ENHANCERIA	Work package	WP2 Exploration, identification and mapping of different practices and approaches
	Deliverable	D2.1. Sample of institutional supporting structures (top-down strategies), including models, methods and formats that support transdisciplinary research, citizen involvement and knowledge exchange between science and society D2.2 Sample of transdisciplinary practices and case studies that support transdisciplinary research, citizen involvement and knowledge exchange between science and society
	Date	31.08.2022
	Type	Report (R)
	Dissemination	Public
	Lead	Rheinisch-Westfälische Technische Hochschule Aachen (RWTH)

FOCUS AREA 1: Sustainable development through transdisciplinary research

D2.1 SAMPLE OF INSTITUTIONAL SUPPORTING STRUCTURES (TOP-DOWN STRATEGIES)

D2.2 SAMPLE OF TRANSDISCIPLINARY PRACTICES AND CASE STUDIES (BOTTOM-UP LEVEL)

//INTRODUCTION

A sample of different transdisciplinary approaches was performed according to the tasks T2.1 (Identification of top-down strategies for addressing sustainable development through transdisciplinary research) and T2.2. (Identification of bottom-up activities for addressing sustainable development through transdisciplinary research. During the identification of different transdisciplinary approaches, two rounds of mapping have been conducted. A first mapping round included short project descriptions for transdisciplinary initiatives on the top-down and bottom-up. A second mapping round provided a survey with specific questions related to the submitted cases and further questions to gather new cases of transdisciplinary initiatives. A detailed description of the work process, methods and tools is described in **D3.1.**

The mapping of different transdisciplinary initiatives of the ENHANCE Universities on the top-down and bottom-up levels provides the first inventory of structures, strategies, practices and terminologies for knowledge exchange between research and society. Due to different institutional frameworks, the understanding and approaches to transdisciplinary research for sustainable development have been very different. The inventory also revealed an extensive understanding of transdisciplinarity and considerable difficulties in establishing whether a particular case is a top-down or a bottom-up initiative. For these reasons, the results of the mappings for D2.1 & D2.2 have been bundled as **factsheets** and cannot be presented in the intended distinction (see also D3.1).

Nevertheless, the structural and institutional level (top-down) and the project level (bottom-up) were used as **search windows** to identify relevant and appropriate co-productive initiatives for the focus area. The top-down level has been mapped through searching for

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institutional supporting structures and strategies, including models, methods and formats that support transdisciplinary research, citizen involvement and knowledge exchange between science and society. The bottom-up level is represented by searching for transdisciplinary practices and case studies that support transdisciplinary research, citizen involvement and knowledge exchange between science and society.

The respective universities have selected the following transdisciplinary practices, not as a comprehensive collection but as a sample of interesting cases, projects, and initiatives, that represent different aspects of transdisciplinary approaches.

//SAMPLED TRANSDISCIPLINARY APPROACHES AT THE PARTNER UNIVERSITIES:

- Noges teknisk-naturvitenskapelige universitet-NTNU:
  - Data-Driven Co-Creation on Urban Innovation
  - NTRANS
  - Strategic Research Areas
  - Strategy: Knowledge for a Better World - Priority Area on Interdisciplinary Collaboration
  - UniversityCity TRD3.0
- Politecnico di Milano-Polimi:
  - Città Studi Campus Sostenibile
  - META – Social Sciences and Humanities for Science and Technology
  - OFF CAMPUS | Il Cantiere per le Periferie
  - POLIFACTORY
  - Polisocial Award
- Rheinisch-Westfälische Technische Holschule Aachen-RWTH:
  - Living Labs Incubator (LLI), and related TD practices in its network
  - REVIERa
  - Sustainability Unit
- Technische Universität Berlin-TUB:
  - Dialogue Platform
  - Formative, i.e. Process, Evaluation of Transdisciplinary Research
  - KUBUS-Cooperation and Consulting for Environmental Questions, the Science Shop of TU Berlin
  - Let's talk about it: Transdisziplinarität und Co-Production
  - Mall Anders - Offenes Lernlabor für Wissenschaft und Gesellschaft
  - Modul "Formative Evaluation" as Part of "BioVal: Biodiversity Valuing & Valuation."
  - Office of Science and Society
  - Research Forums
  - Research Forum Berlin Citizens
  - Research Forum Global Health
  - Research Forum Next Grand Challenges
  - Research Forum Social Cohesion

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  - Stadtmanufaktur
  - Stadtmanufaktur-Real World Labs
  - TdAcademy - Platform for Transdisciplinary Research and Studies
  - Transdisciplinary Didactics
  - Transdisciplinary Formats (TRAFOS)
- Universitat Politechnica de Valencia-UPV:
  - AR(t) IBMCP Residencia Artistica
  - CollectionCare
  - DISH
  - INBIO
  - ISAIab
  - LENI Group (i3B)
  - MSCA ENHANCE Doctoral Network
  - RE READ (H2020-EINFRA-674943)AD (H2020-EINFRA-674943)
  - SaPher
- Politechnika Warszawska-WUT:
  - 171/5000 Wyniki tłumaczenia
  - Akcelerator PW
  - Digital Agora Project
  - IDUB: Excellence Initiative
  - MedTechAthon – engineers for medicine

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Project:
Data-Driven Co-Creation on Urban Innovation

Keywords:
Cooperation on a Digital Platform, Multi-Stakeholder Cooperation, Digital Twins, Co-Innovation and Citizen Involvement

Project Description:
In May 2019, the Norwegian government gave municipalities and regions a clear mandate to integrate the Sustainable Development Goals (SDGs) into their daily operations and long-term planning and policies. Ålesund and Bærum municipalities have acquired a 3D digital urban twin solution developed by AugmentCity that visualises data such as traffic flow, demographics, and economic and environmental impacts of policy and regulation in an intuitive way for stakeholders in urban planning. The research will develop, test and qualify data-driven co-creation methods using digital urban twins to support municipalities in converting data from Sustainable Development Goal Key Performance Indicators (SDG KPIs) into action. The methods will give cities and stakeholders evidence-based, inclusive, high-quality experience support in further development and implementation phases.

Goals:
Making holistic approaches and a toolbox for initiating multi-stakeholder cooperation on the digital twin platform will be a new way of governance in the municipality.

Methods:

Basic Facts:

University: NTNU

Type of Initiative:
- **Research Project**

Core Mission:
- **Research**
- **Education**

Level:
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Politiciansns**
- **Administration**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **Governmental**
- **External Funding**

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Closely cooperating with Ålesund and Bærum will investigate how digital urban twins can improve policy formulation and decision-making processes by facilitating mutual understanding of challenges, developing a shared vision, and co-production of solutions among local stakeholders.
It will generate an impact model to understand better the whole-systems sustainability impact of such initiatives on local communities and their potential to support systemic change in urban development.

Themes & Methods:

Thematic Approaches:

- **Digital Twins**
- **Multi-Stakeholders Cooperation**

Methodological Approaches:

- **Testing**
- **Transfer**
- **Pathways**
- **Co-design**
- **Intervention**
- **Knowledge Transfer**

Characteristics of Transdisciplinary:

- **Exploring multi-stakeholder cooperation and co-creation**
- **Making approaches and a tool-box for a co-innovation in a virtual environment**

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Project:
NTRANS

Keywords:
Sustainability Transitions, Science and Society, New Modes of Collaborations

Project Description:
NTRANS focuses on the role of the energy system in decarbonising sectors such as energy, transport, industry, and buildings, as well as everyday lives. NTRANS aims to develop theory, methods, competence, knowledge and tools to support key transition stakeholders and contributors in developing and implementing transition strategies. NTRANS asks

- How can the focus be extended to include citizens and their interaction with technology and systems?
- How can the transition be made deeper and affect the production, distribution and consumption of goods and the interaction between sectors?
- How can the transition be accelerated to achieve emission reductions and improve the interactions at the interface between energy, climate and sustainability?

The centre focuses on the nexus between society and the energy system through socio-technical, techno-economic and environmental perspectives, spanning disciplines such as sociology, political science, engineering, industrial ecology, economics, science and technology studies and anthropology. Hence, this is fertile soil both for interdisciplinary collaboration and transdisciplinary exploration. It is divided into five research areas.

Goals:
NTRANS aims to develop theory, methods, competence, knowledge and tools to support key transition stakeholders and contributors in developing and implementing transition strategies.
Methods:

Basic Facts:

University: NTNU

Type of Initiative:
- **Research Centre**

Core Mission:
- **Research**

Level:
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Industry**
- **Administration**
- **Interest Organisation**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic Approaches:

- **Sustainability Transitions**
- **Science and Society**
- **New Model of Collaboration**

Methodological Approaches:

- **Co-production**
- **Knowledge Exchange**
- **Empirical**
- **Collaboration**

Characteristics of Transdisciplinary:

- **Focus on the energy system in the decarbonisation of sectors**
- **Develop theory, methods, competence, knowledge and tools to support key transition stakeholders**
- **User cases**

This project uses various methods, such as empirical, user cases, literature reviews, descriptive statistics, interviews, case studies, and developing new models.

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Project:
Strategic Research Areas

Keywords:
Real-World Laboratories, Living Labs, Interdisciplinary, Transdisciplinary, Cross-Modal Data Management, Participatory Research

Project Description:

- Develop better tools for early diagnostics, effective treatment, and research structure to more integrated solutions.
- Developing and integrating a renewable and sustainable energy supply is a crucial challenge for the world community. This project contributes to such a transition.
- Contribute to Norway's role as a maritime nation through research and outreach activities such as Ocean Week.
- Overcoming the grand societal challenges of our time will require new thinking and knowledge, which is our strategy. The project is organised on six pillars.

Goals:
Support science, communication and innovation within critical areas of technology, natural science, social science, humanities and art, and facilitate interdisciplinary activity at the borders between these areas.
Be entry points to the research at NTNU for industry, authorities and researchers.
Raise current issues and give research-based input to related topics in the public debate.

Methods:
Coordinate and initiate new multidisciplinary activities within research, education and innovation. Bring together the best minds from a range of disciplines to create the knowledge society needs to understand and change unsustainable patterns of behaviour and development.

Basic Facts:

University: NTNU

Type of Initiative:
- **Organizational Instruments**

Core Mission:
- **Research**

Level:
- **Structure Related**

Involved Stakeholders:
- **Academics**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Promote new knowledge to support the decision-making process and social development.

Themes & Methods:

Thematic Approaches:

- **Energy**
- **Health**
- **Oceans**
- **Sustainability**

Methodological Approaches:

- **Collaboration**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Enhance relevance by addressing large and economic challenges**
- **Increase national and international visibility**
- **Develop new research pilot projects**

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Project:

Strategy: Knowledge for a Better World - Priority Area on 'Interdisciplinary Collaboration

Keywords:
Institutional Strategy, Research and Innovation, Interdisciplinarity

Project Description:
NTNU is a multidisciplinary university with a strong profile in science and technology and a focus on professional study programmes.
The project contributes to Norway's development, and it creates economic, cultural and social value and has a national role in developing the technological foundation for the future society.
Competence in science and technology and interdisciplinary strengths help to solve complex problems. This project sets an agenda for change processes and sustainable development. It contributes to competitive business and industry as well as a capable public sector through collaboration in new practices, procedures and products.
Artistic disciplines play a crucial role in NTNU's identity. The NTNU has a leading university museum with unique scientific collections and public exhibitions. An essential partner of the NTNU for development in the cities and regions where we are located.

Goals:

NTNU 2025 presents the desired state for NTNU at the end of the strategy period. The overview of objectives sums up the ambitions in the strategy. In 2025, it is expected that:

- **The best students choose NTNU.** The learning environment at NTNU is innovative and exciting, and the student environment is recognised as the

Basic Facts:

University: NTNU

Type of Initiative:
- **Cooperation Model**
- **Strategic Project**
- **Strategic Platform**
- **Research Teams**
- **Partnerships**

Core Mission:
- **Research**
- **Education**
- **Innovation**
- **Service to Society**

Level:
- **Structure Related**

Involved Stakeholders:
- **Academics**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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best. Graduates from NTNU are desirable to employers in Norway and abroad.

- **The position of the NTNU has strengthened** and systematically improved the quality of all its activities. At the same time, the NTNU has paved the way for several of its academic groups to lead internationally and has achieved the status of an internationally oriented, high-quality research university.

Methods:
The strategy for this project is to achieve overall institutional ambitions and actions.

Themes & Methods:

Thematic Approaches:

- **Interdisciplinary collaboration**
- **Research & Innovation**
- **Solve Problems in Society**

Methodological Approaches:

- **Is a Strategy**

Characteristics of Transdisciplinary:

- **An overall institutional strategy, focusing on the 'DNA' of NTNU in inter/transdisciplinary approaches**
- **'NTNU's activities should benefit society as a whole, and society can trust that our findings comply with best scientific practices.**

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Project:
UniversityCity TRD3.0

Keywords:
City as a Lab, Pilots and Experiments, Students, Employees, and Citizens

Project Description:
In 2018, The Norwegian University of Science and Technology (NTNU) and Trondheim municipality entered a partnership agreement to develop a University City jointly. A national pilot based on five thematic focus areas; Education and Early Development, Health and Welfare, Urban Development, Innovation and Smart City.
The pilot, referred to as UniversityCity TRD3.0, is project-organised, with a total of eight years. It builds on a long-term collaboration between Trondheim municipality and NTNU, aiming at moving the collaboration "one step up" towards a more holistic approach to education, research and innovation.
Accordingly, the University City's ambition is to develop a model for innovation and restructuring in the public sector through research, innovation, education and participation in development projects of strategic importance to the public sector.

Goals:

- Ensure access to relevant and updated knowledge and competence demanded by municipalities.
- Establish arenas for research-based education, continuing education and training, relevant placement for students, doctoral programmes and research and innovation within areas of strategic importance for the sector.

Basic Facts:

University: NTNU

Type of initiative:
- **Pilot**
- **Research Project**

Core Mission:
- **Innovation**
- **Service to Society**

Level:
- **Process Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Municipality**
- **Civil Society**

Drivers:
- **University**
- **Municipality**

Initial Funding:
- **Collaboration between NTNU and Trondheim Municipality**

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- Establish a new model for continuous mutual competence and knowledge transferral between academia and municipality.

Themes & Methods:

Thematic Approaches:

- **City as a Lab**
- **Pilots and Experiments**
- **Students, Employees, and Citizens**

Methodological Approaches:

- **Experimentation**
- **Collaboration**
- **Co-production**
- **Knowledge Transfer**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **National pilot for 'University-City'**
- **Collaboration between university and municipality**

Methods:

Not mentioned.

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Project:
Città Studi Campus Sostenibile

Keywords:
Environment, Mobility, Awareness, Dissemination, Engagement, Public Private People Partnership (4P), Shared Governance, Urban Living Lab, Networking, Behavioural Change, Regenerative Processes, Ecological Transition

Project Description:
Città Studi Campus Sostenibile is focused on six main areas of interest:

- Environment
- Energy
- Food & Health
- Mobility
- People
- City

Each theme corresponds to a thematic table that develops projects and manages proposals from students, academics and civil society. The areas are broad enough to encourage an interdisciplinary approach and feed the embedded vision for a sustainable campus.

Goals:
The Città Studi Campus Sostenibile Project, launched in 2011, is promoted by Politecnico di Milano and Università Degli Studi di Milano to transform the university district (Città Studi) into an urban model for quality of life and environmental sustainability, through the active commitment of the University population and the citizens. The overall goal is to build a new idea of a sustainable Campus and to renew the Città Studi district from a perspective of actual, sustainable development.
Goals in detail:

- Renew the campus in a sustainable way
- Test innovations from university research projects
- Integrate services, research and teaching
- Rethink lifestyles and build more comfortable environments

Basic Facts:

University: POLIMI

Type of Initiative:
- **Laboratory**
- **Strategic Project**
- **Format**
- **Research Project**
- **Partnerships**

Core Mission:
- **Education**
- **Service to Society**

Level:
- **Structure Related**
- **Topic Related**
- **Method Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Industry**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **Sustainability**
- **City**
- **Campus**

Methodological Approaches:

- **Pathways**
- **Co-design**
- **Training Labs**
- **Experimentation**
- **Collaboration**

Characteristics of Transdisciplinary:

- **Renew the campus in a sustainable way;**
- **Activate pilot projects within University spaces;**
- **Promote a culture of sustainability through training and dissemination activities.**

- Propose the campus as a baseline for the entire city
- Activate 'pilot' projects within the University spaces
- Participate in international networking of sustainable campuses and sustainability-related projects
- Promote a culture of sustainability through training and dissemination activities

Methods:

Città Studi Campus Sostenibile uses an open and interdisciplinary approach to reach its goals:

- Everyone can participate, employees, teachers, researchers and students from the academic communities of Politecnico di Milano and the University of Milan, citizens individually or in associations, local stakeholders, and companies wishing to enrich their "sustainable" know-how through the exchange of knowledge and experience with university researchers.
- Different disciplines can contribute to projects' implementation to reach the sustainable goal from a total point of view.

Many different activities are organised within the scope of the project:

- The projects for the sustainability of Universities and the City are coordinated through joint working groups (students, lecturers, researchers, and technical-administrative staff), promoting cooperation with local stakeholders.
- Organising thematic events on environmental issues ("Sustainability Days").
- Gather ideas and support initiatives from the students to improve the quality of university spaces.

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- Promoting sustainable lifestyles by disseminating the knowledge of the SDGs (Sustainable Development Goals) and the Code of Sustainable Behaviour, encouraging the application of good practices (separate waste collection, sustainable mobility, enabling public water use).
- Offering training for all members of the Politecnico community on Sustainable Development (organised by the Italian Alliance for Sustainable Development - ASviS) or MOOCS conceived in collaboration with other universities.
- Building partnerships with local providers of urban and smart mobility services.

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Project:
META – Social Sciences and Humanities for Science and Technology

Keywords:
Ethics, Philosophy, Sociology

Project Description:
META is involved in several activities aimed at integrating expertise from engineering, the humanities, and the social sciences:

- Research projects: META has carried on several interdisciplinary funded research projects.
- Teaching activities: META is committed to offering specialised courses on philosophy and sociology of science and technology and interdisciplinary courses jointly instructed with colleagues from other fields.
- PhD Program and Doctoral Schools: META has organised some summer doctoral schools at an international level, involving European Networks of universities IDEA LEAGUE and A4Tech.
- Dissemination activities: co-production of the show "Big Data B&B", held from November 25 to December 12 2021, in Piccolo Teatro Grassi, open to citizens.

Goals:
META is an interdisciplinary network of scholars from the engineering, architecture and design departments at Politecnico di Milano with expertise in the humanities and social sciences. Its mission is to produce and disseminate knowledge, and it also offers expertise in philosophical, epistemological, ethical and social issues related to the processes of science, technology, and innovation.

Basic Facts:

University: Polimi

Type of Initiative:
- **Strategic Project**

Core Mission:
- **Research**
- **Education**

Level:
- **Topic Related**

Involved Stakeholders:
- **Academics**
- **Industry**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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The goal is to help fill the gap between "hard science" and the real world, analysing inner risks related to science and new technologies through the lens of other disciplines such as philosophy, ethics and sociology.

Themes & Methods:

Thematic Approaches:

- **Ethics**
- **Philosophy**
- **Sociology**

Methodological Approaches:

- **Pathways**
- **Scenarios**
- **Development of Indicators**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Bridging the gap between disciplines in research**
- **Bridging the gap between disciplines in education**
- **Facilitating communication of PE issues to civil society**

Methods:

An interdisciplinary approach breaks the boundaries between disciplines and research fields and connects research, education, and dissemination.

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Project:
OFF CAMPUS | Il Cantiere per le Periferie

Keywords:
Social Engagement, Neighbourhood, Closeness to the Community, Innovative Teaching Activities, Responsible Research

Project Description:
OFF CAMPUS is part of the broader Polisocial program, which promotes a tighter relationship between the university, the city and local communities, bridging the gap between research, higher education and specific needs emerging from society.
Within the Off-Campus initiative, teachers, researchers and students are encouraged to develop:

- Innovative teaching activities develop new skills through experience and engagement in real-world contexts.
- Responsible for research and attentive to developing inclusive knowledge production processes.
- Co-designing with communities to implement actions capable of producing a positive social impact at a local level.

Goals:
OFF CAMPUS | Il Cantiere per le Periferie" is an initiative promoted by Polisocial to strengthen Politecnico di Milano's presence inside the city of Milan through university hubs located right inside the urban fabric. The initiative was launched in 2018, and the first Off Campus space (San Siro district) was opened in April 2019, while the second one (Nolo district) was opened in September 2020.

Methods:

Basic Facts:

University: POLIMI

Type of Initiative:
- **Laboratory**
- **Office/Executive Board/Central Facility**
- **Research Teams**
- **Partnerships**

Core Mission:
- **Research**
- **Education**
- **Service to Society**

Level:
- **Method Related**
- **Process Related**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Off-Campus supports research, education, local action and public engagement by applying a place-based method. The method enhances university-community physical proximity as a facilitator of learning, research problem-setting, shared practices and knowledge exchange.

Themes & Methods:

Thematic Approaches:

- **Community**
- **Neighborhood**
- **Urban Regeneration**

Methodological Approaches:

- **Scenarios**
- **Co-design**
- **Training Labs**
- **Intervention**
- **Place-based Approach**

Characteristics of Transdisciplinary:

- **Close contact with communities and their demands**
- **Focus on learning and knowledge exchange**
- **Focus on culture as intermediary between university and community**

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Project:
POLIFACTORY

Keywords:
Design, Digital Fabrication and Prototyping, Product-Service System Design, Open Innovation, Multidisciplinary Approach, Experimental Approach, Maker-Space, Fab Lab, Makers Culture, Peer-to-Peer Learning

Project Description:
Polifactory proposes and participates in research and consultancy activities with enterprises and institutions at many scales (e.g., regional, national and international). It operates as a coordinator/partner in technological and scientific projects dedicated to competitive and pre-competitive development, focusing on implementing demos with user communities and pilot projects at an urban level. It also works as a provider for public and private subjects interested in its spaces, technologies or research competencies.

Goals:
Polifactory is an interdepartmental research laboratory that explores the relationship between design and new digital manufacturing processes, promoting a new culture of making.
The overall goal is to investigate the possible future manufacturing scenarios: distributed design and production models, urban scale manufacturing, design and prototyping of smart product-service systems, and open design and hardware of technical systems.

Basic Facts:

University: Polimi

Type of Initiative:
- **Laboratory**

Core Mission:
- **Research**
- **Education**
- **Innovation**

Level:
- **Project Driven**
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Industry**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Polifactory aims to develop youngsters' multidisciplinary talent and ability to materialise innovative solutions of product services that integrate design and technology. It is an avant-garde experience of Politecnico in experimental education and training, research and firm consultancy.

Methods:

Themes & Methods:

Thematic Approaches:

- **Product Service System Design**
- **Digital Fabrication**
- **Open Innovation**

Methodological Approaches:

- **Co-design**
- **Training Labs**
- **Experimentation**
- **Collaboration**
- **Co-production**

Characteristics of Transdisciplinary:

- **Co-Design**
- **Supporting SMEs to become technologically competitive**
- **Pre-incubation programme for talents**

To support young talents in improving their autonomous learning paths, Polifactory offers various coaching activities. Since maker spaces are, by definition, spaces that stimulate social and collaborative learning (in a peer-to-peer approach), Polifactory believes and follows this philosophy by offering various coaching services that help single individuals and the whole group for the development of strategic, design, technical and technological competences, as well as self-entrepreneurship. See more about this branch of activities on this page.

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Project:
Polisocial Award

Keywords:
Social Engagement, Multidisciplinary Approaches, Human and Social Development, Research Projects with Social Purposes

Project Description:
The Polisocial Award was launched in the academic year 2012-2013. It is financed through a part of taxes on personal income that Italian taxpayers decide to allocate to the Politecnico di Milano (the "5 per mille" mechanism). The award is promoted within the broader social responsibility program of Politecnico, Polisocial. This program also supports the creation of tighter relationships between the university, the city and areas in which Politecnico is engaged, thus helping to bridge the gap between academia (research, higher education) and specific needs emerging from communities.

Goals:
Polisocial Award is a competition aimed at selecting and implementing scientific research projects with a high social impact, both locally and nationally and internationally.
Specifically, the initiative intends to promote the following development lines:

- Multidisciplinary research is used to create synergies helpful in addressing complex issues relevant to communities located near the university or on the Italian territory, as well as for human and socioeconomic development in the Global South.
- By embedding research activities in problematic contexts, innovation can develop more generally applicable methods and knowledge.

Dialogue with the outside world and co-production of knowledge through active partnerships with public, private and civil society organisations. The university is valued as an expert interlocutor and organiser of research activities on issues of direct interest to the communities.

Basic Facts:
University: POLIMI

Type of Initiative:
- **Strategic Project**
- **Office/Executive Board/Central Facility**
- **Research Teams**
- **Research Program**
- **Contest**
- **Research Grant**
- **Partnerships**

Core Mission:
- **Research**
- **Service to Society**

Level:
- **Topic Related**
- **Process Related**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Industry**
- **Civil society**
- **International Bodies**
- **Public Facilities**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **Cooperation**
- **Impact**
- **Social Responsibility**

Methodological Approaches:

- **Co-design**
- **Experimentation**
- **Intervention**
- **Collaboration**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Projects must involve min. 3 departments (multidisciplinary)**
- **Projects involve non-academic partners from different sectors**
- **Focus on impact and public goods**
- **Non-academic knowledge is valorised (co-design)**

Methods:

- Engagement of all Polimi Departments in the initiative
- The annual edition of the contest, to co-finance projects on identified topics and with a direct social impact
- Monitoring the grant-winning projects' outcomes to observe the longer-term social impact of the university

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Project:
Living Labs Incubator

Keywords:
Real-World Laboratories, Living Labs, Interdisciplinary, Transdisciplinary, Cross-Model Data Management, Participatory Research

Project Description:
The project is organised on six pillars.

1. **Research:** As a new and essential platform for the transdisciplinary co-production of knowledge and innovation, Living Labs form the critical unit of analysis of all research undertaken by the LLI.
2. **Analyse:** The analysis looks at the implementation and impact of Living Labs at different levels and covers the complete cycle from method development to evaluation.
3. **Inform:** Information about Living Labs' general goals and concrete activities is bundled and made available to all interested parties.
4. **Network:** The LLI acts as a central hub in the network of different Living Lab activities locally and internationally.
5. **Enable participation:** Involving civil society in Living Lab research activities is essential. In this regard, the LLI cooperates with the city of Aachen.
6. **Support:** Upon request, Living Lab conceptualisations are accompanied in an advisory capacity and supported in searching for funding opportunities.

Further transdisciplinary initiatives at the RWTH are gathered in the LLIs network and their project descriptions and 35 fact sheets can be found here

Basic Facts:

University: RWTH Aachen University

Type of initiative:
- **Cooperation Model**
- **Research Project**
- **Strategic Platform**

Core Mission:
- **Research**

Level:
- **Project Driven**
- **Topic Related**
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **Living Lab**
- **Knowledge Transfer**
- **Sustainability**

Methodological approaches:

- **Project Mapping**
- **Collaboration**
- **Knowledge Transfer**

Characteristics of Transdisciplinary:

- **Network of various living labs in different disciplines are broad together**
- **Enable participation of civil society**
- **Analyses the various living labs by looking at the implementation and impact of Living Labs at different levels**

Goals:

The Living Labs Incubator was set up in the context of measure five of the Excellence Strategy developed by the RWTH Aachen University: "Collaborate in LivingLabs". The LLI is part of the Human Technology Center (HumTec), which coordinates inter-and trans-disciplinary activities of the RWTH Aachen. HumTec has initiated and continues to host the LLI to strengthen the knowledge base and methodological rigour of Living Lab activities in and around the RWTH Aachen University. The quantity and intensity of Living Lab activities in and around the RWTH Aachen University have increased significantly in the past years. The six-year plan of the LLI includes mapping and analysing Living Lab activities, creating and nurturing a network of Living Labs, and enabling and fostering co-creation, participation, and transdisciplinary knowledge exchange. The LLI supports interdisciplinary collaboration and transdisciplinary approaches to knowledge and value creation at the core of the RWTH's aim to become an Integrated Interdisciplinary University for Science and Technology.

Methods:

Mapping of Living Lab initiatives. A diverse real-lab landscape exists at RWTH Aachen University, in the city region and the surrounding Rhineland. In cooperation with those responsible, the Living Labs Incubator collects information on projects and institutions to support networking and exchange experience. Currently, 30 projects or institutions are represented in the LLI's profile database, whose work represents a form of real-world laboratory. The database can be sorted according to various criteria, such as the coordinating institution. The database is continuously being expanded.

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Methods development. This objective is mainly about developing indicators for characterising transdisciplinary knowledge production and evaluation in and through real-world labs (RWL) and testing them participatory. Such transfer indicators should make it possible to design (future) real-world labs more sustainably concerning the epistemic requirements of transdisciplinary knowledge transfer. The central question is how the situatedness, individuality, specificity and thematic focus of each Living Lab and the associated forms of knowledge and knowledge production can be captured and evaluated by indicators, as well as which transfer criteria (e.g., generalisability, scalability, reproduce-ability, transferability) can be guaranteed beyond concrete RWL without undermining the specificity of the concrete RWL.

Re-Thinking data management. For the fundamental idea of the LLI to work, there is first a need to design architectures of methods (out of a wide range of methods) to make each living lab unique, enabling collaborative innovation in a context-sensitive, situation-related participative way. Second, there is a need to develop new data management methods to conduct this kind of tailored inter-methods investigation.

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Project:
REVIERa

Keywords:
Transformation, Lignite Phase-Out, Innovation Ecosystem, Participatory Innovation,

Project Description:
REVIERa combines local transformation tasks with global sustainability goals and strengthens a cross-disciplinary and cross-actor approach to shaping the Rhenish Revier as a model region. In a dialogue-oriented process, RWTH is simultaneously developing a new culture of knowledge, innovation and communication -REVIERa thus contributes significantly to implementing RWTH's future concept as an integrated interdisciplinary university.

Goals:
The REVIERa transformation platform addresses the complex design task of the lignite phase-out and the associated far-reaching social, spatial and technological transformation tasks. The central goal is to develop transformation perspectives in a highly interlinked field of problems and studies in an interdisciplinary exchange between researchers at RWTH Aachen University and stakeholders in the Rhenish region to provide inputs for transformation processes. In the process, knowledge of the subject matter, process knowledge and dialogue knowledge is developed in close connection.

Methods:

Basic Facts:

University: RWTH Aachen University

Type of Initiative:
- **Cooperation Model**
- **Research Teams**

Core Mission:
- **Innovation**

Level:
- **Structure Related**
- **Topic Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Industry**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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The REVIERa team developed a multifaceted toolbox of methods supporting interdisciplinary exchange and participatory transformation processes. This toolbox includes a wide range of specified workshop formats and conceptual and mapping tools.

Themes & Methods:

Thematic Approaches:

- **Structural Change**
- **Transition Research**

Methodological Approaches:

- **Scenarios**
- **Development of Indicators**
- **Project Mapping**
- **Collaboration**
- **Knowledge Transfer**

Characteristics of Transdisciplinary:

- **Mapping of projects for fostering a conversation with transformation actors**
- **Developing a compass to define goals for collaborative development**
- **Developing a format for co-work on transformation**

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https://www.rwth-aachen.de/cms/root/Die-RWTH/Exzellenzinitiative/Knowledge-Hub/Der-Strukturwandel-im-Rheinischen-Revier/~nlmzh/REVIERa-Aktiv-beim-

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Project:
Sustainability Unit

Keywords:
Sustainability, University Social Responsibility, Strategic Staff Unit, University Governance, Whole-Institution Approach

Project Description:
The Sustainability and University Governance Office is the primary contact for the topic of sustainability at RWTH Aachen University and coordinates a wide range of sustainable measures and projects as part of the overarching sustainability process. It works as a platform to collect and spread information about any relevant sustainability topic (ranging from practical tips over project ideas to activities addressing the whole university) about supporting the process of the RWTH getting more sustainable. The various contact partners deal with the enquiries and topics, and, if necessary, the appropriate networks are established within the university. Moreover, the project is dedicated to establishing networks between different universities to enhance each university's processes.

Goals:
The overarching goal of this strategic staff unit is to map and partly coordinate the multifaceted processes going on at the university regarding the topic of sustainability, thereby supporting the sustainable transformation of the university as a whole. This transformation is related to goals focusing on organisation, research and teaching.

- **Operation**. Our goal is to make the operation of RWTH Aachen University more sustainable, reduce our ecological consumption of resources in terms of climate neutrality and actively shape responsible, inclusive coexistence.
- **Research**. Our goal is to make our research more sustainable, to anchor the topic of sustainability in all faculties and profile areas, to be involved in research projects and to provide solutions for a sustainable transformation of our society.

Basic Facts:

University: RWTH Aachen University

Type of Initiative:
- **Strategic Project**

Core Mission:
- **Education**
- **Research**

Level:
- **Structure Related**

Involved Stakeholders:
- **Academics**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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- **Teaching**. Our goal is to make our teaching more sustainable, anchor the topic of sustainability in all study programs and focus more strongly on empowering our learners and teachers to drive the development of solutions with innovative ideas. For doing so, the interconnection of these three areas to transform the university into a sustainable organisation is critical.

Methods:

Themes & Methods:

Thematic Approaches:

- **Whole University Approach**

Methodological Approaches:

- **Pathways**
- **Project Mapping**
- **Intervention**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Cooperation between different faculties and practice domains**
- **Open conversation format about sustainability issues**
- **Mapping of sustainability activities**

Building-up of GreenTeams. This GreenTeams practice interdisciplinary sustainable cooperation to continuously integrate the expertise and impulses from the university into the sustainability process. GreenTeams are built around the main strands of operation, research and teaching. Participation in the individual GreenTeams is open to all members of the university. The topics of society -international affairs -social issues are anchored in all GreenTeams to consider these aspects in all areas.

Round table sustainability. Every semester, the virtual Sustainability Round Table offers a dialogue platform for exchange between student initiatives, student councils, the AStA and the Sustainability and University Governance Office. Current and planned developments in the office are briefly presented, and various guests give impulses. In addition, students can present their initiatives and current projects, contribute ideas, and exchange ideas with the staff office and each other—sustainability Consultation Hour. The Sustainability Office Hours are an opportunity for anyone interested to get to know the staff unit and our sustainability work. Map of Sustainability Activities. In the digital sustainability landscape, sustainable projects and groups from RWTH Aachen University are collected and mapped. The diversity of the entire sustainability landscape is that way represented digitally. The entries can include, for example, research projects, courses, resource-saving projects or student initiatives at RWTH.

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Project:
Dialogue Platform

Keywords:
Collaborative Research Workshop Facilitation, Ideation

Project Description:
The Dialogue Platform is a TU Berlin tool for internal research promotion. It supports researchers, consortium initiatives, and research groups in finding ideas and developing processes. For this, it carries out several different event formats developed with experienced experts from the area of "research group management". The offers are announced internally or initiated regularly.

Goals:
The TU. Dialogue Platform affirms a situation characterised by: Openness for new research ideas in the area of consortium research, high quality of inter- and transdisciplinary research, normality of trans- and interdisciplinary research cooperation, and openness for unusual forms of working to find ideas for consortium projects.

Methods:
Workshop facilitation methods are inspired by: science studies on collaborative research and collaborative research management, design thinking, strategy development, systemic consulting and classic workshop moderation.

Basic Facts:

University: TUB

Type of Initiative:
- **Workshop Facilitation Service for Collaborative Research Projects**

Core Mission:
- **Research**

Level:
- **Process Related**
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Industry**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Workshop Facilitation
- Ideation

Methodological Approaches:

- Scenarios
- Co-design
- Project Mapping
- Knowledge Transfer
- Co-production

Characteristics of Transdisciplinary:

- Efficiently develop joint results
- Use group creativity and group expertise
- Synergies in cooperation
- Results as a whole that are more than their parts
- Openness to new forms of work

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ENHANCERIA
Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
Formative, i.e. Process, Evaluation of Transdisciplinary Research

Keywords:
Process Evaluation Framework, Learning Projects, Theory of Change, Impactful TD-research practice

Project Description:
To combine the three components (impactful research practices, impact heuristics, and start with a workshop to define the theory of change, including as many project members (scientists and practitioners) as possible. From the flowchart of impacts, participants select particularly relevant impact pathways, with the starting point being a research activity.

As the formative evaluation team, we suggest indicators and monitoring questions for the intended impacts on first-, second-and third-order effects. The project team assesses the implied suitability, feasibility and manageability indicators.

After the joint adaptation of the set of indicators and their operationalisation via monitoring questions, data collection and ongoing reflection about the process can be started. At this stage, particular attention is paid to the five impactful research practices.

Goals:
Continuously support transdisciplinary projects in their impact orientation, project governance, and adaptation.

Methods:
Mainly Theory-of-Change

Basic Facts:

University: TUB

Type of Initiative:
- **Research Project**

Core Mission:
- **Research**
- **Service to Society**

Level:
- **Method Related**
- **Process Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Industry**
- **Administration**
- **Politicians**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Impactful Research Practices
- Evaluation Framework
- Theory of Change

Methodological Approaches:

- Development of Indicators
- Knowledge Exchange
- Pathways
- Knowledge Transfer

Characteristics of Transdisciplinary: Formulating criteria and indicators for evaluating transdisciplinary projects

- Impactful research practices
- Impact Heuristics
- Theory-of-change method
- Combining these various approaches

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https://region40.de/projekt-inno-strat/

ENHANCERIA
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Project:
KUBUS-Cooperation and Consulting for Environmental Questions, the Science Shop of TU Berlin

Keywords:
Environment, Participation, Science-Society Collaboration, Knowledge Exchange, Transdisciplinarity

Project Description:
The science shop kubus (Cooperation and Consulting for Environmental Questions) is a service facility of the TU Berlin and part of the Centre for Scientific Continuing Education and Cooperation (ZEWK). It was founded established in 1986.

We work in all areas of environmental protection and sustainable development, intending to help to solve ecological and social problems of the future.
In addition to regional cooperation with NGOs, authorities and companies in Berlin/Brandenburg, our activities focus on international and regional development projects.
Further, kubus coordinates and facilitates the TUB programme of student self-organised project labs.

Goals:
Kubus is bridging the gap between university and society. KUBUS supports civil society commitment, sustainable entrepreneurship and activities to protect our planet at various levels.

Methods:

Basic Facts:

University: TUB

Type of Initiative:
- **Office/ Executive board/Central facility**

Core Mission:
- **Service to Society**

Level:
- **Structure Related**
- **Topic Related**
- **Process Related**

Involved Stakeholders:
- **Academic**
- **Civil Society**
- **Administration**
- **Small and Medium Sized Enterprises**

Drivers:
- **University**
- **Civil Society Organisations**

Initial Funding:
- **University-Based Funding**

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We mediate cooperation between scientists and students of the TU Berlin with non-university initiatives and institutions. This cooperation includes the initiation and support of projects, events and networks. There is a need to develop new data management methods to conduct this kind of tailored inter-methods investigation.

Themes & Methods:

Thematic Approaches:

- **Environment**
- **Participation**
- **Knowledge Exchange**

Methodological Approaches:

- **Intervention**
- **Co-production**
- **Knowledge Exchange**
- **Collaboration**

Characteristics of Transdisciplinary:

- **Projects and discourse between civil society and university**
- **Science shop coordinators with experience and knowledge from society and science**
- **Involvement of students**
- **Focus on real-world problems**

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ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:

Let's talk about it: Transdisziplinarität und Co-Production

Keywords:
Community Building, Exchange of Experiences, Transdisciplinary Research

Project Description:
Collaboration across institutions and disciplinary and scientific boundaries are not natural or easy, and expertise is needed to understand the challenges better and address them more targeted. More and more researchers are gaining valuable experience in inter and transdisciplinary projects or collaborations between society and science. This experiential knowledge about the sunny and dark sides of new research modes is a valuable asset that should be available to the community of transnational researchers. Informal conversations about personal experiences are a fruitful form of knowledge transfer. Therefore, we invite researchers and everyone interested to an open exchange of experiences.

Goals:
Community and Capacity Building through an exchange of experiences between TD researchers (beginners and experts)
Provide an informal and well-convened setting to induce open discussions.

Methods:

- Expert/guest reporting on his*her experiences
- An open exchange of experience
- Informal setting (after-work drink)

Basic Facts:

University: TUB

Type of Initiative:

- **Format**

Core Mission:

- **Education**
- **Research**

Level:

- **Method Related**
- **Process Related**

Involved Stakeholders:

- **Academics**

Drivers:

- **University**

Initial Funding:

- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Community Building
- Capacity Building

Methodological Approaches:

- Knowledge Exchange
- Co-Production

Characteristics of Transdisciplinary:

- Interdisciplinary reflection and knowledge transfer about TD approaches, challenges etc.
- Open university-wide and to others interested (e.g. external researchers) to build a community
- Informal setting to allow open discussion on failures and how to improve TD work

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ENHANCERIA
Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
Mall Anders - Offenes Lernlabor für Wissenschaft und Gesellschaft

Keywords:
Transfer, Responsibility, Student Initiated Learning

Project Description:
Mall Anders sees itself as an inter- and transdisciplinary learning laboratory for researching some of the critical issues facing our cities. A 300-square-metre retail space in the WILMA shopping centre will be transformed into an open-access project space where themes including urban development, the future-oriented renewal of university locations, resilience, sustainable consumption and production styles can be discussed and negotiated. As a public space for shaping the future, Mall Anders offers space for pop-up exhibitions and dialogues, science slams, workshops, discussions and much more. In doing this, it should serve as a test bed for establishing new forms of academic didactics on the border between university and society.

Design and curatorial supervision are undertaken by Natural Building Lab (TU Berlin), following the principles of circular construction. The project promises broad public engagement as a showcase for collective learning processes. It has the potential to overcome the barrier between the university and civil society, thereby providing new impulses for science communication. The aim is to draw links between different academic disciplines and develop integral development perspectives for university staff and citizens.

Goals:
University students experience themselves in dialogue with citizens and discern their responsibility towards society.

Basic Facts:

University: TUB

Type of Initiative:
- **Science Communication Space**

Core Mission:
- **Education**
- **Service to Society**

Level:
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Civil Society**
- **Business**

Drivers:
- **University**

Initial Funding:
- **Univeristy-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **N/A**

Methodological Approaches:

- **Transfer**
- **Experimentation**
- **Intervention**
- **Collaboration**
- **Knowledge Transfer**
- **Knowledge Exchange**
- **Science Communication**

Characteristics of Transdisciplinary:

- **Dialogue with Citizens**
- **Learning with Citizens**

Methods:

Science communication, artistic intervention, exhibits, panel talks, workshops

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Project:
Modul "Formative Evaluation" as Part of "BioVal: Biodiversity Valuing & Valuation."

Keywords:
Transdisciplinary Research, Theory of Change, Formative Evaluation, Societal Impact Evaluation

Project Description:
BioVal develops solutions to reduce negative impacts on biodiversity from food production along the product life chain. In cooperation with several food-producing companies, it is investigated how they can contribute to promoting biodiversity along product life chains and how they can anchor this in their management and communicate it to the public. To ensure the quality of the transdisciplinary research process and the integration of knowledge in an ideal way, we accompany the project by conducting a formative evaluation. In this context, criteria and indicators for measuring the achievement of objectives and the effectiveness of BioVal will be developed. The methods used reflect the state-of-the-art literature on transdisciplinary sustainability research impact assessment.

Goals:
Continuously support transdisciplinary sustainability projects in their impact orientation and project governance and adaptation to achieve the best societal impact.

Methods:
Theory of Change, indicator development.

Basic Facts:

University: TUB

Type of Initiative:
- **Research Project**

Core Mission:
- **Research**
- **Service to Society**

Level:
- **Method Related**
- **Process Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Industry**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic Approaches:

- Transdisciplinary Research
- Impact Evaluation
- Theory of Change

Methodological Approaches:

- Pathways
- Development of Indicators
- Knowledge Transfer
- Knowledge Exchange

Characteristics of Transdisciplinary:

- Systematic formulation of criteria and indicators for the evaluation of the societal impact of transdisciplinary projects
- impactful research practices
- impact heuristics
- theory-of-change method
- The combination of these approaches

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Project:
Office of Science and Society

Keywords:
Executive Board, Transdisciplinary Research, Circular Transfer, Excellence Strategy, Living Labs, Citizen Science, Campus Charlottenburg

Project Description:
The Executive Board acts as an advisor and service provider for all members of the TU Berlin, especially for the departments and external target groups interested in participatory research, multidirectional transfer and transdisciplinarity. The office also manages national and international networking activities in Science and Society - research with society.

The section is functionally assigned to the president and the executive office director in terms of service law. The head of a section reports to the vice president for knowledge and technology transfer. Together, the heads of Science and Society, Science Communication, and Department V form the university's leading knowledge exchange group, which regularly discusses TU Berlin's areas of transfer and strategically develops these with the Transfer Advisory Council before implementing these with partners. The section will also closely work with the International Office on areas of internationalisation related to science and society.

Goals:
Because of the socio-political debate on the opening of Universities in the context of extended transfer, as well as clear signals that transdisciplinary research and circular transfer will become increasingly important in the future (Excellence Strategy, Horizon Europe, Citizen Science in funding programs), it is aimed to permanently anchor the strategic focus of Science and Society in the Presidium. There, corresponding expertise will be bundled in an independent structure as a unit/Executive Board.

The excellent position of the TU Berlin in this essential future topic will be secured. The Campus Charlottenburg position will be integrated into this newly created

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic unit/office at the Executive Board TU Berlin**

Core Mission:
- advisor and service provider for transdisciplinary research and circular transfer

Level:
- structure-related

Involved Stakeholders:
- Academics (providing new partnerships with administration, Interested organisations, civil society)

Drivers:
- **University**

Initial Funding:
- **University based funding**

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structure and thus find a thematically appropriate home. Campus Charlottenburg will serve as a central common reference area for the partnership between science and society for the next ten years and will form a strategic focus of the TU Berlin for new collaborations between science and society.

As a result of the Executive Board's adoption of a strategic focus in 2014 and the establishment of an advisor position within the Executive Office, the university has been able to hone its profile. By networking with other institutions, combining competencies, and thus develop strategic activities, such as StadtManufaktur and the Berlin University Alliance research forums. TU Berlin's national and international networking relationships and visibility also benefited from this expertise.

Methods:
The department is responsible for the strategic and operative work to systematically develop new ways of knowledge exchange at the TU Berlin in cooperation with science communication and knowledge and technology transfer. The focus is on new partnerships with actors in urban society, the strengthening of new methods and formats of transdisciplinary work such as living labs, citizen science and research forums, and internationalisation in science and society. The unit initiates or strategically supports central activities of the TU Berlin in the area of research with society and provides them to the Excellence Alliance. The goal is to continue positioning TU Berlin nationally and internationally at the forefront of this new development in the science system and to provide impetus to the TU from within the university management, as has been achieved, for example, with the Berlin-Brandenburg Climate Center and the ENHANCE network. The organisational positioning at the Presidium increases the awareness and reputation of the research university with its numerous interdisciplinary and transdisciplinary competencies and should therefore continue to be located at the Presidium.

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ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
Research Forums

Keywords:
Research Forums, transdisciplinarity, Berlin University Alliance, Co-Exploration of Research Topics

Project Description:
Transdisciplinary research occurs when social actors from politics, business, art and culture, and civil society can contribute their questions and professional and practical expertise to all phases of a research process. Four research forums aim to strengthen the transdisciplinary research mode in the Berlin University Alliance and Berlin. Innovative formats are being developed, new collaborations and networks are being formed, practical experience is being made possible for academics and social actors, and permanent structures are being established.

Goals:
The Research Forums:
Provide basic and experiential knowledge on transdisciplinary research and contribute to increasing the acceptance of the collaborative research mode.
Contribute to the further development of the transdisciplinary research mode with innovative formats, processes and methods.
Contribute to structurally anchoring transdisciplinary research in the institutions of the network partners.

Methods:
Initiating and evaluating transdisciplinary formats of co-exploring topics, co-designing pilot processes and co-production of knowledge to develop joint partnerships for fostering grand societal challenges

Basic Facts:

University: TUB
Type of Initiative:
- **Strategic Project**
- **Partnerships**

Core Mission:
- **Innovation**

Level:
- **Project Driven**
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Industry**
- **Civil Society**
- **Art and Culture**

Drivers:
- **An Alliance of Universities**

Initial Funding:
- **Governmental External Funding**

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Themes & Methods:

Thematic Approaches:

- Transdisciplinary
- Co-exploration of Research Topics

Methodological Approaches:

- Co-design
- Training Labs
- Experimentation
- Collaboration
- Co-production
- Knowledge Exchange

Characteristics of Transdisciplinary:

- Co-exploration of research topics
- Providing institutional structures for multidirectional knowledge exchange
- Providing space for mutual learning between different stakeholders

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Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
Research Forum Berlin Citizens

Keywords:
Citizens, Experimentation, Transdisciplinary Research, Iterative Process

Project Description:
Citizen's involvement, finding research issues from civic society, co-design research questions and creating transdisciplinary research projects (pocket formats), two-year process: 1st phase: uptake of research ideas and research needs by experimentation formats (public interventions and digital), 2nd phase: matching societal research needs with research interests in science (issues and actors) and co-design of shared research questions, 3rd phase: conducting 1-3 transdisciplinary processes with practice experts, scientists and citizens (pocket formats).

Goals:
Social and scientific knowledge gain, development and experimentation of new formats of transdisciplinary research, improving the conditions for transdisciplinary research at the Berlin University Alliance partners (enabling, announcing, inspiring).

Methods:
Citizens' participation (planning) principles are derived from citizen science and transdisciplinary research. Methods will also be adapted from these approaches

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Project**

Core Mission:
- **Innovation**

Level:
- **Process Related**

Involved Stakeholders:
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Thematically Open

Methodological Approaches:

- Co-design
- Experimentation
- Knowledge Exchange
- Intervention
- Co-production

Characteristics of Transdisciplinary:

- Co-exploration of research issues
- Orientation on societal challenges
- Dialogic Formats
- Involvement of everyday expertise

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Project:
Research Forum Global Health

Keywords:
Global Health, Partnerships/Future topics, Institutionalisation

Project Description:
In the Research Forum Global Health, scientists and actors from civil society, politics, business, art and culture are brought together in transdisciplinary thematic workshops to exchange knowledge. The goal is to formulate urgent questions on global health through knowledge sharing and joint learning, to which Berlin, as a research, living and economic space, can provide answers. In the process of the thematic workshops, transdisciplinary networks are established that bring these future topics in the field of global health into research as well as into concrete application; in this way, concrete continuation strategies are initiated. Transdisciplinary monitoring of the process serves quality assurance and evaluation.

Goals:
1. Increase visibility and acceptance of transdisciplinary research (Establishment of Research Forum Global Health as a pilot process).
2. Establishment of networking and permanence structures (Formation of longer-term partnerships and networks in the field of Global Health).
3. Contribution to the structural anchoring of transdisciplinary research in the Alliance (Suggestions for establishing institutionalised structures that support transdisciplinary research).

Methods:
In the development phase.

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Project**

Core Mission:
- **Innovation**
- **Research**

Level:
- **Structure Related**
- **Topic Related**
- **Method Related**
- **Institutionalization**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Industry**
- **Civil Society**
- **Art and Culture**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic Approaches:

- Transdisciplinary
- Global Health

Methodological Approaches:

- Testing
- Collaboration
- Continuation
- Co-design

Characteristics of Transdisciplinary:

- Co-exploration and Co-design
- Development of future topics
- Method Development MET

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ENHANCERIA
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Project:
Research Forum Next Grand Challenges

Keywords:
Co-Creation of a Research Area, Participation of Youth

Project Description:
2022-2023: a collection of ideas for the next Grand Challenge for the Berlin University Alliance from science and youth in Berlin; discussion of clustered ideas at a common conference/open space.

Goals:
Finding the next Grand Challenge of the Berlin University together with societal actors.

Methods:
Co-creation.

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Projects**

Core Mission:
- **Research**

Level:
- **Topic Related**

Involved Stakeholders:
- **Academics**
- **Politicians**
- **Administration**
- **Industry**
- **Civil Society**
- **Yough**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Co-Exploration of a Research Area
- Participation
- Youth

Methodological Approaches:

- Co-Design

Characteristics of Transdisciplinary:

- Co-Exploration of the Research Area

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Project:
Research Forum Social Cohesion

Keywords:
Research Forum, Research Atlas, Trialog, Coaching

Project Description:
The Research Forum Social Cohesion supports the transdisciplinary orientation of the Exploration Projects Social Cohesion. The Berlin University Alliance funded the six projects from 2020 to 2023 and explored the Grand Challenge Social Cohesion aspects.

Goals:
We aim to foster knowledge transfer toward Societal Actors and Knowledge Exchange with Societal stakeholders in the research work of the six Grand Challenge Research Projects. In the long term, we want to strengthen the acceptance of transdisciplinary research as a possible way to do excellence research.

Methods:

- **Impact Coaching:** The research projects receive support, for example, in the form of coaching offers. In 2021 and 2022, five coaching sessions will be held on various topics to help scientists communicate their research results to social actors more effectively.
- **Trialog:** The Research Forum on Social Cohesion will also offer a dialogue format for Exploration Projects and social actors. The trials aim to establish new networks between the sciences and society, identify common themes and facilitate knowledge exchange.

Basic Facts:

University: TUB

Type of Initiative:

- **Programme within the Excellence Network of Berlin University Alliance**

Core Mission:

- **Service to Society**
- **Research**

Level:

- **Project Driven**

Involved Stakeholders:

- **Academics**
- **Politicians**
- **Administration**
- **Civil Society**

Drivers:

- **University**

Initial Funding:

- **Government External Funding**

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- **Research Atlas:** The first result of the Research Forum Social Cohesion is the Research Atlas. It presents topics, issues and links between topics relevant to the Grand Challenge Social Cohesion in Berlin. The topics are either already being researched by academics or identified as essential research needs by academics and actors of organised civil society.

Themes & Methods:

Thematic Approaches:

- **Social Cohesion**

Methodological Approaches:

- **Project Mapping**
- **Knowledge Transfer**
- **Knowledge Exchange**
- **Trialogue-Deliberative Discussion Format**

Characteristics of Transdisciplinary:

- **Focus on knowledge transfer to societal stakeholders**
- **Empower researchers to work more collaborative with societal actors**

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Project:
Stadtmanufaktur

Keywords:
Knowledge Exchange Science and Society, Transfer Strategy, Institutionalisation of Transdisciplinarity, Strategic Platform

Project Description:
Stadtmanufaktur Berlin is a central and strategic platform for living lab research of TUB. Via this platform, scientific questions, methods, tactics, and data can be matched with practical know-how and actors to develop intelligent spatial concepts/ strategies jointly and apply relevant solutions directly in urban areas. With the help of the living labs networked in the StadtManufaktur, a new process culture, a contemporary research and transformation culture is developed. It integrates and emphasises the significance and essential role of co-producers and co-production. Via the
living labs open up mid- and long-term possibilities of spatial up-scaling, evaluation and adaptation of urban transformation challenges in mixed concrete and living contexts.

The Stadtmanufaktur Berlin facilitates matching between TU scientists and partners from
politics, business, culture, and civil society by accompanying joint real-world labs in Berlin. It serves for scientific and non-scientific initiatives to network and become visible together. This common platform is intended to generate transformation knowledge and ensure the transferability of results. It bundles experimental real-world projects for Berlin urban transformation topics like energy and mobility transition, climate resilience, transformation knowledge and circular economy. The development of the TU Campus as a real-world lab is also in planning.
The founding partners of StadtManufaktur Berlin are Technische Universität Berlin, the Center for Technology and Society and the Einstein Center Digital Future. The Berlin State Senate funded the founding phase, and further collaborations are planned. The Stadtmanufaktur is also part of the network of living labs of sustainability.

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Platform**

Core Mission:
- **N/A**

Level:
- **N/A**

Involved Stakeholders:
- **N/A**

Drivers:
- **N/A**

Initial Funding:
- The founding partners of StadtManufaktur Berlin are Technische Universität Berlin, the Center for Technology and Society and the Einstein Center Digital Future. The founding phase was funded by the Berlin Senate Chancellery

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Goals:

As a milestone of the institutionalisation strategy for anchoring transdisciplinarity as a research mode since 2014, the TU Berlin has chosen various approaches to build structures. Embedded in the transfer strategy for the entire university, knowledge exchange and cooperation between science and society were important, and medium and long-term goals were set. The Stadtmanufaktur represents one milestone of structure building measures with a broad anchoring of transdisciplinarity. It is a platform for presenting and networking living labs for urban transformation. A circular exchange between science and society is promoted through joint work at eye level. The goals are:

- Long-term partnership for complex urban transformation processes offering to Berlin's urban society
- An open platform for co-production of knowledge with citizens, other partners and actors
- Implementing the latest scientific findings and innovations for complex urban challenges
- Real participation and experiments, making science "touchable" for the citizens of Berlin
- Scouting and matching for scientists and societal stakeholders
- Supporting and advisory for proposals and fundraising

Methods:

The Stadtmanufaktur bundles approaches of existing real world laboratories (living labs) mainly in Berlin to the transformation topics: energy and mobility transition, climate resilience, transformation knowledge and circular economy The living labs are one transdisciplinary format (TRAFO) for generating transformation knowledge at TU Berlin, which are constantly devloped and tested at the new founded office for science and society.

The living lab methodology is also to strengthen the genesis and communication of transformation knowledge and to contribute to the implementation of transformation strategies (see also case 2). In this sense, StadtManufaktur Berlin focuses on: scenarios and discourses for urban transformation, spaces and alliances of transformation as well as processes of experimentation as a social strategy. Main tools are also a joint website, workshops to connect and exchange,consultation and a strong partnership with different stakeholders in Berlin from politic, civil society and business. Staff is one coordinator, employees from the real labs may contribute to the platform.

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Project:
Stadtmanufaktur-Real World Labs

Keywords:
Knowledge Exchange Science and Society, Transfer Strategy, Institutionalisation of Transdisciplinarity, Strategic Platform

Project Description:
One example for a real world lab at the Stadtmanufaktur platform of TU Berlin is the Beach 61 project in Berlin's Gleisdreieck Park, in which technical module sets are used for combined water, farm and biodiversity management. It is based on the research results and practical experience of building-integrated farming of fish and plants from the Roof-Water-Farm project. In the GartenLeistungen project, researchers work together with practitioners in real laboratories and with the help of survey studies to record the diverse services of gardens and parks for urban society and derive recommendations for action for cities and civil society actors. Public parks and community places and gardens such as the BEACH 61 facility in Berlin's Gleisdreieckpark serve as a "blueprint" for the mobile transferability and flexible, creative integration of technical module sets for combined water, farm and biodiversity management. Design approaches and measures of technical feasibility, of operation and maintenance, and of mapping blue-green ecosystem services are being researched in a participatory manner as part of the interdisciplinary, practice-oriented teaching at the TU Berlin and as a living real-lab process through hands-on actions, user workshops and participatory workshops.

Another project example oriented to climate resilience at the Stadtmanufaktur platform is the real-world lab Climate-Energy-Water. In addition to its function as a learning and teaching laboratory, city authorities, the real estate industry, interested experts and laypeople can learn on-site how existing buildings and neighbourhoods can be transformed in a climate-friendly way: Through the use of photovoltaics on roofs, façades and window surfaces, energy is generated regeneratively locally in the existing building, and the net energy demand of the

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Platform**

Core Mission:
- **N/A**

Level:
- **N/A**

Involved Stakeholders:
- **N/A**

Drivers:
- **N/A**

Initial Funding:
- **Governmental External Funding**

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building is reduced. The building's water management is sustainable. Rainwater is actively managed locally and not discharged into the sewage system, thus reducing the pollution loads of urban watercourses. Facade greening and technical systems on the building enable the storage and use of precipitation water and its use as service and cooling water. The necessary storage and irrigation systems, such as pumps, valves, control electronics and sensors, are supplied regeneratively by the photovoltaics on the building. Building shading and transpiration cooling through vegetation and rainwater management increase climatic resilience, and reduced cooling and heating requirements lead to CO2 savings. Valuable habitats are created in the building and in the neighbourhood, contributing to the increase and appreciation of biodiversity. In designing and setting up the real laboratory, we draw on the results and experience of research projects such as Vertical Green 2.0 and BlueGreenStreets.

Goals:
Urban gardens and parks are important for the urban climate, biodiversity and the quality of life of people living in cities. How can the services they provide be recorded and included in urban policy consideration decisions so that urban land management becomes more sustainable? Further key questions are: How can rainwater or shower water be made usable in a participatory and productive way? How, how much, and in what quality can edible greenery, biodiversity and a pleasant urban climate be re-produced from it? And how can the mobile blue-green infrastructures be both prototypes and catalysts for circular and climate-friendly urban development?

The real-world laboratory Climate-Energy-Water demonstrates structural measures in existing buildings in the context of the water-sensitive city and the energy transition. The necessary constructional measures and their synergetic couplings are to be exemplarily implemented, investigated and independently evaluated at the TU Berlin's hydraulic engineering hall. A central concern is to present the results of the long-term monitoring to all visitors online and directly on site.

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Project:
TdAcademy - Platform for Transdisciplinary Research and Studies

Keywords:
Transdisciplinary Research, Knowledge Base, Community Building, Capacity Building

Project Description:
The tdAcademy is a research and community platform for transdisciplinarity. As a project, we conduct research on central topics of transdisciplinary research and strengthen the joint production of knowledge. Our website supports the direct exchange of researchers through new community offers and information on events and projects. The international community is actively involved in the project through a group of supporting partner institutions and a guest and fellow program.

Goals:
The tdAcademy pursues three objectives: First, developing and consolidating state-of-the-art insights within the transdisciplinary research community ("Research"). Second, providing high-quality capacity-building opportunities for transdisciplinary researchers ("Enable"). Third, supporting and further developing the transdisciplinary research community provides a space for exchange, reflection, collaboration, and new ideas ("Connect").

Methods:

- Develop and provide research insights on critical topics of TD research
- online hub as a meeting point and connection node for the TD community (in Germany and internationally)

Basic Facts:

University: TUB

Type of Initiative:
- **Research Project**

Core Mission:
- **Research**
- **Education**

Level:
- **Structure Related**
- **Topic Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Civil Society**

Drivers:
- **Several Research Institutions**
- **University**

Initial Funding:
- **Governmental External Funding**

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- collection and communication of capacity-building events on TD research

Themes & Methods:

Thematic Approaches:

- **Community Building**
- **Research On Transdisciplinarity**
- **Capacity Building**

Methodological Approaches:

- **Knowledge Exchange**
- **Knowledge Transfer**
- **Co-production**
- **Collaboration**
- **Project Mapping**
- **Testing**

Characteristics of Transdisciplinary:

- **Strengthening the TD research community**
- **Strengthening TD approaches in research**
- **Strengthening the knowledge base on TD research**

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Project:
Transdisciplinary Didactics

Keywords:
Reflection, Student Coaching, Theory Development

Project Description:
Transdisciplinary Didactics is a long-term staff position in the president's office of TU Berlin. It aims to foster transdisciplinary education projects and enable students to explore transdisciplinary perspectives in their curriculum.

Goals:
Transdisciplinary didactics enable students to discern the plurality of knowledge resources and their use for specific issues and find ways to integrate these sources of knowledge into their studies and research. Students learn about their responsibility to communicate with society and to open avenues to allow them to share their own learning experiences and research results with society.

Basic Facts:

University: TUB

Type of Initiative:
- **Strategic Platform**

Core Mission:
- **Education**

Level:
- **N/A**

Involved Stakeholders:
- **Academics**
- **Civil Society**
- **Business**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- Learning
- Didactics
- Teaching

Methodological Approaches:

- N/A

Characteristics of Transdisciplinary:

- Provide university students with a framework to identify and discern knowledge resources and integrate transdisciplinary perspectives into their curriculum

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Project:
Transdisciplinary Formats (TRAFOS)

Keywords:
Transdisciplinary Formats, Real World Laboratories, Living Labs, Transformation Knowledge, Transformation Science

Project Description:
The TRAFO of real-world laboratories/living labs are a key format at TU Berlin to stimulate and support transformation science. It can be also addressed as citizen engagement through experimental approaches toward transformation processes. According to the WBGU (2011), due to the complexity of the transformation processes like the uncertainty of climate change, urbanisation, mobility and energy change e.g. the scientific disciplines should be more strongly oriented toward problem-oriented joint research and integrate external knowledge. For this purpose, transformation research focuses on transformation processes and their relationships and relates them to the design of future transformations. Transformation research provides this by stimulating and catalysing societal transformation processes and developing innovations such as efficient and sustainable technologies. To increase social relevance and to integrate practical knowledge, the mode of transdisciplinary research is to enable the integration of various stakeholders into research, including the definition of research questions and goals, participation in the research process and the discussion of research results. Transdisciplinary research also includes the evaluation of research processes and outcomes.
The core characteristics for real world labs can be characterised as transformative, transdisciplinary research, orientation towards the model of sustainable development, orientation towards civil society and as having a laboratory and model character, long term strategy and a strong educational mission (Schäpke et al., 2017; Parodi et al., 2018). Real world labs a transformative approach to knowledge, i. e. they are a research format in which transdisciplinary research is conducted and at the same time an explicit transformative claim is pursued (Defila and Di Giulio 2018). The scientific and social added value of real world labs lies in their longevity, i. e. in that

Basic Facts:

University: TUB

Type of Initiative:
- **N/A**

Core Mission:
- **N/A**

Level:
- **N/A**

Involved Stakeholders:
- **N/A**

Drivers:
- **N/A**

Initial Funding:
N/A

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transformation can be tested in protected spaces and atmospheres, they can be understood, built up and expanded as innovation and research infrastructures. Living labs as research environments for change, which provide a staff, organisational, communicative, social and physical infrastructure, are to support the genesis, testing and development of transformation knowledge.

Goals:

The transdisciplinary formats are being introduced at the TU Berlin as one methodological component of the institutionalisation of transdisciplinarity. In general the TRAFOS are associated with the goal of stimulating, accompanying and evaluating transdisciplinary research in the faculties. They are tested in various projects and pursue the goal of themselves providing new methodological insights for the success and resonance of transdisciplinary research for society. One central question is:

How can these supporting structures stimulate and provide better transdisciplinary research? Four fundamental dimensions of TRAFOS at the TU Berlin are to be mentioned:

- build up framework for method development on different levels
- stimulate processes fostering knowledge exchange, knowledge integration and network activities
- as methodological offer they are part of components for structure building
- provide further methods for circular transfer

Methods:

The approach of real world labs is to enable and stabilise the creation, development and testing of experimental approaches in real (realistic and societal) contexts. Based on the large number of studies on and experiences with living labs among the applicant institutions, the following methodologic principles for the implementation of living labs are to be mentioned:

- A real world lab needs a pragmatic approach to innovation, where the active participation of users can lead to effective co-production.
- A real world lab requires a deliberate integration of technical, socio-political and temporal dimensions of the actors/technologies/practices in an integrated, spatially comprehensive and long-term approach and thus iterative cycles of innovation and evaluation.
- A real world lab applies multiple methods, i.e., a pragmatically oriented combination of methods from various disciplines and traditions of thought.

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Project:
AR(t) IBMCP Residencia Artistica

Keywords:
Real-world Laboratories, Living Labs, Interdisciplinary, Transdisciplinary, Cross-Modal Data Management, Participatory Research

Project Description:
The AR(t)IBMCP call starts the UPV Artists in Residence Program, aimed at promoting an interdisciplinary exchange between researchers, scientists and international artists with the UPV.
Per the Instituto de Biología Molecular y Celular de Plantas (IBMCP) approach, the proposed artistic residency will be based on concepts derived from the research carried out in said research centre and its objectives of improving crops and agriculture through science. The residency will provide an educational and experimental platform for creative thinkers to explore the potential and implications of Plant Biotechnology, working at the interface between Art, Science and Technology.

Goals:
The residence's objective is to develop and disseminate an artistic work whose content is related to the research carried out at the IBMCP, thus allowing our centre to explore new forms of alternative communication with society about the achievements we have achieved.

Methods:

Basic Facts:

University: UPV

Type of Initiative:
- **Programme**
- **Cooperation Model**

Core Mission:
- **Service to Society**

Level:
- **Method Related**

Involved Stakeholders:
- **Academics**
- **Civil Society**
- **Interactionon Artists**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **BioArt**
- **Molecular Biology & Life Sciences**
- **Participatory Art/Crowd Art**

Methodological Approaches:

- **Collaboration**
- **Experimentation**

Characteristics of Transdisciplinary:

- **Artistic production based on Molecular Sciences**
- **Participatory art project involving scientists**
- **Exploring the disseminating science contributions to society**
- **Development and dissemination of art and science**

The artist-in-residence will have a workspace at the IBMCP and on-site scientific tutorials through collaborations with researchers from different laboratories, allowing them to learn from various research projects, their objectives, the scientific methods used, and the experimental approaches used. The format of said work would be open, per the current standards of Contemporary Art in areas such as Interactive Art, BioArt, Hybrid Art, AI & Life Sciences, Sound Art, New Art, Digital Communities, Participatory Art/Crowd Art, Artistic Platform Projects and Art Activism, among others.

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ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
CollectionCare

Keywords:
Innovative Preventive Conservation, Monitoring Systems, Cloud Computing, Big Data, Internet of Things, Sensors

Project Description:
CollectionCare is funded by the Horizon 2020 program of the European Commission according to the "INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Advanced materials call". It aims to develop an innovative and affordable decision support system for the preventive conservation of cultural objects in small and medium-sized museums by combining research and technological advances in monitoring systems (sensor nodes), wireless communications, cloud computing, big data, and material degradation models.
The system will be composed of 4 interconnected elements:
1) Sensoring -Connectivity: Allows monitoring and sensing of collections during exhibition, handling and transport.
2) Cloud Computing of Big Data: This unit will receive data from the sensoring module, store it and provide it to the rest of the system.
3) Multi-Scale Automatic Analysis: This module will analyse the data stored in the Cloud Computing Unit.
4) Outputs-Visualisation: this platform enables users access to data and the representation and visualisation through a web browser.

Goals:

Basic Facts:

University: UPV

Type of Initiative:
- **Cooperation Model**
- **Partnerships**
- **Research Project**

Core Mission:
- **Service to Society**
- **Innovation**

Level:
- **Project Driven**

Involved Stakeholders:
- **Industry**
- **Academics**
- **Administration**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Themes & Methods:

Thematic Approaches:

- **Art Conservation**
- **Data Science**
- **IoT**

Methodological Approaches:

- **Collaboration**
- **Knowledge Transfer**
- **Testing**
- **Scenarios**
- **Data Management**

Characteristics of Transdisciplinary:

- **Multidisciplinary Team**
- **Innovative Solution**
- **Develop a low-cost system to preserve the cultural heritage**

The project will develop an affordable system to monitor the environmental conditions and provide warnings and recommendations about failure boundaries, which will inform and optimise conservation decisions and strategies, thus ensuring proper conservation of art collections in the long term.

Methods:

The validation and demonstration activities for the CollectionCare system will be carried out in six European museums. To this end, communication efforts will be developed to promote the importance and applicability of these technologies in the conservation of cultural objects. All this is to increase citizens' awareness of the importance of preventive approaches for conserving the European cultural heritage.

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https://www.collectioncare.eu/

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
DISH

Keywords:
Health Professionals Training, Education Methods, Digitalization of Health Systems

Project Description:
The project will consist of an educational activity in which the health professionals will receive "training on the job" by using simulations to improve their skills and address better treatment and service to the patients. The SABIEN-ITACA group of the UPV, the Polibienestar Institute of the UV and the La Fe Health Research Institute will actively attract test sites to create innovative learning units. It will also have an essential role in the training actions of health personnel. The training will be presented as a "training on the job" methodology, in which simulation will be used in a safe and less stressful environment. In each country, a minimum of 100 professionals from the health sector will participate in the "Innovation Learning Unit" and receive training in the testing phase to examine usability. Each participant will receive a certificate of participation with an evaluation and recognition of the skills and competencies they have obtained.
The DISH project is a European Alliance for Training (Sector Skills Alliance) led by the Region of Southern Denmark (Hospital of Southern Jutland), in which 19 organisations participate. The Erasmus+ program founds it. The account consortium is made up of health service providers, academic institutions, as well as public and non-profit entities:
•Southern Jutland Hospital (SHS) – Denmark
•South Denmark European Office (SDEO) – Denmark
•Western Norway University of Applied Sciences (HVL) – Norway
•University College Lillebaelt (UCL) – Denmark

Basic Facts:

University: UPV

Type of Initiative:
- **Cooperation Model**
- **Programme**
- **Strategic Project**

Core Mission:
- **Education**
- **Service to Society**

Level:
- **Structure Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Industry**

Drivers:
- **University**

Initial Funding:
- **Governmental**
  External Funding

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Themes & Methods:

Thematic Approaches:

- **Cooperation Model**
- **Programme**
- **Strategic Project**

Methodological Approaches:

- **Training Labs**
- **Collaboration**
- **Knowledge Transfer**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Project involves Technological Centres, Companies, Public and Private Hospitals**
- **Multidisciplinary Teams**
- **Involves the training of health professionals**

•Welfare Tech – Denmark
•Norwegian Smart Care Cluster (NSCC) – Norway
•Vaksdal Municipality – Norway
•The Health Department Valencia-La Fe (IISLAFE) – Spain
•Polytechnic University of Valencia (UPV) – Spain
•UVEG-Polywellness Research Institute – Spain
•European Health Management Association (EHMA) – Belgium
•European Connected Health Alliance (ECHAlliance) – Ireland
•NHS Liverpool Clinical Commissioning Group (CCG) – UK.
•Edge Hill University (EHU) – UK.
•E-Health Cluster LTD – United Kingdom
•Lübeck University (THL) – Germany
•BioCon Valley GMBH (BCV) – Germany
•University Hospital Schleswig-Holstein (UKSH) – Germany
•John Paul II Hospital (JP2) – Poland

Goals:

The objective is to analyse the current and future skills necessary to achieve digitisation in the sector. Based on this, develop, test and present different contents that will prepare health personnel for implementing health and digital skills innovations, which will help them better decide how and where to apply e-health solutions. The purpose of the project is to provide real solutions to everyday life situations. The general objective is to contribute to the implementation of the Europe 2020 Strategy, as well as the main goals of the European Innovation Partnership on Active and Healthy Aging (EIP in AHA) in terms of skills development and job creation. The project responds to the "Agenda for new skills and jobs", necessary for current and future health sector personnel with the right skills to face the sector's challenges.

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The expected outcomes of the project are:

- The implementation of digitisation strategies on a local level.
- Enhanced use of eHealth solutions by increasing the ability and confidence of health and social care providers in handling digital innovations.
- Lowering mistakes and delays in applying eHealth solutions in treatment and care.

The increase of time spent with the patient/citizen instead of figuring out how an eHealth solution works.

Methods:

DISH provides a structured approach to the whole digital innovations implementation process. It is built around three concepts, the main output of the project's activities:

- The learning innovation Units: An organisational concept providing a framework for co-creation which fosters multidisciplinary collaboration, innovative attitudes and team learning.
- On-the-Job training is concept-oriented toward achieving concrete knowledge, skills, and competencies. That is based on innovation and the daily use of the technologies in a secure simulation environment.
- Skills and Competences Assessment: A conceptual model to assess and acknowledge health care staff's digital and innovation skills obtained outside the official education and training system.

The six DISH pilot sites enrol and offer training services at a local level to a minimum of 600 health and social care workers.

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https://www.dishproject.eu/

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
INBIO

Keywords:
Transdisciplinary Research, Stakeholder Involvement, Telemedicine, Medical Imaging, Bio-Sensoring, Medical Simulation, Medical Devices, Multidisciplinary Synergy

Project Description:
Building upon the existing Institutional work on research transfer by ENHANCERIA partners, new collaboration possibilities can be identified for engaging stakeholder-funded research activities through a collaborative agreement under the "Research chairs" principles
The UPV - HUP/IIS La Fe collaboration program puts into practice, through INBIO, different initiatives to foster alliances between researchers/professionals from these institutions and promote the implementation of coordinated research or innovation projects, which give rise to new biomedical technologies.
The project consists mainly of a networking platform and idea matching to recruit or group researchers from different science fields to work together or to know the needs and progress of their peers.

Goals:
Create a collaborative network on transdisciplinary research on key ENHANCE topics.
Launch an initial set of Industry funded chairs supported collaboratively by at least 2 ENHANCERIA partners.

Basic Facts:

University: UPV

Type of Initiative:
- **Cooperation Model**
- **Programme**
- **Strategic Platform**

Core Mission:
- **Research**
- **Innovation**
- **Service to Society**

Level:
- **Topic Related**

Involved Stakeholders:
- **Academics**
- **Hospitals**

Drivers:
- **Universities**
- **Hospitals**

Initial Funding:
- **University-Based Funding**

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Themes & Methods:

Thematic Approaches:

- **Biomedical Research**
- **Medical Technology**
- **Innovation**

Methodological Approaches:

- **Collaboration**
- **Co-production**
- **Knowledge Transfer**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Enhance the relationships between researchers and a health-based institution**
- **Allows researchers to post their needs and capabilities to the rest of the community**
- **Aims to have a direct societal impact**

The main objective is to develop and put into practice, efficiently and effectively, the possible innovations that may arise from the collaboration between the Polytechnic University of Valencia, the La Fe University and Politècnic Hospital and the La Fe Health Research Institute and their application to the field of Biomedicine.

Methods:

Through the user profile (registration on the website), the Researchers will be able to present a new idea or show interest in ideas already presented.

Once the new ideas have been validated and published, the innovation technicians from both entities will look for partners in the other institution and contact them to form a team if both researchers are interested.

Once the call for grants has been opened, researchers will be able to consult the bases, as well as the presentation deadlines and download the application form for the subprograms:

- Support for the development of Innovation Projects (3 projects, 20.000€ maximum for each one. 60.000€ in total).
- Promotion of Preparatory Actions UPV-HUP/IIS La Fe for the exploration and formulation of Future - Research/Innovation Projects (12 projects, 5.000€ maximum for each one. 60.000€ in total).

The application for the Call for Grants will be submitted electronically through the researcher's user profile on the website, completing the indicated fields and uploading the application form in pdf format, duly signed by the research team. The ideas presented by other researchers and professionals from both institutions can be consulted. Researchers can create a user profile on the website through the personal area.

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https://inbio.es/

ENHANCERIA
Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
ISAlab

Keywords:
Sustainability Education, Transdisciplinary Research and Education, Multidisciplinary Education, Project-Based Learning, and Stakeholder Involvement

Project Description:
UPV has coordinated the development of research projects through teams of (master thesis students and PhD candidates) international researchers from complementary disciplines focusing on the joint development of research projects. Academics from their home Universities supervised and developed complete projects through interactive disciplinary work.
The collaborative process began creating awareness and understanding of the research proposals built from the stakeholder's perspective. In the first phase, students made their ability to apply non-technical dimensions to real projects and develop their sustainability problem-solving competencies.
The academic evaluation of the results reports that the researchers "understood the need to collaborate, specifically with stakeholders, but could not consistently articulate other interactions, specifically the combination of interactions needed to produce transdisciplinary knowledge".

Basic Facts:

University: UPV

Type of Initiative:
- **Cooperation Model**
- **Research Project**
- **Research Teams**

Core Mission:
- **Research**
- **Education**
- **Service to Society**

Level:
- **Process Related**

Involved Stakeholders:
- **Civil Society**
- **Industry**
- **Administration**
- **Academics**

Drivers:
- **Industry**

Initial Funding:
- **Industry Funding**

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Problem definition was challenging for the teams because they were unclear and lacked confidence in their role beyond their consideration of technical issues. Recommendations include increasing critical reflection opportunities, including significant group reflections

Themes & Methods:

Thematic Approaches:

- **Team-guided Co-development**
- **Stakeholder Problem Solving**

Methodological Approaches:

- **Co-design**
- **Collaboration**
- **Co-production**
- **Testing**

Characteristics of Transdisciplinary:

- **Collaborative Team Development**
- **Stakeholder Involvement**
- **Research and Academic Development**

and personal wikis or weblogs.

Goals:

The goal of ISAlab is to create a collaborative network on transdisciplinary research, with a focus on key ENHANCE topics. It has launched two and three transdisciplinary projects coordinated with local stakeholders for joint Master's thesis or PhDs.

These existing or future projects with local stakeholders are based on a group of ENHANCERIA researchers from at least three partners. They develop a project plan based on their complementary competencies.

This group structures a plan for the project's development, including at least one student per partner to carry out the project. After the acceptance of the funding stakeholder, they develop the project. They start with a joint week at the location of the stakeholder, followed by virtual project development and the final presentation of the result to the stakeholder.

The students will present their work at their institution, supervised by their professors, to obtain their degree, either their Master's degree or PhD.

Methods:

For several years, this collaborative "action research workshop for transdisciplinary sustainability science" has been organised by UPV as part of the research activities on Sustainable Urban Development. Teams were kicked off through a physical workshop, where researchers, organised in complementary units, worked to construct the following outcomes:

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- Understand positivist, interpretive, critical theory, and pragmatism research paradigms.
- Choose an adequate research paradigm to tackle the real sustainability challenge.
- Design the transdisciplinary research plan.
- Acquire and understand the action research competencies for the project.
- Building interaction with stakeholders, society, and the environment, locally and globally, to identify potential challenges, risks, and impacts.
- Reflect on the results of the research process and the research process itself to understand the social dynamics that appear when applying a transdisciplinary approach to real sustainability challenges.

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https://www.instagram.com/p/Bj4Tgg4lsT4/

https://www.mdpi.com/2071-1050/12/3/1143/htm

After the workshop, the partner universities conducted the research plan virtually, and once the project was finished, the team met again for the final project delivery. Specific research proposals from local stakeholders or EU research projects apply this methodology.

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Project:
LENI Group (i3B)

Keywords:
Neuroscience, Computer Vision, Neurorehabilitation, User Behaviour Analysis, Machine Learning

Project Description:
The Lab for Immersive Neurotechnologies (LENI Lab) at the Institute of Research and Innovation in Bioengineering (I3B) of the UPV is an R&D&i centre specialised in the application of neurosciences to enhance various areas such as HR for companies, marketing, teaching processes and medical treatments. The lab has more than 25 years of history and more than 60 multidisciplinary professionals, and they work closely with companies from different sectors (retail, IT, construction, and national institutions). The lab has four main research areas:

- Computer Vision & Augmented Reality: it has as its primary objective the research and development of algorithms within the area of Computer Vision and Machine Learning applied to multiple areas of interest such as Augmented Reality, Robotic and the Industrial Sector, among others.
- Neurorehabilitation and Brain Research: it is a multidisciplinary team focused on assessing and promoting the recovery of brain function after an injury and examining the underlying mechanisms of different brain processes. The group involves researchers from i3B Institute and LabLENI and collaborates closely with other national and international entities.
- Consumer Behaviour Research: is the group inside LENI Lab of i3B Institute that is centred on the analysis of human behaviour in front of marketing actions like audio-visual campaigns and front of retail experience both in the physical and online store.
- Technology-Assisted Therapy and Training (AT3): it investigates the use of certain technologies that have the potential to improve human abilities. AT3 are techniques that can be used not simply for treating illness and disability but also for enhancing human characteristics and capacities.

Basic Facts:

University: UPV

Type of Initiative:
- **Office/Executive Board/Central Facility**
- **Cooperation Model**
- **Partnerships**
- **Laboratory**
- **Research Center**

Core Mission:
- **Innovation**
- **Research**
- **Education**
- **Service to Society**

Level:
- **Structure Related**
- **Topic Related**
- **Method Related**
- **Process Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Industry**
- **Civil society**
- **Hospitals**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**
- **Governmental External Funding**
- **Industry Funding**

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AT3 refers to the concurrent application of techniques such as information technologies and cognitive neuroscience, among others, to improve human capabilities.

It also has a technical unit responsible for three areas:

- Extended Reality Solutions
- Data Science for Human Behaviour
- Computer Vision and Machine Learning Techniques

Themes & Methods:

Thematic Approaches:

- **Cancer Theragnostic**
- **Information Systems**
- **Medical Technology**

Methodological Approaches:

- **Knowledge Transfer**
- **Data Management**
- **Testing**
- **Collaboration**
- **Co-production**
- **Knowledge Exchange**
- **Transfer**
- **Experimentation**
- **Project Mapping**
- **Training Labs**

Characteristics of Transdisciplinary:

- **Multidisciplinary Staff**
- **Direct societal benefit in the form of innovations or knowledge transfer to society**

Goals:

MISSION: LabLENI conducts research activities to understand better and enhance human cognition, combining insights and methods from computer science, psychology and neuroscience. We also develop solutions to support real-life studies and interventions rather than for use in laboratory settings only.

Methods:

'The Lab was created in 1990 by researchers and PhD students. During the first years, the laboratory was devoted almost exclusively to developing systems for medical image processing and computer-assisted surgery. In that decade, it began working in the emerging field of virtual therapy, i.e. the application of virtual reality techniques for

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treating psychological disorders. This allowed LENI to acquire high technical expertise in virtual Reality and human behaviour tracking.
During its second decade, the institute was integrated into the Interuniversity Institute I3BH and was renamed the Institute of Human Centred Technology (LabHuman). At that time, the institute considerably increased its activity in areas such as surgery, medical imaging treatment, mental health and education. In contrast, new modes of human-machine interaction and human activity tracking were studied.
In its third decade, LabLENI, besides maintaining its research in areas related to health and education, has integrated new research areas centred around neuroeconomics

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Project:
MSCA ENHANCE Doctoral Network

Keywords:
Transdisciplinary Research, Doctoral Networks

Project Description:
Starting from the already existing research collaborations within ENHANCERIA partners, further develop the ENHANCERIA principles through the MSCA funding available.

UPV has participated up to now in 2 MSCA doctoral networks. The experience has been very positive creating collaborative inter-University teams which allow developing the research careers of young researchers by sharing competencies and research infrastructure.
We propose to develop with ENHANCERIA partners a joint proposal within the Horizon Europe calls in the WP 2021-22 and focusing on the following topics:

- HORIZON-TMA-MSCA-DN HORIZON TMA MSCA Doctoral Networks.
- HORIZON-TMA-MSCA-DN-ID HORIZON TMA MSCA Doctoral Networks - Industrial Doctorates.
- HORIZON-TMA-MSCA-DN-JD HORIZON TMA MSCA Doctoral Networks - Joint Doctorates.

Goals:
Create a collaborative network on transdisciplinary research on key ENHANCE topics.
Launch a proposal for a EU funded doctoral network under any of the relevant schemes (https://ec.europa.eu/research/mariecurieactions/actions/doctoral-networks).

Basic Facts:

University: UPV

Type of Initiative:
- **N/A**

Core Mission:
- **N/A**

Level:
- **N/A**

Involved Stakeholders:
- **N/A**

Drivers:
- **N/A**

Initial Funding:
- **N/A**

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Project:
RE READ (H2020-EINFRA-674943)AD (H2020-EINFRA-674943)

Keywords:
Handwritten Text Recognition, Machine Learning, Digital Historical Archives

Project Description:
The Pattern Recognition and Human Language Technologies centre (PHRLT) of the UPV is one of the partners of READ, a European project aimed to develop tools for the automatic transcription and indexing of ancient manuscripts. The project will give researchers, historians, linguists, genealogists and the general public access to a vast array of civil documents such as marriage records, birth or death certificates, court rulings and others that, together, have great value for demographic, genealogical studies. The project was funded under the EXCELLENT SCIENCE - Research infrastructures call from the H2020 program.
The READ project resulted in the constitution of a platform, Transkribus, which is used to transcribe and digitalise simple old texts without annotations in the margins. The platform is commercially operated by the spin-off of READ's partners, READ Coop. The company also offers portable products for scanning texts with a smartphone.

Goals:
The project's primary goal is to develop tools for the automatic transcription and indexing of ancient manuscripts.

Methods:
The project will develop machine learning models which learn from a relatively small number of data examples, which are images of manuscript texts dating from the 14th century to the present day. The idea is to standardise the recognition of handwritten characters in ancient texts, allowing future recognition and indexation of words in any image containing handwritten texts. The model will work with documents from six different European languages.

Basic Facts:

University: UPV (as Partner)

Type of Initiative:
- **Cooperation Model**
- **Partnerships**
- **Research Project**

Core Mission:
- **Service to Society**
- **Research**
- **Innovation**

Level:
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Civil Society**
- **Administration**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic approaches:

- AI & Language Recognition
- History Studies
- Language Studies

Methodological approaches:

- Collaboration
- Knowledge Transfer
- Transfer

Characteristics of Transdisciplinary:

- Multidisciplinary Teams
- Developing a tool for public users
- Developing a tool for helping experts from different disciplines

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https://cordis.europa.eu/project/id/674943/es

https://readcoop.eu/

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
Restoration of the Church of San Nicolas in Valencia:

Keywords:
Art Conservation, Physical Characterization, Chemical and Biological Treatment of Materials

Project Description:
The Hortensia Herrero Foundation financed the project and carried it out, the UPV, the Archbishopric of Valencia and an architectural studio and EMR (Estudio metodos de Restauración SL), a conservation company. Due to old restoration works and the advanced state of deterioration, the original fresco was found under a multilayer of materials. The project aimed to eliminate the multilayer and restore the original paintings of the Church of San Nicolas. For this, a multidisciplinary team carried out several procedures to remove the extra materials, clean the original surface and restore the paintings. In 2017, the works were finally completed.

Goals:
The project aims to completely restore the baroque frescoes from the 17th century in the Church of San Nicolás in Valencia. These artistic works were in a high state of deterioration and required the action of a multidisciplinary team of restorers, scientists and architects.

Methods:
The methodology of the project encompasses four processes: the consolidation of the support and the pictorial layer (sealing of cracks and fissures, micro-anchoring, application of binders); cleaning (removal of dust, adhering materials, insoluble salts); the treatment of gaps and aesthetic reintegration (volumetric reconstruction in carvings and angels, chromatic reintegration of cracks in paint and stucco), and support work (restoration and environmental monitoring and control)—methods development.

Basic Facts:

University: UPV

Type of Initiative:
- **Strategic Project**

Core Mission:
- **Service to Society**

Level:
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Civil Society**
- **Administration**
- **Industry**

Drivers:
- **University**

Initial Funding:
- **Industry funding**

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Themes & Methods:

Thematic Approaches:

- Art
- Physics
- Bio-Chemistry

Methodological Approaches:

- Intervention
- Collaboration

Characteristics of Transdisciplinary:

- Multidisciplinary Team
- The benefits of advanced technologies applied in an artistic work of high cultural interest

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https://irp.webs.upv.es/es/restauracion-de-la-capilla-de-la-comunion-de-la-iglesia-de-san-nicolas/

https://irp.webs.upv.es/es/presentacion-del-libro-sobre-la-restauracion-de-san-nicolas/

https://www.sannicolasvalencia.com

ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
SaPher

Keywords:
Nanophotonics, Biosensoring, Allergen Detection, Food and Health Safety

Project Description:
Sapher is autonomous and automatic measuring equipment that detects allergens in food without human intervention. It is made up of different optical, photonic and electronic components, as well as control software and a user interface. The equipment uses disposable cartridges, which integrate the biosensor and the microfluidic channels in which the Sample to be analysed is deposited to detect and quantify the allergens sought.
The project, funded by the Horizon 2020 program of the European Commission in its Fast-Track-to-Innovation (FTI) mode, will allow the industrialisation of the manufacturing processes of both the photon detection platform and the consumable cartridges that contain the chips. functionalized photonics (biosensors).
The Nanophotonics Technology Center (NTC) of the UPV leads the project, the rest of the partners being NESTLE S.A., Lumensia Sensors SL, the National Food Institute of the Danmarks Tekniske Universitet and Eurofins Igenasa.

Goals:
The project's primary goal is the industrial scaling and transfer of an autonomous and automatic measuring system that will quickly detect allergens in food.

Methods:
Within the project's framework, a methodology for sampling and controlling allergens in the industry will also be developed. Thanks to the contribution of the Technical University of Denmark, as well as the adaptation to the market's current needs through the know-how of large food companies such as Nestlé.

Basic Facts:

University: UPV

Type of Initiative:
- **Cooperation Model**
- **Partnerships**
- **Research Project**

Core Mission:
- **Service to Society**
- **Innovation**

Level:
- **Topic Related**

Involved Stakeholders:
- **Industry**
- **Academics**
- **Administration**

Drivers:
- **University**
- **Industry**

Initial Funding:
- **Governmental**
- **External Funding**

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Themes & Methods:

Thematic Approaches:

- **Nanophotonics**
- **Biosensoring**
- **Food and Health Safety**

Methodological Approaches:

- **Collaboration**
- **Transfer**
- **Experimentation**

Characteristics of Transdisciplinary:

- **Multidisciplinary Team Involvement**
- **Developed in collaboration with industry**
- **Develop a product to provide a service**

Now, in the facilities of the Nanophotonics Technology Center of the UPV, the consortium already has micro-printing equipment for the deposition of specific receptors (antibodies) on the sensors of the photonic chips (preparation of the biosensor). Eurofins Ingenasa developed the antibodies used in the platform to obtain monoclonal antibodies that provide greater sensitivity and specificity to the system, so that minute amounts of the target allergen can be detected.

In addition, in recent months, Lumensia Sensors has begun the deployment phase in the food industry in Spain to evaluate the acceptance of the product in segments of the industry like baby food, dairy, industrial cleaning, ready meals, as well as laboratories that provide analysis service.

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ENHANCERIA Funded by the European Union's Horizon 2020 research and innovation program grant number 101035806

Project:
171/5000 Wyniki tłumaczenia

Keywords:
Social Participation, Involvement of Residents, Social Responsibility of Science, Knowledge Transfer

Project Description:
The problem of creating and developing a smart city in Żuromin is the low level of involvement of residents in the process of co-deciding on the development of the town and little activity in the area of public consultations, civic shaping of spatial order, or environmental responsibility (e.g. participatory planning of the recreational regions taking into account the needs of various age groups and people with disabilities, revitalisation of green areas, planning bicycle paths, sorting and disposal of rubbish). Żuromin's problem is the burdensome vicinity of many pig and poultry farms in the city's immediate area.
Technological and social solutions proposed by the scientific team of WUT helped to solve the problems of the city and commune of Żuromin with the simultaneous involvement of the inhabitants of this region.

Goals:

Basic Facts:

University: WUT

Type of Initiative:
- **Cooperation Model**
- **Research Teams**
- **Partnerships**

Core Mission:
- **Service to Society**

Level:
- **Topic Related**
- **Method Related**
- **Process Related**

Involved Stakeholders:
- **Academics**
- **Administration**
- **Civil Society**

Drivers:
- **University**
- **Local Governmental Authorities**

Initial Funding:
- **Governmental External Funding**

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The project aims to develop solutions that will allow residents, regardless of their age, health, education, and competencies in digital technologies. To co-decide about the city's functioning, influence the creation of a vision of its development, and monitor the environment's state.

Themes & Methods:

Thematic Approaches:

- **Smart Cities**
- **Sustainable Development**
- **Social Participation**
- **Social Responsibility of Science**
- **Geoinformation Application for Mobile Devices**

Methodological Approaches:

- **Scenarios**
- **Co-design**
- **Data Management**
- **Transfer**
- **Collaboration**
- **Knowledge Transfer**

Characteristics of Transdisciplinary:

- **Developed solutions are generic and can be used in other cities and communes**
- **The developed simulation models of ICT technologies, geoinformation, and game theory and applications to regional policy programming in the EU**
- **Prototype based on LEADER method**

Methods:

- Development and pilot testing of a set of tools and methods dedicated to various age and social groups:
  - Supporting the collection of spatially localised civic opinions.
  - Processing these opinions into helpful information and knowledge using.
  - Innovative methods and technologies, including spatial data mining and multi-agent systems.
- Collecting residents' opinions on land use, planning bicycle paths, one-way streets, pavements, spatial development plans, creating recreational areas, and revitalising degraded areas.
- Stimulating the shared responsibility of residents for municipal waste management by building tools allowing for the effective implementation of the Act on maintaining cleanliness and order in municipalities. In particular, in the sorting and transport of municipal waste - personalisation and intelligent sensor systems, the use of social gamification methods.
- We are developing and making a spatial information system and an integrated odour sensor system on the Internet available, enabling environmental monitoring and real-time determination of breeding farms' impact on residents' health and

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well-being. The thematic focus of each Living Lab and the associated forms of knowledge and knowledge production can be captured and evaluated by indicators, as well as which transfer criteria (e.g., generalizability, scalability, reproducibility, transferability) can be guaranteed beyond concrete RWL without undermining the specificity of the concrete RWL.

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https://smartzuromin.pl/

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Project:
Akcelerator PW

Keywords:
Acceleration, Technology Transfer, Start-up

Project Description:
The action aims to support the initiation, incubation, and acceleration of start-up companies, which are created as a result of scientific and research activities of WUT employees and students and operate in their environment in the spin-off or spin-out formula.

Goals:
The main objective of the program is to increase the readiness of business teams in three dimensions:
1. market readiness - understood as increasing the supported business teams' awareness of customers, competition, and possible business models.
2. Team readiness - understood as increasing the organisation of supported business teams in management, go-to-market market schedules, and business modelling.
3. Formal readiness - understood as building a spin-off/spin-out company model of functioning with other stakeholders.

Methods:
- Educational programs
- Mentoring
- Lean start-up
- Customer development
- Business modelling

Basic Facts:

University: WUT

Type of Initiative:
- **Programme**
- **Format**
- **Research Teams**
- **Partnerships**

Core Mission:
- **Innovation**

Level:
- **Process Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic Approaches:

- **Technology Transfer**
- **Start-Up**
- **Acceleration**

Methodological Approaches:

- **Testing**
- **Transfer**
- **Co-design**
- **Training Labs**
- **Project Mapping**
- **Experimentation**
- **Collaboration**
- **Knowledge Transfer**
- **Knowledge Exchange**

Characteristics of Transdisciplinary:

- **Science and technology for business or society**
- **Transforming technology and science**
- **Matching science to market needs**

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Project:
Digital Agora Project

Keywords:
Social Responsibility of Science, Interdisciplinarity, Digital Agora

Project Description:
To achieve rational development of an open geoinformation society, the ability to capitalise on the potential of available data is just as crucial as the ability to stimulate the community through innovative information technologies.

This task requires using technical means (IoT sensors, artificial intelligence, machine learning, big data, etc.). This project encourages voluntary data collection, processing, local community development, science and society cooperation, and the use of artificial intelligence to develop the natural intelligence of residents and society.

In the Digital Agora project, the issue of social participation and social science is considered in the broader context of developing the theory of democracy, especially deliberative theory. One of the challenges of the IoT era is the creation of a "digital agora" that facilitates (and analytically supports) not only social debate but equally the discourse on participatory democracy.

To render this process more effective, it is essential to achieve synergy between the analyses of "hard" and "soft" data and to process them together through advanced AI, ML and data mining algorithms. A holistic approach to the issue of gathering and processing IoT data with the participation of a local community creates a "digital agora", a platform for a participatory science debate.

The approach using the Digital Agora idea is tested both in Warsaw and Płock by interdisciplinary project teams implementing topics commissioned by the city authorities and technologically supported by the Warsaw University of Technology.

Basic Facts:

University: WUT

Type of Initiative:
- **N/A**

Core Mission:
- **N/A**

Level:
- **N/A**

Involved Stakeholders:
- **Academics**
- **Civil Society**

Drivers:
- **University**

Initial Funding:
- **N/A**

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Goals:

- Implementation of the social responsibility of science,
- Cooperation with the broadly understood social and economic environment, including, in particular, city authorities and NGOs,
- Supporting the development of start-ups with a technological profile focused on smart cities
- Establishing a cooperation network between ENHANCE partners
- Implementation of interdisciplinary design classes for students and doctoral students using the project-based learning and Design Thinking methodology

The Warsaw University of Technology cooperates on this subject with the authorities of Warsaw and Płock (where the university's branch is located). Transdisciplinary teams deal with real problems of cities reported by both municipal authorities and local communities.

Methods:
Spatial data mining.

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Project:
IDUB: Excellence Initiative

Keywords:
Transdisciplinarity, Applied Research, Research University

Project Description:
The idea behind the IDUB project is to announce grant competitions and select research teams in open competitions to implement interdisciplinary projects.

Goals:
The idea behind the Excellence Initiative – Research University Programme was to select the best Polish universities and provide them with an opportunity to grow so that, in the future, they can be ranked among renowned universities worldwide that offer high-quality studies and education.
Thanks to the funds raised by WUT (PLN 300 million - approximately EUR 65 million), several hundred research projects are currently carried out in seven selected thematic areas:

- Photonic Technologies
- Artificial Intelligence and Robotics
- Cybersecurity and Data Science
- Biotechnology and Biomedical Engineering
- Materials Technologies
- High Energy Physics and Experimental Techniques
- Energy Conversion

Methods:
Research teams selected through open competitions carry out transdisciplinary projects. The results are published in the open-access journal.

Basic Facts:

University: WUT

Type of Initiative:
- **Programme**
- **Strategic Project**

Core Mission:
- **Research**
- **Innovation**
- **Service to Society**

Level:
- **Topic Related**
- **Project Driven**

Involved Stakeholders:
- **Academics**
- **Civil Society**
- **Industry**

Drivers:
- **Government**
- **University**

Initial Funding:
- **Governmental External Funding**

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Themes & Methods:

Thematic Approaches:

- **Photonic Technologies**
- **Artificial Intelligence and Robotics**
- **Cybersecurity and Data Science**
- **Biotechnology and Biomedical Engineering**
- **Materials Technologies**
- **High Energy Physics and Experimental Techniques**
- **Energy Conversion and Storage**

Methodological Approaches:

- **Collaboration**
- **Knowledge Exchange**
- **Experimentation**
- **Data Management**

Characteristics of Transdisciplinary:

- **Transdisciplinary and interdisciplinary projects**
- **Results presented at open scientific seminars and open-access scientific journals**
- **Cooperation with businesses**
- **Commissioned by companies and institutions**

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https://www.excellence.pw.edu.pl/excellence/About

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Project:
MedTechAthon – engineers for medicine

Keywords:
Real-World Laboratories, Living Labs, Interdisciplinary, Transdisciplinary, Cross-Modal Data Management, Participatory Research

Project Description:
MedTech-Athon is a marathon of work on one's research ideas submitted by teams of Warsaw University of Technology doctoral students. The result of several stages of the program will be proposals of practical solutions and demonstrators from the field of biomedical engineering.

MedTech-Athon began on March 17, 2022, with the kick-off meeting. Doctoral students then learned the program's participation rules and had the opportunity to talk about potential team compositions. Then the knowledge and competence platform will be launched, gathering people interested in participating in the hackathon, allowing them to submit research ideas and create teams. Then will come the time for registration and team selection, and training. The program will end with a weekend project marathon (May 27-29, 2022). PhD students will then work on specific proposals.

Goals:
The main goal of MedTech-Athon is to develop new concepts of practical solutions/ demonstrators for medicine.
The specific goals of MedTech-Athon are, among others:

- Integration of the community of PhD students and academic staff of WUT around issues in biomedical engineering in its broadest sense;
- Development of teamwork skills among doctoral students of WUT representing various scientific disciplines (transdisciplinary);
- Use of research knowledge by doctoral students to prepare the concept of demonstrator solutions for given or proposed problems.

MedTech-Athon participants will gain knowledge and skills and receive ECTS credits (as part of the researcher

Basic Facts:

University: WUT

Type of Initiative:
- **Research Centre**
- **Workshop**
- **Research Teams**
- **Laboratory**

Core Mission:
- **Research**
- **Innovation**

Level:
- **Topic Related**
- **Structure Related**

Involved Stakeholders:
- **Academics**
- **Centre for Advanced Materials and Technologies**

Drivers:
- **University**

Initial Funding:
- **University-Based Funding**

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workshop credit), research grants and the opportunity to participate in the WUT Accelerator Program. One-year research internships at PW await the best.
The Centre for Advanced Materials and Technologies (CEZAMAT) and the Centre for Innovation Management and Technology Transfer of Warsaw University of Technology (CZIiTT PW) are responsible for the organisation of MedTech-Athon.

Themes & Methods:

Thematic Approaches:

- **Biomedical Engineering**

Methodological Approaches:

- **Training Labs**
- **Experimentation**
- **Knowledge Exchange**
- **Knowledge Transfer**
- **Co-design**
- **Testing**

Characteristics of Transdisciplinary:

- **Developing cooperation in PhD students teams of various disciplines**
- **Integration of PhD students and researchers in medicine and biomedical engineering**
- **Generating new problems and ideas for transdisciplinary research**
- **Creating a new formula for transdisciplinary collaboration**

Methods:

At the analytic stage:

- Design thinking.
- Business model canvas.

At the design and prototyping stage:

- Project management.
- UX (user experience).

At the dissemination stage:

- The art of pitching.

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https://www.cezamat.eu/wydarzenia/medtech-athon-inzynierowie-dla-medycyny/

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