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Re-Imagining Higher Education Institutions as Inclusive Entrepreneurial Entities: the case of European University of Technology (EUt+)

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Abstract

The requirement to transform higher education institutions (HEIs) to become inclusive entrepreneurial entities is underpinned by policy and by changes over past decades on the role and linkages of universities to their environment. This paper aims to understand how HEIs are transforming as inclusive entrepreneurial entities using the European University of Technology (EUt+) as a case in practice. The study draws on a conceptual framework developed by O'Brien, Cooney and Blenker (2019) for expanding university entrepreneurial ecosystems to under-represented communities. The framework is used to identify points of decision and action as well as to identify tools and instruments that can capture data as EUt+ progresses. The contribution of this paper provides firstly, a preliminary insight into how EUt+ as a European University Alliance is progressing as an inclusive entrepreneurial HEI and secondly, progresses the O'Brien, Cooney and Blenker (2019) framework from conceptual to practice, in particular on monitoring and evaluation of the inclusive entrepreneurial HEI.

Keywords

higher education institutions, European University of Technology, inclusion, entrepreneurship, ecosystems

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Introduction

For over a decade the European Commission has highlighted the need to build an innovative enterprise sector that is dynamic and is focused on sustainable development, that can provide more and better jobs especially among younger generations (European Commission, 2012, p. 21). The Sustainable Development Goals (SDGs), were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Education, and in particular higher education, is an important driver to achieve ambitions set out in the SDGs. Incorporating creativity, innovation and entrepreneurship into education enhances individual capacities to turn ideas into actions, stimulates creativity and risk-taking, and the ability to plan and manage projects. Through adequate entrepreneurial education, EU member states aim to improve young people's entrepreneurial attitudes, increase employers skills, encourage the creation of innovative businesses, and increase the role of young generations and entrepreneurs in society and economy.

The SDGs stress the comprehensive nature of education for peace and sustainable development. Education has a decisive impact on changes in the way that societies are coping with national, regional, and global challenges embedded in SDGs (Fleaca, Fleaca and Maiduc, 2018). Entrepreneurial higher education institutions (HEIs) that strategically place the SDGs at their heart create value for all stakeholders by capturing social, environmental, and economic concerns. This implies that they are not only entrepreneurial but also inclusive. Nevertheless, a way by which universities can combine traditional teaching and research objectives with those of stimulating inclusive entrepreneurship among younger generations remains a considerable challenge.

From a policy perspective the European Commission has focussed attention on the need for more entrepreneurial HEIs for a number of years. The EntreComp framework developed in 2016 aims at creating a common language between different levels of education and training. It recognises the opportunity to be entrepreneurial in any situation: from school curriculum to innovating in the workplace, from community initiatives to applied learning at university. The EC encourages HEIs to systematically integrate principles of entrepreneurship within their curriculum, regardless of their discipline, and type of institution. In the EC's long term partnership with the OECD, tools such as

HEInnovate are developed as an entrepreneurial capacity building diagnostic. Funding streams have also been developed such as the EIT HEI Initiative for innovation capacity building. In an increasingly globalised world, it is recognised that it is important for staff and students to recognise and develop certain behaviours, skills and attitudes that are essential for surviving and succeeding in environments with high levels of uncertainty and unpredictability.

This paper aims to understand how HEIs are transforming as inclusive entrepreneurial entities using the European University of Technology (EUt+) as a case in practice and in progress. EUt+ is an alliance of eight European universities of technology. The study draws on a new conceptual framework developed by O'Brien, Cooney and Blenker (2019) for expanding university entrepreneurial ecosystems to under-represented communities. By collecting data on categories of 'consideration and decision areas' within the framework and 'entrepreneurial outcomes' the study explores the extent to which EUt+ is becoming an inclusive entrepreneurial entity in this early phase of its development. The paper also draws on the Framework to identify tools and instruments that can capture this data as EUt+ progresses, in particular for measurement at the end of its pilot period in October 2023 and beyond.

EUt+ was created as a European University Alliance in November 2020 with diversity, inclusion, technological and entrepreneurial ambitions pronounced in its strategic intent documents and within its Mission and its Values. At the core, EUt+ wants to become 'an entrepreneurial entity in itself from its inception, making it a key resource in the design and development of the organisation and its culture'. Simultaneously the Value Statements of EUt+ highlight that members act with a pioneering spirit and foster creativity. The EUt+ Vision is developed along principles of a human centred approach to technology where diversity is an opportunity, and an inclusive university will be developed where everyone feels welcome.

The contribution of this paper is twofold. Firstly to provide a preliminary insight into how EUt+ as a European University Alliance is progressing as an inclusive entrepreneurial entity; and secondly in applying the O'Brien, Cooney, Blenker (2019) conceptual framework in practice highlighting and exploring useful contexts for its application.

The next section provides a literature review on inclusive entrepreneurial higher education institutions including transformation and evaluation of HEIs. This is followed by detailing a methodology in terms of how the conceptual expanded entrepreneurial ecosystem framework is applied in practice. Findings and conclusions follow the methodology.

Literature Review

The inclusive entrepreneurial higher education institution

The literature on entrepreneurship in HEIs highlights evidence of a change in emphasis in entrepreneurship education in recent years (O'Brien and Cooney, 2016). There are different models for the transformation of the traditional university as described in the academic literature, such as Clark (1998, 2004), Etzkowitz (2003) and Etzkowitz, Webster, Gebhardt, and Terra (2000), Nelles and Vorley (2010a) and Rothaermel, Agung, and Jiang (2007). In general, these models emphasize the transformation from a hybrid, Humboldtian or traditional university model, based on teaching and research, to a more engaged and entrepreneurial university (Clark, 1998, 2004; Etzkowitz, 2013; Etzkowitz and Zhou, 2017; Tijssen, 2006). The study of entrepreneurial HEIs have adapted a number of approaches including those within the entrepreneurship literature such as Lumpkin and Dess' (1996) entrepreneurial orientation (Daz-Sota, Souza and Benner, 2021).

Entrepreneurship is an essential political priority and governments seek to employ entrepreneurship education as a means to stimulate higher levels of economic activity (O'Connor, 2013). With the increasing importance of HEIs in the regional innovation and governance system, entrepreneurship and enterprise development programs institutionalized within universities have had exceptional growth in recent years (Dill 1995; Morris et al. 2013; Sá 2011; Sam and Van Der Sijde 2014). Entrepreneurship centres are creating innovative curricula and experiential learning to train current and next-generation entrepreneurs. They also incubate new firms and nurture their growth through collaboration with governments, business communities, and different organizations (CFEE 2014).

Education can thus play a critical role in the development of enterprising graduates by identifying and encouraging aptitudes or by helping to promote entrepreneurial behaviours and intent (Ferreira and Trusko, 2018). The scope of entrepreneurship education is continuously broadening, from traditionally a business school topic, to now include other departments and faculties (Karlsson and Moberg, 2013). This is built on clear evidence showing that entrepreneurial education influences entrepreneurial intentions and entrepreneurial passion (Uddin et al. 2022; Penna-Alaya and Villeaus-Breuman, 2020). The entrepreneurship pathway helps address the unemployment challenge among university graduates by stimulating interest in developing entrepreneurial ventures as a viable career option. Indeed, it is argued that higher education more generally stimulates entrepreneurship instilling a range of competences among students to perform an employment, self–employment, or entrepreneurial duty enabling their personal growth (Chatterjia & Kiranb, 2017).

The positive impact universities may have on social and economic development is also acknowledged by the linkage of entrepreneurship, concretely involving inclusive entrepreneurship to ensure equity, sustainability an lifelong learning. Social entrepreneurship is emphasized as a key concept to engage business and civil society in addressing emerging social challenges and reducing inequalities and enhancing social cohesion (UN, 2016). The concepts of social entrepreneurship and sustainable development are crossing paths (Piccolitti, 2017). In the United Nation proposal to integrate entrepreneurship in the education curriculum (UN, 2014), universities around the world are encouraged to inform students about the demands of diverse communities (Rountree, 2015). Government support on this is also important for encouraging social entrepreneurship through supporting and facilitating entrepreneurship education and research and thereby supporting sustainable development (Bansal, Garg, Sharma, 2019).

In general educators have an increasingly positive attitude towards inclusive education (Guillemot, Lacroix and Nocus, 2022). HEIs are anchor institutions and intermediary enablers critical to fostering inclusive entrepreneurial ecosystems and equitable growth through entrepreneurship (Wang, 2021; O'Brien et al. 2019). Even accessing higher education, large informal entry barriers to tertiary education can exist even if formal barriers are low and this influences extremely large differences across social groups accessing higher education (Jackson, 2013). HEIs in this role as intermediary enablers can be facilitators of institutional reforms that together with powerful policy interventions can be aimed at fostering study progression of disadvantaged students (Contini and Salza, 2020).

Transforming towards an inclusive entrepreneurial ecosystem

The concept of an 'entrepreneurial ecosystem' in the academic literature usually refers to the dynamic and mutually reinforcing environment between a community of interdependent actors that supports entrepreneurship (Isenberg, 2011; Spigel, 2017). Universities are key stakeholders in such ecosystems as feeders to start up communities (Feld, 2022), and holders of interdisciplinary knowledge that can respond to the many challenges in contemporary society. Morris et al. (2017) suggested that universities operate at two levels in terms of entrepreneurial ecosystems, since they serve as one of the most valuable elements within regional ecosystems, while also operating their own internal ecosystems. A well-developed university wide entrepreneurial ecosystem can lead to the development of students with an entrepreneurial mindset and the creation of graduates with entrepreneurial intentions (Isenberg, 2010).

More inclusive models and approaches adopted by HEIs contributes to the development of students as critical and active participants in a democratic process. Cultural and diversity issues

can be highlighted, and collective responsibility is promoted (Keane, 2015). Inclusive models based on collegiality, learner-centred principles, and power sharing can ensure that students become important and active participants in a democratic process reflecting on their learning and accepting responsibility. There is an underlying assumption within entrepreneurial ecosystem frameworks that all entrepreneurs will have equal access to resources and support, but this may not always be true (Brush et al., 2018). The OECD recognises the Missing Entrepreneurs (OECD, 2021) as women, migrants, the unemployed, seniors, people with disabilities and young people. These groups are disadvantaged within entrepreneurial ecosystems because of barriers such as access to finance, social capital and networks, lack of mentoring and role models (e.g. Galloway and Cooney, 2012; Drakopoulou Dodd and Keles, 2014).

Individual educator initiatives are useful to support small cohorts of underrepresented groups to start a business. There is a need however to create inclusive entrepreneurial ecosystems to complement entrepreneurship education (Olutuase et al., 2018). Miller and Acs (2017) describe a strong ecosystem as involving alumni, partners in industry and commerce, joint research projects and incubators, all of which can offer opportunities to provide encouragement, the practice of ideas, and the development of an entrepreneurial mindset and increased entrepreneurial intentions. Entrepreneurial ecosystems can also help to provide social support, which has been found to positively influence entrepreneurial intentions for non-traditional groups (Farooq et al., 2018).

The capability of HEIs to act as entrepreneurial universities by combining their scope of responsibility (i.e., social, environmental, and economic) within the value chain (research and development, teaching and learning, knowledge exchange and technological transfer) through a practical and effective mechanisms are needed to align HEI strategy with envisaged sustainable development goals (SDGs) (Fleaca, Fleaca and Maiduc, 2018). This is not an easy transformation process however. There is a wide range of definitions and roles ascribed to entrepreneurs and entrepreneurship in HEIs, creating layers of opaqueness. The complexity of entrepreneurship is evident when considering the number of disciplines that have contributed and at times converged in attempts to explain it (Hart, 2003). Audretsch (2004, p. 167) claims that ‘entrepreneurship does not correspond nicely with any established academic discipline…’ and Pittaway (2005, p. 201) observes that ‘the concept of the ‘entrepreneur’ and the function of entrepreneurship in society have ranged extensively within theories’.

Indeed, HEIs often run parallel strategies and agendas to encapsulate the importance of both inclusion and entrepreneurship. For example gender equality charters like Athena Swan are not

necessarily considerate of entrepreneurial dimensions. Similarly, traditional entrepreneurship language, education, tools and frameworks have been shown to favour men rather than women or Missing Entrepreneur groups (e.g. Ferreres-Garcia, Hernandez-Lara and Serradel López, 2021; Elliott, Maviplia, Anis, 2020). For entrepreneurship in STEM, scholars describe the 'triple gendered' situation – technology, technology studies and the gendered environment of academic incubation hubs that support start-up (Reyes and Noorgaard, 2023). Some models for transformation of HEIs towards a more entrepreneurial orientation are beginning to emerge in the literature. Gheorghiu et al. (2021) provide a case example of 'Ovidius' University and its entrepreneurial transformation strategy. They state the importance of an inclusive approach and a network perspective in their methodology. The extent to which they are capturing non-traditional communities is not so clear however as they draw on public tools and data sources such as the HEInnovate tool, EuroStat, and Global Entrepreneurship Monitor that are quite weak on capturing elements of access and diversity.

The Progression Model is currently espoused as an approach for how to introduce and develop entrepreneurial education as an enabling approach to the transition in higher education (Kluznik-Toro, 2021). This could serve as an integral part of a paradigm shift towards an entrepreneurial university. In their study Kluznik-Toro define the Progression Model as: 'a pedagogy-driven approach involving learning through the successive stages of a learning loop process comprising theorization, experience, action, and reflection. The pace of the process and its starting point is subject-specific and dependent on its main stakeholders—academics and students' (p7). Concurrently, studies at the interface of design and science consider entrepreneurial frameworks. One attempt by Romme and Rayman (2018) attempts to frame a methodology that systematically connects creative design and scientific validation in an interactive way that drives the continual renewal of the entrepreneurship field, unlocking potential of a body of knowledge that is both rigorous and relevant. However, combining design and validation is a continual administrative responsibility, requiring sustained attention and support by deans, group chairs, and research directors (Rousseau, 2012; Schön, 1987; Simon, 1967) as well as by external stakeholders. These studies are encouraging of where universities are trying to progress, but they also recognise the problems in terms of management commitment, fragmentation, resourcing, roles and responsibilities.

Drawing on the progression model approach, O'Brien, Cooney and Blenker (2019) through an extensive literature review have conceptualised a framework that expands to encapsulate underrepresented communities into university entrepreneurial ecosystems (Figure 1). Six key considerations are derived where decisions can be organised – 1. teaching and learning, 2.

multidisciplinary approaches, 3. culture, 4. resources, 5. stakeholders and 6. Infrastructure. These are areas where actors in a university ecosystem need to consider and decide upon.

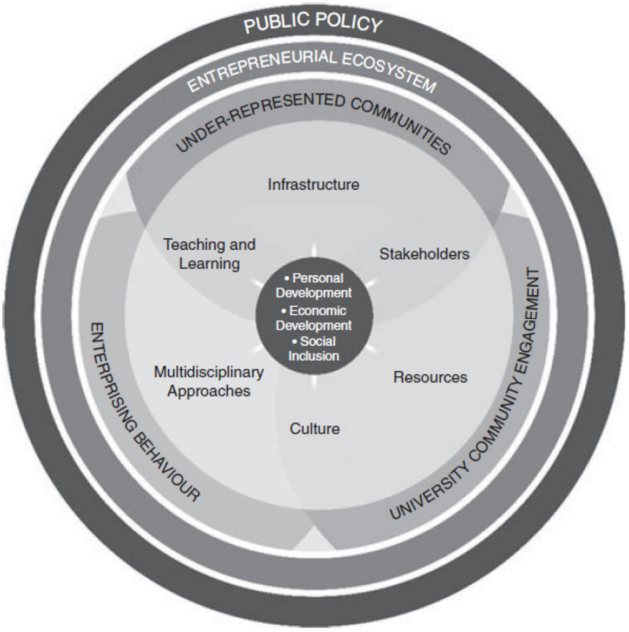

Figure 1. Framework for expanding university entrepreneurial ecosystems to underrepresented communities

Applying the framework proposes outcomes at three distinct levels: personal development (individual learning), social inclusion (collective agency) and economic development (structural development). The personal development refers to the classical ambition of universities to educate individuals. The focus on under-represented communities directs attention to groups of learners that hitherto have not received sufficient attention from universities. Social inclusion represents the ambition to stimulate under-represented communities into entrepreneurial activities. This is realised through collective actions by the agents of the ecosystem. Within a longer time horizon, the combination of learning and inclusion of under-represented groups should support economic development amongst under-represented groups. The combination of these three outcomes is unique to under-represented communities as the authors suggest that other university-led activities are usually concerned with just one (possibly two) of these outcomes.

Evaluating the HEI entrepreneurial ecosystem

There is little evidence for how models and frameworks are applied in terms of what tools and instruments are appropriate to monitor and evaluate progress of an inclusive entrepreneurial

ecosystem. Georgiou's study for example appears to rely on indices and statistical data although it is well recognised that such public data sources such as EuroStat are not good on supporting gender and diversity. Indeed because of this lack of data, the European Innovation Council put out a call in 2022 to fund a new Innovation Gender and Diversity Index that can better inform and improve stakeholder supports and initiatives.

Other studies such as Fuller and Pickernell (2018) identify groups of entrepreneurial activities that allow university activities to be identified within distinct groups. Ranking systems can be identified from this and it also allows better understanding of how universities are engaging in commercial activities in certain areas.

The EC's HEInnovate Tool is integrated into some research designs for example to understand correlations between different pillars of the Tool (e.g. Badulescu, Perticas, Hatos, Csintalan, 2018). In this Badulescu et al. study the analysis reveals a very strong correlation between the pillars 'Leadership and Governance' and 'Organisational Capacity: Funding, People and Incentives', and between 'Knowledge Exchange and Collaboration' and 'The Internationalised Institution', respectively. The authors however adopt a cautionary approach to such a methodology highlighting further investigation needed on differences relative to national and EC statistics.

Results from more traditional survey instruments and qualitative tools also shed light on entrepreneurial ecosystems. A study of 1277 HEI students in Finland suggests that formal institutional support has a greater impact on students' perceptions of entrepreneurship culture than student driven activities. Furthermore, the results highlight that the encouragement of teachers has a greater influence on students' perceptions of entrepreneurial culture than peer students and student-driven activities (Lahikainen, Peltonen, Oikkonen, Pihkala, 2021).

Such studies can help to direct and improve ecosystem activities and initiatives to be more affective. By drawing on the expanded entrepreneurial ecosystem framework evaluation and analytical tools and instruments can be organised to emphasize key decision and outcome areas.

Methodology

Context and Setting

This study explores how the European University of Technology (EUt+) is developing into an inclusive entrepreneurial ecosystem drawing on the O'Brien, Cooney, Blenker (2019) framework. EUt+ is a European University Initiative involving eight technology universities across Europe located in Ireland, Germany, France, Spain, Latvia, Bulgaria, Romania and Cyprus. It was created in October 2020 with three year funding from the European Commission to develop an alliance

during 3 year pilot phase. Over the next years EUt+ plans to move to a more federative structure, progressing in the longer term to a confederate structure involving a single European University of Technology with eight campuses across Europe.

EUt+ has stated in its origin documents the desire to be an 'entrepreneurial entity from the outset'. It's ambition is set out to deepen the connections of EUt+ with its ecosystems and link its diverse territories for inter- and intra-regional knowledge exchange and collaboration with stakeholders, including industry, government, civic and community organisations. Adopting the EntreComp definition of entrepreneurship, EUt+ promotes an entrepreneurial culture and mindset in its students and staff and in its stakeholder organisations throughout its regions. The EntreComp definition is adopted to ensure EUt+ is more accessible, innovative, responsive and agile in its dealings not just with industry and businesses but with civic and community stakeholders also.

Diversity and inclusiveness are at the core of EUt+ and reflected across the EUt+ Vision, Mission Statement and Values.

EUt+ Vision:

'We Think Human First, we are the European University of Technology. We empower our complementarities within a single home institution. We enable all people and places to fulfil their potential in campuses throughout Europe. We create futures.'

EUt+ values: Think Human First

'Technology is first and foremost human'
'Diversity is opportunity'
'An inclusive university'

EUt+ Mission:

'Europe requires top quality education for diverse groups.'
'Everybody, regardless of background, should be able to study and succeed in our university.'
'We are driven by the diverse needs of our regions, aware of the global challenges of our times and capable of having a true impact on people's lives.'

These strategic statements within the establishment documents of EUt+ demonstrate an impression of EUt+'s role within the European ecosystem and are desire towards an inclusive entrepreneurial entity.

Research design

Adapting the O'Brien, Cooney, Blenker (2019) framework the research design will involve the collection and analysis of evidence against the six consideration and decision areas identified in the framework comprising 1. Teaching and learning; 2. Multidisciplinary approaches; 3. Culture; 4. Resources; 5. Stakeholders; and 6. Infrastructure. These are described in Table 1.

Table 1: Six consideration and decision areas for inclusive entrepreneurial HEIs

Teaching and learning	Programmes should be contextualised towards local community needs, with a focus on personal development and growth through active, experiential pedagogy or andragogy.
Multidisciplinary approaches	Universities can utilise the strengths and expertise across disciplines and support offices (e.g. Technology Transfer Office, Alumni) to generate unique offerings for communities.
Culture	Insight into the core values, mission, attributes, objectives and culture of a university that might engage with under-represented communities in entrepreneurship.
Resources	invest in both organisational and governance structures that support third mission and enterprise activities. Supportive university leadership and management is critical.
Stakeholders	supporting under-represented communities in developing enterprising behaviour requires a multi-stakeholder approach involving local business, government supports, community groups, civil society organisations and universities.
Infrastructure	infrastructure, including: the physical campus, technological or digital environment, individual or social networks.

Source: adapted from O'Brien, Cooney, Blenker (2019)

Feedback and analysis on the Entrepreneurial outcomes dimensions of the frameworks can be collected 1. Individually for personal development outcomes; 2. From community organisations and stakeholder interest groups for social inclusion outcomes; and 3. Statistically from institutional and public data sources for structural and economic development outcomes. Sources of data collection for both consideration and decision areas and entrepreneurial outcomes are listed in Table 2.

Table 2: Sources of data collection across EUt+ entity

Consideration and decision areas	**Input evidence collecting**	**Entrepreneurial outcomes**	**Outcome evidence collecting**
1. Teaching and learning **2. Multidisciplinary approaches** **3. Culture**	Course mapping. Case studies. Course design and promotion. Strategic intent statements.	**1. Personal development (individual learning)** **2. Social inclusion (collective agency)**	Participant feedback sheets. Periodic follow-ups. Stakeholder references. Diversity and inclusion monitoring.

4. Resources	Physical, human, intellectual, and financial	**3. Economic development (structural development)**	Public reporting and statistics. New start-ups. Successful EC funding for EUt+ initiatives.
5. Stakeholders	Internal and external network mapping.		
6. Infrastructure	UD audits. Accessible technology guidelines, promotion and staff training. EUt+ deliverable development observations.		

Data collection

The EUt+ Initiative is currently two years through a three year pilot funding period. Much of the first part of this involved knowledge sharing and laying the groundwork for initiatives and evidence gathering. Covid-19 delayed the work. As an Erasmus+ project structure EUt+ has a series of Deliverables that are reported to the European Commission that underpin progress. On innovation capacity building that emphasizes entrepreneurship, the Inno-EUt+ project launched in July 2021 and runs for two years until June 2023. Much of the data and evidence collected to date connects to this work. Another parallel funding that EUt+ partners are involved in is GREENWORAL, an Erasmus+ funding to support green rural female entrepreneurs although work on this project only started in late 2022.

Course mapping:

A mapping of entrepreneurial curricula across the alliance was completed in December 2021 by Inno-EUt+ partner Water Alliance. This gives overview of programmes across partners per stage of entrepreneurship stimulation from inspiration & education to incubation to acceleration to growth. The Inclusive Entrepreneurship Handbook also collected case studies of inclusive course design and Missing Entrepreneurship courses across partners. This handbook was completed in January 2022.

Course design and promotion:

The Climate Entrepreneurship Programme (CEP) underpinned by ClimateLaunchpad is designed for multidisciplinary use. It has been rolled out across partners at PhD, PG, UG levels. Almost 1000 students completed this programme across EUt+ in 2022. The programme is designed for very flexible delivery in person, online, hybrid, block delivery or semester, curricular/co-curricular/extra-curricular. Feedback is collected.

An inclusive entrepreneurship educator network is developed across the alliance with masterclasses and training underpinned by universal design for learning approach. Quarterly lunchtime showcases are held where all are invited to share experiences and to attend. Feedback is collected.

Strategic intent statements:

These are documented above and will remain in place for next round of EUt+ funding in continuation of these ambitions.

Physical, human, intellectual, and financial:

So far most of the human and financial resource dedicated to inclusive entrepreneurial HEI is provided under Inno-EUt+ funding for student and staff development initiatives, in particular climate enterprise. Physical spaces have been utilised such as the Bootcamp in Romania, the Demo Days in Limassol and the Showcase days in Riga and Cartagena where students came together across the alliance to collectively work together and share knowledge. Partners worked with local agencies and infrastructure to support these days.

Internal and external network mapping:

Particular linking in with communities to support underrepresented groups has been minimal to date although some of this does happen at an institutional level. The inclusive entrepreneur educator handbook did have support and input from internal experts on accessible documents and accessible technologies as well as focus on Missing Entrepreneurs.

UD audits. Accessible technology guidelines, promotion and staff training:

Guidelines and checklists for accessible documents and UDL have been shared together high level awareness raising and some training. No in-depth audits or CPD training to date.

Participant feedback sheets. Periodic follow ups:

Participant feedback was collected from inclusive entrepreneurship educator training and also from CEP students. Participant feedback was also collected and analysed in a conference paper relating to a pilot programme for monthly UDL / inclusion seminars across partners. PhD projects in development are likely to encompass periodic follow ups.

Stakeholder references:
These have not been collected to date.

Public reporting and statistics:
EUt+ had it midterm review in April 2021 with some reporting. Inno-EUt+ completed annual reporting in 2021, 2022. Little evidence of economic development other than new start-ups and start up feedback.

EUt+ deliverable development observations and statistics:
There are 39 deliverables in total in the EUt+ Initiative. WP2 has the main responsibility for inclusiveness and embeddedness, notwithstanding that this work is traversal and should influence all work of EUt+ as it develops.

Findings

Within the EUt+ initiative educational work such as hosting monthly seminars on universal design and inclusive education and research more broadly has started across EUt+ partners in collaboration and communication with each other. Similarly European research centres have been developed on sustainability, and importantly the European Culture and Technology Laboratory 'ECT Lab+' launched in 2020 as a pillar of the EUt+ vision to ‘Think Human First’. Within this concern about a human centred approach to technology where diversity is an opportunity and an inclusive institution is emerging. There are interesting observations that are emerging from this positioning. For example, McQuillan *et al.*(2021) describe how in the progress of work designing an XR VR approach to supporting academic mobilities, multiculturalism and multi/plurilingualism the project team show how the understanding of ‘inclusiveness’ is constructed through social interactions in their EdTech project and finally reaches a phase where a consensus emerges for the project team and that is thinking about humans interacting through technology.
In professional services work such as international offices inclusion is also recognised as important and mobility friendly has concepts of multiculturalism and multi-plurilingualism at the

fore also actions on self assessing and planning for more inclusive mobilities. Evidence and implementation of plans is in very early stages however with little evidence or data gathered on diversity. Mainly it is laying groundwork and supports for more inclusive activity.

Within the entrepreneurial initiatives diversity in language and culture are natural aspects of inclusion for a European alliance. Efforts are made through multilingual materials and networks to be more inclusive. Experiences are shared to encourage more inclusive entrepreneurship behaviours and activities within the ecosystem. Table 3 illustrates the beginning of a framing for how an inclusive entrepreneurial HEI can emerge for EUt+ drawing on insights emerging in the literature.

Table 3: Evidence of EUt+ becoming an inclusive entrepreneurial entity

Consideration, decision areas and outcomes	Evidence	Reflections
Teaching and learning	- Multilingual educator handbook (7 languages), masterclasses and EUt+ educator network on inclusive entrepreneurship course design provides supports for local language working groups and strategies. 60 members of inclusive educator network. - Missing entrepreneur case studies and quarterly seminars provide exemplars and experience sharing for EUt+. - UDL training and development ensuring it is embedded into new programmes (2 EUt+ examples of new programmes through BSc Sustainable Development and GREENWORAL rural women programme) - UDL CPD programme piloting in semester 1 2023.	Good progress on educator supports, training and awareness. Also active efforts at knowledge sharing and embedding ideals into new programme development. More comprehensive training on UDL needed. Quarterly seminars will monitor evidence of improvement over time.
Multidisciplinary approaches	- Inno-EUt+ emphasises CEP programme in climate start up across disciplines, levels and delivery formats. Almost 1000 students trained in 2022. - Physical events of Inno-EUt+ involved multidisciplinary teams.	This is well recognised and clear evidence emerging from new programme development and entrepreneurial initiatives. More efforts on inclusion could be embedded.

	-	BSc Sustainable Development is multidisciplinary and includes entrepreneurship component.	
Culture	-	Documentary evidence from Mission, Vision, Values statements. Continuous reaffirming of these across deliverables and review documents. - Continuation of same mission for next round of EUt+ funding. Also new WP dedicated to entrepreneurship and innovation as well as societal transformation and inclusion. Embedding of plans, training and UDL approaches in the deliverables.	The interest of EUt+ to become an inclusive entrepreneurial entity is unambiguous from the mission statements. Also in continuation of that mission and structuring next funding application. Work emerges from the ground up however hopefully from intersectional equity plans and shared manifestos such as women in tech, etc.
Resources	-	Funding from Inno-EUt+ and GREENWORAL that covers direct personnel cost. - Resourcing of WP2 through EUt+ funds and Elara Lab through other funds for pedagogy development. - Global Villages initiative is the beginning of sharing innovation and entrepreneurship space and facilities at EUt+ level. Pledge signed. - Accessible technology resources and guidelines shared.	Specific funding calls have been helpful, particularly Inno-EUt+ and now GREENWORAL. Also resourcing of WPs in the EUt+ calls of specific direct personnel at project management level. Resourcing however for real wide scale action is needed across partners that will hopefully emerge through intersectional equity plans and European funding initiatives. As well as prioritisation of EUt+ and its Mission.
Stakeholders	-	Some internal stakeholder engagement connected to inputs on inclusive entrepreneurship handbook. Also entrepreneurship educators and professional staff.	Community engagement is not strong across all partners. Also internal offices to support access and inclusion. All partners do have some cases of supporting Missing Entrepreneurs however but at different levels.

Infrastructure	- Deliverables on industry civic engagement - Deliverables on inclusion, gender and equality - Pilots and documented plans in implementation on inclusion – including template indicators. - Accessible technologies such as INDIE4ALL and Accessibility THRIVES.	EUt+ is a virtual entity without a legal structure. Deliverables such as good practice reviews and documented plans are the groundwork for further development of EUt+ together to technological supports. The dedication of the innovation and entrepreneurship WP in next call provides a structure for inclusion and social entrepreneurship and behaviours.
Personal development	- Student feedback collected. - Staff feedback collected	Student feedback has not emphasised aspects of social enterprise or inclusion. Staff feedback generally positive in terms of learning and intention to act.
Social inclusion	- Little evidence collected to date. - EUTWISE ecosystem development application.	EUTWISE not successful which would have embedded EUt+ into social enterprise networks across Europe. Data collection on inclusion from pilots and other initiatives not very active yet.
Economic development	- HEInnovate Tool applied in minimal form May 2021 and more comprehensively early 2022 for progress. - New startups from work.	Some new start ups emerging from Inno-EUt+ including useful mentoring. Successful funding applications will be good economic development indicator

Overall, there is evidence across EUt+ since its recent inception of the recognition of inclusiveness as a value and cornerstone of how EUt+ differs from other European University initiatives. There is also evidence of its entrepreneurial spirit and how inclusiveness is a part of this.

Concluding Remarks

Transforming universities and other HE institutions into inclusive entrepreneurial ecosystems is full of challenges and complexities, not least because of the immaturity of models, frameworks and approaches. Fragmented entrepreneurial initiatives across university ecosystems may of course be highly successful and there are many studies of individual teaching or other initiatives that embed inclusion and supports to improve access and participation (e.g. Kauppinin and Chaudhary, 2021; Marselli, Costa and Margiotta, 2014). EUt+ can already report on a number of such initiatives linked into Inno-EUt+ funding and other pilots. Scholars have more recently attempted to group entrepreneurial activity, to adopt institutional frameworks and models and to research the ecosystem more generally providing more material for HEIs to consider. Notwithstanding, the challenges of many transformation initiatives such as management and staff commitment, adequate investment and resourcing are highlighted in the studies. In the end however, European universities have an imperative to align themselves to the SDGs and support EU ambitions for HEIs to systematically integrate principles of entrepreneurship within their curriculum, regardless of their discipline, and type of institution. EUt+ is no different.

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