



RE-EURECA-PRO

The Research and Innovation Dimension of the European University on Responsible Consumption and Production

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2. Introduction

For D8.4 “Indicators for impact assessment”, all available information is collected from the existing work on WP8 as concerns innovation performance in all member universities with the main goal to depict the current status of the Innovation Impact based on qualitative and quantitative indicators creating an integrated analytical framework on:

- The outcomes/results of their current innovation activities (D8.1 [1])
- Their needs, problems and challenges to meet their vision (D8.2 [2])
- Expected outcomes of the new activities based on EURECA-PRO alliance (D8.3 [3])

A group of well-selected indicators has been created to formulate a clear picture of resources (labour, equipment, services, students, social environment, funding structure) compared with outcomes (new start-ups, business innovation, increase the capacity for innovation). The indicators are assessed with emphasis on sustainability pillars: economy, society, environment at different impact levels: intra-level (each University), regional, national, EU and international levels. In this deliverable, the qualitative and quantitative indicators are revealed and quantified based on the outcomes of the relative deliverables [1 – 3] as described in the following Section 3.

A solution and a cost-benefit analysis of the implementation of this solution is proposed by taking into account the results of Tasks 8.1-8.3, and alternative common structure utilization policies are evaluated, which can handle better the ambiguity and the qualitative nature of such evaluation. Based on the above, a common strategy and a specific action plan have been developed in accordance with the EURECA-PRO mission statement (i.e., sustainable consumption and production under the umbrella of SDG12 and transformation of the European Higher Education Area complementary to SDG4).

3. Towards a common innovation structure utilization strategy

3.1 Current innovation structures, policies and best practice examples

In D8.1 [1], it was pointed out that the alliance's university TTOs share common characteristics but that the main differences are the country-specific legislative frameworks of each partner university. Also, it was noted that the existing TTOs can exchange information and best practices, as well as experiences on solving obstacles and finding solutions for innovation and turning ideas into products or services. In D8.1 the best cases of cross-institutional TTOs with novel characteristics beyond the typical TTO model were taken into consideration for the improvement of existing TTOs and, potentially, for the development of a "cross-institutional" TTO structure – a TTO of more than one institution/university. For consortium members who do not yet have a fully operational TTO, the other members (alliance universities) can transfer their expertise and experience to it.

Regarding national innovation policies, all of the RE-EURECA-PRO partners highlighted the convergence with the priorities of the European Union and the objectives of the respective frameworks such as "Third Mission", "Knowledge-based economy", SGD12, H2020. In addition, the important commonalities listed provide a solid basis for being included as important points for consideration for proposing a "joint innovation utilization strategy", which forms part of the present deliverable.

The input provided by all the universities in the consortium in terms of integrating the factors of the Quintuple Helix Innovation Model highlights that commonalities outweigh differences regarding their readiness level in adopting the Model in their innovation practices. For example, regarding the legislation framework, 6 out of 7 universities estimated the number of legal articles as "many" in their country, and 6 out of 7 universities categorized the complexity of the legal framework as "much" in their country; also 4 out of 7 universities consider the legislation that is specifically for innovation as "poorly specific", whereas 3 out of 7 universities as "relatively specific". All this input will be considered when proposing a

“joint innovation utilization strategy”, which forms the final deliverable of this work package (WP8).

Regarding the sample list of innovative products and services included in this report, it is clearly shown that they are linked to the research centers and services of the universities of the consortium, as well as to the aims of sustainable production and consumption and to critical areas for society such as health. This list will be used to select best practices for the content and purpose of Milestone15 «Presentation and approval of the Strategy and Action Plan and Selection and agreement of Pilot Actions» of this work package (WP8).>>

Overall, D8.1 was a comprehensive base of quantitative data and qualitative content for a realistic proposal of a “joint innovation utilization strategy” (as described in MS15 [4] and developed in D8.2 [2]) and the selection (MS16 [5]) and execution (D8.3 [3]) of pilot actions, with a very good degree of feasibility (WP8’s ultimate deliverable).

3.2 Strategic and action plan

In D8.2, all the important points were examined and included regarding the commonalities, differences, barriers, and challenges faced by the alliance universities, and main points for improvement were highlighted regarding the innovation process and sustainable development:

- The basic functions of the Technology Transfer Offices (TTOs) of the alliance universities were examined.
- The integration of the Quintuple Helix Innovation Model in the innovation processes and procedures was explored. Legislation, bureaucracy, economic landscape, and natural environment are the main parameters that facilitate or hinder the integration of the Quintuple Helix Innovation Model in the alliance university environment. By embracing the Quintuple Helix model and implementing a joint innovation strategy, universities can exploit the strengths of diverse stakeholders, catalyze innovation, and address arising challenges more effectively. This collaborative approach promotes synergistic

partnerships, fosters interdisciplinary research, and drives sustainable development and societal progress.

- The best practices regarding projects and products were included in a synopsis.

In the framework for a “Strategy and Action plan” document, the following were examined and recommended:

- The objectives of the common action plan: Academic Institutions as Innovation Hubs, Industry Engagement, Government Collaboration, Civil Society Involvement, Media and Communication, Cross-Sector Collaboration, Implementation, and Evaluation.
- Common pilot actions: an idea coming from a research team or a competition, a startup event, collaboration between similar laboratories, an advising committee.
- Cross-institutional TTOs innovation structures and functions: Common Innovation Hub, Common Mentoring Community and a Mentors Database, Events office, Monitoring and Evaluation department, Marketing department, Co-creation labs, Incubation entity. Below (Fig. 1), an abstract view of a TTO with common structures is presented.

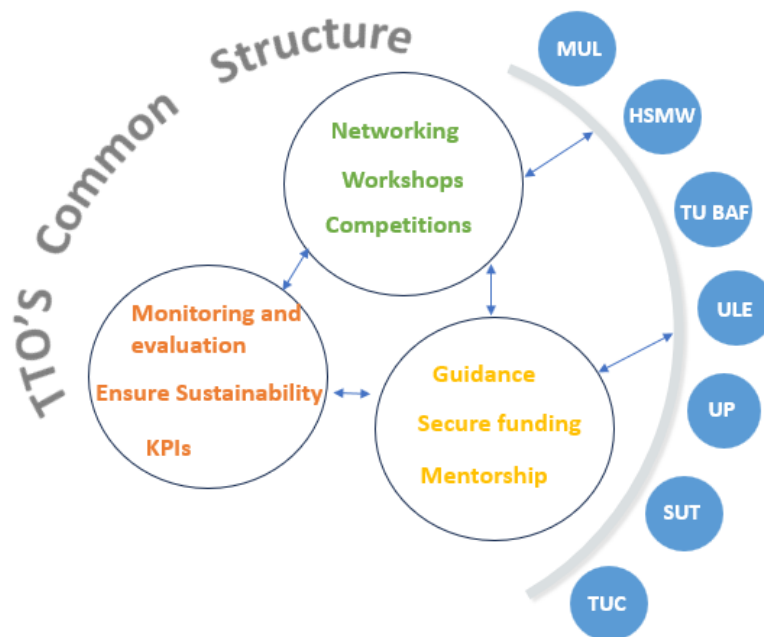


Figure 1. Common structures within the alliance, [2].

As the purpose of the “Strategy and Action plan” (D8.2) was to contribute within and beyond the project’s timeframe, the above-mentioned recommendations for actions, structures and functions were designed to be implemented beyond the time horizon of the specific project, to cultivate and pursue sustainable development and innovation methods in the academia, industry, and society, in the short and long term.

3.3 Design and implementation of pilot actions

By using as D8.2 [2] and Milestone 15 [4] as the basis for Milestone 16 [5], the scope was to conclude, based on the input received by the partner universities, on the Pilot Actions that were implemented (D8.3 [3]) in the alliance and thus provide additional feedback about the common elements for a joint innovation structure utilization strategy. At first, input for (1) Mentorship programs on innovation, (2) "Startup coffee" events and (3) Fabrication and Innovation labs was requested and provided by all partners of the alliance. From the responses, it was observed that:

- For the mentorship program, 6/7 universities have established a mentorship program and 4/7 have provided a list of mentors available to offer consulting services for free to student groups from any of the alliance universities (see Fig. 2 for details).



Figure 2. Mentorship program establishment/offering rate.

- For the “Startup coffee” events, 4/7 universities have organized Startup events to promote further the mindset and opportunities for developing an innovative idea into a Startup business or project. In the same context, Startup entities and Startup projects have been generated and maintained in 5 out of 7 of the alliance universities (see Fig. 3 for details).

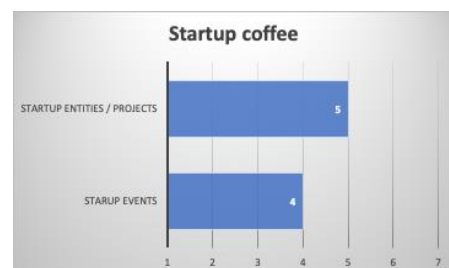


Figure 3. Startup coffee event organization/generation rate.

- Regarding the establishment of a horizontal fabrication and innovation lab, 4/7 universities operate at least one with scope and impact for all sectors of the university.

Based on the above results and the WP8's objective for a joint innovation structure utilization strategy the rationale of 'mentorship' and 'startup events' was underlined. In the context of proceeding with practical steps towards a 'Joint Innovation Strategy' - as the total outcome of WP8 - plus keeping the above as useful indicators, two pilot actions were thus implemented with the aim of promoting innovative thinking and connecting entrepreneurship and academia. The main parameters included the synergy of education, economy and society while promoting concepts of sustainability. The following pilots were established for the purposes of the project. These two pilots were achieved with the collaboration of mentors and students in innovative processes of turning ideas into sustainable plans and the contribution of all partners universities in a live event of innovative entrepreneurship.

The purpose of selecting these two pilot actions was to focus on feasibility and effectiveness so that they can be implemented on a regular basis after the end of the project and be promoted to encourage the involvement of students, entrepreneurs and society. The first pilot was about the **Mentors' contribution** to the Technical University of Crete Project Week (11-12-13 October 2023, TUC's premises), and the second was the **online Startup Coffee Event**, organized by the Technical University of Crete (4 April 2024, 19.00 – 20.30 Athens time). These two pilots functioned as forerunners and testbeds, for (1) **the utilization of a common mentorship database** and (2) **the regular establishment of online events between academic and entrepreneurial communities**.

For the **Mentors' contribution** pilot, contribution from the academic community and the entrepreneurial field and gender representation were achieved. In particular, a 49% of students were female and 51% were male, in a university where the male students outnumber female students. For the online **Startup Coffee event**, 2/3 speakers were female, representing the entrepreneurial and startup fields respectively. Also, the main topics that were highlighted were 'pitching'/presentation skills and the funding opportunities during the discussions and brainstorming that took place in both events and according to the

questionnaires' conclusions. Both pilot actions were also planned and implemented in a realistic manner to respond to time and energy constraints, to fit the needs of students, aspiring entrepreneurs and business people for comprehensive and brief input and networking. The agendas of both events were designed to be **utilized and adjusted easily by all partner universities to organize similar events quickly and effectively, even after the project's completion**. Moreover, the questionnaires included all main questions to evaluate all aspects of the events. Finally, the specific pilot actions were chosen and tested to function in a complementary manner to each other in future activities: students, mentors and entrepreneurs may participate and contribute interchangeably via providing practical input and promoting innovative thinking in similar events.

4. Indicators of impact assessment with a cost-benefit analysis

1. Design and create common TTOs

For the effective design and development of a common TTO, a set of guidelines needs to be established which also highlights potentially difficult processes (e.g., regarding legislation). Based on D8.2 [2], a common TTO structure can be established as stand-alone including

- ✓ Monitoring and evaluation of candidate innovation actions
- ✓ Ensure sustainability
- ✓ Monitoring of relative KPIs
- ✓ Promote networking,
- ✓ Perform workshops and competition
- ✓ Offer guidance of entrepreneurship and intellectual property protection
- ✓ Suggest and potentially secure funding
- ✓ Offer mentorship

The procedures which are related to the non-common features, such as legislation, will remain at the authority of each individual TTO. Communication is crucial to maintain a safe and timely procedural route.

2. Reduce barriers and challenges towards a common TTO (MS15 [4])

Legal and legislation frameworks and their bureaucratic processes: The issues of the increased numbers of legal articles and the degree to which they are understandable by the academic community are characterized as weaknesses along with the reluctance to risk and the tendency to orient towards short-term goals.

- ✓ **To solve some of challenges of legal issues**, a bureaucracy codex among universities should be developed to identify where the complexity in the legal frameworks lies. Relevant national legal frameworks need to be examined.
- ✓ **To solve the issue of the legislation addressed specifically to innovation:** a first step could be to examine it at a national level within the consortium framework, especially regarding innovation management and TTOs. **The increased number of legal articles could be further examined with an estimation that could be addressed to European Commission Officers and find common features among the legislation**

articles with a further goal to create a codex between national legislations. Relevance between the legislation articles should be also examined, and additional effort will be needed to create a codex between national legislations. Enhancing the clarity of the legal framework and the bureaucratic procedures could lead to more effective implementations of innovative actions.

3. Engage the Quintuple Helix model and implement a joint innovation strategy

The partner universities of RE-EURECA-PRO, EURECA-PRO and, of course, other EU academic partners can

- ✓ exploit the strengths of diverse stakeholders,
- ✓ catalyze innovation, and
- ✓ address arising challenges more effectively.

This collaborative approach promotes synergistic partnerships, fosters interdisciplinary research, and drives sustainable development and societal progress. In this sense, a holistic approach to fostering innovation needs to involve the promotion of industry engagement, the securement of government support, the involvement of civil society, the harnessing of the power of media, and the creation of collaborative structures. Through these efforts, universities can embrace innovation as a driving force for sustainable development. Thus, a potential approach should include Academic Institutions as Innovation Hubs, Industry Engagement, Government Collaboration, Civil Society Involvement, Media and Communication, Cross-Sector Collaboration, Implementation, and Evaluation.

4. Act with common pilot structures

To ensure acceleration of the TTOs' performance, common pilot structures are essential in terms of a priority list as follows

- ✓ Common Mentoring Community: mentoring database
- ✓ Events office: organization of an event
- ✓ Monitoring and evaluation department: define and measure initial indicators
- ✓ Co-creation labs: establish a first inter-alliance laboratory
- ✓ Common innovation hub: administrative workplan-Innovation Task Force
- ✓ Mapping, networking and matchmaking: provide findings and establish connections

On this basis, common structures can potentially be established, tested and evaluated in a time-framework beyond the present project.

5. Implementation of joint (academic and entrepreneur) pilot actions

In the context of RE-EURECA-PRO, the purpose of selected pilot actions (**Mentors' contribution** and **online Startup Coffee Event**) [3] acts on the feasibility and the effectiveness for re-implementation in other future projects and the promotion of the involvement of students, entrepreneurs and society. These pilots can also function supplementary to each other in future activities, meaning that students, mentors and entrepreneurs may participate and contribute interchangeably via providing practical input and promoting innovative thinking in similar events.

The pilot design and implementation should be in a realistic manner in order to raise successfully the following aspects:

- ✓ respond to time and energy constraints
- ✓ fit the needs of students
- ✓ aspiring entrepreneurs and businesspeople for comprehensive and brief input and networking
- ✓ Agenda design for efficient utilization and easy adjustment by all potential partner universities to organize similar future events quickly and effectively
- ✓ Efficient questionnaire design including all main questions to evaluate all aspects of the events

5. Impact for current and new activities of a future common TTO

Following the above-mentioned indicators, a base for new activities with regard to the common TTO vision is possible to be settled through the future and actual collaboration among the TTOs of the RE-EURECA-PRO partners. To make this possible the following directions can be adopted:

1. Exploit and accelerate the exchange of good practices such as
 - **Interdisciplinary** cooperation and **networking**, exchange of practices, experiences, and views in cooperation with European technology transfer centers
 - **Co-Creation Labs**: complementary professional strengths and experimental possibilities
 - A networking community empowering **innovative entrepreneurship**
 - Highly committed **mentor networks**
 - Organization of **actions** (competitions etc.)
 - Strong connection with **international industry**
 - Strong connection with **entrepreneurs**
 - Cooperation with scientific teams within the established scientific and industrial consortia, regulating the provisions on the joint right to **patent and copyright**
 - **Monitoring the market** situation to present reliable market data, including **presentations of opportunities, challenges, risks, and limitations**
 - Building and presenting **direct commercialization paths**
2. Reduce bureaucratic processes following a set of strategies [6, 7]:
 - ✓ **Standardize procedures**: Developing standardized templates and procedures for common tasks, such as licensing agreements and patent applications, can streamline operations. This reduces variability and ensures that all stakeholders are on the same page regarding expectations and requirements
 - ✓ **Efficient digitalization**: Utilizing digital platforms for document submission, review, and approval can significantly reduce paperwork and expedite processes. Electronic signatures can further speed up the signing of agreements.

- ✓ **Use of centralized information systems:** Creating a centralized database for TTO-related information ensures that all relevant data is accessible to stakeholders in real-time, avoiding duplication and inconsistencies.
- ✓ **Automated workflows:** Implementing automation tools for routine tasks such as reminders for patent renewals, follow-ups on agreements, and reporting can enhance efficiency. Workflow management systems can help track the progress of various projects.
- ✓ **Simplify approval processes:** Reducing the number of approval layers and delegating decision-making authority where appropriate can minimize delays. Establishing clear criteria for approvals helps in making quick and informed decisions.
- ✓ **Training and development:** Regular training for TTO staff on best practices, new technologies, and legal requirements keeps them updated and efficient. Encouraging continuous improvement and innovation in processes is also crucial.
- ✓ **Stakeholder engagement:** Maintaining open communication channels with researchers, legal teams, and industry partners ensures smooth collaboration. Regular feedback can help identify and address pain points in the process.
- ✓ **Policy reforms:** Advocating for policy changes at institutional or governmental levels can help remove unnecessary bureaucratic hurdles. Aligning institutional policies with industry standards can facilitate smoother interactions.
- ✓ **Performance metrics:** Establishing key performance indicators (KPIs) to monitor the efficiency and effectiveness of TTO processes allows for continuous improvement based on data-driven insights.
- ✓ **Outsource non-core activities:** Outsourcing tasks that are not core to the TTO's mission, such as administrative support or market research, can allow staff to focus on primary objectives.

Implementing these strategies can significantly reduce the bureaucratic burden on TTOs, allowing them to focus more on their primary mission of facilitating technology transfer and commercialization.

3. Promote new projects and initiatives with the EU:

The promotion of new projects and initiatives to establish a common Technology Transfer Office (TTO) within the RE-EURECA-PRO / EURECA-PRO consortium and beyond EU involves coordinated efforts across multiple levels of governance, institutions, and industry partners. Several initiatives [8] that could help in achieving this goal are, for example:

- ✓ **EU-Wide Research Consortia**
 - Horizon Europe Framework Program: Utilize the Horizon Europe funding to create research consortia that bring together universities, research institutions, and industry partners across EU member states. This program can support collaborative projects focused on technology transfer and commercialization.
 - EUREKA Network: Engage with the EUREKA network, which promotes cross-border cooperation in research and development. By participating in EUREKA projects, institutions can share best practices and develop joint technology transfer initiatives.
 - Unified IP Management Systems:
 - European Patent Office (EPO) Collaboration: Partner with the EPO to develop a unified intellectual property management system that can be used by TTOs across Europe. This system can streamline patent applications, licensing agreements, and IP protection processes.
 - Standardized Licensing Agreements: Create standardized licensing agreements that can be adopted across EU member states to facilitate smoother and faster technology transfer.
- ✓ **Digital Infrastructure for TTOs:** Develop a centralized digital platform for TTOs that allows for the sharing of resources, best practices, and technology transfer opportunities. This platform can include databases for patents, licensing opportunities, and market analysis tools.
- ✓ **Training and Capacity Building:**
 - EU-Wide Training Programs: Establish training programs and workshops for TTO staff across Europe to build capacity and share best practices. These

programs can be funded by EU grants and can cover topics such as IP management, commercialization strategies, and negotiation skills.

- Exchange Programs: Promote exchange programs that allow TTO staff to work in different institutions across Europe, facilitating the transfer of knowledge and best practices.
- ✓ **Policy and Regulatory Harmonization:** Advocate for the development of an EU-wide technology transfer policy that harmonizes regulations and procedures across member states. This policy can address issues such as IP rights, funding mechanisms, and support for startups.
- ✓ **Regulatory Sandboxes:** Create regulatory sandboxes that allow for the testing of new technology transfer models and processes in a controlled environment. This can help in identifying and scaling successful practices across the EU.
- ✓ **Public-Private Partnerships:**
 - Collaborative Innovation Hubs: Establish innovation hubs that bring together public research institutions, private companies, and government agencies to work on joint technology transfer projects. These hubs can provide funding, mentorship, and resources to accelerate commercialization.
 - Industry Collaboration Programs: Launch programs that encourage collaboration between academia and industry, such as joint research projects, co-development agreements, and industry-sponsored research.
- ✓ **Performance Metrics and Evaluation:**
 - EU Technology Transfer Scorecard: Develop a scorecard to evaluate the performance of TTOs across Europe. This scorecard can track key metrics such as the number of patents filed, technologies licensed, and startups created. Sharing these metrics can help identify best practices and areas for improvement.
 - Benchmarking Studies: Conduct benchmarking studies to compare the performance of TTOs across Europe and identify successful strategies and models that can be replicated.

By implementing these initiatives, a more integrated and efficient technology transfer ecosystem can be fostered, enhancing innovation among RE-EURECA-PRO and EURECA-PRO partners and competitiveness across EU member states.

6. Synopsis

The main focus of D8.4 is on developing indicators for impact assessment related to innovation performance within member universities. This involves creating an integrated framework that evaluates resources and outcomes, emphasizing sustainability across economic, social, and environmental dimensions.

The past and current activities include descriptions for 1) current innovation structures that highlight common characteristics and differences among the consortium's universities. Best practices from successful cross-institutional TTO models are considered for improving existing TTOs and developing a common TTO. Objectives include academic institutions acting as innovation hubs, industry engagement, government collaboration, civil society involvement, and media communication. Recommendations for common pilot actions, such as mentorship programs, startup events, and co-creation labs, are provided. 2) Pilot actions promote innovative thinking and connect academia with entrepreneurship. Successful examples include “mentorship programs” and "Startup Coffee" events, which engage students, mentors, and entrepreneurs in innovative processes. Guidelines for designing a common TTO structure emphasize monitoring and evaluation of innovation actions, ensuring sustainability, promoting networking, performing workshops, offering mentorship, and addressing legal and bureaucratic challenges through standardization and harmonization efforts.

To promote new projects and initiatives within the EU, suggestions include utilizing Horizon Europe funding for research consortia, collaborating with the European Patent Office for unified IP management systems, establishing EU-wide training programs and exchange initiatives for TTO staff, creating regulatory sandboxes to test and scale new technology transfer models, and developing public-private partnerships and performance metrics to evaluate TTO performance. Implementing these strategies aims to create a more integrated and efficient technology transfer ecosystem, enhancing innovation and competitiveness across EU member states. This comprehensive approach not only aims to streamline current processes but also sets a foundation for future collaboration and innovation within the European Higher Education Area, in alignment with sustainable development goals.

7. References

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