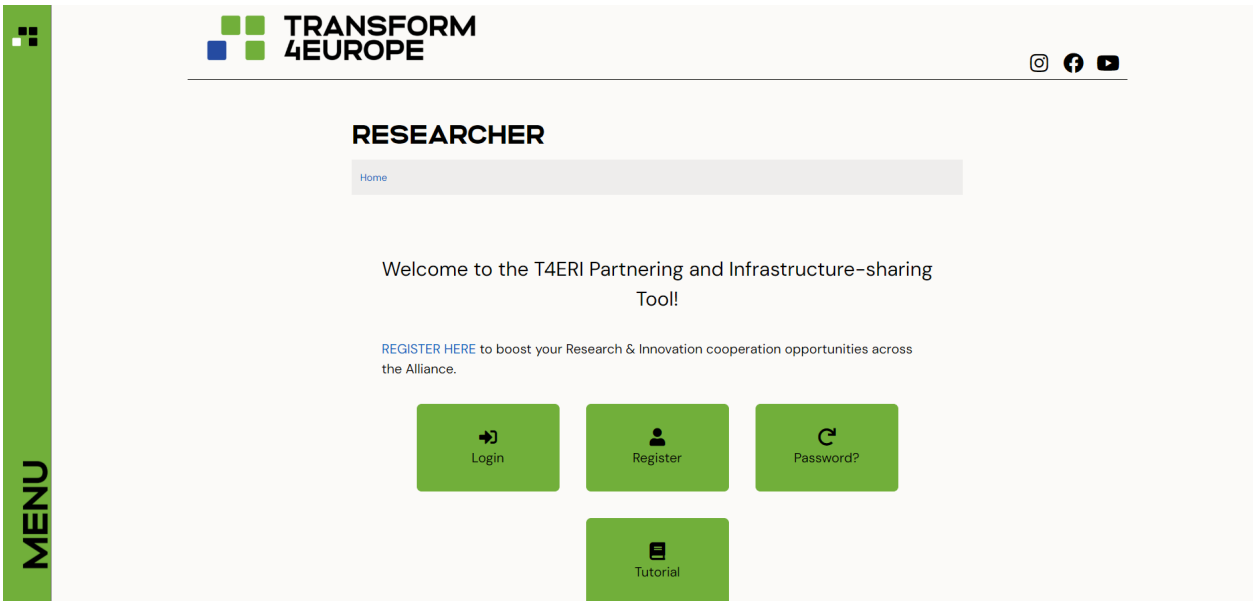


Figure 11. T4ERI Partnering and infrastructure-sharing tool "Connect4Research"

The Inventory of Key Research Infrastructure showed that, among all initial members of the Alliance, there were nearly 500 Key Research Infrastructures that could be potentially used by all researchers from the T4EU partner universities. Therefore, there are several possibilities to open up access to these infrastructures across the alliance depending on the nature of the Research Infrastructure, the use envisaged and the data requested. Taking all of this into consideration, the consortium has opted for listing all potentially shared R&I in the tool thus studying each individual request for access on a case by case basis. It is worth mentioning that the inventory was done before the new members of the alliance from Portugal, France, Slovenia and Ukraine joined the consortium. Therefore, that list of key Research Infrastructures will be much longer in the coming months.

HUMAN CAPITAL & RESEARCH POTENTIAL APPROACH – DECISIONS

Building on the key findings and comprehensive analyses, the Joint Strategy for all initiatives in the activities of "Best careers for the brightest minds" formulated joint standards for scientific careers in the T4EU alliance. The standards aim to address the identified challenges and foster an environment conducive to the research excellence and professional growth:

JOINT STANDARDS AT THE UNIVERSITY LEVEL

In order to address the abovementioned issues, common standards have been proposed for the development of scientific careers to accelerate the academic staff's development in accordance with the realistic aspirations.

The first joint standard focuses on securing financial resources to support the growth and development of the academic staff and doctoral students. The first joint standard focuses on securing financial resources to support the growth and development of the academic staff and doctoral students.

The second standard advocates for the involvement of stakeholders in the internship programmes and trainings, enabling the fruitful consultation and collaboration with the wider research community.

The third standard refers to minimization of the gender biases and gaps.

The fourth standard emphasizes the identification and support of potential stars of scientific excellence among the early-career researchers (R1-R2).

The fifth standard centres on the identification of the experienced mentors (R3-R4) willing to share their knowledge and expertise with the early-career researchers within the T4EU Leadership Academy.

The sixth standard aims to increase the visibility of research and research opportunities within the T4EU alliance.

The seventh standard integrates Open Data skills into research activities, encouraging transparency and accessibility in the scientific community.

BENEFITS OF COLLABORATION & ADVANTAGES – EXAMPLES OF SUCCESSFUL COLLABORATION WITHIN THE ALLIANCE

SUPPORT FOR COLLABORATIVE RESEARCH

T4ERI Connect4Research tool, developed under the leadership of the University of Alicante, enables collaborative research within the Alliance and contributes to a large number of funding applications submitted under the T4EU Seed Funding Program (50 applications to date). Researchers can use the tool to network within the Alliance and search for potential collaboration partners.

FUNDRAISING ACTIVITIES

Strategy for International Doctoral Research Networks

Collaborative efforts within European academic alliances, such as T4EU, bring tangible benefits by driving innovative solutions, optimising shared resources and supporting and promoting interdisciplinary research.

An example of the undoubted success of collaborative efforts is the development of a comprehensive and coherent fundraising strategy, presented in the document "Fundraising Strategy for International Doctoral Research Networks". This document, created as part of project T4ERI Work Package 3 "The Best Careers for the Brightest Minds", highlights the great potential of joint initiatives in raising the necessary funds and resources for ambitious academic projects, which is crucial in the context of today's financial, organisational and geopolitical challenges. In the context of an ongoing war in Ukraine and the consequent limited funding in the private sector, the search for joint solutions has become even more important. The strategy has been recognised and appreciated by the European Commission and published in a collective report titled 'The European University Alliance: "Report on good practices from European University alliances projects (pilot II)" which is an additional recognition of the efforts of the T4EU alliance.

OPTIMIZATION OF RESOURCES

One of the most important benefits of working together in an academic alliance is the optimisation of resources. By pooling them, partner universities can make better use of the available infrastructure and funding, which might have been difficult to achieve individually.

An example of this is undoubtedly the jointly developed fundraising strategy. It involves detailed planning and described activities, including the definition of objectives, the scope of activities and the methodology for implementing the campaign. The strategy calls for a six-month fundraising campaign to raise funds to support at least two implementation doctorates at each of the T4EU alliance universities. By creating a network between T4EU and stakeholders, including local authorities and the business sector, and leveraging their additional support and resources, the implemented fundraising strategy would have a good chance of success. The document highlights that the success of the strategy is guaranteed by effective communication and well-defined roles, such as the Programme Director and Communications Officer, who ensured that all T4ERI partners and stakeholders were informed and involved throughout the process. The strategy that has been developed is proof that it is possible to have effective partnerships within the T4EU alliance to promote research, secure funding and resources and support innovative approaches to science.

OPEN SCIENCE AND RESEARCH DATA MANAGEMENT AT UNIVERSITIES

Another joint initiative of the T4EU alliance which proved to be a great success was a panel discussion during the ESOF2024 conference in Katowice, Poland, on the implementation of a common Open Science policy, organised on the initiative of Primorska University (a new member of the T4EU alliance). The panel included representatives from the University of Primorska (Slovenia), the University of Silesia in Katowice (Poland), Saarland University (Germany), Vytautas Magnus University (Lithuania) and Jean Monnet University Saint-Etienne (France). The panelists discussed topics including open access to scientific publications, research data management and cooperation within the T4EU alliance to create a more open, integrated and innovative research space.

DEVELOPMENT OF SCIENTIFIC CAREERS

The project's research and analysis indicated that T4EU Alliance researchers face a number of problems, including a lack of mentoring support and difficulties

integrating into the academic culture. The response to these difficulties is the development of common standards for research careers that include, among other things, financial support, gender equality, collaboration with the private sector and business, and the development of skills for Open Science. The implementation of these standards makes T4EU a more attractive European University for world-class researchers and aspires to become a major European research centre.

COLLABORATIVE RESEARCH THEMES

A fruitful and successful collaboration between the T4EU partners, it is established around the Border's Archive, an ongoing operative research project of students from the University of Trieste (under Prof. Roberta Altin's supervision) and the University of Primorska (under Prof. Katja Hrobat Virloget's supervision). The first step was a roundtable organised by the University of Primorska titled "*Borders and migration: (in)visibility?*" on 10 October 2023. This significant academic event roundtable invited experts to discuss the concept of migration, its evolution throughout history, and the current migration process in our region. The discussion included the social impact of migration and an analysis of how citizens experience this phenomenon. This collaborative project is a testament to the shared academic interests and the power of collective research.

The second event was the T4ERI roundtable organised by the University of Trieste in collaboration with the University of Primorska, titled "*Borders and Migration (In)visibility, Then and Now*", on 23 November 2023 at the University of Trieste, Department of Humanities. The roundtable delved into the historical context of the Trieste border, which has been part of the Iron Curtain, a space connecting different worlds, an everyday transit space or a European barrier. The border conceals and exposes, constructs identities, routes and life patterns. Nevertheless, it builds cross-border territories and identities, shapes the areas it encompasses, and gives rise to new social meaning.

The two round tables were instrumental in discussing, preparing, and realizing "*The Garden of the (In)visible*" exhibition. The exhibition chronicles invisible crossings that have left visible traces, providing a unique and thought-provoking educational experience. Objects that are part of our daily lives in our everyday world. The Garden of the (In)visibles showcases a selection of objects abandoned on the border between Croatia, Slovenia and Italy. The faculty members and students from the University of Primorska and the University of

Trieste collected these artefacts in fall 2023. The exhibition travelled across the Italian-Slovenian border and was first inaugurated on 1 March 2024 at the Cultural Center of Herpelje (Slovenia). Then, on 23 March 2024, it moved to the University of Primorska (Slovenia). On its inauguration, a T4EU Regional Heritage Workshop titled "Border's *Heritage: Migration, Memory, (In)visibility*" was organized, by both Trieste and Primorska University, in the frame of the International Conference Interpret Europe in Koper (Slovenia).

On 20 May 2024, the exhibition arrived at the University of Trieste (Italy). In Trieste, the exhibition was first hosted at the Stazione Rogers (a University Stakeholder) from 20 May until 26 May 2024. Then, at the Central building at the University of Trieste from 27 May until 9 June 2024. The exhibition in Trieste was further enriched by a series of cultural and artistic activities coordinated by the dedicated working group of students from the anthropological laboratory "*The Border Archive*".

Finally, the exhibition was hosted from 23 to 30 June 2024 in Bagnoli della Rosandra (Italy), at the border with Slovenia, where many of the migrants' leftovers were collected.