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Challenge Based Learning and Future Skills Through ECIU University



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1. Introduction

The aim of this paper is to showcase the experience of ECIU University in Challenge-Based Learning (CBL) at the European level through the diversity of the implementations and its collaborative approach that has already achieved strong success but has great further potential.

This paper connects CBL to EU policy initiatives and ambitions, such as the Union of Skills and the need to develop skills for the 21st century workplace. Moreover, the paper also analyses the use of CBL in other university alliances. This paper therefore provides relevant insights to guide higher education policy development and stakeholders.



“I believe that challenge-based learning can be considered a revolution in the academic world”

*– Oksana Paslavska,
ECIU University student
from the University of Trento*

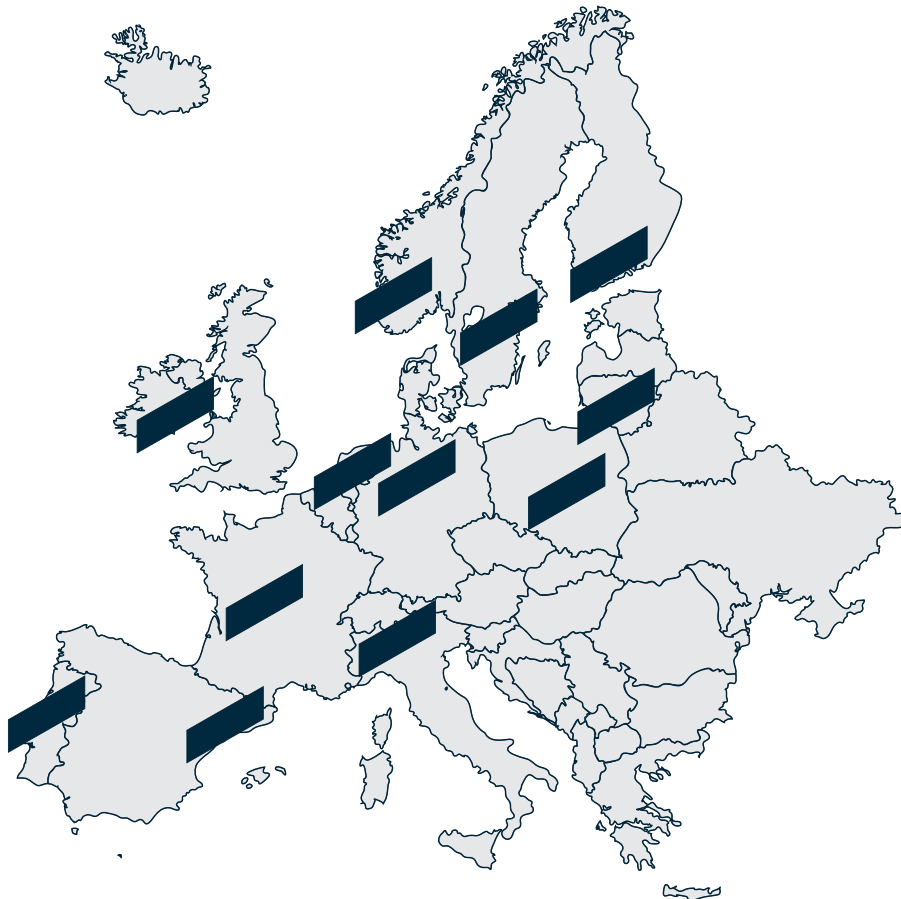
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This ECIU University policy paper sets out:

1. What is CBL.
2. How CBL contributes to EU policy priorities such as the EU Competitiveness Compass and the Union of Skills.
3. How the ECIU University CBL model developed over the last ten years provides a strong platform for collaboration at a European level in multiple formats.
4. An analysis of the development of CBL in European Universities alliances.
5. Recommendations for greater impact to facilitate the development of key skills and career opportunities for students across Europe.

About ECIU University

ECIU University is an EU-funded, pan-European alliance uniting 13 innovative and entrepreneurial universities to transform higher education through CBL since 2019. Rather than traditional degree pathways, it enables students, researchers, and stakeholders to collaborate internationally and interdisciplinary to solve real-world societal problems, for example around sustainable urban development.



The partner universities are:

- Autonomous University of Barcelona – Spain
- Dublin City University – Ireland
- Hamburg University of Technology – Germany
- INSA Group – France
- Kaunas University of Technology – Lithuania
- Linköping University – Sweden
- Lodz University of Technology – Poland
- Tampere University – Finland
- University of Aveiro – Portugal
- University of Stavanger – Norway
- University of Trento – Italy
- University of Twente – Netherlands
- TEC de Monterrey – Mexico (associated partner)



1.1 What is Challenge Based Learning (CBL)?

CBL takes learning beyond traditional methods to provide students with authentic challenges and equips them with skills that they will use in their future careers. It equips them with transversal and future-oriented skills, including critical thinking, collaboration, communication, creativity, and problem-solving. It is an emerging pedagogical model and practical approach to learning and teaching in higher education.

In the ECIU University context, CBL functions as a strategic model that connects education, research, innovation and service to society by bringing together students, educators, researchers, and external stakeholders around real-world challenges. Its policy implications therefore go beyond education as it can be applied in wider contexts, such as administrative departments, companies, or non-governmental organisations which address and solve their challenges in their specific workplaces or contexts.

For universities, and those in European Universities alliances, CBL is particularly relevant as it encourages working in innovative ways in multidisciplinary and multinational teams, which Alliances are ideally situated to facilitate. With its emphasis on critical-thinking, collaboration and communication, CBL also provides valuable transversal skills that can be used in a wide range of situations and work settings such as to complement the specific skills and knowledge required to solve a specific challenge.

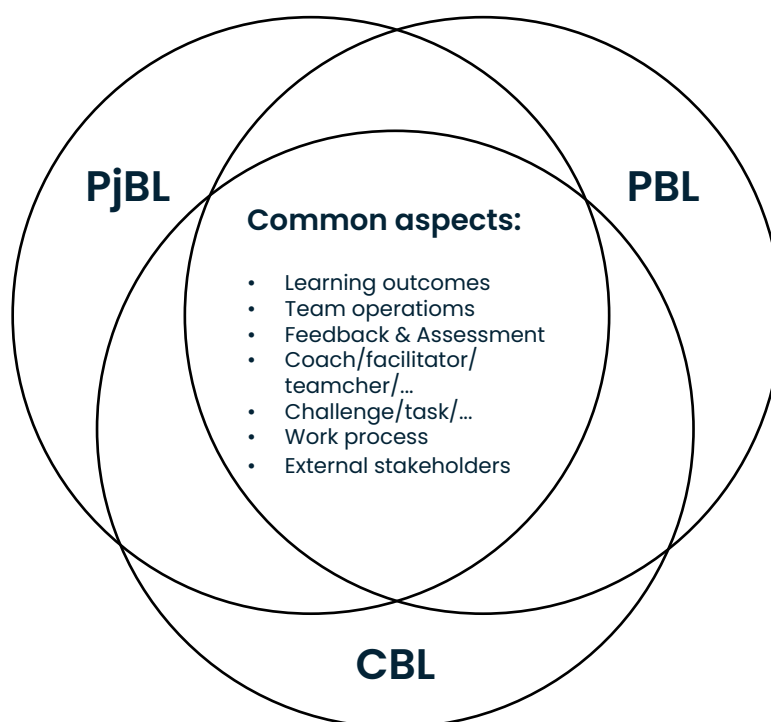


Figure 1: Common aspects of PjBL, PBL and CBL
(Gunnarsson & Swartzm 2022)

It is important to note that CBL is one of several pedagogical approaches within the 'Active Learning' space which includes most closely Problem-Based Learning (PBL) and Project-Based Learning (PjBL) (see Figure 1). It can also relate to design thinking, gamified learning, and collaborative online learning (COIL). Practitioners sometimes 'mix and match' these approaches, but significant commonalities are that they relate to authentic societal challenges, encourage self-directed student learning, and develop transversal skills. Whilst this paper focuses specifically on CBL, we are supportive of all active and experiential learning approaches that provide the benefits to students, educators, and stakeholders. We have included in this paper some comparative analysis of which learning model(s) are used by which Alliances and to what extent (Chapter 4).

"As a simple and impactful summary, both PBL and CBL can be seen as complementary approaches whereby PBL develops the analytical base and CBL enables innovation and more tangible contributions to society"

– João Santos,
*ECIU University student from
the University of Aveiro.*

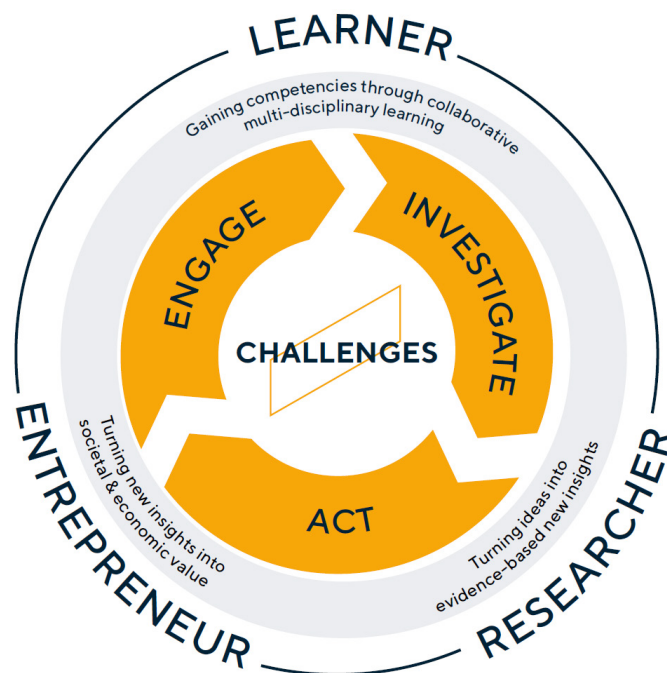


Figure 2: Elements of a challenge-based approach

ECIU University has the ambition to deliver on all the constituent universities' common challenge-based methodologies and the missions of education, research, innovation and service to society, creating a network for knowledge utilisation at the European level. Therefore, ECIU University does not limit the challenge-based mode of working to just education. There are multiple ways in which universities can use knowledge within a challenge-based approach which encompasses challenge-based learning, research, and innovation. These three elements have also aspects in common (Figure 2), like engaging partners in essential questions and ideas, investigating guiding questions and acting on possible solutions. The continuity between CBL and Challenge Based Research (CBR) is also clear in the framework of citizen science: From a CBL training challenge experience involving students and citizens, a CBR project can be generated that necessitates the participation of researchers and citizens. For more information on CBR, see the ECIU publication [Challenge-based Research For a Stronger and More Sustainable Europe \(ECIU, 2022\)](#).



1.2 How has CBL evolved into the learning model of today?

CBL emerged from early 2000s collaborations among US universities, most notably the VaNTH consortium, which developed challenge-based instruction using the STAR Legacy Cycle as a structured, inquiry-driven approach to learning (Brophy & Bransford, 2001; Birol et al., 2002). The contemporary CBL model builds on this foundation through a stronger emphasis on student led challenge formulation, prototyping, and solution implementation, and gained wider visibility through Apple's Classrooms of Tomorrow—Today (ACOT2) initiative in the late 2000s. Subsequent pilot studies supported by Apple Education and the New Media Consortium reported positive perceptions of CBL across secondary and higher education contexts (Johnson et al., 2009; Johnson & Adams, 2011). A key consolidation point was the publication of the Challenge Based Learning user guide (Nichols et al., 2016), which formalised the now commonly used three-phase framework of Engage, Investigate, and Act, and articulated CBL as a flexible, learner-driven and reflective pedagogical approach. Since the 2010s, CBL has expanded beyond its US origins, with significant institutional adoption in Latin America—particularly at Tecnológico de Monterrey in Mexico, a founding partner of the ECIU network—and increasing uptake across European and Asian higher education systems, especially in applied and professional disciplines, positioning CBL as a mature and globally adaptable framework for contemporary educational innovation.



2. How CBL delivers on the current EU ambitions

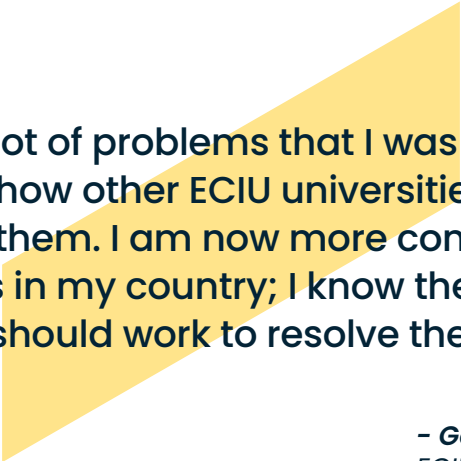
Today, CBL is used in universities across European higher education institutions in a wide range of programmes at both undergraduate and postgraduate levels within internal curriculums. It is also used for extra-curricular programs that are at the forefront of international educational collaboration. The wide adoption is positive for the EU, as the emerging education model delivers on urgent EU ambitions for European competitiveness and as outlined in the Union of Skills. By bringing research results and researchers directly into the education programme, it also contributed to the objectives of the European Research Area. Moreover, it contributes to future-proof education as outlined by the European Council.



2.1 European Competitiveness

CBL supports the ambition of the EU to boost its competitiveness, as laid out in the Competitiveness Compass (2025). CBL helps closing Europe's innovation gap in several ways.

- It is technology focused and encourages students to make use of emerging and new technologies such as AI, quantum, advanced materials, biotech, robotics and space technologies.
- Societal stakeholders (known as challenge providers) work in partnership with universities, this enables the societal sector, such as SMEs, NGOs and companies to tap into future talent for recruitment.
- Societal stakeholders offer excellent development opportunities for academic staff to serve as mentors and partners to teams working on CBL challenges – building bridges between academia and society.
- Students are triggered to use their entrepreneurship skills, developing strategic thinking, an innovative mindset and business growth (Dikilitaş et al., 2025; Hölzner & Halberstadt, 2022).
- Finally, through this partnership, students and companies co-create innovative and implementable solutions to real-life issues, directly contributing to societal needs.



“There are a lot of problems that I was not aware of until I saw how other ECIU universities were dealing with them. I am now more conscious of the problems in my country; I know they exist and that we should work to resolve them.

– **Gonçalo Lourenço**,
ECIU University student
from the University of Aveiro.



2.2 Union of Skills

CBL aligns with the future direction of education according to the Union of Skills (2025) priorities, deepening the talent resources available to European research and industry to drive competitiveness, innovation, and preparedness. CBL helps to overcome Europe’s skills and labour gap by preparing students for future employment by connecting learning to authentic industry contexts and real-world challenges during their education. By engaging with sector-relevant problems, students develop an understanding of workplace expectations while building transferable skills such as problem-solving, collaboration, communication, and professional identity in multidisciplinary and international teams.

Evidence from the case studies in the ECIU coordinated 2025 book ‘A Practical Guide to Understanding and Implementing Challenge-Based Learning’ (see Appendix) suggests that CBL strengthens career readiness by enabling students to build professional networks, gain practical experience, and align academic learning with labour-market needs.

- **Delivering higher levels of basic and advanced skills** – CBL delivers many transversal skills that students will need to succeed in the twenty-first century workplace such as critical thinking, (intercultural) communication, multidisciplinary teamwork, conflict resolution and collaborative working. It does so by creating a bridge from the classroom to the workplace, immersing students in ‘real life’ situations where they must find actionable and measurable solutions to societal challenges.
- **Providing opportunities for people to regularly update and learn new skills** – CBL is a flexible learning model that has been applied in a wide-range of educational settings, including high-school, bachelor’s, master’s and PhD programmes. It has even been used for professional training, for example in the Communications

Department at the University of Stavanger. Therefore, learners can return to CBL at different points in their educational or career pathways to revisit and refresh their skills or gain completely new ones to enhance their CVs and develop professionally.

- **Facilitating recruitment by businesses and attract, develop and retain top talent in Europe** – CBL encourages students to develop an entrepreneurial mindset, to build networks and to learn about stakeholder engagement. Many CBL implementations have as a challenge partner a local business or non-profit organisation and therefore there is a great opportunity for both students and partners to benefit from this exchange in terms of employment possibilities. Furthermore, extracurricular CBL implementations such as through ECIU University often attract intrinsically motivated students already engaged in self-directed or project-based work which gives recruiters access to a talent pool of creative problem solvers.



2.3 European Research Area

By bringing research results and researchers into the learning environment, CBL directly contributes to linking education and research, supporting the implementation of the European Research Area (ERA).

- **ERA Structural Policy: Improving the Articulation between R&I and Higher Education** – CBL supports the ERA Structural Policy aim of creating a more systematic approach to linking the four missions of higher education – education, research, innovation, and service to society. By embedding real-world research challenges into the curriculum and fostering partnerships between universities, communities, and other stakeholders, CBL helps build the stronger, more connected R&I ecosystems that this structural policy seeks to promote.
- **ERA Structural Policy: Enhancing Trust in Science through Citizen Participation, Engagement and Science Communication** – CBL helps align the academic world with societal needs and challenges, mobilising collective action around common goals and strengthening democratic engagement in the EU. By bringing academia closer to communities and citizens, CBL empowers local stakeholders, promotes meaningful engagement with research, and builds public interest in and trust of science – directly contributing to the ERA Structural Policy.
- **Choose Europe** – As CBL implementations frequently take place within extracurricular programmes or intracurricular courses with a significant proportion of international students, the community partners and organisations working alongside CBL practitioners gain access to a diverse pool of international talent.

This supports the goals of the EU's Choose Europe initiative, launched in May 2025, which aims to make Europe the world's most attractive destination for researchers, academics, and highly skilled professionals, and to strengthen Europe's human capital in research and innovation.

2.4 Future-proof education

CBL also aligns with the future direction of higher education according to the European Council's strategic priorities for future education, indicated as follows for the period between 2021 and 2030:

- Improving quality, equity, inclusion, and success for all in education and training – **CBL aims to teach intercultural communication skills and constructive conflict resolution which contributes to diversity and inclusion.**
- Making lifelong learning and mobility a reality for all – **CBL encourages peer-to-peer feed-back and mentoring and many students who have experienced CBL return in their professional capacity to offer mentoring to their peers in a CBL implementation. As part of European Universities alliance educational offerings, CBL is used in many mobility programmes.**
- Enhancing competences and motivation in the education profession – **CBL develops many competences for those in the education profession such as facilitating active learning, scaffolding learning and transitioning roles from a traditional imparter of knowledge in a hierarchical context to a facilitator, guide and mediator.**
- Reinforcing European higher education – **CBL's adaptability to multinational and multidisciplinary settings aligns it ideally with European higher education initiatives.**
- Supporting the green and digital transitions in and through education and training – **CBL has a strong focus on technology in the classroom but also working on global issues such as the green or digital transitions through making impact at both a local and international level. For example, many CBL implementations in the early stages of ECIU University were directly created from UN Sustainable Development Goal 11 'Sustainable Cities and Communities.**

3. CBL and the ECIU University

ECIU University has been a pioneer in the field of CBL since 2019, and is committed to innovative, transformational change of higher education in Europe, also beyond its Alliance. CBL is considered a pillar of the ECIU University, and both its CBL research and teaching community has been growing over the past ten years.

Since 2019, ECIU University has provided more than 10,000 participations to over 700 learning opportunities, including over 200 societal challenges addressed with non-academic societal stakeholders.

3.1 Pilot phase (2019–2022)

3.1.1 The ECIU University CBL Learning Framework

There was a strong focus on CBL in the pilot project 2019–2022 with a work package dedicated to challenge-based education (WP3) in which ECIU University conceptualised its own Challenge-Based Learning framework, building on the research literature outlined in the introduction to this report. It features the three distinct phases of CBL; Engage, Investigate and Act and within those phases sub-activities that guide the process and support the achievement of learning outcomes. For further information, please see the reports from the ECIU pilot phase (<https://www.eciu.eu/deliverables>).

During the pilot phase more than 600 learners worked on challenges, and 150 teachers co-created the ECIU University learning opportunities. Partners developed and offered 285 micro-modules in total during the project period, including 28 language learning modules with 11 languages. There were also a number of scientific contributions addressing challenge-based approaches and pedagogy within ECIU which are detailed in this [report](#)¹.

3.1.2 Challenge Based Research

In the pilot phase, ECIU University had also a work package to develop challenge-based research (WP2) where Alliance partners worked together towards a Challenge Based Research (CBR) model, building upon the CBL concept and to increase the

¹https://cdn.prod.website-files.com/68cab977e809a492fb9bbef4/6903640d8520132342daa877_A3.3%2C%2006%20Scientific%20publication.pdf

impact of academic research. In CBR, working closely together with partners from business, education, government, civil society and citizens is intrinsic to an approach that seeks to ensure that the output of academic research makes a tangible contribution to challenges faced. It is a way of directing innovation and the power of research to achieve wider social, policy, and economic goals. Therefore, CBR contributes to more sustainable and equitable innovation-led growth. This approach precisely aligns with the impact-oriented mission approach developed under Horizon Europe ([ECIU, 2022 'Challenge-based Research For a Stronger and More Sustainable Europe'](#)). In WP2, ECIU University identified specific needs in research development across the network and piloted approaches in addressing these gaps, exemplified the use of research within educational practices and developed and piloted recommended ECIU University metrics in consultation with the research community.



3.2 ECIUn+ project phase (2022–2026)

3.2.1 CBL as new teaching and learning method

In the project phase of ECIUn+ 2022–2026, CBL is closely associated with three work packages; WP2 supporting learner guidance, WP3 portfolio development, and in particular WP8 capacity and competence development. Together, these work packages have supported the further development of CBL from early implementation towards a more coherent and scalable approach across the ECIU Portfolio.

WP3 addresses two interrelated dimensions that are essential for embedding CBL across ECIU. First, it supports a shift in conceptions of teaching and learning. As CBL is an experiential, student led methodology in which learning emerges through the implementation of real-world challenges, teachers are required to move beyond traditional, transmission-based approaches and adopt facilitative, coaching-oriented roles (Sukackė, et al, 2022). This pedagogical shift is fundamental to enabling students to take ownership of learning while engaging meaningfully with external stakeholders. As part of this process, ECIUn+ further developed the use of the CBL Compass as a shared reference framework for designing and reflecting on CBL within Challenges and Micromodules. The Compass describes 19 dimensions of student-active teaching and learning and distinguishes three levels of implementation. This provides a common language for discussing CBL quality across different institutional contexts, while still allowing flexibility for local practices and disciplinary differences. In this way, the Compass contributes to quality, coherence, and scalability across the ECIU Portfolio.

3.2.2 Teacher skills and competences

Second, WP8 focuses on developing the concrete skills and competences teachers need to design, implement, and sustain high-quality CBL. Training addresses both conceptual understanding and practical application of CBL, including its three phases: engage, investigate and act and the nine-step involved. Key competence areas for teachers include interpersonal skills such as creative and innovative thinking, collaboration, and facilitation; core transversal skills such as effective communication, digital competence, monitoring and assessment of learning, project management, and educational leadership; and more specific CBL-related competences. These include adapting teaching strategies to diverse target groups, working confidently within virtual and hybrid learning environments, negotiating and collaborating with external stakeholders, and monitoring and reflecting on social impact.



“I have a great collaboration with the University of Stavanger and think ECIU University is an excellent initiative. International and interdisciplinary collaboration is extremely important, especially in Europe. It has a value far beyond the project itself,”

– Frank Emil Moen,
CEO of Energy Innovation,
Norway

To support competence development at different stages of CBL practice, WP8 has implemented a range of complementary approaches: introductory training to familiarize teachers with the methodology; more advanced workshops that allow participants to learn CBL by actively implementing it; and targeted support before, during, and after CBL delivery. Initiatives such as Teacher Kick-Off events, Communities of Practice, the Teacher Hub, CBL workshops, and Monthly Best Practice Meetings provide both local and ECIU-wide spaces for peer learning and reflection. Collectively, these activities have resulted in more than 3,000 participations, significantly strengthening capacity for CBL across the Alliance.

CBL continued to be used as a pedagogical model on many of the challenges and some micromodules offered by the ECIU University partners. Since 2019, ECIU University has provided more than 10,000 participations over 700 learning opportunities, including over 200 societal challenges addressed with non-academic societal stakeholders.

The portfolio expansion has enabled students to experience CBL on an incredibly diverse range of topics, working in international, multidisciplinary teams across the 12 ECIU University full partners. This enables them to develop their critical thinking, collaboration, and communication skills amongst many others and work with their peers and external stakeholders to build their network and enhance their career opportunities.

3.2.3 ECIU extension phase (2026–2028)

Following the completion of the ECIUn+project in October 2026, ECIU University will move from developing and expanding CBL towards consolidating it as a stable and sustainable component of the Alliance's learning portfolio. The focus will be on strengthening portfolio sustainability by supporting repeated, collaborative Challenges and Micromodules that can be embedded more systematically into curricula across partner universities, rather than depending on individual initiatives or temporary project structures. At the same time, the extension phase will explore how CBL can be adapted to alumni engagement, continuing education, and business-to-business approaches, thereby extending its relevance to lifelong learning, professional upskilling, and stronger collaboration with societal stakeholders.



4. Strengthening the role of European Alliances in the CBL development

European Universities alliances have much potential driving CBL, being long-term systemic partnerships committed to innovating education and to deliver on the UoS. This chapter analyses the integration of CBL in the European Universities calls and in other Alliances.



4.1. Erasmus+ European Universities calls (2019–2026)

The integration of CBL within the European Universities alliances landscape has evolved over the past years. This is evidenced by the changing language in the Erasmus+ funding calls for European Universities alliances. An analysis of the official call cycles reveals a transition from a broader focus on addressing existing regional challenges to the institutionalisation of CBL can be observed during the period 2019–2026.

Initial calls ([2019–2020](#)) focused on responding to regional needs by using ‘challenges’ as a general goal. However, in [2022](#), there was a shift in language. Challenge-based approaches started to be explicitly named and framed as a central element of the innovative pedagogical frameworks that would increasingly characterise European Universities alliances. This terminology was maintained through [2023](#) and [2024](#), reflecting a formal recognition of CBL as a key approach in the educational process, with the 2024 call including an emphasis on the capacity of these Alliances to tackle societal challenges of both the present and the future.

Notably, the [2026](#) call reveals no explicit mention of CBL, referring instead to the wider use of innovative pedagogical practices. The absence of specific naming could indicate that CBL has been integrated into the educational model of Alliances and as a characteristic feature of the innovation ecosystem. Alternatively, it could suggest a gradual move away from the promotion of CBL as a core component.



4.2. European Universities alliances’ approach

The strong references to CBL in the Erasmus+ calls of Alliances resulted in CBL being a fundamental educational pedagogy of many more besides ECIU University. There are varying models for CBL, demonstrating a rich diversity in the approaches among Alliances. The following list is an illustrative selection of key representative cases.

Moreover, during a CIVIS training programme at the University of Bucharest in October 2025, representatives from a number of different Alliances created prototypes of how such interalliance BIPs could be created and further discussions are at an early stage with the FOREU4ALL network providing a space for collaboration.

CHARM-EU

From its [founding](#), CBL has been a core feature of the CHARM-EU Alliance’s identity. Focused on challenge-based education, its nine members integrate CBL into [courses](#) based on this approach as a fundamental pedagogical pillar. Through this methodology, they see the potential for students to develop a deeper understanding of academic knowledge, but also key skills needed to successfully navigate the future. A characteristic element of this Alliance’s commitment to CBL is their [Master’s programme in Global Challenges for Sustainability](#) which was launched in 2021, which aims to provide students with skills that enable them to address global challenges ahead. Furthermore, since the start of the MSc programme, CHARM-EU has also been training its academics to design and teach within a CBL frame-work. This represents a high level of its institutionalisation within their work.

The relevant role of CBL for CHARM-EU is evidenced in its official [Pedagogical Guidelines](#), where CBL is placed as a core educational principle, alongside research-based education. Moreover, the development of additional skills presented by UNESCO is highlighted, such as collaborative decision-making, communication, creativity, critical thinking, and proactivity.

EU-CONEXUS

While CBL is not a defining characteristic of the founding identity of EU-CONEXUS, it is part of the Alliance's pedagogical framework. For EU-CONEXUS, the CBL approach provides guidance for integrating real-life challenges from business, society, research, and education, alongside student action. Its objective is to promote cross-sectoral collaboration, civic engagement, entrepreneurial mindsets, and employability.

They [refer](#) to the impact of CBL as the possibility of bridging the gap between theoretical knowledge and practical application, fostering long-term retention of concepts, and meaningful learning experiences. Not only academic but also personal growth are considered beneficial outcomes. In relation to the influence it can have on students' learning process, EU-CONEXUS emphasises that it contributes to *“increased student engagement and motivation; improved problem-solving, critical thinking, communication, and collaboration skills; enhanced ability to apply theoretical knowledge to real-world situations; and greater preparedness for future professional challenges and opportunities.”*

EUROTeQ

This alliance is committed to modernising education through the initiative EuroTeQ Collider, which aims at bringing diverse learners together to collaborate and tackle real-world challenges for sustainable futures. Linked to the United Nations Sustainable Development Goals (SDGs), it builds on co-creation within the EuroTeQ ecosystem to tackle societally relevant challenges while developing or improving students' personal and professional skillset in the process.

The term “Collider” reflects how ideas from teams of diverse learners with interdisciplinary and international backgrounds collide, creating a spark for innovation. Embodying this idea, the Collider facilitates direct collaboration with industry partners, startups, academics, governmental and societal institutions. The Collider takes place locally at each EuroTeQ partner institution and culminates into a joint EuroTeQathon hosted by rotating partner institutions, as well as further entrepreneurial learning opportunities. The Collider aims to provide an innova-

tive learning experience to all, enabling them to build new competencies while elaborating viable solutions. Hereby the Collider journey is a key driver for EuroTeQ's mission to generate positive societal impact, especially through its proactive approach to sustainability, the Collider theme for 2023–2025 is *Enhance Connections for sustainable futures*.

EUGLOH

The EUGLOH Alliance has established CBL as a central element of its educational strategy through the [EUGLOH Living Lab](#) initiative. The Living Lab operates as a collaborative, co-creation ecosystem where students, researchers, and academic staff, together with external stakeholders, jointly design, implement, and refine innovative learning experiences in real-world contexts. By connecting academia with society, the initiative promotes multidisciplinary collaboration, experiential learning, and active engagement with societal challenges, ensuring that educational activities respond to authentic needs and foster meaningful impact beyond the university environment.

In this perspective, each LivingLab is co-constructed with diverse intercultural partners, contributing to the development of the competencies of the future in alignment with our common [EUGLOH Competences Framework](#). To date, the Living Lab has successfully co-created six innovative courses, some of which have already been delivered in multiple editions across the EUGLOH Alliance, demonstrating the sustainability, scalability, and continuous improvement potential of this CBL model.



5. Recommendations for universities, societal stakeholders, Alliances and policy makers

CBL at the core of ECIU University's mission to connect education, research, and society through real-world challenges. By engaging learners, educators, and external stakeholders in collaborative problem-solving, CBL has the potential to generate meaningful impact in skills development and addressing pressing societal needs. Maximising this impact requires continuous refinement of how CBL is designed, implemented, and supported across the network and by society and policymakers.

The following recommendations focus on strengthening the effectiveness of CBL within ECIU University, and beyond, in Europe's higher education. To enhance the development of relevant skills among learners, improve collaboration with societal partners, and increase the uptake and sustainability of challenge outcomes. By aligning pedagogical practices, institutional structures, and stakeholder engagement strategies, these recommendations seek to ensure that CBL delivers on its promise as a transformative educational approach.



5.1 Recommendations for universities

CBL can be implemented across a wide variety of formats and institutional contexts, reflecting the flexibility of the approach and the diverse needs of students, universities, and community partners. At the institutional level, CBL may be embedded intracurricularly integrated directly into degree programmes or delivered extracurricularly, providing experiential learning outside formal academic requirements. This distinction shapes key design decisions including interdisciplinarity, duration, learning spaces, and assessment approaches. In terms of duration, CBL ranges from short-form intensive experiences, such as week-long courses or even shorter hackathon-style events to semester long or even year-long projects that allow for deeper community engagement and more iterative problem-solving.

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shorter hackathon-style events to semester long or even year-long projects that allow for deeper community engagement and more iterative problem-solving.

5.1.1 Role of university management in enabling CBL

University leadership plays a critical role in the successful and sustainable implementation of CBL. Beyond endorsing CBL as a pedagogical approach, management must actively create the structural, cultural, and operational conditions in which it can thrive. This includes embedding CBL in institutional strategies and education portfolios, aligning it with programme-level learning outcomes, and recognising its contribution to the university's missions of education, research, innovation, and societal engagement.

Effective support requires adapting governance and incentive systems: allocating dedicated time and resources for interdisciplinary course design, recognising staff engagement in CBL within workload models and career progression, and investing in professional development for teaching staff in facilitation-oriented pedagogies mostly achievable through the teaching enhancement units at each university. Management should also ensure enabling frameworks for collaboration with external stakeholders, including legal, administrative, and partnership support structures that reduce barriers for engagement with industry, public sector, and civil society actors.

In addition, universities should provide flexible curricular and organisational models that allow CBL to be implemented across formats (e.g. within programmes, as micro-credentials, or in Alliance-based learning opportunities), supported by appropriate digital infrastructure and learner guidance services. Strategic alignment with European initiatives—such as microcredentials, flexible learning pathways, and European Universities alliances—can further amplify the impact and scalability of CBL.

Ultimately, university management enables CBL not only by supporting individual initiatives, but by fostering an institutional culture that values experimentation, collaboration, and societal impact as core dimensions of higher education.

Investing in management support for CBL yields tangible returns across time horizons. In the short term, it enhances student engagement, visibility, and attractiveness of programmes. In the medium term, it strengthens partnerships with industry and society, improves graduate employability, and increases access to competitive funding opportunities aligned with EU priorities. In the longer term, it contributes to institutional differentiation, reputation as an innovation leader in education, and the development of sustainable ecosystems linking education, research, and societal impact.



5.2 Recommendations for societal stakeholders

CBL offers societal stakeholders—including SMEs, employers, public bodies, and community organisations—a structured mechanism to engage with higher education and contribute to the development of a future-ready workforce. Societal stakeholders can use CBL as a mechanism to engage with emerging talent and support students' transition into the workforce through sustained interaction, mentoring, and applied projects. Participating as challenge providers, mentors, and collaborators, stakeholders can help address skills gaps and improve graduates' understanding of real-world work contexts, while also strengthening recruitment pipelines. Engagement in CBL supports sustained relationships between universities and external partners, contributing to regional innovation systems and knowledge exchange.

To maximise benefits, stakeholders should participate consistently in CBL communities, provide formative feedback on student work, attend student presentations, and support staff involvement in mentoring and educational engagement. Such collaboration enables organisations to access fresh perspectives on complex challenges, identify emerging talent, and co-develop solutions, while positioning CBL as a catalyst for dynamic knowledge ecosystems that align education, industry, and societal needs.

A recurring challenge in these partnerships is the structural difference in pace between academic and external agendas. Universities operate on semester cycles and curriculum governance timelines that can feel misaligned with the faster, more iterative needs of SMEs and community organisations. If unmanaged, this risks frustrating partners and undermining the sustainability of CBL relationships. Mitigation strategies include co-designing challenge briefs before the programme begins to align expectations early; building in milestone-based checkins rather than relying solely on end-of-semester presentations; offering short-form or extra-curricular formats that sit outside standard academic calendar constraints; and designating a CBL liaison role within the institution to reduce the administrative burden on smaller partners with limited capacity.

Further research is needed to better align academic structures and calendars with the needs of local SMEs and societal stakeholders, ensuring that universities can respond to urgent real-world challenges in a timely way. Collecting and disseminating examples of successful cross-sector CBL collaboration would also be valuable, both as evidence of impact and as inspiration for institutions and partners considering new engagements. For practical guidance on implementation, see *Annex A: A Practical Guide to Challenge-Based Learning*.



5.3 Recommendations for European Universities alliances

As outlined in the introduction to this paper, several alliances are already using CBL including EUGLOH, CHARM-EU and EU-CONEXUS. Through initiatives such as BIPS, Alliances can also create 'interalliance' learning opportunities. For example, during a CIVIS training programme at the [University of Bucharest in October 2025](#), representatives from several different Alliances created prototypes of how such interalliance BIPs could be created.

Also, further discussions are at an early stage with the FOREU4ALL network providing a space for collaboration. This would be an innovative arena in which practitioners of CBL (and other active learning approaches) from different alliances could come together to apply best practices from CBL application in their individual alliances into new, collective ways of implementation.

In addition to student implementation, staff from different Alliances can continue to share best practice through webinars and other training events. For example, in April 2025 CHARM-EU organised a webinar for representatives from other Alliances, including ECIU University to present their experiences of using CBL.

Finally, events such as the [International Challenge Based Learning Conference](#) which was hosted by the Eindhoven University of Technology in 2023 and 2025 are excellent arenas for which CBL experts and practitioners to meet and be inspired by the diversity of implementation in the field.



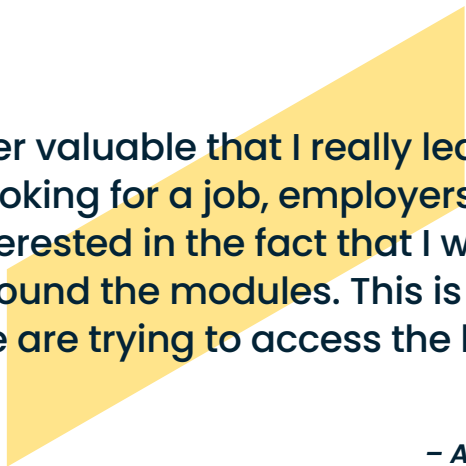
5.4 Recommendations for policy makers

Policy makers at both the European and national levels should actively facilitate the adoption of CBL because it equips learners with the critical, transversal, and innovation-oriented skills required to address complex societal and economic challenges. By linking education to real-world problems—such as climate change, digital transformation, and social inclusion—CBL strengthens collaboration between educational institutions, industry, and communities, thereby enhancing employability and fostering a more agile, future-ready workforce. At the European level, supporting CBL aligns with strategic priorities like the Union of Skills, while at the national level, it can modernise curricula, improve student engagement, and reduce skills mismatches.

To scale CBL effectively, and reach the full potential of the pedagogy, several recommendations can be formulated:

- The need for coordinated policy support, funding, and regulatory frameworks, ensuring that education systems remain relevant, inclusive, and capable of driving sustainable innovation across Europe.
- Study programmes need to be more flexible to support CBL inclusion. For example, adopt Bologna rules, e.g. give stronger evidence and support that a 120 ECTS study programme should have more than 6 ECTS for transversal competences.
- Support that more that micro-credentials are recognised as proof of learning, for example in quality assurance frameworks, the European Standards and Guidelines (ESG) and complementary to the three-cycle degree structure of the Bologna process.
- Make ERASMUS+ short term mobility easier so that each student once in its study program has an option to participate in short-term mobility (STM).

By embedding CBL in university curricula, students can participate in ERASMUS+ short term mobility, have internationalisation-at-home experiences and the opportunity to engage with international and interdisciplinary teaching and learning offers early and based on their own interest. All this substantively contributes to the development of flexible-learning pathways that reflect how students approach education in the 21st century.



“Something super valuable that I really learned was that when I started looking for a job, employers were pointing out and were interested in the fact that I was able to learn different skills around the modules. This is very rewarding later on when we are trying to access the labour market.”

– Alicja Zielińska,
*ECIU student from Lodz
University of Technology*

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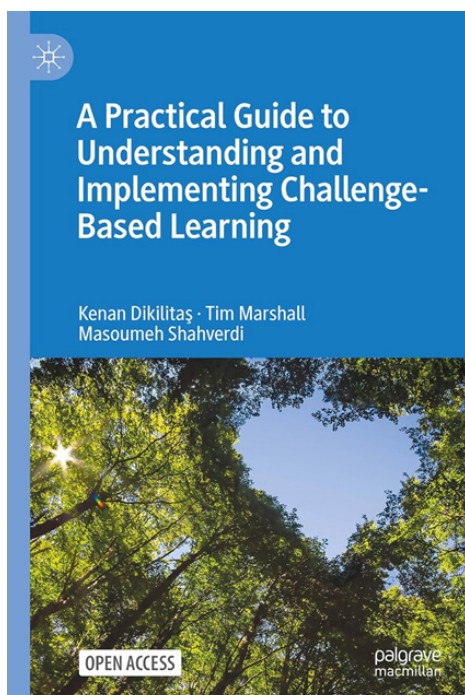
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Appendix: 'A Practical Guide to Understanding and Implementing Challenge-Based Learning' book

Published in January 2025, this book is aimed at researchers, teacher educators/trainers, education policy makers in higher education as well as other stakeholders. It provides a comprehensive foundation of CBL theory and a practical guide to assessment and implementation. It showcases CBL practice across the ECIU and beyond through a case study approach, categorised into a micro, meso, macro level framework that highlights the flexibility and diversity of the model. Finally, it synthesises the benefits of CBL for students, educators and stakeholders and makes recommendations for wider implementation. It is open access and available to download in full here: [A Practical Guide to Understanding and Implementing Challenge-Based Learning | Springer Nature Link](#)

"The content is valuable as an authentic practical guide with actionable inputs. So useful when you wish to implement a new methodology on a rather big scale."

*-Caroline Hanras,
International Relations
Director and WP lead at
the ChallengeEU Alliance*



8 CBL pioneers from the ECIU contributed case studies of best practice in CBL for the book:

- Dublin City University, Ireland
- Kaunas University of Technology, Lithuania
- Linköping University, Sweden
- Hamburg University of Technology, Germany
- Universitat Autònoma de Barcelona, Spain
- University of Stavanger, Norway
- Università degli Studi di Trento, Italy
- University of Twente, The Netherlands