EU CONEXUS
Research for Society

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EU-CONEXUS Research For Society

D5.2

"Checklist of good practises for cooperation among actors of innovation ecosystems"

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QUESTIONNAIRE: Checklist of good practises for cooperation among actors of innovation ecosystems 29

1. Preamble - Purpose of the document and links to the EU-CONEXUS University Industry Framework:

This report is a part of the ongoing work of the EU-CONEXUS-RFS project funded by the European Commission in supporting higher education institutions around Europe in their institutional transformation. The report has been produced from the responses provided by each partner of the Consortium (Klaipeda University, KU, Catholic University of Valencia, UCV, Agriculture University of Athens, AUA, Technical University of Civil Engineering Bucharest, UTCB, La Rochelle Université, LRUniv, and the University of Zadar, UNIZD) that are based on institutional experience performing knowledge transfer and innovation transformation actions at universities. The aim of the survey - to collect the good practises for cooperation among actors of innovation ecosystems. The questions of the survey have been built consulting the relevant documents of European Commission, Directorate-General for Research and Innovation[1] and consisted of 14 questions (see annex I) approaching relevant institutional areas including sharing capacity, infrastructure, resources, strengthening human capital, cooperation in knowledge transfer and innovation with other sectors. The data gathered in this survey is not used to measure individual universities, but to prepare the checklist itself. The conclusions/suggested actions drawn at the end of the document would foresee reinforcing the knowledge transfer and innovation within the Consortium.

- [1] Directorate-General for Research and Innovation (DG R&I) and Technopolis Group and CWTS-Leiden University. Survey on institutional transformation at universities, 2021.

- European Comission. Knowledge Transfer Metrics. file:///C:/Users/angel/Downloads/kjna30218enn.pdf [Accessed on 31st January 2022]

- European Comission. Research and innovation. https://ec.europa.eu/info/research-and-innovation_en [Accessed on 31st January 2022]

- European Universities Initiative. Reinforcing cooperation in R&I with other sectors. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022SC0006 [Accessed on 31st January 2022]

Herewith, the EU-CONEXUS alliance realizes an aim - to create a comprehensive educational and research system together with internal and external actors benefiting from cross-sectoral training and knowledge. This challenge is described in the document *EU-CONEXUS University Industry Framework (* 06_University-Industry Strategy - Files - NEXTCLOUD EU-CONEXUS). As the EU-CONEXUS partners are located in European geographical regions with a close relationship to the coastal environment, they face common and shared socio-economic and intellectual challenges and are set out to exchange best practices and different experiences such as the multilateral fruitful collaboration with leading industries and regional and local stakeholders. One of the Framework objectives emphasizes the importance to collaborate in joint research & development projects that promote knowledge transfer and innovation, responding to society's needs, and helping to address current and future challenges. That means – maintaining an ecosystem in universities where the networks of mutual interest are created in order to exchange knowledge and innovations.

2. University ecosystem mapping

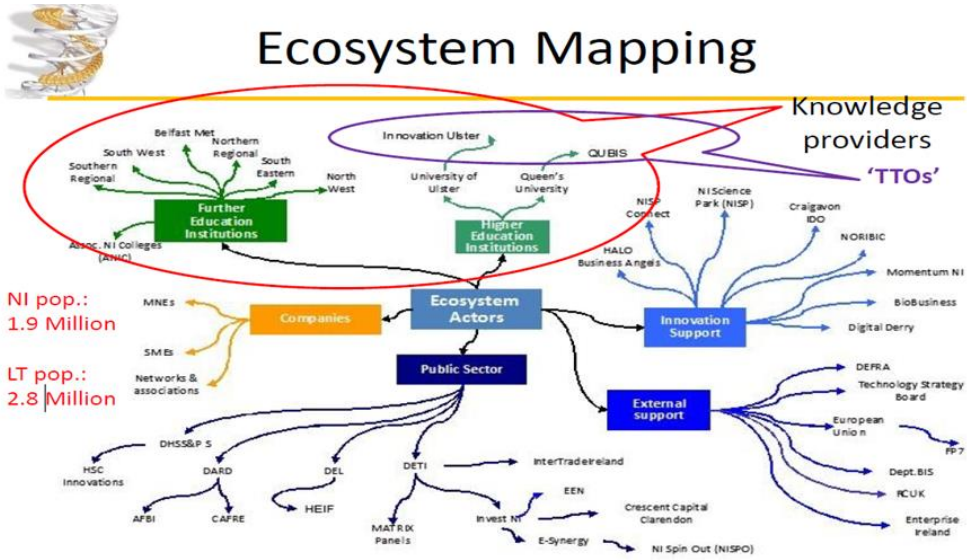
Innovation ecosystems are co-innovation networks, in which actors from organisations concerned with the functions of knowledge production, wealth creation and norm control interact with each other in forming co-evolution and interdependent relations (both direct or indirect) in cross-geographical contexts, and, through which new ideas and approaches from various internal and external sources are integrated into a platform to generate shared values for the sustainable transformation of the society

(EUA Study "The Role of Universities in Regional Innovation Ecosystems" https://www.eua.eu/downloads/publications/eua%20innovation%20ecosystem%20report_final_digital.pdf)

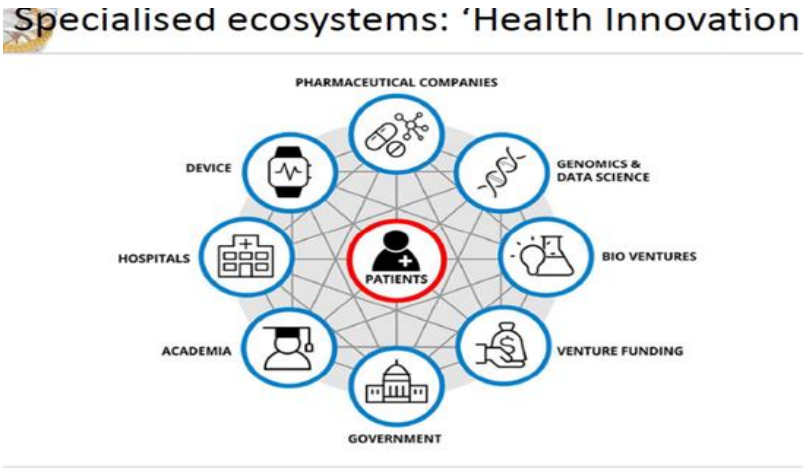
Ecosystem mapping as a tool to identify key players, build on strengths and improve weaknesses has been widely used in business organizations as it clearly shows all the high-level exchanges of value between the client and the groups with which it's interacting.

Having the Third Mission – to serve the society - universities are highly involved in innovation ecosystems, consisting of a set of actors that engage with regional and national innovation ecosystems through relationships with the industry.

An innovation ecosystem could be understood as the evolving set of actors, activities, and artifacts, and the institutions and relations, that are important for the innovative performance of an actor or a population of actors. According to the purpose, there could be carried out a comprehensive mapping embracing all stakeholders involved into the university activities like in an example below:



There also could be developed a map for a specialized ecosystem, ex. for medicine, biotechnology, engineering, design:



For ecosystems mapping, quite a lot of work has been done within the EU-CONEXUS consortium during implementation of the Erasmus+ project when the partners filled in the Excel sheet listing the stakeholders of each university. Here we can see more than 300 stakeholders in total that are networking with the universities in different fields. By universities, the numbers of stakeholders are:

LRUniv	AUA	UTBC	UNIZD	UCV	KU	UROS	SETU	FredU
126	15	31	21	39	30	14	n/a	21

Abbreviations used for the universities:

LRUniv - La Rochelle Université

AUA - Agricultural University of Athens

UTBC - Technical University of Civil Engineering Bucharest

UNIZD - University of Zadar

UCV - Catholic University of Valencia

KU - Klaipeda University

UROS - University of Rostock

SETU- South East Technological University

FredU - Frederick University

There are several methodologies to analyse an ecosystem. One of the examples is from the FLAGSHIP project (Horizon 2020) https://www.flagshiproject.eu/wp-

content/uploads/2021/03/Flagship_D10.3-Stakeholders-mapping_final.pdf . The project defines the purpose of the mapping and the actions needed to reach them, such as:

- overview on the theory, methodology and data collection procedure for stakeholders' analysis; objectives of the Stakeholders mapping;
- identification and categorization of the main stakeholders in four main groups: Research and Scientific Community, Industry, Policy Makers and Media-General Public;
- prioritization of the stakeholders according to their power and interest.
- planning and defining tools for the stakeholders' engagement.
- defining the main channels for communication and dissemination.

3. EU policy enhancing innovation ecosystems in universities

As it is said in the paper published by OECD "Supporting Entrepreneurship and Innovation in Higher Education in Lithuania" (© OECD/EUROPEAN UNION, 2021):

"What was once called the "third mission" of HEIs has become a broader concept that requires HEIs to connect proactively with their ecosystems and networks. Knowledge exchange takes different forms: academic engagement such as collaborative research, contract research, consultancy and academic entrepreneurship, including income generation derived from intellectual property (IP), the formation of spin-off firms and start-ups. Other types of knowledge exchange include public engagement, community engagement, and cultural and social forms of exchanges. These different channels involve individual academics and groups of academics, as well as the departments, faculties and the university as a whole.

However, attractive research systems, sales impacts and intellectual assets are the weakest innovation dimensions. Low-scoring indicators include: exports of knowledge-intensive services, R&D expenditures in the business sector, public-private co-publications, and foreign doctoral students.

While institutions show some promising signs of reflecting on how HEIs can meet broad societal challenges, they should consider how to strategically widen knowledge exchange and collaboration (KEC) activity (as opposed to technology transfer). To promote a rewarding

exchange of ideas, research, expertise and resources in the context of principled negotiation and reciprocity, knowledge engagement and collaboration between researchers, businesses, public actors and civic communities will require an articulation of HEIs' roles in society. It will also require visionary leadership at every level, building up and expanding own innovation ecosystem. The options to accelerate the process include:

4. University inventory of existing R&I collaboration partners from other sectors (Survey results).

As it is mentioned above, there was the analysis carried out aiming at measuring institutional capacities and arrangements at universities in the area of knowledge transfer and innovation within the Consortium partners. The tool for this analysis – the survey consisting of 14 questions (see annex I) approaching relevant institutional areas including sharing capacity, infrastructure, resources, strengthening human capital, cooperation in knowledge transfer and innovation with other sectors.

First of all, the partners were asked if they carry on a consistent inventory of their stakeholders. According to the answers gathered, the universities of the Consortium are operating an inventory of their existing R&I collaboration partners from other sectors.

KU practices filling 2 registration lists: one – for collaboration agreements/memorandums of understanding having no financial obligations, another – for services/research contracts that include financial undertakings collaborating with other research/education, business, local and regional government organisations, ministries, etc. The financial benefits from the research contracts are summarized each year and reported together with other budget lines. However, there is no consistent inventory of all stakeholders that could be accessed by any interested staff member of the university.

UCV, AUA and UTCB has other research/education organisations, private firms, (public) sector organisations (e.g., government agencies and ministries, regional and local authorities), society/ third sector organisations (e.g., interest organizations, unions, non-profit organizations).

LRUniv has put in place an ERP that lists contacts at socio-economic stakeholders with whom the university is engaged in R&I collaborations. UNIZD has other research/education organisations, private firms, (public) sector organisations (e.g., government agencies and ministries, regional and local authorities).

5. University actions which encourage engagement with actors from outside your university (Survey results)

5.1 Collaboration spaces (e.g. innovation labs, hubs, science parks)

Speaking about reinforcing collaboration with stakeholders, the focus has been put on creating collaboration spaces. Here we see an interesting variety of different places for collaboration.

KU Marine Research Institute has 4 newly equipped research laboratories operating according to the open access principle . The Marine Research Institute is a subdivision of KU, conducting fundamental and applied research on marine and coastal environment and maritime technologies. The Institute aims to facilitate science, study, and business cooperation, based on high-level scientific knowledge and the up-to-date open access research infrastructure of the *Marine Valley*. The concept of the establishment and development of five integrated science, studies and business centres (Valleys) has been approved by The Government of the Republic of Lithuania on 01/04/2014 (https://smsm.lrv.lt/uploads/smsm/documents/files/en_smm/Concept%20of%20Valleys.doc). Since then, Valleys are being operating to achieve 3 main objectives:

- to facilitate generation of high-level research-based new knowledge, i.e. to strengthen and mobilize R&D intellectual capacities, encourage national and international cooperation among scientists and other researchers.
- to promote the development of R&D intensive sectors of the economy and the development and commercial application of innovative products, i.e. to enable science and business to cooperate effectively in R&D and innovation and to advance technology development and transfer.
- to concentrate and update R&D, innovation, higher education, and knowledge-intensive business infrastructure, and to provide its effective application.

The researchers working there also collaborate with representatives from business and society according to the IP Management and Commercialization Policy approved by KU Senate in 2021.
Klaipeda University is in close cooperation with Klaipeda Science and technology Park. Klaipeda Science and Technology Park (KSTP) is a non-profit organization founded in 2002 by the Lithuanian Ministry of Economy and Klaipeda University. KSTP is a business support agency focused on promoting innovations. KSTP provides specialized services in the areas of green and blue (marine) technologies, which are being established as priorities. KSTP is actively involved in international project activities, as well as in the formation and coordination of partnerships and clusters. KSTP specialists provide consultations for companies and individuals which are mostly related to the issues of establishing and developing their business, creating new products and services, as well as the protection of intellectual property (https://www.kmtp.lt/). Researchers of KU are actively involved into activities of KSTP, for example as mentors in annual International Port Technology Hackathon *Portathon*on actual thematic challenges (https://www.kmtp.lt/en/news/portathon-2022-essential-information-16596.html). In cooperation with KSTP, the Aquaculture Competence Centre was established at KU. KSTP also provides consultancy services for KU researchers how to commercialize their developed technologies or inventions. There is the joint PATLIB (Patent Library) centre established and run by KSTP and KU, providing guidance for intellectual property management for both KU researches and stakeholders, business representatives.
AUA has under development a Smart Agro Hub (https://www2.aua.gr/en/news-events/nea/agricultural-university-athens-establishment-and-operation-competence-specialization). In LRUniv, CampusInnov has innovation labs and a creativity room (1000 m² space dedicated to innovation. They are expected to expand in a few years' time, with a brand new 5000 m² building that will allow them to develop their innovation labs and service offer to companies. UCV and UNIZD has university actions regarding this issue under development.

5.2. Involvement into specific initiatives, related to networking and collaboration (e.g. networking platforms, business lunches, etc.).

The specific initiatives for better involvement of the stakeholders have also different forms.

KU builds partnerships on the top management level concluding cooperation agreements between the university and various partners, including HEIs, industry, NGOs, public authorities). KU also has tight relationships with various national and regional networks (associations, clusters, etc.), namely:

- the Klaipeda Lighthouse (https://lighthouse.lt/en) – a digital innovation hub hosting an ecosystem that fosters innovation, builds active community, and aims to promote various forms of cooperation between business, educational, and government institutions;
- Klaipėda ID https://klaipedaid.lt - a non-profit city development agency founded by Klaipėda Municipality aiming at supporting international and local businesses hands-on and hands-off by being there on calls, meetings and events;
- The Association "Klaipėda Region" (AKR) (https://klaipedaregion.lt/en/about-us/) - the association uniting seven municipalities of Klaipėda Region. AKR is aiming at coordination of development and implementation of the economic and smart specialization of the region, where TOP priority sectors are: Marine economy, Bioeconomy, Sustainable tourism, Smart industry, Service economy);
- KU is also a member of various associations/ clusters representing the professional interests of researchers (Lithuanian Maritime Cluster (https://klaster.lt/en/klateris/jurinis-klasteris/), Lithuanian Cleantech Cluster (https://klaster.lt/en/klateris/lietuvos-svariuju-technologiju-klasteris/, Lithuanian Biotechnology Association (https://lbta.lt/en/lithuanian-biotechnology-associasion/), etc..

The university top management, heads of laboratories, researchers, are often invited to business lunches, formal and non-formal meetings dedicated to development of a particular industry.

A specific initiative – development of the concept of the Marine Research Station in Kopgalis (Living Lab) – has to be highlighted. This Station will be adapted to develop the competencies of blue bioeconomy using STE(A)M education methods for various target groups, starting with school students from the Western Lithuania region and ending with participants of international trainings in the Baltic Sea region.

UCV has a network platform through a National Institutes of Health (NIH) grant and a European Marie Curie network. AUA has https://www.eitfood.eu/events/event/e-breakfast-with-aua-ceia3; http://www.techtransfer.aua.gr/en/default.aspx.

UTCB has constructFEST, which is an annual traditional event of UTCB where stakeholders are invited to discuss industry problems and solutions, and to present opportunities for students, and usually informal lunch/dinner is organized for networking. LRUniv organizes lab visits, "Innovation breakfasts" and has a website called "Vitrine de l'Innovation", which showcases innovations that were created out of partnerships with companies, public stakeholders and associations, shedding the light on these projects and on collaboration opportunities with the university LRUniv also has centralized points of contact (researchers) representing 6 socio-economic sectors, who liaise with socio-economic stakeholders looking to benefit from the university's expertise or training programmes. UNIZD has this type of actions under development. UNIZD is starting to organize meetings at the highest management level, where cooperation agreements between the university and various partners are concluded. At the moment, the cooperation relates mainly to the Port of Zadar and fishing companies, as well as to the tourist offices of the city and Zadar County.

5.3 University support for R&I structures and services that assists in technology transfer and/or commercialization processes.

All partner universities provide support in IP protection (e.g. patentability assessment), support in IP commercialisation (e.g. licences), support in making consultancy agreements, contract research agreements or collaborative agreements (including confidential disclosure agreements and material transfer agreements, etc.) in some departments, dedicated staff who liaise between the university and other actors (e.g. knowledge brokers/match makers and/or pattent attorneys connecting researchers to external stakeholders).

The KU structural unit – Research and Innovation Office - among other services assists , the researchers and KU stakeholders in providing guidance for technology transfer and/or commercialization processes. The intellectual property management, technology transfer, commercialization actions are carried out according to the Intellectual Property Management

and Commercialization Policy (only in Lithuanian: https://www.ku.lt/uploads/documents/files/mokslas/Taisykle%CC%87s-2021.pdf). In cooperation with the Klaipeda Science and Technology Park, there is the PATLIB KLAIPEDA (Patent Library) centre established. PATLIB KLAIPEDA provides consulting services for researchers and business representatives of the region. In collaboration with other Lithuanian universities, there was the Lithuanian technology transfer offices network – TTOLithuania – established. Furthermore, the parallel TTO networks of Latvia, Estonia and Lithuania universities are united into the Baltic Technology Transfer Offices Network (BalticTTO) in cooperation with WIPO (World Intellectual Property Organization),

LRUniv, in addition, has a possibility of accessing venture funds (co-)provided or organised by the university (600 K€ invested yearly in research projects in order to turn inventions into innovations. LRUniv has dedicated staff who liaise between the university and other actors (e.g. knowledge brokers/match makers and/or pattent attorneys connecting researchers to external stakeholders), and can also count on theSATT network, the Nouvelle Aquitaine region's TTO office. This network brings together 13 Technology Transfer Acceleration Companies in France, commits to the economical development thanks to scientific innovations resulting from public research. SATTs provide companies with high-potential technological solutions to improve their competitiveness. With nearly 600 start-ups created, the SATTs are the leading local players in the French government's DeepTech Plan, operated by Bpifrance. They are connected on a daily basis to more than 150,000 researchers and offer privileged access to innovations from public laboratories. With their national network, they are the strategic partners of companies seeking growth through innovation.UNIZD has made some organizational changes and established the Center for Projects, Science and Technology Transfer to strengthen the technology transfer components. In addition, there is the recruitment of new staff and their training in this area has become more systematic.

5.4 University actions to develop entrepreneurial skills.

The university actions to develop entrepreneurial skills currently performed or not by the universities of the EU-CONEXUS Consortium are shown in Table 1.

Table 1. Offer of intro course targeted at doctoral students/candidates (R1), PhD holders who are not fully independent, e.g. postdocs (R2), at senior researchers (R3- R4), only for a specific group of researchers, namely, and advanced course targeted at doctoral students/candidates (R1), at PhD holders who are not fully independent, e.g. postdocs (R2), at senior researchers (R3-R4), only for a specific group of researchers, namely. Responses to question 4 of the questionnaire shown in Annex I.

QUESTION NUMBER	QUESTION	KU	UCV	AUA	UTCB	LRUniv	UNIZD
4.1	*Does your university offer Intro course targeted at doctoral students/candidates (R1) to develop entrepreneurial skills?*	No	No	No	Yes	Yes	Yes
4.2	*Does your university offer Intro course targeted at PhD holders who are not fully independent, e.g. postdocs (R2) to develop entrepreneurial skills?*	No	No	No	No	Yes	Under development
4.3	*Does your university offer Intro course targeted at senior researchers (R3- R4) to develop entrepreneurial skills?*	No	No	No	No	Under development	No
4.4	*Does your university offer Intro course only for a specific group of researchers, namely to develop entrepreneurial skills?*	No	No	No	No	No	No
4.5	*Does your university offer Advanced course targeted at doctoral students/candidates (R1) to develop entrepreneurial skills?*	No	No	No	Yes	Yes	Under development
4.6	*Does your university offer Advanced course targeted at PhD holders who are not fully independent, e.g. postdocs (R2) to develop entrepreneurial skills?*	No	No	No	No	Yes	No

4.7	*Does your university offer Advanced course targeted at senior researchers (R3-R4) to develop entrepreneurial skills?*	No	No	No	No	No	No
4.8	*Does your university offer Advanced course only for a specific group of researchers, namely to develop entrepreneurial skills?*	Yes	No	No	No	No	No

5.5 Founded spin-off companies

The number of spin-off companies funded at each university of the EU-CONEXUS Consortium is shown in Table 2.

Table 2. Total number of newly founded spin-off companies founded by students and researchers in 2021 and number of spin-off companies founded by students and early career researchers (R1) in 2021. Responses to question 5 of the questionnaire shown in Annex I.

QUESTION NUMBER	QUESTION	KU	UCV	AUA	UTCB	LRUniv	UNIZD
5.1	*Total number of newly founded spin-off companies founded by students and researchers per year*	1	0	0	0	20	0
5.2	*Number of spin-off companies founded by students and early career researchers (R1) per year*	0	0	0	0	0	0

5.6 University offer of information and training to PhD students/candidates (R1) to get insights in their future career possibilities in various sectors outside higher education (science, policy, industry, society).

Provision of information and training for PHD students at the universities looks rather similar. Most of them offer courses and/or workshops, organisation of career days, career coach/advisor/mentor for career guidance. In addition, UTCB provides (online) career platform, LRUniv - PhD Hackathon.

5.7 Current share of PhD students/ candidates in industrial doctoral programmes.

UCV Doctoral School does not offer industrial doctoral programmes themselves.They offer three Doctoral Programmes (DP): DP in Health Sciences, DP in the Challenges of the Social and Human Sciences in 21st Century Society and DP in Life Sciences and Natural Environment. In each of the programmes, PhD students can obtain the mention "Industrial Doctorate" provided that a number of specific circumstances are met.

UTCB express that they offer 95% applied PhD.

KU Doctoral School does not offer industrial doctoral programmes themselves. But there are already attempts to work on industrial topics on the level of PhD (Ecology and environmental sciences) at KU. Here, the candidate has been admitted according to KU PhD admission rules, but the studies are being financed by the particular industrial company. In LRUniv, PhD students can conduct their thesis under a CIFRE agreement (Industrial Agreement for Training through Research), a national scheme that aims to strengthen exchanges between public research and the socio-economic environment, by promoting the employment of doctoral students in companies to contribute to their innovation processes. The rest of consortium members express that there is no practice of the industrial doctoral programs yet.

5.8 Current share of PhD students/candidates with part-time internships/secondments during their PhD trajectory.

Currently 40% of the students enrolled in the UCV Doctoral School are part-time students. UTCB has PhD students with scholarship that are teaching assistants, PHD students that work part-time and full-time, and they also are involved in research-contracts, all our PhD students are involved in one of this types of activity. LRUniv has around 50%. The rest of consortium members express that they do not have any data available for this issue.

5.9 Current involvement of external stakeholders/users in the design of the PhD training program.

To be online with the business and society innovations and practice, it is important to involve the stakeholders into forming the PHD study programs. However, this feature is not yet implemented in most of partner universities.

As we see from the survey results, KU, UCV and AUA do not have any current involvement yet. However, UTCB and LRUniv declare that they have some involvement of external stakeholders. LRUniv has external stakeholders that are members in its different governing bodies. UNIZD does not have data available for this issue but according to the structure of doctoral programs, which are mainly in the social sciences or humanities, it is difficult to realize these activities.

5.10 Current involvement of external stakeholders/users in strategic planning of university activities.

UCV has current involvement of external stakeholders in the strategic planning of university activities mainly through Master's degree programs. It aims to reinforce this action in near future (<2 years). External stakeholders of KU are directly involved in strategic meetings and decision-making processes as 3 out of 9 members of the University Council are external stakeholders; 2 members of the University Council are appointed by the Student Union - one is a University student, the other is the University graduate; the remaining 4 members are delegated by the University community and are the University employees. Representatives of social stakeholders (employers, professional associations, students) are elected and / or appointed to the University Senate, councils of the University structural units, study field committees; it is a common practice to invite representatives from the labour market to participate in the thesis / project defence panels [KU Self-evaluation Report 2020].

Social stakeholders are also invited to involve in the preparation of the key documents of the University performance which include the University Strategic Action Plan preparation, Institutional self-evaluation report, study fields self-evaluation reports, etc. Stakeholders are also involved in the process of new study programs design and implementation, etc.

In LRUniv, CampusInnov service works closely with a large and diverse ecosystem of local stakeholders who are involved both in the design of curriculum and who animate themselves training courses or workshops in the university. The objective is to integrate these stakeholders

as much as possible in the strategic planning of CampusInnov in order to co-create projects and increase students' employability.

UNIZD has current involvement and they are members of University council and have advisory roles.

5.11 University research and Knowledge transfer achievements in 2021.

For each EU-CONEXUS partner, the number/year of co-publications with industrial partners, contract research agreements, collaborative research agreements, consultancy agreements, invention disclosures (made with industrial partners), patent applications with industrial partners, patents with industrial partners granted and licences are shown in Table 3.

Table 3. Number/year of co-publications with industrial partners, contract research agreements, collaborative research agreements, consultancy agreements, invention disclosures (made with industrial partners), patent applications with industrial partners, patents with industrial partners granted and licences. Responses to question 1 of the questionnaire shown in Annex I.

QUESTION NUMBER	QUESTION	KU	UCV	AUA	UTCB	LRUniv	UNIZD
11.1	*What is the number/year of co-publications of your university with industrial partners in 2021?*	3	100	0	15	400-500	0
11.2	*What is the number/year of contract research agreements in 2021?*	41	7	0	46	0	10
11.3	*What is the number/year of collaborative research agreements in 2021?*	0	9	0	23	150	5
11.4	*What is the number/year of consultancy agreements in 2021?*	29	2	0	284	0	5
11.5	*What is the number/year of invention disclosures (made with industrial partners) in 2021?*	2	0	0	3	5	0

11.6	*What is the number/year of patent applications with industrial partners in 2021?*	2	0	0	7	4	0
11.7	*What is the number/year of patents with industrial partners granted in 2021?*	1	0	0	3	12	0
11.8	*What is the number/year of licences in 2021?*	1	1	0	0	2	0

Several partners show important achievements in these knowledge transfer issues. The publications of UCV with industrial partners is remarkably high in comparison with the other partners. KU had 29 consultancy agreements in 2021 and UTCB had 284 consultancy agreements in 2021. UCTB had 7 patent applications in 2021.

5.12 External research revenues coming from regional sources.

The external research revenues are clearly exposing science-business-society collaboration in numbers.

KU has generated nearly 1.8 million Euro revenues in 2021 from the collaborative research agreements .

UCV has 17 external research revenues coming from regional sources.

UTCB has a total budget (as of fiscal year 2020), in Million Euro of 24.33, out of which: 14.62 from public budgetary allocations, according to the number of students and performance in research and innovation, and 9.71 from own sources (research, taxes, services, sponsorships.

Out of LRUniv 30M€ research budget, 15M€ come from regional sources. By region we refer to the NUTS-2 subdivision where the higher education institution is situated. If the institution has multiple campuses in different regions within the country, any of the regions where campuses would be considered as the same region. The NUTS (Nomenclature of Territorial Units for Statistics) classification established by Eurostat is a system for dividing up the economic territory of a country. The rest of Consortium members have none.

5.13 Best practice example on the way the university currently addresses the transformation area on 'reinforcing cooperation in R&I with the other sectors.

As one of the measures at Klaipeda University reinforcing cooperation with other sectors, there has been established the Blue Growth Leaders Academy – the high level (with outstanding speakers) courses on blue economy thematic uniting participants from the university, regional business, local government and social organizations. As the course result - the participants had to submit their final projects elaborated in groups solving the vital problems in the Klaipeda region.

UCV has the Creation of the Scientific Culture Unit.

UTCB developed a strategic partnership with Bucharest Sector 2 for DivAirCity Horizon 2020 project and EU-CONEXUS, and they will be actively involved in implementing solutions from UTCB research and innovation teams, and also with GeoEcomar for the UTCB future Research Center in Danube Delta.

In LRUniv, a successful example of collaboration in R&I with other sectors is the story of Valbiotis. This health company committed to scientific innovation to prevent metabolic diseases through plant-based actives substances turned to the expertise of one of the universities' research units a few years ago and has since raised 40M€, filed 4 patents families, has entered the stock exchange and is now hosted within the university premises. This mutually beneficial collaboration, formalised by a framework agreement, has a strong impact on LRUniv in terms of internships, job creation and global visibility (Valbiotis has now signed a strategic partnership with Nestlé Health Science for its flagship product TOTUM-63) as well as on the local economy.

Keynote: Videos - Keynote La Rochelle Université - Valbiotis (univ-lr.fr); https://www.valbiotis.com/en/about/.

Most collaborations of UNIZD are achieved through programs of study that adapt to the needs of the community. Also, in the area of research and development, new knowledge is applied to some of the services offered to the general public (especially in the area of STEM). Most of the activities are still in the initial stages of implementation.

AUA has none.

Best practices regarding innovation and stakeholder involvement from EU-CONEXUS Erasmus Plus project experience – first 3 years, WP5/PCRU

1.Skills Map – almost 400 stakeholder responded to a survey on their specific needs for skills from a future graduate and we included their feedback in our education and innovation offer.

Link here https://www.eu-conexus.eu/en/introduction/studies/skills-map/

2.University-industry strategy – together we defined the main objectives that we as an alliance have regarding our relation with the industry and types of activities/tools that can have with them - https://nextcloud.eu-conexus.eu/index.php/apps/files/?dir=/Work%20Packages/WP5/Public%20and%20Corporate%20Relations%20Unit/06_University-Industry%20Framework/06_University-Industry%20Strategy&fileid=331614

3.Mapping the stakeholders that each university have being a good practice also for each university - https://nextcloud.eu-conexus.eu/index.php/apps/files/?dir=/Work%20Packages/WP5/Public%20and%20Corporate%20Relations%20Unit/02_Stakeholders%20lists&fileid=39792

4. Port Roundtable – where ports from EU-CONEXUS cities presented themselves, their needs and future plans, and EU-CONEXUS researchers were invited to listen to their proposals.

5. Smart Urban Coastal Sustainable Days (SUCS Days La Rochelle) – with workshops for cities and ports where each EU-CONEXUS university presented best practices from research and innovation, a project/initiative that they had implemented together with a stakeholder and that can be a lesson for other country, we also have reports made after each session https://nextcloud.eu-conexus.eu/index.php/apps/files/?dir=/Events/2021-%20LaRochelle%20SUCS%20DAYS%20-%20November%202021%20-%20stakeholders%20event/Roundtables&fileid=364497

6. Also, during SUCS Days in La Rochelle there was also an **open event** for citizens and stakeholder to participate about a best practice example, where a good collaboration between La Rochelle and a company was presented.

7. Posters with innovations and great collaborations between universities and stakeholder were made available in print format during La Rochelle scientific event, SUCS Days, AUA Innovation Days etc and is a good example of sharing best practice EX https://nextcloud.eu-conexus.eu/index.php/apps/files/?dir=/Events/2020-%20French%20Scientific%20Festival%20or%20F%C3%AAte%20de%20la%20Science/FRENCH%20SCIENTIFIC%20FESTIVAL_F%C3%AAte%20de%20la%20Science%202020/Exhibition%20final%20posters&fileid=241908

8. EU-CONEXUS Social Entrepreneurship Programme – Through our 1st edition of the Social Entrepreneurship Programme on Smart Urban Coastal Areas - https://www.eu-conexus.eu/en/social-entrepreneurship-programme/ - we aimed to equip EU-CONEXUS students from Master's and PhD degree to become social entrepreneurs and to come up with innovative, sustainable solutions and projects to the challenges the coastal areas are currently facing. The innovative aspect of our programme stood in its blended design, aimed to better foster the learning process and to allow the students to effectively integrate the acquired skills. The programme included a lifelong learning course, 2 Project Market sessions with a city and NGOs that address the coastal challenges, in person training sessions with stakeholders, access to mentors from social businesses/ngo and two learning mobilities for the students with entrepreneurship, sustainability and leadership thematic workshops and a visit on site to a start-up/a mentor to learn how to develop an initiative from zero. In the process, the students developed competences from the EU-CONEXUS skills map and the European Commission key competences for Lifelong learning and have now, therefore, more mechanisms to implement their projects in a sustainable way.

9. Project Markets – We organized 2 project markets meaning meetings between students and stakeholder to discuss about challenges from the stakeholders/society and we but students to work individually or in teams to come up with ideas – the first Project Market was with 2 NGOs, one from Greece and one from Romania, that presented the coastal challenges and students created their social entrepreneurship proposal in order to address the challenges that were proposed and the second project market was during ConstructFEST with the City of Bucharest District 2 where the vice-mayor presented a problem that the city has regarding sustainability

(the garbage collection) and students from all over EU-CONEXUS partner universities work in different teams and presented some ideas that the city can implement, from social, technical, economical and administrative point.

10. ConstructFEST and EU-CONEXUS common career forum – we organized 2 ConstructFEST events together with EU-CONEXUS where we organized 4 roundtables with stakeholders about involvement of EU-CONEXUS in policy, in blue growth strategy, the opening ceremony and also a roundtable about the support for EU-CONEXUS on behalf of Romanian main education and government main stakeholders.

https://www.eu-conexus.eu/en/2022/04/13/constructfest-eu-conexus-forum-and-cultural-festival/

Next Career Forum is in May, based on digital/IT jobs
https://www.facebook.com/eu.conexus/photos/a.117508263124535/562407528634604/

11. Stakeholders campuses visit (Ports visit, Meteorological Administration in Romania, start-up during Social Entrepreneurship Programme etc) are also a nice example on how to interact with the actors and bring students and our staff close to field reality.

12. Mentors that help students to develop their ideas – we had around 10 mentors during Social Entrepreneurship programme, leaders that already implemented a start-up/social business, real leaders and innovators. Mentors created an account on the mentorship platform and students a mentee account and they matched https://mentorship.utcb.ro/login

13. EU-CONEXUS Career Center on JobTeaser – a platform where EU-CONEXUS partners can create their account and post jobs/internships/organize events for EU-CONEXUS students and alumni, until now more than 300 students and alumni of EU-CONEXUS are enrolled on the platform and receive opportunities from us and also from JobTeaser partners. https://www.eu-conexus.eu/en/career-center/

5.14 Collaboration with other universities within the transformation area 'reinforcing cooperation in R&I with the other sectors' and to what extent it has helped the university to advance/progress.

The responses of each EU-CONEXUS partners to the collaboration with other universities within the transformation area 'reinforcing cooperation in R&I with the other sectors' and to what extent it has helped the university to advance/progress are shown in Table 4.

Table 4. Responses of each EU-CONEXUS partners to the collaboration with other universities within the transformation area 'reinforcing cooperation in R&I with the other sectors' and to what extent it has helped the university to advance/progress. Responses to question 14 of the questionnaire shown in Annex I.

QUESTION NUMBER	QUESTION	KU	UCV	AUA	UTCB	LRUniv	UNIZDD
14	*To what extent has the aspect of collaborating with other universities within the transformation area 'reinforcing cooperation in R&I with the other sectors', helped your university advance/progress?*	Very much	Much	Somewhat	Much	Somewhat	Much

Furthermore, LRUniv explains that they are working with other schools of the territory but no other universities. However, LRUniv labs have partnerships with other laboratories in connection with other universities in different fields. For example : Valconum. The aim is to enable the creation of innovations and the development of the dematerialization economy and the valorisation of digital content. The project is based on collaboration between European scientific community. Valconum meets the needs of public or private project leaders who want to initiate, develop or better control their digital projects, relying on the expertise of industrial players and the European research laboratories. https://valconum.org/ .

KU technology transfer professionals belong to both national TTO Lithuania network (https://www.tto.lt/) and TTO Baltic network. In 2016, WIPO (World Intellectual Property Organization, https://www.wipo.int/portal/en/) initiated the Pilot Project on Development of

the Pool of Regional IP Commercialization Experts in Baltic States with the purpose to facilitate global Innovation collaboration in developing high quality knowledge and IP, customized to needs of users. The project participants – universities from Lithuania, Latvia and Estonia. The pilot project was an incentive to start the national networks in Baltic countries. In 2020, there was the Lithuanian Technology Transfer Offices Network (TTOLithuania) established joining beneficiary academic institutions for the national IP collaboration, knowledge transfer and IP commercialization. Now there are 7 Lithuanian universities that belong to the TTO Lithuania. On the 27th of October, 2022, there is the TTO Baltic network established where networks of all three Baltic states are joining their forces and commitments.

6. Conclusions/suggested actions

The conclusions obtained and therefore the actions to be suggested after analysing the current situation for the innovation ecosystems in the EU-CONEXUS Consortium using a questionnaire (see ANNEX I).

1. Creation of an EU-CONEXUS inventory of the existing R&I collaboration partners from other sectors.
2. Development of EU-CONEXUS collaboration spaces (e.g., innovation labs, hubs, science parks) which encourage engagement with actors from outside your university.
3. Creation of EU-CONEXUS networking and collaboration tools and events (e.g. networking platforms, business lunches, etc.) which encourage engagement with actors from outside your university.
4. Organization of EU-CONEXUS Intro courses targeted at doctoral students/candidates (R1), PhD holders who are not fully independent, e.g. postdocs (R2), senior researchers (R3- R4) and only for a specific group of researchers to develop entrepreneurial skills to gain experience to collaborate with business/industry and/or to found spin-off companies.
5. Organization of EU-CONEXUS Advanced courses targeted at doctoral students/candidates (R1), PhD holders who are not fully independent, e.g. postdocs (R2), senior researchers (R3- R4)

and only for a specific group of researchers to develop entrepreneurial skills to gain experience to collaborate with business/industry and/or to found spin-off companies.

6. Creation of an EU-CONEXUS Tech Transfer Office (joining with no 4) to promote the IP management, foundation of spin-off companies by students, early career researchers (R1) and researchers (R2-R4) and other tasks described above. The tasks of the joint TTO would include:

- Promotion of sharing full-time and part-time PhD students/ candidates in industrial EU-CONEXUS doctoral programmes by the EU-CONEXUS Tech Transfer Office.
- Promotion of external stakeholders/users to be involved in the design of the EU-CONEXUS PhD training programmes by the EU-CONEXUS Tech Transfer Office.
- Promotion of external stakeholders/users to be involved in strategic planning of EU-CONEXUS activities by the EU-CONEXUS Tech Transfer Office.
- Promotion of co-publications of EU-CONEXUS with industrial partners, contract research agreements, collaborative research agreements, consultancy agreements, invention disclosures (made with industrial partners), patent applications with industrial partners, and licences by the EU-CONEXUS Tech Transfer Office.
- Promotion of external research revenues coming from regional sources by the EU-CONEXUS Tech Transfer Office
- Promotion of practices for EU-CONEXUS to address the transformation area on ‘reinforcing cooperation in R&I with the other sectors by the EU-CONEXUS Tech Transfer Office.
- Promotion of collaboration with other universities within the transformation area ‘reinforcing cooperation in R&I with the other sectors.
- Organization of EU-CONEXUS courses and workshops for PhD students/candidates (R1) to get insights in their future career possibilities in various sectors outside higher education (science, policy, industry, society).

7. ANNEX I

NAME AND LAST NAME:_____

INSTITUTION: _____

_____

QUESTIONNAIRE: Checklist of good practises for cooperation among actors of innovation ecosystems

_____

QUESTION 1: *Does your university have an inventory of their existing R&I collaboration partners from other sectors (e.g. an inventory/mapping of (formal) cooperation agreements)?*

Please select all that apply (multiple answers possible):

a) Yes; other research/education organisations

b) Yes, private firms

c) Yes, (public) sector organisations (e.g., government agencies and ministries, regional and local authorities)

d) Yes, society/ third sector organisations (e.g., interest organizations, unions, non-profit organizations)

e) Yes, for all of the above sectors

f) No

_____

QUESTION 2: *Does your university currently have collaboration spaces (e.g., innovation labs, hubs, science parks) and/or is involved into specific initiatives, related to networking and collaboration (e.g. networking platforms, business lunches, etc.) which encourage engagement with actors from outside your university*

2.1.) Please select all that apply (multiple answers possible):

	Yes	Under development	No
Collaboration spaces (e.g., innovation labs, hubs, science parks)			
Collaboration initiatives (e.g. networking platforms, business lunches, etc.)			

2.2.) Please, give a brief summary (including some of the most outstanding ones) in reaching innovation communities/technology transfer

a) collaboration spaces (e.g., innovation labs, hubs, science parks)

b) collaboration initiatives (e.g. networking platforms, business lunches, etc.)

QUESTION 3: *Please indicate which supporting R&I structures and services are available in your university that assist in technology transfer and/or commercialization processes.*

Please select all that apply (multiple answers possible):

a) Support in IP protection (e.g. patentability assessment)

b) Support in IP commercialisation (e.g. licences)

c) Support in making consultancy agreements, contract research agreements or collaborative agreements (including confidential disclosure agreements and material transfer agreements, etc.)

d) Possibility of accessing venture funds (co-)provided or organised by the university

e) Dedicated staff who liaise between the university and other actors (e.g. knowledge brokers/match makers and/or pattent attorneys connecting researchers to external stakeholders)

f) Others, namely

QUESTION 4: *Does your university offer training and courses for doctoral students and/or research staff to develop entrepreneurial skills?*

Please select all that apply (multiple answers possible):

	Yes	Under development	No
Intro course targeted at doctoral students/candidates (R1)			
Intro course targeted at PhD holders who are not fully independent, e.g. postdocs (R2)			
Intro course targeted at senior researchers (R3- R4)			
Intro course only for a specific group of researchers, namely			
Advanced course targeted at doctoral students/candidates (R1)			
Advanced course targeted at PhD holders who are not fully independent, e.g. postdocs (R2)			
Advanced course targeted at senior researchers (R3-R4)			
Advanced course only for a specific group of researchers, namely			

QUESTION 5: *Please indicate the approximate number of newly founded spin-off companies per year.*

If no data is available, please put a X in answering box 'no data available'.

	Number	No data available
a. Total number of newly founded spin-off companies founded by students and researchers per year		
b. Number of spin-off companies founded by students and early career researchers (R1) per year		

QUESTION 6: *Does your university offer information and training to PhD students/candidates (R1) to get insights in their future career possibilities in various sectors outside higher education (science, policy, industry, society)?.*

Please select all that apply (multiple answers possible):

a) Courses and/or workshops

b) Organisation of career days

c) Existence of career coach/advisor/mentor for career guidance

d) Existence of (online) career platform

e) Others, namely

QUESTION 7: *What is the current share of PhD students/ candidates in industrial doctoral programmes in your university?*

Please leave blank if no data is available.

QUESTION 8: *What is the current share of PhD students/candidates with part-time internships/secondments during their PhD trajectory?*

Please leave blank if no data is available.

QUESTION 9: *Are external stakeholders/users currently involved in the design of the PhD training program at your university?*

9.1. Please answer the correct answer:

a) Yes

b) Not yet but will be in near future (<2 years)

c) No

9.2. Please give an example:

_____

QUESTION 10: *Are external stakeholders/users currently involved in strategic planning of university activities?*

9.1. Please answer the correct answer:

a) Yes

b) Not yet but will be in near future (<2 years)

c) No

10.2. Please give an example:

_____

QUESTION 11: *What is the number/year of co-publications of your university with industrial partners, contract research agreements, collaborative research agreements, consultancy agreements, number of invention disclosures (made with industrial partners), patent applications with industrial partners, patents with industrial partners granted and Licences in 2021?. Please, filled out the following table with all this information.*

	Number/year
Co-publications with industrial partners	
Contract Research Agreement	
Collaborative Research Agreements	

Consultancy Agreements	
Number of Invention disclosures (made with industrial partners) received	
Patent applications with industrial partners filled	
Patents with industrial partners granted	
Licenses	

QUESTION 12: *Please indicate the external research revenues coming from regional sources.*

By region we refer to the NUTS-2 subdivision where the higher education institution is situated. If the institution has multiple campuses in different regions within the country, any of the regions where campuses would be considered as the same region. The NUTS (Nomenclature of Territorial Units for Statistics) classification established by Eurostat is a system for dividing up the economic territory of a country.

The following two questions (13 and 14) are included in this questionnaire in order to get insights on how the European Universities Initiative has helped universities advance in the context of the transformation area 'reinforcing cooperation in R&I with other sectors'[4]

QUESTION 13: *Could you give a best practice example on the way your university currently addresses the transformation area on 'reinforcing cooperation in R&I with the other sectors'?*

QUESTION 14: *To what extent has the aspect of collaborating with other universities within the transformation area 'reinforcing cooperation in R&I with the other sectors', helped your university advance/progress?*

a) Very much

b) Much

c) Somewhat

d) Little

e) Not at all