

REPORT:

STATUS MAPPING OF KNOWLEDGE VALORISATION IN LOCAL ECOSYSTEMS

Activity 2.1

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CONTENT

EXECUTIVE SUMMARY	2
1. INTRODUCTION	3
1.1. Objectives of the WP and activities	3
1.2. Content of the report	3
2. METHODOLOGY	3
3. RESULTS	4
3.1. Local ecosystem's description	4
3.1.1. University of Stavanger	4
3.1.2. Autonomous University of Barcelona	8
3.1.3. University of Trento	12
3.1.4. Linköping University	17
3.1.5. Kaunas University of Technology	23
3.2. Current initiatives designed to promote and develop KV practices	27
3.2.1. Training	28
3.2.2. Programmes	33
3.2.3. Activities	36
3.3. Best practices	39
Best Practice 1: Innovation mornings (UAB)	41
Best Practice 2: AI4ALL (UAB)	43
Best Practice 3: Innovation Certificate (University of Trento)	45
Best Practice 4: Crash Course on IP protection and valorization (University of Trento)	47
Best Practice 5: Research to Business (R2B) (University of Trento)	49
Best Practice 6: Sommarmatch (LiU)	51
3.4. KV best practices from other European institutions	52
4. CONCLUSIONS	52

EXECUTIVE SUMMARY

This report presents the outcomes of **Activity 2.1: Mapping the Status of Knowledge Valorisation (KV) in Local Ecosystems**, a key component of Work Package 2 (WP2) within the CEETNOVA project. As a foundational phase, WP2 is instrumental in setting the stage for the design and development of the KV training package to be delivered in WP3.

The primary objective of this report is to provide a comprehensive assessment of the current KV landscape across partner institutions, including an analysis of each local innovation ecosystem and existing KV-related efforts. This mapping exercise establishes a robust evidence base to guide the creation of relevant, targeted, and impactful training solutions in the next phase of the project.

This report includes:

- Detailed descriptions of the five local ecosystems, highlighting key stakeholders, infrastructures, and contextual elements.
- An overview of existing KV-related trainings, programmes, and activities at each partner institution.
- The identification and documentation of institutional best practices, assessed for their success, impact, scalability, and relevance.

Together, these findings offer valuable insights into the current state of KV in each context and support the strategic alignment of future project activities with actual needs and opportunities in the field.

1. INTRODUCTION

The objectives of Work Package (WP) 2 and the associated activities are designed to accomplish the overall goal of the WP. An overview of the objectives of the WP, activities and the content of the report is provided in the following subsections.

1.1. Objectives of the WP and activities

The main goal of WP2 is to lay the groundwork for the following WPs. In particular, it is aimed to facilitate the ground to design the KV training package to be developed in WP3 and it has the following main objectives:

- Mapping the current status, best practices and state of the art not only at each partner institution and in its I&E ecosystem but also at the European level.
- Identify KV ambassadors' needs, knowledge, skills and competences' gaps as perceived by quadruple helix actors with the aim of facilitating the translation of research findings and knowledge into societal value effectively.
- Organise and systematise the collected information as a preparatory step for the next WPs with the aim to overcome the detected gaps in KV. Compare the skills and competences accomplished in the current learning opportunities offered at the five HEIs with the skills and competences detected by quadruple helix actors to fulfil the market needs.

The activities of WP2 are:

- 1) Status mapping of KV in local ecosystems.
- 2) Survey to identify skills and competences gaps design, and,
- 3) Portfolio of skills and competences for KV ambassadors.

1.2. Content of the report

This report will focus on Activity 2.1: Status mapping of KV in local ecosystems. In particular, it will review the methodology used to map the ecosystems and the results obtained in the mapping to build a comprehensive view of the characteristics of each ecosystem.

2. METHODOLOGY

To gather the information of the partners, a template with guiding questions was distributed. The partners had to fill the following information:

1. Local ecosystem description: key stakeholders, infrastructures, economic and industrial environment, innovation and research networks, support systems, social and cultural context.
2. Current trainings/programmes/activities designed to promote and develop KV practices. In this section, the partners had to fill an excel file with all their relevant training and their particularities with the idea to serve as a base to build the KV training package within WP3.
3. KV best practices from your institution. From the reported trainings/programmes and activities list, partners had to select the most relevant initiatives that they identify as best practices at their universities and that could be of interest for the project partners and/or could be used during the CEETOVA project. The suggested criteria to identify best practices are: evidence of success, clear outcomes, societal or economic impact, novelty, transferability and scalability, multiple stake-holder engagement.
4. KV best practices from other European institutions. The idea is to expand our collection of best practices beyond the consortium to develop a comprehensive understanding of effective KV practices across Europe.

All partners joined an on-line meeting on the 2nd of December 2024 to present their ecosystem and to discuss the results of the KV-related initiatives mapping and best practices identification.

3. RESULTS

3.1. Local ecosystem's description

3.1.1. University of Stavanger

University of Stavanger (UiS) is located in Rogaland in the Southwest of Norway, which is recognized as one of the 149 **Regional Innovation Valleys** in the EU. The key industries in the region include energy, maritime industries, agriculture, aquaculture and fishing, and tourism. When oil was found in the North Sea at the end of 1960s, Rogaland became the hotspot for the development of the oil and gas industry. Thanks to its already existing expertise and competence in shipbuilding, Rogaland has quickly grasped the opportunity to diversify and acquire excellence across the whole supply and value chain of the oil and gas industry, including subsea technology. However, the region undergoes a transition into diversify its economy to the direction of renewable energy sectors, such as offshore wind, carbo capture and storage, batteries and hydrogen. In this regard, the region takes part in the EU's Mission Climate Adaptation and the EU Mission for 100 climate-neutral and smart cities.

The smart specialization strategy (S3) of Rogaland identifies four main priorities:

- (1) **Clean Energy and Maritime:** Leveraging expertise from the oil, gas, and maritime sectors, Rogaland is well-positioned to advance renewable energy technologies such

as hydropower systems, offshore wind, and hydrogen solutions, contributing significantly to the green transition. With extensive experience across the entire energy production value chain from offshore oil and gas resources, Rogaland can effectively transfer this knowledge to renewable energy sectors. The region is home to major multinational headquarters—both national and international—and a robust supplier industry of small and medium-sized enterprises, highlighting a world-class skill base with strong global connections.

- (2) **Food: Agriculture and Aquaculture:** S3 envisions building comprehensive value chains that span from farm to table and sea to table, focusing on sustainable resource use and circular economy practices. The strategy aims to enhance linkages between agriculture and aquaculture, leverage existing technological expertise along the agri-food and seafood value chains, and foster stronger collaboration among key stakeholders.
- (3) **Tourism and Experiences:** S3 seeks to promote entrepreneurship by fostering cross-sector collaborations among key stakeholders, including agricultural farms, the events industry, transportation, and IT companies. The goal is to develop a sustainable, year-round tourism model that leverages local natural and cultural assets with the support of technology.
- (4) **Smart Societies:** The aim is to develop a Nordic model for smart societies by integrating digital infrastructure, emerging technologies like big data and AI, and core societal values. This approach seeks to address societal challenges more effectively and drive the sustainable transformation of society.

Rogaland I&E Ecosystem

UiS is a central actor in the regional I&E ecosystem as being the main knowledge creation and competence development organization. UiS has 12 000 students full and part time and 1 600 faculty and staff and is still growing both in numbers and scope of operations. Six faculties and one archaeological museum comprise its main units together with a number of departments, research centres and networks within the main fields of academic activity. These are health and welfare, energy and technology, education, performing arts, social sciences and humanities, hotel management, business administration and media production.

The research at UiS is organized along 3 main axes – energy, health and welfare, learning for life – centered around “green transition” as the underlying theme. UiS hosts several national research centers on various domains representing the axes. These include National Centre for Sustainable Subsurface Utilization of Norwegian Continental Shelf (**NCS 2030**), Norwegian **Reading Centre**, Centre for **Learning Environment**, Knowledge Centre for **Education**. Other prominent research centers at UiS are Centre for Resilience in Healthcare (**SHARE**), Center for Innovation Research (**CIR**), Centre for Research in Early Education and Care (**FILIORUM**) and **The Greenhouse Center** for Environmental Humanities. Apart from official research centres, there are a number of research groups, clusters and networks. Some examples include

Stavanger AI Lab (**SAIL**), Cluster on Industrial Asset Management (**CIAM**), Smart Sustainable Cities Research **Network**, Network for **Welfare Research**, Ocean Technology Innovation Cluster Stavanger (**OTICS**) and Sustainability and Circular Economy Research Cluster (**ScERC**).

Student Entrepreneurship

The incubation house – **Lyspæren** is a physical space for students, employees at UiS and external parties provided the facilities are to stimulate creativity, innovation, entrepreneurship and sustainability. Lyspæren facilitates courses, workshops, hackathons, and other events in addition to being a place where students can work on their innovation/entrepreneurial projects. LevelUp UiS is the service that provides guidance to students with entrepreneurial ideas. LevelUp also runs the StartUp Booster, which is the start-up entrepreneurship incubator programs that are run at Lyspæren. The program is suitable for you with an idea, or a student-run company that wants to test and further develop its innovative and innovative idea through a tailor-made programme. The program deals with various elements and phases of the start-up and development of a product or service. LevelUp also arranges several other events such as a pitch workshop, IPR workshop, idea workshop and entrepreneurs' lunch.

Key Ecosystem Players

The regional I&E ecosystem in Rogaland is a good representation of a quadruple helix and involves the following main actors:

Public Sector: Rogaland County Council and Stavanger Municipality plays a major role together with the municipalities of Sandnes and Sola. In general, they support initiatives of the University of Stavanger especially in terms of attracting new talents. They also provide small scale funding for companies to support their green transition, such as the recent “Sustainable restructuring in Rogaland” program operated by Rogaland County Council. Stavanger Municipality provides funding for the Ullandhaug Innovation District project in order to establish an innovation district at the UiS campus area.

Research Institutes: **NORCE**, a nation-wide applied research institute, has a branch in Stavanger is located in the UiS campus area organized into six research areas: energy; health; climate; environment; society; and technology. It has a long tradition of collaboration with UiS especially in the domains of circular economy, energy technologies and societal development. The region also hosts several specialized branches and offices of universities, research institutes such as Western Norway University of Applied Sciences (HVL) in Haugesund, Norwegian Business School (BI), Norwegian University of Life Sciences (NMBU) in Sørheim, Norwegian Institute of Bioeconomy Research (NIBIO) in Sandnes, and Norwegian Food Research Institute (NOFIMA).

Innovation Intermediaries: **Validé AS** is an innovation and technology company with different missions for the entire regional I&E ecosystem. First, it acts as the Technology Transfer Office for the region. It is responsible for the management of intellectual property rights stemming from UiS and Stavanger University Hospital (SUS). In collaboration with UiS, Validé is

responsible for implementing the **Pløgen program**, which is a regional initiative in Rogaland designed to support research-driven innovation projects that lead to new product and service development or impact society in other meaningful ways. The program plays a crucial role in advancing technologies from the foundational research stage (TRL 1) through technology optimization (TRL 2-4) and Proof of Concept stages (TRL 4-6). Validé is one of the oldest and most recognized incubators in Norway. In particular, they specialize in business areas of Energy, Health and Digitalization/Smart Tech. Since 2024, it hosts a separate incubator for health. It also runs accelerator programs (**ITSA Start** and **ITSA Growth**) and provides mentoring for start-ups/scale-ups. Finally, Validé is a funding body through its investment funds. Additionally, Validé hosts the management of the Norwegian Smart Care Cluster (soon to become a national supercluster as 'Norwegian Health Tech').

Other innovation intermediaries including **Innovation Park**, **Innovation Dock** and **FOMO** mainly act as co-working spaces. Innovation Park Stavanger is home to more than 154 companies with about 1300 employees. Havets Hus - House of the Sea in English - is located in Innovation Park and acts as a powerhouse for growth and innovation in the aquaculture industry for entrepreneurs and early-stage companies, as well as established companies in aquaculture and aqua technology. **HelseCampus Stavanger** – a UiS initiative with strong collaboration with public and private sector – is an innovation and co-creation arena in the health sector for academia, healthcare providers, business, patients and their next of kin that are located at Innovation Park.

Apart from offering a co-working space for innovators, Innovation Dock is very active in terms of activating the regional ecosystem through networking events like **Impact Awards**. Innovation Dock engages with technology start-ups through its tailored mentoring services accelerator programs, such as **Fauna Eksperimentet** for sustainable business development and **GründerLab** a four-month program for early-phase startups. Innovation Dock also provides investment for the ventures participating into these programs. Innovation Dock has played a role in the internationalization of the regional I&E ecosystem especially through its connections with the USA, in specific Houston area.

FOMO is also a co-working space with very active programming events for its residents. It also hosts **FOMO Renew Hub**, which is a hub and collaboration platform for innovative start-ups and companies active in the renewable energy sector. FOMO has extensive collaboration with UiS in terms of student projects and guest lectures.

Another significant player is **Nordic Edge**. Starting as the Smart City Innovation Cluster, Nordic Edge is located at **Innoasis** - a co-working space bringing together a vibrant community within smarter and greener cities and societies. Innoasis is a hub hosting several events throughout the year for its own community and beyond the regional ecosystem. Nordic Edge has also expanded its activities and works for establishing an Agritech cluster in the region. Also, it hosts the **European Digital Innovation Hub (EDIH) Oceanopolis** project. Through active programming, Nordic Edge engages heavily with UiS such as it organizes pitching sessions, thesis matchmaking events for master's students and providing an office space for students to work on their projects with Nordic Edge members.

Industry Clusters: Rogaland is home to the headquarters of six industrial clusters including Energy Transition Norway, Norwegian Offshore Wind Cluster, Stiim Aquacluster, Nordic Edge Smart City Innovation Cluster, Norwegian Smart Care Cluster (merged with Norwegian Health Tech Cluster in 2025), VIA Vital Infrastructure Culture Cluster. Two other clusters, namely NCE Maritime CleanTech Cluster and NCE Media Cluster, also have their branch offices in Stavanger. Around 2,000 companies have membership into these industrial clusters.

Industry: There are large corporations located in Rogaland especially in oil and gas sector around which the whole value chain is constructed. They have recently started to be engaged more actively with the regional I&E ecosystem. Among these companies, Equinor - the national energy company, and Lyse - the local energy and IT infrastructure company, stands out through their strategic partnership agreements with UiS. They have also joined forces to generate a scholarship fund in order to attract international students to the region.

Funding Partners: The local funding partners involve the University Fund for Rogaland, Uilaførrefondet, SR-Bank Foundation which provide small-scale funding for collaborative R&I projects. Innovation Norway and Research Council of Norway are the main national funding agencies responsible for the development of R&I ecosystems around the country. Also, Valide AS has its own investment fund.

3.1.2 Autonomous University of Barcelona

UAB Ecosystem: The B-30 Territory

The Autonomous University of Barcelona (UAB) is located in the B-30 Territory, which is one of the key industrial hubs for innovation, research and entrepreneurship in Southern Europe. The name of B-30 comes from B30 highway, which is one of the most important traffic hubs in all of Catalonia. It has a population of 1 million inhabitants, distributed in 23 municipalities. There are around 1,300 industrial sector companies that have a medium-high/high level of technology and place a clear emphasis on exportation. It is therefore an area of great economic vitality and offers a wide range of opportunities to companies and economic actors (Figure 3.1).

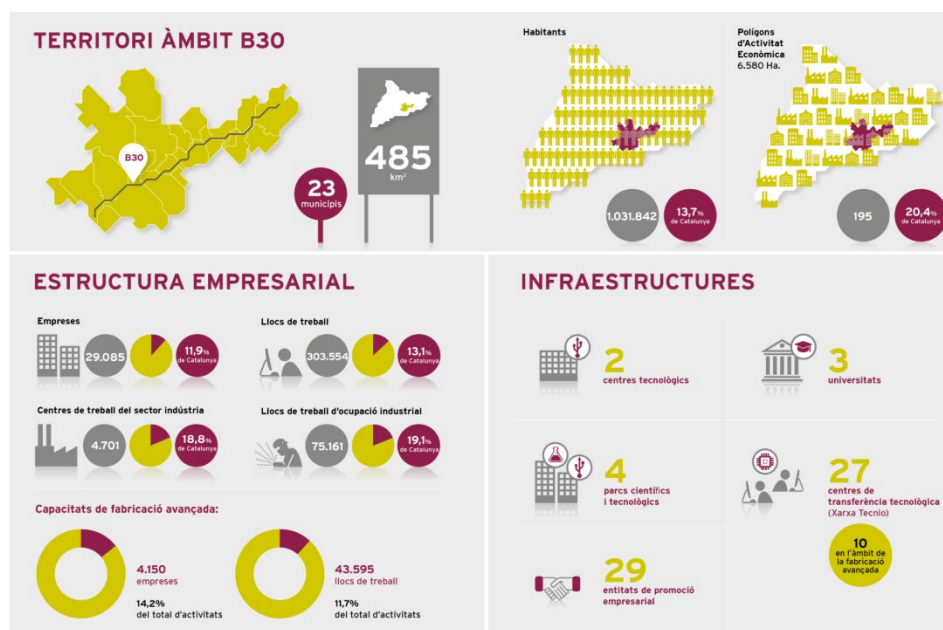


Figure 3.1: The B30 in figures (23 municipalities, an area of 485 km² + 6.579 ha. of industrial land, 1.031.842 inhabitants, 29.085 companies, 303.354 employees, 195 economic activity areas, 27 business centers and areas of economic activity, 3 universities, 2 technologic centers and 4 technological and scientific parks)

As so, UAB is deeply integrated into a dynamic local and regional ecosystem in the Barcelona metropolitan area, specifically within the context of the **HubB30** and **Àmbit B30** networks.

The **Àmbit B30** Association, given the potential of the area and the desire to promote its development, has defined a collaboration strategy between businesses, research centers, universities, municipalities, business organizations, trade unions, and governments to position this area as one of the most innovative industrial regions in Catalonia, Spain, and with the ambition to become a leader in Southern Europe. Since 2017, it has been working on defining a strategy and action plan to promote the circular economy, which has already identified sectors with the greatest potential and developed circularity strategies.

In parallel, The UAB Research Park, the Autonomous University of Barcelona, Eurecat and the Àmbit B30 Association have created the **Hub b30** to promote innovation in small and medium-sized companies in the territory. It is a platform that supports companies and institutions to detect their challenges and needs to improve their competitiveness, and offer them the most appropriate solution, through collaboration and interaction.

Universities, Research Centers and Research Infrastructures:

Along the B-30, two major public universities, **UAB** and **UPC**, house not only their own departments but also research institutes and centers from **CSIC**, **IRTA**, and the **CERCA** program of the Government of Catalonia. In fact, **UAB Sphere** includes more than 40 research centers that operate in order to contribute to scientific progress and territorial development. Finally,

this area also benefits from powerful technology and knowledge transfer agents, as well as organizations dedicated to promoting innovation. Among these, we would highlight, **Vallès Technology Park**, **UAB Research Park**, **Eurecat**, **Leitat**, and others.

The B-30 Territory, houses the Alba synchrotron light laboratory and, covering 340 hectares, is one of the most advanced research facilities in the world. It is also creating a scientific, technological, and business platform of European scale, with the potential to generate 40,000 high-value jobs linked to the world's most dynamic sectors.

UAB Innovation services/facilities/programmes and networks for academic staff:

The **Knowledge Transfer and Research Valorisation Office** at the Universitat Autònoma de Barcelona is responsible for managing the university's research results, with the aim of transferring them to society.

The CORE (**Communities Oriented to Strategic Challenges**) are networks of research, generators of knowledge, formed by research centres and groups from the UAB Campus of International Excellence, as well as agents of the territory involved in solving strategic challenges (administrations, citizens, companies, etc.) These networks aim to be a driving force behind the UAB-CIE Sphere's potential in research and knowledge transfer (to industry and society in general), within a critical environment and as part of a leading European hub.

UAB open labs constitute an ecosystem where people collaborate for the successful and innovative development of projects and ideas (also open to students and citizens).

The **UAB Research Park** is a non-profit organization created in 2007 by the Autonomous University of Barcelona (UAB), the Higher Council for Scientific Research (CSIC) and the Institute of Research and Technology (IRTA). Its mission is to promote and enhance the technology and knowledge transfer activities of its members, encourage entrepreneurship through the creation of new businesses based on research and generally facilitate interaction between research, business and society. The park hosts over **60 companies**, including **startups** and **multinational corporations**, particularly in the fields of **biotechnology**, **ICT**, **life sciences**, and **engineering**. It provides infrastructure such as **laboratories**, **offices**, and **co-working spaces**, creating a dynamic environment for R&D and commercialization of scientific breakthroughs.

From a research approach, the Centre for entrepreneurship and social innovation research-CREIS was created to generate knowledge around the entrepreneurship and social innovation fields, obtaining data and analyzing this phenomenon in depth, with an interdisciplinary team of researchers.

UAB Innovation services/facilities/programmes and networks for students:

UAB also holds a set of services/initiatives to foster entrepreneurship and innovation among university members, with special focus on students:

The Centre for University Entrepreneurship-CIEU offers services to undergraduate programs, which, for example, organize two entrepreneurship awards to foster entrepreneurship among

students: The “award to the most entrepreneurial idea” and “award to the most entrepreneurial person”.

The Innova Space in Social Entrepreneurship (eines) is a stimulus and support project for social entrepreneurship led by the Autonomous University of Barcelona (UAB). The aim of eines is narrowing the synergies between university and society in a dynamic and sensitive field such as social transformation and the improvement of well-being. This project is structured in different lines of action in **research, training** and **transfer**. The chair in Entrepreneurship and social innovation calls the eines Awards annually, devoted to distinguish activities of social transformation under the framework of the United Nations' seventeen sustainable development goals.

The UAB Emprèn Program brings together a range of initiatives and activities carried out on the UAB Campus with the aim of promoting an entrepreneurial spirit—transversally and multi-disciplinary—among the university's students and graduates. The program provides users with information and training on entrepreneurship, with a special focus on social entrepreneurship and cooperativism, to facilitate and encourage the generation of ideas.

Economic and Industrial Environment:

The region's economy is highly diverse, with key industries in **healthcare, technology, biotechnology, manufacturing, and tourism**. UAB is particularly active in sectors such as **bio-tech, ICT, and digital innovation**, which align with the priorities of **HubB30** and **Àmbit B30**. The RIS3CAT 2030 Strategy for smart specialization in Catalonia outlines the development of seven **shared agendas** with the goal of fostering a more sustainable, equitable, and resilient society. These agendas are focused on key areas that are crucial for the region's long-term economic and social development. Here is an overview of the seven agendas outlined in the strategy:

1. A Sustainable, Just, Equitable, and Healthy **Food System**
2. A **Neutral-Emission Energy and Resource System** that Respects the Environment
3. A **Sustainable Mobility and Logistics System**
4. A Universal, Sustainable, and Resilient **Socio-Healthcare System**
5. A Reflective, Anticipatory, Inclusive, and **Responsive Education** and Knowledge Generation System
6. A Sustainable and Competitive **Industrial System**
7. An Integrating **Cultural System** of People, Territory, and History

Government bodies, initiatives and international cooperation:

Local governmental bodies such as the **Government of Catalonia (Generalitat de Catalunya-Gencat)** and **Barcelona City Council** actively support research and innovation through policies and funding programs. The Catalan Government actively promotes the participation of Catalan entities in European programmes and fosters complementarity and synergies between projects financed by different funds and programmes (particularly between the ERDF, Horizon Europe and the Cosme and Interreg programmes). In fact, Catalonia is the third EU

region to attract the most European funding for research and innovation projects, with over 1,000 million euros

ACCIÓ, the Agency for Business Competitiveness of Catalonia, participates in thematic platforms and European innovation networks with the aim of positioning Catalonia and Catalan companies in Europe. Its team provides support to companies and organisations to develop innovation projects financed with European and international funds. Moreover, its 40 offices outside Catalonia offer assistance to Catalan entities seeking to cooperate with partners from all over the world in innovative and technological projects and initiatives. ACCIÓ also coordinates the Catalan node of the European Enterprise Network, which facilitates the search for partners and technology in Europe, disseminates activities of interest to companies and promotes their participation in European and international forums.

The European and International Projects Service (SPEI), of the Agency for Management of University and Research Grants (AGAUR), offers support for the internationalisation and leadership of European research projects, and facilitates communication and coordination channels for stakeholders managing research.

Catalonia benefits from NextGenerationEU funds, through investments in **digital transformation, green energy, sustainable industries, and research**. The funds are also used to improve **public health, education systems, and social services**. Gencat has identified priority areas for **investment**, such as the **digitalization of public services, smart cities, green technologies, and sustainable mobility**.

The RIS3CAT Strategy focuses on developing Catalonia's competitive advantage through **smart specialization** in specific sectors such as **advanced manufacturing, biotechnology, energy, and ICT**. EU funds are used to support **innovative clusters, startups, research partnerships, and technology transfer** initiatives. These funds aim to foster **collaboration between academia, industry, and government** to promote innovation and entrepreneurship.

3.1.3. University of Trento

Economic and Industrial Environment of Trentino Region

Trentino boasts a diverse and resilient economy with a unique blend of traditional and modern industries, rooted in its historical strengths while embracing innovation.

Key Economic Drivers

- **Tourism:** Trentino is renowned for its tourism industry, driven by the stunning Dolomite Mountains, picturesque valleys, and a rich cultural heritage. The tourism sector is an essential economic driver, particularly for winter sports, mountain biking, hiking, and agritourism. This industry has a ripple effect on sectors such as hospitality, gastronomy, and local crafts.
- **Agriculture and Agri-Food:** Agriculture in Trentino is marked by high-value produce, including apples (e.g., Val di Non D.O.P. apples), wine (e.g., Trento DOC sparkling wines), and dairy products. Agri-food innovation is supported by institutions like the

Fondazione Edmund Mach (FEM), focusing on sustainable practices, precision farming, and product development for both local and export markets.

- **Industrial Manufacturing:** The manufacturing sector in Trentino includes precision engineering, mechatronics, automotive components, and machinery. The region's strength in mechatronics is reflected in *Polo Meccatronica* in Rovereto, a technology park dedicated to developing next-gen manufacturing technologies.
- **Construction and Woodworking:** With a rich forested landscape, the wood industry remains significant, encompassing timber production, furniture, and sustainable construction materials. Trentino promotes green building technologies, including the use of wood-based energy and energy-efficient architecture.
- **Renewable Energy and Environmental Sustainability:** Trentino is a leader in renewable energy, focusing on hydropower, solar energy, and smart energy systems. The region prioritizes environmental sustainability, reflected in projects like smart grids and energy-efficient buildings.
- **Technology and Digital Innovation:** Trentino is home to a vibrant tech sector supported by institutions like the Fondazione Bruno Kessler (FBK) and the University of Trento. Key areas include artificial intelligence, data science, IoT, robotics, and cybersecurity. The technology sector benefits from partnerships with businesses, public institutions, and international organizations, fostering an environment for research and commercialization.
- **Health and Biotechnology:** This sector is growing rapidly, driven by innovation in biomedical research, drug discovery, and healthcare technologies. Initiatives such as the development of RNA-based therapies, oncology solutions, and healthcare-focused biotech startups highlight the region's strategic focus on health innovation. The collaboration between academic institutions and industry accelerates medical research and its practical application.

Key Sectors in the Regional Economy

- **Education and Research:** The University of Trento ranks among the top in Italy for research and innovation, particularly in STEM fields. The university collaborates closely with local industry partners, fostering technology transfer and spin-offs. Other research institutions, such as FBK and FEM, play a pivotal role in driving digital transformation and applied research in key areas.
- **Small and Medium Enterprises (SMEs):** Trentino's economy is characterized by a strong presence of SMEs, which are the backbone of the region's economic fabric. These enterprises span diverse sectors, from traditional crafts to high-tech services, and benefit from regional support through innovation clusters, grants, and business development initiatives.

- **Cooperatives:** The cooperative system is an essential element of the economy, particularly in agriculture, credit services (cooperative banks), and consumer goods. It fosters social cohesion and economic resilience.
- **Cultural and Creative Industries:** Trentino supports cultural and creative industries, including arts, film, design, and heritage projects. These contribute to the economy through creative services, tourism integration, and regional branding efforts.
- **Other key players** in the local ecosystem include the Provincial Health Services Agency and the Artisans Association of Trentino – Confartigianato.

Strategic Focus Areas for Economic Growth

- **Smart Specialization Strategy (S3):** Trentino has adopted a Smart Specialization Strategy, focusing on innovation-driven sectors such as ICT, mechatronics, life sciences, and agrifood. This strategy aligns public investment, research priorities, and industry collaboration to maximize economic impact.
- **Sustainability and Green Economy:** Sustainability is embedded across sectors, from tourism to industry, with strong support for eco-friendly practices and green innovation. This commitment reflects global climate goals and attracts investment in renewable energy and sustainable technologies.
- **Trentino's Innovation and Valorisation Ecosystem:** The local innovation ecosystem for social and economic territorial development relies on university-level education, public and private research and development, and industrial innovation. It is the result of effective synergy among the Government of the Province of Trento, public and private research entities, local development organizations, innovation agencies, a business support system, a competence center for digital transformation, and banking foundations. Education, research, business, public administration, and citizenship thus contribute, with distinct competencies and from complementary worlds, to creating value with the ultimate goal of making the economic and social system as a whole competitive. This process involves mapping and listening to territorial needs, fostering innovative processes that lead to economic and social well-being for the regional population, and developing strategic documents and studies based on the data and results of research. This blend of professionalism, skills, and ideas enables the region to be among the most advanced nationally and at the European level. According to the OECD, Trentino is the Italian province with the best ratio between population and the number of innovative startups.

Main actors in Trentino's innovation ecosystem

The University of Trento (www.unitn.it) is a public center for education, research, dissemination, and technology transfer. Founded in 1962, it offers over 90 degree programs, master's degrees, specialization schools, and active doctoral programs. It has over 16,000 students enrolled in areas such as physics, engineering, socio-economic, and humanities sciences. Its

portfolio includes over 40 active patents, software, and technological know-how and hundreds of active contracts with companies for effective technology transfer and joint research activities.

The Bruno Kessler Foundation (FBK, www.fbk.eu) is a private research center. It conducts research and applied activities in sectors such as Cybersecurity, Digital Society, Digital Industry, Digital Health and Well-being, Health Emergencies, Sustainable Energy, Sensors and Devices, Theoretical Physics, as well as evaluation research on public policies and Historical and Italo-Germanic Religious Studies.

The Edmund Mach Foundation (FEM, www.fmach.it) is a private research center. For almost 150 years, it has been engaged in key sectors such as agriculture, environment, and food, with educational and training activities, scientific research, and technology transfer, making it a unique center in Europe.

Hub Trentino Innovazione (HIT, www.trentinoinnovation.eu) is a public innovation agency. It ensures the connection between research and innovation. HIT adds value to research results by promoting the economic and social development of Trentino through dissemination and technology transfer activities. From 2019 to today, HIT has promoted 130 technology transfer activities from research to the market, supported around 110 startups, raising over €30 million in revenue and securing €10 million in grants for the territory through community projects.

Trentino Sviluppo (www.trentinosviluppo.it) is a public agency for business development and destination marketing. Since 1986, Trentino Sviluppo has been the system company of the Autonomous Province of Trento for supporting businesses, innovation, the creation of strategic clusters, internationalization, business location, and territorial marketing. It manages two technology hubs and four Business Innovation Centers hosting 850 employees of companies, and it manages assets worth over €1 billion.

Polo Meccatronica (www.polomeccatronica.it) is a certified incubator by the Ministry of Economic Development (pursuant to Art. 25, Law 221/2012). Within Polo Meccatronica, actors from production, education, and research sectors can interact and collaborate, advancing mechatronics, which combines computer science, electronics, mechanics, hydraulics, pneumatics, and sensors. The coexistence of startups, university departments, research centers, and industrial accelerators, supported by high-value-added services offered by Trentino Sviluppo, creates ideal conditions for experimenting and producing innovative processes and products. Polo Meccatronica reflects Trentino's natural vocation towards mechanics and mechatronics, being the sector employing the most people in Trentino's manufacturing industry (almost 10,000), with about 800 active companies providing a significant contribution to regional exports.

Confindustria Trento is the local industrial association and plays a crucial role in promoting innovation and the transfer of new processes, models, and research results from the research actors mentioned above to industrial innovation practices.

Fondazione Valorizzazione della Ricerca Trentina (FVRT) (www.fondazionevrt.it) is a banking foundation. The foundation aims to valorise the best public and private research and technologies developed in Trentino, demonstrating significant benefits in terms of social utility

for citizens and the territory. Its funding aims to facilitate the start-up, dissemination, development, and practical exploitation of the most advanced technologies and projects for the market.

Fondazione Cassa di Risparmio di Trento e Rovereto (Fondazione CARITRO) (www.fondazionecaratiro.it) is a banking foundation. Annually, the foundation funds projects through calls for proposals in four areas (research, training, culture, and social innovation) to achieve results and benefits that can foster the growth of the local community. The calls are open to university departments, research centers, and businesses in the Trentino region.

In addition to the aforementioned entities, it is necessary to add three other consortia created based on national funding related to the PNRR (National Recovery and Resilience Plan), for which the University of Trento is among the proponents and main leaders:

iNEST (<https://www.consorziointest.it/>) is the Interconnected Ecosystem for Innovation in the North-East, financially supported under the PNRR program, and aims to extend the beneficial effects of digitalization to key areas of specialization in the "North-East" (Friuli-Venezia Giulia, Veneto, and the Autonomous Provinces of Trento and Bolzano): sectors addressed include industrial and manufacturing, agriculture, marine and mountain environments, architecture and construction, tourism, culture, wellness, and food. The University of Trento leads Spoke 2, focused on Health, Food, and Lifestyle, tackling the challenges of Trentino's Smart Specializations and the entire Triveneto area through an integrated approach and a concert of complementary skills.

SMACT (www.smact.cc) is one of the 12 high-specialization Industry 4.0 Competence Centers established in Italy on the initiative of the Ministry of Economic Development and recently refinanced by the PNRR as an innovation ecosystem. It is a public-private entity that integrates expertise in the 4.0 domain from research, technology providers, and early adopter companies. SMACT serves as a platform for creating and sharing value in companies' digital transformation processes, not only technologically but also strategically, socially, and environmentally. SMACT seeks to establish a virtuous cycle where a Digital First approach can be balanced with a Human-Centered approach, allowing stakeholders to "experience firsthand" the benefits of digital transformation. In the Province of Trento, one of the Live Demos has been set up—factory schools spread throughout the territory that enable SMEs to experience firsthand the potential of digital transformation on their industrial processes. This includes a 1,000 m² mechatronics factory (machine-to-machine, M2M) for demonstrating and testing advanced automation on a real production cycle with cutting-edge machines.

EDIH - DIPS The focus of the EDIH (European Digital Innovation Hub) for Digitalization and Innovation of Public Services (DIPS) is to implement and support the digital transformation of public administrations (PA) and local companies (Large Enterprises and SMEs) that work with PAs, leveraging the extensive experience of its partners in providing services and solutions for the Public Sector. By digitalizing and integrating digital technologies (e.g., AI and Cybersecurity) into its processes and services, PAs can benefit from greater efficiency. The services offered will include experimentation with advanced digital infrastructures and co-design of shared workspaces; training and courses; networking and dissemination activities; and strategic support services for accessing funding.

Moreover, the University of Trento is involved in the national network **PerfeTTO**, financed by the National Complementary Plan of the PNRR and managed by the Ministry of Health. The network consists of 1 Hub (Centro Cardiologico Monzino), 2 first-level Spokes (IRST Amadori and IRCCS De Bellis), and 51 second-level Spokes (including UniTrento). The project, running from April 1, 2023, to September 30, 2026, aims to foster a national culture of technology transfer in the Life Sciences sector. The ultimate goal of the PerfeTTO network is to link the technology transfer offices of the involved entities into a national reference network for Life Sciences and to develop services, tools, and resources to bridge the gap between research and innovation, promoting technological development and the international valorisation of the research produced in our country.

Finally, it is essential to mention UniTrento's long-standing membership in **Netval**, the national network for public research valorisation, which has become a reference at all levels in the areas of technology transfer and research valorisation over the years. Netval, with contributions from associated entities, promotes annual surveys on knowledge transfer, now in its eighteenth edition, which represent virtually the only source of information and synthesis on the contribution of universities and public research centers, including IRCCS, to innovation in our country.

3.1.4. Linköping University

Linköping city is the winner of The European Capital of Innovation Awards 2023, in the category European Rising Innovative City. Linköping has an established infrastructure that promotes commercialization, growth, transition and development. We have long invested in our basic infrastructure, as well as niche innovation environments where companies within the same industry can collaborate and create synergies. With strong roots in academia, the business community, the public sector and the surrounding community, LEAD and Linköping Science Park offer a unique opportunity. The structure (Figure 3.2) includes physical innovation environments, business clusters, business development, innovation facilitation and a capacity for action that benefits the rest of the ecosystem.

Ecosystem for Innovation

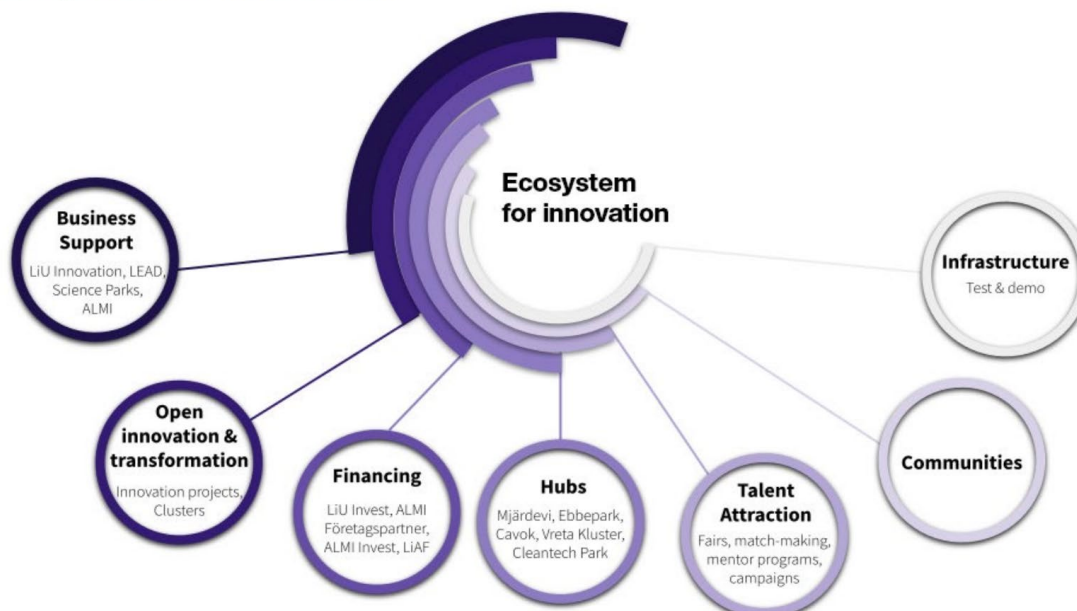


Figure 3.2. Sketch of the innovation ecosystem of LiU

Economic and industrial environment

Smart specialisation strategy: Region Östergötland's Smart Specialisation Strategy is the guiding principle behind the transformation and renewal process in the business sector and the public sector. The strategy highlights the region's strengths in the area of technology, such as technologies that enable commercialization but above all, transformation and development. One of Östergötland's five identified areas of strength includes a thriving research sector and successful companies. Region Östergötland is also part of a collaboration that includes five regions in East Middle Sweden, who are working together to promote smart, sustainable innovation and growth. Smart specialisation allows us to strategically utilise our collective strengths for the good of our communities. The strategy, which was introduced in 2014, will be updated and further developed in 2024. By providing the base funding for LEAD, Linköping Science Park and Vreta Kluster, the City of Linköping takes a leading role in securing the long-term infrastructure. And through the strategy for smart specialisation, Region Östergötland can, for example, build on this infrastructure and utilise it for niche ventures.

- **Advanced Materials;** Östergötland boasts a high level of competence and resources when it comes to the development of new materials, the use of advanced materials and the development of new manufacturing methods for existing materials. Innovative Materials Arena (IMA) is an innovation cluster that stimulates research, cooperation and growth in advanced materials.

- **Efficient Logistics;** Geographically, Östergötland enjoys one of the best locations in Sweden. To this we can add strong infrastructure and one of the largest infrastructure investments

in modern times, the planned East Link high-speed rail project. Östergötland also has a thriving research community and prominent companies in the field of logistics. In order to increase competitiveness and create a centre for cooperation and development, Östergötland's logistics cluster, Logistikia has been developed.

- The benefits of an **environmentally friendly business**; Östergötland is at the forefront when it comes to the circular economy, environmental technology and resource-efficient solutions such as waste management and biogas. In Östergötland, the business community has worked in collaboration with universities and the public sector to create sustainable solutions that also benefit the bottom line. The business community, public sector and academia come together under the umbrella of Cleantech Östergötland in order to collectively address society's environmental challenges.

- **Smart, safe and robust connected products and systems, Internet of Things, sensors and AI.** These are just a few areas where the local research community and business community have an exceptional level of competence. In the area of artificial intelligence, world-leading research is conducted at Linköping University and there is a regional AI node. Within IoT, there is the IoT World platform.

- **Visualization, simulation and image analysis**; Östergötland has a long history of world-class research in visualization, simulation and image analysis. Today, the region has access to some of the sharpest minds in complex data visualization. There are currently three research environments in Östergötland within visualization, simulation and image analysis that are world leaders: the Center for Medical Image Science and Visualization (CMIV), Visualization Center C and the Computer Vision Laboratory.

Sharp minds in an innovative business sector and public sector Linköping's business community, public institutions, and, of course, our university, have a long history of innovative thinking, which has created a distinct, dynamic culture. Linköping is a world leader in aeronautical engineering, vehicle safety, the Internet of Things (IoT), mobile communication, AI and image analysis. We are also at the forefront of technology for sustainable, climate-friendly solutions. Linköping is home to global heavyweights such as SAAB and Ericsson and many other high-tech companies that have grown into world leaders: Sectra, IFS and NIRA Dynamics to name a few. Given our status as a hub of technology, clusters develop that broaden the international reach of our business community, creating an environment where new companies can emerge and flourish. In Linköping, we also take pride in our public sector. As a county capital city, we are home to the County Administrative Board with all of the activities it conducts, the Swedish National Forensic Centre, the Swedish National Road and Transport Research Institute, the Swedish Defence Research Agency, Östgöta Air Force Wing – F3, and the District Court, just to name a few.

The **City of Linköping takes a leading role** in promoting innovation and development in Östergötland. The guiding principle is to create the conditions for innovation and development to thrive. Every year, the city invests approximately SEK 20 million to promote entrepreneur-

ship, new enterprise and innovation and development. The city is the driving force behind strategic, long-term initiatives that we carry out together with our strategic partners. The municipally owned company Linköping Science Park plays a central role in this effort. In 2021, we adopted our strategy for development environments. In order to take a long-term view and assess where the city can and should invest its time and financial resources, a strategic approach was needed that would define the city's role in the innovation support system. We have therefore partnered with Linköping University to develop a common strategic approach to development environments. The main role of the city in the innovation support system is to enable innovation and development by providing long-term financing for the basic infrastructure. Here, basic infrastructure refers to support for commercialisation, growth, development and transition. The goal is for the city's investments to be effective and meaningful over the long term, while addressing identified needs in society and business.

Key Stakeholders – Innovation and research networks

Linköping University (LiU): Innovation is Linköping University's only tradition. Since becoming Sweden's sixth university in 1975, LiU has conducted world-leading research and boundary crossing education in close and productive collaboration with society and industry. For almost five decades, the university has guided curious, innovative students towards influential roles and successful careers, while researchers have investigated the world around us and published ground-breaking findings about its complex nature and functions. For several years, Linköping University has been among the top 2 percent in the three most important international university rankings. With 37,600 students and 4,300 employees, the university is organized in 4 faculties and 12 departments, with main campuses in Linköping as well as Norrköping. Students who graduate from the university are attractive to employers, and students easily find employment after graduation. With world-leading research in a broad range of areas, most of the research is in the areas of Computer Science, Materials Science, Economics and Business, Medicine and Health, Education, and Social Sciences. To scientifically contribute to the challenges of today and the future, Linköping University forms centres around areas such as AI and visualization, Materials for the future, Mobile communication systems, Climate and Energy, Medical Visualization, Cyber security and Neurosciences, which are also areas that contribute to the innovation ecosystem in the region by developing existing companies and organizations, establishing starts-ups and fostering entrepreneurs.

LiU Innovation and collaboration: One of Linköping University's missions is to apply the research results and knowledge generated at the university. This includes both commercial and non-commercial applications from our researchers, teachers and students. **LiU Innovation** is Linköping University's hub for innovation and is an important part of the university's operational support. The office helps address societal challenges by putting the knowledge generated at the university into action. All work within LiU Innovation aims to contribute to sustainable development in line with the 2030 Agenda for Sustainable Development and to increase the impact of research in society. LiU Innovation works with researchers and staff at the university to provide support from the early conceptual phase to finished product or service. Innovation

advisers, who have strong ties to the innovation system, provide support for those who need assistance starting a company, securing financing and much more.

Student Innovation by LiU: Student Innovation by LiU, started in 2020, helps students crystallize their thoughts into viable ideas for new initiatives, companies or projects. By identifying concepts and individuals with the potential to make an impact, Student Innovation by LiU can help them to move further into the region's innovation support system. In 2022, 255 students contacted Student Innovation by LiU, coaching was offered for 80 novel ideas, and several ideas have been handed over to other actors in the innovation support system.

LiU Holding AB: Linköping University Holding AB (**LiU Holding**) is owned by the Swedish government but managed locally by the university. The aim is to ensure that LiU and the innovation system are seen as active contributors to innovation in society. Operations within the LiU Holding group are conducted within three subsidiaries: the business incubator LEAD, the investment company LiU Invest AB and the consulting company Unitalent AB.

LEAD business incubator: **LEAD** is one of Sweden's leading business incubators for tech startups. The City of Linköping financially support LEAD and holds a chair in the board. Since its founding in 2007, LEAD has coached over 200 companies, and today it has 78 alumni companies with a combined turnover of SEK 1.6 billion and approximately 1,100 employees. Active primarily within the region's and the university's key areas, LEAD primarily aims to assist high-tech, knowledge-intensive companies with high growth potential in order to contribute to meaningful change and societal advancement. Continuously refining its processes to ensure that they are as efficient as possible and adapted to the needs of the companies they support, LEAD enables faster growth and facilitates the transition from idea to a thriving, established company. LEAD offers a comprehensive ecosystem for startups, with business coaching, training opportunities, networking and capital. It fosters a community of startups that share inspiration, collaborate and learn from each other. LEAD assists startups in different phases of development – from the conceptual phase, to the first paying customer and then scaling up. LEAD offers two different memberships.

1) Business Lab is for the earliest phase, where the focus is on formulating the business concept in the form of market validation and customer validation. Business Lab is a pre-incubator where participants can test their business concept for 6 to 12 months. **BootUp** is an intensive business development programme run by Business Lab, where 10-12 startups are selected to participate. The programme lasts for three months and is offered twice a year. In 2022, Business Lab accepted 21 concepts, 9 of which were selected for BootUp. 2) **LEAD Incubate** works with tech startups with an innovative B2B product or service that is scalable, difficult to replicate and has high international growth potential. Members join at any time for a 12-36 month period and have access to tailored business coaching and an office space in an active startup community. In 2022, 11 new companies were accepted to LEAD Incubate, and a total of 29 companies were active members of LEAD's incubator programme in 2022.

Linköping Science Park: When it was founded in 1984, **Linköping Science Park** became the second science park in Sweden and the first municipally owned science park. Since then, Linköping Science Park has grown into a world-class innovation hotspot. Linköping Science

Park is closely connected to Linköping University. Today, Linköping Science Park is home to 600 companies, 14,000 employees and 37,600 students in areas such as vehicle safety, mobile communications, business systems, medical technology, image analysis, IPTV (television distributed over IP networks) and streaming media, as well as IoT (Internet of Things). At the core of this innovative environment is a focus on software development, hardware development, and embedded and connected systems. Linköping Science Park offers access to development programmes and networks and serves as a hub for innovation and research, where companies and talented minds come together. A shared focus on sustainability and the development of strong communities guides the work to develop companies with a high potential for growth. A perfect example is the project Commercialization of energy innovations. Below we present some of the large-scale initiatives and programmes run from Linköping Science Park which promote growth, transition and development.

Vreta Kluster: **Vreta Kluster** is an innovation and development centre for green industry, open to those working in agriculture, forestry, food, animal husbandry, renewable energy, aquaculture and gardening. Initiated in 2011 as a project to create jobs and to promote development and growth in green industries in Östergötland, Vreta Kluster is today a well-established arena of development in Linköping. Its aim is to identify innovative, smart solutions that will ensure continued access to healthy, nutritious and sustainable food, better animal husbandry, a smarter energy supply and healthy forests. Vreta Kluster strives to be a hub for sustainable, innovative development within the green industries at the local, regional, national and international level. In 2022, the business park was home to 27 companies and organizations, and 31 activities have been arranged. Vreta Kluster has operated and/or participated in 26 development and innovation projects, with Agtech being the largest to date. Vreta Kluster is one of the City of Linköping's go-to partners for local innovation and growth in green industry.

Key infrastructures

The city as a testbed

The City of Linköping is partnering with the municipality of Örebro to carry out a feasibility study within the framework of the European Regional Development Fund National Programme for Sustainable Urban Development. The purpose of the feasibility study is to determine what is needed to establish long-term testbeds in the city to accelerate climate and energy innovations and address challenges related to urban sustainability. We aim to identify obstacles and opportunities for the business sector, small and medium-sized enterprises, and cities/municipalities, as well as to facilitate experience exchange between the project's participants. In Linköping, we are basing the study on the Ebbepark testbed.

Common method and identification of the conditions needed for a new territorial strategy

The feasibility study will allow us to jointly formulate proposals for a common method for district-level experimentation, as well as to scale up innovative solutions that promote sustainable development and allow us to identify the legal, economic and organisational conditions needed for successful and beneficial urban experimentation together with the business community.

Over the long term, the goal is for the feasibility study to lay the foundation for a new territorial strategy.

An ongoing digital transformation

Linköping's Programme for Digital Transformation is a key document for meeting the city's overall objectives and long-term goals. The programme guides the city's ongoing service development effort in order to ensure that we take advantage of the opportunities offered by the digital transformation. In 2023, the programme will continue to serve as a starting point for the establishment of a framework and to create the conditions for a number of digital capabilities the city needs to secure. The focus for 2023-2024 is information and data management.

Development Plan 2024-2027

The city's work continues to develop and implement more concrete activities that will move us further down the road in Linköping's digital transformation. The development plan therefore needs to set out a number of conditions that must be achieved each year to reach the overall goal of an efficient and innovative welfare system facilitated by the digital transformation.

- **Data-driven built environments:** In order to meet the needs of the future, the City of Linköping is building a completely new service platform that provides a coherent process to create the built environment that relies on digital technologies and a new data-driven approach that will create the conditions for sustainable growth in Linköping. All geographic information (geodata) that is produced and consumed within the planning and development process is gathered in one place. This leads to the increased availability of common data, which results in the seamless flow of information between sub-processes. The establishment of an unbroken digital data flow in the built environment process is underway and is expected to be completed by 2024. The platform is designed to facilitate open data management, as this approach simplifies information sharing from the built environment process with others, while making it easier to receive data from external sources. The City of Linköping is collaborating with national authorities in this work, such as Lantmäteriet (authority for land survey) and the National Board of Housing, Building and Planning and has been the driving force behind a national network between several municipalities and cities to promote the exchange of experience and national coordination. This new, data-driven approach is not only a necessary change for the reasons described above, it also reduces costs, saves time and increases value for the customer.

- **A gateway to digital services for residents and businesses (Mitt Linköping):** In 2023, the city has prioritised the improvement of the common interface and access to self-service systems for businesses and residents. The city is carrying out this effort through the Mitt Linköping development project, which will provide smart digital services to residents and businesses by offering access to uniform information and a common portal for all case management activities through linkoping.se. The portal will provide residents and businesses with an overall summary of their communications with the City of Linköping.

3.1.5. Kaunas University of Technology

KTU, as a hub for research and innovation, plays a central role in the regional ecosystem, connecting a diverse network of **stakeholders**:

Universities and Research Institutions: Besides KTU, Kaunas is home to other major academic institutions, including the Lithuanian University of Health Sciences (LSMU) and Vytautas Magnus University (VDU). These institutions collaborate closely with KTU on cross-disciplinary research, particularly in health sciences, engineering, and technology.

Government Bodies: Kaunas City Municipality and the Lithuanian Ministry of Education, Science, and Sport provide regulatory and funding support, promoting education and research excellence. The government supports innovation initiatives and partnerships through policy incentives and grants. Additionally, Lithuanian Innovation Centre (LIC) with a base in Kaunas, provides innovation support services, business consultation and trainings, helping both startups and established companies with funding, intellectual property advice, and R&D partnerships. It is known for its involvement in EU projects and collaborations with international innovation networks.

Industry and Companies: Key companies, particularly in sectors like ICT, advanced manufacturing, engineering, aviation, life sciences, and energy, actively engage with KTU. Major local and international corporations such as Hella Lithuania, Continental Automotive Lithuania, Thermo Fisher Scientific Baltics, FL Technics or Teltonika group support research, internships, and innovation through collaborative projects.

- *Hella Lithuania* - a German-based company, is a key player in automotive electronics and lighting systems. The company has a strong presence in Kaunas and has collaborated with KTU on R&D projects, especially around smart and energy-efficient automotive solutions. This collaboration supports the university's engineering and applied research programs, focusing on areas like electronics and sensors for next-generation vehicles.
- *Continental Automotive Lithuania* - Another global player in automotive manufacturing, Continental, has established a manufacturing site in Kaunas. Continental and KTU often collaborate on R&D initiatives related to automation, robotics, and advanced manufacturing techniques. This partnership helps foster new technologies in vehicle safety and connectivity, providing practical experience and research opportunities for KTU's students and faculty.
- *Thermo Fisher Scientific Baltics* - Thermo Fisher Scientific is a global life sciences company with a research and production unit in Lithuania, actively working with KTU on biotechnological advancements. This partnership is crucial in areas like molecular biology, biochemistry, and biomanufacturing, aligning well with KTU's life sciences and biotechnical engineering research. This collaboration boosts Lithuania's growing biotechnology sector by turning academic research into practical, commercial solutions.

- *FL Technics* - part of Avia Solutions Group, is one of the leading aircraft maintenance and repair companies in the region. KTU collaborates with FL Technics on aviation engineering and maintenance programs, focusing on the development of skills and technologies essential to the aviation industry. This partnership aligns KTU's engineering education with industry needs, supporting workforce readiness in the rapidly growing aviation sector.
- *Teltonika Networks* - a major Lithuanian company in IoT and communications solutions, works closely with KTU on telecommunications and IoT device development. Their collaboration strengthens Lithuania's position in the IoT sector and supports KTU's programs in telecommunications, electronics, and embedded systems, helping students and researchers develop industry-relevant skills and technologies.

Startups and NGOs: Kaunas and its surrounding areas host a variety of accelerators and incubators aimed at fostering entrepreneurship and social innovation. These incubators and accelerators contribute significantly to Kaunas' dynamic and growing startup ecosystem, offering support across various stages of business development and in multiple industry sectors. Here are several prominent ones:

- **KTU Startup Space** - located on the Kaunas University of Technology campus, KTU Startup Space is one of the primary incubators in the region, providing early-stage support to student-led startups. It offers mentoring, networking, and funding opportunities and has supported numerous startups in ICT, engineering, and biotech.
- **Kaunas Science and Technology Park (Tech-Park Kaunas)** - is a dynamic science and technology park that supports startups and tech companies by enhancing competitiveness, offering business consulting, and fostering an innovation community in the Kaunas region. At present, it hosts more than 100 companies operating in the fields of IT, engineering, health technologies, social innovation, future energy, and sustainable chemistry.
- **Kaunas Startups** - an initiative launched by Kaunas City Municipality, Kaunas Startups provides accelerator programs and support for local entrepreneurs. The program offers workshops, mentorship, and pitch competitions, aiming to develop the startup ecosystem in Kaunas and help startups connect with potential investors.
- *Civitta Lithuania*, a regional consultancy, provides accelerator programs and support for startups in Kaunas. It offers various programs, including the TechHub pre-accelerator, which helps early-stage startups in tech development, scaling, and connecting with venture capital.

Infrastructure

KTU benefits from a robust infrastructure network supporting academic and entrepreneurial activities.

Transportation Networks: Kaunas boasts well-developed road and rail links, and the Kaunas International Airport enhances connectivity, making the region accessible for international collaboration.

Digital Infrastructure: Kaunas has a high-speed broadband network supporting digital connectivity across academic and industrial sectors. KTU itself provides digital learning and research platforms for both local and international students.

Research Facilities and Co-working Spaces: KTU has 8 research institutes that focus on a wide range of disciplines, including biomedical or environmental engineering, material science, mechatronics and ultrasound. KTU has a number of state-of-the-art research labs. Here are a few examples:

- **KTU Santaka Valley** - an Integrated Centre of Science, Studies and Entrepreneurship. It is a state-of-the-art science and innovations centre, one of the largest in the Baltics. The Valley is the hub accommodating the University's most advanced scientific potential and cutting-edge equipment that enables timely and efficient research and development services for business, leading to creation of new products, which increase international competitiveness of the State.
- **KTU Center for Smart Cities and Infrastructure** is dedicated to developing sustainable, technology-driven solutions for urban environments. The center integrates research and innovation in smart city technologies, infrastructure management, and urban planning.
- **M-Lab prototyping laboratory centre** - interdisciplinary prototyping laboratory centre where the top-level competencies in biomedical engineering, informatics engineering and artificial intelligence, electronics, environmental engineering, biochemistry, biomechanics, innovation and entrepreneurship, industrial design and other fields of science are aggregated to focus on solutions for improving the quality of human life and strengthening research through artificial intelligence.
- **FabLab Kaunas** - is a creative electronics laboratory, functioning as a modern mini electronics factory, that provides students with the opportunity to gain hands-on experience with all electronics manufacturing processes and to bring their ideas and projects to life as real, factory-grade prototypes.

Economic and Industrial Environment

Kaunas is a significant economic and industrial hub with strengths in several key sectors:

Technology and ICT: The ICT sector in Kaunas is rapidly growing, driven by both local and international demand for software development, AI, and cybersecurity. KTU's partnerships in ICT significantly contribute to this sector's growth.

Manufacturing: The region has a strong manufacturing base, particularly in electronics, automotive, and furniture production. KTU collaborates with industry leaders in advanced manufacturing and automation research.

Health and Biotechnology: Kaunas is a center for health science research and biotechnology, driven by collaborations between KTU, LSMU, and industry players. Research focuses on medical devices and digital health.

Energy and Sustainability: Kaunas is committed to renewable energy and energy-efficient technology development, with KTU conducting extensive research in sustainable energy systems.

3.2. Current initiatives designed to promote and develop KV practices

To provide an overview of the KV practices at each institution, the five consortium partners were asked to complete an Excel file with relevant details. For organizational clarity, the KV practices were categorized into three distinct groups:

- **Trainings:** Courses designed to teach specific skills, techniques, or knowledge. They tend to be more focused on a particular area and can be delivered in various formats, such as workshops, seminars, or online modules.
- **Programmes:** A broader, structured series of trainings or activities that together cover multiple aspects of a particular field or topic. A programme often includes multiple training sessions, best practices, and other resources aimed at developing a comprehensive understanding or skillset. Programmes provide a more comprehensive education on a broader topic, often with a more extended commitment.
- **Activities/Events:** Short-term engagements aimed at raising awareness, facilitating networking, or sharing knowledge and best practices around a specific topic or area of interest.

The information and fields collected for each table of the three categories in the excel file included the following ones:

1. Name of the training
2. Institution/Organizer/Training Unit: name of the institution or organization responsible for the training.
3. Description/goals
4. Target audience: (a) PhDs and postdocs, (b) non-academic staff, (c) senior academic staff, (d) all academic staff (comprising (a) and (c) and other.
5. Topic area: We have divided KV into 6 main areas. If possible, select the one(s) that your training falls into. If it belongs to more than one or it does not fit any of the 6 categories, please specify it in the comments column. The topic areas are:
 - **Societal impact and sustainability:** Sustainable innovation, Responsible Research and Innovation (RRI), Impact on policy, research impact assessment...

- **Entrepreneurship and commercialization:** Business model development, Lean Startup, pitching to investors, market analysis, funding and investment...
 - **Open innovation and co-creation:** open science, collaborative platforms, co-creation tools...
 - **Stakeholder engagement, collaboration and communication:** Engaging non-academic audiences, science communication, stakeholders mapping, team building...
 - **Technological impact and IP management:** Technology readiness levels, licensing, spin-off, IP rights...
 - **Digital competence:** Data literacy, digital tools for valorization, content creation, ethical awareness, digital communication...
 - **Other**
6. Format: Self-paced online course, Instructor-led online course, in person, hybrid course (conducted both in person and online, allowing students to choose the option that best suits their preferences), blended course (integrates both online and face-to-face instruction) and Other
 7. Duration: Provide the total duration of the training, specify whether it's in hours, ECTS credits or another measurement
 8. Does it have the potential to be included in any of the CEETNOVA training modules? (only in the training table)
 9. Potential inclusion in CEETNOVA training: If relevant, identify which elements/aspects could be adapted to CEETNOVA training. (only in programmes table)
 10. Do you think this event could be replicated by CEETNOVA partners within the project?: Answer whether the event could be easily reproduced by CEETNOVA partners as part of the project (only in the activities table)
 11. Other relevant information: Include other information you feel it's reliable for the training
 12. Delivery frequency: Indicate how often the training is offered (e.g., once a year, continuous, 2 times/year) (only in programmes table)
 13. Comments: Enter comments related to the information of the other columns

3.2.1. Training

The following table (Table 3.1) depicts all the trainings collected including some of the main fields:

Table 3.1: KV-related trainings collected by all partner universities

Name of the training	CEETNOVA Institution	Institution/ Organizer	Target audience	Topic Area	Format	Duration (hours, ECTS...)
Presenting research (in-person)	UAB	UAB Language service	PhDs and post-docs	4. Stakeholder engagement, collaboration and communication	in person	15hours
Research data: publishing them in open access and creating a data management plan	UAB	UAB	PhDs and post-docs	3. Open innovation and co-creation	Instructor-led online course	
Lego serious play	UAB	Co-empren	PhDs and post-docs	3. Open innovation and co-creation	in person	5hours
Good research practices and research integrity at uab	UAB	UAB	PhDs and post-docs	1. Sustainability and Societal impact	Self-paced online course	
How to design your phd with the idea puzzle® software	UAB	Ricardo Morais (Idea Puzzle)	PhDs and post-docs	3. Open innovation and co-creation	Instructor-led online course	1,5hours
Elevator pitch (4, 11, 13, 18, 20) (virtual)	UAB	UAB language service	PhDs and post-docs	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	10 hours
Communicating science	UAB	UAB language service	PhDs and post-docs	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	8 hours
Technology-based intellectual property: a practical approach to the use of patents, know-how and utility models	UAB	UAB	PhDs and post-docs	5. Technological impact and IP management	Self-paced online course	
Gender perspective in research	UAB	UAB	PhDs and post-docs	1. Sustainability and Societal impact	in person	6 hours
Interseccionalidad in research: possibilities and limits	UAB	Florencia Brizuela	PhDs and post-docs	1. Sustainability and Societal impact	in person	6hours
Teamwork	UAB	External Grup Sural	PhDs and post-docs	7. Other	Instructor-led online course	8hours
Citizen science: incorporating citizens' participation in doctoral projects	UAB	UAB	PhDs and post-docs	3. Open innovation and co-creation	in person	4hours
Communicate your research on social media (catalan edition)	UAB	External (socialmediaeninvestigacion.com)	PhDs and post-docs	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	4hours
Critical thinking	UAB	UAB	PhDs and post-docs	1. Sustainability and Societal impact	in person	8hours
From idea to prototype: a short design thinking session	UAB	UAB research park	PhDs and post-docs	3. Open innovation and co-creation	Instructor-led online course	2hours

Intellectual property in thesis (3 languages)	UAB	UAB	PhDs and post-docs	2. Entrepreneurship and commercialization	Instructor-led online course	
How to expand your network of contacts to get a job	UAB	Barcelona Activa/UAB Ocupability service	PhDs and post-docs	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	2hours
Agile methodologies to improve your productivity	UAB	Barcelona Activa/UAB Ocupability service	PhDs and post-docs	7. Other	Instructor-led online course	2 hours
Leadership techniques	UAB	UAB	PhDs and post-docs	7. Other	in person	8hours
Chatgpt and other ai tools: new allies in your job search	UAB	Barcelona Activa/UAB Ocupability service	PhDs and post-docs	6. Digital competence	Instructor-led online course	2hours
Committed teaching: strengthening the link between the university and the social environment.	UAB	UAB	all academic staff (R1-R4)	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	4 hours
Introduction to the code of good practice in research at uab"	UAB	UAB	Academic and non-academic staff	1. Sustainability and Societal impact	Instructor-led online course	7 hours
Introduction of the gender perspective in research and innovation	UAB	UAB	Academic and non-academic staff	1. Sustainability and Societal impact	in person	8 hours
Research ethics in doctoral programs at uab	UAB	UAB	All academic staff (R1-R4)	1. Sustainability and Societal impact	in person	4 hours
How to improve your skills and competencies in innovation"	UAB	External entity	Non-academic staff	2. Entrepreneurship and commercialization	in person	22 hours
Open government: infrastructures and innovation for citizen participation	UAB	External entity	Non-academic staff	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	4,5 hours
Data protection and transparency: the limits of both rights	UAB	FUAB	Non-academic staff	3. Open innovation and co-creation	Self-paced online course	125 hours
Enhancing university entrepreneurship	UAB	External entity	Non-academic staff	2. Entrepreneurship and commercialization	in person	32 hours
Open science: motivations, components, implications, and opportunities	UAB	UAB	Academic and non-academic staff	3. Open innovation and co-creation	Instructor-led online course	12 hours
Publishing research data in cora.rdr and creating a data management plan	UAB	UAB	Academic and non-academic staff	3. Open innovation and co-creation	Instructor-led online course	3 hours

Teambuilding: team cohesion to lead continuous improvement	UAB	UAB	Non-academic staff	4. Stakeholder engagement, collaboration and communication	in person	7 hours
Viral science: how to communicate research successfully on social media (cobdc)	UAB	External entity	Non-academic staff	4. Stakeholder engagement, collaboration and communication	Instructor-led online course	10 hours
Scientific communication: alternatives beyond traditional academic journals	UAB	UAB	Non-academic staff	4. Stakeholder engagement, collaboration and communication	in person	4 hours
Data management plan (dmp): handling personal data in research	UAB	UAB	All academic staff (R1-R4)	5. Technological impact and IP management	Instructor-led online course	2 hours
Intellectual property in the teaching and research work of the pdi	UAB	UAB	All academic staff (R1-R4)	5. Technological impact and IP management	in person	2 hours
Transfer, valuation, and patents	UAB	UAB	Academic and non-academic staff	5. Technological impact and IP management	blended course	4 hours
Intellectual property rights	UAB	UAB	Academic and non-academic staff	5. Technological impact and IP management	blended course	11 hours
Effective use of generative artificial intelligence tools (such as chatgpt)	UAB	UAB	All academic staff (R1-R4)	6. Digital competence	in person	4 hours
Artificial intelligence-based tools applied to research and teaching	UAB	UAB	All academic staff (R1-R4)	6. Digital competence	in person	8hours
Introduction to methodologies for extraction and analysis of big data in social networks	UAB	UAB	All academic staff (R1-R4)	6. Digital competence	in person	8 hours
Accessibilitat digital: com crear documents per a tothom	UAB	UAB	Academic and non-academic staff	6. Digital competence	Self-paced online course	4 hours
Alte item writing with elements of artificial intelligence - advanced	UAB	External	Non-academic staff	6. Digital competence	Instructor-led online course	30 hours
Creating engaging presentations with genially	UAB	UAB	Non-academic staff	6. Digital competence	in person	5 hours
Creation of audiovisual content for social media	UAB	External	Non-academic staff	6. Digital competence	Instructor-led online course	15 hours
Advanced canva: graphic content design	UAB	External	Academic and non-academic staff	6. Digital competence	Instructor-led online course	6 hours
Nse4 technical certification in cybersecurity	UAB	External	Non-academic staff	6. Digital competence	Instructor-led online course	15 hours

PhD course on innovation in research projects (tn910)	UiS	Department of Safety, Economics and Planning	PhDs and post-docs	2. Entrepreneurship and commercialization	in person	5 ECTS
Crash course on intellectual property	UniTrento	UniTrento - Division for the Valorization and Impact of Research	Academic and non-academic staff	5. Technological impact and IP management	Instructor-led online course	8 hours
Research to business	UniTrento	Fondazione Hub Innovazione Trentino (HIT)	PhDs and post-docs	2. Entrepreneurship and commercialization	in person	5 days (Mo-Fri)
Micromodules	UniTrento	UniTrento - School of Innovation (SOI)	Other	7. Other	in person	12 ECTS
Workshop for phd students on research integrity	UniTrento	UniTrento - Research Support Division	PhDs and post-docs	1. Sustainability and Societal impact	in person	1h 30'
IPR workshop	LiU	LiU innovation and collaboration	All academic staff (R1-R4)	5. Technological impact and IP management		3 hours
Idea value creation workshop	LiU	LiU innovation and collaboration	All academic staff (R1-R4)	3. Open innovation and co-creation		4 hours
Workshop on entrepreneurship	KTU	KTU	PhDs and post-docs	2. Entrepreneurship and commercialization	in person	2 hours
Workshops on intellectual property management	KTU	KTU	PhDs and post-docs	5. Technological impact and IP management	in person	2 hours

Figure 3.3 shows a summary of the results: 56 trainings related to KV were detected and they were quite evenly distributed within the 6 topic areas. Most of the trainings were offered to PhDs and post-docs, although offers for all target groups were identified.

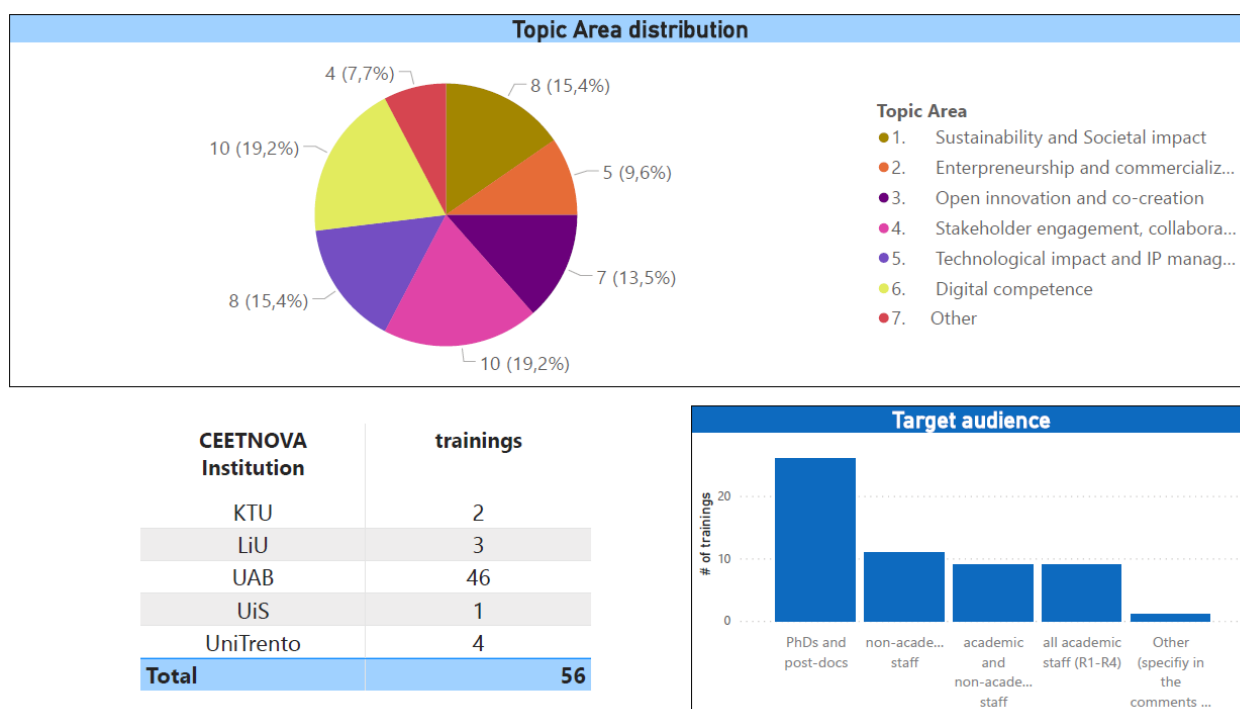


Figure 3.3: Summary of the Training's overview

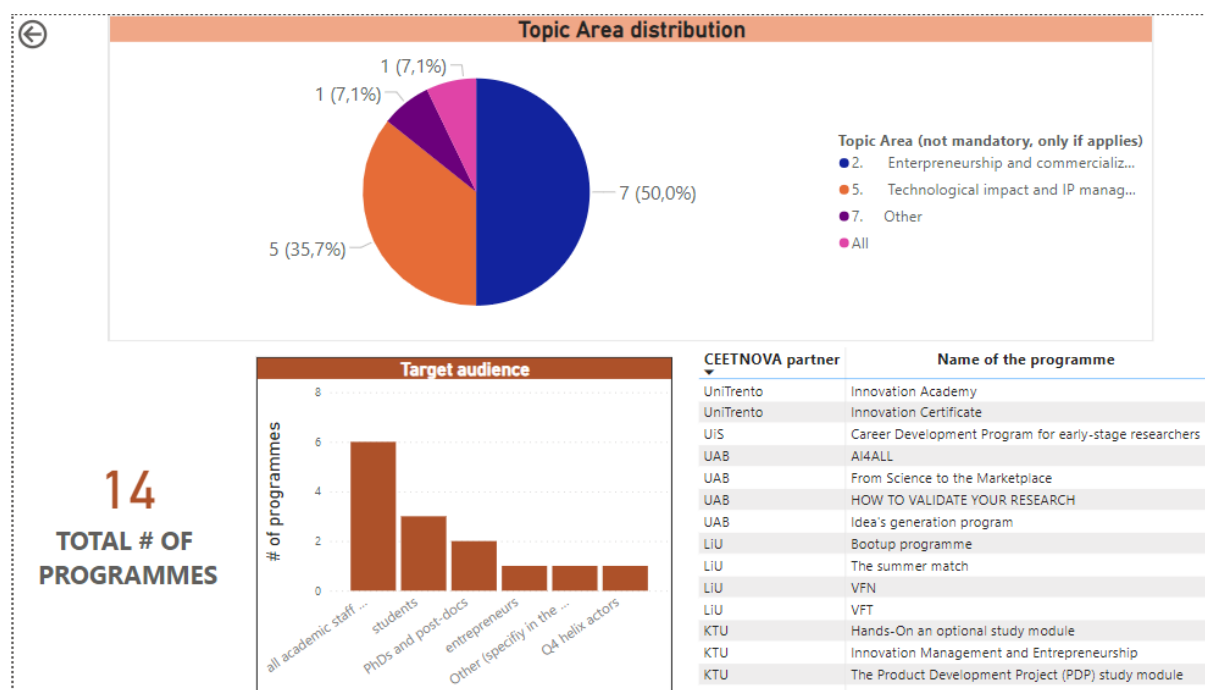
3.2.2. Programmes

The following table (Table 3.2) shows all the programmes collected and some of the more relevant fields.

Table 3.2: KV-related programmes collected by all partner universities

Name of the programme	CEETNOVA partner	Institution/ Organizer	Description/Goals	Teaching mode (workshop, lectures, co-creation)
Career Development Program for early-stage researchers	UiS	UiS	The purpose of the program is: · To mobilise researchers at an early stage of their career · Increase knowledge on funding opportunities · Introduce the concept of strategic career planning · To develop the well-rounded researcher	Seminars, workshops
HOW TO VALIDATE YOUR RE-SEARCH	UAB	UAB Research Park	This online training programme to validate the research so that it reaches the market. The programme offers different tools and methodologies to apply research results and gain entrepreneurial and innovation skills. It will also show researchers the key aspects of the technology transfer ecosystem.	
AI4ALL	UAB	UAB Research Park	Formative program teaching the latest tools in artificial intelligence applied to industry, with the goal of developing entrepreneurial projects that impact society.	Training sessions, prototyping sessions, tutorials, and company lectures with practical case studies
From Science to the Marketplace	UAB	UAB Research Park	The objective of the program is to promote scientific entrepreneurship and provide PhD students and graduates from universities with the necessary tools to explore the possibility of creating a spin-off company based on their research.. Topics include: Introduction to Entrepreneurship, Presentation on Entrepreneurship, Introduction to Innovation, The Life Cycle, Introduction to Lean Startup, Introduction to Design Thinking, Knowledge Valorization and Protection, Technological Surveillance, Technology Protection Valorization, Business Management Tools to Evaluate Business Ideas, Commercialization, Negotiation and Licenses Economic and Financial Plan, Legal Structures Skills, Leadership and Teamwork...	Training sessions, mentoring, lectures from experts...
Idea's generation program	UAB	UAB Research Park	The objective is to foster entrepreneurial spirit, a culture of innovation, and support shaping the ideas of researchers and PhD students from all scientific fields at the UAB campus, based on challenges proposed by the industry. The goal is to promote the transfer of research developed at the UAB campus to society, through connections with all regional stakeholders.	It consists in 4 phases:Ideation phase, training and tutorial sessions, prototyping, demoday

Innovation Certificate	UniTrento	UniTrento - School of Innovation (SOI)	The Innovation Certificate is the recognition of a complete journey through innovation, business, technology and much more.	Workshops, lectures, challenges, testimonials
Innovation Academy	UniTrento	Trentino Sviluppo	The Trentino Innovation Academy is a rich training program dedicated to those who want to start an innovative business. The programme, promoted by Trentino Sviluppo in collaboration with various partners, will explore numerous useful topics for aspiring entrepreneurs, new entrepreneurs and professionals.	Lectures, hands-on workshops
VFN	LiU	LiU Innovation	Grants for different innovation activities at early stages	
VFT	LiU	LiU innovation / LEAD incubator	Grants for different innovation activities at early stages	
The summer match	LiU	LEAD incubator	The Summer Match is an intensive entrepreneurship program at LEAD that focuses on developing ideas derived from research at Linköping University towards market-adapted products and services. For five weeks over the summer, you as a student get the chance to work with giving a researcher's idea new opportunities. For you as a researcher, you get your idea tested against the market by someone with new perspectives, and with the support of experienced business developers.	
Bootup programme	LiU	LEAD incubator	BootUp is an intensive business development program that ends with a DemoDay where you get to pitch to investors. The program runs for three months and starts twice a year, in March and September. Ten to twelve startups are selected to participate in the program with the goal of creating a foundation for the problem solution and access methods and tools to develop and be able to scale up within product development, sales, and market.	
The Product Development Project (PDP) study module	KTU	KTU	is an interdisciplinary, hands-on program where students work collaboratively on real-world product development projects. It combines students from various fields—engineering, design, management, and IT—to work together in teams, allowing them to experience the complete product development lifecycle.	Lectures, hands-on workshops, co-creation projects with industry partners
Hands-On an optional study module	KTU	KTU	The Hands-On is an optional module for second-year master's students of the KTU School of Economics and Business and other stakeholders (students of other KTU faculties, ECIU network students, and business representatives), who intend to deepen the competencies of socio-economic assessment, strategic management, organizational design, project management, change management, and investment evaluation.	Lectures, hands-on workshops, co-creation projects with industry partners
Innovation Management and Entrepreneurship	KTU	KTU	Innovation Management and Entrepreneurship is a Master study program, which provide knowledge on how to create innovations that change the market rules as well as how to manage innovative businesses in different industries.	Lectures, workshops, seminars



A total of 14 relevant programmes (Figure 3.4) were detected within the consortium. Note that a programme can embed several trainings and those were not identified as trainings by itself. Most of the trainings fall with the categories of Entrepreneurship and commercialization (7 programmes) and Technological impact and IP management (7 programmes) and most of them are open to all academic staff.

Figure 3.4: Summary of the Programmes overview

3.2.3. Activities

The following table (Table 3.3) shows the activities and events collected for the different institutions with some relevant information.

Table 3.3: KV-related activities collected by all partner universities

Name of the activity/event	CEETNOVA partner	Institution/ Organizer	Description	Format	Duration
Chocolate Visits	UiS	Valide AS (TTO for UiS)	Business developers from Valide arranges visits to department meetings and/or individual researchers to increase awareness on the support system around innovation and commercialization processes.	in person	1 hour meetings
Award for dissemination and community engagement	UiS	University Fund for Rogaland	It is an award for effective research dissemination, science communication and community engagement by using various channels (the daily press, radio and television, at literature festivals, seminars and conferences). It is aimed to lead to a larger part of UiS taking a stronger place in the social debate so that more people can benefit from the expertise that UiS has and that is being created at Ullandhaug.	in person	N/A
Innovation mornings	UAB	Hub B30	Thematic conferences to work on technological, social or environmental challenges of the B30 territory through a methodology of shared agendas. Aimed at administration technicians, representatives of the citizenry, research staff and professionals from entities and companies related to the specific theme of each morning, these conferences are a way of collaborative innovation, where they allow the attendees to be involved in the resolution of the challenges, boosting the exchange of knowledge, improving and strengthening the relations between entities and promoting the strategic development and set of work lines and concrete actions.	in person	2-3 mornings
EINES awards	UAB	EINES-UAB	Eines Awards are aimed at distinguishing activities of social transformation under the framework of the United Nations' seventeen sustainable development goals	in person	
CIEU award	UAB	CIEU-UAB	CIEU award (the most entrepreneurial idea and the most entrepreneurial person) is an initiative of Centre d'Iniciatives Emprenedores Universitàries (CIEU) aimed to UAB and particularly to EUTDH, ESAGED and EPSI (FUAB schools) students.	in person	

Innovation coffee	UAB	Hub B30	Meetings that show some of the technological, social or environmental challenges that we find in our region. These conferences, aimed at the actors in the B30 region, allow for debate on these challenges, to exchange knowledge and generate ideas, synergies and possible creative and innovative actions, always in a welcoming work environment where facilitate networking.	in person	
Innovation presentation	LiU	LiU Innovation and Samverkan			1 hour
Journal Club	LiU	LiU Innovation and Samverkan			1 hour
Innovation Lunch	LiU	LiU Innovation and Samverkan			1 hour
Innovation exhibition „Technorama“	KTU	KTU	is an innovation exhibition bringing together innovation creators – students, researchers, and enthusiasts of new technologies for over two decades.	in person	one day event
Focus Group Discussions with industry leaders	KTU	KTU	Every few months KTU bring together industry leaders and academic experts to discuss key issues surrounding competence enhancement opportunities in various sectors. Leaders from different sectors share insights on the skills and qualifications required in the workforce, identifying gaps and emerging trends in technology, management, and other fields.	in person	one day event
Workshop of Mathematical Solutions for Business and Industry	KTU	KTU	one of the first workshop in Lithuania and the Baltic States during which a team of researchers dedicates one week to solve real-world industry problems using mathematical methods and discussing in teams.	in person	one week
KTU WANTED Career Days	KTU	KTU	is an annual event that connects students with potential employers from various industries. Typically, more than 120 companies participate in the event, offering students the opportunity to explore career prospects, internships, and job opportunities. During the Career Days, students can participate in networking activities and company presentations, gaining valuable insights into the job market and career development strategies. The event also allows companies to meet talented KTU students, assess their skills, and recruit for open positions.	in person	one day event

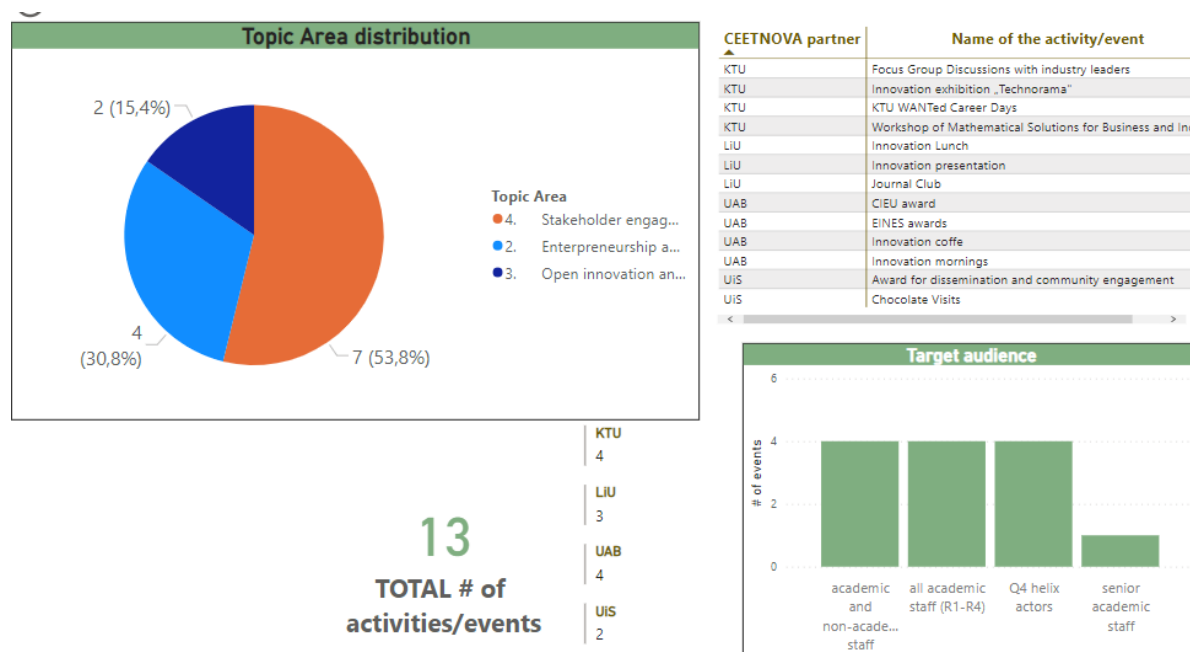


Figure 3.5: Overview of the activities collected organized by topic area and target audience

A total of 13 activities (Figure 3.5) were identified that could be replicated by CEETNOVA partners within the project—some exactly as they are, others with minor or major modifications. Notably, four of these activities target quadruple helix actors, as they fall under the stakeholder engagement area. Two activities relate to entrepreneurship and commercialization, while four are associated with open innovation and co-creation (which also involve quadruple helix actors).

3.3. Best practices

Ten best practices were identified within the consortium and three of them were submitted as best practices to the Knowledge Valorisation Platform. At the moment, they are pending to be approved.

The best practices are summarized in the following table.

Table 3.4: Identified KV-related best practices

CEETNOVA Institution	Organizers (if others)	Best practice	Link
UAB	Hub B30	Innovation mornings	https://hubb30.cat/en/activities/innovation-mornings
UAB	UAB, PRUAB, CVC, IIIA	AI4ALL	https://www.ai4all.cat/
UniTrento	UniTrento's School of Innovation	Innovation Certificate	https://www.soi.unitn.it/innovation-certificate/
UniTrento	UniTrento's Division for the Valorization and Impact of Research	Crash Course on IP protection and valorization	https://webmagazine.unitn.it/en/ciclo/ateneo/117622/crash-course-ip-protection-and-valorization
UniTrento	HIT	Research to Business (R2B)	https://www.trentinoinnovation.eu/en/join-us/doctoral-training/
KTU	KTU	Innovation exhibition “Technorama”	Home - Technorama KTU
KTU	KTU	Focus group discussions with the industry leaders on lifelong learning programmes (repetative)	https://www.linkedin.com/posts/ktu_ktu-ktu-activity-7203376828000960512-W165/?utm_source=share&utm_medium=member_desktop ; https://www.linkedin.com/posts/ktu_ktu-activity-7199749423256535043-irPu/?utm_source=share&utm_medium=member_desktop
LiU	Lead incubator	Summer match	https://lead.se/en/entrepreneur-programs/the-summer-match/the-summer-match-for-researchers/
LiU	LiU Innovation	Innovation Lunch	

The owners of the best practices presented them to the entire community during the online session held on December 2nd, 2025. Additionally, written information was collected for each best practice using a standardized template. Some examples can be found below:

Best Practice 1: Innovation mornings (UAB)**TITLE***

Hub b30 Innovation Mornings

OBJECTIVE & KEY FEATURES (200-500 characters)*

The Innovation Mornings are thematic workshops that address technological, social or environmental challenges of the B30 territory (regional arena) through a Design Thinking methodology. These sessions, aimed at administration technicians, representatives of the citizenry, research staff and professionals from entities and companies related to the specific theme of each session, foster collaboration, knowledge sharing, cocreation and generation of solutions to the challenges proposed in a collaborative manner. Besides, networking among quadruple helix actors takes place. By promoting open dialogue on innovation, technology transfer, and entrepreneurship, they create a space for learning about emerging trends and opportunities and cocreate innovative solutions. The sessions stimulate networking and encourage the co-creation of consensual solutions to effectively tackle shared challenges and drive regional innovation.

WEBSITE*<https://hubb30.cat/en/activities/innovation-mornings>**CONTACT***

Email: info@hubb30.cat
 Phone: +34 690 60 83 43

MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☒ Industry / SMEs
- ☒ Civil society / citizens
- ☒ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

* Mandatory

Innovation Mornings cover sessions on territorial challenges and innovation topics, connecting entrepreneurs, researchers, businesses and public administration. Each session involves presentations, case studies, and networking opportunities, fostering collaboration in a relaxed environment. Each Innovation Morning series addresses a specific regional challenge and typically consists of at least two working sessions. Using Design Thinking methodologies, participants map territorial initiatives related to the topic and cocreate a diagnosis on the strengths, weaknesses or barriers to tackle the challenge addressed. On a second session, they co-create solutions and advance through the development of work lines and concrete actions. Some of the topics addressed during past Innovation Mornings include ageing, zero waste, the valorization of organic resources, energy communities in the B30 territory, and mental health and youth.

The series launched in 2022 and they help to advance the regional innovation ecosystem towards a more digital, green, inclusive and resilient future.

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

Innovation Mornings have successfully engaged a diverse audience, fostering new partnerships and collaborations. They serve as a platform for knowledge exchange, supporting the practical application of research, creating synergies between existing actions thus enhancing its impact and promoting entrepreneurial ideas and collaboration among the ecosystem's actors. Key learnings include the value of informal networking and the need for regular innovation-focused discussions. The main achievements include the creation of topic-oriented communities composed of representatives from various target groups, who have proposed a set of solutions to address challenges related to the topic and this has led to the execution of projects and the elaboration of reports.

PARTNERS/SPONSORS

Universitat Autònoma de Barcelona

Best Practice 2: AI4ALL (UAB)**TITLE***

AI4ALL

OBJECTIVE & KEY FEATURES (200-500 characters)*

AI4ALL is a specialized training program to promote the generation of technology and entrepreneurial projects on artificial intelligence. AI4ALL aims to foster the adoption of Artificial Intelligence (AI) as a tool for addressing societal, economic, and environmental challenges. By promoting training, collaboration, and applied solutions, AI4ALL engages diverse stakeholders—academia, businesses, public authorities, and citizens—to co-create AI-based innovations, enhance digital literacy, and advance inclusive and sustainable progress.

WEBSITE*
<https://www.ai4all.cat/>
CONTACT*

Email: parc.recerca@uab.cat
 Phone: +34 93 586 88 91

MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☒ Industry / SMEs
- ☐ Civil society / citizens
- ☐ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

AI4ALL offers both theoretical and practical training in cutting-edge artificial intelligence technologies, as well as training in business management and new business models. The program consists of 120 hours, divided into training sessions, prototyping sessions, mentoring, and company conferences featuring practical case studies. Participants develop a group project with the support of technological and business experts, aiming to bring it to market. Additionally, they build a prototype of their project.

* Mandatory

The program is recognized as a specialization course by the UAB, and participants can earn an official UAB certificate and 14 ECTS credits.
In 2024, the 6th edition of the program was launched, and it continues to be held on a yearly basis.

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

AI4ALL has successfully built a community of stakeholders actively engaging with AI to tackle real-world problems. Achievements include the development of innovative AI-based solutions, capacity-building programs for individuals and organizations, and raising awareness about the ethical and practical use of AI. Key learnings highlight the importance of collaboration, inclusion, and accessibility to bridge the gap between technology and society. To date, the program has trained 97 participants, resulted in 29 projects and 2 companies created.

PARTNERS/SPONSORS

The program is organised by the UAB Research Park, the Computer Vision Centre, the UAB School of Engineering, and the CSIC Institute of Research on Artificial Intelligence.

PHOTO/ILLUSTRATION

If you have a photo or illustration of your best practice for which you have the rights and that you wish to be used on the EU Knowledge Valorisation Platform, you can upload it here



Best Practice 3: Innovation Certificate (University of Trento)

TITLE*

Innovation Certificate

OBJECTIVE & KEY FEATURES (200-500 characters)*

The Innovation Certificate is the recognition of a complete journey through innovation, business, technology and much more. It aims to support either students, professionals and instructors.

With the Innovation Certificate, students can create tailored trainings and courses based on their interests and aspirations; professionals achieve additional knowledge in strategy, innovation, leadership, technology and instructors benefit from challenge-based approach to create innovative educational models.

WEBSITE*

<https://www.soi.unitn.it/innovation-certificate/>

CONTACT*

Prof. Alessandro Rossi, alessandro.rossi@unitn.it

MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☒ Industry / SMEs
- ☐ Civil society / citizens
- ☐ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

Innovation Certificate addresses a variety of topics.

Students may choose to be guided by expert faculty members, professionals, real-world innovators, and entrepreneurs; they can share experiences with committed companies looking for innovators, learn how to generate non-traditional ideas and to develop an action plan, listen to guest speakers from the corporate and start-up worlds, engage in fruitful relationships with other young innovators; moreover, they can benefit of the international network of universities and institutions.

* Mandatory

A set of Micromodules, i.e. one- or two-ECTS small courses is provided for students and PhD candidates from different departments of the University of Trento and partner international Universities.

Professionals and Lifelong Learners can also apply for single activities, as courses and/or challenges, becoming *SOI Free Movers* (without certification) rather than aiming at Innovation Certificate by collecting 12 ECTS within 12 months. Learn how to make strategic choices and turn ideas into real opportunities.

Instructors have the chance to attend a laboratory through which they can test and apply innovative teaching and learning methods and tools. The laboratory is provided by a collaboration with FormID and led to the creation of IEL – Innovation of Education Lab, which pursues excellence in teaching and learning through the challenge-based approach and create innovative educational models together with society and industry ; teachers will also develop new educational pathways that are flexible in content, duration and location to include all types of learners, Collaborate with companies and organizations to promote a different learning experience and support innovation and third mission

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

As above mentioned, Innovative Certificate engages a various set of possible beneficiaries. In every case, as a result of this path, there will be an increase of opportunities for the attendants.

By creating a “personalized” package of courses based on their professional interests and affinities picking from the list of courses and challenges offered in each semester, students will achieve an important comparative advantage over other candidates in the job market.

On the other hand, those who are on a path of professional exploration and development will be allowed to create their own learning path, get up-to-date interdisciplinary knowledge and business insights, learn how to overcome innovation barriers and mix with a diversified and international student population.

Finally, instructors will manage how to engage students in interesting, meaningful and impactful challenges and courses, making a difference with a new way of teaching.

PARTNERS/SPONSORS

University of Trento – School of Innovation

Best Practice 4: Crash Course on IP protection and valorization (University of Trento)

TITLE*

Crash Course on IP protection and valorization

OBJECTIVE & KEY FEATURES (200-500 characters)*

The crash course consists of 4 webinars that aims to provide the main notions required in the protection of research results and for their valorization.

The following topics will be addressed:

- a. main tools for the protection of Intellectual Property;
- b. valorization of Intellectual Property: licensing and technology transfer to companies;
- c. academic start-up creation and research know-how management.

WEBSITE*

<https://webmagazine.unitn.it/en/ciclo/ateneo/117622/crash-course-ip-protection-and-valorization>

CONTACT*

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MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☒ Industry / SMEs
- ☒ Civil society / citizens
- ☐ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

The course is structured with an online lecture format, and it will be instructor-led.
Length is expected to be 8 hours.

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

The total attendance in the last 3 editions of the Crash Course has been of about 220 people. Most of the participants were doctoral students and post-doc researchers.

* Mandatory

Webinar Contents and topics are:

- Research Valorization and Intellectual Property in Public Research Institutions
- Intellectual Property Protection: Patents for Industrial Inventions and Software
- Priority Searches and Drafting of a Patent Application: Case Studies
- Business Plan and Pitch: Form and Content to Successfully Accreditation of an Academic Start-up

PARTNERS/SPONSORS

Università di Trento - Division for the Valorization and Impact of Research

Best Practice 5: Research to Business (R2B) (University of Trento)

TITLE*

Research to Business (R2B)

OBJECTIVE & KEY FEATURES (200-500 characters)*

The course aims to develop strategic skills and foster an entrepreneurial mindset, focusing on technology transfer and innovation.

Students are provided with the necessary concepts to create impact from their research.

The main activities are:

- exploration of trends and markets, to understand how to best take advantage of the innovation potential identified within their research;
- analyses with experts of the concepts of value proposition, opportunities related to strategies and protection of intellectual property;
- presentation of strategies and opportunities for public and private financing of innovative ideas, both to collaborate with companies and for the creation of new businesses.

WEBSITE*

<https://www.trentinoinnovation.eu/en/join-us/doctoral-training/>

CONTACT*

Milana Bigatto, milena.bigatto@trentinoinnovation.eu

MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☐ Industry / SMEs
- ☐ Civil society / citizens
- ☐ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

Course is held in person, with a length of 5 days (Mon-Fri). Second 2025 edition will be held from 7th to 11th April.

The teaching methods are mainly based on active learning and are mostly focused on:

- Lectures and presentations
- Interactive workshops and exercises
- Case studies and testimonials from industry professionals

* Mandatory

- Daily recap sessions to reinforce key learnings
- Assessment: participation in class discussions, group and individual exercises
- Final pitch presentation of research innovation potential

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

At the end of the course, participants will be able to understand:

- the value of their research project in a market;
- the strategic role of intellectual property and other intangible assets in their research project and future professional scenarios;
- how to plan and develop new entrepreneurial and intra-entrepreneurial projects in different contexts.

PARTNERS/SPONSORS

Fondazione Hub Innovazione Trentino (HIT), University of Trento

Best Practice 6: Sommarmatch (LiU)**TITLE***

Sommarmatch®

OBJECTIVE & KEY FEATURES (200-500 characters)*

The Sommarmatch® is an intensive entrepreneurship program at the business incubator LEAD that focuses on developing ideas derived from research at Linköping University towards market-adapted products and services. For five weeks over the summer, the students get the chance to work with giving a researcher's idea new opportunities. The researchers get their idea tested against the market by someone with new perspectives, and with the support of experienced business developers.

WEBSITE*
<https://lead.se/en/entrepreneur-programs/the-summer-match/>
CONTACT*

gio.fornell@eciu.eu

MAIN TARGET GROUPS:*

- ☒ Academia / public research
- ☐ Industry / SMEs
- ☐ Civil society / citizens
- ☐ Public authorities / policy makers

FURTHER INFORMATION ABOUT THE BEST PRACTICE

[For example details on approach, means, methodology. Inform about launch date and duration, if applicable. Focus on the policy/practice and not on the entity performing it. If relevant, add whether the practice has been put in place as part of a public R&I priority/policy and/or to support the implementation of legislation.]

The Sommarmatch@ has been conducted for 14 years with excellent results. A number of start-ups have been created as a result of this effort.

ACHIEVEMENTS & LEARNINGS

[Main outputs and achievements in terms of creating value from research-based knowledge and any learnings you want to share.]

It is important to make a careful screening of researchers, business ideas and students. Continued support from business developers/innovation advisers is a key success factor.

PARTNERS/SPONSORS

Linköping University, the business incubator LEAD and Vinnova (the Swedish governmental innovation agency)

* Mandatory

3.4. KV best practices from other European institutions

During the online activity, partners shared some inspiring practices from other institutions, showcasing successful models that could serve as valuable references for CEETNOVA's ongoing development.

- **DINA-ITC Program** (<https://programa-dinaitc.csic.es/en/courses/>): This initiative, led and managed by the Spanish National Research Council (CSIC), offers 15 courses covering a wide array of topics such as entrepreneurship, soft skills, negotiation, and communication. One of the courses is specifically tailored for PhD students. The diverse range of subjects addressed by the DINA-ITC program makes it a rich source of inspiration for CEETNOVA, particularly in the area of training and skills development.
- **Cambridge Enterprise**: Cambridge Enterprise is a leading example of effective knowledge valorisation. It implements several best practices including academic consultancy services, international outreach initiatives, training programmes, and comprehensive support for spin-out companies. These activities illustrate a well-rounded and scalable model for translating academic research into practical, economic, and societal impact.
- **KU Leuven Research & Development (LRD)**: KU Leuven's Knowledge Transfer Office, established in 1972, is one of the oldest technology transfer offices in Europe. LRD plays a critical role in bridging academic research with industry by facilitating collaborations, managing intellectual property, supporting the creation of spin-off companies, and offering training programs. These initiatives help researchers and students develop entrepreneurial skills and better understand the commercialization process.

4. CONCLUSIONS

This report has highlighted the significant roles played by partner universities in fostering innovation, research, and knowledge valorisation (KV) within their respective regions. Each university contributes to its local ecosystem through research, entrepreneurial support, and active collaboration with industry, government, and civil society. Specifically:

- The University of Stavanger (UiS) is central to Rogaland's innovation ecosystem, supporting the region's transition from an oil and gas economy to renewable energy through smart specialization strategies. Its collaboration with ecosystem players such as Validé and Nordic Edge, and its integration within the quadruple helix model, strengthens sustainability and innovation efforts.
- The Autonomous University of Barcelona (UAB), embedded in Southern Europe's industrial and innovation hub, plays a vital role in driving circular economy strategies and

collaboration within the Àmbit B30 and HubB30 networks. UAB's commitment to sustainability and competitiveness aligns with Catalonia's RIS3CAT strategy.

- The University of Trento, situated in a region that blends traditional sectors with cutting-edge fields, contributes to the Trentino innovation ecosystem through strong academic-industry partnerships. Initiatives such as the Smart Specialization Strategy and PNRR-funded consortia position the region at the forefront of sustainable growth and technological innovation.
- Linköping, awarded the 2023 European Rising Innovative City Award, exemplifies the strength of innovation infrastructure, public-private collaboration, and a focus on sustainable development. Linköping University's role in driving AI, IoT, and green innovation underscores the city's leading position in Europe's innovation landscape.
- Kaunas University of Technology (KTU) serves as a critical hub for research and innovation, facilitating cross-disciplinary collaborations in sectors such as health, engineering, and technology. By connecting with industry giants and supporting startups through incubators like KTU Startup Space and Tech-Park Kaunas, KTU strengthens Lithuania's position in fields such as ICT, biotechnology, and sustainable energy.

During the mapping, a total of 83 KV-related initiatives were identified. These included 56 knowledge valorisation (KV)-focused trainings, primarily targeting PhDs and post-docs, but also offering opportunities for all other target groups, 14 relevant programs, predominantly in the areas of Entrepreneurship, Commercialization, Technological Impact, and IP Management and 13 activities that were identified as potential candidates for replication by CEETNOVA partners, with a strong emphasis on stakeholder engagement, entrepreneurship, and open innovation. Of these, four specifically focus on quadruple helix actors.

Lastly, ten best practices were identified across institutions, with three submitted for approval to the Knowledge Valorisation Platform. These include initiatives such as UAB's Innovation Mornings and AI4ALL, UniTrento's Innovation Certificate and Crash Course on IP Protection, KTU's Technorama exhibition, and Linköping's Summer Match for researchers. These best practices reflect diverse efforts to foster innovation, entrepreneurship, and knowledge valorisation across Europe's innovation ecosystems.