TU Dublin Annual Report 2022

Table of Contents

Welcome Message from the President

After almost two years of disruption, life at Technological University Dublin (TU Dublin) returned to pre-pandemic normality in 2022, with our students enjoying a full university experience as academic, sporting and social activities rejuvenated our campuses. As a young university, 2022 was another year abundant with milestone events and achievements that were individually remarkable but together incredible, and I am delighted to share our collective successes with you in the University's Annual Report.

In 2022, the University unveiled a new academic structure that will underpin our pioneering education model, support research and innovation endeavour and create new synergies between diverse disciplines. The five new Faculties of:- Arts & Humanities; Business; Computing, Digital & Data; Engineering & Built Environment, and Sciences & Health, are building on a legacy of diversity in apprenticeship, undergraduate and postgraduate provision. Coupled with our practical teaching and learning ethos, the TU Dublin has a renewed focused on approaches that will equip our students to adapt to the changes they will face throughout their work lives.

Talent and innovation are the primary calling cards of our region and are critical to sustainable economic growth, and collaboration with industry remains central to our mission as a university. TU Dublin is committed to deepening engagement with enterprise to develop creative and flexible learning pathways for existing employees throughout their careers. To this end, the University launched TU Dublin Enterprise Academy in 2022 to facilitate the co-development of flexible, accredited talent development solutions with our industry partners and promote lifelong learning.

While the COVID-19 crisis is mostly behind us, we are confronted with the devastating impact of Climate Change on our planet and people daily. TU Dublin acknowledges the increasing urgency and call to action for all developed countries to implement significant change and bring forward long-term solutions. In aiming for this, we ourselves have committed to becoming carbon-neutral across our operations, with the development of a Climate Action Roadmap to enable us to address the challenging targets required.

As we finish another year, I want to sincerely thank our students and staff for their hard work and great endeavours in progressing our Strategic Intent to 2030, and we are very grateful to our wonderful alums, donors, partners and other members of our broader community who continue to invest heavily in our research and education.

David FitzPatrick

President

Executive Summary

The economic and education landscape has shifted dramatically, yet TU Dublin's mission of delivering research-informed teaching and learning through a practice, work-based environment across all levels of higher education has never been more relevant. The demand for employees to have relevant high-level skills continues to increase and the need to embrace a culture of lifelong learning is critical in responding to the labour market and societal challenges we face.

TU Dublin is one of the largest universities in Ireland, educating over 29,000 students in 2022. Our vision to 'Create a Better World, Together' is being achieved through our ambitious ten-year TU Dublin Strategic Intent 2030. This report reflects on the University's achievements over the course of 2022.

People

- TU Dublin provides educational opportunities that *Nurture Bright Minds, Creativity and Ambition*. Projects such as Convene, GROWTHhub and Cyber Skills support curriculum transformation, developed in close collaboration with industry and other partners to foster the attributes and capabilities needed by our graduates.

- In creating *Pathways for all to Experience* TU Dublin provides multiple entry points and flexibility in structure, mode and place of delivery. It offers programmes across all disciplines and all levels. It is the largest provider of STEM education in the country; the largest provider of part-time education accounting for over 40% of learners in the Dublin region, and a leader in apprenticeship and in 'widening participation'.

- Equality, Diversity and Inclusion (EDI) is an integral part of *Creating a Place of Imagination and Inspiration* and the attainment of Athena SWAN Bronze awards in 2022 were significant milestones.

The exciting journey of building one of Ireland's largest infrastructural developments in Higher Education saw the delivery of state-of-the-art facilities in the Sports Science, Health & Recreation Building on the Tallaght campus in 2022. Construction works also commenced with the turning of the sod for the Academic Hub in Grangegorman.

- Under *Championing a Passion to Excel* TU Dublin has restructured and appointed new roles to leverage talent and support the University in achieving its ambitions. We are actively engaged in attracting, retaining and bringing out the best in our high calibre of diverse staff.

- *Celebrate our Ambassadors* - TU Dublin was proud to graduate over 7,500 students in-person from the class of 2022, and also welcome back cohorts from 2020 and 2021 to campus to acknowledge their achievements.

Planet

- TU Dublin ratified its Sustainability Statement in 2022, guiding the University in becoming a *Beacon for Sustainability*. The Tallaght campus was connected to Ireland's first low-carbon sourced district heating system, whilst exploratory works into Ireland's first geothermal bore hole project on the Grangegorman campus also showed huge potential.

TU Dublin's sustainability efforts were reflected in the 2022 Impact Rankings, where the University was ranked in the Top 100 universities world-wide for three SDG categories.

- In efforts to *Create Responsible Global Citizens*, the Resilient Design Curricula project aims to upskill architectural educators in energy efficiency, whilst more broadly, the use of Sulitest (an online literacy tool), is used to profile sustainability literacy of our students and will inform future developments in the space.

- In a bid to *Tackle Global Challenges*, TU Dublin is cultivating multidisciplinary research. Our expertise, coupled with state-of-the-art facilities make a significant contribution towards new knowledge and delivery of solutions that create real impact. Examples include - Plasma PLUS, which uses technology to improve cancer treatments; and MARL, a mobile research laboratory which measures air quality.

Partnership

- TU Dublin has had continued success in promoting *Open Science*. The University's repository, Arrow, had almost one million downloads in 2022. Arrow is now home to the EUt+ Academic Press, which launched in July 2022 and which already has a range of published titles.

- The University celebrated 15-years of *Open Innovation* in 2022. Over the period, 44 spin-outs were launched; over 150 ambitious early-stage founders with innovative business ideas were also mentored through the New Frontiers programme; and former graduates and current founders raised nearly €20M in 2022.

- In our *Tightly Connected Network*, TU Dublin's significant projects with industry, community and academic institutes are addressing national challenges being faced. In 2022, these included co-created programmes addressing the green and digital transition agendas.

- *Being Global* is integral to our activities and TU Dublin actively collaborates with strategic international partners. The range of joint/dual/multiple degree programmes with 21 global universities spans Europe and Asia. The EUt+ partnership with seven other European technological universities aims to revolutionise the quality and competitiveness of European higher education.

- *Organisational Effectiveness* is a key enabler to support the University in delivering on its ambitions. The Organisation Design project has been a major initiative to establish a new organisation structure, and in 2022, TU Dublin transitioned to its new Faculty, School and Professional Services structure.

Section 4 of the report reflects on TU Dublin's first quality assurance and enhancement review (CINNTE review). The panel of international experts commended the University on its progress since its establishment, noting the robust processes in place to assure the quality of the University's awards and our graduates.

In the final sections the University's Equality, Diversity and Inclusion Statement and the Sustainability Statement are provided. Details of the full membership and committees of Governing Body are provided, and membership of Academic Council. The University prepared its third set of Audited Financial Statements for the period to 31st August 2021 – a link is provided to the full statements.

TU Dublin at a Glance
- Key Facts & Figures

3
campuses

8k
graduates per year

29k+
students

7k
part time students

1:16
staff : student ratio

3k+
international students
from over 100 countries

1,000+
students working
with community
organisations

STEM
17%
of the national provision

Business
14%
of the national provision

Services
20%
of the national provision

Craft Apprenticeships
20%
of the national provision

26%
of undergraduate new
entrants via **access routes**

Further Education
20%
of national applications

Award Winning Staff

Athena SWAN
Bronze Award

+38%
research award value
(over the past 3 years)

11,000+
citations
(in the past 3 years)

+12M
open access research
downloads arrow@TUDublin

Field of Study

BUSINESS	26%
ENGINEERING	23%
NAT. SCIENCE	12%
ICT	10%
ART & HUMANITIES	9%
SERVICES	8%
HEALTH & WELFARE	7%
SOCIAL SCIENCE	2%
EDUCATION	1%
GENERIC	1%
AGRICULTURE	.1%
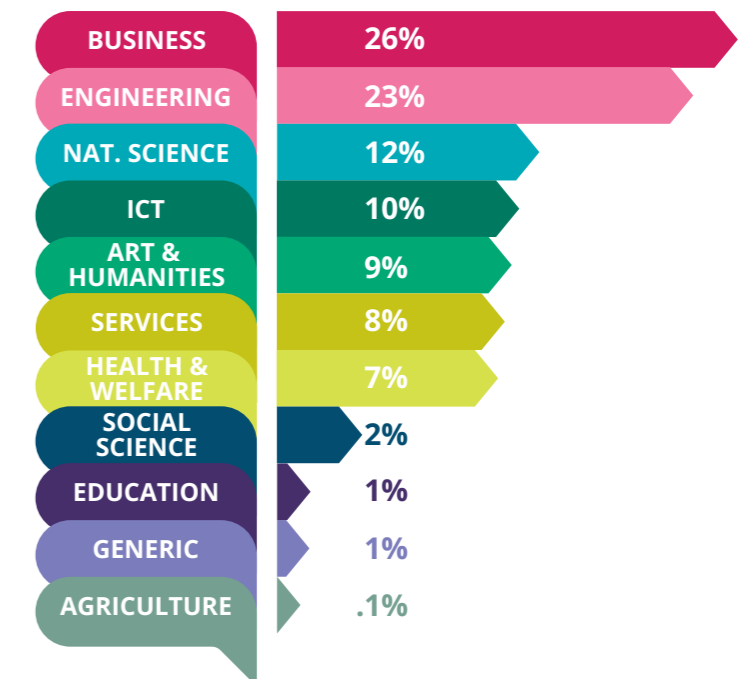
1,000+
academic
collaborations

800+
collaborations
with industry

Award Winning
Technology
Transfer Activities

M²
7,000m²
of incubation
space

100+
start-ups p.a.
(facilitated on
campus)

200
entrepreneurs p.a.
(on TU Dublin
enterprise programmes)

Strategic Intent 2030
- Creating a Better World Together

The TU Dublin Strategic Intent 2030 sets out the University's ambitions over the course of ten years. It was devised through the lens of the UN Sustainability Goals (SDGs), underpinned by the key SDG goal, 'Quality Education'. Our vision is to 'Create a Better World, Together' supported by the three pillars of **People, Planet** and **Partnership**.

The Priority areas identified under each Pillar are provided below. Although greatly impacted by COVID-19 in the first phase of our strategic journey, TU Dublin returned to a new normal in 2022 and significant milestones were achieved, the details of which are included in the subsequent chapters.

PEOPLE
We Will Foster Individual Talents In An Ever Changing World

PLANET
We Will Be A Powerhouse For Living & Breathing Sustainability

PARTNERSHIP
We Will Deliver Shared Impact

- **People:** TU Dublin is creating a space and culture where people can foster ideas and relationships. We are committed to creating transformational educational opportunities that support individuals in reaching their full potential.

- **Planet:** TU Dublin aims to find new, more balanced ways of working and living that protect our planet for future generations, working with stakeholders to solve some of the world's most pressing issues.

- **Partnership:** TU Dublin connects people in order to unearth new opportunities through joining ideas and sharing competencies. We understand that the complex problems of today are solved together.

PEOPLE
- ✔ Nurturing Bright Minds, Creativity & Ambition
- ✔ Pathways for All to Experience
- ✔ Creating a Place of Imagination and Inspiration
- ✔ Championing a Passion to Excel
- ✔ Celebrating our Ambassadors

PLANET
- ✔ Being a Beacon for Sustainability
- ✔ Creating Responsible Global Citizens
- ✔ Tackling Global Challenges

PARTNERSHIP
- ✔ Open Science, Open Innovation Open to the World
- ✔ A Tightly Connected Network
- ✔ Being Global
- ✔ Organisational Effectiveness

People

Nurturing Bright Minds, Creativity & Ambition

» delivered practice-based, industry-led education equipping students with real world experiences to reach their full potential

Pathways for all to Experience

» educated over 29,000 students in one of Ireland's largest universities from apprenticeship through to PhD

Creating a Place of Imagination and Inspiration

» achieved Athena SWAN Bronze awards for gender equality
» delivered 100,000m^2 of new state-of-the art facilities within its masterplan up to 2022

Championing a Passion to Excel

» over 150 staff training initiatives delivered
» TU Dublin supported over 130 staff in further education programmes

Celebrating our Ambassadors

» graduated over 7,500 students

Our Ambition

We will foster individual talents in an ever changing world igniting the imagination of students, staff and partners, supporting people to explore their abilities and reach their full potential.

1.1 PEOPLE
Nurturing Bright Minds, Creativity & Ambition

> **"We are committed to a research-informed and practice-based education model, that develops the attributes and capabilities necessary for tomorrow's world, today"**

The landscape in which we work, live and socialise is changing exponentially with the rapid pace of technology development. We are committed to creating transformational educational opportunities that inspire, support and develop the individual in reaching their full potential. By taking this approach, we are educating people who can confidently tackle the challenges that the world faces in creative and balanced ways.

Digital Transformation in Teaching and Learning

The development of digital skills was a priority for TU Dublin in 2022. Digital education is now a central component of our learning, teaching and assessment strategy. This aligns with The European Commission Digital Education Action Plan 2021-2027[1], which emphasises that 'we need to reset education and training for the digital age'.

With funding received from the National Forum for the Enhancement of Higher Education, under the Strategic Alignment of Teaching and Learning Enhancement (SATLE) project, TU Dublin engaged in a pilot project, the JISC Discovery Tool, which helped identify current strengths and areas for development among staff and students.

This work has informed and supported the development of the University's Digital Education Plan 2022-2030, launched at the end of 2022 and was accompanied by a series of initiatives, including the development of a digital skills learning hub. This is a searchable database with a wide range of digital skills knowledge resources (free online courses, how to guides, webinars and videos). It contains TU Dublin created content and specially selected external resources to support staff in accelerating the transition to a modern, digital technological university. Staff and students were also supported through access to LinkedIn Learning.

Curriculum Fit for the Digital Age

Addressing the ICT skills shortage is a national economic priority to maintain Ireland's success as a global technology hub[2]. Given the pace of change within the sector, continuous learning and upskilling is vital to keep ahead of the curve. In 2022, TU Dublin developed several new programmes to support the digital agenda, including an MSc in Computing in Human Centred Artificial Intelligence and a BSc in Enterprise Cloud Computing.

To build capacity in cyber security education, TU Dublin also partnered with Munster Technological University (MTU) on a collaborative project funded by the HEA, called CYBER SKILLS. Bringing together industry and academic experts, the CYBER SKILLS project supported the development of new courses and learning pathways, conferring micro-credentials in areas of cyber security management, regulation and governance. By bringing enterprise and academia closer, the project has also contributed to the development of innovative course content on existing programmes at TU Dublin, such as the BSc in Digital Forensics and Cybersecurity, and the MSc in Computing in Applied Cyber Security.

University-Enterprise Engagement

During 2022, TU Dublin engaged with industry to advance major educational projects. Supported by national funding, Convene and GROWTHhub worked in close collaboration between academia and enterprise in the design and delivery of programmes of education that meet the needs of society, the economy and learners.

The Convene project, in partnership with UCD and funded under the HEA Pillar 3 Human Capital Initiative (HCI) is designed to 'Transform university-enterprise engagement for a new co-learning ecosystem in Dublin'. The project is organised around seven major employment sectors - ICT/FinTech, Tourism, Food & Drink, Creative & Cultural, Social Enterprise, MedTech and Pharma. It aims to deliver the skills and innovation needed to rebuild Irish enterprise for sustainability and resilience post COVID. During 2022, TU Dublin launched its Enterprise Academy, which works closely with industry in co-creating curricula.

TU Dublin also partnered with South East Technological University (SETU), on GROWTHhub – a collaboration designed to support the development of an entrepreneurial orientation and a growth mindset among students at all levels (apprenticeship to PhD), to impact enterprise and society. The project embraces different types of entrepreneurship, including intrapreneurship, social entrepreneurship, green entrepreneurship and digital entrepreneurship. In 2022, GROWTHhub funded 12 new bursaries in a range of areas that included entrepreneurial resilience, green entrepreneurship, and entrepreneurship case studies. The GROWTHhub Entrepreneurship Education Bursary initiative is designed to support faculty develop new and innovative pedagogical approaches to a range of entrepreneurship competences.

The war in Ukraine and more recent conflicts are having devastating effects on displaced communities. To support migrants wishing to start their own business, TU Dublin developed a new online course on Entrepreneurship for Migrants, Refugees and Asylum Seekers. This Level 6, four-week programme, is a partnership with Open Doors, a social enterprise that provides opportunities for education, training and employment to some of the more marginalised members of our society. In the area of sustainability, the Post Graduate Certificate in Sustainable Food Business Operations was designed to promote graduate skills in developing and implementing sustainable business practices.

1 Digital Education Action Plan 2021-2027

2 Technology Skills 2022 – Ireland's Third ICT Skills Action Plan

Supporting Academic Excellence & Ambition

Scholarships, awards and bursaries have a significant impact on the lives of students. They reward students for their hard work and dedication, enabling them to focus on achieving excellence in their field. In 2022, a total of €207,000 was awarded to 135 students.

- Scholarships in STEM

Women participation in STEM (Science, Technology, Engineering and Mathematics) continues to lag nationally, with only a quarter of the workforce in Ireland being female[3]. The Huawei Tech4her Scholarships and Marco Women in Engineering Scholarship are committed to encouraging women into the tech and engineering sectors respectively. Nine scholarships were awarded in 2022.

2022 celebrated the fifth year of Intel scholarships. Seven recipients, three of whom were female, were awarded scholarships. The award ceremony event explored the experiences of women in male-dominated disciplines and how organisations can better support more women in STEM fields. The scholarship provides financial support, mentoring, access to build strong industry relations and employment opportunities at Intel following graduation.

Sally Al Mashadani, an Intel scholarship awardee, speaking at the Intel Scholarship Award Ceremony

3 Recommendations on Gender Balance in STEM Education

- Sports Scholarships

In November 2022, the Sports Scholars were announced. TU Dublin awarded 79 student athletes a place on the University's 2022-23 Athlete Sports Programme. Student athletes - representing a wide range of sports, from rugby, soccer and Gaelic games to badminton, cycling and para-swimming - are striving to achieve excellence in their sport and to represent Ireland on an international stage. The development of a new sports facility on the Tallaght campus will play an important role in supporting these athletes.

TU Dublin Sports Scholar Caoimhe May and Registrar Dr Mary Meaney

2022 Examples of Students' Work

TU Dublin students triumphed at the ENFUSE finals, a Local Enterprise Office initiative. As part of their master's programme, students created a bespoke plan for a local Dublin enterprise to help the organisation innovate. Each plan was pitched to expert industry judges. The first-place team will now be named on the specially commissioned ENFUSE trophy, which TU Dublin will host for the coming year.

TU Dublin students triumph at ENFUSE Finals

Ciarán Brennan was awarded the Level 7 Technician Prize at the Institution of Structural Engineers prize-giving ceremony. The awards are to acknowledge excellence in structural engineering.

Ciarán Brennan awarded at the Institution of Structural Engineers

Paul Kennedy wins RIAI Rising Star Award

Paul Kennedy won the RIAI Rising Star Award in Architectural Technology. The award recognises an individual third year student of Architectural Technology who exemplifies academic excellence and dedication to the field of Architectural Technology in the national context of architectural technologists' education.

TU Dublin graduates received awards for three projects and 9 were commended at the Institute Designers Ireland awards, which recognise outstanding and innovative design by new designers.

TU Dublin Culinary Arts students win Dairy Chef Competition

TU Dublin Culinary Arts student, Christopher Buckley and Hugo Blondet from L'École des Métiers, Dijon, France won strand two at the 3rd annual Dairy Chef Competition. The competition is organised by the French Embassy in Ireland, in partnership with the National Dairy Council.

Fourth-year student, Yvonne Lleogben, BSc International Hospitality Management, won 1st prize in the ATLAS Thesis Awards. Yvonne's research addressed key factors affecting turnover in the Irish hotel sector.

Yvonne Lleogben wins ATLAS Thesis Award

1.2 PEOPLE
Pathways for all to Experience

*"We are committed to providing lifelong education opportunities at every level"*

TU Dublin continues to be one of the largest providers of higher education in Ireland. The University provides multiple entry points and progression pathways and offers flexibility in structure, mode and place of delivery to suit an evolving local and global landscape. In 2021/22, total enrolment to the University was over 29,000 (Figure 1) across all campuses, disciplines and levels – NFQ Level 6 to 10.

Figure 1: Student Enrolments by HEIs Nationally 2021/22
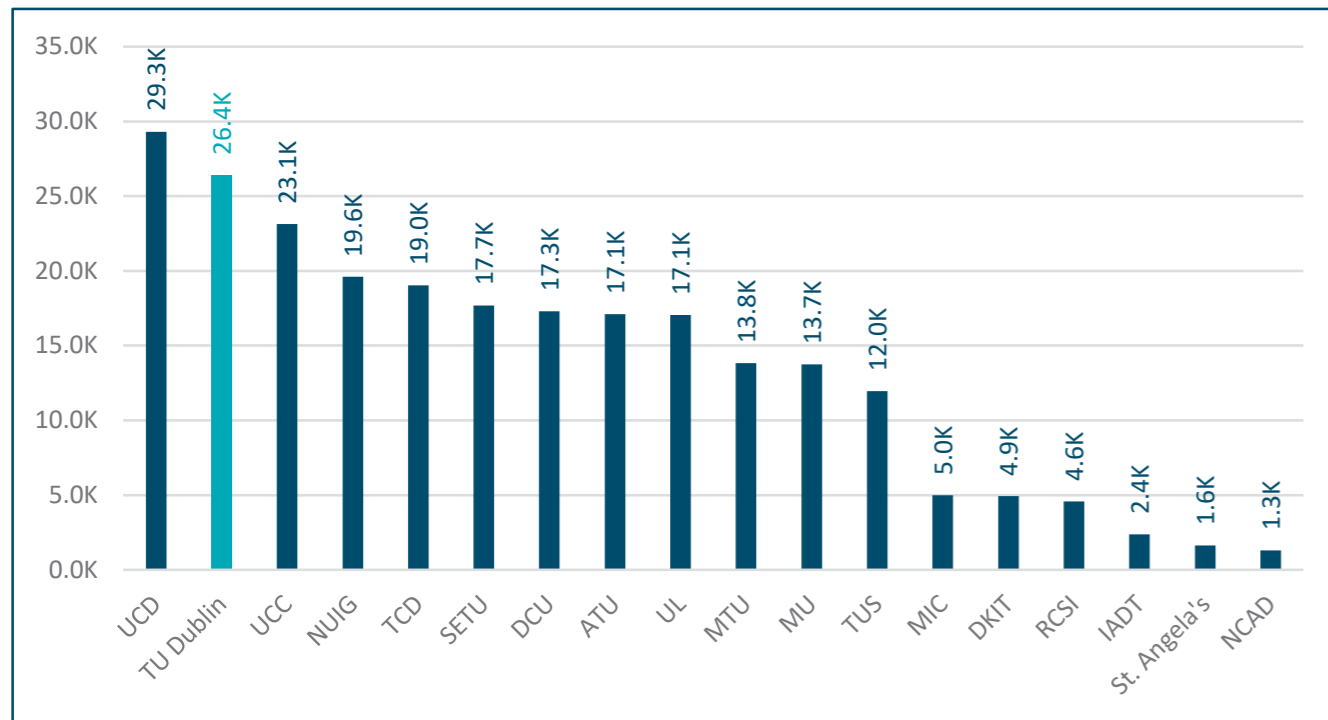
National HEI data excludes FETAC, Overseas, Exchange Incoming & Junior Music.

TU Dublin is the largest provider of...

Business

Engineering

ICT
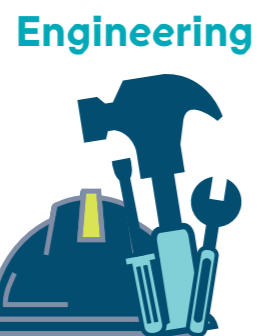
In line with a profile of a technological university, STEM fields (Science, Technology, Engineering and Mathematics) feature significantly in the University. They account for almost half of TU Dublin's enrolments. Knowledge-based economies such as Ireland are particularly dependent on STEM expertise to drive the economy and future prosperity[4]. TU Dublin is the largest provider of third level education in Engineering and ICT in Ireland. Each year, over 3,000 students graduate in STEM fields.

Since designation in 2019, the University's enrolments have grown across all fields of study at Level 8. In 2021/22, TU Dublin experienced the highest growth level nationally in the field of Business. Business education is the most popular field of study for third level students nationally.

TU Dublin also has a strong presence in the Creative, Music & Performing Arts, educating almost 40% of students in the Dublin Region, and in Services, TU Dublin accounts for 84% of the Dublin Region provision.

Progression Pathways

An important remit for TU Dublin is to support access and progression, including through Level 6 and 7 programmes and apprenticeships[5]. TU Dublin accounts for almost one fifth of national enrolments at Level 6 and 7. These programmes provide critical access opportunities for learners, including second chance learners. The University plays a pivotal role in facilitating access and progression, particularly through relationships with the further education and training sector, of which TU Dublin accounts for one fifth of national applications.

Apprenticeship Education

TU Dublin is a leading provider of apprentice education in Ireland, delivering one fifth of national provision in craft apprenticeships (Figure 2). Apprenticeship education provides flexible learning opportunities for students who want to earn and learn[6]. In 2022, student enrolments on new apprenticeship (as distinct from traditional craft apprenticeships) grew by 28%. Female participation on apprenticeship programmes increased, albeit gradually, growing from 1% to 9% since TU designation in 2019. Each year TU Dublin offers a 12-week Access to Apprenticeship programme to introduce students aged between 16-24 to apprenticeships. This programme has a high transition rate; to date, 83 people

have progressed to a full apprenticeship course after completing the programme.

Niamh Kelly, an Access to Apprenticeship graduate

Figure 2: Traditional Craft Apprenticeship Enrolments by HEIs Nationally 2021/22

- ATU
- MTU
- TU Dublin
- SETU
- TUS
- DKIT

14%, 22%, 20%, 19%, 16%, 9%

4 STEM Education

5 HEA Technological Universities

6 Generation Apprenticeship
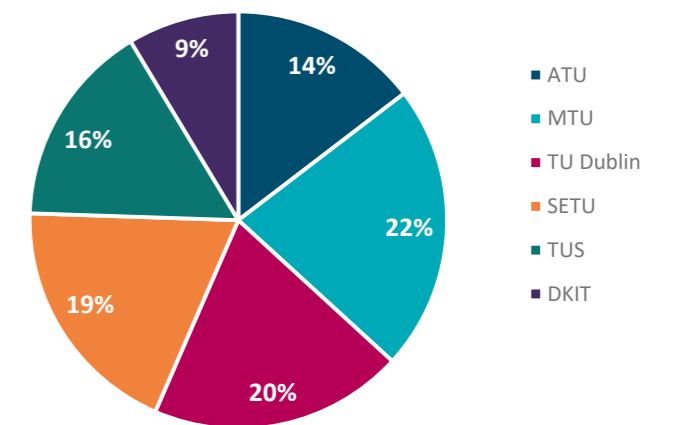
Skills Development and Lifelong Learning

In 2021/22 TU Dublin maintained its position as a leader in part-time education, accounting for over 40% of learners in the Dublin region. Competing demands have increased the need for part-time flexible enrolments and opportunities that differ to the traditional model. TU Dublin's part-time and flexible offerings are designed to meet the needs of these cohorts of students. While technology is embraced to support the learning process, the University maintains its emphasis and strength in practice-based education, with hands-on education and individual support.

Figure 3: Part-Time Student Enrolments by HEIs Nationally 2021/22 (HEA Data)
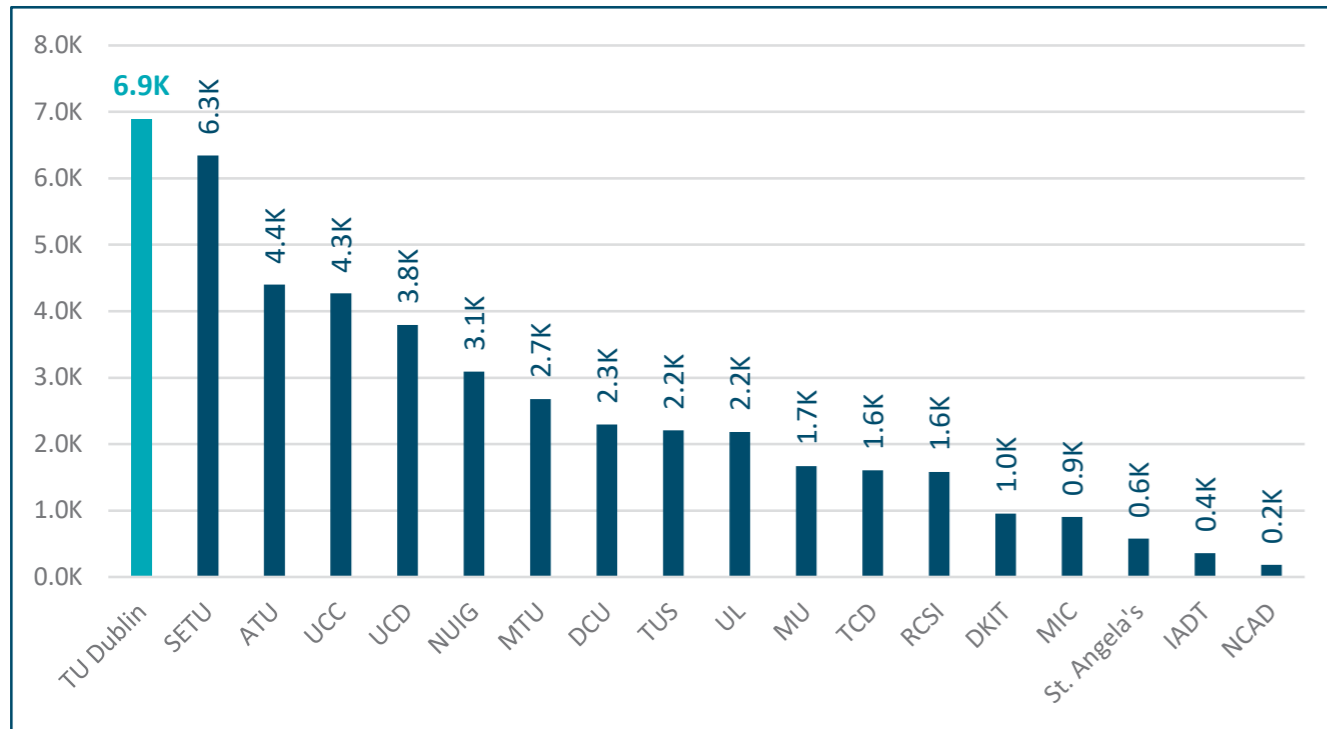
Widening Participation in Education

TU Dublin continues to maintain its position nationally as a leader in 'widening participation' in education (Table 1). Widening participation aims to promote inclusion and diversity by encouraging, advising and supporting individuals from under-represented groups who would like to access and complete a course at university. It embraces full-time students that are traditionally known as 'access' students – most of whom apply for entry through the Higher Education Access Route (HEAR); it also includes students with disabilities, mature students, students from socio-economic disadvantaged backgrounds and students from the Traveller community. HEA data for 2022, showed that among all HEIs, TU Dublin had the highest number of students characterised as socio-economic disadvantaged and the second highest number of students with disabilities. The University continues to provide targeted supports for these groups of students.

Table 1: TU Dublin's Access Student Enrolments as a % of National Enrolments

New Entrants	TU Dublin Enrolments 2021/22	% of National Provision
Mature Students	354	12.7%
Socio-economic Disadvantage	2432	12.6%
Students with Disabilities	1814	11.1%
Irish Traveller Enrolments	10	7.3%

1.3 PEOPLE
Creating a Place of Imagination & Inspiration

"We are committed to creating a place where people love to work & learn"

EQUALITY, DIVERSITY & INCLUSION

TU Dublin is creating a place where individuals are proud to be part of a living, thriving and connected community, a place that underpins equality, diversity and inclusion for all. Equality, Diversity and Inclusion (EDI) is an integral part of TU Dublin, and the University has set itself an ambitious goal to be an exemplar in the field. TU Dublin's formal Equality Statement is set out in Section 5 of this report and during 2022, significant strides were made towards its overall objective.

In March 2022 the University achieved an Institutional Athena SWAN Bronze Award, and in September 2022 the School of Mathematics and Statistics received a bronze award. It is the first School in TU Dublin to obtain this accreditation and is a role model for other Schools and Faculties.

A priority action within the Athena SWAN Action Plan is to achieve and/or maintain gender balance of at least 40% of each gender in all senior decision-making roles and positions from Head of School upwards, by 2025.

Since the establishment of the University, Heads of School and Department positions are now on a 5-year rotational basis and the impact of which has started to filter through since September 2022. The gender balance has improved from 35% female post-holders to 40% (Table 2).

In addition to Athena SWAN, TU Dublin approved the TU Dublin Plan of Change for Race Equity 2021-2026 in March 2022. Progress was also made on the Action Plan for Ending Sexual Violence and Harassment (ESVH). Over 4,000 students completed an Active* Consent training workshop; this was supported with the launch of an eLearning Module 'Preventing Sexual Violence and Harassment: How to Protect Yourself and Your Peers'. A new SpeakOut tool to report harm and discrimination was also rolled out. For staff, the launch of Disclosure and Active Bystander training took place in March and an Active* Consent Staff Awareness video was launched in November.

The AIB Research Centre on Inclusive and Equitable Cultures (RINCE) located at TU Dublin is involved in several research projects. They include the RESISTIRÉ project, which seeks to reduce gender inequalities caused by the COVID-19 pandemic and GenderEx, which engages best practices to stimulate the integration of the Sex and Gender Dimension in Research Content. The EDI Research and Practice Showcase 2022 and a seminar series were also held during 2022.

CAMPUS DEVELOPMENTS

The TU Dublin masterplan will provide over 200,000m² of new campus space on the three main TU Dublin campuses. This is one of the largest infrastructural developments in Irish Higher Education and a priority in the National Development Plan 2021-2030. The quality of the physical learning environment and campus facilities are critical to the student experience.

A New Academic Hub and Library

On 21st March 2022, Minister for the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), Simon Harris, and Minister for Finance, Paschal Donohoe, turned the sod on the new Academic Hub and Library at the Grangegorman city campus. This new modern building will wrap around the existing North House, a historic building dating from the 19th century, to create a stunning new library facility. Along with its library collection, the 12,600m² of new learning space will offer a range of formal and informal study spaces. The building will also house a range of academic supports for students including a Career Development Centre, Maths Learning Centre, and Disability Support Services.

Table 2: Leadership and Decision-making Gender Composition

Decision-making body	Position December 2021		Position December 2022	
Governing Body	48%	52%	56%	44%
University Executive Team (UET)	33%	67%	33%	67%
Academic Council	43%	57%	51%	49%
Heads of School	35%	65%	40%	60%
Heads of Professional Services	54%	46%	58%	42%

Ministers turn the sod on the new Academic Hub and Library

A World-Class Sports Science, Health & Recreation Building

The construction of the new Sports Science, Health & Recreation Building on the Tallaght campus continued in 2022, with final handover in February 2023. This building provides dedicated facilities, including research and teaching laboratories, for students in sports science, health and applied social care. It also provides much-needed sport and recreational facilities (basketball, volleyball, badminton and gym) for use by students, staff and the local community. The new facility will play an importing role in supporting community health and Ireland's National Sports Policy 2018-2027, which aims to get every citizen regularly engaging in sport or physical activity[7].

Sports Science, Health and Recreation Building (SSHRB)

TU Dublin Sports facilities win Outstanding Quality Awards

The TU Dublin Sport Facilities Team won two National Quality Standard Awards from Ireland Active, the governing body for Sports & Leisure Facilities in Ireland. These awards were for facilities in Grangegorman and Broombridge. In addition, TU Dublin was awarded the Most Improved Facility for Broombridge. These are the highest possible awards within the industry.

TU Dublin Sports Facilities

Higher Education Public Private Partnership (HEPPP) Projects

In December 2022, contracts were signed, and construction commenced on two buildings as part of a major procurement by the National Development Finance Agency (NDFA), known as the Higher Education Public Private Partnership (HEPPP) Bundle 1. Both buildings will provide an expansion of general teaching facilities to support future growth in student numbers across a range of disciplines.

- In Tallaght a 5,000m^2 multi-disciplinary building over four floors will deliver state-of-the-art lecture theatres, research and apprenticeship facilities, kitchens, a training restaurant and design studios.

- In Blanchardstown a three story 4,000m^2 general teaching facility aims to maximise collaborative work and inspire innovation.

Visualisation of new PPP building on Blanchardstown campus

Visualisation of new PPP building on Tallaght campus

Developments on the Grangegorman Campus

During 2022, planning work continued for developments on the Grangegorman campus, including the West Quad, which is the planned new home for the Faculty of Business that is currently located in Aungier Street. The FOCAS research facility will also be relocated at the West Quad, along with a new indoor sports building.

Design + Construct Centre of Excellence

During the year, building design progressed for an innovative 'Design + Construct' facility at Broombridge. This is Ireland's first Centre of Excellence for Architecture, Construction and Engineering (AEC) education. The Centre will leverage TU Dublin's expertise to address key challenges facing the sector, meeting critical skills shortages and the twin challenges of embedding sustainable and digital-first practices across the industry. The existing brownfield site will be redeveloped.

1.4 PEOPLE
Championing a Passion to Excel

"We are committed to investing in a supportive and people-orientated environment"

TU Dublin is actively engaged in attracting, retaining and bringing out the best in our high-calibre and diverse staff. Our clear sense of shared purpose will support staff and students to achieve the heights of success.

As a newly established university in 2019, TU Dublin launched an organisation design (OD) process to create and implement a new organisational structure for the university. Over 400 roles were restructured or newly appointed with the aim of leveraging talent and the availability of skills, knowledge and experience to support the University in achieving its ambitions. In 2022, over 150 training initiatives were provided. The University also supported more than 130 employees in further education programmes. In addition, over 80 leaders, including members of the newly appointed University Executive Team (UET), participated in the Leadership Development Programme.

TU Dublin Academic Receives Prestigious Teaching Excellence Award

Dr Barry Ryan, lecturer in Biochemistry at TU Dublin, was awarded a Teaching Excellence Award from the Biochemical Society. Only nine awards are presented annually. The Teaching Excellence award recognises individual excellence, commitment to continuing professional development, commitment to students and colleagues, and sustained and continued impact.

Dr Barry Ryan, lecturer in Biochemistry at TU Dublin

TU Dublin Fine Art Lecturer Represents Ireland at La Biennale Di Venezia

Dr Niamh O'Malley, lecturer at TU Dublin School of Creative Arts was exhibited in the Irish Pavillion International Art Exhibition. The Venice Biennale is one of the most prestigious cultural institutions in the world. Niamh is a visual artist, using video, drawing, painting and sculpture to examine ways in which we try to access the world through images.

Dr Niamh O'Malley in her Studio at Temple Bar Gallery + Studios. Photo courtesy of Temple Bar Gallery + Studios

TU Dublin Lecturers Nominated for Irish Film and Television Awards

Lecturers on the Media Production & Digital Arts programme, were nominated at the prestigious Irish Film and Television Awards. Garret Daly's Nothing to Declare won Best Short Film on the night. Alan Fitzpatrick's Who We Love, which was also nominated for Best Picture faced strong competition from Kenneth Brannagh's Belfast. It also received nominations for Best Director, Best Screenplay, Best Supporting Actress, Best Supporting Actor and Best Music Score.

TU Dublin Lecturer wins Research Ally Prize for a Second Time

The Irish Research Council awarded TU Dublin Senior Lecturer, Dr Máirtín Mac Con Iomaire, a Research Ally Prize for the second year running. The award honours the positive role of supervisors, mentors and research officers in supporting and sustaining the Irish research community and how they help to foster a positive academic culture based on equality, inclusivity and respect. He was nominated by three of his PhD graduates.

Dr Máirtín Mac Con Iomaire

TU Dublin Lecturer Wins Prestigious Structural Engineering Education Award 2022

Cian Farrell was recognised for his innovative teaching techniques using his hybrid educational tool, Virtual Industry Visits. The tool helps students to visualise and interpret how a structural engineer textbook concept is applied in industry reality. The innovative solution was used to support students engaged in remote learning during the pandemic.

Cian Farrell awarded for his innovative hybrid educational tool

1.5 PEOPLE
Celebrating our Ambassadors

"We are committed to showcasing our Alumni and their achievements and maintaining a sense of belonging to the TU Dublin family"

TU Dublin was proud to graduate over 7,500 students in 2022 across all disciplines (Figure 4), providing a strong talent pipeline responsive to the needs of enterprise, public service and community sectors. Having a third level qualification increases employability prospects and in 2021, over 95% of TU Dublin graduates were either in employment or in further education nine months after graduation.

Figure 4: TU Dublin Graudates by ISCED 2021/22
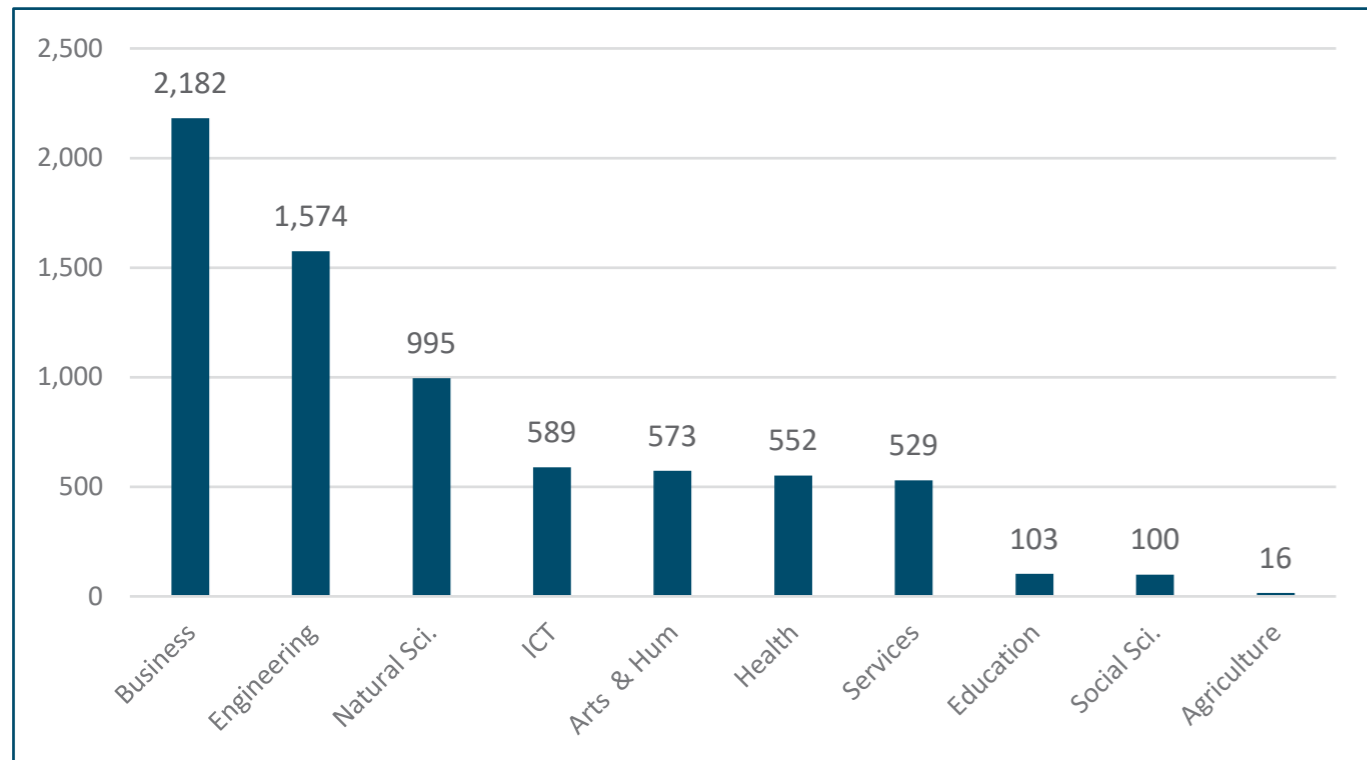
The Class of 2022 were the first in-person graduation ceremonies to take place since the COVID-19 pandemic. TU Dublin was delighted to welcome graduate cohorts from November 2020 and spring 2021 back to campus to finally get the chance for an in-person acknowledgement of their hard work.

There are many well-known TU Dublin alumni[8], their success stories are countless and some of interest are highlighted.

8 TU Dublin Notable Alumni

2022 Examples of Our Graduate's Achievements

TU Dublin graduate Alistair Muir amongst the youngest serving directors of any Australian-listed bank

Entrepreneur Alistair Muir, a TU Dublin graduate of Computer Science, was made Non-Executive Director of Bendigo and Adelaide Bank in 2022. He will be amongst the youngest serving non-executive directors of any Australian-listed bank.

Alistair is also the Managing Director of advisory business Vanteum. He has advised governments and numerous banks, fin-tech businesses and insurers on fin-tech and digital innovation.

Alistair Muir TU Dublin graduate of Computer Science

SoapBox Labs' Patricia Scanlon appointed Ireland's first AI ambassador

In May 2022, TU Dublin graduate Dr Patricia Scanlon was appointed by the Government as Ireland's first AI Ambassador. Scanlon is the founder and executive chairperson of Dublin-based speech recognition tech company "SoapBox Labs".

Dr Patricia Scanlon, Electrical Engineering graduate

Anna Haugh joins MasterChef: The Professionals judging line-up

Chef and owner of Myrtle Restaurant in London, TU Dublin Professional Cookery graduate Anna Haugh was a 2022 judge on MasterChef: The Professionals. Anna began her career in L'Ecrivain in Dublin before moving to London where she worked at Pied a Terre, The Square and the Gordon Ramsay Group. Anna is the resident Chef on BBC Morning Live and regular guest on Saturday Kitchen.

Andy McFadden, TU Dublin Tallaght graduate

TU Dublin Professional Cookery graduate, Anna Haugh

Dublin's Glovers Alley Restaurant Awarded its First Michelin Star

TU Dublin Tallaght graduate Andy McFadden is executive head chef at Dublin's Glovers Alley restaurant, which was awarded a Michelin star in the 2022 Michelin Guide Great Britain & Ireland.

Recent TU Dublin Graduate Winner of National James Dyson Award

Paul Hendrick, a 2022 graduate of Applied Science in Industrial and Product Design won the National James Dyson Award with his invention Méadú. The multifunctional, interactive maths board attempts to solve a problem with primary school students engaging with maths by offering interactive maths lessons.

Meadu invention by Paul Hendrick, Applied Science in Industrial and Product Design 2022 graduate

OneProject's founders win 'Best Emerging' entrepreneurs at EY Awards

Fionn Lahart, founder of OneProject, is a Mechanical Engineering graduate of TU Dublin. The venture-backed medical device company, OneProject, specialises in high-resolution cardiac imaging technology and is developing a catheter-based sensor device for use on patients who have received treatment for arrhythmias including atrial fibrillation (AFib), a heart condition that affects more than 38 million people around the world.

Fionn Lahart (left), TU Dublin Mechanical Engineering graduate

Planet

Being a Beacon for Sustainability

» applied for Green Campus accreditation
» achieved Platinum My Green Lab accreditation
» ranked Top 100 in SDG World Impact Rankings

Creating Responsible Global Citizens

» awarded over €4m in funding for sustainability education
» embedded sustainability awareness into induction for over 6,000 new students

Tackling Global Challenges

» increased research awards income +38%

Our Ambition

We will be a powerhouse for living & breathing sustainability addressing the challenges facing the world and impact positively on the planet and people, with 'education' as the engine.

2.1 PLANET
Being a Beacon for Sustainability

"We are committed to driving consciousness and understanding of sustainability"

At TU Dublin we want to foster leading minds and share research knowledge and expertise that informs action and achieves sustainability. We want to drive public discourse and influence policy development in partnership with thought leaders and to use our University as a living lab so that TU Dublin becomes a powerhouse for living and breathing sustainability.

In March 2022, TU Dublin ratified its Sustainability Statement. The University has committed to developing innovative solutions to climate change through research, green technologies and by using our physical and digital infrastructure to embed sustainability within our everyday learning and working environment. The following highlights are a selection of TU Dublin's sustainability initiatives in action.

Green Campus

TU Dublin has been working on the An Taisce Green-Campus programme since 2017 but formally registered with the Green-Campus programme under one University application in 2022. The programme aims to make environmental awareness and action an intrinsic part of the life and ethos of educational facilities[9]. TU Dublin is currently working towards achieving Green Flag status in the areas of 'Litter & Waste' and 'Energy' by the end of 2023.

In 2022, TU Dublin's Green Campus committee hosted 55 sustainability events for Green Week. The annual event, now in its eleventh year, brings students, staff and industry together to celebrate and extend knowledge on sustainability. Interactive events such as tree planting and bike repair shops were hosted, along with panel discussions from industry experts including ESB, EirGrid and Bord na Móna. In addition to energy consumption, other events focused on sustainable finance and sustainable technology, and more broadly, a workshop was held for Masters students to investigate SDG issues.

TU Dublin staff, students and local community planting trees on Tallaght Campus for Green Week

My Green Lab Accreditation

TU Dublin are active members of the MY Green Lab programme, a not-for-profit organisation formed to improve the sustainability of scientific research. The University working group is seeking to reduce the environmental footprint of laboratory research at TU Dublin. Within the School of Chemical and Bio-Pharmaceutical Sciences, the chemistry labs in Tallaght were awarded a Platinum My Green Lab Certification in 2022 and TU Dublin is now progressing eight more applications.

District Heating Networks

TU Dublin is committed to the utilisation of low to zero carbon technologies in order to deliver on the targets outlined in the National Climate Action Plan. The Tallaght District Heating System (DHS) is the culmination of several years of collaborative engagement between South Dublin County Council, TU Dublin Tallaght Campus and Amazon AWS. It is Ireland's first low-carbon sourced district heating system. Excess heat from the Amazon AWS data centre is used to provide low-carbon heat to the network. In 2022, the main building on the Tallaght campus and the new Sports-Science, Health, and Recreation Building were connected to the DHS. The carbon emissions savings on the Tallaght campus, based on estimates extrapolated from the latest SEAI Monitoring & Reporting (M&R) data, amounts to a reduction of approximately 400 tonnes of CO_2e per annum.

TU Dublin has also partnered with Geological Survey Ireland (GSI) and CODEMA to develop a deep bore geothermal well on the Grangegorman campus. This is the first geothermal project in Ireland and the goal is to provide renewable heat to the already installed District Heating Network in Grangegorman, replacing existing gas-fired boilers with a geothermal system. The chosen technology is a deep bore open geothermal doublet, extracting heat at 2.5km. The findings at 1km of 38 degrees confirmed that the project has massive potential and could produce temperatures of up to 80-90°C, the energy required for district heating.

Tallaght District Heating System at TU Dublin Tallaght Campus

Bronze
40% or more of Green Lab assessment actions implemented

Silver
50% or more of Green Lab assessment actions implemented

Gold
60% or more of Green Lab assessment actions implemented

Platinum
70% or more of Green Lab assessment actions implemented

Green
80% or more of Green Lab assessment actions implemented

My Green Lab Accreditation Levels

9 Green Campus Guidebook

Walk21

TU Dublin endeavours to be a leader in informing public debate on sustainability and as part of TU Dublin's awareness-building campaign, over 150 events were organised in 2022, a selection of which are highlighted in Table 3. A significant event, Walk21, took place over five days in September, welcoming 60 interdisciplinary expert keynote speakers from around the globe and over 1,000 delegates both in person and online. The 2022 theme, The Decade to Change, explored the challenges communities face as well as sharing best practice in infrastructure, international policy making, the use of technology and safety around walking. The full programme can be viewed here.

Table 3: Examples of TU Dublin Sustainability Events

| Major Events in 2022	Highlights
Health Hackathon,	40 students developed solutions for five challenges set by Tallaght University Hospital clinicians.
Decarbonising Irish Cities Alumni Event	First in-person Alumni event to take place since Covid-19. Panel members included Minister Eamon Ryan TD, TU Dublin graduate Dr Fergus Sharkey (SEAI) and Dr Ruth Kerrigan (IES).
National Geothermal Energy Summit	TU Dublin and Geological Survey Ireland held the first National Geothermal Energy Summit. Industry, research and policy experts attended to discuss the vision for the future of geothermal energy in Ireland.
Skills for a Sustainable & Resilient Future	150 participants attended the Convene Enterprise Forum. Taoiseach Leo Varadkar delivered the keynote speech in which he addressed the skills required to grow and sustain talent across social and commercial enterprise.
Stepping Stone Forests	Local community organisations, volunteers and TU Dublin staff and students came together to plant a forest, designed to align with a module on Active Citizenship.
SG Literary & ConnectED Planet Series	A fully attended audience attended four hybrid events including: - AI and Net Zero - Changemaker and Social Entrepreneur - Sustainability Across the Supply Chain - When Business Meets the Doughnut
Irish University Association Future of Ireland Event	Minister Eamon Ryan T.D. was keynote speaker providing his thoughts on the role of Irish universities in addressing the climate and biodiversity crisis.
COPON! Festival	A festival to stimulate discussion and inspire climate action in line with COP27.
President's Sustainability Innovation Challenge	Students were challenged to present ideas to reduce household food waste in line with the UN's estimate that eliminating only ¼ of the food presently wasted would be enough to end global hunger. A prize fund of €2,000 was presented to the winning student.
#COPDrop	Students collaborated to develop the multi-disciplinary COP27 commentary project.
Climate Awareness Photo Competition	Students were tasked to enter photographs highlighting their perspective on the impacts of climate change.

Lord Mayor of Dublin, Caroline Conroy, launches Green Week

TU Dublin Smarter Travel Survey 2022

TU Dublin participated in the 2022 National Transport Authority Smarter Travel (NTA) Survey. The results showed an impressive 89% of students and 56% of staff travel to campus by sustainable and active travel modes. TU Dublin had over 5,000 respondents to the survey, which the NTA noted was the highest response rate ever achieved across the entire programme since its initiation. The baseline data will now be used to monitor interventions and inform investment decisions to help lower TU Dublin's Scope 3 emissions.
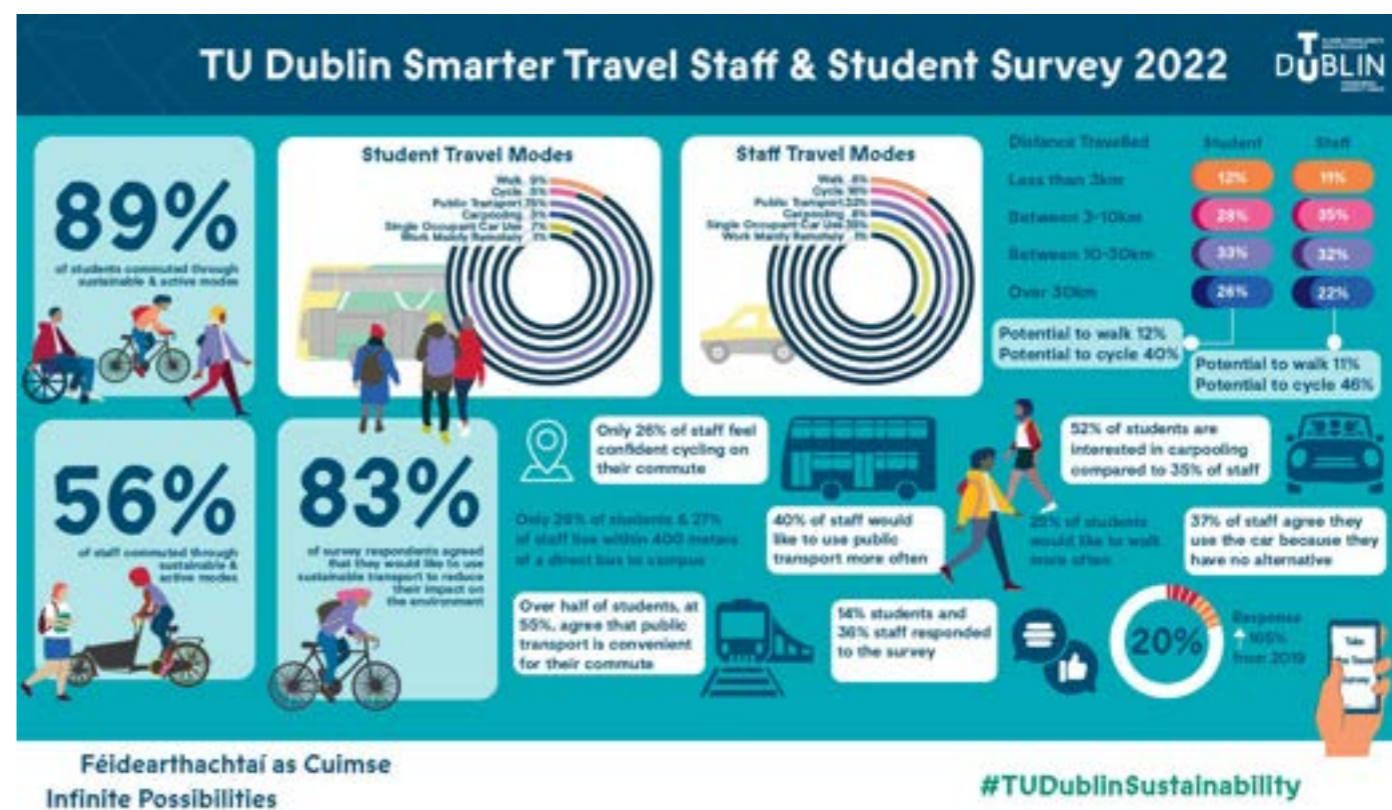
Impact Rankings

The sustainability efforts of the University are reflected in the results of the Times Higher World Impact Rankings. In 2022, TU Dublin was ranked in the Top 100 for three categories; SDG11 Sustainable Cities and Communities (33rd); SDG1 No Poverty (83rd); SDG13 Climate Action (87th). The Impact Rankings measure the contribution that higher education institutes make in relation to the UN Sustainability Goals in terms of their research, teaching practices and facilities. The TU Dublin UN Sustainability Development Goals Progress Report outlines key initiatives undertaken under each of the 17 SDGs during 2022.

Sustainability Awards 2022

TU Dublin has invested in finding innovative solutions to our climate challenge. In 2022 a number of staff and students were awarded for their efforts in this regard (Table 4).

Table 4: Examples of TU Dublin's 2022 Sustainability Awards

Award	Winner
Climate Launchpad	Bio Wrap won TU Dublin's first international Climate Launchpad competition, which celebrates pitches for business ideas with climate impact. The winning pitch, Bio Wrap, is a biodegradable, weatherproof alternative to standard plastic pallet wrap.
EWB Innovation Award	TU Dublin's Future Greens team won the EWB Innovation Award for their Microgreens project: a leaflet guiding students on how to grow their own microgreens using waste materials.
SFI Future Innovator - Food Challenge Prize	TU Dublin's Leaf No Waste team won €2M in funding for their innovation to extend the shelf life of salad leaves and allow producers move away from plastic packaging to more sustainable, compostable options. Ireland is the largest producers of plastic waste in Europe and produces 1M tonnes of food waste each year.
nTopology Responsible Part Challenge	Brothers Eoin and Tadhg-Lorcan Oude Essink of TU Dublin won the prestigious nTopology Responsible Part Challenge. The challenge tasked students from across the globe to present their projects which demonstrated responsible additive manufacturing methods.
EI Innovation Arena Awards	TU Dublin innovation partners Pearson Milking Technology won the Enterprise Ireland's Innovation Arena Awards. The 'Bullseye' invention drives innovation through automation and delivers benefits to farms as it frees up resources and contributes to sustained food production.
EI Innovation Arena Awards	Micron Agritech won the Enterprise Ireland's Best Overall Start-up award for their revolutionary parasite testing technology, which they spun-out of the University in 2019. The technology helps animal owners to maximise yield and reduce costs, all whilst helping to reduce their environmental impact.
An Taisce Climate Ambassador Programme	TU Dublin student Fionn Fitzpatrick won an award of Outstanding Achievement based on his exemplary work carried out during his participation on the An Taisce Climate Ambassador Programme, working with a Flash Mob team to build awareness on climate issues.
My Green Lab	The School of Chemical and Bio-Pharmaceutical Sciences achieved a Platinum My Green Lab Certification.

Leaf No Waste, winners of SFI Future Innovator Food Challenge Prize

TU Dublin's My Green Lab Certification

2.2 PLANET
Creating Responsible Global Citizens

> "We are committed to facilitating learning and knowledge-creation, fostering ambition and passion for sustainability"

TU Dublin is committed to providing an education that instils a sustainability mind-set and creates champions to drive the sustainability agenda. We aim to engage all learners at all levels in tackling SDG challenges so that, as a society, we find more sustainable ways of working and living to protect our planet.

The process of embedding sustainability in the student experience commenced via the development of a sustainability element in orientation for incoming students in September 2022. An academic wall-planner with information on sustainable living in TU Dublin was distributed to 6,000 incoming students and a short online programme on sustainability was made available.

Education for Sustainability

In 2022, TU Dublin received €145k in funding under the SATLE 2022-23 Fund to drive teaching and learning innovation. The Education for Sustainability Workstream, within the project, builds on previous piloted initiatives in the areas of: (i) sustainability literacy, (ii) education for sustainability CPD, and (iii) sustainability in the curriculum. The aim is to scale the initiatives and empower faculty to transform their education programme portfolios.

i. Sustainability Literacy

SDG literacy has emerged as a flagship community of practice within TU Dublin. TU Dublin has become the Sulitest Regional/National Expert Committee for Ireland. As of 2022, over 4,000 students had completed the Sulitest online literacy examination tool, and over 100 academic staff were registered as Sulitest examiners. The results will provide an understanding of our literacy profiles and will inform the development of more formal education for sustainability modules as the project progresses.

ii. Education for Sustainability CPD

Two cycles of the Education for Sustainability modules were delivered in the academic year 2021-2022, in which 100+ undergraduate students, 20+ PhD students and 80+ staff completed. The first cohort of students were presented with their CPD certificates during Green Week in March 2022. Over 60 recordings of guest-speakers from academia and industry have been curated for editing as open education resources (OERs).

In addition, a professional development PG Certificate in Sustainability Leadership is being piloted with the Irish Exporters Association (IEA) with intention to launch in September as professional development for the IEA membership. The IEA represents more than 400 members at regional, national and European levels.

iii. Sustainability in the Curriculum

In 2022, the School of Food Science and Environmental Health was successful in securing Erasmus+ funding for a project to develop food sustainability competencies through Nemos. The Nemos project integrates sustainability competences through Green pedagogy and is in collaboration with TU Graz, Pisa University and the public University of Navarra. The University is also introducing new sustainability programmes including a Certificate in Sustainable Finance and a Postgraduate Diploma in Sustainability Leadership.

Resilient Design Curricula

Separately, the Resilient Design Curricula project, led by TU Dublin, involves all six schools of architecture in Ireland (UCD, SETU, UL, MTU, TU Dublin and ATU), and over forty industry stakeholders. The collaborative project received funding of €3.96m in 2022 through the HEA Human Capital Initiative (HCI) and is supported by the Royal Institute of Architects of Ireland (RIAI). The project aims to reconfigure the professional curricula in architectural education. It is estimated that 37% of carbon emissions in Ireland are produced by the construction and built environment sector[10] and the programme of work will upskill architectural educators in energy efficient and whole life cycle design, so that these skills can be transferred to future practitioners. It

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10 Joint Committee on Housing, Local Government and Heritage - Embodied Carbon in the Built Environment 2022

aims to empower future graduates with the knowledge, skills and mind-set to help society address the sustainability challenges encapsulated in United Nations SDGs 2030.
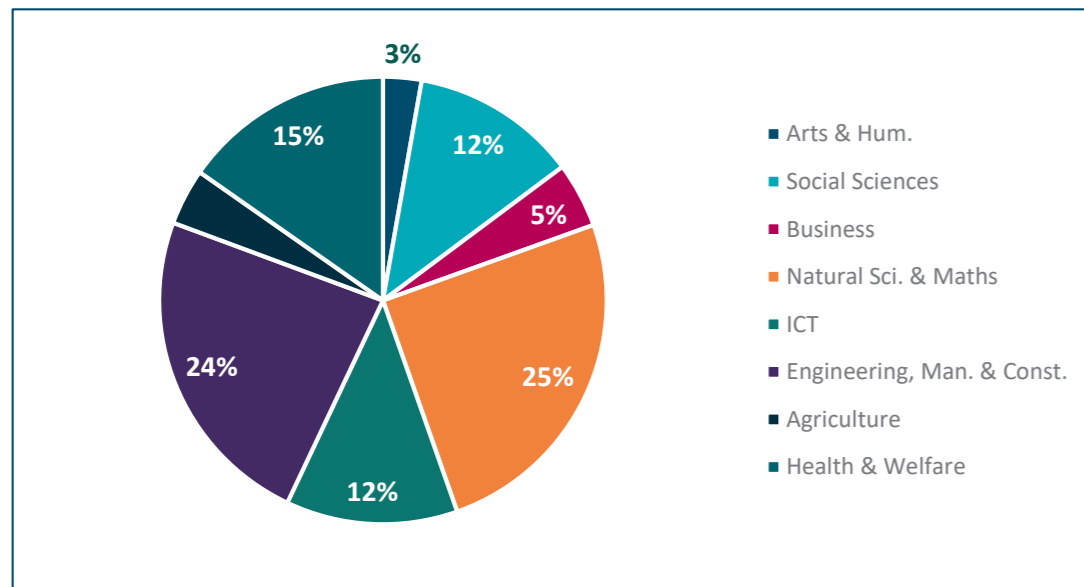
2.3 PLANET
Tackling Global Challenges

"We are committed to delivering deep understanding and new solutions to the planet's challenges"

TU Dublin is cultivating multidisciplinary research to deliver global impact and engage with global networks to build critical mass of knowledge and understanding. We are delivering research projects with industry and community partners to convert knowledge into tangible outcomes.

TU Dublin's expertise and state-of-the-art facilities make a significant contribution to knowledge and delivering solutions that create impact. Our Research Institutes, Centres and Groups operate across a range of disciplines and the University also hosts two Technology Gateways, CREST and MiCRA, that are supported by Enterprise Ireland. TU Dublin is also a partner in a number of SFI Research Centres:- ADAPT, Connect and MaREI.

Since designation, TU Dublin has focused on building its research capacity and has continued to grow its scholarly output annually (Scopus database[11]). The impact of TU Dublin's research is significant, with a Field Weighted Citation Impact (FWCI) of 1.66[12]. STEM fields are areas of research strength for TU Dublin (Figure 5). However, scholarly work in the creative and performing arts, which is not commonly captured in publication databases, is also conducted at TU Dublin.

Figure 5: TU Dublin Publications by ISCED 2020-2022

Arts & Hum.
Social Sciences
Business
Natural Sci. & Maths
ICT
Engineering, Man. & Const.
Agriculture
Health & Welfare

The proportion of externally funded research awards by ISCED reflects the University's activity in STEM (Figure 6) but the award funding in the fields of Arts & Humanities and Business grew significantly in 2022. Overall, TU Dublin has increased external funding by 38% in the past three years (Table 5).

Figure 6: TU Dublin Research Awards by ISCED Field 2021/2022

Natural Sci. & Maths
Engineering, Man. & Const.
ICT
Business
Arts & Hum.
Other
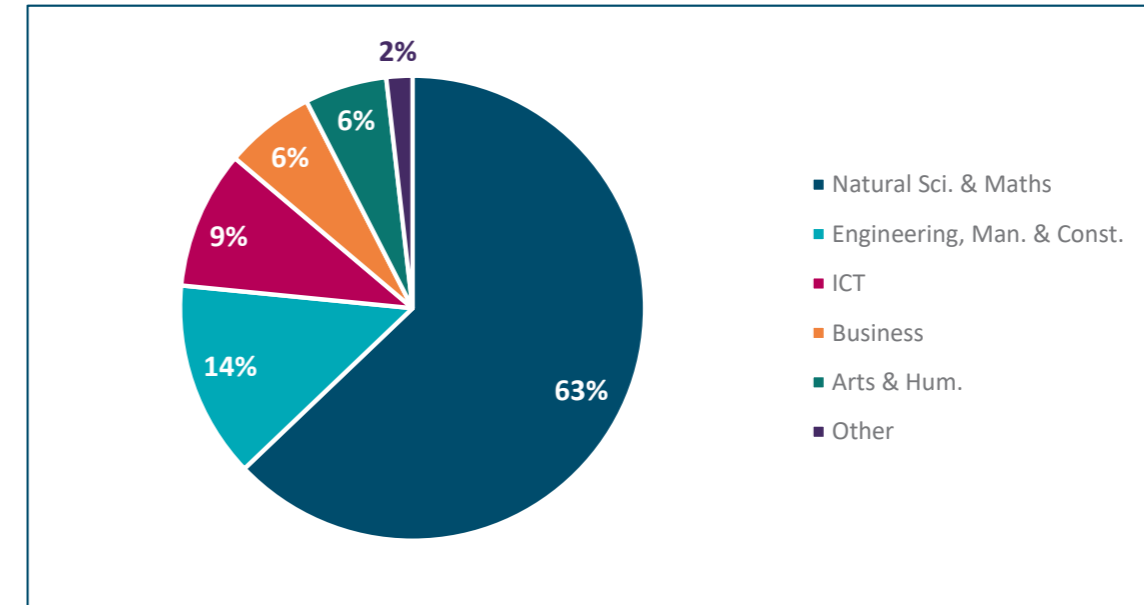
Table 5: TU Dublin Research Awards 2022, by Funding Agency

Funder	2022 (€000's)	% Change In the Period 2020 - 2022
Dept. Agriculture, Food & the Marine	682	241%
EU Commission	1,611	-49%
Enterprise Ireland	727	-67%
Government Departments/Agencies	1,843	273%
HRB	138	100%
Irish Research Council	307	-38%
Industry	24	-97%
Philanthropy/ Charity	48	155%
Science Foundation Ireland	11,485	150%
Other	54	-86%
Total	**16,920**	**38%**

11 Scopus
12 Elsevier FWCI definition

2022 Examples of Our Research Work

Plasma PLUS: Discovery of Plasma Assisted Therapies for Cancer

Cancer causes 10 million deaths each year and many forms of cancer remain extremely challenging to treat. In partnership with UCD and Maynooth University, TU Dublin was awarded €1 million in 2022 to lead ground-breaking research in plasma assisted cancer treatment from the SFI Frontiers for the Future Programme. The research will use a technology called cold plasma and will focus on:- activating cancer drugs inside brain cancer cells; designing and testing new cancer drugs with better activation properties; and developing fatty coatings to specifically target cancer cells. The benefit will be smart drugs with better effectiveness and reduced toxicity.

Research Team: Prof James Curtin (TU Dublin), Prof Paula Bourke (UCD), Prof John Stephens (MU) and Dr Gemma Kinsella (TU Dublin) and Dr Daniela Boehm (UCD).
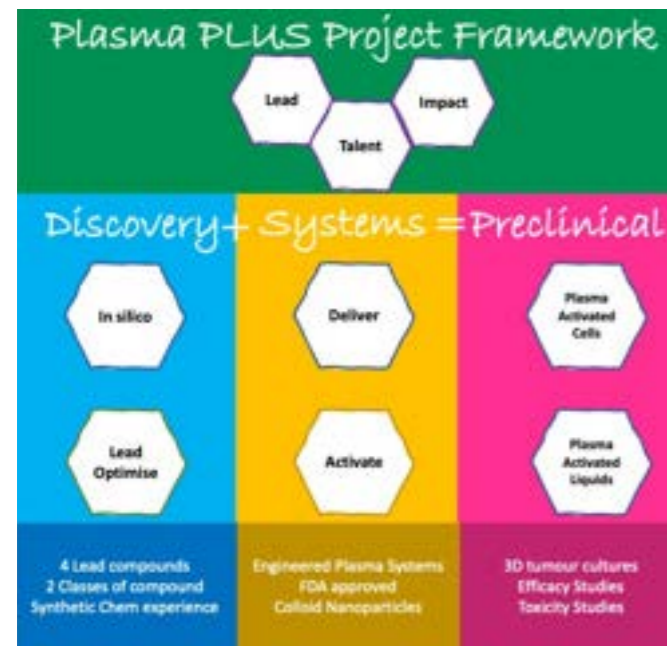
Infant and Young Child Feeding in Emergencies Preparedness Plan

The nutrition of our most vulnerable population, children, needs to be protected in emergencies. In 2022, Dr Liz O'Sullivan and Dr Aileen Kennedy of the School of Biological, Health and Sports Sciences received funding under the Shared Island North-South Research Programme to develop an Infant and Young Child Feeding in Emergencies Preparedness Plan for the island of Ireland. In collaboration with Queens University Belfast, Drs O'Sullivan and Kennedy are conducting empirical research among healthcare professionals and families to understand the specific nutritional needs of infants and young children during emergencies, with a particular emphasis on marginalised sub-populations. They will also develop case studies to learn from recent events including Brexit, the COVID-19 pandemic and

the war in Ukraine. With the impending threat of climate change and ever-increasing humanitarian emergencies being experienced this research has never been more relevant.

Mobile Air Research Laboratory

TU Dublin's Environmental Sustainability and Health Institute (ESHI) received SFI Research Infrastructure funding in December 2022 to establish a Mobile Air Research Laboratory (MARL) in TU Dublin. It is estimated that 400,000 premature deaths are due to poor air quality in Europe annually. Ireland accounts for 1,300 of those deaths. MARL will be a unique mobile laboratory providing comprehensive air quality information to a range of stakeholders, facilitating the evaluation of interventions, in line with our national policies on sustainability climate change and clean air.

Ethics4EU team

Perform_Live

In March 2022, Professor Una Hunt of TU Dublin Conservatoire hosted Perform_Live, the first music performance research supported by the National Concert Hall. Performance research is a relatively new concept in Ireland where performers undertake interlinked activities in both research and performance and create multi-media outputs. The event involved nearly 90 artists from across Europe. This initiative has established a community of interest in Ireland and further afield.

Professor Una Hunt with Professor Helen Phelan, chair of the Roundtable Discussion at PERFORM_LIVE

Ethics4EU

Ethics4EU has explored societal impacts of computing technologies. Dympna O'Sullivan was the lead PI on this €450K Erasmus+ project ending in 2022 with the following outputs:

- A survey of 60 European Universities to understand the extent Computer Ethics is taught across Europe;
- An open platform of educational resources for teaching Computer Ethics;
- An accredited training module to train Computer Science lecturers in Computer Ethics;
- A Community of Practice of lecturers across Europe with over 200 members.

Ethics4EU will develop new curricula, best practices and learning resources for digital ethics for computer science students. The consortium has widely disseminated the resources via publications, six multiplier events attended by almost 400 people, international invited talks, workshops and panel appearances.

Partnership

In 2022...

Open Science, Open Innovation, Open to the World

» over 12M open access research downloads from Arrow
» celebrated 15 years of innovation at TU Dublin
» 147 entrepreneurs supported through New Frontiers

A Tightly Connected Network

» delivered practice-based, research informed learning through our network of industry, community and academic partnerships

Being Global

» grew international students 12%
» harmonisation of EUt+ curricula allowing the first cohort of students to move seamlessly between 8 European campuses

Organisational Effectiveness

» Transitioned to new 5 faculties

Our Ambition

We will deliver shared impact developing the most connected university; cultivating a network of discoverers, creators and entrepreneurs; engaging with people that make things happen.

3.1 PARTNERSHIP
Open Science, Open Innovation, Open to the World

"We are committed to developing and sharing knowledge openly, creating synergies with partners to optimise impact"

TU Dublin is underpinning our innovation ecosystem and deepening our entrepreneurial collaborations to increase the number of new technologies, new products and new businesses created. We are also supporting an environment where open science is the norm, understanding that the global issues facing society today will only be solved together, with shared knowledge and expertise.

OPEN SCIENCE

TU Dublin has engaged in Open Research and Open Science for several years and has a dedicated Open Research Support Unit. In 2022, the team expanded and it has delivered a series of training modules for the research community including on open access, research data management and literature review.

The University's repository, Arrow, continues to be very successful, with almost one million downloads in 2022 alone. TU Dublin continues to lead the work on open research in the European University of Technology alliance (EUt+) and Arrow is the home of the EUt+ Academic Press, which launched in July 2022 and has already published four titles.

Open Access in TU Dublin

- **70.4%** of peer reviewed material available as open access
- **17,621** items in the institutional repository Arrow@TUDublin
- **12 million** downloads by 91,557 institutions in 237 countries
- **13** open access journals free to read and free to publish in
- **931** research theses in the repository downloaded 1,096,662 times

OPEN INNOVATION

TU Dublin is one of the leading universities in Ireland in terms of our innovation portfolio. The University supports innovation in three ways:- (i) through its Innovation Office for more established enterprises; (ii) through New Frontiers which supports early-stage entrepreneurs; and (iii) through GROWTHhub for student innovation and entrepreneurship.

(i) TU Dublin's Innovation Office: Established Enterprises

TU Dublin's award-winning Innovation Office celebrated 15 years of innovation in July 2022. As part of the celebrations, the University hosted the Impact Innovation Awards to celebrate TU Dublin innovators and their contribution to the economic life of the region. The University offers a range of facilities and services including state-of-the-art business incubation facilities; a pioneering initiative Open Labs, which provides organisations with access to world leading facilities and expertise; and access to researchers through our technology gateways. Since 2007, TU Dublin has launched 44 spin-outs, including the hugely successful Kastus®, Micron Agritech and Ocumetra.

TU Dublin's Innovation Portfolio 2007-2022
550 industry project collaborations
€200M in revenue generation
€230M in equity investment
44 TU Dublin Spinouts
226 License Agreements
136 Patent Applications filed
578 Invention Disclosures
35 Patents Granted

TU Dublin's Impact Innovation Award Winners

L to R: Dr Sive Geoghegan, Gateway Manager at MiCRABiodiagnostics; Prof. James Loughman, Founding Director and Chief Executive Officer at Ocumetra; Prof. Ian Flitcroft, Founding Director and Chief Innovation Officer at Ocumetra and John Walsh, Founder of TU Dublin CreateLAB

Knowledge Transfer

Since its designation, TU Dublin remains a leader in many aspects of innovation. The Dublin Region Innovation Consortium (DRIC), which is led by TU Dublin, is a consortium that includes IADT, NCI and DIAS. It supports the development of new products and companies, delivering real impact in the Dublin region. In 2022, of all the HEI consortia in Ireland, DRIC generated the highest number of licences, options & agreements and invention disclosures. A breakdown of Knowledge Transfer outputs per €10M expenditure is provided in Table 6.

Table 6: DRIC Performance per €10M Research Expenditure 2022

Consortium	LOAs	Spin-outs	RA <€25K	RA €25K-€500K	IDF
DRIC	4.75	0.75	7.75	5.5	8.25

2022 Examples of Our Knowledge Transfer

VR training programmes by Virtual Interactive Research Lab

Dr Brian Vaughan, founder of the Virtual Interactive Research Lab and Senior Lecturer in School of Media, developed tailored VR training programmes for the pharmaceutical, biopharmaceutical, medical device and chemical supply sectors on behalf of Skillnet Ireland. To date, 20 key opinion leaders in the pharma-sector have trialled the TU Dublin immersive experience with extreme levels of satisfaction indicated. The next milestone will be to roll-out the training programme amongst workers operating in these key sectors.

Pearson Milking Technology - Enterprise Ireland's Innovation Arena Overall Winner

In September, Pearson Milking Technology became the overall 2022 Enterprise Ireland Innovation Arena Awards winner. The new invention, Body Condition Score (BCS) of a cow is a key metric in assessing the fitness of the animal in terms of whether they are under or overweight. By automatically estimating the BCS of the animal, dietary supplements can be adjusted, which in turn keeps the cow in an ideal state. Maintaining this ideal state is important for the likely success of any calving and consequently dairy production. Traditionally, this is a labour intensive and manual process that requires an expert on site. This was a joint collaborative project with TU Dublin's CeADAR Technology Centre lead by Dr Schoen-Phelan and Dr Ross from the School of Computing and supported by TU Dublin Innovation.

(ii) New Frontiers: Early-Stage Entrepreneurship

New Frontiers is the national entrepreneur development programme, funded by Enterprise Ireland. The programme is designed for ambitious early-stage founders with innovative business ideas. The programme enables founders to bring their businesses from concept through to investment readiness.

Sectors where TU Dublin has accelerated high potential start-ups include Software, Engineering, Food innovation, Med Tech, Fin Tech, Augmented Reality, Virtual Reality, Artificial Intelligence, Blockchain, Climate Tech and Sustainability.

The Programme supports the University in delivering to our regional development remit by supporting entrepreneurs to generate employment, to scale internationally and to create economic impact in the regions served by the University.

TU Dublin New Frontiers 2022 in a Snapshot
Total of 147 Founders were supported in 2022
72 Female Founders; 84 Male Founders; 1 Non-Binary Founder
TU Dublin New Frontiers Founders Aaloka Anant of Maya Data Privacy and Karl O'Meara of Pensions Vault successfully pitched for Enterprise Ireland PSSF investment of up to €100,000 each.
Some of the Funding Highlights from 2022:   - ProMotion Rewards (Co-Founder Lauren O Reilly) raised investment of €725,000   - Imvizar (Founder Michael Guerin) raised investment of €800,000   - Equine MediRecord (Founder Pierce Dargan) raised awarded $10 million from a US Equity Investment Company   - VisionR, formerly Glimpse, (Co-Founder Shane O'Sullivan) raised investment of €1.5 million   - Positive Carbon (Co-Founder Aisling Kirwan) raised investment backing from German Venture Capital firm APX   - Hiiker (Founder Paul Finlay) closed a €500,000 seed round   - Sea and Believe, formerly Plantruption, (Founder Jennifer O'Brien) announced a €3 million investment round   - Thanks Plants (Founder Aisling Cullen) secured €400,000 investment from Redesdale

2022 Examples of Early Stage Entrepreneurs

Pierce Dargan, of Equine MediRecord, is a former Greenway Hub client and graduate of the 2017 Phase 2 Programme. Equine MediRecord is a network-based platform, which digitises the equine industry with the management of the regulatory aspects of racehorse medicine. The software has been approved by equine regulators in countries such as Ireland, UK, France, US and Saudi Arabia and has been used by some of the top horse organisations in the world. In 2022, the equine technology company secured $10 million from a US private equity firm to fund its growth and drive adoption of its compliance platform. Equine MediRecord was awarded Ireland's Best Tech Start up in 2022 at the National start up Awards.


Pierce Dargan of Equine MediRecord

Lauren O'Reilly, of ProMotion Rewards graduated from the TU Dublin New Frontiers Phase 3 programme in May 2022. Co-founded with Bidemi Afolabi, this consumer rewards platform enables brand partners to interact directly with purchasers of their products. A simple mechanism of uploading receipts generates relevant rewards for consumers and gathers deep insights for brand owners. Their goal is to become the consumer rewards app of choice. In 2022, ProMotion Rewards successfully closed on several key partnerships with multi-national brands and raised investment of €700,000 in 2022.

Lauren O'Reilly of ProMotion Rewards

Shane O'Sullivan, of VisionR graduated from the TU Dublin New Frontiers Phase 2 Programme in 2018. Co-founded with Oran Mulvey, the audience analysis technology company provides data rich insights to bricks-and-mortar retailers on their customer behaviour in-store. Using their Scout system, VisionR mines data directly from shoppers as they navigate stores, empowering retailers with real-time insights to maximise their decisions and revenues. VisionR has secured a partnership with Spar International to roll out their technology in 13,500 stores in 48 countries. In 2022, the customer insights technology company raised €1.5 million in a round led by Delta Partners and joined by Enterprise Ireland.
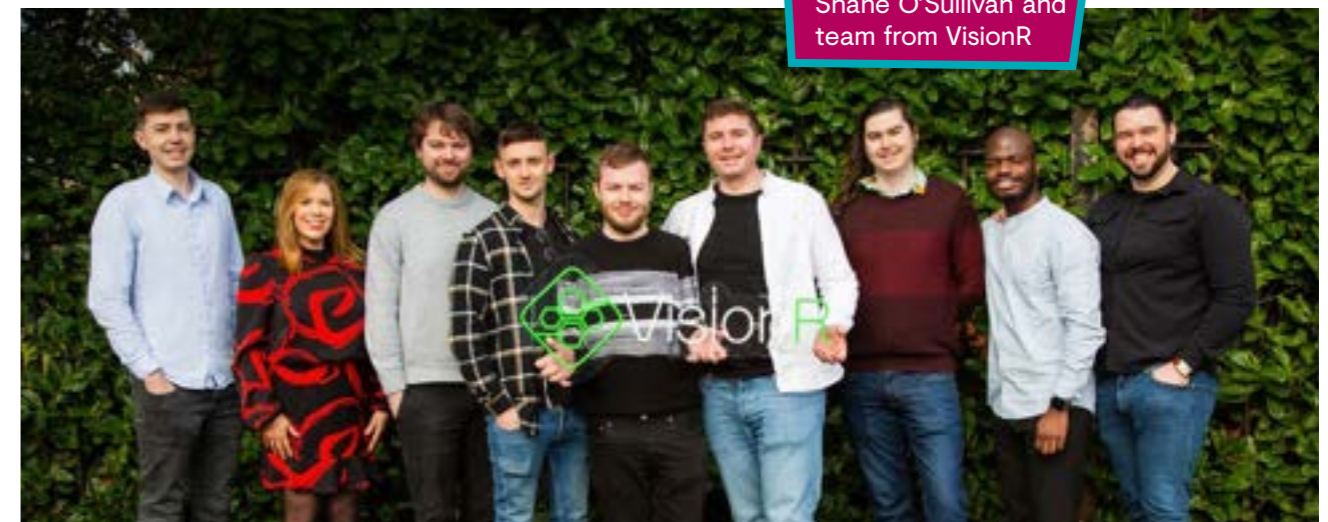
Shane O'Sullivan and team from VisionR

(iii) GROWTHhub: Student Entrepreneurship

GROWTHhub is a HCI Pillar 3[13] initiative with a mission to encourage a growth and entrepreneurial mindset among TU Dublin students and enterprise-based learners. The programme provides immersive boot camps and accelerator programmes to create experiential learning for students.

In May 2022, a five-week student entrepreneurship accelerator programme, ivenTUre, commenced. The programme saw 45 students received a CPD Certificate in New Venture Design for developing their enterprise ideas to a pitch stage. The winning product design was Smoothscan, which helps reduce repetitive strain injury for sonographers. In addition, students were also able to work on their enterprise ideas on Venture Lab. This blended and accredited programme saw students take their ideas through each of the stages of new venture design over the course of a semester. At the end of 2022, GROWTHhub launched its Enterprise Idea and Pitch Clinic where students can bring their ideas and receive feedback and direction.

In addition to working with TU Dublin students, GROWTHhub became the national lead for EIT Climate-KIC ClimateLaunchpad, which worked with participants from across Ireland. This global competition recognises that new enterprise ideas have the potential to be both commercially successful and have a positive impact on climate action by reducing carbon emissions. GROWTHhub worked with participants of 23 business ideas, providing training and mentoring. Five business ideas progressing to the national final, and one team progressed to the global final.

2022 Example of Student Entrepreneurship

Born Again Bites by Well Spent Grain is a success story arising from the ClimateLaunchpad. Sunkyung Choi and Patrick Nagle created a food upcycling start-up by collecting brewer's spent grain from local breweries and converting it into a 100% plant-based protein snack product. It is hoping to commercialise and sell their products in supermarkets in the near future. The team participated in 2022 ClimateLaunchpad and are now supported by TU Dublin's incubator Hothouse, while refining their recipe and production process in conjunction with TU Dublin researchers.

Sunkyung Choi of Well Spent Grain

ivenTUre Introduction Video

13 Human Capital Initiative Pillar 3

3.2 PARTNERSHIP
A Tightly Connected Network

> "We are committed to making things happen through drive and imagination in close partnership with stakeholders"

TU Dublin is leading a seamless network of learning and leveraging synergies through our extensive partnerships. Our drive for collaborative research agendas support the delivery of creative tangible solutions for the real world.

At TU Dublin, up to 200 academic programmes operate in collaboration with industry partners, including professional bodies, Springboard, Skillnet, private industry, and community and public sector organisations. TU Dublin successfully bid for Human Capital Initiative (HCI 3)[14] funding in 2020, with awards of over €20m received. The continuing initiatives are aimed at increasing capacity in higher education to meet priority skills needs. Across the three main projects that TU Dublin leads on Convene, GrowthHub and Resilient Design Curricula, there are over 85 enterprise partners involved.

TU Dublin continues to offer degree programmes, Continuing Professional Development programmes or training courses in collaboration with international and national sectoral leaders such as Royal Hibernian Academy, Institute of Professional Auctioneers and Valuers, Screen Ireland, International Centre for Local and Regional Development, Shanghai Biopharmaceutical Industry Association, Climate Launchpad, SGS and Irish Air Corps, among others.

Some key partnerships developments in 2022 are highlighted below.

Reforming Higher Education Post-pandemic

The Irish technological universities and institutes of technology are collaborating on teaching and learning reforms arising from the experiences of digitally enabled education during the COVID-19 pandemic. The consortium was awarded funding under NTUTORR (National Technological University Transformation for Recovery and Resilience). The key strands of work within the project are

(i) Transforming the Student Experience through Learner Empowerment – which will address key challenges arising out the pandemic including equality, access, community empowerment and climate action.

14 HEA Human Capital Initiative

(ii) Transforming Learning, Teaching and Assessment by Developing Staff Capabilities – which will reform academic programme provision through flexible and innovative approaches that address the social and economic needs of the region through a sustainable curriculum framework.

(iii) Enable Digital Ecosystems to Transform Learning, Teaching and Assessment - to enable sustainable education development, which is diverse, equitable and inclusive.

Enterprise Academy for Talent Development

Convene, which is a TU Dublin-UCD collaboration, has continued to explore new ways that academia and enterprise can work together to meet emerging skills needs post-pandemic. In October, TU Dublin launched its Enterprise Academy, a significant milestone in the project. The Academy offers a new co-learning system for talent development, with flexible delivery mechanisms from Level 6 to Level 10 and micro-credentials that can be stacked as pathways to larger awards. The Academy team consists of accomplished sector-facing professionals, academics and domain experts, who offer consulting and partnership resources for enterprise to co-develop talent development solutions.

Convene's Enterprise Academy Forum with Tánaiste Leo Varadkar and guests.

Centre of Excellence for Architecture, Engineering and Construction

Several significant industry contributors have partnered with TU Dublin in the development of Design + Construct. Design + Construct will be a centre of excellence for the Architecture, Engineering and Construction (AEC) sector. It aims to support the

industry's digital transformation and embed sustainable learning outcomes in educational programmes from Apprenticeship to PhDs. The organisations range from Irish owned to global leaders and offer expertise in insulation to precision measurement and workflow solutions.

- Topcon offered a philanthropic donation of €500,000 and an equipment donation worth €1.5 million in market value. The organisation is supporting the University to keep pace with the rapid changes in advanced technologies for hands-on training through its "Learn-Apply-Build" (LAB) initiative.

- Collen Construction is collaborating with TU Dublin to develop educational and training programmes that build the skillsets required by the Irish construction sector to remain globally competitive. The Collen Workshop will be located in Design + Construct as part of this five-year partnership.

- Irish owned organisations Chadwicks Group donated €250,000 and Walls Construction offered a donation and a scholarship to help build a talent pipeline. While the global leader Kingspan, announced their inaugural Kingspan Century Scholarship award as part of their five-year partnership.

Design + Construct partners, Chadwicks Group, with TU Dublin students

Advanced Training at the National Optometry Centre

Leading eyecare company, Scope, agreed a ten-year partnership with TU Dublin to develop a range of innovative educational activities for Optometry and Ophthalmic Dispensing students. They also donated €150,000 in philanthropic support at TU Dublin's National Optometry Centre. Additionally, SPECSAVERS, an international family-run business, agreed to provide expert mentorship to TU Dublin's optometry students to gain practical knowledge and insight into the optometry industry. The National Optometry Centre is a purpose-

built state-of-the-art centre for advanced training of optometry students. It is the only such facility of its kind in the country

TU Dublin's National Optometry Centre

Innovations in Medical Technology

Global healthcare company Wassenburg Medical Ireland invested €280,000 in equipment with TU Dublin to establish a state-of-the-art Medical Device Decontamination facility (MDD-Hub) on the University's flagship campus in Grangegorman. MDD-Hub is a landmark custom-designed training suite to reflect the working practice of a functional sterilisation unit in a healthcare environment. This is the first practice-based training facility of its kind in higher education and provides a framework for best practice in healthcare.

Separately, TU Dublin's School of Computing secured funding the Department of Public Enterprise & Reform Innovation Fund in collaboration with Tallaght University Hospital (TUH) and Trinity College to develop an innovative mobile phone app, SmartCP. The app will allow patients with chronic pancreatitis to report worsening symptoms so that doctors can intervene earlier to achieve better outcomes.

Wassenburg Medical visit TU Dublin for the announcement of their partnership

Community Outreach

TU Dublin's award-winning programme for Students Learning with Communities works collaboratively with lecturers and community partners to design real world projects that address the SDGs. The Community Engaged Research and Learning (CERL) projects are curriculum based and credit bearing. In 2022 the following are examples of CERL projects which were undertaken:

- 2nd year students on the BA in Social Care worked with the HSE Health & Wellbeing unit. Students develop a Toolkit for the HSE to use when developing new resources, or proofing existing resources, for self-management of chronic diseases, to ensure they are culturally diverse and inclusive.

- 2nd year Students on the BSc in Business Analytics worked with PACE Social Enterprise as part of their Simulation for Business Analytics module to develop an analytical system for modelling and simulating the business organisation to improve the system performance and decision-making process.

- 2nd year students taking the Professional Skills module on the BSc in Medicinal Chemistry and Pharmaceutical Science worked to research and prepare interactive scientific demonstrations and activities suitable for 5th & 6th class primary school pupils, in collaboration with St. Gabriel's National School, Dublin 7.

In May, the Graduate Business School alumni gathered for the Dublin Simon Community Alumni Ideation Challenge, which was led by TU Dublin's GROWTHhub. Graduates brainstormed solutions for fundraising challenges faced by the Charity in a post-pandemic context where engagement with donors had been impacted. This event was the first in what will become a regular feature of the TU Dublin alumni calendar.

TU Dublin signed a Memorandum of Understanding with leading cloud computing services provider, Amazon Web Services (AWS) in November to cooperate on skills, sustainability and inclusion projects that support local communities. The collaboration will target educational programmes to address national digital skills needs in fields such as cloud computing and data centre operations and to encourage an interest in STEM careers amongst young people through mentorship, hackathons, competitions and fairs. The organisations will work together on training programmes to create technical career opportunities in the local community for those seeking to return to the workplace, and for minority groups traditionally underrepresented in Ireland's tech sector.

Caroline O'Reilly, General Manager of Workday Analytics with Thomas Stone, TU Dublin's VP for Partnerships

Workday, a leader in enterprise cloud applications, announced a new three-year partnership with TU Dublin. The partnership aims to foster the next generation of tech innovators by providing early talent with the foundational skills to pursue a career in technology. The initial commitment of €450,000 provides volunteer support from Workday's 1,500 strong workforce, focusing on workforce development, research collaboration and community engagement.

Amazon Web Services (AWS) Community Engagement Managers visit TU Dublin

TU Dublin Business Graduate School alumni work with Dublin Simon Community
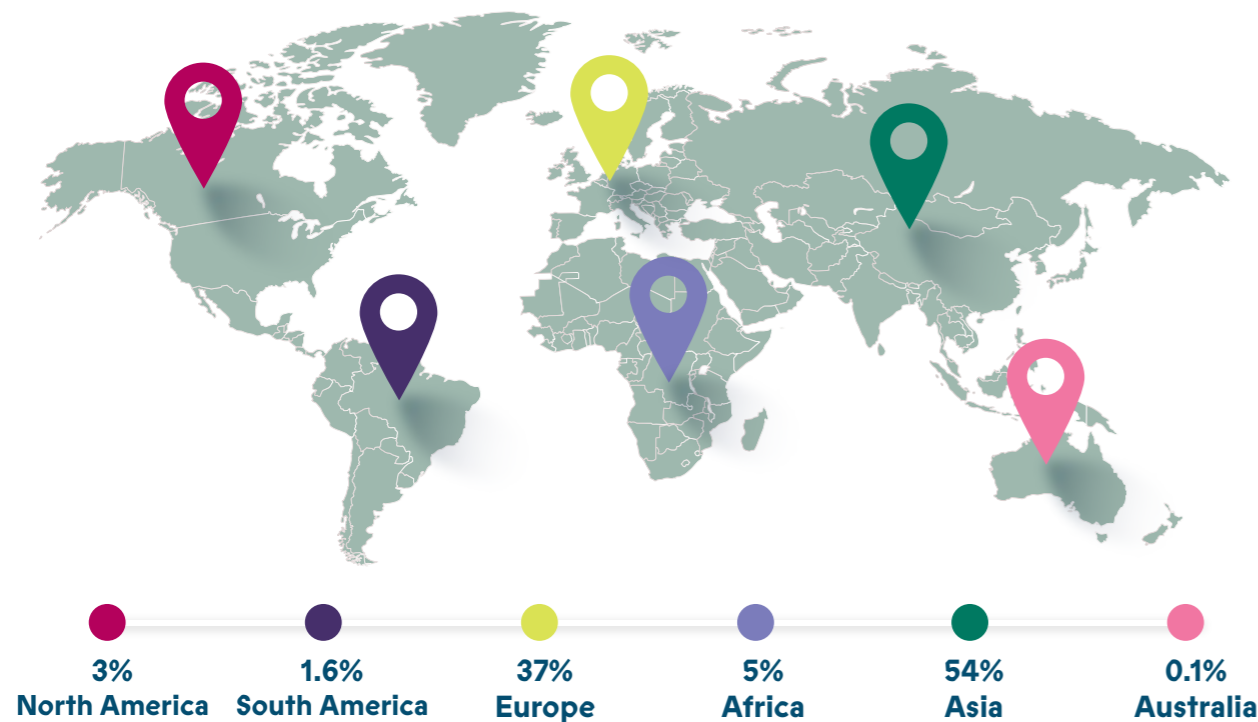
3.3 PARTNERSHIP
Being Global

> "We are committed to ensuring that TU Dublin becomes a global technological university"

TU Dublin is actively collaborating with key strategic partners nationally and internationally to expand our reach, gain access to international practice and enhance our education and research capabilities. The University continues to embed internationalisation in all aspects of the University.

Figure 7: TU Dublin International Student Origin 2021/22

3%	1.6%	37%	5%	54%	0.1%
North America	**South America**	**Europe**	**Africa**	**Asia**	**Australia**

EUt+ Revolutionising Higher Education in Europe

TU Dublin is part of the European University of Technology (EUt+) alliance, in partnership with seven other technological universities. It is one of 41 alliances selected from across the EU to participate in a three-year pilot programme, with the aim of revolutionising the quality and competitiveness of European higher education. The major accomplishments of EUt+ were highlighted in the European Commission mid-term report, which was issued in May 2022. They included the establishment of the EUt+ Technology Transfer Office and the harmonisation of curricula to allow the first cohort of students to seamlessly move between EUt+ campuses from Fall 2022. The report also noted the potential significant impact that EUt+ could have as it develops.

Following COVID-19, as student mobility returned, TU Dublin experienced a 12% increase in international students in 2022 since the height of pandemic, originating from over 100 countries worldwide (Figure 7).

The University offers a range of joint/dual/multiple degree programmes with 21 global universities across Europe and Asia. Our Chinese cohort of students includes over 1,000 students studying on collaborative programmes in partner institutions in Hainan, Shanghai and Nanjing. Some other examples of these dual programmes are outlined below.

Global Partnerships in Education

TU Dublin's International Computer Science Degree, originally funded as part of the EU funded GlobalWorkIT Project, was converted to a dual degree programme in 2022. The programme prepares students for employment in the global ICT industry by enhancing mutual understanding and knowledge of world-wide ICT issues, languages and cultures. The partnership connects academic institutions in South Korea, China, Germany, Austria, Switzerland, the Netherlands, Norway and Finland, all of which are world-leading ICT countries. It also leverages relationships between the HEIs and ICT companies locally and globally.

TU Dublin students spend a semester abroad in one of the participating universities and there is an online Global Classroom module which is delivered across time zones, countries and cultures in which students create a unique team project. In 2022, a total of 69 students travelled to Ireland from abroad and there were 49 outgoing Irish students.

MSc. Leading Hospitality Innovation

TU Dublin developed and signed a new MSc. Leading Hospitality Innovation joint master's programme in 2022, with ZUYD University of Applied Science in the Netherlands and IQS University in Barcelona, Spain. The programme offers students the experience of living and studying in the three respective countries for the three individual phases of the course. In an increasingly digital world, hospitality requires a new style of leader that operates across all sectors and businesses. The programme offers a complete cross-cultural experience with an opportunity to improve language skills and networking.

Erasmus+ CIRCLET

In 2022, the Community Engaged Research and Learning (CERL) team also completed a three-year Erasmus+ Strategic Partnership project, CIRCLET. TU Dublin collaborated with an international consortium team led by Queen's University Belfast (UK), as well as working with Corvinus University of Budapest (Hungary), Open University of Catalonia (Spain) and Vrije Universiteit Brussels (Belgium). A professional development online postgraduate module provided lecturers with expertise on how to reimagine their courses to embed community-engaged research and learning in their programmes. Over the course of the project 104 academic participants worked with more than 3,000 students and 165 community organisations. In addition, 53 modules were redesigned as a result of our collaborative learning experiences.

International students from Korea attending TU Dublin's International Computer Science Degree Course in Dublin

3.4 PARTNERSHIP
Organisational Effectiveness

> **"We are committed to ensuring the operations of the University are sustainable and entrepreneurial"**

TU Dublin aims to deliver an organisational design that is appropriate to a modern university, one that is culturally and structurally responsive and one that embraces innovative operations and processes to achieve agility.

The Organisation Design project has been a major initiative to establish a new organisation structure and to support the University in delivering on its ambitions. The detailed design phase of the organisation design project was completed in 2022. The process included significant stakeholder engagement and international benchmarking to inform the new structure. This extensive work ensured that TU Dublin created a university that is relevant and capable of delivering impact for our students and society.

A significant milestone was reached in September 2022 when the University transitioned to the new Faculty and School structure. This new structure has seen the establishment of 5 new faculties and 25 schools supported by 10 professional services (Figures 8 and 9).

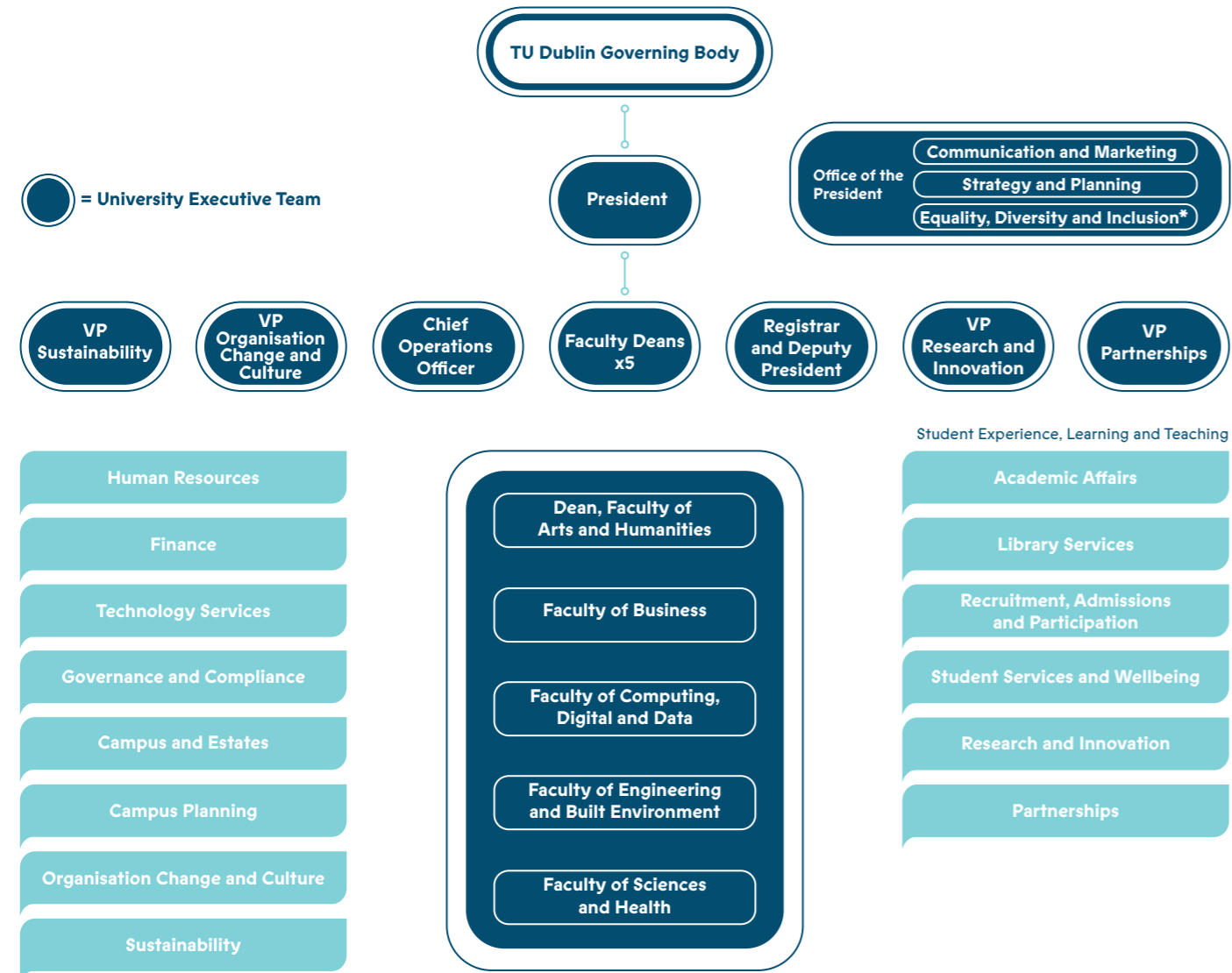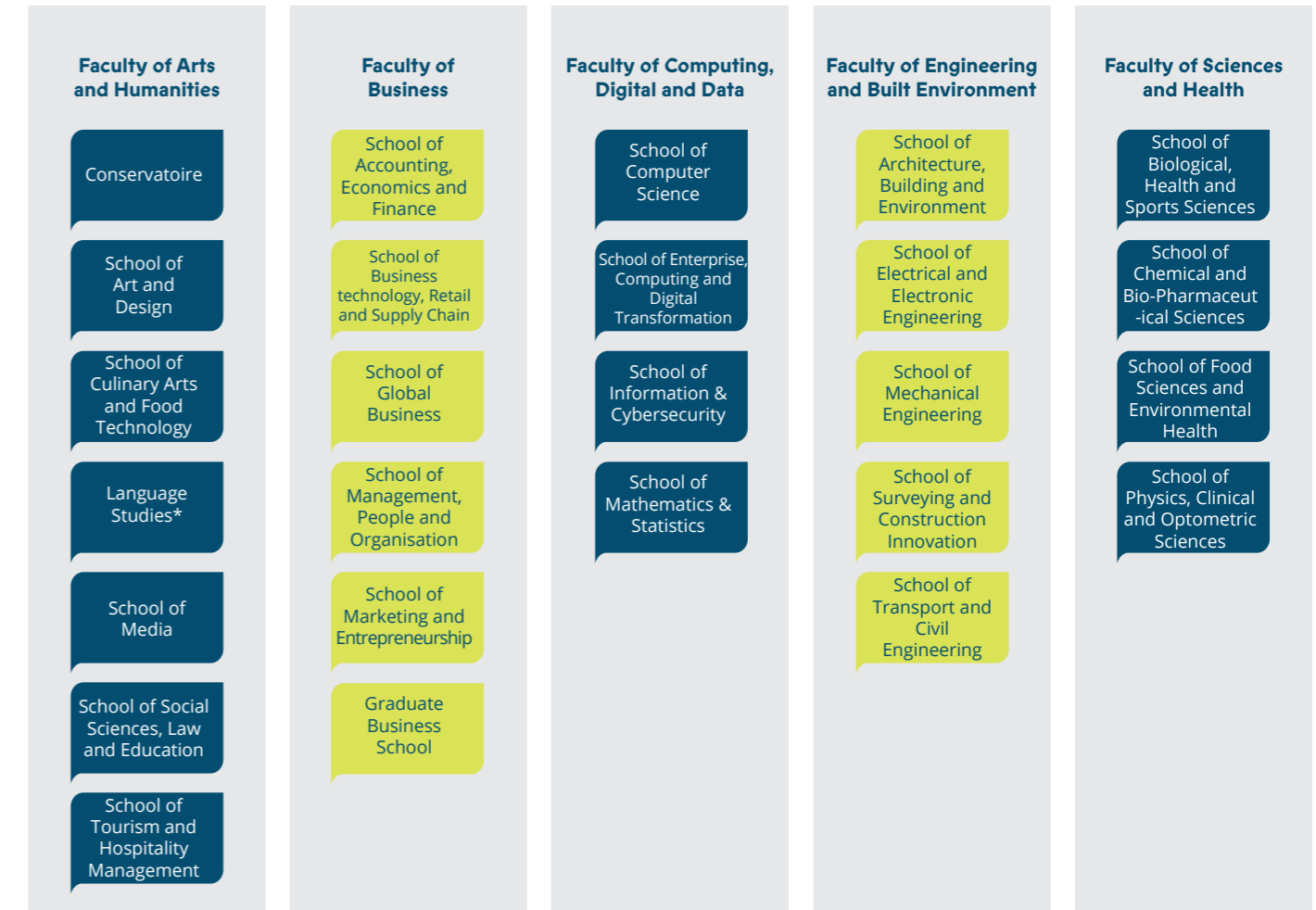### Figure 8: TU Dublin's New Organisation Structure

Figure 9: TU Dublin Faculty Structure

*Under Review

In addition to the structure, the University invested significantly on integrating its systems. The integration of HR systems and the financial systems will eventually provide organisation-wide reporting to support management decision making.

4. Institutional Quality Review

All Irish higher education institutions are periodically reviewed by Quality and Qualifications Ireland (QQI) from a quality assurance and enhancement perspective. This review takes place through a cyclical process known as CINNTE, the Irish word for 'certain'. TU Dublin completed its first CINNTE review in 2022.

Following a self-evaluation submission, an external evaluation was conducted by a panel of national and international experts. In May QQI published the TU Dublin Institutional Review Report 2022, in which the Review Team commended TU Dublin on its progress since its establishment. It noted that the quality assurance and enhancement processes at TU Dublin supports our commitment to student success. It provides robust processes to assure the quality of the University's awards and our graduates. It encourages engagement with industry and the community and with other higher education providers both nationally and internationally. It also highlighted the comprehensive process that TU Dublin underwent in developing the Strategic Intent and the iterative and consultative approach undertaken to develop the policies and procedures within the Quality Framework. The report made some key recommendations outlined in Table 7.

Table 7: CINNTE Review Recommendations

1. To move quickly towards establishing a 'one university' structure, eliminating any duplication of functions across campuses and maintain focus on the simplification of structures and process.
2. To get a balance between the need to complete the organisational design process and have structures in place, while understanding the need for consultation and ensuring an orderly and safe transition in the new Organisation Design.
3. To ensure appropriate delegation of authority and devolution of resources to faculties and schools to support them in delivering on change, consolidation, and review of programmes and research.
4. To undertake a holistic and objective assessment of its programme portfolio, while considering the anticipated competence and skills needs of wider society and the profile that TU Dublin wishes to achieve.
5. To create a differentiated student experience for TU Dublin students, reflecting the vision for technological universities.
6. Recommendations were made in relation to bringing three similar but disparate systems into one single framework.

The CINNTE review provided a valuable opportunity for TU Dublin to leverage the expertise from the panel of experts to affirm and enhance the transformational activities taken to support a new university. In response to the key recommendations from the review, an Institutional Action Plan has been put in place that aligns to ten main actions from the University Strategic Intent. The Action Plan was submitted to QQI in December 2022 and has been integrated into TU Dublin's first University Quality Enhancement Plan (UQEP).

5. Equality, Diversity & Inclusion Statement

TU Dublin is committed to Equality, Diversity & Inclusion for staff and students in all areas of the University's work. This is expressed formally in the TU Dublin Equality Statement (2019-2022). In 2021, the University addressed the public sector duty through the promotion and protection of human rights in all aspects of University work, and by developing and approving equal opportunity plans in the areas of gender equality (including gender expression and identity), race equity, consent and ending sexual violence and harassment.

EQUALITY STATEMENT

(a) The Technological University Dublin (TU Dublin) is committed to ensuring that the student body entering, participating in and completing its programmes at all levels reflects the diversity and social mix of the Dublin region, and Ireland's, population. The access policy takes full account of UN Sustainable Development Goal 4 to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'[15]. The policy rests on a culture of inclusion where all have equitable opportunity to access the education it provides. The University is especially cognisant of the challenges to participating in higher education faced by persons from backgrounds of economic or social disadvantage, persons who have diverse abilities, and persons coming from sections of society significantly underrepresented in the student body. TU Dublin enables equity of access and education to these groups through an integrated policy that provides a range of pre-entry activities, alternative entry arrangements and post-entry supports. It also aims to provide an enhanced experience and positive educational outcomes for all students through the utilisation of approaches such as Universal Design and Universal Design for Learning in the provision of education and related services, supports and facilities. The University's access policy is fully aligned with the National Access Plan.[16]

(b) TU Dublin is committed to advancing equality, including gender equality, in all aspects of its work. The equality work of the University benefits from being informed by the UN Sustainable Development Goals, including SDG 5 'Achieve gender equality and empower all women and girls'. The University policy on equality, including gender equality, is guided by the statutory obligation to have regard to the need to eliminate discrimination, promote equality of opportunity and protect the human rights of staff, students and service users.[17] It is committed to ensuring gender balance in key decision-making committees. It aims to address gender imbalances amongst staff and the student body in academic disciplinary fields and functional areas where traditional patterns of male or female predominance can be found. It is also cognisant of the need to address intersectional aspects that contribute to the compounding of inequalities such as ethnicity, diverse ability, gender and other identities, and social disadvantage. The University also adheres to and implements statutory and sector-wide best practice policies, including the Athena SWAN Charter Principles[18], the recommendations of the Higher Education Authority National Review of Gender Equality in Irish Higher Education Institutions[19] and Gender Action Plan 2018-2020[20], and the Public Sector Equality and Human Rights Duty.[21]

15 UN Sustainability Goals (last accessed 2 May 2019)

16 HEA National Access Plan Review (last accessed 2 May 2019)

17 Section 42 of the Irish Human Rights and Equality Commission Act 2014.

18 Athena SWAN Charter (last accessed 2 May 2019)

19 HEA National Review of Gender Equality in Irish HEIs (last accessed 2 May 2019)

20 Gender Action Plan 2018-2021 (last accessed 7 May 2019)

21 Irish Human Rights & Equality Commission (last accessed 2 May 2019)

6. Sustainability Statement

TU Dublin is committed to working with staff, students and other stakeholders to address the challenges of environmental sustainability. This commitment is expressed formally in the TU Dublin Sustainability Statement.

TU DUBLIN SUSTAINABILITY STATEMENT

Sustainability underpins Technological University Dublin's (TU Dublin) Strategic Intent 2030. Through its three pillars of People, Planet, and Partnerships, Sustainability drives our Vision, Mission, and Values. TU Dublin is committed to transforming higher education delivery and its operations through the lens of Sustainability using a balanced approach that protects our planet for future generations. Our vision for Sustainability is to become a model organisation, where an understanding of ethics as a form of practice develops a culture of responsibility. Through the actions of our people, including over 8,000 graduates per year, our values become explicit - evidenced by our purpose, passion, and capability to provide scale and reach within industry and society to address the urgent real-world challenges aligned to the UN Sustainable Development Goals 2030.[22]

TU Dublin is committed to embedding sustainability into all current University plans, strategies, policies and everyday operations. In addition, the University, cognisant of the role it plays within society, will engage with our wider eco-system of local communities, businesses, and societal partners to advance knowledge, understanding, and action to ensure an environmentally, socially and economically responsible transition to reach climate neutrality together. To have the greatest impact across the seventeen UN Sustainable Development Goals 2030, we identify three focus goals, where higher education in general and TU Dublin in particular can contribute greatest impact. Recognising each SDG's close interactions with other goals, we will build upon allied interdependencies through three supporting goals.

a) QUALITY EDUCATION & EQUALITY

Focus Goal	Supporting Goal
UN SDG 4 Quality Education	UN SDG 5 Gender Equality
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	Achieve gender equality and empower all women and girls.

TU Dublin is committed to educating and empowering our staff and students to becoming climate active, globally responsible citizens who make a positive impact on our world. We will do this by 1) embedding sustainability in our curriculum, research, and staff development opportunities and 2) putting in place key supporting policies and resources and carefully reflecting on our actions to improve.

Embedding sustainability requires actions from people across all areas of the University to create a culture of inclusion where all citizens of society have equitable opportunity to access and deliver higher education. We are committed to developing this capability within our University community to justly respond to global challenges, through a diverse community of learners, educators, researchers, and administrators. To that end, the delivery of Quality Education will be developed to embed Equality, Diversity, and Inclusion (EDI) principles and deliver the TU Dublin Athena SWAN Action Plan 2022-2025.[23]

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22 UN Sustainability Goals (last accessed 13 Feb 2022)

23 TU Dublin Athena SWAN Action Plan 2022-2025 (last accessed 11 Mar 2022)

The University policies and practices will anticipate National Education for Sustainable Development policies and frameworks, align to Ireland's National Skills Strategy[24] and priorities within Horizon Europe's Strategic Plan[25], mindful of opportunities for TU Dublin to deliver sustainability impact in Ireland.

b) CLIMATE ACTION & TECHNOLOGICAL INNOVATION

Focus Goal	Supporting Goal
UN SDG 13 Climate Action	UN SDG 9 Industry Innovation & Infrastructure
Take urgent action to combat climate change and its impacts.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

TU Dublin is committed to combating climate change and reducing negative environmental impacts and climate related risks through the reduction of our greenhouse gas emissions. We pledge to actively measure, monitor, and plan for a reduced carbon footprint across all our campus operations and planned developments; our online environment, and through our travel practices. We pledge to provide leadership and resources to become carbon neutral by 2040[26]. We will do this through a portfolio of activities including:

- optimising the use of existing our campus environment
- practicing circular economy and sustainable procurement principles
- exploring renewable energy sources
- reducing campus energy consumption, conserving water, reducing waste
- addressing biodiversity loss in our natural environment
- minimising travel and promoting the use of sustainable transportation modes

Working closely with academic leads, researchers, and professional services within the University, we will adhere to and align our activities with the European Green Deal[27], Ireland's Climate Action Plan[28] and the Circular Economy Strategy[29]. In addition, the University will work collaboratively with our wider eco-system of local communities, businesses, and partners to advance knowledge, understanding, and broaden its impact to ensuring a socially and economically responsible transition to address biodiversity breakdown and achieve climate neutrality together.

TU Dublin commits to developing innovative solutions, through action research, to climate change through green technologies using our University physical and digital infrastructure as a Living Lab to embed sustainability within our everyday learning and working environment. Using a human-centred approach to implement SMART[30] digital solutions, we will create data driven intelligence through the measurement, monitoring, and dynamic reporting to support us to achieve our climate targets. Through greater digital connectivity[31] we will develop a knowledge eco-system of active contributions from our community of students, educators, and researchers to inform the planning and adaptation[32] measures required across our campus environments in response to urgent climate challenges through active responsible citizenship.

c) GOOD HEALTH, WELL-BEING & COMMUNITY

Focus Goal	Supporting Goal
UN SDG 3 Good Health and Well-being	UN SDG 11 Sustainable Cities & Communities
Ensure healthy lives and promote well-being for all at all ages.	Make cities and human settlements inclusive, safe, resilient and sustainable.

TU Dublin is committed to protecting and enhancing the health and well-being of our University community and wider society by enabling people to achieve their full potential. The 2015 Okanagan Charter[33] sets out the role and responsibility of Higher Education in the promotion of Health in relation to the interdependency of human health and planetary wellness. As a signatory to Ireland's Higher Education Healthy Campus Charter[34], we commit to taking a 'whole campus approach to creating a learning environment and organisational culture' to ensure health and well-being within our community. TU Dublin commits to working across the University through an open, inclusive, and participatory network of people to inform the development and implementation of a Healthy TU Dublin Action Plan. Working closely with TU Dublin researchers we will develop policies and practices for our priority actions including physical activity, tobacco, and mental health.

The intersection of Health & Well-being with the creation of more Sustainable and Liveable Cities & Communities is recognised and supported by TU Dublin as a place of learning and work for more than 35,000 people throughout the Dublin region. In our commitment to reduce Scope 3[35] greenhouse gas emissions, TU Dublin will increase its engagement and action research initiatives to promote Active Travel and Smarter Travel[36] programmes through advocacy and awareness building to encourage increased levels of walking, cycling and public transport ensuring safe and equal access by persons with disabilities, to promote good health, reduce carbon impact, and create a community culture for sustainable transportation.

24 Ireland's National Skills Strategy (last accessed 13 Feb 2022)

25 Second Horizon Europe Strategic Plan 2025-2027 (last accessed 13 Feb 2022)

26 Scope 1 and 2 of the Greenhouse Gas Protocol for Carbon Emissions

27 European Commission – A Green Deal (last accessed 11 Mar 2022)

28 Climate Action Plan 2021 (last accessed 11 Mar 2022)

29 Whole of Government Circular Economy Strategy 2022-2023 (last accessed 13 Feb 2022)

30 SMART is an acronym for Self-Monitoring, Analysis, and Reporting Technology – Research Gate (last accessed 28 Mar 2022)

31 Harnessing Digital – The Digital Ireland Framework (last accessed 11 Mar 2022)

32 IPCC - Climate Change 2022: Impacts, Adaptation and Vulnerability (last accessed 11 Mar 2022)

33 Okanagan Charter

34 National Access Plan Progress Review

35 Scope 3 of the Greenhouse Gas Protocol for Carbon Emissions

36 National Transport Authority – Smarter Travel to Your Campus

7. Governance

7.1. Governing Body

Legislative Background

The Technological Universities Act 2018 ("the TU Act"), underpins the establishment of technological universities and was signed into law on 19 March 2018. Technological University Dublin (the University) was established by Ministerial Order under Section 36 of the TU Act, (Number 3 of 2018), and Statutory Instrument, (Number 437 of 2018), on the appointed day of 1st January 2019. The HEA Act 2022 ("the HEA Act"), which was commenced on 10 November 2022, amended a number of provisions of the TU Act.

Under the TU Act, the University is required to have a Governing Body to perform the functions of the University. The Governing Body is, therefore, the authority established by law to govern the University. The role and duties of the Governing Body are set out under Section 11 of the TU Act.

The Governing Body must operate in accordance with Schedule 1 of the TU Act. Prior to the amendments introduced by the HEA Act, the TU Act provided that the total membership of the Governing Body would comprise of between 14 and 22 members, of which at least 3 but not more than 8 would be external members to be nominated by a Committee of the Governing Body. The HEA Act amended Section 12 of the TU Act to provide that the Governing Body would consist of 19 members with an obligation that the reconstituted Governing Body be in place no later than 9 November 2023.

Members of the Governing Body perform key roles in relation to the direction, strategy, and corporate governance of the University. Members take collective responsibility for the long-term sustainability of the University, working with the Chair of the Governing Body, the President and the University Executive Team to ensure that the University is managed and developed in line with legal and policy parameters and accepted standards of best practice.

Governing Body Membership

The term of office of a member of the Governing Body, (with exception of the President) shall not exceed four years and such a member may not serve more than two consecutive terms of office. During the year 1st January to 31st December 2022 a number of members were appointed to and retired from the Governing Body on the dates highlighted below. Governing Body met on eight occasions during the year.

Governing Body Committees

To assist in carrying out its functions, Governing Body has established five Committees; an Audit and Risk Committee, a Finance and Property Committee, an Equality, Diversity and Inclusion Committee, a Nominations Committee and a Nominations and Process Committee. The President is an ex-officio member of each Committee excluding the Governing Body Audit and Risk Committee and the Nominations Committee.

Compliance with the University Code of Governance

A robust system of governance is vital to enable the University to operate effectively and for Governing Body to discharge its responsibilities as regards transparency and accountability.

The University has in place a Code of Governance, drafted taking the original 2016 Code of Practice for the Governance of State Bodies as its starting point and adapted to bring it in line with the TU Act. This is a living document that will evolve over time in line with both best practice and legislative changes. The most recent version updated in March 2021 is published on the University website.

The Governing Body is responsible for approving the annual report and financial statements and opining on whether it considers the financial statements to be a true and fair view of the University's financial performance and its financial position at the end of the year. The Governing Body is responsible for ensuring that timely and accurate disclosure is made to the Minister on all material matters regarding the University including the business context, financial performance and position and governance of the University.

The following compliance items from the Code of Governance are of particular importance:

i. The Chair of Governing Body and President of the University signed an Oversight Agreement with the HEA setting out the broad governance and accountability framework and key responsibilities which form the basis of the relationship between the HEA and the University; this is underpinned by the relevant legislation, Government circulars (where applicable), the Code of Practice for the Governance of State Bodies, 2016 as encapsulated by the Code of Governance, statutes, charters, articles and instruments of governance, particularly those which establish the HEA and the University.

ii. The Governing Body approved the annual programmes and budgets of the University including an analysis of performance against budget.

iii. An internal review of the effectiveness of the Governing Body is completed annually. An external evaluation is performed at least once every four years.

iv. The Governing Body meets sufficiently regularly to discharge its duties effectively and has a schedule of matters specifically reserved to it for decision. Governing Body met on eight occasions during the year 1st January to 31st December 2022.

v. During the year 1st January to 31st December 2022 the Audit and Risk Committee met eight times.

vi. The University publishes its annual report and financial statements within one month following completion of the audit of the financial statements by the Comptroller and Auditor General.

vii. Through the Audit and Risk Committee, Governing Body assesses the University's principal risks, including a description of these risks, where appropriate and associated mitigation measures or strategies.

viii. The University continues to adhere to all relevant aspects of the Public Spending Code.

Governing Body Membership 2022

	GOVERNING BODY MEMBER	CATEGORY	APPOINTMENT DATE
1	David FitzPatrick	President	1st January 2019
2	Michael Carr	Staff Member	15th January 2019
3	Valerie Bistany	External Member	
4	Evelyn Carroll	External Member	
5	Éilish Finan (Deputy Chair) [37]	External Member	
6	Jerry Grant	External Member	1st July 2019
7	Charles Larkin (Deputy Chair)[38]	External Member	
8	Justin McCarthy[39]	External Member	
9	Aileen O'Toole	External Member	
10	Pamela Kelly	Staff Member	
11	Susan O'Shaughnessy	Staff Member	
12	David Carson (Chair)[40]	External Member	1st January 2021
13	Christy Duffy	External Member	3rd February 2021
14	Norah Burns	External Member	23rd June 2021
15	Catherine Clune Mulvaney	External Member	23rd June 2021
16	Conor O'Donovan	External Member	23rd June 2021
17	Eamon Maher	Staff Member	1st July 2021
18	Maggie Ryan	Staff Member	1st July 2021
19	Mark O'Donnell[41]	Student	1st July 2021
20	Lesley Barrett[42]	Student	1st July 2021
21	Stephen Sheridan[43]	Student	9th December 2021
22	Margaret Cullen[44]	External Member	23rd March 2022
23	Brian Jordan	Student	1st July 2022
24	Louise Kavanagh	Student	1st July 2022
25	Jessica Perez	Student	1st July 2022

37 Éilish Finan (Deputy Chair) resigned from Governing Body on 30th June 2022
38 Charles Larkin appointed Deputy Chair on 24th August 2022.
39 Justin McCarthy resigned from Governing Body on 6th December 2022
40 David Carson(Chair) resigned from Governing Body on 9th December 2022
41 Mark O'Donnell completed his term of office on 30th June 2022
42 Lesley Barrett completed her term of office on 30th June 2022
43 Stephen Sheridan completed his term of office on 30th June 2022
44 Margaret Cullen resigned from Governing Body on 16th June 2022

7.2. Academic Council

	ACADEMIC COUNCIL MEMBER	CATEGORY
1	FitzPatrick David (Chair)	President
2	Meaney Mary	Registrar
3	Harvey Assumpta	Academic
4	Bowe Brian	Academic
5	Brennan Bairbre	Academic
6	Cafolla Antonio	Academic
7	Carroll Kenneth	Academic
8	Clarke Adam	Student (term of office commenced 1st September 2022)
9	Curry James	Student (term of office commenced 1st September 2022)
10	Daly Luke	Student (completed term of office 30th June 2022)
11	Daly Saoirse	Student (term of office commenced 1st September 2022)
12	Darby Fionnuala	Academic
13	Dillane Dominic	Academic
14	English Ray	Academic
15	Ennis Patricia	Academic (Retired September 2022)
16	Farrell Jennifer	Professional Management and Support Services
17	Farrelly Gerard	Academic
18	Farrelly Seán	Student (completed term of office 30th June 2022)
19	Feeney Sharon	Academic
20	Gleeson Bridget	Professional Management and Support Services
21	Gormley Brian	Professional Management and Support Services
22	Grennan Anthony	Academic
23	Healy Sylvia	Academic
24	Heffernan Elizabeth	Professional Management and Support Services
25	Jamaa Hamza	Student (completed term of office 30th June 2022)

26	Jennings Brendan	Professional Management and Support Services
27	Jordan Brian	Student (term of office commenced 1st September 2022)
28	Killion Siobhán	Academic
29	Lane Sinéad	Student (completed term of office April 2022)
30	Maguire Maev	Academic
31	McGrath Fabian	Academic
32	McGrath Mark	Academic
33	McKiernan Tara	Academic
34	Moran Fintan	Academic
35	Mulvey Tom	Academic
36	Murphy Brian	Academic
37	Murray Brian	Academic
38	Norton Susan	Academic
39	O' Donnell Mark	Student (completed term of office 30th June 2022)
40	O'Reilly Isobel	Academic
41	Owende Philip	Professional Management and Support Services
42	Perez Jessica	Student (term of office commenced 1st September 2022)
43	Rooney Tara	Academic
44	Scally Mary	Student Representative
45	Sheridan Stephen	Student (completed term of office 30th June 2022)
46	Stone Thomas	Professional Management and Support Services
47	Walsh Maureen	Academic

7.3. Financial Statements

The University prepared its full year set of Audited Financial Statements for the twelve months to 31st August 2021. These Financial Statements reflected a Net Assets position for the University of €578.4 million. In the period, the University recorded a surplus of €2.5m on total income of €327.6million.

The full financial statements are available on the TU Dublin website.

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