

EUT⁺

EUROPEAN UNIVERSITY OF TECHNOLOGY

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D4.5.4b Annual Activity Report and upgrading of the convergence plan

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WP 4

Description: Main research results and networking activities towards a convergence plan

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Foreword to deliverable 61

Deliverable 4.5.4b is the second annual report regarding the joint activities undertaken, during the second year of the project, by EUT+ alliance towards the establishment of common research units and institutes. The most important step towards this direction is the signing of the Memorandum of Agreements for the creation EUT+ Research Institutes (ERIs), the EUT+ Research Office (ERO) and the EUT+ Graduate Research School (EGRS).

Another important milestone achieved was the announcement in May 2022 of an open call (among the EUT+ research community) of proposal for the establishment of ERIs. In this respect, the following thematic networks continued their (research related) collective activities and some of them prepared their proposals to become ERIs along with corresponding membership applications.

- + European Culture and Technology Laboratory (ECT Lab+),
- + European University of Technology Institute of Nanomaterials and Nanotechnologies (EUTINN),
- + EUT+ Sustainability Lab,
- + EUT+ Data Science Research Institute,
- + European Laboratory for Pedagogical Action - Research and Student-Centred Learning (ELaRA)

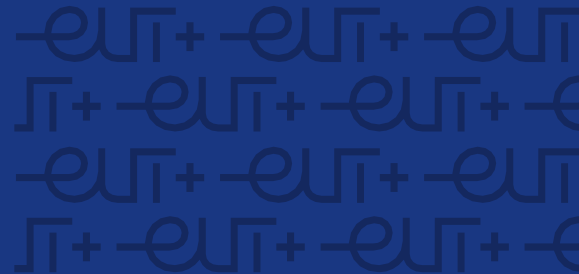
Networking activities, in the framework of the above-mentioned thematic networks, include common grant proposals submission, organization of workshops and seminars at the EUT+ level and beyond. Information on those activities is reported in the current deliverable. It is expected that, by the end of 2022, one of the thematic networks, namely ECT Lab+, is very likely to be the first EUT+ research institute while

the aim is that three of the above thematic networks to become research institutes by the end of the EUT+ project lifespan, while the other two will be considered for the next round of EUT+ research institutes.

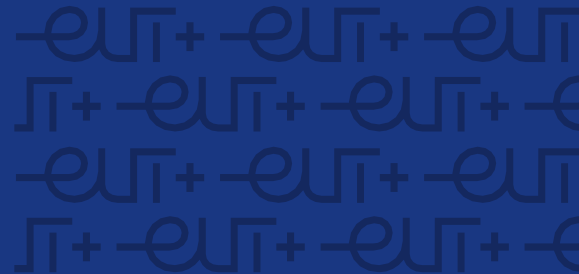
In the reported period the EUT-EXTRAS project, funded through the SWAFS (Science With And For Society) initiative, which includes all EUT+ partners, started produced the first tangible results. Since EUT-EXTRAS is about research steering, those results are quite helpful to for the thematic networks

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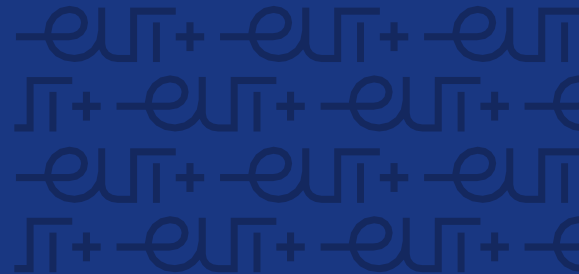


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Acronyms

UTT: Université de Technologie de Troyes

H-DA: Hochschule Darmstadt

RTU: Rigas Tehniska Universitate

TU Dublin: Technological University Dublin

TUS: Technical University of Sofia

CUT: Cyprus University of Technology

UPCT: Universidad Politécnica de Cartagena

UTCN: Universitatea Tehnica Cluj-Napoca

ERI: EUT+ Research Institute

ERO: EUT+ Research Office

EGRS: EUT+ Graduate Research School

MoA: Memorandum of Agreement

AHSS: Arts, Humanities, and Social Sciences

Introduction

Work Package description

The purpose of WP4 is to organize and mutualize all research and transfer activities within the EUT+ consortium, in a structuring approach and in connection with research training aspects. A preliminary analysis of research activities across the EUT+ alliance has demonstrated the impressive potential of EUT+ for boosting the global growth of each region thanks to a macro-level approach. Indeed, whereas only 40% of individual campuses' priorities overlap with local regional priorities, a total of 93% match is achieved at the EUT+ alliance level. Nevertheless, organizing research activities at the EUT+ level, without limiting the academic freedom for researchers, in a coordinated fashion is expected to highly advance both applied and basic research in a measurable manner.

Pooling research strengths of EUT+ partners will reinforce the EUT+ alliance as a whole and create synergies, in an approach like the mutualization of S3 (Smart Specialization Strategy) strengths and general pooling of systems and activities. This aspect, purely centered on mutualizing quality research, will be taken care of in Task 4.5. All of EUT+ partners are technology driven institutions, some with an additional foundation in social sciences, arts and humanities, others with a closer orientation on engineering. Together, EUT+ partners can capitalize on existing research labs, which open up synergies and in the next step new technical solutions by either complementing or extending existing expertise. Linking research activities and joining efforts will provide the foundation for enabling European technology thinking human first and enabling the activity of the work packages other tasks at the same time. The other four tasks operate at a more structural and organizational level.

Task Description

Task 4.5 takes care of:

- completing the task of identifying the partners' specific research strengths and mapping out interlinking potential and opportunities for joining efforts to achieve mutual project creations;
- **conceiving and implementing a strategy to foster fruitful research collaborations at the EUT+ level and beyond;**
- setting up a map of research competencies and developing means to display them to interested parties in our ecosystem in print and via the Internet;
- establishment of strong thematic networks prefiguring research institutes;
- creating common research institutes on identified research strengths and opportunities: one institute to be launched by the end of the first year (2021), for a total of three common research institutes at the end of the three-years funding period and seven by 2025;
- organizing annual meetings of the engaged labs in the various research fields

Purpose of the document

In simple words, the purpose of this document is to report the main research related results achieved during the second year of the project (1/11/2021 – 31/10/2022) along with suggested modifications of the convergence plan (see Deliverables 4.5.1¹ and 4.5.4a²) towards the creation of common research units given the experience acquired during the first year of the project. In this context, it serves mainly the second goal of Task 4.5 stated above.

¹D4.18: Convergence Plan towards common research units and institutes

²D4.20: Annual Activity Report and upgrading of the convergence plan.

1 EUT+ Research related Agreements

In this section we report the actions undertaken by the EUT+ decision making bodies aiming at conceiving and implementing a strategy to foster fruitful research collaborations at the EUT+ level and beyond.

In November 2021 the partners of the European University of Technology (EUT+) Alliance signed a Memorandum of Agreement for enabling the founding of EUT+ Research Institutes (ERIs), and the related EUT+ Graduate Research School and the supporting EUT+ Research Office. In the following we provide more details about the specific agreements that followed this initial agreement.

1.1 Memorandum of Agreement for the creation of ERIs

On January 20th, 2022, the Board of Rectors of the EUT+ alliance signed the Memorandum of Agreement (MoA) governing the establishment of EUT+ European Research Institutes. The main provisions of this agreement are summarized below.

1.2 Legal Status and Purpose:

An EUT+ research institute serves as a collaborative platform for enhancing the research capabilities of partner universities within the EUT+ project. It is integrated into their existing structures, enabling the sharing of infrastructure and human resources among partner institutions. While legally non-independent, its members are employed by their respective home institutions. The institute operates on a calendar year basis and is initially established for five years, with the possibility of extension based on successful evaluation. During this period, it is integrated into the research and organizational frameworks of EUT+ partner universities. Adaptations to comply with evolving European regulations may be considered and addressed as needed.

1.2.1 Aims & Tasks

An EUT+ research institute serves as a hub for consolidating research expertise in the designated field. Its primary purpose is to facilitate collaboration among researchers, fostering joint projects, technology transfers, and applications for external funding. The institute promotes capacity building, knowledge sharing, and resource-sharing among its members, working in conjunction with the EUT+ Research Office. It also prioritizes early career researcher support and establishes a research school focused on the designated field. Collaborating with the EUT+ Graduate Research School, the institute coordinates training and mobility programs. Additionally, it facilitates student and researcher mobility and exchanges in partnership with the EUT+ Common Erasmus Office and EUT+ Graduate Research School. The institute maintains annual reporting to the Steering Board Research on its achievements and strategic plan updates, with the board subsequently informing the EUT+ Corporate Secretary.

1.2.2 Organizational Structure of the ERI

An EUT+ research institute is structured around two main governing bodies: the General Assembly and the Institute Council.

General Assembly:

- Composed of individual members, including core and associated members.
- Conducts regular and extraordinary meetings, chaired by the academic institute lead.
- Decision-making requires a quorum and follows voting rules.
- Responsibilities include reviewing reports, electing council members, and making strategic recommendations.

Institute Council:

- Ensures strategic management, with members elected by the General Assembly.
- Defines its terms of reference, manages finances, and oversees various institute functions.
- Conducts regular meetings and engages in strategic planning.

Figure 1 shows the main bodies of an EUt+ research institute, the type of interaction between them and the EUt+ Secretariat.

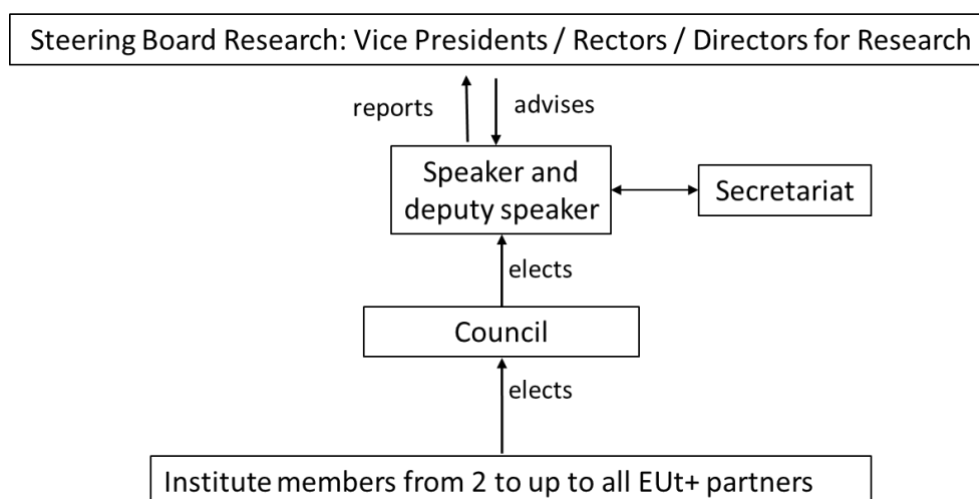


Figure 1: Organizational Structure of an EUt+ Research Institute (ERI)

1.3 Memorandum of Agreement for founding the ERO

In January 2022, the Board of Directors of EUt+ agreed on founding the EUt+ Research Office and signed the Memorandum of Agreement governing its mission, organization, and operation. Below are given the most important points of this agreement.

1.3.1 Foundation of the EUt+ Research Office (ERO)

1. The name of the office is EUt+ Research Office.
2. All EUt+ partners are jointly creating the office.
3. Each partner university delegates one person, , in the beginning ininitially part time, to the EUt+ Research Office.
4. The delegates are employees of the partner university with expertise in European funding schemes.
5. The office will report to the Steering Board Research comprising the vice president or rectors or directors for research of the EUt+ partner universities.

13.2 Purpose

1. The office supports the researchers in EUt+ and the EUt+ Research Institutes (ERIs) as a European project office.
2. The office complements and is embedded into the existing structures of partner universities.
3. It serve as a coordination and liaison hub between all ERIs, all partner universities and each partner's local administration.

1.3.3 Tasks

1. The office shall be a contact point for all researchers of EUt+ in relation to European funding.
2. For internal coordination, the delegates will work together and may create committees as may be required in the course of working.
3. The main tasks to be fulfilled by the office are in the field of capacity building and administrative and technical support for European funded projects. This includes in particular:
 - Identification of calls for research funding suitable for EUt+ participants,

- Supplying information regarding open calls, application possibilities and procedures,
- Liaising with the academic leads of the ERIs,
- Supporting their creation and writing the non-academic part of applications, e.g., information about partner profiles, costing and financial planning, format and structure and adheres adherence to the rules of the call to be applied for,
- Liaising with external project partners and relevant national and European funding bodies,
- Offering information, consulting and training,
- Coordinating applications across EUT+,
- Supporting consortia building for applications,
- Facilitating research activity mapping for EUT+

1.3.4 Reporting

The office shall annually report to the Steering Board Research about activities and achievements of EUT+ in the field of research. In addition, the office shall report provide to the Steering Board Research an assessment of its own operational effectiveness in carrying out its tasks.

1.4 Memorandum of Agreement for the creation of the EUT+ Graduate Research School

In March 2022, the Board of Directors of EUT+ agreed on the establishment EUT+ Graduate Research School and signed the Memorandum of Agreement governing its

mission, organization, and operation. Below are given the most important points of this agreement. Further details are given in Deliverable 4.1.3a³.

1.4.1 Aim

The EUT+ Graduate Research School (EGRS) serves as a European graduate school dedicated to assisting researchers within EUT+ and the EUT+ Research Institutes. Its primary focus lies in providing training and mentorship for doctoral candidates and master's by research students while fostering the development of collaborative European degree programs in these fields. In synergy with the ERIs, the EGRS is seamlessly integrated into the existing structures of partner universities, operating as a cohesive unit within this collaborative network. Its role extends beyond mere administrative support; it acts as a central hub for coordination and communication, fostering strong connections between the ERIs, the EUT+ Research Office (ERO), and all partner universities, including their respective local administrations. This interconnected approach ensures that the EUT+ project benefits from a cohesive and efficient research and education ecosystem, facilitating the exchange of knowledge, resources, and expertise across Europe.

1.4.2 Tasks

The tasks of the EGRS include serving as a point of contact for researchers, doctoral and graduate schools, and postgraduate students within EUT+. It provides support to partner universities, coordinates internally, and may establish committees as needed. The main responsibilities involve education and training of doctoral and masters-by-research students in EUT+, including creating cotutelle agreements, involving doctoral students in Erasmus mobility, providing training in collaboration

³ Creation of graduate schools

with ERIs (EUT+ Research Institutes), supporting jointly supervised PhDs, establishing a joint EUT+ PhD award, aiding existing masters-by-research programs, developing new programs with ERIs, and creating a European Master by Research degree aligned with EUT+.

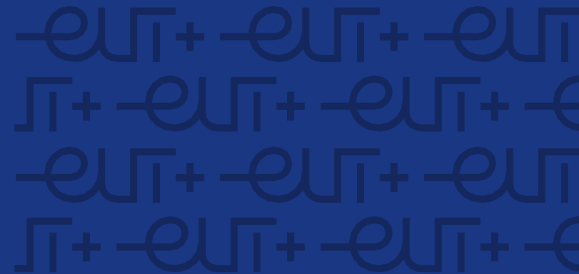
2 Proposals for the Establishment of ERIs

Following the MoA for the establishment of ERIs, the EUT+ Research Committee announced, in May 2022, an open call to the EUT+ researcher community to express their interest for the creation of ERIs. The call targeted, mainly, the already established thematic networks but, practically, there was no restriction to groups of EUT+ researchers to apply for the establishment of an ERI.

By the end current reporting period the following applications were submitted

1. The European Culture and Technology Laboratory (ECT Lab+)
2. European University of Technology Institute for Nanomaterials and Nano/Micro-technologies (EUTINN)
3. Data Science Institute
4. The European Laboratory for Pedagogical Action – Research and Student-Centred Learning (ELaRA)

Acronym	Lead	Submission Date	Partners	Status
ECT Lab+	TUD	April 7 th , 2022	All	Under evaluation by the EUT+ Research Committee



EUTINN	UTT	July 1 st , 2022	All	Under evaluation by the EUT+ Research Committee
DSI	UTT	July 7 th , 2022	All	Under evaluation by the EUT+ Research Committee
ELaRA	TUS	May 9 th , 2022	All	Under evaluation by the EUT+ Research Committee

Table 1: Submitted proposals for ERIs and their status

Table 1 summarizes the submitted proposals while in the following sections we provided a brief description of the targeted ERIs as extracted from their applications.

2.1 The European Culture and Technology Laboratory (ECT Lab+)

The application for the creation of this ERI was submitted by Prof. Noel Fitzpatrick, Technological University Dublin, on 7th April, 2022. The institute's founding members consist of 45 researchers affiliated with EUT+.

The ECT Lab+ aims to promote research in the fields of Arts, Humanities, and Social Sciences (AHSS) that explore the philosophical and societal aspects of technology. It focuses on the relationship between European culture and technology, encompassing its historical development, current challenges, and future prospects in relation to humanity. The research is divided into two main themes: the study of cultural aspects and social practices of technology, and the evolution of technology (organology).

The research program is based on examining the impacts of technology on society, knowledge construction, and cultural production, considering both positive and negative effects. It explores questions of epistemology (the theory of knowledge) and aesthetics (the philosophy of beauty), as well as techniques as practical applications in the world. The ethical dimension is also emphasized, viewing ethics as a form of practice and focusing on virtue ethics (the pursuit of the good life).

The ECT Lab+ also provides training and supervision for Master-by-research and doctoral students, as well as capacity building for staff members. It aims to foster a community of practice among postgraduate students by organizing seminars, workshops, summer/winter schools, and reading groups within the AHSS field. These activities are open to all researchers at the European University of Technology. Efforts are made to develop a community of active researchers who supervise postgraduate students. The Lab+ encourages collaboration and co-supervision of students and hosts winter and/or summer schools aligned with existing planned activities of member institutions.

Additionally, the ECT Lab+ envisions funding specific PhD students within its framework, who will be supervised by teams from at least two partner universities. It also aims to create European Degrees in Technology and Society, potentially funded through the Erasmus Mundus program.

The summary of the key terms of ECT Lab+ work and ambition is demonstrated in the word cloud of Figure 2. Additional information about the ECT Lab+ can be found in Deliverables D4.3.2a⁴ and D4.3.2b⁵.

⁴ D4.11: Strategic vision of ECT Lab+ and key policy objectives

⁵ D4.12: Strategic vision of ECT Lab+ and updated key policy objectives



Figure 2: ECT Lab+'s mission and key terms as a wordcloud

2.2 European University of Technology Institute for Nanomaterials and Nano/Micro-technologies

The European University of Technology Institute of Nanomaterials and Nano / microtechnologies (EUTINN) aims to unite the eight partners of EUT+ who specialize in nanomaterials and nanotechnologies. By leveraging the expertise of these partners, EUTINN seeks to foster collaboration and diverse approaches in the field of nanosciences and nanotechnologies.

EUTINN's primary goal is to prioritize human well-being while utilizing nanoscale technologies. It aims to establish a culture of excellence, promote ethical research practices, and build strong relationships with industry and sponsors. The research themes and keywords of EUTINN include nanomaterials, nano/microtechnologies and sensors, nanotechnologies for communication and information technologies, quantum technologies and nanotechnologies, nanotechnologies for energy applications, nanomedicine and nanobiology, as well as the impact of nanomaterials and nanotechnologies on toxicology, pollution, food, and agriculture.

The EUTINN collaborates with graduate studies schools and existing or future graduate schools. Its objective is to connect training, teaching, research, innovation, and industry-related projects. The ERI serves as a hub for workforce development in nano-related subjects and topics.

The word cloud in Figure 3 visually represents the most important key topics associated with EUTINN.

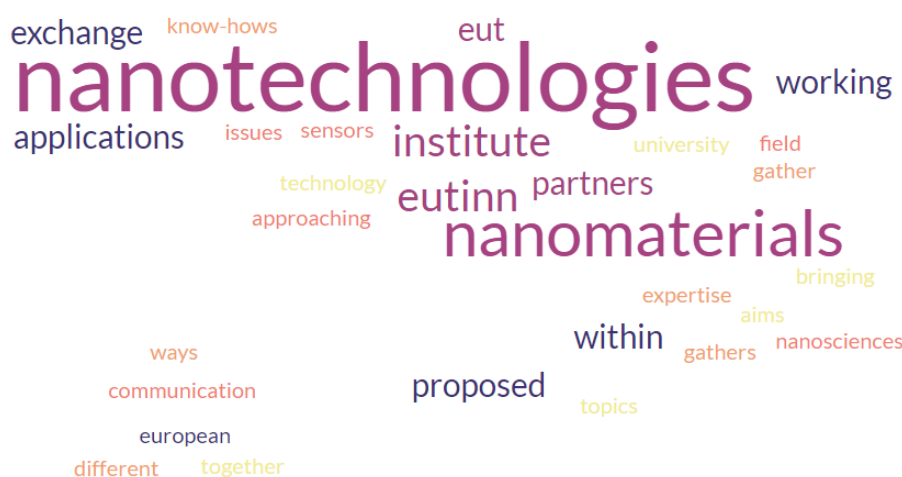


Figure 3: EUTINN's mission and key terms as a wordcloud

2.3 Data Science Institute (DSI)

The Data Science Institute within EUT+ is an initiative aimed at facilitating efficient collaboration and knowledge exchange among research teams in the field of data science. Data science encompasses various scientific domains and plays a crucial role in developing cutting-edge technologies in academic, industrial, and societal contexts. The institute aims to support outstanding scientific projects that align with EUT+'s human-centric principles and contribute to sustainable and trustworthy technologies. It provides a unique opportunity for interdisciplinary collaboration and promotes the development of distinguished scientific endeavors in data science.

The Institute's success will be gauged based on its achievement of the following four objectives:

1. Demonstrated excellence in research, showcasing recognized expertise in cutting-edge technology.
2. Facilitated interaction between students and partner researchers, creating a thriving knowledge-rich environment.
3. Enhanced technology transfer between the institute and industry partners.
4. Establishment of a shared data platform at the EUT+ level which will support research endeavors on theoretical (data-driven algorithms) and practical (e.g., in domains such as health, industry, energy, security, physics, and economics) levels. Its role is to maintain databases and provide high-performance computing capabilities.

Figure 4 comprises the most significant keywords associated with the Data Science Institute, helping to establish the context and defining the institute's mission and focus.



Figure 4: DSI's mission and key terms as a wordcloud

2.4 The European Laboratory for Pedagogical Action – Research and Student-Centered Learning (ELaRA)

ELaRA aims to create an inclusive learning environment promoting critical thinking, creativity, and innovation. It focuses on designing student-centered pedagogies, advancing higher education practices, educating about technology's societal role, increasing diversity in technology education, and integrating competencies for sustainable development.

The core themes of research can be summarized as a multifaceted approach to advancing education in technology. Axis 1 focuses on designing innovative pedagogies that center on students, fostering lifelong learning, intellectual development, creativity, and cultural awareness. Axis 2 addresses changing paradigms in higher education and the development of smart educators. Axis 3 emphasizes educating students, teachers, and researchers about technology's societal role, including ethics and professional growth. Axis 4 aims to broaden participation in technology education, promoting diversity, equity, inclusion, and belonging. Axis 5 seeks to identify and integrate critical competencies and skills that drive value, change, and impact within teaching, learning, and research, with a focus on Education for Sustainable Development (ESD).

Figure 5 encompasses the keywords which shape ELaRa's context:



Figure 5: ELaRa's mission and key terms as a word cloud

3 Research Activities

In this section we report the main research results achieved in the second year of the project in the context of EUT+ and by the EUT+ community. These results are further classified into two main activities: (1) Grant proposals submitted by the EUT+ consortium and (2) networking activities conducted in the framework of the established thematic networks.

3.1 Grant Proposals

Building on the collaboration between members established within the EUT+ alliance, a total of 12 joint grant proposals have been submitted during the 2nd year of EUT+. Seven of them were accepted, highlighting areas of collaboration between the members and jointly led activity reinforcing networking within the Alliance. Summary information for the accepted grant proposals is given below:

Proposal title: Transformative Digital Pedagogies for Higher Education

Acronym: TDP4HE

Call: ERASMUS+ KA220-HE Cooperation partnerships in higher education

Programme: Erasmus+

Date submitted: March 2022

Status: Approved

Lead partner: RTU

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
√		√	√		√	√	

Table 2: EUT+ participants in the TDP4HE grant proposal

Description: TDP4HE is an Erasmus+ KA3 project that proposes a transformative pedagogical model for the development of pedagogical competences of academic staff, that makes integral use of digital technologies. The digitalization of teaching and learning processes is not simply the application of digital technologies to enhance traditional teaching methods. Digitalization in classrooms is revolutionary in that it makes it easier to adopt radically different and innovative student-centred approaches. By adopting transformative pedagogical approaches, this project aims to develop a model that links transformative pedagogies (learner-centred, opposed to transmissive, teacher-centred, approaches) to the use of digital technologies and to develop a transdisciplinary training programme to foster innovative ways of teaching and learning for academic teaching staff from different disciplines.

Proposal title: Epistemology and Ecology in Technological Education

Acronym: EpiCO

Call: KA220-HED - Cooperation partnerships in higher education

Programme: Erasmus+

Date submitted: March 2022

Status: Approved

Lead partner: UTCN

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
	√	√	√			√	√

Table 3: EUT+ participants in the EpiCO grant proposal

Description: EpiCO investigates educational approaches that can foster the required deep conceptual understanding and higher-order thinking skills necessary for epistemic tasks in scientific research. Special attention is given to constructivist epistemologies (developed in the philosophy of science in practice) which could provide better guidance to educational approaches to promote research skills.

Proposal title: Epistemology in Science, Technology, Engineering, Arts, and Maths

Acronym: EpiSTEAM

Call: HORIZON-MSCA-2021-SE-01

Programme: Horizon Europe

Date submitted: March 2022

Status: Approved

Lead partner: TU Dublin

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
	√	√	√		√	√	√

Table 4: EUT+ participants in the EpiSTEAM grant proposal

Description: EpiTeaM aims to develop a collaborative consortium and intersectoral network to test the hypothesis that diversification of epistemological positions could be the key to responsible Epistemology in Technological Education and Innovation. The fundamental problem being addressed is the impact of digital technologies on the construction of knowledge and truth, an ‘epistemic crisis’ inside and outside academia. Epistemology is explored as cultural Episteme, disciplinary Epistemology and whole experimental approach. Epistemological diversification

through transdisciplinary research is essential and will be investigated through the intersections of Art, Science and Technology by an expansion of the concepts Techne, technics and Technology in the context of disciplinary activity. In the contemporary context of globalised computational conditions, the question of the impact of digital technologies on knowledge is often understood as misinformation and post-truth, however, there is also an inbuilt epistemological conditioning taking place through the digital technologies themselves. For this purpose, a large transdisciplinary research mobility is necessary in order to understand the localised contextualisation of digital technologies within the disciplines, cultures and research laboratories. The traditional epistemological frameworks and paradigms are currently challenged by globalised computational models, where reason itself has been reduced to calculation and probability. EpisTeaM will explore and challenge this dominant epistemological claim. Just as a biodiversity is necessary for the future sustainability of the planet, so too is a Technodiversity within the Technosphere of globalised computation. The partners are from the European University of Technology (ECT Lab+), USA, India and non-academic partners in Europe (SME and Public Bodies).

Proposal title: Fostering Inclusive and Equitable Quality Education to stimulate lifelong Sustainable Learning opportunities for HEIs in India

Acronym: InEq-SL

Call: ERASMUS-EDU-2022-CBHE

Programme: Erasmus+

Date submitted: February 2022

Status: Approved

Lead partner: Sarvajanik University (SU, India)

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
		√				√	

Table 5: EUT+ participants in the InEq-SL grant proposal

Proposal title: University Student Capacity Building: Towards Readiness for Sustainable Development-Oriented Regional Job Market

Acronym: STREAM

Call: ERASMUS-EDU-2022-CBHE

Programme: Erasmus+

Date submitted: February 2022

Status: Approved

Lead partner: RTU

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
		√				√	

Table 6: EUT+ participants in the STREAM grant proposal

Proposal title: Bhutan and Nepal Education on Sustainable Development Goals

Acronym: B+NESDG

Call: ERASMUS-EDU-2022-CBHE

Programme: Erasmus+

Date submitted: February 2022

Status: Approved

Lead partner: Royal University of Bhutan

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
		√				√	

Table 7: EUT+ participants in the B+NESDG grant proposal

Description: The B+NESDG project has been created with the aim of applying the Principles of Sustainable Development in Nepal and Bhutan and integrating education in Sustainable Development into Institutions of Higher Education at those states using a quality-based, inclusive, and equitable approach.

Proposal title: Training and mentorship based adult rural women empowerment in the field of green entrepreneurship

Acronym: GREENWORAL

Call: KA220-HED - Cooperation partnerships in higher education

Programme: Erasmus+

Date submitted: March 2022

Status: Approved

Lead partner: UPCT

EUT+ participants:

UTT	H-DA	RTU	TU Dublin	TUS	CUT	UPCT	UTCN
		√	√		√	√	

Table 8: EUT+ participants in the GREENWORAL grant proposal

Description: EpiCO investigates educational approaches that can foster the required deep conceptual understanding and higher-order thinking skills necessary for epistemic tasks in scientific research. Special attention is given to constructivist epistemologies (developed in the philosophy of science in practice) which could provide better guidance to educational approaches to promote research skills.

3.2 Networking Activities

For easy reference and to keep the relevance with Task 4.5 the research networking activities summarized next are classified per thematic network.

3.2.1 European University of Technology Institute of Nanomaterials and Nanotechnologies (EUTINN)

The aim of the European University of Technology Institute of Nanomaterials and Nanotechnologies (EUTINN) is to bring together the eight EUT+ partners focusing on nanomaterials and nanotechnologies. This thematic networks serves as a hub for consolidating the collective knowledge and capabilities of the EUT+ alliance, as well as fostering diverse perspectives and methodologies in addressing challenges and advancements within the realm of nanosciences and nanotechnologies.

In the framework of EUTINN the following research networking activities took place during the second year of the EUT+ project:

Title: 2nd EUT+ Workshop on Nanomaterials and Nanotechnologies

Event type: Workshop

URL: <https://www.univ-tech.eu/second-eut-workshop-on-nanomaterials-and-nanotechnologies>

Dates: 31/1-2/2/2022

Delivery mode: Hybrid (at UPCT in Cartagena, Spain and virtually)

Book of abstracts:

<https://drive2.demo.renater.fr/index.php/s/b2tFmNSPDTxHd3Y#pdfviewer>

Aim: Renew the momentum gained during the first workshop by emphasizing on contemporary applications of the nanotechnology developed within the EUt+ consortium.

Wordcloud of the presentations: In Figure 6 we see the wordcloud of the presentation titles of the 2nd EUt+ Workshop on Nanomaterials and Nanotechnologies [1]. It summarizes the dominant themes and key terms that surfaced during the discussions held in the workshop.

Title: EUTINN Meetings

Event type: Meetings

Dates: Monthly online meetings and hybrid meetings at TUS in December 2021 and during EUt+ weeks at various EUt+ alliance campuses (Cartagena - February 2022, Cluj - March 2022, Sozopol - June 2022, Riga - June 2022, Troyes - September 2022)

Delivery mode: Mostly online

Description: The aim of those meetings was to define the EUTINN research strategy, prepare the proposal to become ERI (submitted on July 1st, 2022) and explore collaboration possibilities in terms of (a) grant proposal submission (the NANO-OPT proposal was submitted to the HORIZON-MSCA-2021-COFUND-01 call in February 2022), (b) exchange visits at the EUTINN related research labs, (c) examine the possibilities of PhD co-supervision, and (d) develop new ideas that could lead to common publications.

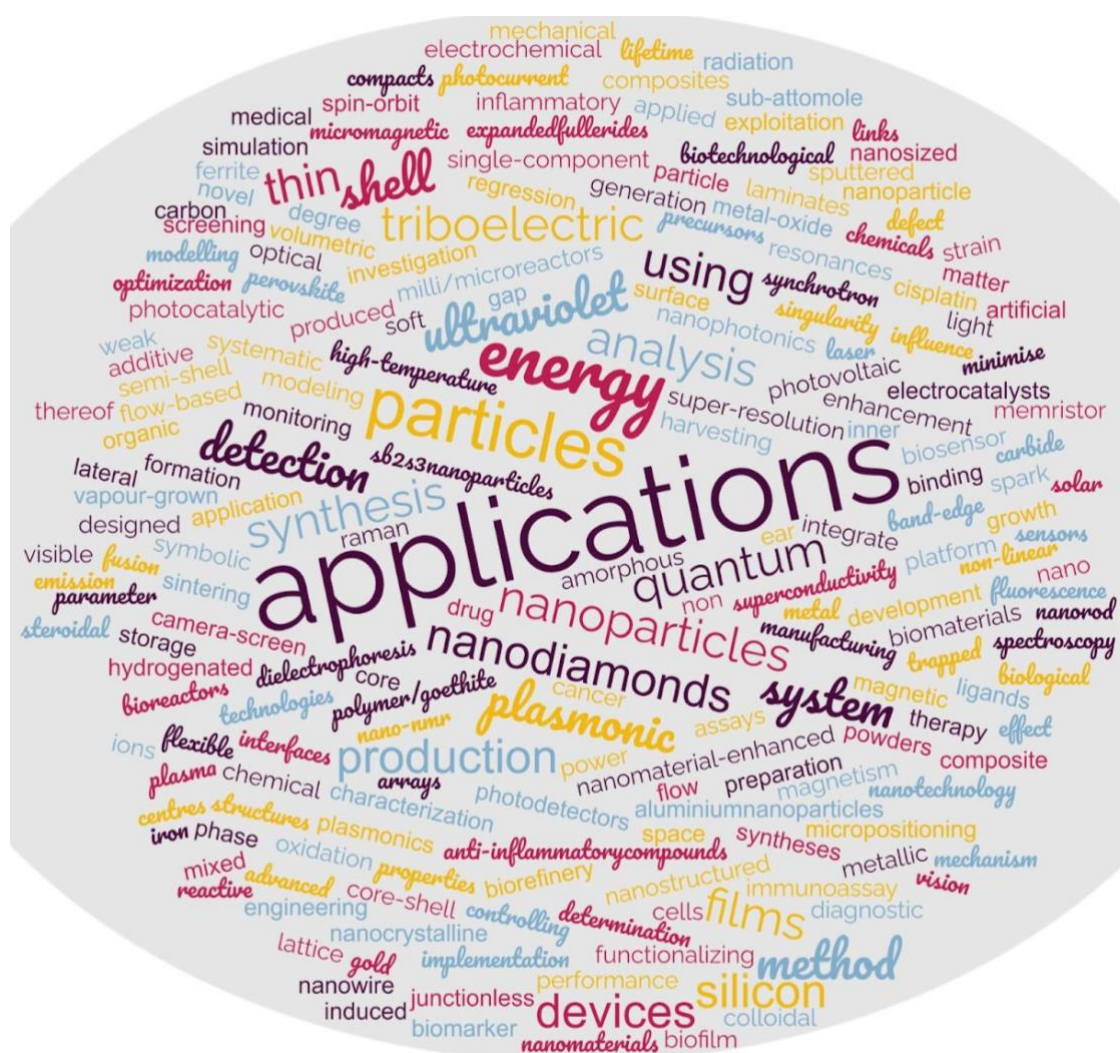


Figure 6: Wordcloud of the presentation titles of the 2nd EUT+ Workshop on Nanomaterials and Nanotechnologies

3.2.2 European Sustainability Laboratory (ESL)

In order to bring together expertise from all partner universities and enable joint working field of sustainability, the idea of an EUT+ Sustainability Lab has arisen. It envisions to offer a space for discussion and research in EUT+ in bringing together all colleagues interested in topics of sustainable development. It will for sure be a wide variety of topics, probably even similar as it can also been seen for example in

the Sustainable Development Goals, the SGDs. To address individual problems from separate disciplinary perspectives, the sustainability sciences integrate several branches of science and research in order to gain insights into societal, socio-economic, engineering (or technical) and natural science challenges. The aim is to clarify the various effects and interactions on the one hand, but also the influences of involved and interested actors. This includes the complex interplay of environment and society as a whole. This common background is the starting point for predominantly applied and practice-oriented research on and for sustainable development.

In the framework of ESL the following research networking activities took place during the second year of the EUT+ project:

Title: PhDs Winter Seminar “Sustainability, adaptability and ethics”

Event type: Workshop

URL: <https://www.univ-tech.eu/phdswinter-seminar-2022-14th-15th-march-sustainability-adaptability-and-ethics>

Dates: 14-15/3/2022

Delivery mode: Online

Aim: Initiate exchange between PhD students in the context of ESL and introduce the new idea of a "peer-review" thesis defense.

Title: ESL Meetings

Event type: Meetings

URL: Via the Whaller platform

Dates: Monthly meetings and two physical meetings during the Darmstadt week in November 2021 and during the Limassol week in October 2022

Delivery mode: Mostly online

Description: The two physical meetings were mostly devoted to finalize the focus and mission of the ESL lab and the membership application form. Online meetings aimed at developing collaboration (a) grant proposal submission (a grant proposal was submitted in the LIFE programme, Call: "Facing the increase in cooling demand of buildings in the coming years" TOPIC ID: LIFE-2021-CET-COOLING, without success), (b) exchange ideas on how to keep up with the broad nature and scope of ESL, (c) define the main research topics or ESL, and (d) finalize the white paper which attempts "to identify what are the main stakes around the transformation of research for sustainability purposes"

3.2.3 The European Culture and Technology Network (ECTN)

ECTN operates as a collaborative entity to conduct advanced research into technology's essence and function. Its core goal is to define and promote a distinct European model around technology while aiding the evolution of appropriate legal and regulatory frameworks.

Research Missions:

- Promote a transdisciplinary perspective on technology through the articulation of Philosophy, Social Sciences, Art & Humanities, and Engineering Sciences
- Integrate research on the humanities and social sciences into the overall research of the European University
- Create a critical mass in research in the arts, humanities and social sciences within the European university.

In the framework of ECTN the following research networking activities took place during the second year of the EUT+ project:

Title: 1st Annual Conference of the European Culture and Technology Lab+

Event type: Workshop

URL: <https://www.univ-tech.eu/first-annual-conference-of-the-european-culture-and-technology-lab>

Dates: 9-10/12/2021

Delivery mode: Hybrid (at TUD and virtually)

Venue: Technological University Dublin

Proceedings: <https://online.flippingbook.com/view/387715884/>

Aim: Bring together experts from Arts, Humanities, Social Sciences and Technology discussing the idea of ‘Thinking Human First’. The papers for the conference should address selected areas that focus on the relation between technology and the (Neg) Anthropocene.

Wordcloud of the presentations: In Figure 7 we see the wordcloud of the mission and main topics of the 1st Annual Conference of the European Culture and Technology Lab+ [1] while in Figure 8 we present some of the main keywords of the presentations [3] that took place during the event.

Title: Think Human First

Event type: Webinar

URL: <https://www.univ-tech.eu/ect-lab-and-utcn-offer-a-webinar-entitled-think-human-first>

Date: 26/11/2021

Delivery mode: Online

Aim: Discussion on how culture, education and the advances in technology influenced humans' history and how they will impact the future of humankind. "Humanity in the day beyond tomorrow" ("Umanitatea în ziua de dincolo de mâine" in Romanian) is an online event.

Title: ECTN Meetings

Event type: Meetings

URL: Via the Whaller platform

Dates: Weekly / bi-weekly online meetings and hybrid meetings during the EUT+ weeks at various EUT+ alliance campuses (Cartagena - February 2022, Cluj - March 2022, Riga - June 2022, Troyes - September 2022, Limassol - October 2022)

Delivery mode: Mostly online

Description: The aim of those meetings was to allow the ECTN researchers to continue collaboration in terms of (a) grant proposal submission (see EpiSTEAM project proposal – successful, and REWORLD project proposal submitted in the Erasmus+ KA220 call - unsuccessful), (b) exchange ideas about the combination of technology and ethics, (c) develop the support the "Human Think First" think tank, and (d) prepare the application and membership form of the ERI proposal (submitted in April 2022)

3.2.4 Data Science Institute (DSI)

Data Science is a rapidly expanding research field that spans various scientific disciplines, focusing on leveraging data to advance state-of-the-art technologies in academic, industrial, and societal contexts. Sharing diverse expertise among European research teams promises to create an exceptional ambitious project within the competitive European landscape.

In the framework of DSI the following research networking activities took place during the second year of the EUT+ project:

Title: 1st EUT+ Data Science Workshop

Event type: Workshop

URL: <https://www.univ-tech.eu/data-science-organises-its-first-workshop>

Date: 18/1/2022

Delivery mode: Online

Book of Abstracts:

<https://drive2.demo.renater.fr/index.php/s/GdXnRjWD8N4Ecxy#pdfviewer>

Aim: Create an avenue for all partners to share their data science research undertakings. The workshop interactions will bring out the collective strengths of EUT+ research teams and set the initial groundwork for an exceptional scientific institute project.

Contributions were published in EUT+ Academic Press (see Deliverable D8.8a/b⁶).

Aim: Foster further the collaboration within the EUT+ Data Science Lab. Invite PhD students to contribute poster presentations of their research.

Wordcloud of the presentations: In Figure 11 we present the wordcloud of the presentation titles of the 2nd EUT+ Data Science Workshop while in Figure 12 are presented the main topics [2] of those presentations.

Title: DSI Meetings

Event type: Meetings

URL: Via the Whaller platform

Dates: Monthly meetings (started from March 2021) and a physical meeting during the Troyes week in September 2022

Delivery mode: Mostly online

Description: The main aim of those meetings was to prepare the proposal to become ERI (submitted on July 7th 2022) and to allow the DSI researchers to develop collaboration possibilities in terms of (a) grant proposal submission, (b) exchange ideas on how to keep up with the broad nature and scope of DSI, (c) define the main research topics or DSI, (d) prepare the 2nd EUT+ Data Science Workshop, and (e) develop a collaboration framework for co-supervising PhD theses or / and participating in PhD theses' examination committees.

⁶ D8.15: EUT+ University Press Report

3.2.5 European Laboratory for Pedagogical Action - Research And Student-Centered Learning (ELaRa)

ELaRa focuses its efforts on several key research themes:

- Enhancing student-centered pedagogies for lifelong learning in technology education, promoting intellectual development, creativity, problem-solving skills, and cultural awareness.
- Investigating transformations in higher education, including changes in epistemologies, teaching practices, teacher development, and methods to facilitate educational change.
- Educating students about the societal implications of technology, encompassing ethical considerations and professional development.
- Promoting inclusivity in technology education by increasing participation among females and reaching a more diverse segment of society, including refugees.

In the framework of ELaRa the following research networking activities took place during the second year of the EUT+ project:

Title: ELaRa's Autumn Symposium on «Post Pandemic Pedagogies»

Event type: Workshop

URL: <https://www.univ-tech.eu/elaras-autumn-symposium-on-%C2%AB-post-pandemic-pedagogies-%C2%BB-a-retrospective>

Dates: 22-23/11/2021

Delivery mode: Online

Description: The Symposium aimed at bringing together colleagues and students from all the eight Universities participating in the EUT+ alliance to share their

experiences on the educational practices followed during the pandemic. Amongst the issues discussed were specific teaching and learning methodologies, the use of different technology tools, curriculum design and assessment processes, all viewed from the perspective of both instructors and students. The participants also had the opportunity to discuss the lessons learned from this experience and the way forward.

Title: Seminar “Lessons learnt” by Andria Zafirakou

Event type: Seminar

URL: <https://www.univ-tech.eu/%E2%80%9Clessons-learnt%E2%80%9D-by-andria-zafirakou-winner-of-the-global-teacher-prize>

Dates: 26/11/2021

Delivery mode: Hybrid (Onsite at CUT and virtually for the remote participants)

Description: The seminar explored the lessons learnt and reflected on the challenges that have arisen in the last 18 months regarding education and young people. Andria Zafirakou introduced the participants to an educational environment where we learnt what we need to stop, continue or start doing in our classrooms, through these lessons. The seminar was open access and was addressed to professionals working in primary, secondary and tertiary education, freelancers in the field of education, students who will follow the field of learning and education, but also the wider public.

Title: Techniques and Technologies in Foreign Language Teaching and Higher Education: Education – Open / Closed in the Digital Reality 2020/2021.

Event type: Round table discussion

Dates: 14/12/2021

Delivery mode: Online

Description: This is an annual scientific event organized and hosted by the Department of Foreign Languages and Applied Linguistics at the Technical University of Sofia.

ELaRA participated in this event with the following:

1. Presenting the European Laboratory for Pedagogical Action Research and Student-Centred Learning (ELaRA), Lia Pop, PhD – Technical University of Cluj Napoca
2. Education during the pandemic: The case of the Cyprus University of Technology, Elis Kakoulli Constantinou, PhD – Cyprus University of Technology
3. Presenting ELaRA's Autumn Symposium – Conclusions and Reflections, Chloe Duvivier, University of Technology of Troyes

***Title:* Education and technology - Traditions and Challenges, Emergent Approaches, Futures Directions.**

Event type: Summer School

URL:

https://ktisis.cut.ac.cy/bitstream/20.500.14279/28732/1/ElaRA_SS%20Agenda.pdf

Dates: 27-29/9/2022

Delivery mode: Hybrid (onsite at UTT during the Troyes week and virtually for the remote participants)

Aim: Provide a platform for learning, collaboration, and discussion among participants in the fields of pedagogy, teaching practice, learning, and research. The core topics that were covered during the event included traditions in pedagogy,

emerging approaches and future directions in education, and innovative approaches to teaching practice, learning, and research.

Title: ELaRA Meetings

Event type: Meetings

URL: Via the Whaller platform

Dates: Monthly meetings, and five hybrid meetings in Sofia, 7-9 December 2021 and during the Cartagena week, 3-4 February 2022, Cluj week, 22-23 March 2022, Sofia week (Sozopol Meeting) 21-24 June 2022, Troyes week, 26-29 September 2022)

Delivery mode: Mostly online

Description: The aim of those meetings was to prepare the application to become an ERI (submitted in May 2022) and allow the ELaRA researchers develop collaboration in terms of (a) grant proposal submission (two proposals were submitted to the ERASMUS+ KA220-HE call, entitled “Transformative Digital Pedagogies for Higher Education” (TDP4HE) - successful, and “Competences of Non-Teacher-Trained academic staff for development - an inclusive society” - awarded 86 points – to be resubmitted), (b) exchange ideas on how to enhance student-centered pedagogies, (c) define the main research topics or ELaRA, and (d) prepare the 1st ELaRa Conference “Technologies and Techniques to Support Sustainable Education in the Academic Sphere” which is to be held 1n December 2022.

4 Upgrading of the Convergence Plan

4.1 Introduction to the Convergence Plan

This part of the report refers to the upgrading of the convergence plan and includes structural actions (such as the official signing of MoAs for the creation of ERIs, ERO and the EUT+ graduate research School) undertaken by the EUT+ alliance as well as adaptation of the already planned convergence activities.

As explained in Deliverable 4.5.1⁷, the EUT+ alliance followed two main strategies to develop an effective convergence plan regarding the research in general and the development of research units in particular:

- + A top-down approach in which the priorities identified in the proposal and confirmed via the steering committee of the EUT+ will be adopted and actively promoted within the EUT+ community. S3 priorities could be another driving force which can guide the top-down approach.
- + A bottom-up approach in which the strengths of the EUT+ community will be identified on the basis of some measurable metrics, such as existing (and complimentary of) research infrastructure and research expertise of the EUT+ community [1], as identified via PhD programs, scientific publications and research interests.

As far as the first strategy is concerned, the Memorandum of Agreement (MoA) for the creation of the EUT+ Research Institutes (ERIs), the founding and staffing of the EUT+ Research Office and the EUT+ Graduate Research Schools (signed during the reported period) is an additional step towards effective convergence.

⁷ D4.18: Convergence Plan towards common research units and institutes

As far as the bottom-up strategy is concerned, the most fundamental step towards convergence is the submission of four applications for the creation of ERIs in the fields of (a) Arts, Humanities and Social Sciences, (b) Nanotechnology and Nanomaterials, (c) Data Science and (d) Pedagogy, Learning and Technology. As far as the research activities undertaken by the EUT+ community in the context of the thematic networks is concerned, the details given in the previous section provide tangible evidence that interlinking between thematic networks and existing labs within the EUT+ alliance can effectively lead to the establishment of ERIs (based on the signed MoA), as shown in Figure 13 below. However, the financial sustainability of those ERIs is a point of concern for the decision makers in the individual EUT+ universities. An additional issue regarding the convergence plan, is the difficulty on getting a common meaning regarding the various research related structures across the EUT+ alliance and especially their legal status (if any). As far as the research institutes is concerned, this has only been partially solved by the description given in the MoA for the establishment of ERIs alliance and further elaboration is needed regarding the legal status of ERIs in order to facilitate the convergence plan that has been set in D.4.5.1.

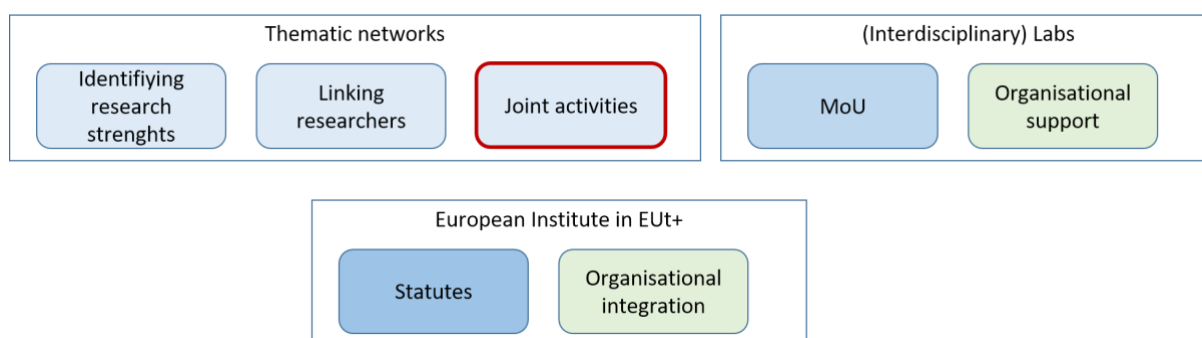


Figure 13: Interlinking between thematic networks, labs and Institutes and main activities within them

4.2 The EUT+ research strengths

The initial convergence plan was developed around three different axes, namely:

- + Infrastructure
- + PhD programs
- + Research interests of the EUT+ researchers

The activities undertaken within the thematic networks and the submission of proposals for the creation of four ERIs help in getting additional information regarding the existing infrastructure and the research interests of the EUT+ researchers. A significant addition to the effective identification of the EUT+ research strengths can be facilitated upon successful completion of the work described in the EUT-EXTRAS project⁸, and especially the tools provision in WPX4.

Thus, as far as the EUT+ research strengths is concerned the updated convergence plan includes now the following axes:

- + Infrastructure
- + PhD programs
- + Research interests of the EUT+ researchers
- + Applications for the creation of ERIs
- + Use of the EUT-EXTRAS tools and results

⁸ EUT-EXTRAS: European University of Technology - Experimentation to Transform Research Activities and Steering,

Conclusion

In this document an activity report regarding the actions taken from the EUT+ alliance towards the creation of common research institutes along with the main research results achieved during the second year of the EUT+ project (1/11/2021 – 31/10/2022) was presented. They are also reported suggested modifications of the developed convergence plan (see Deliverable 4.5.1⁹) towards the creation of common research unit. Actions refer mainly to the official signing by the Board of Rectors of the MoAs regarding the (a) establishment of ERIs, (b) founding of ERO, and (c) creation of the EUT+ Graduate Research School. The activities refer mostly to grant proposal preparation and submission (which led to securing ... research grants) and research networking actions undertaken in the framework of bottom-up created thematic networks.

The Convergence Plan towards establishing common research units and institutes across EUT+ was updated considering top-down like the signing of the above-mentioned Memorandum of Agreements, as well the bottom-up activities like the ones undertaken in the framework of thematic networks. However, the most important step towards convergence in practice is the submission, by the EUT+ research community, of proposals for the creation of four ERIs.

In addition, research steering tools developed within the EUT-EXTRAS project can be used as an additional axis for collecting information regarding the EUT+ research strengths.

⁹D4.18: Convergence Plan towards common research units and institutes

References

- [1] Giannoulakis, S. and Tsapatsoulis, N. (2021): **Topic Identification via Human Interpretation of Word Clouds: The Case of Instagram Hashtags**, *IFIP International Conference on Artificial Intelligence Applications and Innovations*, pp. 283-294.
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- [3] Tsapatsoulis, N and Djouvas, C. (2019): **Opinion mining from social media short texts: Does collective intelligence beat deep learning?** *Frontiers in Robotics and AI*, vol. 5, article 138, DOI: 10.3389/frobt.2018.00138