A3.3, O4: Innovation of education roadmap

Beneficiaries

- Aalborg University, Denmark
- Dublin City University, Ireland
- Hamburg University of Technology, Germany
- Kaunas University of Technology, Lithuania
- Linköping University, Sweden
- Lodz University of Technology, Poland
- Tampereen Korkeakoulusäätiö sr, Finland
- Universidade de Aveiro, Portugal
- Universitat Autonoma de Barcelona, Spain
- University of Stavanger, Norway
- Universita degli Studi di Trento, Italy
- Institut National des Sciences Appliquées de Toulouse, France
- University of Twente, The Netherlands

- Tecnológico de Monterrey, Mexico

Abstract

This document describes the roadmap developments of educational innovation in ECIU University. The document shows how the educational innovation developments are integrally connected to the broader picture of ECIU University developments towards a fully-fledged sustainable European university.

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1   Introduction

This document describes the future path of educational innovation developments in ECIU University. During the pilot phase of ECIU University in 2019-2022, ECIU University has initiated an approach where all developments are planned in sustainable ways, gradually moving from a project thinking towards programmatic developments with longer-term ambitions. Thus, all educational developments are also systematically considered as part of the overall development scheme of ECIU University, not as a separate plan of its own. This document describes the roadmap of educational innovation developments as part of long-term development framework of ECIU University.

2 ECIU University long-term vision and the roadmap towards 2030

All ECIU University development are ultimately based on ECIU University 2030 vision, developed as part of the pilot phase in 2020. Video 1 illustrates the 2030 vision and lays out also the principles of educational innovation in ECIU University.

Video 1. ECIU University 2030 vision (double-click the picture to start the video).

Another main component of all planning across all ECIU University developments in the overall roadmap where the developments are planned in phases, to ensure ambitious but realistic developments, always learning from previous experiences. Picture 1 shows how the developments move from the pilot phase through the start-up and expansion phases towards the growth phase in year 2030.

Picture 1. Overall roadmap of all ECIU University developments.

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The pilot phase is timed parallel to Erasmus+ European Universities Initiative in 2019-2022 project (ECIUn). During the **Pilot phase** various operations have been developed and tested, many of which will be systematically carried to the next phase, called **Start-up phase**. The main purpose of the Start-up phase is to ensure the sustainable position of ECIU University operations, mature them and, for example, test with learning markets. The Start-up phase includes activities such as comprehensive testing of the ECIU University learning concept (including the digital competence passport and micro-credentials), the use of ECIU University digital platform (DXP) and digital services for stakeholders.

Based on the experiences in the Start-up phase, steps towards the **Expansion phase** will be taken. Assuming the successful implementation in the Start-up phase, operations will be expanded both contents and volume wise. The Expansion phase will take ECIU University from a controlled testing environment to a more open market expansion. Essential aspects in the expansion phase are based upon managing to scale and diversifying ECIU University opportunities quickly.

Finally, the **Growth phase** starts in 2028, based on the experiences on the Expansion phase. In the Growth phase, ECIU University will pursue an approach which focuses on leveraging capabilities from across the ecosystem to ensure long-term engagement and commitment to innovation - whilst at the same time establishing KPIs focusing on processes which drive cost and efficiency gains.

3   Structural thinking and the action plans

In addition to the overall roadmap timeline, more detailed plans are made through thematic action plans of the various development areas. Where the timeline roadmap sets the overarching development plan, ensuring the coherence of the major components of the developments in the coming years, thematic action plans complement the planning by providing information on the concrete actions to be taken towards short-term and mid-term goals, exact timing, resources needed etc., thus functioning as the concrete actions plans. Picture 2 illutsrates the structuring of the thematic action plans.
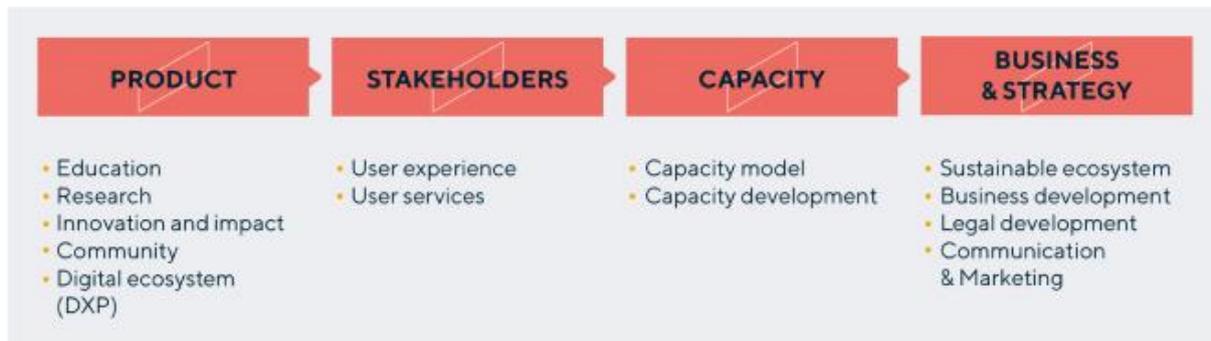
Picture 2. Structure of the overall developments and thematic action plans.

Thematic action plans are being developed through iterative processes, engaging the ECIU University community, including all the partner universities, in the development process. Thematic action plans are continuously reflected against the overall timeline towards 2030 and each other to ensure the overall coherency and flow of information. Following the value of agility of ECIU University (see the 2030 vision), all action plans are living documents by nature; experience is gathered through developments and plans are modified continuously to ensure the long-term, sustainable success of ECIU University. By the time of writing this deliverable, the thematic roadmaps are set to serve the purpose of the beginning of the start-up phase of ECIU University in fall 2023.

4 Challenge-based learning and flexible learning pathways

The main emphasis of educational developments is on highly personalised, flexible challenge-based learning pathways with a strong focus on research-based micro-credentials. The educational model of ECIU University serves both students in the partner universities and continuous learners in working life looking for upskilling and reskilling in 21st century skills and competences. Essentially, ECIU University takes a wholesome approach to different types of learners rather than separating activities only for one or the other type of learner. Through these actions ECIU University contributes to the evolution of the European labour market, including green and digital skills, as well as serves the European Skills Agenda and ultimately employability in Europe and beyond.

Educational innovation in ECIU University is based on the concept of challenge-based learning (CBL), however, simultaneously integrally connecting to the concepts of challenge-based research (CBR) and challenge-based innovation (CBI). Picture 3 demonstrates the relationship of the three and thus the overall challenge-based operating concept of ECIU University. The thematic actions plans, as described in chapter 3, are set to serve the purpose of developing the challenge-based activities systematically. The challenge-based eco-systemic approach connects the learning experience integrally to research and innovation activities in ECIU University, currently developed through other EU funded projects. Essentially, ECIU University facilitates learning pathways where personalised learning takes place as part of a European research and innovation community, at the same time also enabling blended mobility opportunities, including internationalisation at home.
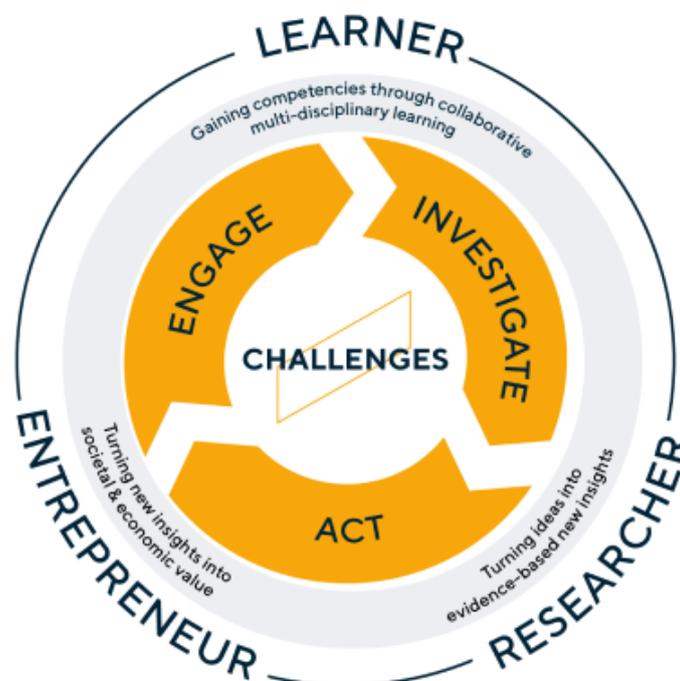
Picture 3. Challenge-based approach in ECIU University.

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Another fundamental concept of driving all educational innovation developments in the concept of flexible learning pathways (FLP), illustrated in Picture 4. The FLP starts with understanding the current status of one's skills and competences, analysing them with help of machine learning and data, leading to the first version of digital skills and competence portfolio. Next, learning goals are set in a guided way by also considering the motivation of the individual. Once clear about the status of skills and competences as well as the learning goals, different learning opportunities are sought for through a guided process. The learning opportunities might be about participating in challenges or taking micro-modules (short learning programmes), or in the later development stages, for example, systematic learning at work, since continuous education in collaboration with working life plays a core role in ECIU University developments towards 2030. After engaging into the learning experience, the skills and competences are re-evaluated, and the digital skills and competence portfolio is updated. Finally, new goals are set, and next learning opportunities explored, making FLP a looped process supporting continuous learning of all types of learners.

Picture 4. The concept of flexible learning pathways (FLP) in ECIU University.

Table 1 below demonstrates the step-by-step development of the elements of FLP towards 2030.

Educational features	Pilot phase (2019-2022)	Start-up phase (2023-2025)	Long-run aspect (towards 2030)
FLP development			
Status of FLP	Learning path defined. Elements are loosely connected and tested.	FLP becomes the underlying principle for all learners and learning activities.	FLP is the underlying principle for all educational activities.

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Personalised skills and competence analysis			
Domain focus	UN SDG 11 related themes with a focus on Smart Regions.	Phased approach to add other SDGs including digitalisation and green transition (applicable after SMART-ER project).	All relevant societal goals as classified by UN and EU, that can be met by the academic profiles of the partner universities.
Personalised recommendations for learning opportunities			
Skills and competences	Passport part of DXP but not yet used for recommendations. Skills and competence tags of challenges and other learning opportunities in use manually.	Skills and competence parameters in DXP form the basis for suggesting learning opportunities (machine learning capabilities). Challenges and micro-modules are tagged with skills and competences.	Skills and competences captured via advanced data- based analysis on learner's prior learning and automated scans, and learning opportunities suggested automatically. Progression of learning mapped, and suggested learning opportunities adjusted accordingly.
Learning opportunities			
Challenges	Typology in use: Nano, Mini, Standard and Strategic. Some challenges derived directly from research or organisations.	More challenges derived from research, private and public stakeholders (broadening scope of UN SDG 11).	Challenges derived from research, private and public stakeholders. More authentic setting when working on challenges.
Micro-modules *1-3 ECTS, credit bearing, online, displayed via ECIU, self-paced / locally non-self-paced*	Skills and competence-based learning opportunities: (1) language skills, (2) thematic disciplinary content, (3) transversal skills, (4) entrepreneurial skills. Most offered by members, scaffolded in a bottom-up manner.	Content restructured: (1) systematically mapped and skill tagged, (2) experiment with co-creating learning content with stakeholder, (3) logical ECIU pathways experimented for learners.	Exclusive ECIU University content, based on research spearheads members, co-created with stakeholders, and based on the needs of society.
Other types of learning	None	Experiment with: (1) workshops, (2) masterclasses, (3) regular unbundled courses. Co-created with stakeholders.	Workshops, masterclasses, regular unbundled courses. Co-created with stakeholders.
Role of challenges in the ECIU partner universities	ECIU University as joined showroom for challenges. Challenges are recognised by members.	ECIU University as an intermediary between learners and challenges, experiment with ECIU learner analytics. Partner universities to systematically open a fixed	ECIU University as intermediary between learner and challenges, experiment with ECIU learner analytics ECIU University offers its own challenge modules.

		block within their curricula to host ECIU challenges.	
Learning assessment			
Administration of learning	ECIU University responsible for challenge content, universities use programmes as hosts of learning.	Learners register and are admitted to challenges via ECIU University (management of learners via ECIU University DXP environment). Micro-modules and other learning via partner universities.	ECIU University learning (both micro-modules and challenges) accessed and administrated via ECIU University DXP environment.
Micro-credentials	Experiments with micro-credentials as proof of learning.	Specific ECIU learning offers proofed by micro-credentials.	All ECIU learning in ECIU results in micro-credentials.
Quality assurance of learning			
Recognition	Learning is recognised case by case (working on a unified agreement).	All learning connected to ECIU University learning (automatically recognised).	Recognition of learning at workplace.
Quality control of learning	Micro-modules and challenges via the university system.	Experiment with ECIU University quality system for challenges, micro-modules, and other learning opportunities.	ECIU University eco-systemic approach to quality assurance.
Learning administration			
Payment for education	No payments (costs covered by the partner universities).	Business model refined with principles such as: (1) no payment for individual students and learners (ECIU agreement on volumes), (2) experiment with payments via companies.	No payment for internal students. External learners may pay a fee. Participation packages based on fees for companies and public organisations.
Reimbursement and recognition of teachers	Locally arranged. Start of communities of practice.	Set up a capacity and capability model and experiment. Communities of teaching excellence.	No preferred model yet.
Admission, learner support (registration)	Manually, small scale (for admission, mobility & study advice).	Common platform (ECIU University DXP environment) to organise the needed back-office activities with the partner universities.	Full use of ECIU University DXP environment and user experience centre.

Table 1. Elements of FLP towards 2030.

5   Conclusions

This document has demonstrated the steps of educational innovation in ECIU University in the coming years. It has been shown how all educational developments are integrally connected to the overall ECIU University development framework, aiming for sustainable operations of a fully-fledged European university towards 2030.

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Acknowledgements