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UNIVERCITY
ACTION LAB

CASE STUDIES REPORT

UCITYLAB PROJECT

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PROJECT PARTNERS

INTRODUCTION

The following report includes presentations and analyses of 27 cases of good practices in the area of university-city cooperation, made up of 25 European and 2 global cases. The report has been produced as part of the first intellectual output (IO1) of the Erasmus+ project titled "UniverCity Action Lab" (UCITYLAB). This project aims to provide tools, knowledge, and skills to the HEIs to extend their societal role in generating solutions to the urban challenges while developing social and environmental responsibility, an innovative mindset, and social entrepreneurship skills among their students. The development of the report is coordinated by the Institut Mines Telecom Business School with reference to the input provided by all project partners, as well as through an analysis carried out on the configuration and the nature of the selected university-city cooperation practices.

Despite the discrepancies across regions, European universities are observed to have embraced their third mission activities increasingly more over the past decades. The HEIs are challenging the deep-seated notion of contributing to society via technology transfer and commercialisation of research by adopting grander societal missions. Thus, the goal of the report is to highlight existing practices and urban collaboration models to inform European HEIs who seek to find ways to engage with their cities in a sustainable manner through research and hands-on student projects. Accordingly, our collection of cases has captured European HEIs in diverse partnership arrangements with their urban environment, acting as knowledge actors within the initiatives focusing on topics including e.g. community sustainability, ICT, (e-)mobility and energy, social interaction, and spatial development.

Table of Contents

1.   BACKGROUND

Today, more than 70% of Europe's citizens live in cities, which makes the European Union one of the most urbanised areas in the world. While these areas are considered to be the engines of the European economy with extensive job opportunities and the educated population they attract, they are also places where social and environmental challenges are concentrated. This concerns mobility, sustainable land and energy use, inclusion of migrants, digital transformation, and poverty (Pact of Amsterdam, 2016; EC Urban Agenda 2017).

Without doubt, universities hold great potential to be key actors in fostering dialogue among regional stakeholders to initiate and sustain joint actions towards the creation of smart and sustainable cities. In that, the 2017 renewed Agenda on Higher Education has made clear references to the responsibilities of the HEIs, such as being 'civic' and 'entrepreneurial', contributing to both social and economic advancements in their regions. This transformation is particularly necessary given the lack of student exposure to real-life challenges in traditional settings and the development of skills that do not match experience that is demanded by both modern industry and the society upon graduation.

However, despite efforts, direct links between universities and cities are still weak (Goddard and Tewdwr-Jones, 2016; OECD, 2007). Urban engagement is not an inherent component of HE systems, nor are they a part of ongoing academic programs. HEIs lack relevant strategies, tools, resources, and knowledge to engage in city initiatives. This is largely due to the alignment of universities with national policies and funding frameworks, and their increasing efforts for international recognition, rather than adopting a 'Glocalised' approach to external engagement. Part of the problem for this weak interconnection between universities and regional authorities can also be attributed to failure in understanding the underlying logics that drive each other's activities (EU, 2013).

1.1   Why is the HEI involvement in urban development vital?

Given the significant number of European initiatives supported under the umbrella of Urban Agenda, and Smart and Sustainable Cities, it is crucial to expand the bottom up support for the cities to co-develop, test, and implement the solutions, thus consolidating efforts. The HEIs can support anchoring innovation by raising interest in the urban areas where they are based, offer resources, and facilitate change. Furthermore, universities can exploit cities as living labs, incorporating the open spaces, institutions, and local community in their research and teaching programs while transforming their teaching methods from 'traditional' to more 'current'. Universities can do so by offering adaptive, problem-based, and experiential learning experiences to their students while fostering the development of much demanded entrepreneurial skills.

Considering this background, the primary objective of this study is to get a more profound, comprehensive, and up-to-date understanding of the university-city engagement in the European context from the perspective of a selection of HEIs. To do this, the study investigates the motivations for urban engagement of the HEIs, the main drivers and barriers for cooperation, the type of activities through which the cooperation takes place, and the outputs and impact of the efforts. Along with the "University-City Cooperation Status-Quo Report", the results of the study will support the launch of the regional stakeholder networks (IO2) and the launch of the UCITYLAB Challenge Teaching Toolkit (IO3) for the project.

2.   SCOPE OF THE REPORT

The project partner institutions and their primary area of contributions for the case studies are outlined in Table 1, below.

Table 1: Case Study partners and the regions they dominantly reported

Partner	Region
Porto Business School (PBS)	Southern Europe, European Collaboration
University of Ljubljana Innovation and Development Institute (IRI-UL)	Eastern Europe, Global
The Autonomous University of Barcelona (UAB)	Southern Europe
Institut Mines-Télécom Business School (IMTBS)	Western & Northern Europe
University-Industry Innovation Network (UIIN)	Western Europe

The cases have been researched and selected to show the broad diversity of examples in university-city collaboration in the European context. While the cases primarily target HEI staff and leadership, they are also relevant for a wide variety of stakeholders who would like to establish cross-sectoral partnerships with the HEIs to jointly tackle urban challenges. These stakeholder groups include:

- Urban development institutes
- Representatives of smart and sustainable city initiatives
- Economic boards and Chambers of Commerce
- City governments focusing on urban matters, such as e.g. water, energy, housing, mobility, inclusion that are closely connected to the Commissions' Urban Agenda items
- Local, open access societies/networks/coalitions and NGOs
- Independent research organisations/innovation labs
- Vocational education institutions (VET) and independent Continuous Learning Institutions (e.g. Academies) in the same cities/regions interested in adopting similar collaboration strategies

3.   DEFINITIONS

Table 2: Definitions to some commonly used terms throughout the report

Project unit of measurement	University-City engagement via student teaching and research
Student	Students include all undergraduate and postgraduate students as defined here: http://www.worldstudent.com/uk/mag/features/tablo-diplom.html with most European programmes recognising doctoral students as post-graduate level students. Undergraduate refers to someone who is studying for, but has yet to receive, their first post-secondary education degree, e.g. typically this degree is some equivalent of Bachelor and includes an honours programme. Once completed, the student is then termed a graduate. A postgraduate student refers to someone who has already obtained a first degree and is now pursuing a second, third, or degree beyond it including a master, MBA, or PhD level qualification. A postdoctoral researcher is generally not considered as a student.
City	Relates to a local, city, or regional government agency or authority, rather than a state, national, or international governmental agency or organisation.
Project-Based Learning	In Project Based Learning (PBL), students go through an extended process of inquiry in response to a complex question, problem, or challenge. Rigorous projects help students learn key academic content and practice 21st Century skills (such as, collaboration, communication, critical thinking, and creativity). PBL involves: 1. Identification of a problem 2. Exploring pre-existing knowledge 3. Generating hypotheses and possible mechanisms 4. Identification of learning issues 5. Self-study 6. Re-evaluation and application of knowledge to a problem 7. Assessment and reflection on learning
Living Lab	According to the European Network of Living Labs (ENoLL), a Living Lab (LL) is an open innovation ecosystem based on a systematic user co-creation approach that integrates public and private research and innovation activities in communities, placing citizens at the centre of innovation.
Urban Living Lab	Urban living labs are described by Juujärvi and Pesso (2013)[1] as "a physical region in which different stakeholders form public–private–people partnerships of public agencies, firms, universities, and users to collaborate to create, prototype, validate, and test new technologies, services, products, and systems in real-life contexts".

Smart City	Smart cities are the result of knowledge-intensive and creative strategies aiming at enhancing the socio-economic, ecological, logistic, and competitive performance of cities. Such smart cities are based on a promising mix of human capital (e.g. skilled labor force), infrastructural capital (e.g. high-tech communication facilities), social capital (e.g. intense and open network linkages), and entrepreneurial capital (e.g. creative and risk-taking business activities).[2]
Co-creation	Co-creation is defined as the collaborative development of new value (concepts, solutions, products, and services) together with experts and/or stakeholders (such as, customers, suppliers, etc.)

(1) Santonen, T., Creazzo, L., Griffon, A., Bódi, Z., & Aversano, P. (2017). Cities as Living Labs: Increasing the impact of investment in the circular economy for sustainable cities.

(2) Kourtit, K., Nijkamp, P., & Arribas, D. (2012). Smart cities in perspective–a comparative European study by means of self-organizing maps. Innovation: The European journal of social science research, 25(2), 229-246

4. CLASSIFYING THE CASES

All selected cases will be classified using the following classification scheme.

4.1 Length of programme

Aspect	Description
Unspecified	The length of the programme is unspecified
Micro	Less than two days
Short	2 days to < a full semester
Semester long	Encompasses a full semester of work
Full year	Encompasses a full year of work
Entire degree	Encompasses a full programme or degree of work
Unlimited	Is ongoing

4.2 Formal or informal

Formality	Description
Formal	Formal education corresponds to a systematic, organized education model structured and administered according to a given set of laws and norms, presenting a rather rigid curriculum in regards to objectives, content, and methodology
Informal	Whenever one or more of these is absent, we may safely state that the educational process has acquired non-formal features. Non-formal education characteristics are found when the adopted strategy does not require student attendance, decreasing the contact between teacher and student with most activities taking place outside of the institution.

4.3 Curricula-bound, co- or extra-curricular?

	Description	Focus	Assessment
Curricula	Learning activities and courses as part of a degree or other programme	Technical knowledge, academic literacy, and a range of complementary capabilities	Assessed and contributes to credit points
Co-curricular	Activities run, sponsored, or recognized by the universities which contribute to learning	Support curricular learning and personality development	Could be assessed or contribute to credit points

Form		Description	Focus	Timeline	Assessment
Extra-curricular		Any activities carried on outside the regular course of study that contribute to learning	Develop interests, passions, and talents		Generally no assessment or credit points

4.4 Pedagogy, curricula/course or programme/degree

Form		Description	Focus	Timeline	Assessment
Pedagogy		Process of activity, reflection, and action as a method of learning	To provide a learning opportunity	Within class	Generally no assessment or credit points
Curriculum	/	Means and materials for interaction for the purpose of achieving identified educational outcomes	To approve the acquisition of knowledge	Running 1-3 semesters	Assessed with credit points
Course					
Programme	/	A qualification awarded for the achievement of a set of learning outcomes that encompass a topic	To provide a qualification	Running 3-5 years	Achievement of an expected number of credit points
Degree					

4.5 Level of initiative

Level	Description
Inter-institutional	The initiative takes place across a number of institutions
Institution-wide	The initiative takes place across the entire institution
Cross-disciplinary	The initiative takes place across disciplines / faculties
Subject level	The initiative takes place within a faculty or subject area only

NB. The characteristics are not mutually exclusive

5. AIMS AND METHODOLOGY

5.1 Objective

The primary objective for the creation of 27 case studies is to highlight good practice cases where the principles of which could be clearly explained and have a high degree of transferability or usefulness for adaption in other settings. A further objective is to provide a range of cases of differing nature to give key insights for academics and university leadership to inform practice in establishing collaborations with urban stakeholders.

5.2 Process

The following steps were undertaken in the creation of the case study report:

I.   Search and Call for Cases
II. Case Study Selection
III. Methodological Design
IV. Case Study Writing
V.   Case Study Analysis

I.   Search and Call for Cases

Good practices in university-city engagement were sought for both in Europe and across the globe. The selection was aimed to be a collection of the partner institutions' own cases, those from the cities where the partner institutions are located, national cases, and international cases. In searching for the case studies, a number of methods were used, including:

- A systematic review of previously documented cases in scientific and non-scientific publications
- A call for cases issued through the online platforms of the project partners
- Direct questions to the interviewees contacted for the preparation of regional status-quo reports

II. Case Study Selection

The steps involved in the case study selection were as follows:

1. A selection framework was created (see Table 2) for the assessment of the case studies
2. A preliminary identification of 50 good practice case studies was conducted by the project partners with 10 case studies proposed by each
3. The 50 cases identified were collected and put into a large database, including the description of their main characteristics into a PPT of 1-2 slides
4. This preliminary list of case studies was then reduced to 27 after a joint online evaluation with elimination taking place based upon ineligibility, lack of unique qualities, or lack of information

5. Once the case studies were approved, each project partner institution had the task of writing five cases studies with two rounds of review and feedback, as well as close communication and approval of the case study institutions, followed by final feedback from the work package leader

III. Methodological Design

Case Study Selection Criteria

The following criteria underpinned the selection of the university-city collaboration good practice cases. A balance in the case studies was sought in order to provide good practice examples in a number of relevant areas of university-city collaboration, including joint research and student projects as part of the teaching activities.

Table 3: Draft case study selection framework

Criteria	Description
Standard factors	▪ Name of HEI ▪ Country ▪ Region ▪ Regional embeddedness ▪ Stage of development of the case (e.g. starting out in university-city engagement, developing engagement, or highly developed engagement)
Main university-city engagement activities	▪ Collaborative supervision of project research (product & service development) ▪ Collaborative supervision of graduate (Master's & PhD) thesis research ▪ Collaborative student teaching/mentorship (challenge programmes and teaching modules for skills and knowledge development) ▪ Internships
Supporting mechanisms	▪ Policy ▪ Strategy ▪ Structure ▪ Operational activity
Region	▪ Northern Europe ▪ Eastern Europe ▪ Southern Europe ▪ Western Europe ▪ Global

Countries considered in the selection of the cases

The UCITYLAB project aims to provide tools, knowledge, and skills to the European HEIs to extend their societal role in generating solutions to the urban challenges while developing social and environmental responsibility, an innovative mindset, and social entrepreneurship skills among their students. For this purpose, 27 cases were selected from among European countries, as well as two cases from Australia and the USA.

In order to map the major elements of the university-city engagement ecosystem and investigate the relationships among the identified elements, the UCITYLAB Project Case Study report has adapted the University-Business Cooperation (UBC) Ecosystem Framework^TM (Davey and Galan-Muros, 2010). This framework was first developed as part of the European Commission funded tender project "European State of University-Business Cooperation" and re-utilised in the second round of the same project launched in 2017. This particular framework was selected for the analysis due to its sound scientific base and its previous success in investigating the elements involved in the societal stakeholder cooperation of the HEIs, as well as their internal and external relations that facilitate innovation. To capture the urban engagement context of the HEIs in focus, the definitions of the framework elements have been further modified, and referred accordingly by the project consortium in their desk research and case study interviews.

The major elements of the case study analysis are as follows:

- <u>Stakeholders</u>: The presence and role of each stakeholder group that is involved in the case of cooperation, whether these are individuals, groups of individuals, or organisations.
- <u>Input</u>: The resources that are put into the system and utilised to undertake university-city cooperation activities. These include human resources (e.g. students as conduits of knowledge and skills, researchers as providers of scientific knowledge, lecturers as knowledge providers, intermediaries as connectors and facilitators, or HEI managers as leaders), financial resources of the city governments, businesses, or HEIs and physical resources (e.g. material, equipment or facilities).
- <u>Activities</u>: Types of university-city cooperation that are undertaken to bring about the intended outcomes. The main activities identified/considered in the cases are:
  - Collaborative supervision of project research (product & service development)
  - Collaborative supervision of graduate (Master's & PhD) thesis research
  - Collaborative student teaching/mentorship (challenge programmes and teaching modules for skills and knowledge development)
  - HEI student training for knowledge and skills development (urban stakeholders as funding providers)
- <u>Outputs</u>: The products, services, and properties derived from the university-city cooperation, including those for individuals (e.g. academics, students, urban community) and organisations (e.g. HEIs, city governments, businesses).
- <u>Impacts</u>: Changes (intended or unintended) that occur in the long term as a result of university-city cooperation for individuals, organisations and societies.
- <u>Barriers and drivers</u>: Temporary conditions that affect the university-city cooperation process with positive or negative influence, and that can be modified in the short/medium term.
  - Barriers can relate to initiation and awareness, funding, organisational culture or characteristics, etc.
  - Drivers can relate to resource availability, personal relationships, etc.
- <u>Context</u>: The fixed environment (individual, organisational, or community characteristics) that affect the university-city cooperation process positively or negatively, and cannot be changed in the short or medium term.
- <u>Supporting mechanisms</u>: Interventions that support university-city cooperation and can be in the form of:

Table 4: Types of supporting mechanisms referred to in the case studies

Mechanism	Description
Policy	• Economic and financial mechanisms • Regulatory mechanisms • Other policy mechanisms
Strategic	• Documented strategic mechanisms • Implementation strategic mechanisms
Structural	• People-based structural mechanisms • Office/centre-based structural mechanisms • Programme-based structural mechanisms
Operational	• Communication and exchange mechanisms • Linking and support mechanisms • Training and seminar mechanisms

IV.   Case Study Writing

The process

The project consortium followed a standardized process in their case study writing, as listed below:

- Conducting at least one recorded interview, ideally 2-3, which captures information from the university and city perspective, and ideally, the students
- Collecting promotional and other material about the case
- Writing and editing the cases using the case study template provided
- Providing the organisation responsible for the case study with the opportunity to review the case and make amendments

Case study reporting structure

Apart from the previously mentioned elements, in order to highlight some specific qualities, the good practice cases presented in this report include the following sections:

- Background: Overview of the situation before the cooperation started.
- Objectives and motivations: Reasons and motivations that led the stakeholders to initiate the cooperation.
- Challenges: Description of the main future challenges foreseen for the case.
- Key success factors: Description of the factors essential to achieve success.
- Awards and recognitions: Mention of any awards or recognitions that the organisations involved have previously received.
- Transferability: Explanation of the likelihood of the case to be transferred to a different environment.
- Publications: Materials that are already published about the case.
- Links: Online sources where the reader can find more information about the case.

The analysis of the 27 case studies is aimed to capture the nature of the European university-city collaborations with a focus on the student teaching and learning activities. Our findings show that the degree of urban stakeholder involvement in the HEI research and teaching ranges from providing students with spatial/sustainability/technological challenges to co-supervising student theses on the transdisciplinary topics and internship offerings.

# 6.	MAJOR INSIGHTS

The following insight have been garnished from the case study analysis identifying key themes and trends with regards to university-city cooperation.

1.	**HEIs AS FACILITATORS OF URBAN TRANSFORMATION**

The HEIs are indispensable components of urban collaborations that take on multiple roles and responsibilities to bring in additional value to their research and teaching activities. Through the cases, the HEIs are observed to be the sought after research partners to help public governance bodies make more informed decisions, to support city development agencies in shaping their urban regeneration strategies, and to offer education and training programmes to their students to help co-create the modern urban landscape and smart technologies of the future. Taking on this role, many HEIs place students in the centre, ensuring their involvement in multiple stages of co-creation of innovation from problem identification to prototyping and experimentation.

The initiatives the universities were involved in targeted the areas of community/local sustainability, ICT, (e-)mobility and energy, social interaction/integration, and spatial/area development. The extent of involvement differs among urban stakeholders in the selected cases within the areas of student teaching and research. The interactions take place as part of HEI involvement in European or nationally funded project activities, integrated course modules for the development of co-creational research for the graduate students, and independent modules offered by the HEIs for skills and knowledge development.

Looking into our selection of cases, the Urban Academy of the University of Ghent serves as a collective learning platform for users, policy staff, academic staff, and students to tackle sustainability issues confronting society. Similarly, the research conducted at Turku Urban Research Programme informs the municipal governance on how to distribute resources more efficiently, how to enhance collaboration with different stakeholders, and how to better implement strategies.

Regarding the education dimension, the UAB's Digital & Green Skills Programme trains the students of all ages and educational backgrounds as "agents of change" for a circular economy. Whereas, the University of Ljubljana's RUARDI project

facilitates interdisciplinary student research, which analyzes and provides recommendations for enlargement, optimization, and integration of the existing city airport into the local environment and community.

2. COMMITMENT OF DIVERSE RANGE OF STAKEHOLDERS FOR URBAN INNOVATION

Regardless of the HEI involvement in the initiatives as leading or participating knowledge actors, the cases highlighted in the collection has shown that urban innovation takes place with the coordination and commitment of a number of societal stakeholders. This clearly reflects the definition by Westerlund and Leminen (2011)[1] of the living labs as "physical regions or virtual realities where stakeholders form public-private-people partnerships (4Ps) of firms, public agencies, universities, institutes and users, all collaborating for creation, prototyping, validating and testing of new technologies, services, products and systems in real-life contexts". This nature of the collaborations are observed to be particularly more prominent with the initiatives targeting regional or cross-border energy and mobility transformations. A number of case studies, including Smart Santander, Smart City Innovation Lab, and Shareplace set examples of partnerships with 20+ regional, national, and international stakeholders working towards co-designing new products and services in the participating cities.

While the involvement of diverse stakeholders provides an added-value to the activities and intended outcomes, there are also challenges in terms of coordinating large-scale collaborations, such as involving all the interested and affected stakeholders in the development and experimentation processes. As emphasized in the Smart City Innovation Lab of Porto, in most cases, to implement any smart city idea in real life, the participation of multiple stakeholders is required, including the mayor`s office/municipality, citizens, and technology providers. Parties directly involved in and responsible for the development and implementation of smart city products/services (e.g. in mobility, energy, health sectors) must make sure that the interests and strategic intentions of each stakeholder are considered.

3. STUDENT LEARNING & EXPERIENCE AS MAJOR MOTIVATION FOR THE UNIVERSITY-CITY ENGAGEMENT

One of the major motivations of the interviewed HEI representatives for urban engagement emerged as preparing students to change the world of work, which is impacted by globalisation, technological disruption, and societal challenges.

More particularly, the motivations reported also included increasing student employability by growing their networking opportunities (Chalmers Challenge Lab); helping to start a multi-disciplinary discussion on modern societal issues (Amstelhuis); providing students with an academic attitude and skills in the field

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[1] Westerlund, M., & Leminen, S. (2011). Managing the challenges of becoming an open innovation company: experiences from Living Labs. Technology Innovation Management Review, 1(1).

of interdisciplinary research (MPA Masters, Creative Design Semester); personally and professionally preparing the students for the world of work (Utrecht Co-challenge) and professional practice in the field of urban policy and governance (Science Po); preparing students for the practical challenges they will face in a changing workplace (IPRO); and involving students in an interdisciplinary research to analyse and provide recommendations for enlargement, optimization, and integration of the existing city airport into the local environment (RUARDI).

The motivations for the non-HEI organisations interviewed are found to be focused on the launch and development of technologies for smart cities and innovative approaches to improve the connectivity of local, regional, and transnational mobility, as well as testing low-carbon technological solutions that increase energy efficiency and reduce pollutant emissions. Spatial development has been the third most common motivation mentioned by the case study representatives as part of the following, La Marina Living Lab, HubB30, RUARDI, and The Exchange at Knowledge Market in Australia.

4.   STUDENTS AS CO-CREATORS OF URBAN INNOVATION

In reference to our previous finding, the students in the case study from participating HEIs are found to be placed at the centre of city engagement in universities. This is accomplished through joint research activities, co-challenge projects, workshops, and trainings, which are offered independently or within dedicated study or semester course programmes as part of the curriculum. The case studies have shown that while not all co-created knowledge has turned into concrete or immediate services, products, or technologies, student participation in collaborative initiatives has resulted in impact on student entrepreneurial skills and competencies.

Embedded within the curriculum, the Master's thesis research conducted as part of the Turku Urban research programme allows students to work with the city municipality, leading to research results that have a practical application on various levels of municipal governance. For example, how the resources should be distributed with better efficiency, how to enhance collaboration with different stakeholders, and how to better implement strategy. As a one-off project at the University of Ljubljana, RUARDI implemented interdisciplinary research activities involving students, resulting in their recommendations being included in the city development strategy and spatial act, which was approved by the Municipality and its council.

Organised by Novel-T, University of Twente, Overijssel province, students, academics, and researchers, the 20Creathon is a weekend challenge during which the students conceptualise challenges presented by the selected organisations, listen to lectures, develop software or hardware solutions, and pitch their solutions. Accommodated as an extra-curricular activity, the programme encourages the

development of an entrepreneurial spirit of participants to help establish more strategic relationships among the regional stakeholders.

5.   ALIGNMENT IN REGIONAL AND INSTITUTIONAL POLICIES NECESSARY FOR SUCCESSFUL UNIVERSITY-CITY COOPERATION

A common statement from the interviewed HEI representatives has been the importance of the alignment of regional and institutional policies. This is a crucial supporting factor for the successful implementation of city engagement initiatives.

At the macro level, there is an innovative and entrepreneurial regional ecosystem, including pacts and networks, which enable government policies. For example; those focusing on circular economy, Responsible Reseach and Innovation (RRI), and the presence of long term development visions for the regions that are reported to support stakeholders in achieving their collaboration targets. In addition to the policies, there are funding mechanisms in place. For example, there is financing provided by the city municipalities, national funding schemes for co-creation, and European funding channels, e.g. FP7 and ERDF, which ensure the sustainability of the initiatives.

At the meso level, there is a university innovation ecosystem, which enables institutional policy & strategies of the HEIs, as well as involvement and commitment of high level management in these initiatives. These are reported as some of the most important determinants of success. Autonomous University of Barcelona (UAB) can be highlighted as one of the universities that has developed an enabling ecosystem for urban engagement with their UAB Strategic 2030 Plan, UAB Libraries Strategic Document (referred to in the case Library Living Lab - LLL), internal regulations for the recognition of the UAB Labs, UAB RRI Policy, and citizen-led interest groups at the micro level. Similarly, sustainability has been identified as a strategic goal for both the City of Ghent and the University of Ghent, which provides a solid ground for long-term collaborations to be jointly initiated and implemented.

6.   UNIVERSITY-CITY   ENGAGEMENT   FACILITATED   THROUGH TARGETED STUDY PROGRAMMES

Some of the HEIs featured in our good practice collection has taken a more structured approach in addressing urban development and societal challenges via establishing dedicated study programmes. Combining core academic courses, professional experience, and advanced methodological training, these programmes allow for the training of professionals who are well informed about urban dynamics.

The Masters of Regional and Urban Strategy (Stratégies territoriales et urbaines, STU) based in France is one of these programmes. It prepares students for professional practice in the field of urban policy and governance. As part of their

studies, the students get the chance to work on a real commission from a public or private organisation on an urban or regional issue, e.g. housing, land use, economic development, transport, or mobility.

Similarly, a two-year programme worth 120 ECTS, the Master in Management, Policy Analysis and Entrepreneurship in Health & Life Sciences offered by the Free University Amsterdam, gives students the opportunity to specialise in 5 different tracks of studies, including community-based health technologies, as well as health & life sciences based management and entrepreneurship. Industry and public organisations work with the university as direct partners, including (Amsterdam) Municipality, Ministry, and NGOs as internship hosts. As reported by the case study representatives, 95% of the students find employment within the first year of graduation, which can be regarded as a strong indicator of the success of the programme.

7. DIVERSE IMPACT OF THE ENGAGEMENT EFFORTS ON BOTH HEIs AND THE CITIES

The university-city engagement efforts, also within larger regional scale collaborations, not only result in considerable impact on student learning, skills development, and attitude towards the societal challenges, but they also have a great impact on urban development and life quality in the cities.

Transversal skills, e.g. teamwork, creativity, courage, non-schematic thinking, are gained through the semester or study programmes, weekend challenges, or projects. These skills are combined with an acquisition of technical capabilities used in professional softwares, such as Geographical Information Systems (GIS) and statistical analysis, which help support graduates in finding employment in their field of interest. In addition to developing a deeper understanding of the topics of sustainability and clean energy, by participating in cross-sectoral projects, the students find the opportunity to network and launch strategic relationships with urban stakeholders as potential employers. Academics, on the other hand, improve their teaching skills and find a more robust connection between the theoretical background explained during the courses and the reality of professional practice. The result of the collaborations for the HEIs include increased employment and internship opportunities for the students, academic outputs, e.g. research and scientific papers, presentations for the researchers, and follow up projects. Thus, resulting in new funding opportunities.

Regarding the impact of the university-city engagement projects on the cities, the results range from spatial development, e.g. activated shopfront space and enlivened areas with benefits for nearby businesses (The exchange at Knowledge Market), to the expansion of the optical fiber network (Porto Living Lab). As well as, technological innovations, such as smartphone apps for sustainable mobility (Drive Green), environmental measurement, and sensor systems (Smart Santander). Cities also benefit from new startups, businesses, and employment (AI4All).

8.   LACK OF FINANCIAL STABILITY POSES A BARRIER TO SUSTAINABILITY

Limited funding due to short-term project periods is one of the most common barrier to the sustainability of urban engagement efforts. Interviewees from the HEIs particularly emphasized their insufficient funding for research and lack of time for effective implementation. Sustainable and longer-term funding is especially needed for follow-up activities and the sustainability of the solutions proposed by the students from their urban challenge projects.

In terms of mindsets and mechanisms, traditional education and service systems presented another barrier to the adoption of open innovation principles. In the case of the Library Living Lab (LLL), the transformation of the traditional model of a library limits the effective implementation of the lab activities. Whereas, in the Chalmers Innovation Lab, the co-creation methodology in teaching and research is perceived as a threat to the traditional university model, challenging a wider adoption of the approach across the university. In the case of 20Creathon, the potential of the initiative was hindered by the university's resistance to change. Despite being recognized at an institutional level, the need for a more innovative educational model is not being fully implemented. Similarly, the fact that Ghent Urban Academy operates in a power free setting, not within the policy commissions, led to rejection of some sustainability solutions by the university leadership at the start.

In line with our previous point, the differences in organizational cultures brings complexity and delays in the decision making and implementation processes, as reported by the interviewees. This can be caused by high bureaucracy and differences in the speed of response. Finally, it is emphasized in a few cases that a lack of methods to evaluate short-term progress and a lack of assessment and evaluation of the engagement activities limits further development of the existing activities.

9.   PEOPLE FACTOR IS KEY TO SUCCESSFUL COLLABORATIONS

Partnership based on collaborative relationships and mutual trust have been found to be the most important determinants of success in the engagement activities of the featured case study organisations. Some of the success factors highlighted by the interviewees include a high level of trust placed by all involved actors, a willingness to cooperate regardless of required extra resources, motivations and self-interest of the team in developing the programmes further, a collaborative culture of the partners, and a presence of enthusiastic researchers.

It was also noted that it is crucial to have shared goals among partners and, ideally, a pre-existing relationship to help support the collaboration processes. Examples from the featured case studies show that a positive working climate shared by partners increases the quality of the outputs and the impact of the initiatives. The well-established partnership between Sciences Po and local government agencies has created a culture of nurturing from the authorities and a sense of responsibility

towards the training of future professionals. When student involvement in university-city collaborations are considered, the motivation of the students to participate in applied interdisciplinary projects and work on real-life city challenges to positively contribute to the society and environment considerably impacts the success of the programmes.

In addition to the impact of the human factor in the success of collaboration, the analysis results have indicated other elements that contribute to the stability and sustainability of the activities. The availability of human and financial resources from the European public research funds and from the municipalities are highlighted as another major success factor in the urban collaboration efforts. Moreover, the transversal nature of the university campuses, which incorporate researchers from different areas working on the same projects, as well as the multidisciplinary component of the collaboration initiatives, which promote innovation through coordinated dialogue, are stated to contribute to the achievement of project targets. Also, interviewees reported that a selection of candidates that ensured diversity through background, gender, and education, allowed a holistic approach to open innovation (Chalmers Innovation Lab).

10. MORE FLEXIBILITY NEEDED IN THE CURRICULUM FOR TRANSDISCIPLINARY PROJECTS

The challenges that the case study organisations face in their urban collaborations are varied. The most prominent challenges include a lack of alignment in the stakeholder motivations and interests, a difficulty in determining and reaching out to the relevant partners for student projects, and a lack of flexibility in the study curriculum to embed new, co-creational learning models. Regarding the first point, it is important to bring the stakeholders to a mutual understanding about each other's individual benefits. This can be achieved by helping them to truly interact with each other and thoroughly consider the potential implementation of the results, which are restricted by different priorities of the Municipality and the university.

As for the co-creational student projects, it is stated to be a challenge to find reliable partners who are interested in cooperating with student teams. This includes establishing new partnerships and selecting topics that are relevant for the content of the course, as well as professional practice. Sponsors or external parties working with students have to commit a sufficient amount of time from a professional within the partner organisation to accommodate the academic calendar, as well as student schedules, with patience and understanding. Some other topics that arose in the case study reports focus on student attendance to formal team meetings, virtual team meetings, and status meetings with team mentors, as well as the differences in the IPRs of the value created within inter-organisational student teams. Finally, some of the case study interviewees mentioned the difficulty to find the right way to convey research results to policymakers, as well as to keep people informed about the programme benefits in different departments of the city administration.

11. **FINAL NOTE: POLICY AND CULTURE CHANGE IS NECESSARY FOR THE FULL POTENTIAL OF THE COLLABORATIONS TO BE REALISED**

Our analysis has revealed that the HEIs are sought after partners to public and private bodies in making informed policy decisions, co-creating smart technologies, and collaboratively shaping urban regeneration strategies. In most cases featured, the students are active partners in the co-creation of innovation and technologies that allows them to acquire new skills and competences associated with social entrepreneurship, innovation, and urban development; to gain awareness on the needs and challenges faced by their local communities; and to improve their employment opportunities working alongside urban stakeholders. The most common motivators for the HEIs to take part in co-creational initiatives is to prepare students for the changing world of work, which is impacted by globalisation, technological disruption, and societal challenges.

The people factor emerged as one of the major supporting elements of success with academics and researchers committed to developing and experimenting with new models of teaching, regardless of extra resources needed. As well as, stakeholders setting the base for collaboration through mutual trust and shared interests that ensure sustained relationships extending beyond the project lifetime.

Despite this positive picture and unwavering commitment of the featured HEIs in the city engagement initiatives, there are several barriers that need to be overcome. Unsupportive regional innovation ecosystems and lack of policies set major obstacles to stakeholder engagement for collaborative innovation. Difficulties accessing stable and long-term funding, as well as institutional resistance from academia towards new approaches to teaching and research, are among other major challenges that prevent the collaborations reaching their ultimate potential.

To address this, it is important for the city stakeholders, including the HEIs, to act as promoters of collaborative innovation to increase awareness and recruit a more diverse range of partners to sustain their activities towards achieving societal mission. In that, further dissemination of the successful collaboration results, which highlight good practices and a strong emphasis on the positive impact of the partnerships on the partner organisations, is crucial for the desired policy and culture change.

6.1   Characteristics of the Case Studies Selected

Geographic distribution of cases

Due to the aim of the project targeting European universities, except the two global cases, all initiatives selected involve European universities and urban stakeholders as change actors. Among the 27 cases analysed, five represented European collaborative initiatives (see Appendix 1).

Region	Countries Featured	# Cases
Southern Europe	Portugal, Spain, Italy	11
Western Europe	Netherlands, France, Belgium, UK, Germany, Austria	7
Northern Europe	Finland, Sweden	2
Eastern Europe	Slovenia, Poland	4
Global cases	USA, Australia, Demola Network	3

Selection based upon supporting mechanisms

At the same time, the application of the four different types of supporting mechanisms are portrayed in a number of cases. While some cases show the application of only one supporting mechanism, most cases include several.

Supporting Mechanism	# Cases
Policy	5
Strategy	3
Structure	11
Activity	17

Characteristics of the learning and teaching arrangements

The cases were both of formal and informal nature as well as curricula-bound and co-curricular. There were also a mix of pedagogies, curricula and programmes developed, which were intern-institutional and cross-disciplinary than institution-wide or subject specific, as can be seen below.

Formal or Informal?	# Cases
Formal	9
Informal	14

Curriculum Arrangement	# Cases
Curricula-bound	6
Co-curricular	16
Extra-curricular	-

Level of Initiative	# Cases
Inter-institutional	5
Institution-wide	1
Cross-disciplinary	17
Subject level	2

Form of Teaching	# Cases
Pedagogy	10
Curricula/Course	9
Programme/Degree	2

The Nature of the Student-City Interaction

The final selection of the cases also covers four different university-city cooperation activities within the areas of student teaching and research. Although there are cases that focus only on one activity, many cases include several. Out of the 27 cases that have been developed by the project partners, in four - Hubb30, Porto Living Lab, Smart Santander, and Shareplace - the collaboration between the urban stakeholders and the universities involved has been discussed from a holistic perspective without in-depth references to the nature of the student involvement into the below mentioned activities.

Activities	Abbreviation	# Cases
Joint supervision of project research (product & service development)	Project Research	11
Joint supervision of graduate (Master's & PhD) thesis research	Graduate Research	8
Joint student teaching/mentorship (challenge programmes and teaching modules for skills and knowledge development)	Teaching and Mentorship	9
Internships offered by urban stakeholders, during or after the HEI collaboration programme/activity	Internships	5

7. APPENDIX 1. Selected Case Studies

Case	Region	Country	Case study name	Organisation(s)Name	Description	Nature of Interaction	Supporting Mechanism
1	Southern Europe	Portugal	Porto Living Lab	Porto Digital, Municipality of Porto, and University of Porto (Center of Competence for Future Cities)	The partnership between Porto Digital, the Municipality of Porto, and the University of Porto turned the city of Porto into a smart city and an urban-scale living lab	Holistic overview of the case	Operational
2	Southern Europe	Portugal	Matosinhos Living Lab	Municipality of Matosinhos, CeiiA, Porto Polytechnic, Metro do Porto, Efacec,HealthyRoad, JCDecaux, Datarede, (12+ more)	Matosinhos Living Lab aims to test low-carbon technological solutions that increase energy efficiency and reduce pollutant emissions	Internship, project research	Policy
3	Southern Europe	Spain	La Marina Living Lab	Consorcio València 2007 (Government of Spain, the Regional Government of Valencia, and Valencia City Council), Western Sydney University (WSU)	La Marina Living Lab seeks to engage citizens in the transformation of La Marina de Valencia	Project research	Structural
4	Southern Europe	Spain	AI4ALL: Artificial Intelligence Applied to Industry	Parc de Recerca UAB, Escola Enginyeria UAB i Centre Visió per Computador, UAB Research Park, UAB Engineering School, and Computer Vision Center	Program to promote specialized territorial entrepreneurship	Project research	Operational

5	Southern Europe	Spain	Digital & Green Skills for a Sustainable Economy	Universitat Autònoma de Barcelona, Consell Comarcal del Vallès Occidental	A transversal project focused on people under 30 years with all educational backgrounds	Teaching and mentorship	Operational
6	Southern Europe	Spain	Library Living Lab (LLL)	UAB, CVC, Sant Cugat Municipality, Barcelona Provincial Council, Association of Neighbours of Volpelleres	Exploring how technology transforms the cultural experience of people: the systemic change for public libraries in the digital transformation	Project research	Strategy and Structural
7	Southern Europe	Spain	HubB30: An alliance to promote the innovation at the B30 area	UAB, UAB Research Park, Eurecat (The Technology Centre of Catalonia), Àmbit B30 Association	Strengthening links among the stakeholders of B30 community, coming from HEIs, to facilitate knowledge exchange and better flow of resources for innovation	Holistic overview of the case	Strategy and Structural
8	Southern Europe	Spain	UAB Open Labs	Generalitat de Catalunya (Regional Government), Universitat Autonoma de Barcelona (UAB)	Network of co-creation spaces that serve as a driving force for social and digital innovation within the campus and the territory	Project research	Policy, Strategy, and Structural
9	Eastern Europe	Slovenia	RUARDI: Developing alternative solutions for degraded industrial environment	University of Ljubljana, Institute for Innovation and Development of University of Ljubljana, +4 more	Recommendations for enlargement, optimization and integration of the existing city airport into the local environment and community	Project research	Operational
10	Eastern Europe	Poland	Creative Design Semester & UniStartApp	Warsaw Design Factory, Warsaw University of Technology, Municipality of Warsaw, companies from the IT industry	Students perform open project tasks in groups, allowing them to acquire the features demanded by employers of today	Project research	Operational

11	Western Europe	Netherlands	20Creathon	Novel-T, University of Twente, and project partners	Creating surprising solutions for social issues	Teaching and mentorship	Operational
12	Western Europe	France	Projet collectif (Group project), Masters of Regional and Urban Strategy	Urban School, Sciences Po University	The Masters of Regional and Urban Strategy prepares students for professional practice in the field of urban policy and governance	Graduate research, teaching and mentorship, apprenticeship	Operational
13	Western Europe	Belgium	The Urban Academy	Department of Political Sciences + Department of Architecture and Urban Planning, Ghent University	A 'collaboratorium' in the face of wicked sustainability issues in Ghent	Teaching and mentorship, graduate research	Structural, Operational
14	Western Europe	Netherlands	Master in Management, Policy Analysis and Entrepreneurship In Health & Life Sciences	Vrije Universiteit Amsterdam	Science for solving society's complex problems	Internship, graduate research	Structural, Operational
15	Western Europe	Netherlands	Urban Vitality research programme and AMSTELhuis living lab	Amstelhuis, Amsterdam University of Applied Sciences	Cooperation between a university of applied science and a residential community for improving the experience of the senior citizens in Amsterdam	Traineeship, project research	Structural, Operational
16	Western Europe	Netherlands	Utrecht Co challenge	Graduate School of Life Sciences and Career Services of Utrecht University, UMC Utrecht (UMCU), The City of Utrecht	Co-create solutions to life's professional challenges	Teaching and mentorship	Operational

17	Northern Europe	Sweden	Challenge Lab	Chalmers University of Technology	A collaborative project that aims to reinforce students and the university as an active part within local and regional ecosystems	Graduate research	Operational
18	Northern Europe	Finland	Turku Urban Research Programme	City of Turku, University of Turku, Åbo Akademi University	Providing research-based policy advice	Graduate research	Operational
19	European Collaboration	Portugal, Germany, Netherlands, (+ more)	Smart City Innovation Lab	Virtual Power Solutions, Media Primer, Lisboa E-NOVA, Atos, Fraunhofer, Moosmoar, Siemens, Amsterdam University of Applied Sciences (8+ more)	The research of the Smart City Innovation Lab focuses on building tools to help practitioners to develop business models for smart city solutions	Graduate research	Structural
20	European Collaboration	Spain, UK, Germany, France, (+ more)	SmartSantander	Municipality of Santander, University of Cantabria, Telefonica I+D, Alcatel-Lucent S.P.A., Alcatel-Lucent S.A., Ericsson D.O.O., TTI Norte, (11+ more)	SmartSantander supports experimental advanced research on IoT technologies and realistic assessment of users' acceptability tests	Holistic overview of the case	Structural
21	European Collaboration	Italy, Austria, Croatia, Germany, Hungary	Shareplace	AustriaTech, Redmint, Municipality of Bergamo, Autoguidovie Spa, City of Ulm, Ulm University, (7+ more)	The overall goal of SHAREPLACE is to develop an innovative approach to improve the connectivity of local, regional, and transnational mobility systems	Holistic overview of the case	Policy
22	European Collaboration	Slovenia, UK, Serbia, Hungary	DriveGreen	University of Ljubljana, Faculty of electrical engineering, Laboratory for Telecommunications, (3+ more)	Development of an ethnography-based smartphone app supporting sustainable mobility and contributing to the reduction of greenhouse gas emissions	Teaching and mentorship, project research	Operational

23	European Collaboration	Slovenia, Netherlands, Bulgaria, Poland, Germany, France	Remining-lowex	University of Ljubljana, Faculty of mechanical engineering, Laboratory for sustainable buildings, Municipality of Zagorje ob Savi, Mine Zagorje	Demonstrating the use of local available low-valued renewable energy sources from water in abandoned mines for heating and cooling of buildings	Teaching and mentorship, project research	Policy, Structural, Operational
24	Global	Australia	The Exchange at Knowledge Market	RMIT University Melbourne, Lendlease	An interdisciplinary living lab and design research project that investigated the future of urban living embedded in a multi-purpose space in Victoria Harbour	Project research	Structural, Operational
25	Global	Illinois, USA	IPRO – Interprofessional Projects Programme at IIT (Illinois Institute of Technology)	IIT – Illinois Institute of Technology, Chicago, and a number of external collaborators (corporations, entrepreneurial ventures, non-profit organizations, government agencies)	The IPRO Program prepares students at IIT for the practical challenges they will face in a changing workplace by emulating a cross-functional team environment	Internship, teaching and mentorship	Policy
26	Global	Finland	Demola	Demola Network	A co-creation programme between students and external organizations to deliver challenge-oriented ideas	Internship, teaching and mentorship	Operational

8. APPENDIX 2. Analysis of the Case Studies

Case	Nature of the Interaction (+ joint suppport with valorisation of student outputs)	Length of Programme	Formal or Informal	Curricula-bound, Co-curricular or Extra-curricular?	Pedagogy, Curricula/Course, or Programme/Degree?	Level of Initiative (Inter-institutional, Institution-wide, Cross-disciplinary, or Subject level?)
AI4All	Project Research	Not Specified	Formal	Curricula	Course	Cross-disciplinary
Digital & Green Skills	Teaching and Mentorship	Not Specified	Formal	Curricula	Course	Cross-disciplinary
Library Living Lab (LLL)	Project Research	Not Specified	Informal	Co-curricular	Pedagogy	Cross-disciplinary
Hubb30	Not Specified	NA	NA	NA	NA	NA
UAB Open Labs	Project Research, Graduate Research	Not Specified	Informal	Co-curricular	Pedagogy	Cross-disciplinary, Institution-wide
Chalmers	Graduate Research	Semester Long	Informal	Co-curricular	Course	Cross-disciplinary
20Creathon	Teaching and Mentorship	Short - 3 days	Informal	Co-curricular	Course	Cross-disciplinary
Demola	Internship (after), Teaching and Mentorship	Short - 8 weeks	Informal	Co-curricular	Course	Cross-disciplinary
Science Po	Graduate Research, Teaching and Mentorship	9 months	Formal	Curricula	Degree	Subject Level
Drive Green	Teaching and Mentorship, Project Research, Graduate Research	Not Specified	Informal	Co-curricular	Pedagogy	Cross-disciplinary

IPRO	Internship (after), Teaching and Mentorship	Semester Long	Formal	Curricula	Course	Cross-disciplinary
Remining-lowex	Teaching and Mentorship, Project Research	Not Specified	Informal	Co-curricular	Pedagogy	Subject Level, Inter-institutional
RUARDI	Project Research	6 months	Informal	Co-curricular	Pedagogy	Cross-disciplinary
The Exchange	Project Research	Full Year	Informal	Co-curricular	Pedagogy	Cross-disciplinary
Porto Living Lab	NA	NA	NA	NA	NA	NA
Matosinhos Living Lab	Internship (during), Project Research	Not Specified	Formal and Informal	Co-curricular	NA	Inter-institutional, Cross-disciplinary
Smart Santander	NA	Not Specified	NA	NA	NA	NA
Creative Design Semester & UniStartApp	Project Research	Semester Long	Formal	Co-curricular	Course	Cross-disciplinary
La Marina Living Lab	Project Research	Short - 2 days to a full semester	Informal	Co-curricular	Pedagogy	Inter-institutional
Smart City Innovation Lab	Graduate Research	Not Specified	Informal	Co-curricular	Pedagogy	Inter-institutional
Shareplace	NA	Not Specified	NA	NA	NA	NA
Ghent Urban Academy	Teaching and Mentorship, Graduate Research	Full Year	Formal	Curricular	Course	Cross-disciplinary
MPA Masters	Internship (during), Graduate Research	2 years	Formal	Curricular	Degree	Cross-disciplinary

Het Amstelhuis	Traineeship (during), Project Research	Not Specified	Formal	Co-curricular	Pedagogy	Cross-disciplinary
Turku Urban Research Programme	Graduate Research	Not Specified	Informal	Co-curricular	Pedagogy	Inter-institutional
Utrecht Co-challenge	Teaching and Mentorship	Short	Informal	Co-curricular	Course/Programme	Cross-disciplinary

9. APPENDIX 3. Detailed Information about the Case Study Reporting Framework

Section	Question	Definition	Elements	Sub-elements
BACKGROUND	How was the situation before this case started?	Include **some relevant** details about the organisations and ask the interviewees (max. 1 paragraph)		
CONTEXT	Which is the fixed environment that affects the process?	Individual, organisational, or community characteristics that have a significant positive or negative influence on the case	Individual	• Gender • Age • Fields of knowledge • Academics' experience in business • Academics' experience in the HEI
			Organisational	• Type of HEI • Size of HEI
			Community	• Political • Economic • Social • Technological • Legal • Environmental
OBJECTIVES/ MOTIVATIONS	What were the reasons/motivations which led to the start of the case?	Please state the reasons/motivations for the actors to undertake such actions (please ask this to the different actors and include all answers)	Please state the reasons/motivations for the actors to undertake such actions (please ask this to the different actors and include all answers)	
STAKEHOLDERS	Which are the main stakeholder groups involved in this case? Which roles do each of the stakeholder groups have?	State the stakeholders involved in the case and briefly describe their roles (focusing on the most important ones and their responsibilities)	• Students • Academics • HEI Managers • Businesses • City or Regional Government • National or International Government • Intermediaries	

Section	Question	Definition	Elements	Sub-elements
INPUT	What are the resources put into the system?	Resources utilised to undertake UBC activities	Human	• Students as conduits of knowledge and skill • Researchers as providers of scientific knowledge • Researcher quality and quantity • Lecturers as knowledge providers • Intermediaries as connectors and facilitators • HEI managers as leaders
			Financial	• Funding by government, business, or HEIs
			Physical	• Material, equipment, facilities (etc.)
ACTIVITIES	What are the activities taking place?	UBC actions undertaken to bring about the intended outcomes	Education	• Joint curriculum design and delivery • Lifelong learning • Student mobility
			Research	• Professional mobility • Joint R&D
			Valorisation	• Commercialisation of R&D results • Entrepreneurship
OUTPUTS	What are the concrete outputs derived from the case?	Direct products, services, or other properties that are delivered as a direct result of the activity	Individual	• Academics' and student outputs
			Organisational	• HEIs' and business outputs
IMPACTS	What are the changes that occurred as a result of the activity for individuals, organisations, and societies?	Social, economic, civic, and/or regional consequences or changes resulting, intended, or unintended	Individual	• Academics' and student impacts
			Organisational	• HEIs' and business impacts
			Community	• Industry, science, society
SUPPORTING MECHANISMS	What are the mechanisms	Interventions in the form of policies,	Policy	• Economic and financial mechanisms • Regulatory mechanisms

Section	Question	Definition	Elements	Sub-elements
	supporting the activity?	strategies, structural, and operational mechanisms that support the case		• Other policy mechanisms
			Strategic	• Documented strategic mechanisms • Implementation strategic mechanisms
			Structural	• People-based structural mechanisms • Office/centre-based structural mechanisms • Programme-based structural mechanisms
			Operational	• Communication and exchange mechanisms • Linking and support mechanisms • Training and seminar mechanisms
BARRIERS AND DRIVERS	What are the temporary conditions that affect the process?	Factors that can have a positive or negative influence on the case and can be modified in the short/medium term	Barriers	• Initiation and awareness barrier • Funding barriers • Organisational culture • Organisational characteristics
			Drivers	• Resource availability • Personal relationships
CHALLENGES	What are the main challenges that you foresee for the future regarding this case?	Based on the barriers and drivers, name the main challenges that the organisation(s)/relationship face(s) for the future.		
MONITORING AND EVALUATION	Are there any monitoring and evaluation mechanisms for the actions/results above?	Existence of monitoring tools and indicators on an institutional, national, or regional level		
SUSTAINABILITY MEASURES	Are there any measures in place to guarantee the	Sustainability measures in existence		

Section	Question	Definition	Elements	Sub-elements
	sustainability of this case?			
KEY SUCCESS FACTORS	What are the factors that you consider to have been essential to achieve success?	Factors that have been identified in the case		
AWARDS AND RECOGNITION	Has this case/organisation(s) been previously awarded by someone else?	Please cite any award of recognition that the organisation(s) have previously received for their cooperation/innovation/related topic		
TRANSFERABILITY	Has this case been transferred somewhere else? If not, do you think your case could be transferred to a different environment?	Please add how this case could be transferable to other locations or if it has already been transferred		
PUBLICATIONS	Any publications that have already been published about the case			
LINKS	Please include any relevant link in which the reader can find more information about the case			
PUBLIC CONTACT DETAILS	Please cite the contact details of the person(s) (max. 2) that have agreed to be included as a public contact person(s) for the case			