UASiMAP

Mapping Regional Engagement of Universities of Applied Sciences

National Report Ireland - 2020

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Country
Ireland

Organisation
Technological Higher Education Association

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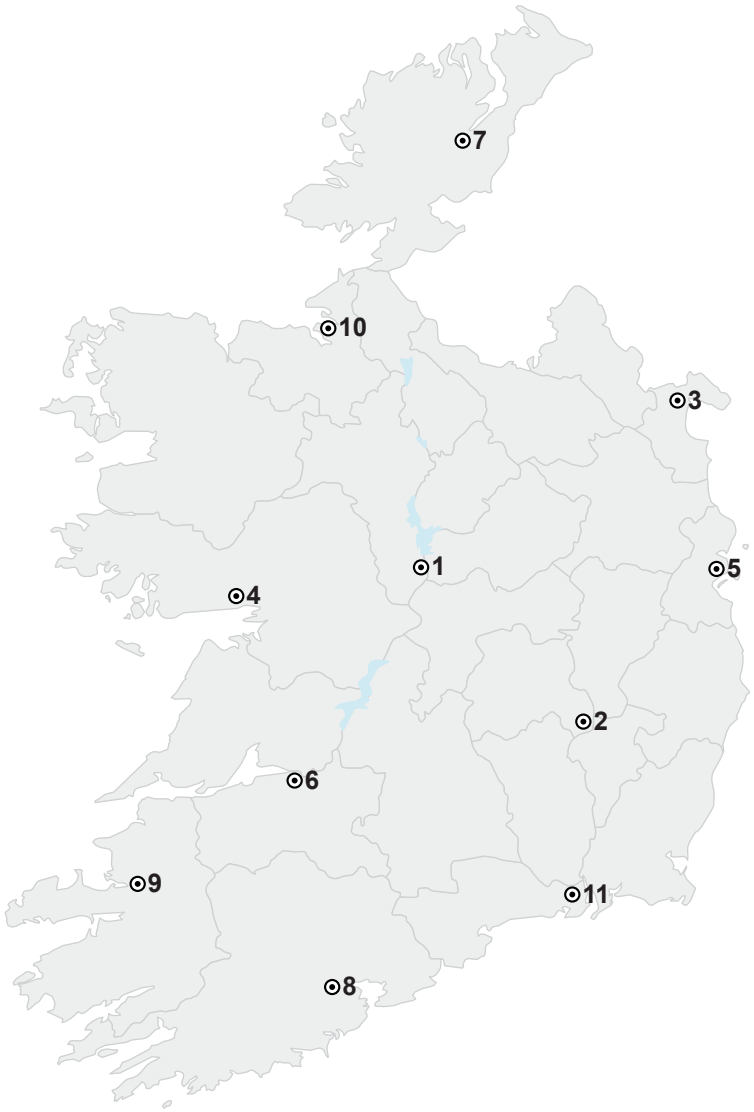
List of UAS for UASiMAP National Report

1. Athlone Institute of Technology (AIT)
2. Institute of Technology Carlow (IT Carlow)
3. Dundalk Institute of Technology (DkIT)
4. Galway Mayo Institute of Technology (GMIT)
5. Institute of Art, Design and Technology (IADT)
6. Limerick Institute of Technology (LIT)
7. Letterkenny Institute of Technology (LYIT)
8. Munster Technological University – Cork Campus
9. Munster Technological University – Kerry Campus
10. Institute of Technology Sligo (IT Sligo)
11. Waterford Institute of Technology (WIT)



1. Introduction

1.1 Project objectives

The regional engagement of higher education institutions has been an important theme that has been researched extensively with results published in a wide range of literature. Some authors emphasise the need for a more prominent role for professional higher education (PHE) in the development of regions and advocate for the involvement of universities of applied sciences (UAS) in the development of the regional strategies.[1]

This report represents one of the key outputs of the ERASMUS+ *project Mapping Regional Engagement Activities of European Universities of Applied Sciences* (UASiMAP). The report describes universities of applied sciences (UAS) in Ireland, which are known nationally as institutes of technology and technological universities (IOTs/TUs), and their regional engagement activities. The purpose of this report is to present important analytical data and explain the present situation, evolution, and trends of development of the Professional Higher Education sector, with a focus on UAS. The report provides a qualitative overview of the variety of UAS regional engagement activities in Ireland and presents examples of good practice at local level. The report also presents perspectives of internal and external stakeholder groups regarding the different activities and forms of regional engagement; UAS contribution to society, the regional economy and community, and explores currently underutilised capacities and possible further development of regional engagement. Discussion with stakeholders also addressed the benefits of regional engagement indicators, appropriate approaches to the measurement of these, and how such indicators could inform self-evaluation.

The collection of national reports prepared by the project partners demonstrates the variety of the European Professional Higher Education sector and provides the background for partners' discussion on the main aims of the project, which are to develop a self-reflection tool to measure regional engagement of UAS and support the development of their further strategies

[1] Foray, D., Goddard, J., Beldarrain, X. G., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., & Ortega-Argilés, R. (2012). Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3). European Commission.
Hazelkorn, E., & Edwards, J., (2019) Skills and Smart Specialisation: The role of Vocational Education and Training in Smart Specialisation Strategies, EUR 29875 EN, Publications Office of the European Union, Luxembourg.doi:10.2760/828852, JRC118229.

2. National Context

2.1 Definition of UAS in your country

UAS members of the Technological Higher Education Association (THEA) are:

- Athlone Institute of Technology (AIT)
- Institute of Technology Carlow (IT Carlow)
- Dundalk Institute of Technology (DkIT)
- Galway Mayo Institute of Technology (GMIT)
- Institute of Art, Design and Technology (IADT)
- Limerick Institute of Technology (LIT)
- Letterkenny Institute of Technology (LYIT)
- Munster Technological University (MTU – Cork Campus, MTU – Kerry Campus)
- Institute of Technology Sligo (IT Sligo)
- Waterford Institute of Technology (WIT)

Institutes of technology/technological universities (IOTs/TUs) are recognised as a major success story in Irish education. IOTs/TUs provide undergraduate and postgraduate programmes of study with a strong focus on the needs of the individual and the workplace, while promoting equality of access, and seamless transfer and progression, to and through programmes of study. All IOTs have delegated authority to make awards up to and including National Framework of Qualifications[2] (NFQ) Level 9 (EQF Level 7). Several IOTs have delegated authority to make NFQ Level 10 (EQF Level 8) awards in specific discipline areas. Technological universities have authority to make awards up to and including NFQ Level 10.

How are UAS defined in your national law system?

Institutes of technology, originally established as Regional Technical Colleges in the 1970s, have a strong legal basis and are included in multiple acts of legislation including the Regional Technical Colleges Acts 1992-1999, and the Institutes of Technology Act 2006. The most recent relevant legislation is the Technological Universities Act 2018.

How is the third role/mission of UAS defined in law?

The *Regional Technical Colleges Act 1992* formally recognised the place of research, development, innovation and engagement (RDIE) in the mission and activities of the colleges; setting out a role to

- *engage in research, development and consultancy work*
- *exploit any research, development and consultancy work*
- *enter into arrangements with other institutions in or outside the State for the purpose of joint programmes in both teaching and learning (Regional Technical Colleges Act 1992, s5)*

[2] The Irish National Framework of Qualifications can be viewed at https://nfq.qqi.ie/

This was in recognition of the growing role that IOTs were playing in regional economic development. The most recent legislation, the Technological Universities Act, specifies a strengthened role for research, development, innovation and engagement activities in this new type of higher education institution.

Research, Development, Innovation & Engagement (RDIE) in IOTs/TUs

Engagement is a core activity for the IOTs/TUs. Engagement aims to link teaching and learning and research and innovation closely together, creating partnerships with business, industry, civic and international organisations. Delivering engagement assists the IOTs/TUs in fulfilling their mission to produce work-ready graduates who are prepared for roles responding to regional and national economic and societal needs. Collaboration with enterprise occurs across curriculum development, workforce development, research, knowledge transfer and new enterprise development.

How is the difference between UAS and research-intensive universities defined?

'Research-intensive universities' (also referred to as 'traditional universities' in Ireland) have scholarly teaching and activities covering a wide range of discipline areas and research activities across the range of technology readiness levels (TRLs) from applied to basic. IOTs have engaged in research that is closer to industry and more closely linked with regional economic needs. Starting from a solid foundation in STEM research, IOTs have expanded their research capability into areas such as the arts, creative industries/technologies, business, social sciences and the humanities.

Traditional universities have always been funded by the state for research activity through a block grant system while IOTs did not historically receive any direct government funding in support of RDIE activity. In 2019, as part of the implementation of recommendations on the reform of the higher education funding system, an annual allocation shared among the IOTs/-TUs to support research & innovation capacity building was introduced.

In 2016 the IOTs accounted for 12% of Higher Education Research & Development Expenditure and traditional universities accounted for 88%.[3]

2.2 Background/history of UAS

The IOTs were originally established as Regional Technical Colleges (RTCs) by legislation in the 1970s. The RTCs were established to educate for trade and industry across a broad range of occupations from craft to professional, mainly in engineering and science but also business and commercial areas. In the late 1990s, the status of regional technical colleges was changed in legislation to *Institutes of Technology*. In addition to a change in name, the IOTs were given greater autonomy and devolved governance structures in recognition of their high standards, including in research and regional development.

The Technological Universities Bill was formally enacted in 2018 and gives effect to recommendations of the National Strategy for Higher Education to 2030 with regard to the institutes of technology, including the development of a new technological university model. The creation of a technological university (TU) requires the merger of at least two institutions. Each

[3] Higher Education Research & Development survey 2016-2017

consortium seeking designation as a TU must meet criteria under eight categories (mission, institutional profile, student profile, staff profile, teaching, learning & curriculum development, research, international profile, and leadership, management and governance). For example, research student enrolments must not be less than 4% of fulltime equivalent (FTE) enrolments at NFQ levels 8-10, increasing to 7% within 5 years of designation. 45% of academic staff must have a Level 10 (typically a PhD) qualification, rising to 65% within 10 years of designation. These criteria represent a step-change in research and innovation activity compared to their predecessor institutes of technology.

There are currently two technological universities, TU Dublin (formed by merger of Dublin Institute of Technology, IT Tallaght and IT Blanchardstown in January 2019) and Munster Technological University (formed by merger of Cork Institute of Technology and Institute of Technology Tralee in January 2021). In April 2021 Athlone Institute of Technology (AIT) and Limerick Institute of Technology (LIT) achieved designation as a technological university, anticipating formal establishment early in the 2021/22 academic year.

There are two further consortia engaged with the process to become designated as technological universities:

- Technological University for the South-East Ireland (TUSEI), consisting of Waterford Institute of Technology (WIT) and Institute of Technology Carlow (IT Carlow).
- Connacht Ulster Alliance (CUA), consisting of Galway Mayo Institute of Technology (GMIT), Institute of Technology Sligo (IT Sligo), and Letterkenny Institute of Technology (LYIT).

Two IOTs are actively considering strategic options in this matter.

2.3 Description of the UAS sector and programme

Table 1[4] Number of students					
	2017/18	2018/19		2017/18	2018/19
Number of HEIs students	235,644	228,218	Number of UAS students	68,801	64,359

Table 2[5] Number of students 2019 at different types of HEIs	University	UAS	Other HEIs
	125,836	125,836	38,023

[4] Tables 1 and 2 provide student enrolments 2018/19. Source: Higher Education Authority (https://hea.ie/statistics/data-for-download-and-visualisations/enrolments/2018-19-enrolment-data-pivot/) One traditional university, TCD, is included in 2017/18 value but excluded in 2018/19

[5] Ibid

	Private institutions[6]	Public institutions	Other (specify)
Table 3 Number of students at different legal forms	27,000 (11%)	UAS: 64,359 (25%) Universities: 125,836 (49%) Other HEIs: 38,023 (15%)	-

Table 4 UAS Student Enrolments by Discipline Area	
Business, Administration, Law	25.2%
Eng, Manufacturing, Construction	15.2%
Arts and Humanities	9.9%
ICT	8.9%

2.4. Funding mechanisms

IOTs/TUs are publicly funded by the Department of Further and Higher Education, Research, Innovation & Skills (DFHERIS) through the Higher Education Authority (HEA). There are three separate, but related, elements to the funding allocation model: Block grant (including core recurrent grant and free fees element), top-slices (funding ring-fenced for specified purposes, typically for limited periods) and performance funding.

Since 2013, the performance-based component has been included at up to 10% of funding based on verified performance against agreed targets for the preceding year. This approach is applied across the higher education system and centres around a system of negotiated 3-year agreements, known as mission-based 'compacts'. In these compacts, institutions put forward their own targets in line with specific objectives set out by government; the targets are drawn from an overall System Performance Framework. There are 6 objectives, each with a suite of measures and indicators. Institutions propose targets which are subject to challenge by an external expert panel and are formally agreed in a strategic dialogue process.

Many of these indicators have proved to be difficult to measure and institutions currently hold very limited data to support statements in relation to many. With the establishment of a new Department for Further and Higher Education, Research, Innovation and Science (DFHERIS) in 2020 (separating functions previously undertaken by a single integrated Department of Education), there is no certainty that the System Performance Framework will continue in its current form, if at all. The current framework covers the period 2018-2020 and is due for review in 2021.

6 There are a number of private higher education providers which are not regarded as UAS and student data is not collected by public bodies for these institutions. The figure of 27,000 students is taken from the Higher Education Colleges Association website (www.heca.ie). HECA represents 13 privately funded, state accredited colleges. Year of data is not specified. Assumption made that figure refers to student enrolments.

7 HEA enrolments data 2018/19 https :// hea. ie/statistics/data-for-download-and-visualisations/enrolments/enrolments-dashboard-2018-19/

8 Higher Education Research and Development Survey 2016-17

2.5 Challenges of the UAS sector

While the scale of RDIE activities has increased dramatically since 2000 (there was an almost three-fold increase in expenditure on R&D in the 10 years between 2006 and 2016)[8], the point has now been reached where it is extremely challenging to maintain growth and levels of activity. There is an apparent mismatch between national ambitions for the RDIE role of the IOT/TU sector, as described in *Project Ireland 2040*[9] and the Technological Universities Act and their ability to deliver on those ambitions. Two key and specific challenges arise around talent and investment and reflect the historic origins of the institutions e.g. an academic staff workload allocation model which, with a focus on teaching contact hours, does not incentivise academic staff to engaging in RDIE.

2.6 Quality Assurance of UAS and regional engagement

The quality assurance system in IOTs/TUs is underpinned by national legislation, the Qualifications and Quality Assurance (Education and Training) Act 2012. Under this system the IOTs/TUs are responsible for their own internal quality assurance processes.

The statutory responsibility for the external quality assurance of all public higher education institutions in Ireland resides with the national agency, Quality and Qualifications Ireland (QQI). Under its legislative remit, QQI is responsible for establishing the policy framework under which external quality assurance operates, including the development and publication of statutory quality assurance guidelines (QAG) for providers.

The external dimension of quality assurance is completed through two inter-linked processes: an annual reporting system known as the Annual Institutional Quality Report (AIQR), and a cyclical system of institutional review. A summary of the AIQRs, covering all the publicly regulated higher education institutions, is published annually.

IOTs/TUs collaboratively developed a Technological Higher Education Quality Framework (THEQF)[10] which was published in April 2017. THEQF is a set of high-level, strategic guidance principles about internal quality assurance and enhancement (IQAE) systems in technological higher education institutions. The principles-based framework is designed to reaffirm, rearticulate, and support an already established culture of quality and enhancement. THEQF covers the three broad areas of taught provision, research and engagement.

[9] Project Ireland 2040 is government's long-term overarching strategy for the development of Irish infrastructure, business and communities and can be viewed at www.gov.ie/2040

[10] More information on the THEQF is available at http://www.thea.ie/theqf/

3. Types of regional engagement of UAS

3.1 Active role in regional strategy development and implementation

Engagement with external partners is embedded in the culture of IOTs/TUs. As regional organisations which span the entire country, the IOTs/TUs have a critical function in supporting the wider economic, cultural and social development of the regions and urban areas which they serve. The IOTs/TUs have developed strong networks with partners from the private, public and civic/community sectors. IOTs/TUs have an active role in shaping regional strategies that form the national planning framework e.g., county development plans, local economic and community plans and Regional Spatial and Economic Strategies (RSES). The RSES seek to achieve balanced regional development and implementation of Project Ireland 2040. IOTs/-TUs are involved in a range of INTERREG projects which include policy development and recommendations with impact at regional level.

IOT/TU staff sit on the boards and steering committees of many external organisations, including state agencies, community and civic organisations and input to the shaping of regional strategies and initiatives.

"IOT/TU staff involvement on external committees and in groups increases external awareness of research and other activities, helps knowledge flow out into the region. That can be the spark or stimulus for new projects and partnerships and builds real links over time based on mutual benefit".	Focus Group External Stakeholder

Good Practices

A Network of Regional Skills Fora was created as part of the Government's National Skills Strategy and provides a forum for employers and the education and training system to work together to meet the emerging skills needs of their regions. The Regional Skills Fora[11] are an excellent example of regional education & training strategy development with a focus on industry. IOTs/TUs are key actors in Regional Skills Fora which bring education providers and employers together to develop strategies and initiatives to meet skills needs. Senior staff from each IOT/TU are engaged with the 9 Regional Skills Fora as key stakeholders. Each Forum develops its unique Regional Action Plan which proactively identifies skills need (existing and projected) across the region and puts in place collaborative action plans between industry and education/training providers that build local solutions. Regional Skills Fora are a 'bottom-up' initiative and its action plans complement national level policies and programmes emanating from the 'top-down'.

[11] Information on each of the Regional Skills fora and examples of collaborative initiatives can be viewed at https://www.regionalskills.ie/

The membership of the Regional Skills Fora typically includes universities and IOTs/TUs in the region, Education and Training Boards (ETBs), the Industrial Development Authority (IDA), Enterprise Ireland, Local Enterprise Offices, chambers of commerce, local authority/county councils, employers, and employer representative bodies e.g., IBEC[12].

The Regional Enterprise Development Fund (REDF) was launched by Government as part of an overarching strategy to support regional enterprise development and job creation. Dundalk Institute of Technology (DkIT) was awarded €3.7 million investment to develop the Connected Health & Well-being ecosystem in the North Leinster/South Ulster region and to drive significant job creation in this sector. The investment was awarded to the 'DkIT Connect Project' which includes partnerships with regional stakeholders such as Louth County Council, Dundalk Enterprise Development Company, Dundalk Credit Union and other private sector partners.

The partners developed a strategic plan and implementation projects to further develop the research, innovation and entrepreneurial landscape within the Connected Health & Well-being sector in North Leinster/ South Ulster which has the capacity to create major job opportunities and drive economic growth in the region. The investment will also fund a significant expansion to the Regional Development Centre (RDC), DkIT's on-campus centre for business engagement, innovation and research in support of these objectives.

IOT/TU staff time and expertise is also utilised to input and shape strategies and policy development initiatives at regional level.

Institute of Technology Sligo (IT Sligo) has developed significant expertise in sustainability and renewable energy. Staff are involved in initiatives aimed at realising the potential of renewable energy in the North West region for the benefit of communities. A 'Sustainable Energy Community' (SEC) is a community encompassing a range of energy users including homes, sports clubs, community centres, churches, industry, and businesses, in which everyone works together to develop a sustainable energy system for their collective benefit. To do so, they aim as far as possible to be energy efficient, to use renewable energy where feasible and to develop decentralised energy supplies. IT Sligo co-ordinates the SEC programme in the Border and West region. The team of community mentors are helping SECs to better understand their energy use and work together to plan and complete energy projects. IT Sligo has assisted over 70 SECs to develop energy master plans which have identified over €25M in annual savings for more than 80 community/civic organisations, 40 private sector companies and 30 public sector organisations in the region.

Indicators

Currently no national indicators are used for this activity. Indicators may be used at institutional level and IOTs/TUs may include institutional objectives in this area as part of their compacts agreed with the Higher Education Authority.

Often engagement in regional stakeholder committees and boards is carried out over and above staff teaching, research or management duties. Development of indicators to capture this activity has a role to play in acknowledging the contribution made by staff in this area and encouraging its continuance. Outputs are often achieved in the longer term and early-stage engagement contributes to building relationships with external stakeholders.

[12] www.ibec.ie, Ireland's largest business representative group

"IOTs/TUs are engaged in shaping regional strategies on an ongoing basis. It's happening, maybe it's below the surface but it's certainly extensive and IOT opinions and input is sought by a range of stakeholders in the region".	Focus Group Internal Stakeholder

The following could be considered as potential indicators for this activity area:

- Number of staff who serve on local external stakeholder/regional actor boards/-committees which influence policy
- Number of staff involved in regional policy development activities. It may be possible to identify staff involved where they are referenced in policy documents e.g., staff who contributed to the Action Plan for Jobs and the regional action plans resulting from this
- Engagement through INTERREG projects in development of regional policy recommendations
- Number of staff who act as consultants or advisors to local external stakeholder/regional actor boards/committees
- A workload allocation model which recognises, and rewards, time invested in external engagement with local external stakeholder/regional actor boards/committees.
- Staff employed specifically to drive and foster external engagement activities with regional stakeholders
- Institutional leadership / appointment for external engagement
- An institutional external engagement strategy, policy, and/or plan
- A policy on recruitment and promotion which weights external engagement activity

Some of these suggested indicators are amended from Campus Engage Ireland's framework[13] for higher education institutions to plan, measure and collect information on impact in the context of civic and community engagement.

3.2 Regional aspects of higher education teaching and learning

Engagement with regional stakeholders is integral to ongoing programme development and delivery in IOTs/TUs. Their engagement is a key part of the ongoing quality assurance of academic programmes through participation in institutional and programmatic reviews. This has led to an enhanced level of participation by industry and external organisations in the education process and continuing professional development of the workforce throughout the regions. IOTs/TUs use advisory boards to exchange information and to feed into the curriculum. Industry and community stakeholders/practitioners are always consulted when programmes are being developed and it is a requirement that an industry representative/practitioner sits on validation and programmatic review panels.

IOTs/TUs have been active in embedding entrepreneurship and enterprise development in undergraduate programmes across a wide range of disciplines. They are committed to exposing students to opportunities to develop entrepreneurial skills and behaviours as well as opportunities to grow their business ideas from concept to commercialisation. IOTs/TUs have a key role to play in creating a culture of innovation on campus and for the benefit of the wider region.

[13] Campus Engage civic and community engagement and engaged research resources can be viewed at https://www.campusengage.ie/our-work/making-an-impact/engaged-research/

Work placements and collaborative projects with external partners are an integral element of IOTs/TUs education programmes, offering a mutually beneficial experience for both the companies/organisations and the students who participate. Many IOTs/TUs offer work placements, often in regionally based companies and organisations, across their range of programmes. This is an example of how teaching and learning in the classroom intersects with industry and community engagement. Collaborative projects based on real world requirements allow for practical application of skills and knowledge rooted in real projects.

"The Teaching & Learning intersection in the classroom is based around practical application. IOT/TU staff are rooted in a 'theory to practice' approach. This informs the 'how' of teaching and is supported by a range of outreach activities- guest lectures, real world project design, placements."	Focus Group Internal Stakeholder
"Work placements provide a pipeline of talent into local industries and IOT/TUs have strong relationships in this area".	

Good Practices

In Munster Technological University (MTU) Cork Campus, the Student Inc. programme was set up to encourage student entrepreneurs to develop their business ideas. Student Inc. aims to increase the number of business start-ups from the undergraduate student population and to create more entrepreneurially minded graduates.

Support is offered as a full-time programme over the summer break, from June-August. Undergraduate students from a range of disciplines and programmes take part and receive expert mentoring, market research, finance and business planning and €4,000 to fund their business development. They also receive fully serviced office space in the Rubicon campus innovation centre. Students receive academic credits for completion of Student Inc. Due to the success of the programme MTU Cork Campus was awarded funding from the Higher Education Authority to roll-out the programme to other education providers in the region including University College Cork and Institute of Technology Tralee (now MTU Kerry Campus). In this way Student Inc. provides a dedicated student entrepreneurship resource for the South-West region.

In a survey of its past participants, MTU Cork Campus found that 90% of respondents use the skills learned on the programme all the time and 63% said that Student Inc. helped them secure employment on graduation. When asked to describe themselves, 71% of respondents said that they were entrepreneurs (working for themselves) while 21% were looking for new business opportunities.

DkIT has made specific efforts to expand entrepreneurship into science, technology, engineering and mathematics areas, resulting in a BSc (Honours) Degree in Engineering Entrepreneurship - a joint initiative between the School of Engineering, School of Business & Humanities and DkIT's on-campus business innovation centre. This degree programme was the National Winner of the European Enterprise Promotion Awards in the category of "Investing in Entrepreneurial Skills". DkIT has also introduced a digital badge in entrepreneurship education

aimed at teaching staff who are new to the discipline of entrepreneurship and have not taught it before, or those who are teaching entrepreneurship to non-business students for the first time.

Incorporating company-based student projects into undergraduate programmes has been used to great effect to bring benefits to regionally based companies while enhancing the real-world experience of students. Athlone Institute of Technology (AIT) has partnered with midlands-based companies to help them fill their digital marketing resource gaps using final year students' knowledge of cutting-edge digital marketing methods. This digital marketing capstone project gives the students the chance to work with real businesses, helping them set and achieve strategic digital marketing goals all the while gaining invaluable, hands-on, industry-relevant experience.

Aisling Keenan and Louise Murray, both lecturers in the department in the Business and Management at Athlone Institute of Technology, who devised the capstone digital marketing project

Institute of Art, Design and Technology (IADT) is Ireland's only IOT with a specific focus on the creative, cultural and technological sectors. The Public Design Lab was established to utilise IADT's design skill sets and creative practices to engage in community projects locally to create positive social impact. Students on the MA Design for Change, the MSc in User Experience Design and postgraduate certificates in Design Thinking and Data Visualisation are engaged with real client briefs. Recent projects have explored a wide range of topics such as the future of food, community engagement with climate change and recycling, the ethics of designing Artificial Intelligence (AI), grocery shopping for the elderly and physically impaired. The Public Design Lab focuses on design for social good, ensuring those who needs are underserved or overlooked can have access to the newest design methodologies and technologies to solve their problems and improve life for everyone in the wider community.

Indicators

Currently no national indicators are used for this activity. Indicators may be used at institutional level and IOTs/TUs may include institutional objectives in this area as part of their compacts agreed with the Higher Education Authority.

The following could be considered as potential indicators for this activity area:

- Number of student projects completed involving external industry/organisation
- Number of undergraduate, postgraduate programmes involving work placement element
- Accredited teaching, learning or research modules (number offered, number completed, number of students taking)

- Number of staff involved in supervising accredited teaching, learning or research modules
- Number of hours external partners contribute in co-ordinating/engaging with students (monetary and economic value of these hours)
- Number of local and regional external organisations collaborating to offer accredited teaching, learning and research modules or work placements
- Number of students engaged in enterprise development modules or programmes
- Number of accredited student enterprise development modules or programmes offered
- Number of student enterprises created as a result of participation in enterprise development modules or programmes.

Many of these suggested indicators are amended from Campus Engage Ireland's framework for higher education institutions to plan, measure and collect information on impact in the context of civic and community engagement.

The impact of this type of activity for the student and partner company/organisation is not fully captured by the metrics suggested above. The types of impact created by these activities include:

- Impact for client in terms of knowledge transfer, addressing needs of partner and delivery of required outcomes
- Impact for the student in terms of improved confidence, enhanced learning outcomes, increased skills and employability
- Impact for the UAS in terms of creation of new and/or deepening engagement with external partners. Creation of ongoing engagements over time and broadening beyond the initial engagement e.g., recruiting UAS graduates, upskilling for staff
- Impact in terms of improving attractiveness of courses to potential students.

The following amended Campus Engage indicators can be proposed to measure these types of impacts:

- Percentage of students who report improved/enhanced graduate attributes (e.g., communication, teamwork, IT, higher order thinking skills, analysis, understanding complex problems, career awareness skills, technical skills, etc.)
- Student ratings of personal and social outcomes (e.g., self-esteem, confidence empowerment, respect for others, civic responsibility, local/global citizenship, communication skills, teamwork due to externally-engaged teaching and learning)
- Student rating of professional and/or subject/discipline outcomes (e.g., graduate attributes, higher order thinking skills, analysis, understanding complex problems, career awareness skills, technical skills, teamwork due to externally-engaged teaching and research).

3.3 UAS Capacity for the region

IOTs/TUs are key elements of the social and economic environment in the regions. In addition to significant research and innovation engagements with regional industry and SMEs, IOT/TU staff, students and facilities are utilised for the benefit of the region in a range of ways e.g.,

- Hosting of concerts, conferences, cultural and artistic events and exhibitions

through IOTs/TUs schools of music or art & design
- Hosting of sporting events and use of sporting facilities
- Hosting local music, arts and cultural festivals
- Engagements with primary and secondary level schools
- Involvement in hosting events, workshops and talks for Science Week, Engineering Week, International Women's Day
- Access and outreach services and programmes
- Volunteering activities.

These activities create a range of impacts. IOTs/TUs prioritise a policy of inclusiveness within their region and utilising the staff and facilities for the benefit of the region is a key aspect of this. The creation and deepening of engagement with a broad range of external communities, organisations, stakeholders, and the public has huge mutual benefits for all parties. Many of these events or engagements may involve potential students, organisations, companies, or communities who would not otherwise be familiar with or engage with the IOT/TU.

"IOTs/TUs have strong programmes of engagement with local schools, they provide summer workshops and outreach programmes and work to the increase visibility of the IOT/TU to potential students and their families. The aim is to keep as many students in their local region as possible".	Focus Group Internal Stakeholder

Providing educational opportunity to students from disadvantaged backgrounds or under-represented groups is a fundamental and long-established objective of IOTs/TUs. Through their open, non-restrictive entry mechanisms, and the ladder system of progression[14], IOTs/TUs have contributed greatly to the enhancement of higher education participation and access. On average nearly 50% of the annual intake of students entering IOTs do so through non-traditional routes[15]. All IOTs/TUs have well established access programmes and access services which allow them to engage with disadvantaged and underrepresented groups in their regions.

Many IOTs/TUs have a physical presence in their wider regions with the establishment of additional campuses. Limerick Institute of Technology (LIT) has campuses in Clonmel and Thurles, Institute of Technology Carlow (IT Carlow) has campuses in Wexford and Wicklow and Galway Mayo Institute of Technology (GMIT) was established with two campuses in Galway city and Castlebar Co. Mayo. Other IOTs/TUs have partnered with local organisations to offer course provision and other services in regional locations e.g., Athlone Institute of Technology (AIT) and Westmeath County Council have collaborated to provide regional facilities in Mullingar, MTU Cork Campus has collaborated with local actors in West Cork, East Cork, Croom and Clonakilty to deliver programmes into the community. A key positive aspect of having multiple campuses/regional presence is that the likelihood of engagement with local community is far stronger.

"There is a challenge around communication. People and organisations are often surprised at the level of engagement that is possible but making those links can be challenge for everyone".	Focus Group Internal Stakeholder

[14] The 'ladder system' refers to graduates of programmes at one NFQ level progressing readily onto "top-up" programmes at the next NFQ level. It is uniquely used by IOTs/TUs.

[15] Further Education and Training (FET) Progression to Higher Education (HE), Transitions Reform Working Paper, Department of Education & Skills, June 2020

Good practices

All IOTs/TUs can provide examples of their ongoing liaison with local schools and engage in a range of volunteering, outreach and access activities which go to the core of their role as providers of educational opportunity in their region.

Staff and students from IOTs/TUs volunteer with a range of community organisations and initiatives. At undergraduate level, opportunities for volunteering have been formally incorporated into programmes e.g., LIT and MTU - Kerry Campus participate in the Campus Engage student volunteer portal. The Waterford Institute of Technology (WIT) Access Volunteer Programme works with the wider local community to promote access to further and higher education. This is achieved by developing links with local schools and community groups and by equipping volunteers with appropriate experience and transferable skills such as communication, teamwork, and project management.

The WIT Science & Engineering Buddy programme is sponsored by Genzyme Irl, a pharmaceutical company based in Waterford City. The primary aim of the programme is to foster a civic awareness among WIT students. 'Buddies' volunteer to act as positive role models to young primary school pupils. These buddies work with the pupils in their schools to raise their educational aspirations and to expose them to the possibilities that are available if they stay on in school. WIT students undertake a training programme prior to going out into the schools, which offers a form of experiential learning supported by formal training sessions. This training gives volunteers opportunities to develop their transferable skills e.g., team building, listening and communication skills, reflective practice, and critical thinking skills, which are essential for any position in life.

The Athlone Institute of Technology (AIT) Learning Gate is a partnership between AIT and Westmeath County Council and is located in the e-Working Centre in Mullingar. The outreach service's objective is to enable students to study and work locally yet have a learning space that is comfortable and ready to meet their needs. AIT staff deliver their lectures online, students may study, view their online lectures, access the AIT library online, meet to discuss projects, and/or complete group work. AIT delivered two programmes in Mullingar: a Certificate in the Fundamentals of BioPharma and Medical Technology and a Certificate in Operations, Quality and Lean Management, both at NFQ Level 6. This engagement has continued, however now online due to the Covid-19 pandemic. AIT intends to partner with other remote working centres, of which there are approximately 20 throughout the Midlands region, ensuring that those living in the Midlands area can access and engage with flexible part-time online/blended learning programmes.

Since the beginning of the Covid-19 crisis IOT/TU staff and facilities have been used to contribute to the regional and national effort to manage the effects of the pandemic.[16] Staff volunteered as contact tracers, nursing teaching staff and student nurses volunteered to join the healthcare services, and staff were involved in the production of PPE which was distributed to regional hospitals, care homes and voluntary groups. IOT/TU facilities such as laboratories were provided to increase local testing capacity. Staff also undertook production of testing reagents and 3-D printing of ventilator components. IOT/TU campuses are also being used to provide drive-through testing facilities, contact tracing centres and vaccination centres.

[16] Examples of IOTs/TU staff, expertise and facilities assisting the regional and national fight against Covid-19 can be viewed at http://www.thea.ie/covid-19-helping/

Indicators

Currently no national indicators are used for this activity. Indicators may be used at institutional level and IOTs/TUs may include institutional objectives in this area as part of their compacts agreed with the Higher Education Authority.

- Number of outreach programmes/initiatives offered
- Number of participants in outreach programmes/initiatives
- Number of students involved in volunteering activities with local external organisations/ total number of hours volunteering undertaken by students
- Number of staff involved in volunteering activities with local external organisations
- Number of external organisations involved with student volunteering
- Qualitative impact of volunteering on student learning outcomes: case studies/ stories of how volunteering enhanced student learning
- Percentage of hosting organisations who report positive experience working with student volunteers, perception of work done by volunteers
- Number and impact of public events organised by IOT/TU staff. Number attending institutional public events and evaluations, if applicable
- Institutional resources provided as outreach to the external community and utilised by members of the public and organisations (e.g. campus facilities, sports amenities, library, archives, museums, IT services)
- Number of school visits and talks
- Number of campus tours hosted
- Educational programmes which foster relationships with primary and secondary schools and their communities to widen participation.

Many of these suggested indicators are amended from Campus Engage Ireland's framework for higher education institutions to plan, measure and collect information on impact in the context of civic and community engagement.

3.4 Research and Innovation

The research and innovation activity across the IOTs/TUs has a unique character and is recognised for the strong involvement of enterprise and communities. Each IOT/TU has its own areas of research and innovation expertise and specialisation. Research and innovation activity historically has not been funded as core activity in IOTs, so they have always looked externally to collaborate and address the needs of partners.

"IOTs remit was always to work with local industry, and they approached this from a point of view of identifying and addressing industry needs. IOTs/TUs have developed a reputation for being agile and responsive to industry requirements".	Focus Group Internal Stakeholder

The Technology Gateway network is a highly visible, regionally based entry point for industry looking for research and innovation solutions from IOTs/TUs. The network operates across 10 of the IOTs/TUs and is supported by Enterprise Ireland. Business development staff in each of

the 16 Gateways link regionally based companies with a research & innovation need with appropriate research teams and expertise. The specialist area of each Gateway is directly linked to the underpinning research expertise developed in each IOT/TU. For example, the MET Gateway is focused on medical and engineering technology expertise which has been developed in Galway Mayo Institute of Technology (GMIT) in support of a strong regionally based medical devices industry.

The regional spread of the Technology Gateway Network is depicted in Figure 1 below:

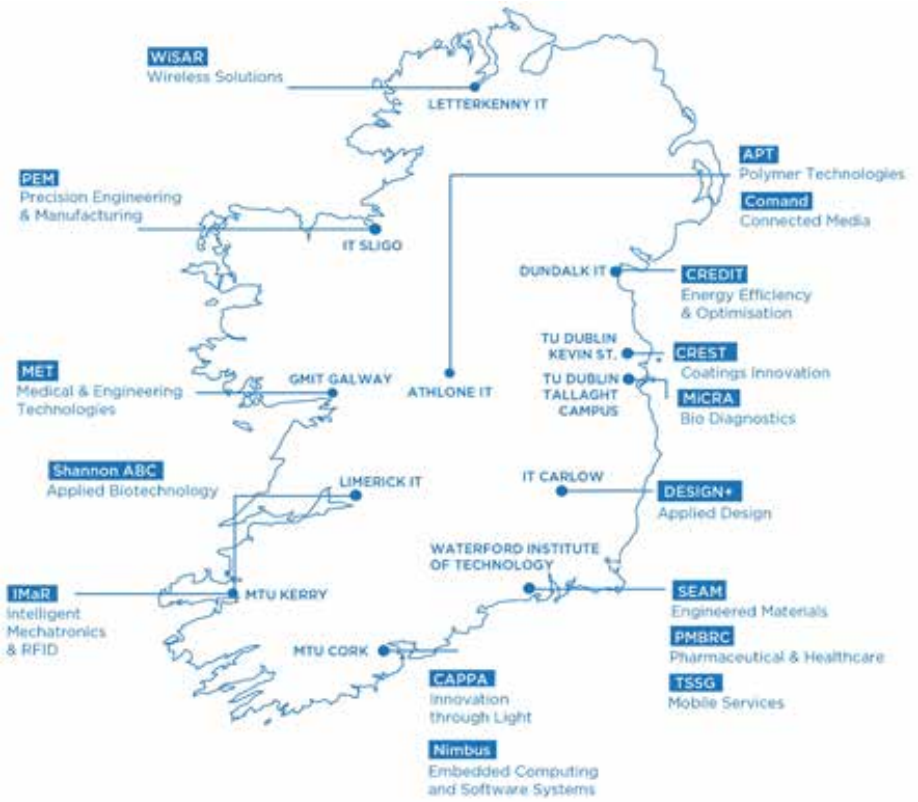


Figure 1: Technology Gateway Network

IOTs/TUs promotion of entrepreneurship is focused on their campus incubation centres and programmes of support for enterprise start-ups. IOT/TUs have had a significant impact on regional economic development, creating and supporting the sustainability of regional employment opportunities. Many of the companies supported through IOT/TUs campus incubation centres go on to locate permanently in the region and offer graduate level employment opportunities. These activities have established IOTs/TUs as a key element of the regional enterprise support network.

Good practices

Technology Gateway Network:

The results achieved by the Technology Gateway Network are exemplary. Between 2013 and 2016, the Gateway programme delivered close to 1500 projects, to a total value of €14.6

million, with approximately half of that value contributed by the external partners. Gateways can help partners to secure external funding to support the cost of the project, as the Gateway programme does not provide funding for the actual research & innovation work.

Technology Gateways are strongly engaged with industry in the regions, particularly with SMEs, providing access to applied research and innovation. An independent review of the programme identified that 60% of Gateway industry clients in 2014 had no R&D spend prior to their engagement with a Gateway, illustrating the important role of the IOT/TUs in driving initial research and innovation activity in companies in the regions. There is a strong regional spread of activity: during 2017 and 2018, the Gateways delivered 1377 projects with 894 companies across all 32 counties on the island of Ireland. As part of their funding agreement with Enterprise Ireland each Gateway produces case studies of their engagement with industry.[17]

"It comes down to IOTs accessibility to external partners. SMEs have long track record of feeling comfortable working with the IOTs and we've built a strong working relationship with them. IOTs are perceived to have an 'open door' policy to a greater extent than universities."	Focus Group Internal Stakeholder

Supporting Entrepreneurs and Business Start-Ups:

Campus incubation centres are located on campus at all IOTs/TUs and have become regional focal points for establishing new enterprises and for engagement between IOT/TU researchers and business start-ups.

These campus innovation centres bring together research, enterprise and regional stakeholders to develop a sustainable regional economy through supporting enterprises to create high value, graduate level employment in the regions. The Regional Development Centre at Dundalk Institute of Technology (DkIT) since its inception has supported more than 315 applied research projects with industry, supported over 1350 entrepreneurs through its development programmes and incubated over 200 companies. CoLab at Letterkenny Institute of Technology (LYIT) has supported over 200 entrepreneurs to successfully start their own businesses and is currently host to another 40 high potential start-up companies. The Institute of Art, Design & Technology (IADT) Media Cube has supported the creation of 80 companies and approximately 1000 jobs.

Based on IOT/TU success in supporting new enterprise, Enterprise Ireland partnered with the IOTs/TUs on 'New Frontiers'[18], Ireland's national entrepreneur development programme. Launched in 2012, the programme provides a professional and comprehensive entrepreneurship programme to would-be entrepreneurs combining practical and interactive workshops, personalised one-to-one mentoring, financial support, and co-working space. Each IOT/TU, individually or in collaboration, has developed its own New Frontiers Programme offering based on the profile and needs of their region.

Each programme aims to accelerate the development of new businesses that have strong employment and growth potential and could contribute to regional job creation and economic activity. Many New Frontiers graduates go on to establish their companies within the on-campus business incubator where they completed the programme, continuing to use the enter-

[17] A range of IOT/TU case studies can be viewed here: https://www.technologygateway.ie/

prise supports offered, and often link with IOT/TU researchers to source innovative research solutions to their technology problems.

Since 2012, almost 4000 individuals - including IOT/TU staff and students - have participated in the New Frontiers programme. Waterford Institute of Technology's (WIT) New Frontiers programme has supported 198 participants on Phase 1 and 68 participants on Phase 2. These 68 Phase 2 participants created 122 jobs in the region and between them have secured €4.8 million in private and state investment. MTU (Cork Campus) has created 2500 jobs through its enterprise development programmes since 1998, with a 75% company survival rate after five years.

In addition to New Frontiers, IOTs/TUs offer other entrepreneurship development programmes addressing regional needs e.g., Exxcel programme offered by MTU (Cork Campus) through the Rubicon Centre which supports female STEM entrepreneurs in the Cork region. The EMPOWER programme also supports female entrepreneurs in the North West region through a collaboration between Institute of Technology Sligo (IT Sligo), Galway Mayo Institute of Technology (GMIT) and Letterkenny Institute of Technology (LYIT). R-Innovate was developed by Institute of Technology Carlow (IT Carlow) and Carlow County Council, to stimulate and support innovation and entrepreneurship in a rural environment.

Participants on the EMPOWER Growth entrepreneurship programme at GMIT

IOTs/TUs are also engaged in regionally based consortia to develop technology and knowledge transfer expertise and capability under the Technology Transfer Strengthening Initiative (TTSI) funded by Knowledge Transfer Ireland (KTI). TTSI aims to facilitate industry engagement with higher education institutions and promote the commercialisation of higher education research.

[18] Information on IOTs/TUs regionally based New Frontiers Programmes can be viewed at https://www.newfrontiers.ie/locations

Indicators

Technology Gateways and New Frontiers programmes are subject to agreed metrics as part of their individual funding agreements with Enterprise Ireland. These are reported on a regular basis and are generally quantitative. Qualitative impact of these programmes is evidenced in the form of case studies.

A significant number of indicators for IOT/TUs knowledge and technology transfer activities are collected through the Annual Knowledge Transfer Survey (AKTS) conducted by KTI. This survey covers activity in the entire higher education system.

Annual Knowledge Transfer Survey (AKTS):

The AKTS covers the broad range of knowledge transfer activities e.g., licensing, spin-out creation, intellectual property commercialisation, business engagement such as collaborative research, consultancy services and use of facilities and equipment. It incorporates metrics reported through the TTSI programme and includes additional indicators. The AKTS was first run in 2015 and five survey reports have been published, the most recent for the 2019 period.[19] Data is collected from universities, IOTs/TUs and other state funded research performing organisations.

The AKTS focuses is on quantitative data. The broad categories of data collected in the AKTS includes:

1. Research Expenditure, research agreements and consultancy with Industry

Metrics include:

- Research Expenditure derived from engagements with industry
- Value of projects completed (partly and wholly industry funded).

The following 3 metrics are combined to give an indicator of *Business Access to Research and Expertise:*

- Number of Collaborative Research Agreements with industry
- Number of Innovation Voucher Project Agreements with industry
- Number of Consultancy Service Agreements with industry.

2. Research Expenditure, research agreements and consultancy with non-commercial entities

The metrics described in 1. are collected for engagement with non-commercial entities.

3. IP and IP Transactions

Metrics include:

- Total Number of invention/software disclosures
- Total Number of new patent applications during the year
- Total Number of patents granted during the year
- Total Number of Licenses, Options and Agreements executed (LOAs)
- Total Number of product/service market launches based on RPO license.

[19] available to view at https : // www . knowledgetransferireland . com/Reports-Publications/KTI-Annual-Review-Annual-Knowledge-Transfer-Survey-2019.pdf

4. Spin-out companies, incubation and use of facilities

Metrics include:

- Number of spinouts established during year
- Number of active spinouts in existence at the end of year
- Number of active spinouts in existence at the end of 3 years
- Number of contracts with companies for use of facilities and equipment
- Number of staff/student start-ups established during the year
- Number of contracts with companies for use of facilities and equipment.

A number of these AKTS metrics have been incorporated into the allocation model for the R&I capacity building funding introduced by the Higher Education authority (HEA) for IOT/TUs in 2019.

Case studies and qualitative impacts are featured in the AKTS annual report but are not formally part of the data collection process. KTI runs an annual Impact Awards[20] which looks at qualitative impact and funded HEIs must produce impact case studies as part of their reporting[21].

Definitions of the AKTS metrics have been refined over time but more work is needed to improve the consistency of data reported in the survey. A specifically formed THEA R&I Metrics Working Group has considered some of these metrics in its 2020 workplan. Two examples of AKTS metrics which have been identified as requiring refinement include *contracts for use of facilities and equipment and staff and student start-ups.* In the case of *contracts for use of facilities,* a number of refinements were recommended to the definition of this metric so that it accurately measures the activity required. *The staff and students start-up metric* was identified as particularly problematic. It is difficult to provide a complete picture of activity in this area as data is not captured centrally by IOT/TUs.

3.5 Social Innovation

IOTs/TUs deliver research outcomes and innovations for a range of community partners and across a wide range of research areas. IOT/TU research expertise is used to find innovative solutions to a diverse range of social issues. Researchers work collaboratively with community and civic society organisations on joint research projects. The community/civic partners are active participants in the design and delivery of research projects and the dissemination and practical use of their outcomes.

Programmes for entrepreneurs and business development offered by IOTs/TUs are not limited to traditional enterprises. Increasingly, the businesses incubating in IOTs/TUs innovation hubs are social enterprises, focused on addressing social issues through the development of new ideas, services and models. IOTs/TUs use student projects, placements and volunteering to encourage students to consider wider social issues with the view to improving the lives of people and their communities.

Many IOTs/TUs are signatories to the Charter for Civic and Community Engagement[22], devel-

[20] Details of the 2020 KTI Impact Award finalists and winners can be viewed at Finalists and Winners - Knowledge Transfer Ireland

[21] Examples of IOT/TU case studies can be viewed at https://www.knowledgetransferireland.com/Benefits_to_Business/Success-Stories-

[22] The charter can be viewed at http://www.campusengage.ie/wp-content/uploads/2018/12/Charter_image_1_.png

oped under the auspices of Campus Engage Ireland. The Charter captures some of the basic principles and underlying purpose of engagement with wider society and is a sign of the IOT/TU commitment to promoting civic and community engagement in higher education.

Good practices

Limerick Institute of Technology (LIT) offers many examples of engagement in the area of social innovation. LIT is involved in a range of EU projects aimed at increasing the knowledge and capacity of social enterprises and their stakeholders to develop and expand their operations. The EMwoSE (Women from Ethnic Minorities in Social Enterprise) project works with women from ethnic minorities to explore opportunities in social innovation and develop resources for the trainers, social workers and business advisors who support them. Social entrepreneurs have also been supported through LIT's membership of *Communities Creating Jobs* and a social enterprise start-up programme offered in cooperation with North Tipperary Leader Partnership. Regionally based social enterprises such as the Dunhill EcoPark in Co. Waterford and the North Tipperary Green Enterprise Centre in Cloughjordan have been supported.

A young gamer helps to design her group's arcade machine during the HEA-funded gaming summer camp in IT Carlow, 2019

The socialCORE group at Institute of Technology Carlow (IT Carlow) has worked in partnership with the Carlow Regional Youth Service on an action-research project exploring the role of gaming as a tool of youth work. SocialCORE is identifying ways that youth workers can support young people who use digital gaming heavily. Despite the legitimate concerns that exist in relation to young people's use of gaming, this project is proving that, when done right, it can be a powerful tool for fostering connections with, and between, young people. Significantly, the project has found that digital gaming can be an especially effective way of engaging with young people who experience anxiety, social isolation or other challenges. The project has seen the establishment of gaming groups and summer camps throughout the Carlow region, and the development of practical resources for youth workers. Activities moved online during 2020 due to Covid-19.

Virtual Reality (VR) technology and tools provide a medium for autistic people to encounter stressful situations so they can learn how to adapt and deal with such scenarios. The VR/AR team in the Walton Institute for Information and Communication Systems Science at Waterford Institute of Technology (WIT) developed *CoronaVRus.* This interactive VR experience is aimed at children, is Autism Spectrum Disorder (ASD) friendly and can be used as an educational tool to showcase, educate and demonstrate Covid-19 safety guidelines in an intuitive manner.

Developing and making this VR experience freely available to the general public was a driving factor for the team involved. Lockdown due to the Covid-19 pandemic has resulted in restricted access to educational knowledge providers; parents greatly rely on these experts to support their children's education and social skills. *CoronaVRus* is an additional support to help in such situations for the greater good and to try to help children gain a better understanding of how to deal with public health measures during the global pandemic.

Institute of Art Design & Technology (IADT), through a partnership with Royal College of Surgeons in Ireland (RCSI), the Health Service Executive and youth charity SPUNOUT.IE, created a series of five short animations to capture several themes related to experiences commonly reported by young people, of anxiety, depression, feeling different, bullying and loneliness[23]. IADT built the project into the Professional Practice module for Animation undergraduate students. Twenty-four IADT students worked with the RCSI team on scripts, narrative and character development. The animations provided much needed, accessible, mental health resources for young people, parents and educators who have an interest in young people's mental health.

Indicators

Currently no national indicators are used for this activity. Indicators may be used at institutional level and IOTs/TUs may include objectives in this area as part of their compacts agreed with the Higher Education Authority.

The following metrics have been added to the Annual Knowledge Transfer Survey and data was collected for the first time in 2018:

- Number of Collaborative Research Agreements with non-commercial entities
- Number of Innovation Voucher Project Agreements with non-commercial entities
- Number of Consultancy Service Agreements with non-commercial entities
- Research Expenditure derived from engagements non-commercial entities.

According to the AKTS, IOTs/TUs were responsible for 22% of collaborative research and consultancy agreements by the HEIs and state-funded research bodies with non-commercial entities in 2018.

3.6 Lifelong learning

Lifelong learning brings benefits to the individual, society and employers and makes an important contribution to creating a more inclusive society and supporting a vibrant and sustainable economy. Each IOT/TU offers a range of part-time programmes at NFQ Levels 6-9. Lifelong learning provision is managed in each IOT/TU by a dedicated faculty/department encompassing continuing, professional, online and distance learning.

[23] The animations are available to view at https://iadt.ie/news/rcsi-iadt-launch-new-youth-mental-health-animation-series/

"IOTs are drivers of social change around the inclusion agenda – by working with adult learners and lifelong learners and attracting them back into education creates local actors that others can aspire to emulate."	Focus Group External Stakeholder

IOTs/TUs are involved in the provision of Springboard+ courses which provide free higher education courses up to masters level in areas of identified skills needs to unemployed people, those previously self-employed and those returning to work[24]. Higher education institutions apply annually to offer courses under the Springboard initiative which is managed by the Higher Education Authority (HEA). IOTs/TUs have been particularly successful in provision of Springboard courses.

IOTs/TUs are also involved in providing work-based learning programmes which are designed and delivered in collaboration with employers. These programmes address challenges and opportunities identified by employers and are delivered at a time, place and pace that suits the employer and the learner. IOTs/TUs work with employers to address opportunities for staff development or for upskilling/ reskilling.

IOTs/TUs use recognition of prior learning (RPL) to encourage people to enter or re-enter formal education by awarding or recognising credit for elements of the course curriculum. The person's learning may have occurred through attendance on other certified programmes, or through life experience or paid or voluntary work. IOTs/TUs are leading a national initiative to realise the potential of recognition of prior learning and lifelong learning in Irish higher education.

Good Practices

Institute of Technology Sligo (IT Sligo) has established itself as a leader in developing and providing online, flexible learning and has more than 3600 online/blended learning students enrolled on over 140 programmes from Levels 6-10 of the National Framework of Qualifications (NFQ). In addition, approximately 6,000 students are taking industry-related short courses for professional development.

The School of Lifelong Learning and Education in Waterford Institute of Technology (WIT) was established in 2004. The School is home to two academic departments, Education and Lifelong Learning, and two centres, the Centre for Technology Enhanced Learning and the Literacy Development Centre. The Literacy Development Centre is the national centre for professional development for practitioners working in adult literacy. The School is responsible for leading the development of flexible, part-time and technology enhanced programmes across WIT specifically targeted at adult learners. The Education faculty in the School is responsible for the design and development of programmes for educators, research into the field of education and engagement with education partners at a regional, national and international level.

Many IOTs/TUs are involved with Ireland's system of apprenticeships which are developed and managed by industry-led consortia, working with education and training providers. The training offered alternates between a workplace and an education provider, with a minimum of 50% of the training offered on-the-job.

[24] Additional information is available at https://springboardcourses.ie

The Higher Education Authority (HEA) launched the Human Capital Initiative (HCI) in 2019. Many IOTs/TUs successfully secured funding under the HCI's Pillar 3: Innovation and Agility stream. Successful projects promote innovative methods of teaching and delivery, so that learners will benefit from improved quality and more engaging ways of learning on enterprise-focused courses. The capacity of institutions to anticipate, understand and respond to emerging skills needs of enterprise will be increased, together with their ability to provide lifelong learning and upskilling opportunities for all. Examples of successful HCI programmes in IOTs/TUs which address regional, and industry sectoral training needs include:

- CIRDAS - Centre for Insurance, Risk and Data Analytics Studies. Partnership between Institute of Technology Carlow (IT Carlow), Letterkenny Institute of Technology (LYIT) and the Insurtech Network.
- AMASE - Additive Manufacturing Advancing the South East. Partnership between Waterford Institute of Technology (WIT), Institute of Technology Carlow (IT Carlow), Engineering the South East Cluster; and nine leading companies in the South East region.
- DASBE - Digital Academy for Sustainable Built Environment. Partnership between Limerick Institute of Technology (LIT), Athlone Institute of Technology (AIT), Galway Mayo Institute of Technology (GMIT), Tipperary Energy Agency and Irish Green Building Council.

The Regional Skills Fora offer many examples of programmes which have been developed in collaboration with external partners to meet their training and upskilling needs. The Certificate in Supervisory Management is a professional upskilling solution to meet the needs of multiple industry sectors in the South West region and was developed in partnership between Munster Technological University (MTU), SkillNet and the South West Regional Skills Forum. The programme is structured around four accredited modules (Lean Sigma Practitioner, Management Practice, Performance Management, and People Management). Delivered on a part-time basis, one day per week, over six months, the emphasis is on action learning, so that practical classroom exercises can be seamlessly transferred back to the workplace.

"IOTs/TUs work to attract and retain firms in the region with stakeholders such as Enterprise Ireland and the Industrial Development Authority. A key strength of IOTs/TUs is the flexibility to deliver appropriate learning to new employees when companies locate in the region and to provide ongoing upskilling opportunities as they grow".	Focus Group External Stakeholder

Indicators

Currently no national indicators are used for this activity. Indicators may be used at institutional level and IOTs/TUs may include objectives in this area as part of their compacts agreed with the Higher Education Authority.

4. Summary

IOTs/TUs have a key role in supporting the economic, cultural and social development of the regions and urban areas in which they are located. Engagement with external partners is embedded in the culture of IOTs/TUs and many examples are provided across the range of regional engagement activities. This culture of engagement has been developed over time, with the impact of IOTs/TUs in their regions growing with their role.

Strong networks with partners from the private, public and civic/community sectors have been developed. The main stakeholder groups in the IOT/TUs engagement agenda are learners (at all stages of their lifelong learning journey, from prospective student to alumnus), Staff (academic, professional, management and support), regional business and enterprise, civic and community partners, other higher education partners.

A key strength of IOTs/TUs is their level of engagement in their regions. There are however opportunities for IOTs/TUs both to increase and improve their regional engagement activities e.g., developing a systematic approach to planning engagement activities, identifying and measuring its impact, consideration of useful indicators, recognition of the contribution of staff in key areas and communicating outputs/impact to stakeholders. UASiMAP provides a vehicle for considering the development of UAS-specific indicators for regional engagement activity. The project offers the opportunity to develop internationally comparable metrics for UAS activity and to better demonstrate the contribution of UAS to the regional economic and social development.

Ireland can provide examples of indicators for some of the regional engagement activities covered in this report. The System Performance Framework proposes many indicators under six key objectives set by Government. In practice the definitions, measurability, consistency across, and comparability between, higher education institutions are all in question. Data is not systematically collected on many of the suggested metrics. The Framework is due for review in 2021 and is unlikely to continue in its current form, if at all.

The Annual Knowledge Transfer Survey (AKTS) collects data annually about a wide range of research, innovation, commercialisation and knowledge transfer activities. Some definitions of metrics still need refinement and THEA has worked with Knowledge Transfer Ireland on some of these issues. Consistency and accuracy of data reported in the AKTS will improve as a result. Some of the AKTS indicators are now incorporated into the funding allocation model for a Research & Innovation capacity building funding stream for IOTs/TUs.

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