accelerate futureHEI

supporting future focused higher education

D3.1 Common challenges and solutions to becoming more entrepreneurial and innovative HEIs

Draft Analysis Report

29.04.2024

Funded by the European Union

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List of abbreviations

EC	European Commission
HEIs	Higher Education Institutions
HE	Horizon Europe
ITAP	Institutional Transformation Acceleration Projects
R&D	Research and Development
R&I	Research and Innovation
SME	Small and Medium-sized Enterprises
SVS	Strategic Vision Statements
WP	Work Package

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HISTORY OF CHANGES		
Version	**Publication date**	**Changes**
1.0	22.12.2023	Initial version
2.0	29.04.2024	FInal version

Project Consortium

University Industry Innovation Network BV (UIIN) - Netherlands
TUM International GMBH (TUMInt) - Germany
Momentum Marketing Services Limited (MMS) - Ireland
Instituto Superior Tecnico (IST) - Portugal
Universite De La Reunion (UR) – La Reunion, France
Canarias Universidad Europea De Canarias SL (UEC) – Canary Islands, Spain
Universidade da Madeira (UMa) – Madeira, Portugal
Fachhochschule St. Polten GMBH (STPUAS) - Austria
UC Leuven (UCLL) - Belgium
Magyar Agrar- Es Elettudomanyi Egyetem (MATE) - Hungary
Universitatea Politehnica Timisoara (UPT) - Romania
Vidzemes Augstskola (ViA) - Latvia

In the project, the university partners are represented by or focus the project work on unique departments across their institutions. Specifically:

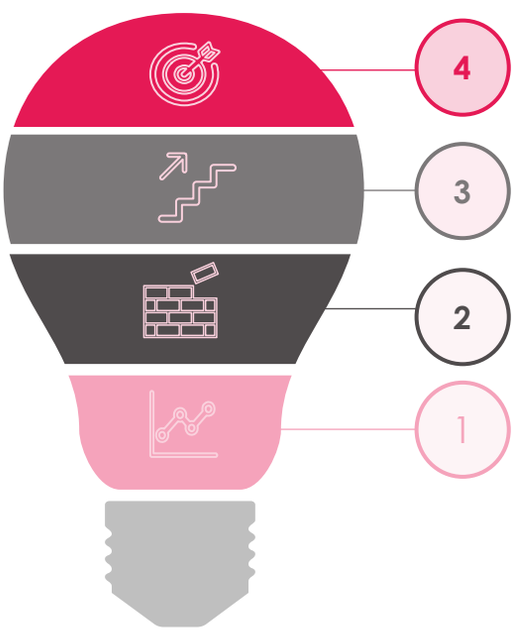
- UEC: School of Architecture
- UMA: *Higher School of Technology and Management.*
- STPUAS: team of Service Unit Research and Knowledge Transfer
- UCLL: Business Management and Research & Expertise
- MATE: Institute of Agricultural and Food Economics
- ViA: management team and Faculty of Society and Sciences
- IST: Department of Civil Engineering, Architecture & Environment
- UR: ESIROI engineering school
- UPT: Digital Transformation Institute - ID/IFR and e-Learning Centre

Executive Summary: Common challenges & opportunities for institutional transformation

What is this project about?

Led by University Industry Innovation Network (UIIN), the **Entrepreneurial & Innovative Universities Accelerator Program** (Accelerate Future HEI project) will develop and test acceleration services to equip universities with the skills and capacity to drive their institutional transformation towards becoming more entrepreneurial and innovative. The project will apply a comprehensive methodology that builds on the status quo and develops a connected vision and set of activities that provide each institution with a tailored transformation action plan.

How does this project support universities?



Ensuring impact through a dedicated monitoring and evaluation mechanism, and dissemination of transformation stories and policy implications.

Knowledge exchange & upskilling through dedicated training programs and cohort knowledge exchange events across different stakeholder groups.

Personalised guidance to implement ITAPs through matching with expert coaches, and development of thematic working group workshops across the different testing partners.

Understanding the context, strategy, goals and status quo of each testing partner through data collection, focus groups and surveys to provide an **evidence-base and solid starting point** to identifying areas and opportunities to frame institutional transformation action projects (ITAPs).

What is this report about?

This report presents the initial findings to developing implementation plans towards an institutional transformation in becoming more entrepreneurial and innovative institutions. Hence, this report addresses the following question: *"How can we get to the desired future state of external engagement, entrepreneurship and innovation at each of the nine universities of the Accelerate Future HEIs consortium?".*

By analysing and bridging insights from the current and desired future states of the testing partners, UIIN identified four key themes of challenges and opportunities for their institutional transformation towards a more engaged, entrepreneurial, and innovative university. These include:

1. **Entrepreneurial skills and mindset of students,** including fostering entrepreneurial skills and mindset among students going beyond traditional academic knowledge.
2. **Impactful research and research valorisation** - envisioning and planning for research that goes beyond academic curiosity, in alignment with valorisation efforts to address real-world challenges.
3. **Institutional support for engagement and innovation** through support structures and institutional commitment to drive an entrepreneurial culture, as well as capacity building for professional staff that facilitates support to entrepreneurial education and research.
4. **Partnership strategies for stronger engagement** through collaborative relationships and partnerships between university and regional and international external stakeholders in government, civic society and industry.

Below we present a **snapshot of the challenges and opportunities across the four key themes** for institutional transformation towards a more engaged, entrepreneurial, and innovative university.

1 Entrepreneurial skills and mindset of students

Key challenges & proposed solutions

How to provide entrepreneurial hands-on education?

1. Create culture of curiosity and innovation
2. Establish joint educational programs
3. Provide educational programs and courses focused on entrepreneurship
4. Set up more networking opportunities

How to bridge research projects with educational programs?

1. Ensure the holistic integration of research with education
2. Enable iterative education methods based on research
3. Offer open education based on open science

2 Impactful research and research valorisation

Key challenges & proposed solutions

How to build the entrepreneurial capacity of academic and research staff?

1. Offer enhanced educational opportunities for staff, including:

- Training and courses
- (Peer-to-peer) mentoring programs
- Mobility opportunities

How to bridge academia and industry to break down research siloes?

1. Establish more joint research projects that:

- Link academia and industry's needs
- Turn innovative ideas into tangible products and services
- Adopt a multidisciplinary approach for research

3 Institutional support for engagement and innovation

Key challenges & proposed solutions

How to ensure an institutional commitment and infrastructure support?

1. Clarify institutional priority and commitment to engagement and entrepreneurship
2. Establish support structures for academic entrepreneurship
3. Develop financial support mechanisms
4. Explore governance structures

How to recognise and communicate engagement and innovation activities?

1. Celebrate achievements and best practices
2. Build entrepreneurial abilities and skills for professional staff
3. Boost alumni engagement

4 Partnership strategies for stronger engagement

Key challenges & proposed solutions

How to foster innovation ecosystems through strategic collaborations?

1. Address regional challenges through collaboration
2. Develop internationalisation and talent development approaches
3. Diversify collaboration activities

How to improve processes for evaluating and enhancing collaborations?

1. Enhance collaboration impact measurement
2. Create collaborative spaces and infrastructure integration
3. Become more embedded in industry
4. Facilitate collaborations

01

Project Overview, Aim & Approach

An overview of the project's overarching goals, objectives, methodology and consortium.

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Project Overview

The **Entrepreneurial & Innovative Universities Accelerator Program** (Accelerate_FutureHEI; thereafter referred as Accelerate Future HEI) project, under the coordination of University Industry Innovation Network (UIIN), launched in January 2023 and is funded by the European Commission's Horizon Europe program. Accelerate Future HEI brings together **twelve European partners** from **eleven countries** to develop and implement acceleration services.

Main Aim

Accelerate Future HEI aims to **develop and test acceleration services** to **equip universities with the skills and capacity** to **drive their institutional transformation towards becoming more entrepreneurial and innovative**. To do that Accelerate Future HEI will apply a robust, comprehensive methodology that builds on the status quo and develops a connected vision and set of activities that provide each institution with a tailored institutional transformation action projects (ITAP). Participating in this initiative provides Higher Education Institutions (HEIs) with a unique opportunity to identify key challenges they are facing and dedicate time and resources to develop solutions through a unique ITAP.

The **advantage of participating** is HEIs are not doing this alone, but instead receive personalised and peer-to-peer guidance through access to coaches, thematic working group workshops, training workshops and cohort knowledge exchange events. This allows HEIs to take a close internal look at what they want to achieve while receiving external support and guidance to enable them to implement these changes.

Key Objectives

TO IDENTIFY

the status quo of the HEI and its ecosystem regarding entrepreneurial and innovative activities.

TO DEVELOP

test and implement acceleration services that help institutions undertake a transformation roadmap and projects

TO BUILD

the capacity of the participating HEIs staff to implement the transformation roadmaps through **a skills development program.**

TO EVALUATE

the strategies from HEIs supervised by an 'Acceleration Board' of **independent experts**.

TO GENERATE

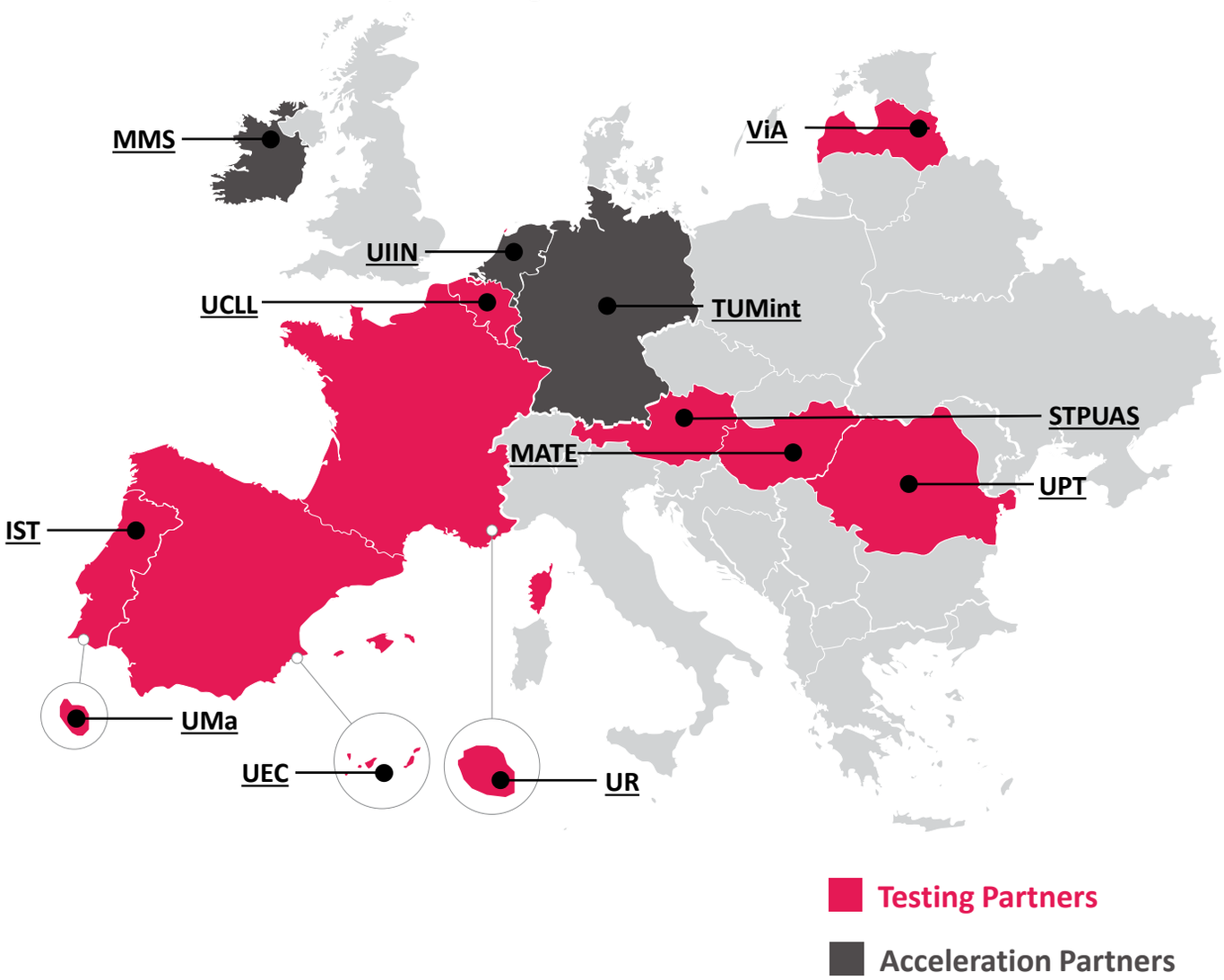
policy feedback to the European Commission as well as provide widespread dissemination of the pilot results to other target groups.

Project Consortium

Accelerate Future HEI brings together **twelve European partners** from **eleven countries** to develop and implement acceleration services.

Led by University Industry Innovation Network (UIIN), this ambitious project brings together twelve European partners from eleven countries to develop and implement acceleration services. The project consortium unites international experts on developing and supporting acceleration services, together with two established HEI consortia, one from the EIT HEI initiative (INCORE) and one from the European University Alliance (E^3UDRES^2) and EIT HEI Initiative (E.I.N.S). UIIN , together with TUM International and Momentum are referred to as *acceleration partners* to design and deliver the acceleration services and support the HEI *testing partners* as they implement their initiatives.

Our consortium represents institutions across Europe, including the Outermost Regions. The diversity of the partners will enable the development of overarching services that can be applied in different contexts and enable the HEIs to impact their regions.



Project Approach: Methodology

The project's methodology is based on a **gap analysis** which involves a **three-phase approach** to understand the context, strategy, goals and status quo of each HEI testing partner and to provide an evidence-base and solid starting point to identifying areas and opportunities for institutional transformation. The research, development and implementation phases are underpinned and supported by training, evaluation, dissemination and other activities across the project duration.

Current State Analysis
WP2| M1 – M12

Uncovering the goals for institutional transformation.
Where are HEIs now?
The aim of this phase is to (1) clarify the desired future state and goals for institutional transformation and (2) understand the current state of each HEI testing partner and provide an evidence base for entrepreneurial and innovative activities at the partner universities. Specifically, WP2 involves activities of pre-scanning, asset mapping, focus groups, and surveys.

Developing Roadmaps & ITAPs
WP3| M6-M18

What needs to change to achieve the goals and how will you do it?
Subsequently this phase builds on the current state data to define and design an implementation plan to achieve the desired future state and institutional transformation goals and objectives, with regards to entrepreneurial and innovative activities including the identification of opportunities and challenges to address in acceleration services and coaching activities. This will be done through the roadmap workshops as well as Institutional Transformation Acceleration Projects (ITAPs).

Acceleration services pilot-testing
WP4 | M12 – M48

What will you test and implement?
This phase will support the testing partners in implementing the acceleration services and undertake actions towards institutional change, through a mixture of individual HEI and group-based support. Specifically, HEIs will undergo individual ITAP coaching with experts aligned to their core transformation focus areas, to then work on the implementation of their ITAPs and development of their investment strategy.

Capacity Building & Knowledge Exchange Program
WP5 | M1 – M48

HEIs will be supported with knowledge exchange and learning opportunities across the full duration of the project. In addition to the personalised coaching sessions, and the feedback, peer-to-peer feedback and mentoring guidance, which will be provided throughout *Phase 1* and *Phase 2*, HEIs will have access to dedicated events and workshops, including thematic Cohort Knowledge Exchange Events and Accelerate Training Workshops.

Acceleration Impact – Monitoring & Evaluation
WP6 | M1 – M48

The progress of the ITAPs will be tracked through a dedicated monitoring and evaluation mechanism to evaluate the impact and policy implications.

Communication and Dissemination
WP7 | M1 – M48

A communication and dissemination plan will be developed to share the transformation stories and the project's key learnings to benefit the project's community.

Management, QA & Policy Feedback
WP1| M1 – M48

Adequate management and quality assurance processes and tools will be developed to deliver on the project's outcomes and inform policy.

Project Approach: Foundational conceptual model

The methodology within this project is based on a combination of research and practice. One of the key models underpinning the methodology is the **UIIN Entrepreneurial and Innovative University Framework© -** the framework has been developed over 10 years of research and validated in practice to define the key elements of an entrepreneurial and innovative university, and the challenges and success factors associated with HEI transformation to become more entrepreneurial, innovative and engaged.

UIIN Entrepreneurial and Innovative University Framework©

Activities

The extent to which HEIs are innovative and entrepreneurial in their activities across education, research, valorisation and governance. This can include facilitating cooperation with surrounding Research & Innovation (R&I) ecosystem actors across all areas of the HEIs, and supporting the transition to knowledge- and digitally-driven HEIs that include research and innovation outputs in teaching.

Mindset

An understanding of the entrepreneurial and innovative mindset across leadership, academics / researchers, professional / administrative staff, and students. This focuses on fostering entrepreneurial and innovative mindsets, not only across entrepreneurial activities but across all activities to develop and nurture a problem-solving approach.

Organisational Support

The organisational mechanisms required for developing both entrepreneurial activities and mindsets within the HEI. These include: strategy and institutional commitment (e.g. HEI research and innovation strategies); support services and activities (e.g. mechanisms to facilitate collaboration and sharing of knowledge, capacity, infrastructure and resources) and incentives and recognition.

External Ecosystem

The external partners and supporting mechanisms in place to ensure impact pathways and the role of the HEI within its regional ecosystem. It defines the degree to which the HEIs facilitate collaboration with surrounding R&I ecosystem actors and engages citizens in solving societal challenges.

Main Deliverables

Below you can see the overview of the project's deliverables, with the current deliverable highlighted.

Management, QA & Policy Feedback
M1 – M48

The plan for how we will ensure we deliver on our outcomes & inform policy

D1.1	D1.2	D1.3	D1.4
DMP M6	Initial policy briefing M12	Interim policy briefing M30	Final policy recommendations report M48

Current State Analysis
M1 – M12

Uncovering the goals for institutional transformation. Where are HEIs now?

D2.1	D2.2
Strategic Vision Statements – M12	Synthesis Report – M12

Developing Roadmaps & ITAPs
M6-M18

What needs to change to achieve the goals and how will you do it?

D3.1	D3.2
Roadmap Analysis report - Draft M12	Roadmaps Analysis report - Final M18

Acceleration services pilot-testing
M12 – M48

What will you test and implement?

D4.1	D4.2
Summary report - common ITAP issues M12	Case study report- ITAPs and results M48

Capacity Building & Knowledge Exchange Program
M1 – M48

The plan for how HEIs gain skills and insights for acceleration & transformation

D5.1	D5.2	D5.3
Program overview & delivery plan M12	Program delivery progress report & updated plan M30	Summary of the learning outcomes M48

Acceleration Impact – Monitoring & Evaluation
M1 – M48

We will monitor progress and evaluate impact of ITAPs

D6.1	D6.2	D6.3
Monitoring & evaluation plan – M12	ITAPs Progress report – M30	Final Impact Report

Communication and Dissemination
M1 – M48

We plan to share our key learnings so others can benefit

D7.1	D7.2	D7.3	D7.4
Initial Plan M6	Updated plan & first dissemination report M12	Interim dissemination report M30	Final dissemination report M48

02

Developing Roadmaps and Implementation Plans: Approach

An overview of the process undertaken to develop roadmaps and implementation plans based on bridging the gap between current state and their desired future state across the nine testing partners.

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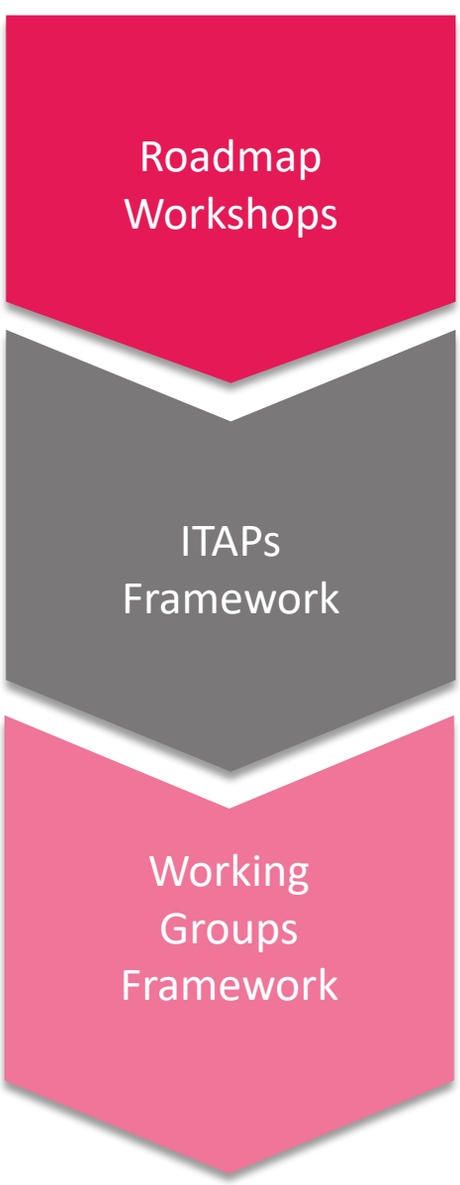
Overview of Approach

Building on the current state data and strategic visions of testing partners from Work Package 2 (WP2; the outcomes of which can be found in the D2.1 and D2.2 reports), the development phase of the project (WP3) defines an individual acceleration development future roadmap for institutional transformation of each of the testing partners with regards to entrepreneurial and innovative activities.

The **aim of this WP** will be reached though a multi-method approach of (1) roadmaps workshops bridging the testing partners' Strategic Vision Statements, focus group discussions and survey analysis and survey data, (2) ITAPs Frameworks, and (3) Working Groups Framework Development.

This deliverable will present the draft version of the common challenges and solutions to becoming more entrepreneurial and innovative **based on the initial findings from the roadmap workshops**. The development of ITAPs through the working group teams, will inform the final summary report on challenges and areas for development (D3.2)



The aim of this activity is to develop an acceleration development roadmap towards institutional transformation for each testing partner, tailored to their current state and strategic vision to become an Entrepreneurial and Innovative University. This output will guide the potential transformation agenda for testing partners and are the base for developing ITAPs. The process of this activity will be elaborated on in the next page.

The framing and definition of the implementation plan becomes the part of the ITAPs developed by each testing partner using the templates provided by UIIN, that testing partners implement in WP4 Testing & Implementing. The result of the activity (creation of ITAP teams) will be further utilised in WP4 to test and implement the key transformation projects. The final summary report on challenges and areas for development (D3.2) will be available in July 2024.

The aim of this activity is to identify common challenges across all testing partners from the analysis of roadmaps. The result of this activity will inform the key areas for the development of WP5 Capacity Building & Knowledge Exchange, as well as WP4 Acceleration Services Pilot-test of the formation of theme-based working groups for knowledge exchange and the implementation of acceleration services.

Roadmap Workshops: methodological guidelines

UIIN analysed the outcomes of the WP2 current state analysis, including the testing partners' strategic vision statements (which can be found in the **D2.1 report**), focus group discussions on the desired future state and the current state survey on the survey (the key findings can be found in the **D2.2 report**) and developed the structure for the **roadmap workshops** to further define "*How can the consortium's universities develop an acceleration development roadmap towards institutional transformation?*".

Roadmap workshops approach

UIIN facilitated nine roadmap workshops, one per testing partner (2.5-3 hours each). This activity aimed to create an acceleration development roadmap towards institutional transformation for each testing partner, tailored to their current state and strategic vision to become an Entrepreneurial and Innovative University. This output will guide the potential transformation agenda for testing partners and is the base for developing ITAPs, the WP3 activity that will be initiated in January 2024.

Each of the nine testing partners identified and joined the workshops with a group of up to 10 internal and external relevant stakeholders: engaged academics, industry engagement, entrepreneurship, and innovation professional staff, HEIs' leadership, as well as professionals from local incubators, local industry and other organisations collaborating with the testing partners.

Internal output: 9 Roadmap workshop reports.

Before the workshops, UIIN collated and synthesised the key challenges identified so far from the testing partners' focus group discussion (refer to **D2.1** for more information) and survey report (refer to **D2.2**) across the four categories that fall under the four categories of the UIIN Entrepreneurial University Framework ©:

I. Activities to accelerate the institution's transformation into a more innovative institution, including research, education, valorisation and governance.

II. A mindset change of all internal stakeholders, i.e., Academics, students, professional staff and leadership, to enable a culture that supports the institutional transformation.

III. Strong supporting structures and mechanisms for underpinning institution transformation as a more innovative institution.

IV. The university's institutional impact in engaging with its ecosystem, including topics such as external support mechanisms and each HEI's role within the ecosystem.

During each of the workshops, participants were guided through a process to discuss:

- **Strategic Vision Statement** (SVS): At the beginning of each workshop, each testing partner team was encouraged to revisit their SVS, i.e., a set of goals addressing the following questions: "Why do we envision a more entrepreneurial and/or innovative university, what are our main goals in this desired institution, and how can we make it happen?"; refer to D2.1 for more information on SVSs). The SVS was then used as a guiding principle throughout the roadmap workshops to help workshops' participants brainstorm challenges and solutions that would contribute to their institutions' goals.
- **Challenges:** Then, each testing partner was presented with a list of challenges based on the WP2 analysis undertaken by UIIN. The workshops' participants reviewed the challenges and reflected on their SVS goals and objectives. Subsequently, through a voting session, workshops' participants chose the most relevant and pressing challenges for them to address and to work on throughout their workshops.

Roadmap Workshops: methodological guidelines

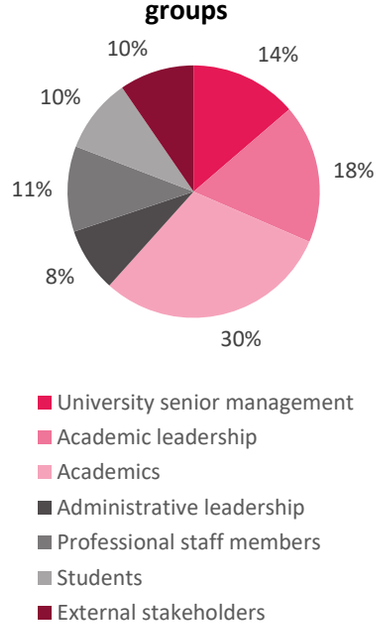
- **Solutions**: Following, each team was encouraged to brainstorm potential solutions that could address the identified challenges. The starting point for brainstorming solutions was the selection of solutions from the survey report and the focus group report (refer to **D2.2**). Participants were then asked to match the chosen solutions with the selected challenges. Workshops' participants were encouraged to make the solutions more specific and brainstorm new solutions individually and collectively.
- **Sensemaking:** Following, workshops' participants were invited to prioritise the brainstormed solutions in a matrix based on the complexity of their implementation and the potential for impact and positive outcomes throughout their university. In each workshop, participants prioritised and clustered the solutions across four quadrants of the matrix:
    I. Easy Changes (bottom left): Implementation is not very complex and/or time-consuming. These solutions are often the first steps of bigger changes.
    II. Attainable Changes (top left): These solutions have relatively low complexity and are the shorter-term achievable goals.
    III. Big Goals (top right): Both complex to apply and with a widespread impact, these solutions should be treated as larger, longer-term goals.
    IV. Nice to have changes (bottom right): solutions under this category should be prioritised only if they serve a Big Goal.
- **Creating solution pathways for the chosen challenges:** After each workshop, the testing partner's teams worked internally to create a timeline for the chosen challenges. They turned the identified and prioritised solutions into comprehensive steps that can serve as a rough action plan or pathway for each challenge throughout the project's lifetime and beyond. The prioritisation matrix from the previous exercise helped identify steps that can be taken in the short term (low complexity, low overall impact), medium-term (low complexity, high overall impact), and long-term (high complexity, high overall impact). Testing partners were encouraged to break down the solutions into more comprehensive and actionable steps. Testing partners had a chance to invite more stakeholders to collaborate on this step, in order to bring in even more perspectives.

This report provides a summary of the key challenges and solutions discussed during the roadmap workshops (Chapter 3, page 18).

Workshops' attendees demographics

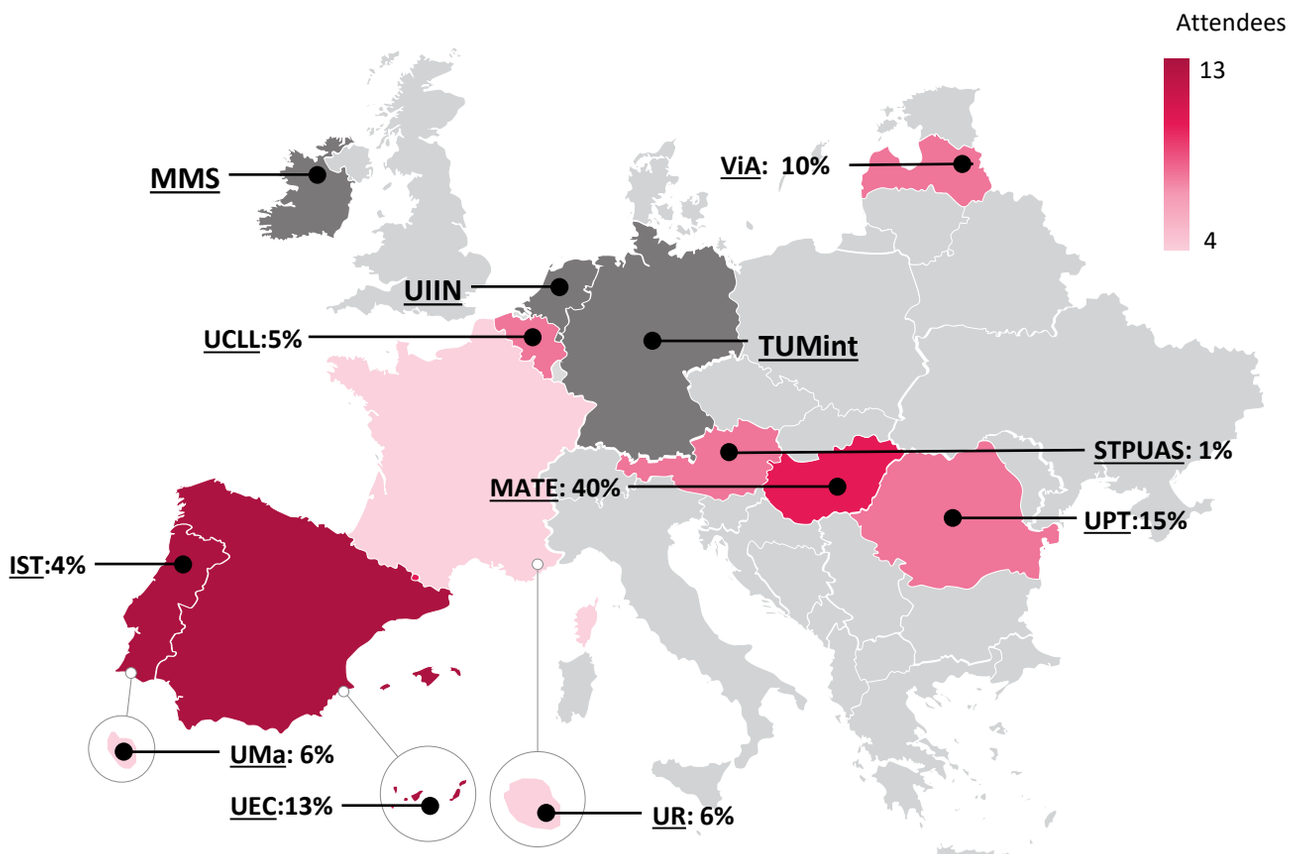
In total, across the nine testing partners, 74 professionals participated in the roadmap workshops (see **Graph 1 and Table 1, page 17**).

Workshop attendees across stakeholder groups



Graph 1. Distribution of workshops' attendees respondents across the testing partner surveys (N=74).

Roadmap Workshops: participants



Graph 2. Distribution of workshops respondents across the testing partner countries (N=74). Acceleration partners (grey) did not participate in the roadmap workshops.

The Roadmap workshops attendee sample analysis (**Graph 1**, page 16) shows that one-third came from academic backgrounds, including teaching and research staff, making up 30% of all participants. Academic leaders, including deans and heads of faculties, accounted for 18% of the attendees. Senior university management, such as rectors and department presidents, constituted 14% of the workshop participation

In terms of geographical distribution (**Graph 2**), the roadmap workshops with the highest participation were by UEC (18%) and IST (16%).

An overview of the respondents per testing partner is presented in **Table 1.**

Partner	Number of participants	%
IST	12	**16%**
MATE	10	**14%**
STPUAS	8	**11%**
UCLL	8	**11%**
UEC	13	**18%**
UMa	4	**5%**
UPT	7	**9%**
UR	4	**5%**
Via	8	**11%**

Table 1. Number of participants per testing partner (N=74).

03

Outcomes: Common challenges and solutions for institutional transformation

As part of UIIN's approach, each testing partner underwent a roadmap workshop to begin their pathway roadmap for institutional transformation and bridge the desired future state and the current state. The initial key insights from this process are presented in this section.

Overview: Common challenges for institutional transformation

Based on the analysis and synthesis of the nine roadmap workshops' outcomes, four key themes emerged as priority areas by the nine university partners. Within each theme lay specific challenges identified through the current state analysis and raised by the testing partners. An overview of the commonly identified challenges, as well as initial solutions identified by the testing partners are presented in this chapter. Each of the proposed solutions can be approached as a longer-term goal, which will be broken down to individual actions to be examined and tested further in each testing partner's ITAPs.

1 Entrepreneurial skills and mindset of students

Entrepreneurial education is a vital component of preparing students for the challenges of the modern world. Fostering entrepreneurial skills and mindset among students goes beyond traditional academic knowledge, aiming to cultivate a set of qualities that empower individuals to navigate ambiguity, identify opportunities, and adapt to change. A multi-level approach to address this challenge is proposed to include awareness of the value of entrepreneurial skillsets, redesign of educational programs, and networking opportunities for students, among others.

2 Impactful research and research valorisation

The pursuit of impactful research and its subsequent valorisation plays a crucial role in driving innovation and economic development while fulfilling the civic responsibility of universities. Impactful research extends beyond the confines of academic curiosity; it is combined with research valorisation for research that addresses real-world challenges, generates practical solutions, and has tangible effects on societies, and economies. The synergy between impactful research and research valorisation is pivotal for bridging the gap between academia and the entrepreneurial ecosystem, and can be achieved by fostering academics and researchers' entrepreneurial capacity and breaking siloes for joint research opportunities projects, among others.

3 Institutional support for engagement and innovation

For entrepreneurial education and research to be effective and commitment for engagement activities to be implemented in HEIs, the awareness of education- and research-focused academics and students is not sufficient. Adequate organisational support in the form of structures and mechanisms is the cornerstone of a thriving entrepreneurial and innovative institution. Organisational support starts from the institutional commitment and expands to support in infrastructure, legal frameworks, financial aid, governance, as well as capacity building for the non-academic professional staff that facilitate support to entrepreneurial education and research.

4 Partnership strategies for stronger engagement

A holistic partnerships strategy can enable robust and sustainable engagement activities with external stakeholders, that transcend traditional boundaries within the realms of research, education, and entrepreneurship. Partnership strategies of this nature involve intentionally fostering collaborative relationships and partnerships between universities and external stakeholders at regional and international levels. These stakeholders can include government, civic society, industry, public bodies, non-profit organizations, and other educational institutions. Moreover, better processes in mapping and evaluating collaborations can improve the quality of partnerships.

Theme 1: Entrepreneurial skills and mindset of students

The "Entrepreneurial skills and mindset of students" theme comprises **key challenges identified** by the nine testing partners, specifically **(1) providing entrepreneurial hands-on education** and **(2) ensuring excellence in research and education**. In this section, each challenge is explored in more detail together with proposed approaches and solutions that could address it in the medium- to long-term, as proposed by academic, professional staff and leadership roadmap workshop participants.

Key challenge

How to provide entrepreneurial hands-on education

Fostering student entrepreneurial mindset and skillsets to enable them to tackle grand societal problems was identified as a challenge by the majority of the universities' teams during their roadmap workshops both from mainland Europe and the outermost regions, i.e., IST, MATE, UCLL, UEC, UMa and UR. Below are listed four approaches that could address this challenge in the medium- to long-term period.

1. Create a culture of curiosity and innovation

Cultivating awareness and fostering a culture for entrepreneurial education requires a deliberate effort by HEIs. The workshop participants would like to see in the long-term, tangible steps that instil a **culture of lifelong learning, curiosity, and passion as foundational elements of educational offerings**. Crucially, participants underscored the significance of **bottom-up approaches**, emphasising the need for individuals to organically embrace the spirit of innovation. Providing people with the time and space to innovate is deemed essential, as it allows for a genuine understanding and sharing of entrepreneurial values.

2. Establish joint educational programs

Joint educational programs to build the entrepreneurial capacity of students represents another solution outlined by the testing partners. One aspect of such an approach involves the establishment of **joint or cooperative Ph.D. programs** with industry, creating a bridge between academia and real-world challenges. This collaborative initiative not only enriches academic research but also ensures that **students are exposed to industry-specific insights and needs.**

Additionally, the **co-development of courses and career engagement initiatives** was highlighted through the roadmap workshops, advocating for the active involvement of external stakeholders in co-shaping educational programs to align with local ecosystem needs. External stakeholders could also be invited as guest lecturers of curricula.

The **integration of existing innovation hubs' projects into the curricula** emerges as another way to elevate the students' learning experience, and contribute directly to the development of solutions for local communities, e.g., through student projects for their cities or regions.

3. Provide educational programs and courses focused on entrepreneurship

To increase the avenues of entrepreneurial education, roadmap participants across five of the nine partnering HEIs proposed enriching existing studying programs with entrepreneurial learning modules.

In accordance with traditional learning approaches, the workshop participants suggested the **integration of flexible learning pathways** and **challenge-based learning formats** to the offered educational programs and courses to accommodate diverse learning styles and enhance practical problem-solving skills, respectively. For instance, **short courses** could offer students opportunities to enhance specific skills in a targeted manner.

Moreover, offering **international entrepreneurship study programs** can provide students with globally recognised qualifications. This suggestion by the nine universities' academics, professional staff and leadership roadmap workshop participants is aligned with students survey respondents across the testing partners, who identified the offered entrepreneurship courses and bachelor or masters programs as very important in helping them create their business. More insights on the current state of the nine testing partners can be found in the D2.2 Synthesis Report.

4. Set up more networking opportunities

A central element of nurturing entrepreneurial skillsets involves providing internal and external networking opportunities to students. Such opportunities could have the form of dedicated platforms and events to **connect student entrepreneurs with potential investor and business networks.** Through such contacts students can be exposed to the challenges and successes of creating a business. Moreover, workshop participants suggested **increasing students' interactions with external stakeholders within their educational programs**, e.g., in classrooms and in joint research projects, to help students practice their entrepreneurial skillsets on real cases.

Furthermore, the workshop participants underscored the importance of **engaging students with alumni**, tapping into their experiences to offer mentoring and inspirational sessions to both staff and students.

The integration of networking opportunities for students as a future approach for offering entrepreneurial education has also been appreciated by most student survey respondents as a current institutional supporting mechanism. More insights on the current state of the nine testing partners can be found in the D2.2 Synthesis Report,

> During innovation events, bringing students in contact with business actors and investor networks can showcase them what it takes to create a company, the ups and downs of the process, and can inspire students' interest in entrepreneurial activities.
>
> *– Roadmap workshop participant from UEC*

Key challenge

How to bridge research projects with educational programs

The synergy between universities' research projects and educational programs is paramount for training more innovative and entrepreneurially-minded students. This approach as well as three potential long-term goals were suggested from workshop participants from applied sciences universities across the consortium that have a tradition in integrating the culture of innovation and academic rigour into different university initiatives.

1. Ensure the holistic integration of research with education

Seamlessly **integrating innovation into both teaching and research**, dispels the notion of innovation being an "add-on" activity. Furthermore, the workshop participants advocated for active **student involvement in cutting edge (international) research** projects' concepts and methodologies specifically tailored to innovations. This not only provides students with hands-on experience but also exposes them to diverse challenges inherent to the scientific problem-solving approach.

2. Enable iterative education methods based on research

On top of integrating research with education, the workshop participants underscored the importance of integrating scientific-thinking aspects of **prototyping and iterative processes into both educational curricula** and **research planning**. The emphasis on prototyping introduces a practical dimension to learning, allowing students to move beyond theoretical concepts and engage in the actual creation of tangible products or solutions. This approach not only enhances their problem-solving skills but also encourages experimentation and risk-taking. Furthermore, incorporating iterative processes into educational curricula encourages an approach **where students continuously refine and improve their projects based on** feedback and real-world testing. This iterative cycle aligns closely with the dynamic nature of entrepreneurial endeavours, teaching students the value of adaptability and resilience. Similarly, in research plans, the inclusion of prototyping and iteration ensures that the **scientific process is not confined to theoretical frameworks** but actively involves testing and refining hypotheses in a real-world context.

3. Offer open education based on open science

Finally, the **integration of open data and science into open educational resources** was approached as a crucial aspect of bridging research projects with educational programs. Embracing open science as part of educational programs makes educational materials freely available to the students and consolidates accessibility and inclusivity in learning. This not only reduces barriers to education but also allows for the sharing of innovative teaching materials and methodologies across institutions.

Theme 2: Impactful research and research valorisation

The "Impactful research and research valorisation" focuses on the academic perspective and the role academics play. This theme mainly comprises **two key challenges** as posed by the nine university partners: **(1) building the entrepreneurial capacity of academic and research staff** and **(2) bridging academia and industry to break down research siloes**. Under each challenge are listed the main approaches that could address it in the medium- to long-term period, as proposed by academics, professional staff and leadership roadmap workshop participants.

Key challenge

How to build the entrepreneurial capacity of academic and research staff

Building the entrepreneurial capacity of faculty is a multifaceted endeavour crucial for fostering impactful research and research valorisation within an academic institution and was emphasised by all workshop teams across the nine testing partners. One main approach is listed that could address this challenge in the medium- to long-term period.

1. Offer enhanced educational opportunities for staff

Academics and researchers across the testing HEIs have the need for learning opportunities that can be **incorporated into their already heavy research and teaching workloads,** to ensure accessibility and encourage continuous professional development. Options are proposed below.

- Such learning opportunities could include modular entrepreneurship and innovation **training plans** and **short cycle courses** for faculty and researchers to enhance specific skills relevant to their research and entrepreneurial pursuits.
- Another proposition is that universities can identify and engage **mentors available within the university to support** researchers in pursuing research for social good. Leveraging academics already active in the topics of entrepreneurship and innovation shouldn't be underestimated, a topic that resonates with workshop participants. Universities can tap into their faculty's existing expertise by organising and offering **peer-to-peer mentoring,** on the opportunities and implications of entrepreneurship activities based on fellow academics' experiences, e.g., the social or environmental impact of an engagement project.
- An example on how can educational opportunities bridge academia with non-academic sectors includes organising **training and mentoring programs for university start-ups or spin-outs** involving prominent companies that can provide invaluable real-world insights.
- Finally, it is crucial to recognise that the cross-sectorial necessity and potential of modern R&D requires collaborative educational initiatives for academics and researchers. Universities should encourage and bolster an environment where knowledge can be exchanged within the HEIs and beyond through **mobility opportunities** for academics, in regional and international organisations, HEI partner campuses and startup centres. Encouraging mobility between academia and industry ensures a continuous flow of insights, enhancing the entrepreneurial capacity of faculty and, consequently, the institution's overall impact in the research and innovation landscape.

Key challenge

How to bridge academia and industry to break down research siloes

Establishing robust connections between academia and industry is a direction of significant value for the nine testing partners. Academics actively engaged with industry partners may result in ecosystems where knowledge flows freely, innovations are co-created, and the boundaries between academia and industry become more porous, ultimately enhancing the societal and economic impact of the participating HEIs. Under this challenge, one main approach is listed that could address this challenge in the medium- to long-term period.

1. Establish joint research projects

Academics building bridges between the university and industry is an initiative of strategic value for the nine testing HEIs.

- A fundamental aspect of this collaboration involves better **linking collaborative innovation with the needs of both academia and industry**, ensuring that research outputs are not only academically rigorous but also practically relevant and applicable. **Actively involving companies in the application processes for projects** and funding provides a direct avenue for industry input and ensures that research aligns with real-world challenges.
- To amplify the impact of joint research projects, support mechanisms should be in place to **empower faculty and researchers in translating their innovative ideas into tangible products and services**, facilitating the transfer of knowledge from the academic realm to the marketplace.
- Additionally, embracing a **multidisciplinary approach in both research projects is essential** to strengthen diverse perspectives and skill sets to converge on complex challenges. This multidisciplinary approach can take the form of **breaking down siloes** in between various departments and stakeholders within the institution creates a seamless ecosystem where knowledge exchange and innovation can flourish.

> Proactively initiating innovation projects can build bridges between academia and industry, and have academics play a pivotal role in not only advancing research dissemination but also nurturing a culture of innovation that extends beyond the university walls and into the broader societal and economic landscape.
>
> *– Roadmap workshop participant from ViA*

Theme 3: Institutional support for engagement and innovation

The "institutional support for engagement and innovation" theme comprises **two key challenges** as posed by the nine testing partners **(1) institutional commitment and infrastructure support** and **(2) recognising and communicating engagement and innovation activities**. For each challenge, the main approaches that could address it in the medium- to long-term period are provided, as identified by the roadmap workshop participants.

Key challenge

How to ensure institutional commitment and infrastructure support

Institutional commitment to engagement, as well as strengthening support structures for academic entrepreneurship has been identified as a challenge by almost all testing partners. Below are listed four approaches that could address this challenge in the medium- to long-term.

1. Clarify institutional priority and commitment to engagement and entrepreneurship

As possible solutions to increase institutional commitment, about half of the testing partners point out the need to establish **diverse career pathways for academics** and **integrating innovation and entrepreneurship activities into career assessment**. This framework might foster entrepreneurial mindset, including accompanying support, **incentives, and recognition**. Making entrepreneurship and innovation more visible in university planning, monitoring, and evaluation processes is emphasised. This could be complemented by a **commitment to entrepreneurship embedded in the university's overall strategy**. Finally, the **engagement of aware leadership plays a pivotal role** in crafting and implementing a robust innovation strategy within the university.

2. Establish support structures for academic entrepreneurship

The proposed solutions to developing support structures for academic entrepreneurship could be further clustered into **infrastructure, administrative** and **legal**. In order to improve the infrastructure support, proposed solutions include **developing new and making existing support structures more prominent**, facilitating **access to pre-incubation and business support programs to academics**, offering pre-incubation services for start-ups, and even **establishing a start-up village in the region**.

To alleviate researchers from administrative burdens, four out of nine testing partners believe that optimisation should be coupled with **digital transformation of administrative functions and streamlining of processes**. They also suggest **assigning administrative staff specifically focused on external engagement.** Finally, developing legal frameworks, incentives and fallback scenarios for academic entrepreneurs founding spin-offs is suggested.

3. Develop financial support mechanisms

Some testing partners specifically mention financial support mechanisms. The proposed solutions include **allocating more resources to research valorisation** and **including supporting structures for academic staff in the budget of HEIs departments.**

Furthermore, **diversifying funding models** for HEIs and **adopting innovative approaches to acquire funding**, resources, and talent are essential for effective leadership.

4. Explore governance structures

Another way to improve support for entrepreneurship at HEIs, as envisioned by some of the testing partners, is through governance. Some of the proposed solutions include having **leadership participate in advisory boards** or managing committees of external organisations, as well as **incorporating key external partners into universities' governance structures**.

Key challenge

How to recognise and communicate engagement and innovation activities

The recognition of engagement and innovation within universities are integral components of institutional commitment and encouragement of external engagement activities. This challenge was the one **workshop participants across all testing partners deemed the most pressing**. Below are listed three approaches that could address this challenge in the medium- to long-term.

1. Celebrate achievements and share best practices

The majority of testing partners plan to **raise awareness among staff and students about the importance of entrepreneurial abilities and skills**. This can be achieved by **highlighting champions and role-models of engagement and innovation** through communication within the HEIs, as well as providing tangible non-financial incentives and rewards to **acknowledge the commitment of academics**.

By effectively communicating existing best practices, educators can teach about the necessary steps to achieve these goals within the context of the local community. Furthermore, HEIs intend to serve as role models for supporting a multidisciplinary culture based on trust and community building. Additionally, **implementing a knowledge exchange system on entrepreneurial best practices**, including not only a digital library but also a personal coaching/support line for teachers, students, and researchers, is essential. It is also suggested to **perform and publish an annual review of entrepreneurial and engagement activities.**

2. Build entrepreneurial abilities and skills for professional staff

As a pathway to foster and encourage innovation and professional development within the organisation, testing partners identified **allocating dedicated time for professional staff members to actively engage in learning** and explore new approaches and methodologies. This can be facilitated by **providing ample capacity building opportunities**, including but not limited to specialised training programs, workshops, and courses that focus on **enhancing entrepreneurial skills**.

Additionally, it is seen as crucial to create an environment that allows internal staff to collaborate effectively by **allocating sufficient time for them to prioritise and engage in entrepreneurial and innovative initiatives**.

3. Boost alumni engagement

The consortium also recognises the potential to enhance the entrepreneurial culture within HEIs by **strengthening connections with alumni entrepreneurs and transforming them into valuable ambassadors**. By establishing and nurturing relationships with successful alumni who have ventured into entrepreneurship, HEIs can leverage their experiences as real-world examples. These alumni ambassadors can serve as inspirational figures, sharing their entrepreneurial journeys with current students and staff. This engagement provides insights into practical challenges and triumphs, fosters a sense of community and mentorship, and enriches the educational environment. Through alumni networks, HEIs can organise events, workshops, or mentorship programs that facilitate direct interactions between current stakeholders and successful entrepreneurs, creating a dynamic ecosystem that encourages the exchange of ideas and experiences.

Creating a balanced career progression model for academics and researchers is a unique opportunity to establish a new organisational structure; not for a single department or unit, but across the university. This way the university will become an “agent of change” in each local ecosystem.

– Roadmap workshop participant from STPUAS

Theme 4: Partnership strategies for stronger engagement

The "partnership strategies for stronger engagement" theme comprises of **two key challenges** as identified by the nine university partners. These include: **(1) fostering innovation ecosystems through strategic collaborations** and **(2) improving processes for evaluating and enhancing collaborations**. For each challenge, the main approaches that could address it in the medium- to long-term period are provided, as identified by the roadmap workshop participants.

Key challenge

Fostering innovation ecosystems through strategic collaborations

Fostering innovation ecosystems, overcoming challenges through strategic collaborations, boundary spanning, and direct partnerships with external stakeholders have been identified as key challenges by almost all testing partners. Below are listed three approaches that could address this challenge in the medium- to long-term.

1. Address regional challenges through collaboration

As part of their efforts to foster an innovation ecosystem, testing partners recognise the **need to diversify and focus on regional relevance in projects and initiatives**. For instance, they may establish **joint PhD programs with industry** and **address regional issues through specific programs**. By doing so, HEIs can actively contribute to driving the regional innovation ecosystem through a range of collaborative activities.

Examples of these activities include **creating a feedback system for local businesses to provide input on student-led projects** and incorporating **open challenges from the local ecosystem into the academic model** through challenge-based learning.

2. Develop internationalisation and talent development approaches

Internationalisation and talent retention are particularly important for testing partners from outermost regions (UMa, UR, UEC) and smaller institutions (e.g. ViA). These partners focus on solutions to **internationalise the universities by establishing more international partnerships and attracting students and faculty members from abroad**.

One specific solution proposed by one of the partners is to **enhance collaboration between the government and university** in training students, to **develop specialised and relevant talent** that can be retained in the region and absorbed by local businesses.

3. Diversify collaboration activities

To enhance and build on existing collaboration models, testing partners plan to **create more research centers, establish more contractual partnerships, and strengthen relations with the local ecosystem** (e.g. regional incubators). **Diversifying and promoting collaborations within the organisation** between different departments and campuses is also seen as part of this pathway. In this instance, it is important to **recognise engagement activities beyond research and publications** and to diversify partnerships to maintain intellectual and financial independence.

Key challenge

How to improve processes for evaluating and enhancing collaborations

Building a holistic partnership strategy and stronger external engagement entails improving the processes of mapping and evaluating (existing) collaborations. Three out of nine testing partners plan to specifically address this challenge. Below are listed four approaches that could address this challenge in the medium- to long-term.

1. Enhance collaboration impact measurement

Measuring, showing, and communicating the impact of collaborations is important for testing partners that aim to further enhance their external collaboration. **Improving project management processes** by ensuring follow-through on projects and providing transparency on project progress, monitoring, and stakeholder involvement is also seen as part of this pathway. Additionally, making better use of campus locations for strategic collaborations involves **mapping the external ecosystem** (for e.g. at the research park) and **identifying potential collaboration opportunities, as well as assessing existing collaborations** and determining areas for further potential.

2. Create collaborative spaces and infrastructure integration

Enhancing external collaborations can be achieved by leveraging collaborative spaces and integrating infrastructure. For example, one approach is to **co-create a network of open spaces with industry actors**. Another solution is to **share infrastructure and equipment with industry.** Additionally, providing office spaces for industry representatives in universities and industry-funded laboratories can facilitate teaching of hands-on and timely relevant competencies.

3. Become more embedded in industry

To enhance their presence in the regional ecosystem, testing partners identified **participating in industry boards** as a key approach, to have a say in important decision-making processes and inform the collaboration. They also explored **inviting external stakeholders to join university advisory boards and offer strategic guidance and direction.**

4. Facilitate collaborations

Some testing partners proposed to position themselves as facilitators of collaborations within the regional ecosystem. To achieve this, this would start by **establishing micro networks to build trust** and eventually **become a connector partner**. In the long term, they aim to **facilitate collaboration between innovation districts, science parks, and other external support structures**.

04 Reflection & Next Steps

Reflecting on the process and next steps

supporting future focused higher education

Reflection & Next steps

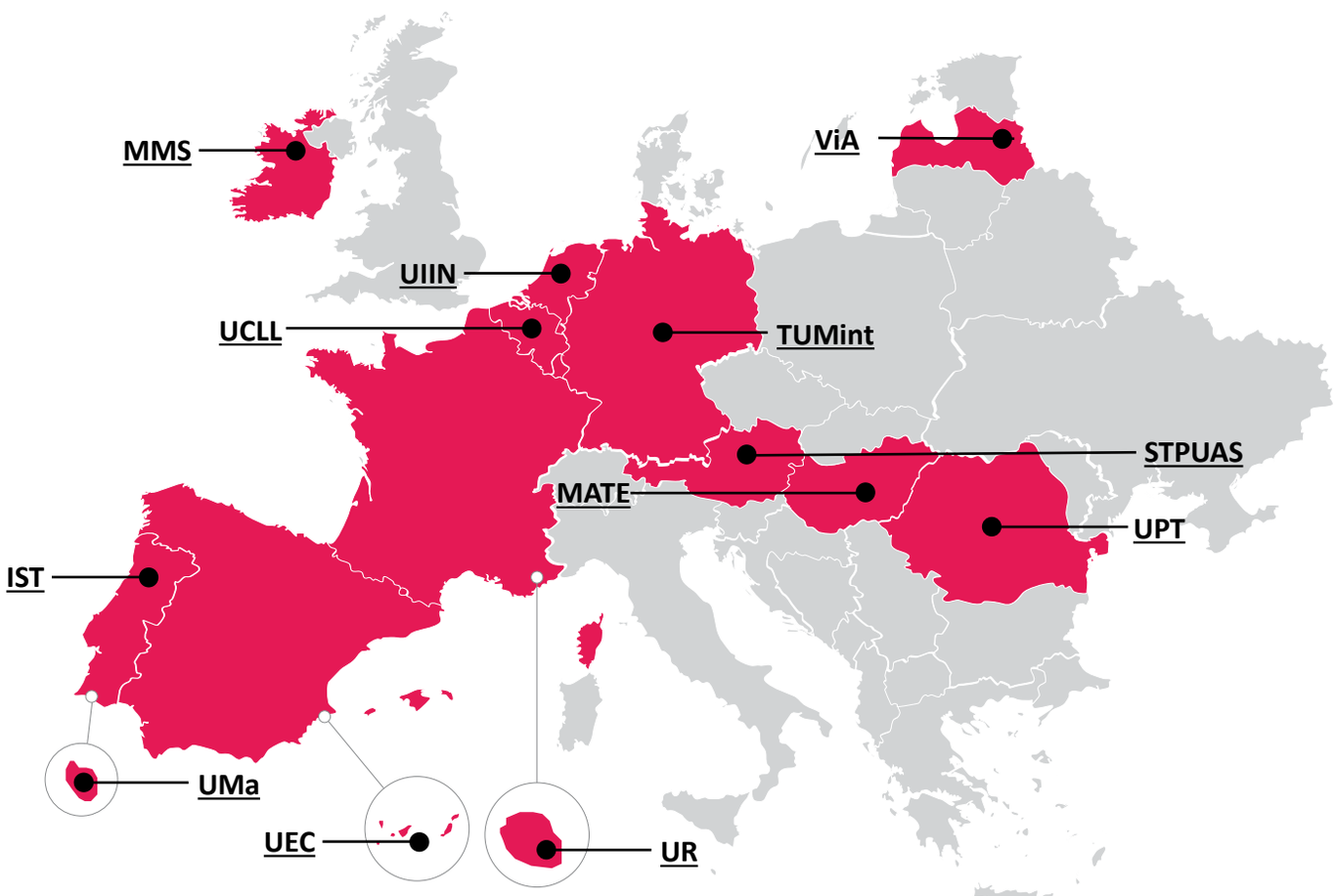
The **roadmap workshops** provided an excellent opportunity for the testing partners to reflect on their current and desired future states, based on the WP2 activities and analysis, and begin to pave the way for their institutional transformation over the next three years. Through the workshop, participants were able to collectively discuss their key challenges and brainstorm potential solutions that could help them address these. Interestingly, despite the differences among the testing partners, several of the challenges were common. As a result, UIIN has synthesised the key challenges into four overarching themes, together with proposed solutions from the testing partners.

However, many of these solutions remain complex and abstract, so the next steps will be for the testing partners to create their ITAPs, breaking their goals into concrete action plans where they will be guided to implement these plans.

In the upcoming phases of the project, two important frameworks will guide the activities and help the testing partners make meaningful progress. First, **the ITAP Framework** will play a key role in shaping the implementation strategy. Each testing partner will use the templates provided by UIIN to carefully define and plan their implementation. These plans will then transition smoothly into WP4 Testing & Implementing, which will lay the groundwork for developing dedicated ITAP teams and starting implementation.

In addition to developing the ITAPs for each testing partner, a second priority will be to develop **the Working Groups Framework**. This initiative aims to identify common challenges and areas of focus among all testing partners by analysing their respective ITAPs. The testing partners will be grouped into working groups, to enable them to not only work on their own ITAPs but also exchange peer-to-peer guidance and share common pitfalls and successes. The insights gained from this analysis will further guide development of WP5 Capacity Building & Knowledge Exchange programme. In addition, each testing partner will be matched with experts to provide them with coaching and mentoring as they apply their ITAPs, and will further be guided by a monitoring and evaluation framework to evaluate their progress and impact.

As we embark on this journey, the challenges and innovative solutions discovered by our partners will be included in the overarching report, which is scheduled for publication in July 2024.



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