

Technological University Dublin ARROW@TU Dublin

Group Reports

Reports

2021-10-01

IMPACT Project Report

Barry J. Ryan Technological University Dublin, barry.ryan@tudublin.ie

Follow this and additional works at: https://arrow.tudublin.ie/totalarcrepg

Part of the Education Commons

Recommended Citation

Ryan, Barry J., "IMPACT Project Report" (2021). *Group Reports*. 9. https://arrow.tudublin.ie/totalarcrepg/9

This Report is brought to you for free and open access by the Reports at ARROW@TU Dublin. It has been accepted for inclusion in Group Reports by an authorized administrator of ARROW@TU Dublin. For more information, please contact arrow.admin@tudublin.ie, aisling.coyne@tudublin.ie, gerard.connolly@tudublin.ie.

This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 4.0 License Funder: National Forum for the Enhancement of Teaching and Learning in Higher Education



COMMUNITY-CAPACITY-CULTURE

REPORT

Developing strategically aligned sustainable processes and infrastructure that will maximise the impact of TU Dublin's teaching and learning practices on the student and staff experience.











IMPACT REPORT

04-07	o	<u>Welcome</u>
08-13	o	THE IMPACT Team
14-15	o	Exec Summary
16-19	o	Impact and recommendations statement
20-39	o	IMPACT Project Overview
40-45	o	<u>What is IMPACTs impact</u> and how can it be sustained?
46-49	0	IMPACT's successful future delivery: a clear vision
50-53	o	<u>A roadmap for integrating IMPACT</u> outputs into TU Dublin "business as usual"
54-57	o	The IMPACT Hub Model
58-60	o	IMPACT project sectoral recommendations



IMPACT PROJECT WELCOME



TU DUBLIN IMPACT PROJECT //

WELCOME

The TU Dublin IMPACT project was a National Forum and HEA-funded project under the Strategic Alignment of Teaching and Learning Enhancement (SATLE)) fund which materialised over/during the 2020/21 Academic Year. The aim of the SATLE fund was to develop a strong foundation for future enhancement of teaching and learning (T&L) within an institution and in line with local and national priorities. TU Dublin received the largest funding allocation of any Irish HEI; a total of €602,000. This significant funding was used to develop strategically aligned, sustainable processes and infrastructure to maximise the impact of TU Dublin's T&L practices on the student and staff experience. The SATLE funding, with the support of the IMPACT project team, empowered and enabled cultural, community and capacity change in TU Dublin. The whole-of-university approach to pedagogical change adopted in the IMPACT project maximised the impact of the project and resulted in sustainable supports for student success.

The project was divided into five work packages, each with its own workstream, that developed a digital repository, structured staff and programme-team development, supported the development of cross-disciplinary programmes of the future and empowered innovative T&L practices. The entire project was undertaken in the shadow of Covid-19; however, through adversity the IMPACT project forged opportunity. A strong community of enthusiastic stakeholders – staff, students and external colleagues – engaged with, and shaped, the IMPACT project. Full details of the project, the work packages and the workstreams are available on the TU Dublin IMPACT website (www.tudublinimpact.wordpress.com); regular and real-time project updates were posted to the Twitter account (@TUDublinIMPACT) and shared via mailing lists across the university.

The core values of the project were community, capacity and culture; these are underpinned by a sustainable ethos and a positive mindset.

Ní neart go cur le chéile – there is no strength without unity!

The IMPACT project was our project and it will inform and shape our future through our repositories, our professional development, our innovation, our creativity and the success of our students through consolidating and extending the outputs. Over time, our community of staff, students and the wider TU Dublin stakeholders will be the benefactors of their extensive commitment to the IMPACT project. Together, as a supported T&L community, we will continue to enhance, celebrate and promote a culture of excellence in T&L, which will sustainably support student success.

Our new university is in its important formative years and I believe the impact of IMPACT will continue to be felt into the future. We are starting on a long journey of pedagogical development, building on our collective past strengths. In doing this, it is critical to have a solid base from which to develop our model of education; a distinctive educational experience for all at TU Dublin. It was an honour to lead such a dynamic, agile and (pardon the pun!) impactful project that will be part of this journey.

Barry Ryan

// TU DUBLIN IMPACT PROJECT

Innovative, Integrated, Identifiable



Meaningful, Manifest, Modern



Professional, Pragmatic, Practice-focused



Accessible, Authentic, Action-focused



Collaborative, Credible, Current

Tangible, Technology-focused, Together

IMPACT in numbers

328

Number of people within the overall initiative team

İ İ İ İ

4291 Total number of

participants across all events



Number of presentations at international conferences through which the initiative was shared



Number of other publications (e.g., conference proceedings, reports, etc.) resulting from this initiative







Total number of events (seminars/symposia/ conferences/workshops/ webinars) held as part of the initiative

18

Number of presentations at national conferences through which the initiative was shared

25 Number of peerreviewed articles in preparation resulting from this initiative



€265,000 Total value of

IMPACT funded projects

Number of new pan-university communities of practice established with IMPACT support IMPACT PROJECT

TU DUBLIN IMPACT PROJECT TEAM //



// Dr Barry Ryan

Barry is a biochemistry lecturer, and programme director, in Technological University Dublin. He is an award winning and research active applied scientist with a proven expertise in the practitioner use of, and leadership in, evidencedbased pedagogies in modern higher education settings. He is passionate about the practical implementation of research informed teaching and in supporting others in their personal development in this area. His teaching and learning

philosophy promotes (co-)creation to empower and centralise all students across all levels within undergraduate curricula. He is concurrently a Senior Fellow of the Higher Education Academy, a Chartered Science Teacher and a National Forum Teaching and Learning Research Fellow.



// Dr David Gaul

David is a lecturer on the BA Sports Management and Coaching programme in TU Dublin Blanchardstown Campus. David has always been passionate about teaching and learning and qualified as Physical Education and Biology teacher from Dublin City University. David was awarded funding to conduct his Masters (Research) into motor skill development before securing a Government of Ireland Postgraduate Scholarship

to complete his PhD which investigated the influence of obesity on coordination of movement. David's current research interests lie in the area of physical activity, play and skill acquisition. David's teaching and learning philosophy is centered around engaging pedagogy and gamification of learning. David believes that by creating a friendly, fun and challenging environment students fulfill their potential as learners



// Dr Fionnuala Darby

I am a Senior Lecturer with the School of Business Blanchardstown Campus. Projects that I am currently involved with include the Campus Champion for Unconscious bias, Team Lead on the IMPACT University wide project on the Celebration of teaching and learning for student success, Team Member Fionnuala is a Senior Lecturer at TU Dublin and is currently Team Lead on the development of an Education Model for TU Dublin (2021-2024). Other projects

that Fionnuala is involved with include the Campus Champion for Unconscious Bias, Team Member on the University's Athena Swan application working group and the University's Race-Equity working group. Fionnuala delivers modules on Diversity in the Workplace, HRM and Organisational Behaviour. Her recent doctorate research (EdD 2016-2020) focuses on inclusion and belonging in higher education for Black and minority ethnic students.



// Dr Kevin O'Rourke

Kevin currently works with the Learning, Teaching & Technology Centre at TU Dublin (City Campus) as Strategic Projects Coordinator, having completed a three-year secondment as Digital Campus Architect (2017–20). Previously he was seconded to the National Forum where he worked on the national digital roadmap for higher education and an associated sectoral infrastructure review. He holds a PhD in intellectual history from University College London (2000),

and his current research interests include digital education, scholarship and culture. Before joining DIT in May 2002, his professional career spanned advertising and publishing in Dublin, New York and London.



// Dr Anna Schalk

Ana Elena Schalk is a Learning Development Officer in the LTTC working on HEA Retention Project (WP1), Daltai Project, and Impact Project (WP4). She is part of the MSc in Education. She holds a Ph.D., a MBA, and a postgraduate qualification in Expert in Knowledge Management as well as an International Diploma in International Cooperation for Development. Recently she finished the Higher Education Policy Course at TU Dublin. She has worked on projects for Ministries of Education; Universities

in Mexico, Peru, Colombia, Chile, and Spain; National and International Organizations such as CNA-Chile, SINAES, and AERA; and Companies in North America, Latin America, and Spain. She also worked at UNESCO (OREALC), the Ibero-American States Organization (OEI), and as Advisory Board Member at The Education Partners. In Ireland, she is a member of the EDIN Committee.



// Dr Linda Moore

Commencing her HE career in South Africa, Linda moved to Ireland in 1999 to work at the then-Dublin Institute of Technology. In addition to being a CORU-registered optometrist, she also holds graduate membership of the Psychological Society of Ireland and associate membership of the CIPD. Linda enjoys applying her HE experience with knowledge and skills acquired through postgraduate qualifications in HE and work and organisational psychology to organisational projects.

She has a particular interest in learning and development in the workplace, as well as employee well-being, engagement and motivation and actively seeks out opportunities to contribute to research and development in these areas.



//Ms. Yvonne Desmond

Yvonne is a sub-librarian for digital services and research support with Technological University Dublin. She has been a long -time advocate of open access to publications and data and manages the institutional repository Arrow@TUDublin that is now approaching its 10 millionth download. Part reason for the success of the repository is that it captures all forms of intellectual output of the university which Yvonne believes reflects the changing nature of scholarly communication.



// Dr Catherine Spencer

Catherine is a lecturer and programme chair in the School of Languages, Law & Social Sciences in TU Dublin. She has lectured in Dublin City University and at Karl-Franzens-University in Graz, Austria and completed PhD research on post-war Austrian identity & memory at the University of Birmingham. Teaching and research interests include German language, intercultural competence and learning in/ for study abroad. Catherine completed the PG Diploma in

Higher Education at the LTTC in DIT in 2014, is currently undertaking research on mobility as part of the MSc Education and was College of Arts & Tourism Academic liaison on the TU4Dublin project team. She is delighted to be part of the IMPACT project team (Synergy work package) and excited about how the project can enhance learning, engagement and collaboration – for staff and students – across disciplines and across TU Dublin.



// Dr Muireann O'Keefe

Muireann is the Head of Learning Development for Arts &Tourism, Grangegorman, TU Dublin. She has a keen interest in enhancing learning and teaching practices, to help students achieve success and attain a quality educational experience. Previously, she co-ordinated the PG Cert in University Learning and Teaching at the Learning Teaching Technology Centre, TU Dublin. She co-led WP2 of the IMPACT project bringing the Le Chéile programme teams' teaching and learning award to

fruition in 2020-21. Muireann's research interests are in professional learning, online learning and digital lite.racy. Muireann takes a critical interest in the use of social media for academic development.



// Ms. Deirdre Lawless

Deirdre is a lecturer in the School of Computer Science, TU Dublin City Campus with fifteen years' experience in the IT industry and eighteen years' experience as a lecturer in computer science. Since joining TU Dublin, Deirdre has been involved in the EU funded project EMERSION which developed an industry-oriented curriculum for software engineering education in China, and the GETM3 (Global Talent and Management 3) project whose goal is to investigate global entrepreneurial talent management

from a transgenerational, trans-sectoral, trans-disciplinary and trans-national perspective. GETM3 involves partners from the UK, Ireland, Poland, Slovenia and South Korea and is funded by the European Commission's Marie-Curie Actions programme. Deirdre's current research interests are in teaching conceptions held by lecturers and how they beliefs and practice diverge. She is currently completing a Doctorate in Education with the School of Social Sciences, Education and Social Work in Queen's University Belfast. Her dissertation is a case study investigating the beliefs about teaching computer science held by lecturers and how this influences their pedagogical practice. See more at <a href="https://www.dit.ie/computing/people/academicstaff/



TU DUBLIN IMPACT PROJECT **EXECUTIVE SUMMARY**





EXECUTIVE SUMMARY

The TU Dublin IMPACT initiative transformed teaching and learning (T&L) in TU Dublin through:

- 01 A repository that collates new and existing quality, open-access educational resources (OER) was established, supported by a bespoke peer-review model that encourages an evidence-based approach to T&L OER creation.
- A teaching team culture within a university-wide engaged learning community was launched, recognising and encouraging best practice in programme design to enhance the student experience. Staff who teach were supported in this process and they, in turn, informed the development of the university's new continuous professional development (CPD) framework
- A rigorous 'As Is' review captured the breadth of university T&L projects (past, present and pipeline), explored areas of alignment to, and identified gaps within, the TU Dublin T&L strategy, the student experience and the emergent TU Dublin education model.
- A seed-funded, innovation model to support and enhance the adoption of best T&L practices throughout TU Dublin as part of a multi-disciplinary approach to programme design and development was designed, executed and evaluated. Projects were awarded seed-funding proportionate to their project scale, were supported in their project development and showcased via internal and external formats throughout the lifetime of their project. The impact and influence of the funded projects were detailed, and a set of recommendations for near future T&L enhancement in TU Dublin, including informing the emergent TU Dublin education model, were captured and shared.
- A model to drive sustainable awareness of, and interest and enthusiasm in, T&L was established, and included a communication strategy that showcases learning enhancement project findings across TU Dublin.
- An operating model that supports the sustainable integration of ongoing T&L project outcomes into T&L policy, process and practice, was developed through consultation and collaboration across the initiative and the wider university. The TU IMPACT sustainable model will transform Teaching and Learning in TU Dublin.

Ultimately, the IMPACT project galvanised our innovative T&L practice for student success through widening our community, enhancing our capacity and changing culture

IMPACT AND RECOMMENDATIONS STATEMENT

The IMPACT project aimed to develop strategically-aligned sustainable processes and infrastructure to maximise the impact of TU Dublin's T&L practices on student and staff experiences. The project outcomes were re-imagined as a sustainable T&L model, one that will inform the dynamic new model of education for the future. Ultimately, this aims to produce the most sought-after, digitally-literate graduates, while transforming the learning opportunities and experience for all. Student success is at the core of this model, empowered through the development of a body of high-calibre staff, in line with international norms, who are actively engaged in our university's shared purpose. Above all, IMPACT can inform and promote the culture needed to create an agile, technology-enabled, modern university, that facilitates learners in an advanced digital world.

IMPACT sought to recognise and reward effective pedagogical innovations at this crucial time, explicitly promoting a researchinformed and practice-based education philosophy. The Covid-19 pandemic has added an additional dimension to the project, challenging higher education to rethink what we do and to explore and exploit more fully the digital technologies already at our disposal. Summarising the situation, one lecturer said: "We really need clarification and quick! Are we returning to business as before....Or are we moving to a hybrid model? The former is retrograde and a missed opportunity. The latter requires a clear direction now".

The challenge therefore is to ensure that the successes achieved are woven into the emerging pedagogical fabric and culture of TU Dublin in a manner that is sustainable, that coheres with the university's strategic plan, and that will pay clear dividends for our students and staff into the future.

By 2023, TU Dublin is seeking to create a new education model that promotes academic excellence and places us in the top three Irish universities for graduate employability. To be the largest provider of lifelong learning in partnership with industry and the professions, where one in three offerings is delivered through multiple pathways, we require a body of high-calibre people, supported by a comprehensive approach to engagement and professional development. As we aim to be mindful of our planet, with all academic programmes incorporating sustainability as a learning outcome and every learner engaging in practice-based research, we need to change hearts and minds and refocus our evolving culture. Again, over the course of the past year, IMPACT has laid the foundation to help TU Dublin achieved these stated milestones

Delivering a model that promotes academic excellence and ensures that it develops the attributes and capabilities necessary for tomorrow's world takes courage. Providing education for all learners that instils a values mind-set and creates champions to drive the sustainability agenda takes vision. Engaging all learners, at all levels, in practice-based research takes imagination. In just one year, IMPACT has demonstrated all three. Its achievements can provide a sustainable framework for our evolving education model.

These IMPACT achievements and outputs are outlined here as the guiding principles of a Sustainable T&L Model, one that will help underpin and inform the emergent TU Dublin education model. The IMPACT acronym is used as a consistent motif throughout this report to underscore the 'what', 'why' and 'how' of the IMPACT project reflecting back and looking forward.

1

⁻⁻⁻⁻⁻

Feedback received in a survey of TU Dublin staff who teach, completed under IMPACT. This is in line with thinking elsewhere: one US commentator has put it "the pedagogical assumptions of traditional frameworks are now out the window. We can no longer assume scarce information, that we can keep technology at arms' length, that students have empty heads, or that students can't teach themselves things. All four of those have been utterly inverted–or flipped–since last March." Edsurge, 2 April 2021: https://www.edsurge.com/news/2021-04-02-flipped-learn-ing-can-be-a-key-to-transforming-teaching-and-learning-post-pandemic



TU DUBLIN IMPACT PROJECT ACHIEVEMENTS AND OUTPUTS



ACHIEVEMENTS AND OUTPUTS

innovative pedagogies Impact WP 3 Integrate

Academic staff want to be better teachers and to truly engage their students as learners, using digital tools where appropriate; however, the current set-up affords them little time and no reward for doing so. Research completed by IMPACT reinforces this fact. Students in turn point to the lack of consistency in pedagogy within and across their programmes. TU Dublin can help to resolve this situation in part by adopting and encouraging a shared understanding and agreed approach to teaching within and across disciplines. This will build on the best of current practices, empowering academic staff, promoting and accelerating awareness of the emerging educational model.

Maps to Strategic Plan PE1 TransformEdu, Convene EUt+, TU Dublin Academic Quality Framework

mentoring Impact WP2 Develop

Incoming students perform better and are more likely to stay the course when they are part of a mentoring or buddy system with more senior students; academic staff in general teach the way that they themselves were taught unless they are shown otherwise. TU Dublin could benefit both cohorts by explicitly introducing a system of mentoring, individually and within/across programme teams. This would be especially beneficial to new and incoming members of academic staff.

Maps to Strategic Plan PE3 Fostering individual talents in an ever-changing world

Ρ

C

professional development Impact WP2 Develop

The multiple aspects of the academic role include teaching, learning, assessment, supervision, project management, engaging with organisational processes and procedures, and more. IMPACT demonstrates the need to include professional development and support as a formal part of every academic's career at TU Dublin. A full catalogue of CPD offerings should be devised and published annually to assist planning, with a move away from the current ad hoc offerings

Maps to Strategic Plan PE4 People, TransformEdu, Convene EUt+

authentic teaching, learning and assessment

Impact WP 3 Integrate (authentic assessment)

Many of our current assessment methodologies have come into sharp focus during the pandemic, with staff and students alike expressing high levels of discontent. As part of their professional development and innovative pedagogical practices, academic staff should be encouraged to explore and agree suitable authentic assessment practices. Students suggest that assessment types and timings should similarly be streamlined across programmes to form a coherent whole. A strategy which ensures that every TU Dublin student graduates with an ePortfolio of their assessed work is one step towards this.

Maps to Strategic Plan PE1 SATLE2, TU Dublin Academic Quality Framework

culture Impact WP 4 <u>Celebrate</u>

Our inclusive academic culture is recognised and valued by students and staff alike: we must build on this to create strong new academic teams who share values and celebrate practices, working towards the best interests of our students and the creation of a strong identity which puts people at the centre of all we do.

Maps to Strategic Plan PE4 Mission, Vision and Values

TOTAL Impact WP1 Share

TU Dublin has a strong history of research-informed and practice-based academic disciplines. We need to continue to share and celebrate this strong heritage with the world, creating a model of best-practice which is recognised for its scholarship as well as its practical implementation.

Maps to <u>Strategic Plan PA1</u> <u>Partnership</u>, <u>Convene</u>, <u>EUt+</u>, <u>TUDorag</u> (TU Dublin Open Research Action Group)



TU DUBLIN IMPACT PROJECT IMPACT PROJECT OVERVIEW

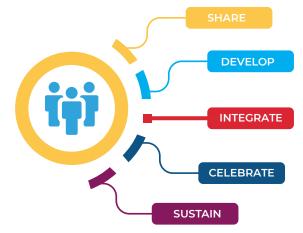


TU DUBLIN IMPACT PROJECT //

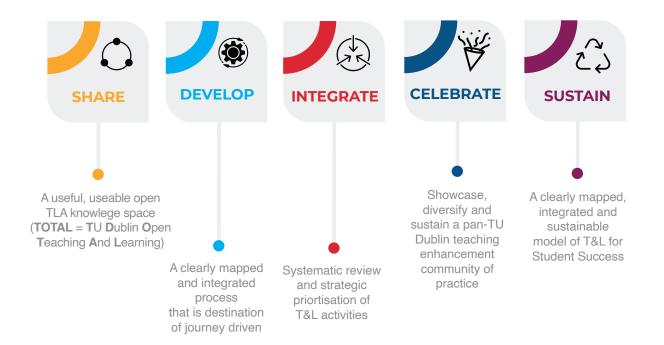
IMPACT PROJECT OVERVIEW

The TU Dublin IMPACT project was coordinated through five core work packages:

SHARE, DEVELOP, INTEGRATE, CELEBRATE and SUSTAIN.



Each work package comprised various associated workstreams. The TU Dublin IMPACT project was a highly integrated and strategic project, and each work package informed and shaped the others. In all work packages, and across the project as a whole, the student, and student success, was at the centre. This resulted in a significant step forward in T&L areas that are crucial for student success, but also of strategic importance to TU Dublin as we action our first strategic plan.





WORK PACKAGE 1

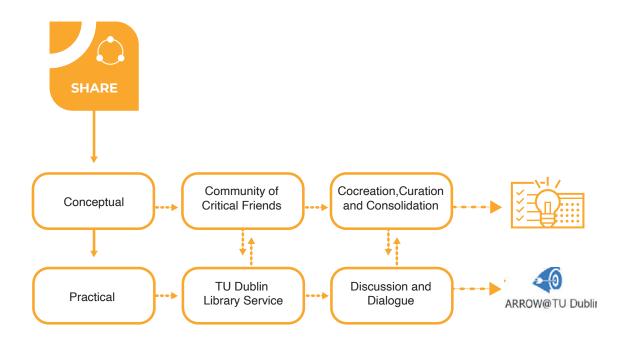




The individual, but interrelated, work packages and their component workstreams synergised to embed a T&L culture with student success at the core. The project was also future-focussed and set the foundations that will be built on in subsequent T&L enhancement funds, and the TU Dublin education model as part of TU Dublin's strategic intent.

SHARE

The underlying principle of the SHARE work package was to develop sustainable mechanisms capable of capturing, consolidating and sharing T&L insights and practice. This took the form of an open access, online space, called TOTAL (TU Dublin Open Teaching and Learning). In TOTAL peer-reviewed and non-peer reviewed Open Educational Resources (OERs) are easily disseminated. OERs are any type of educational materials that are in the public domain or made publicly available with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. In the case of TOTAL, the range of OERs include textbooks, curricula, lecture notes, reports, projects, audio, video and other forms of multimedia. The creation of TOTAL followed an open and collaborative approach between academic and professional services within and outside TU Dublin. This resulted in a flexible design and an open-access space that provides users with sophisticated searching and archiving functions, a detailed interaction dashboard, a capacity to expand and adapt and a bridge between teaching and research. This connects with the other IMPACT work packages as a natural dissemination home for their outputs.





WORK PACKAGE 2 DEVELOP

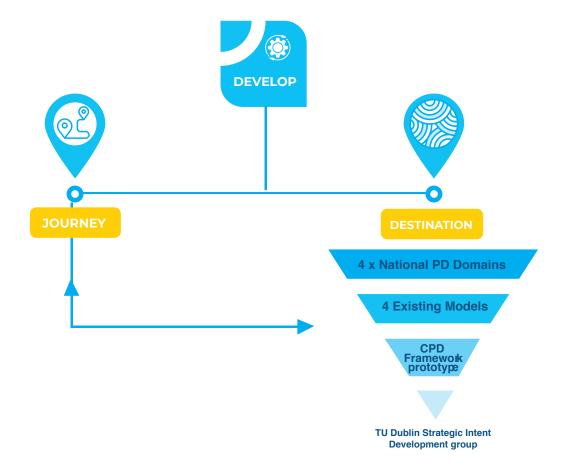


TU DUBLIN IMPACT PROJECT //

DEVELOP

The DEVELOP work package concentrated on encouraging and supporting teachingfocussed staff in taking a structured and coherent approach to enhancing T&L practices. The work package divided this into continual professional development (CPD) that was destination or journey orientated. The journey-type CPD is focussed on programme, or collaborative, teaching teams and supported the continuous professional development of staff as part of a team. The process was termed the Le Chéile journey: Le Chéile is Irish for together, and also stands for Collaborative Higher Education Innovation & Learning Enhancement. The teams on this development journey were supported in embedding best practices in programme design to enhance the student experience. Five teams were supported in the initial Le Chéile journey, from the food, pharmacy,

construction, engineering and inclusivity areas. These teams will become champions for this process and help to promote a programmebased culture within a university-wide, engaged T&L community. The second component of the DEVELOP work-package was to create a prototype 'staff who teach' CPD framework, and reflects a destination approach. In this workstream, staff consultations informed the prototype design. This prototype was in line with the TU Dublin strategic intent and aligned with the National Professional Development Framework. This prototype will form the first stage of longitudinal professional development planning and career pathways development that are on-going within TU Dublin. Ultimately, a reciprocal and mutually beneficial relationship will exist between the two approaches to CPD that will positivity impact both the staff and student educational experience.





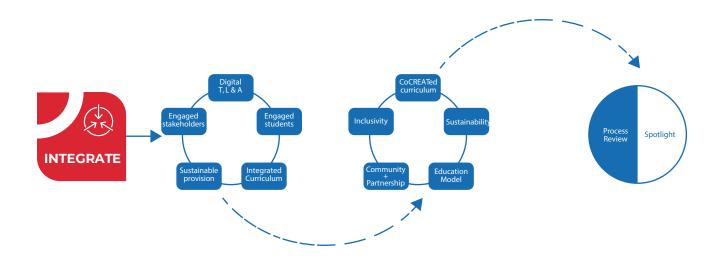
WORK PACKAGE 3



27

INTEGRATE

The priority of the INTEGRATE work package was to identify and maximise the value of TU Dublin's current T&L strengths. To achieve this, a systematic review captured the breadth of TU Dublin's T&L projects; exploring past, present and pipeline projects. This review identified areas of excellence that chimed with the TU Dublin strategic plan and the emergent TU Dublin Education Model, as well as the student experience and enabling student success. Simultaneously, areas of development that aligned with both TU Dublin's strategic intent and national T&L priorities were identified and appropriately supported through a re-imagination of a multi-disciplinary approach to programme design and development.

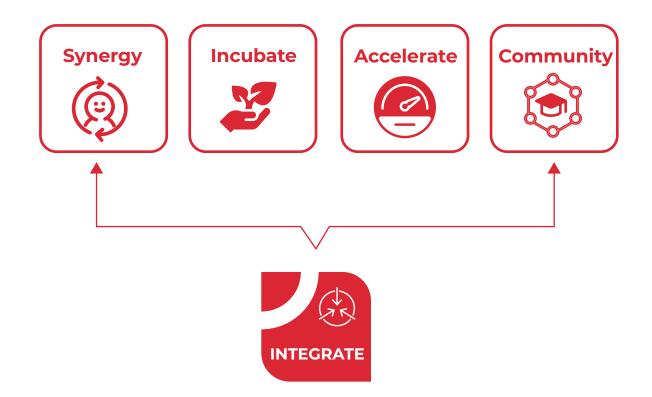




This re-imagination was underpinned by targeted seed funding, support networks and communities of practice.

SYNERGY FUND

The Synergy fund was released in the immediate shadow of Covid-19 and sought to support the resultant rapid change in T&L practices with a view towards seizing the opportunities presented by the challenging circumstances and the likely long-term effect of the enforced changes to T&L. The fund supported staff working in partnership with students to enhance T&L practices in the immediate short term, that being the 20/21 academic year, and based around the integration of the TU Dublin CoCREATEd curriculum framework. This short-term enhancement would, ultimately, lead to sustained and strategic change in T&L practices and culture.



ACCELERATE FUND

The Accelerate funding continued this strategic perspective, with the focus being informing and shaping the emergent TUDublin education model, through a sustainability lens. Sustainability is a core TU Dublin value, and this call funded initiatives that would support and enhance our sustainable culture from a T&L perspective. In the context of this call, sustainability was considered from a broad context (environmental, ecological, social, economic and behavioural etc.), in order to move forward with our sustainable T&L culture in TU Dublin.

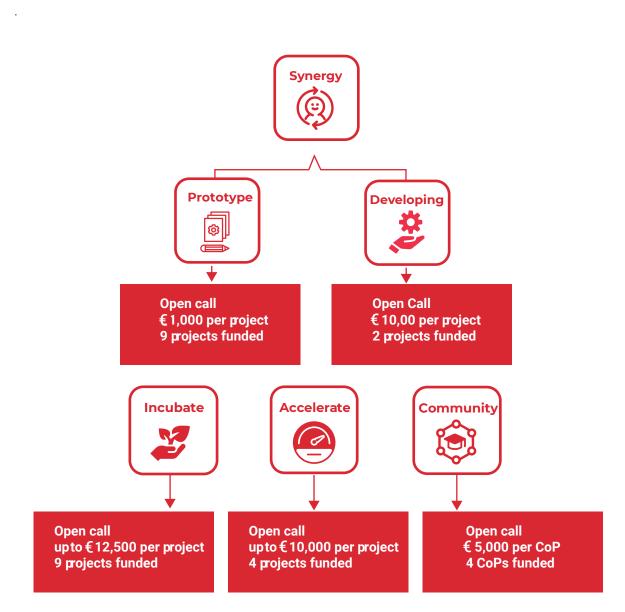
COMMUNITIES OF PRACTICE

The final seed funding call was a Community of Practice call, which sought to support the development of new communities of practice across the university through targeted seed funding. This sought to allow these communities to become self-sufficient and, in doing so, to embed a culture of collegial support and enhancement in key T&L areas related to the TU Dublin strategic plan.

Combined, these considered seed-funding initiatives encouraged a re-imagined approach to multidiscipline programme design and development. An approach that focussed on developing a strong T&L community across the university, a community that was empowered through appropriate capacity, leading to a compelling T&L culture change. The impact of the TU Dublin IMPACT Integrate work package, and the associated seedfunded initiatives, is several-fold and will be examined later. Although this impact will be felt most tangibly in TU Dublin, the ripples will be felt beyond and into the HE sector.

FUNDING CALLS

Understanding the details of funding calls is important in order to appreciate the scale and variety of the initiatives funded. The Synergies call was split in two. Prototype initiatives were high-risk, high-reward, low-investment projects: nine such projects were funded at €1000 each. Two larger ambitious projects were funded at €10,000 under Developing Synergies. Incubate and Accelerate were even larger scale funds. Incubate funded nine projects up to a value of €12,500 per project. Accelerate was the largest seed-fund offered; the maximum initiative seed funding available was €100,000; under the Accelerate fund four initiatives were funded. Within the communities of practice call, four communities were funded to a value of €5,000 per community.



TU DUBLIN IMPACT PROJECT //

PILLARS

In order to be funded, projects were required to align to the TU Dublin Strategic Intent document – our strategic plan. Three pillars – People, Partnership and Planet – form the foundations of this plan. Building alignment to the TU Dublin Strategic Intent document at the point of initiative design will ensure the sustainability of the funded initiatives beyond the IMPACT funding timescale.

PEOPLE

The first pillar, People, chimes with the largest number of funded initiatives across all funding schemes. Small (Prototype) and medium (Developing and Incubate) funded projects focus on topics that will support student success and the strategic development of TU Dublin. The larger scale projects will significantly enhance our capacity to nurture bright minds, creativity and ambition.

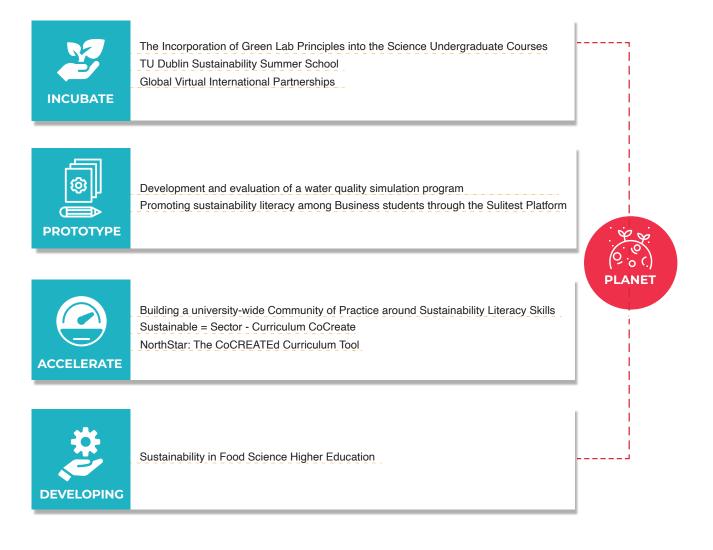




PLANET

The second pillar, Planet, contains the second largest number of funded initiatives. These initiatives have already impacted our T&L community, developing responsible global citizens. A tangible transformation can be seen across the community: staff and students benefit from these initiatives

ranging from staff professional development in the area of integrating sustainability into their discipline-specific teaching practice, to students developing relevant and disciplinerelated understanding of sustainability through internationally recognised tools and resources.



PARTNERSHIP

The third pillar, Partnership, echoes the community ethos of the IMPACT project. Students, staff and other stakeholders worked in partnership across all funded initiatives. These initiatives allow us to understand our students better, allow our students to connect with each other and with industry and community partners in a meaningful and impactful way. This culminates in a close network, a true community, that is both locally present and globally aware and impactful.



Data Insights for TU Dublin (DIFTU) The Mindful Kitchen-Creativity and Social Gastronomy Global Virtual International Partnerships



More than 30 initiatives were seed-funded and supported by the Integrate IMPACT work package; they align to the core pillars of TU Dublin's strategic plan, to ensure longevity and sustainability; however, their impact is both immediate and into the future. Under the collective umbrella of these funding calls, a new-found, teaching-staff driven, integration across the university has emerged. This has been catalysed by the

Synergy

seed funding described here and galvanised with regular, themed webinars and community events. New collaborative relationships are thriving both between staff and across the student population. This has resulted in the strengthening of existing communities and the development of new ones. The strength of the community is its ability to shape and change culture at a practical, bottom-up, level. These changes are now being recognised; the value placed in innovations and enhancement in T&L is tangible. The Integrate work package also reviewed the targeted seed funding process and provided a strong focus on showcasing the seed-funded projects through regular Project Spotlights which connected with the



WORK PACKAGE 4 CELEBRATE

TU DUBLIN IMPACT PROJECT //

CELEBRATE



The focus of the CELEBRATE work package was to inform, excite and celebrate the value and impact of T&L enhancement, including the seed-funded projects, the communities of practice and areas of strategic importance to T&L within TU Dublin. Celebrating the diverse and excellent culture among our community has many benefits including opportunities to connect with colleagues and students to gain insights on local T&L practices and projects. to share our practices, ideas and visions and to help keep informed on the value and impact of learning enhancement across the university. The Celebrate work package ran events of various sizes and with distinct themes including a Festival of Learning, November Webinar Series, a Christmas Market and a Summer Session. Student partnership, participation and engagement were central to these events and included the student-curated 12 Teaching and Learning innovations of Christmas. The CELEBRATE work-stream also supported a special issue of the Irish Journal of Academic Practice, so topics and initiatives relevant to the IMPACT project had a peer-reviewed, and open, home to disseminate as widely as possible. Over the course of the IMPACT project, the Celebrate work-package echoed the values of the TU Dublin IMPACT project and grew the TU Dublin T&L community, developed our culture of T&L, and enhanced our capacity to celebrate and disseminate our T&L achievements.





WORK PACKAGE 4

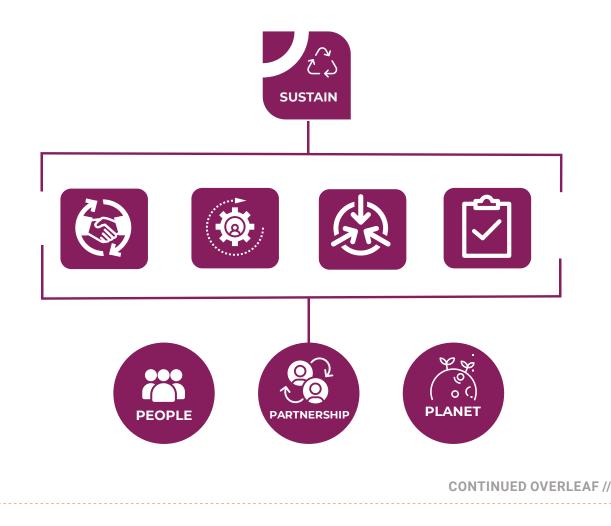


TU DUBLIN IMPACT PROJECT //

SUSTAIN

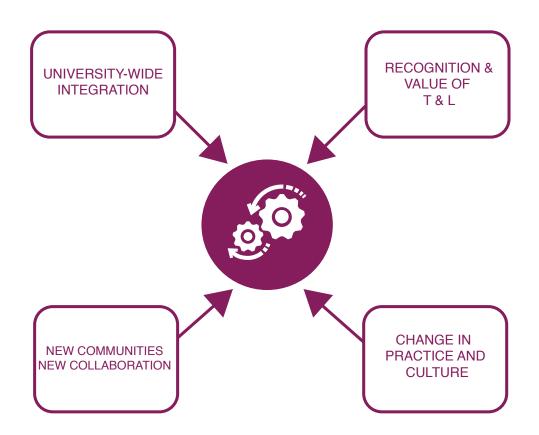
The final component of TU Dublin IMPACT project is the forward-facing SUSTAIN work package. SUSTAIN built a sustainable and agile T&L capacity model. This model will detail the operational and organisational capacity capable of sustaining the University's T&L evolution as catalysed by the IMPACT project. The SUSTAIN work package, employing the IMPACT project as a use-case, specifically focussed on creating a model that supports the sustainable integration of ongoing project outcomes into T&L practice. Key elements of this consideration are the input of our partners (both internal and external), the resourcing requirements, the integrated

nature of both supporting and informing TU Dublin's T&L strategy (including the education model) and, finally, the ability to embed changes into policy and process, as well as practice. Ultimately, the tangible and intangible benefits of the IMPACT Project will be maintained and enhanced through the development and implementation of a sustainable model of T&L for student success. This model is grounded in the three pillars of People, Partnership and Planet that underpin the TU Dublin Strategic Plan, pillars that the five TU Dublin IMPACT work packages already align to.

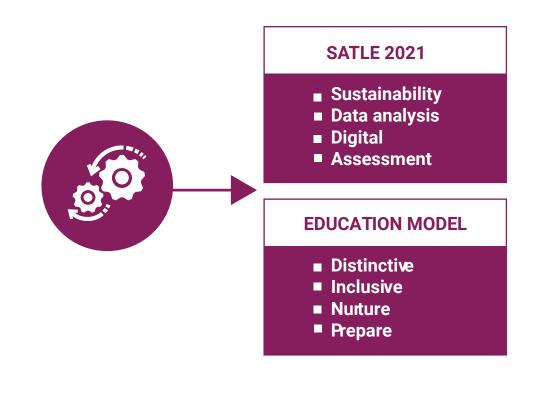




Building on the sustainable model of T&L for student success, the impact of IMPACT will continue: key outputs from the IMPACT project have informed and shaped the proposed SATLE 2021 project. Here, the key areas of focus will be sustainability, data analytics, digital and assessment. This connection between the IMPACT project and SATLE 2021 will form a strong bridge between these National Forum funded projects and the establishment and implementation of the TU Dublin education model.



This dynamic new model of education will transform the learning opportunities and experience for our very diverse student body, producing the most sought-after graduates, and promoting multiple pathways so that TU Dublin is recognised as one of the most accessible universities in Ireland. Through this model, and building on the IMPACT-funded initiatives, TU Dublin intends to nurture bright minds, creativity and ambition to achieve our mission of creating a better world together through empowering student success.



WHAT IS IMPACT'S IMPACT, AND HOW CAN IT BE SUSTAINED?

41

WHAT IS IMPACT'S IMPACT, AND HOW CAN IT BE SUSTAINED?

The IMPACT project, and the seed-funded initiatives within IMPACT, resulted in many tangible outputs and influences. Following extensive consultation with IMPACT stakeholders, through a series of externally facilitated design-thinking workshops, a selection of exemplar impacts is synthesised here under the IMPACT sustainable T&L model headings:

INNOVATIVE PEDAGOGIES

To perform an institutional data review to create an understanding of the ways in which institutional, operational and academic strategies and policies can inform programmatic offerings, and to outline how national and institutional data have formed a shared identity through the process of becoming a Technological University.

- The IMPACT sustainable T&L model created and demonstrated agile processes to support lecturers in innovating their teaching practices, with support from other educators across the whole TU Dublin community
- IMPACT's outcomes helped to normalise the process of conducting T&L research in TU Dublin, and supported the development of a culture of good T&L practice through demonstrating the high potential to develop sustainable models of best practice in T&L
- Seed-funded projects acted as new catalysts for innovation, in collaboration with formal evaluation during the project, while supporting these actions to align with the strategic goals of TU Dublin (particularly in priority areas such as the UN SDGs)
- The Summer Sessions Gallery as a model showed great promise, via the showcasing best practice to encourage others to use innovative T&L practices in the TU Dublin community



MENTORING

- The project encouraged and supported the strengthening of relationships between senior leadership, the LTTC and student-facing staff, allowing stronger support lines to be established and nurtured
- IMPACT demonstrated the power of collegial action, and of bottom-up activity that can align with top-down strategy while also adapting to the new complexity of the university
- IMPACT enacted real change and had a real impact in establishing an action-oriented movement across the university, through building support across three campuses. It also helped to highlight a distinct issue around funding challenge versus time challenge for delivery and impact from staff. Resourcing potential (e.g. secondments) were demonstrated as effective, leading a required shift in thinking (and potentially in policy)
- The DEVELOP work-package enhanced teamwork for planning and quality for all teaching actions in TU Dublin, while also supporting new internal and external partnerships and more industry engagement via IMPACT
- Senior leadership support helped promote staff engagement while showing a high level of value for their actions

PROFESSIONAL DEVELOPMENT

- The process of undertaking the IMPACT project helped support the development of a new T&L focused TU Dublin identity, particularly relevant in the current important stage of refining the new TU Dublin community
- IMPACT helped celebrate T&L practices in TU Dublin, while also establishing a dedicated community of T&L leaders in the institution through the highlighting of excellent T&L activities
- As the project was active during the Covid-19-induced work/learn from home response, it helped support staff and students in the transition to more effective working/learning actions, while minimising the impact on teaching quality
- A clear student focus emerged, highlighting that fact that students are the real partners in the education process, along with discovering new ways of enhancing student success in education
- Successful completion of the UN Sulitest by a large number of staff and students successfully demonstrated improved sustainability literacy, supporting a further rollout of sustainable aspects
- The Le Chéile Award process was clearly defined, actioned and successful, indicating the potential for continued rollout and similar additional projects

AUTHENTIC TEACHING, LEARNING & ASSESSMENT

- IMPACT supported new forms of assessment to adopt and allow for different learning styles, maximizing the potential for future suitability for students, staff and situations
- IMPACT highlighted a need to use authentic assessments, fit to students' abilities and goals, while also providing them with new shareable content included to allow students to promote their own work externally to the education environment
- IMPACT also provided opportunities for staff from across the newly formed university to meet and find commonalities between their current teaching, learning and assessment plans, sharing with and learning from others in the wider TU Dublin family

CULTURE

- A clear desire from staff and students alike to enhance T&L for student success across all areas of TU Dublin became evident
- The success in securing significant funding for the IMPACT project helped raise the profile of T&L activities across the university

 Celebration of this funding across the whole university helped to highlight the teamwork and effort in the T&L space, whilst simultaneously showing the value of focused actions to improve T&L practices

- IMPACT was the first pan-university T&L project for the new university, helping to secure a strong initial position for T&L actions in TU Dublin's future
- The project supported the roll-out and integration of new events, with more engaging, enjoyable and digitally enabled methods of sharing the outcomes and actions
- IMPACT supported the development of a unique TU Dublin culture focused on the T&L space through developing new cross-campus collaborations, supporting interaction and networking with colleagues in other areas of the institution and allowing staff to gain insights into what is happening T&L-wise across the institution
- A culture was developed from IMPACT of stepping forward to innovate in the T&L spaces, with subsequent recognition from staff across the university
- IMPACT supported and inspired additional projects across TU Dublin, both local and institutional, resulting over 30 cross-campus projects

TU DUBLIN IMPACT PROJECT //



TOTAL

- The SHARE work package developed guidelines, frameworks and supports for open education resources and access, with lecturers actively using relevant resources in the TU Dublin repository
- IMPACT facilitated the process of effective T&L knowledge-management, the tools and practices needed for successful T&L practice in TU Dublin

CONTINUED OVERLEAF //

IMPACT'S SUCCESSFUL FUTURE DELIVERY: A CLEAR VISION

IMPACT'S SUCCESSFUL FUTURE DELIVERY: A CLEAR VISION

Through facilitated consultation, a clear vision for a proposed successful, sustained impact of the IMPACT project deliverables was developed and is based around four key stakeholder groups. This vision is grounded in a set of recommendations for each group:

UNIVERSITY

- Outcomes and lessons learned from IMPACT must be translated into other programmes, schools and colleges/faculty across the university
- A larger, stronger and more unified T&L approach for the whole of TU Dublin, with a strong and active supporting community, must operate successfully
- A unique T&L model is developed by TU Dublin, with strong supports for professional development based on a system that recognises, rewards and supports innovation and T&L excellence
- Pedagogical research is a standard practice amongst all staff across the university, with time, funding and promotional opportunities extended to this area of scholarship in line with other strands of the university
- A new curriculum is formed that delivers excellent student experiences with strong ethical responsibility instilled in all graduates, using blended-learning methods as standard, extending T&L practices beyond the physical environments of TU Dublin
- New QA/E models should support best practice, innovation and delivery of the TU Dublin educational model along with the development of appropriate frameworks and practices to embed innovative resources in T&L practices
- New and continued resourcing to transformative projects (such as IMPACT) should be made available annually. Stakeholder initiatives should be adequately funded without having to rely on individual enthusiasm and after-hours action from small, dedicated groups
- TU Dublin is recognised as an innovator in the T&L space globally and this should be supported by an annual celebration of T&L highlighting the world-leading actions at the University



TU DUBLIN STAFF

- Supported professional development programmes should be enhanced and integrated into career development plans for all staff members
- A well-defined and high level 'Standards of Teaching & Learning' is established, recognised and expected from all staff in TU Dublin. In addition, pedagogical research is seen as standard practice, with appropriate credit and respect given to its focus
- TU Dublin acts as a beacon for leadership at global level in the T&L space
- T&L staff are recognised at the same level as other TU Dublin staff, including research-focused staff
- There exists a regular and interesting range of new internal and external opportunities to lead in the T&L space, along with a strong culture of disseminating best practice globally
- Staff are supported and actions aligned with promotions to develop excellent educational capacity via evidenced-based CPD programmes
- Open research, open innovation and open access publications have all increased in volume and quality, with active promotion by TU Dublin as a whole
- Teaching hours and schedules are more balanced, with teaching hours reduced to comparable levels with other universities to help facilitate more research and scholarship activity
- Contributions are sought, heard and applied, from all members of the TU Dublin community, with the goal of setting realistic strategic objectives in the T&L space
- Resources, structures and managerial support for developing high quality teaching and innovation actions are more common, along with a much clearer path laid out for how T&L scholarship and innovation are evaluated for impact and career progression

TU DUBLIN STUDENTS

- The creation of large volumes of new confident graduates, proud of their Institution, skills and education, acting as ambassadors for TU Dublin into the future
- A large number of current students acting as ambassadors, arising from the IMPACT project, acting as student leaders and promoters for improved T&L approaches and actions
- Our graduates should actively change industry culture using their education and experiences at TU Dublin to improve their new careers, sectors and fields
- A new improved student experience is in operation at TU Dublin, providing world-leading education content and methods to ever-growing student numbers
- New forms of assessment for students are regularly created, tested and implemented in all areas, with TU Dublin acting as a leader in new pedagogy development in the higher education sector

EXTERNAL PARTNERS

- A pan-EU approach is adopted by TU Dublin, integrating not only academic but also industry partners from across Europe, to enrich and support the educational developments in technological universities across Europe
- Increased industry partnerships (similar to the CONVENE project) should successfully inspire the next generation of industrially-engaged projects and programmes
- Local and international industry should be engaged successfully, with positive feedback from partners and high-quality interactions and feedback from placement students
- TU Dublin should lead the development of assessment best practice
- There should be increased interactions and engagement with industrial partners; stronger partnerships should be built and more industrial engagement is invited into TU Dublin's day-to-day teaching and learning. in technological universities around Europe, as well as in traditional universities

A roadmap for integrating IMPACT outputs into TU Dublin's 'business as usual'

A ROADMAP FOR INTEGRATING IMPACT OUTPUTS INTO TU DUBLIN'S 'BUSINESS AS USUAL'

An integrated review and resources-based roadmap was used to reconcile the recommendations from the IMPACT project and TU Dublin's business as usual under five headings :

REVIEW

- Increase guidance and links between the IMPACT CPD framework and internal progression, promotional metrics and criteria.
 Combine the IMPACT CPD framework with the Sustainable Model of Teaching and Learning and maintain alignment with TU Dublin's overall strategic plan and associated KPIs
- Celebrate the IMPACT project at a university level, to highlight its impacts, outcomes and potential future, while spotlighting it as a growing community in the institution
- Adopt the specific recommendations arising the individual IMPACT workpackage reports
- Investigate the creation of a VP of Teaching and Learning role and a dedicated T&L staff member in each school, whose sole aim is to support the development of new T&L innovations
- Review IMPACT Innovation Hub model for fit, integration and funding under TU Dublin's strategic plan



PLAN

- Integrate both senior management and student-facing staff in all programme or strategy developmental sessions, to enhance staff engagement and integration into future plans
- Establish regular events, forums and media to stimulate increased staff interaction, collaboration and cross-facility integration, to enhance the development of effective campus wide T&L communities
- Ensure that T&L actions are included as a high-level agenda item at a senior leadership level, with actions towards continued support for the developed actions. Onboarding of additional senior-level supporters, sponsors and advocates to ensure continued T&L development is also necessary
- Investigate the formation of a cross-disciplinary education research community for the university
- Make all strategic documents, plans and proposals move readily available and visible to all TU Dublin stakeholders, with focused T&L sessions on any new strategic initiatives
- Assess integration into CONVENE, SATLE2021, EUt+ etc. with a view to further integration of IMPACT outputs and deliverables

INTEGRATE

- Develop a unified TU Dublin T&L strategy, integrating the outcomes of the IMPACT project, while also ensuring appropriate input for other campus-based stakeholders
- Promote and roll out the TOTAL repository internally to encourage uploading & engagement with content to all TU Dublin staff
- Integrate newly developed educational processes into TU Dublin's wider activities and undertake all changes on a collegial level, involving all schools, colleges, departments and campuses

- Establish clear metric reporting processes and outlines for staff to update on progress
- Make all strategic documents, plans and proposals move readily available and visible to all TU Dublin stakeholders, with focused T&L sessions on any new strategic initiatives
- Assess integration into CONVENE, SATLE2021, EUt+ etc. with a view to further integration of IMPACT outputs and deliverables

RESOURCE

- Promote, train and disseminate information regarding the newly developed repositories, education material and resources widely across TU Dublin, utilising aspects such as the Summer Sessions Gallery approach to ground IMPACT outcomes
- Consider a campus-wide roll out of the repository and T&L tools developed during IMPACT
- Roll out the Le Chéile awards and future versions on the Festival of Learning across the campus
- Increase the frequency of interactions between student-facing staff and leadership in all relevant TU Dublin T&L activities



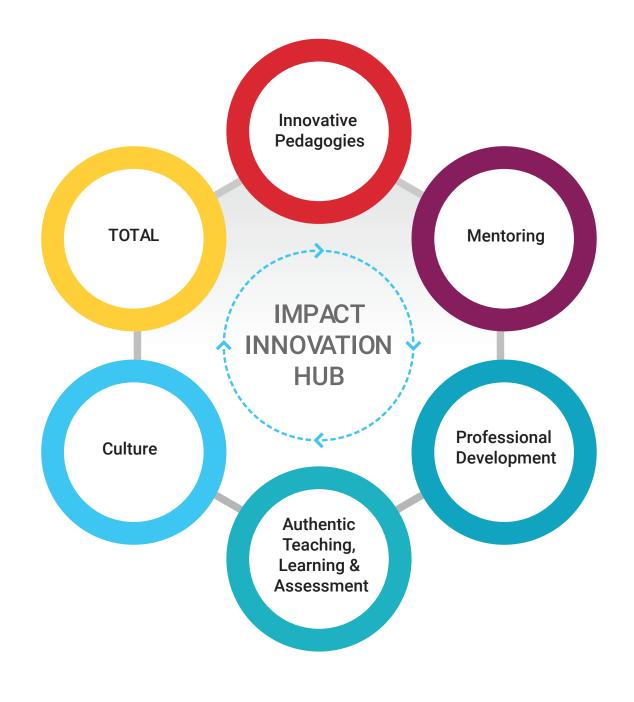
THE IMPACT HUB MODEL



THE IMPACT HUB MODEL

55

A synthesised, final recommendation is the development of a unique IMPACT Hub in TU Dublin as a centralised space for sustainable T&L enhancement for student success. This will connect the core project outcomes (i.e. the radial nodes) to a central IMPACT innovation hub team. The team would champion the radial node themes and echo the sustainable T&L model: :



INNOVATIVE PEDAGOGIES

Staff and students continue to take the Le Chéile journey; recognising and encouraging best practice in programme design, supporting the CPD needs of teaching staff and promoting an effective T&L culture university-wide.

MENTORING

A supporting, and supported, mentoring provision is available to all staff across all levels of teaching, learning and assessment enhancement. Communities of practice are fostered and grown in strategic areas to feed into the mentoring culture in TU Dublin.

PROFESSIONAL DEVELOPMENT

A coherent and comprehensive CPD offering is available to all staff who teach and is informed by continual evaluation and assessment; it is maintained as current through the timely proposal of new CPDs for TU Dublin staff in line with evolving strategic goals..

AUTHENTIC TEACHING, LEARNING AND ASSESSMENT

Staff are supported in developing authentic approaches to teaching, learning and assessment through existing communities of practice and the ability to collaboratively synergise with colleagues (internal and external). Initiatives are seed-funded and become embedded in T&L practice and, with time, develop in terms of scale and scope. The scholarship of this approach is developed sustainably, and the outputs are uploaded to TOTAL where they remain accessible to all TU Dublin staff.

CULTURE

Staff are supported in developing authentic approaches to teaching, learning and assessment through existing communities of practice and the ability to collaboratively synergise with colleagues (internal and external). Initiatives are seed-funded and become embedded in T&L practice and, with time, develop in terms of scale and scope. The scholarship of this approach is developed sustainably, and the outputs are uploaded to TOTAL where they remain accessible to all TU Dublin staff.

TOTAL

TOTAL continues to develop, maintain and improve the TU Dublin Open Teaching and Learning actions, archives and repositories for current and future use

The IMPACT Innovation Hub organisation and design will be in alignment with the overall university strategic plan, KPIs and composite working groups. The IMPACT Innovation Hub concept will require support and endorsement from the university, college/faculty, as well as each school and current/proposed new roles such as the Head of Academic Affairs, the Heads of Learning Development, Vice Deans of Education and the Dean of Teaching and Learning. Some example success metrics for the central IMPACT Innovation Hub and each radial node are noted in the table below.

Node	Example Success Metrics
IMPACT Innovation Hub	 Acceptance of IMPACT Innovation Hub (IIH) within the new organisational design. IIH is staffed and resourced appropriately. IIH has a sustainable status within the university, through involvement in key strategic working groups.
Innovative Pedagogies	 Increased numbers of teams applying. Number of Le Chéile teams progressing to a full NF DELTA application.
Mentoring	• A recommendation from the strategic group developing the TU Dublin CPD framework recognises the inclusion of mentoring for 'staff who teach' and this informs, in particular, the academic workload model group.
Professional Development	 Number of staff who engage with new CPD offerings. Number of progressions or promotions based on new CPD offerings. Iteration of CPD offerings over a set time period.
Culture	 Number of people attending T&L events. Positive feedback from attendees and organisers of T&L events Number of T&L projects run and shared. New people and practices included compared to the previous year.
TOTAL	 Increasing number of OERs available (x% each year) Increasing number of users (x% each year)

IMPACT Project Sectoral Recommendations



IMPACT PROJECT SECTORAL RECOMMENDATIONS

REGULAR FUNDING :

A regular funding stream, such as SATLE, would be really helpful as it facilitates funding being allocated strategically within institutions. This helps to avoid 'pet projects' and a small number of people being funded. Instead, institutions will be able to look to long-term change; change that is strategic but needs to be built on year-and-year. This will maximise the long-term impact of the funding allocated in a sustainable way.

MENTORING AND SUPPORT : FUTURE FUNDING CALLS:

Enabling a community of practice, founded by those who were involved in IMPACT project, can lead to efficient knowledge management through sharing practice internally and externally. For example, support (linked to mentoring) on how to run a complex transformative T&L project, or facilitating an online experience, or how to use technology to improve communication in a large T&L project, could be areas worth exploring for the future large T&L project teams.



REWARD OR RECOGNITION FOR INNOVATING T&L:

This was achieved, at a local level, by the IMPACT project. However, the consensus is that something more formal and sustainable is needed locally and nationally. There are strong links to the VITAL Programme and Recognition at National Forum level. The opportunities lie in internal CPD frameworks that most institutions have (or are developing); however, care is needed around the connection between recognition and promotion/progression, as well as the need for local transparency.



ENABLING STRATEGIC CHANGE MANAGEMENT:

An emphasis should be placed on supporting initiatives that align to national and local strategies. Opportunities (e.g. the design of local funding calls) should be created to allow locally funded initiatives to feed into and action local/national strategy targets. 'Rewiring' our pedagogical approach so that education continues to transform the learner experience but also anticipates changes, creating a better society for all.

In the IMPACT project, a framework for developing strategic communities of practice was developed and executed, that may be helpful for the sector to avoid the "two steps forward and one step back" approach to change. In this framework, the visionary (aligned to institutional and national strategy) and practical applications were combined through a peer-supported process leading to tangible, coherent, change.

POSITIONING OF T&L:

The IMPACT project a highly visible project both within and outside the university. Internally it aligned to the current TU Dublin Strategic Goals, but had bottom-up involvement across all campuses and disciplines. Its high visibility, and wide reach, encouraged buy-in across all levels of staff, and forced T&L higher up the agenda in schools where T&L is not a priority. T&L should 'light up' on the dashboard of an institution as distinctive, embedded and resourced. This raises the question of power and intent behind T&L locally; where does T&L sit in an organisation? Is it centralised in reality? There is a need to move away from an ad-hoc processes (e.g. career pathways for staff who primarily focus on teaching etc.), as well as T&L enhancement at a university level..

This report and the IMPACT brand were created by Nicola Duffy. She is team member on the IMPACT funded project; NorthStar.



//Ms Nicola Duffy

Nicola is a full-time lecturer in the TU Dublin Blanchardstown Campus School of Informatics, lecturing on the MA in UX and Interaction Design programme and on the BA (Hons) Creative Digital Media Degree programme. She is the co-ordinator of MA in the UX and Interaction Design programme; co-ordinator of MAKE, a yearly design seminar hosted in Dublin; Academic Board member of TU Dublin, passionate about education, design, digital media, painting, sculpting. Research areas of interest include UX, inclusive design, design psychology, interaction design.





HEA HIGHER EDUCATION AUTHORITY AN TÚDARÁS um ARD-OIDEACHAS



NATIONAL FORUM FOR THE ENHANCEMENT OF TEACHING AND LEARNING IN HIGHER EDUCATION