



CASE STUDIES

‘Knowledge Exchange and Collaboration in an Institute of Technology – A Case Study’

INSTITUTE OF TECHNOLOGY, TALLAGHT¹

¹ This case study report was prepared by Richard Thorn for the OECD in collaboration with staff members and representative external stakeholders of Institute of Technology, Tallaght.

This case study shows how one of Ireland's 14 Institutes of Technology, the Institute of Technology, Tallaght, which brands itself ITT Dublin (ITTD), has established itself as a highly performing institution in respect of knowledge exchange and collaboration with internal staff and students and external commercial and non-commercial stakeholders.

The publication of Ireland's *National Strategy for Higher Education to 2030* in 2011 has led to the Higher Education Authority using a process of strategic dialogue to agree institutional compacts with institutions within a Higher Education System Performance Framework established by the Department of Education and Skills. The performance framework lays out national priorities and key objectives, including knowledge exchange and collaboration, for the higher education system, achievement of which is built into each compact. Following evaluation, a portion of institutional funding is tied to achievement of objectives in the compact. The results of the evaluations are published by the Higher Education Authority which also publishes a set of institutional profiles in its Higher Education System Performance document.

It is within the context of strategic dialogue, institutional compacts and performance frameworks that ITTD has, in recent times, been developing its knowledge exchange and collaboration capacity. A feature of these new arrangements is greater emphasis on the use of performance metrics, measurement of impact and benchmarking and comparison against other similar HEIs.

The Institute is a public higher education institution. The teaching and research functions are based on a single campus in south west Dublin, although it has a step out incubator/science park at nearby Citywest Business Campus west Dublin. In its strategic plan for 2009 to 2014 the Institute gives its mission as ‘..to be the centre of higher education and knowledge creation within South Dublin County and its environs, to broaden participation in higher education in the region, to be recognised as a leader in supporting research and commercial innovation, and to assist in the advancement of the economic, social and cultural life of the region.’

The Institute has three Schools; Business and Humanities, Engineering and Science Computing. In 2012/2013 the Institute had 4,471 students of which 4,379 (98%) were undergraduate and 92 (3%) postgraduates. 33% of its total enrolments were part-time – the highest of the Institutes of Technology. 43% of its students were studying in science, engineering, manufacturing and construction. The Institute had a total staff of 354 of which 222 were academic and 132 were support.

The Institute has established a wide range of collaborative activities with public and private organisations in south and west Dublin. The Institute has also established a very successful on-campus research and incubation centre – the Synergy Centre – and an off-campus ‘step out’ incubation centre – Synergy Global.

The Institute actively demonstrates 4 of the 5 statements in the HEInnovate ‘Knowledge Exchange and Collaboration’ dimension and one statement in the ‘Preparing and Supporting Entrepreneurs’ dimension. These statements are listed below and discussed in order in the body of the Case Study.

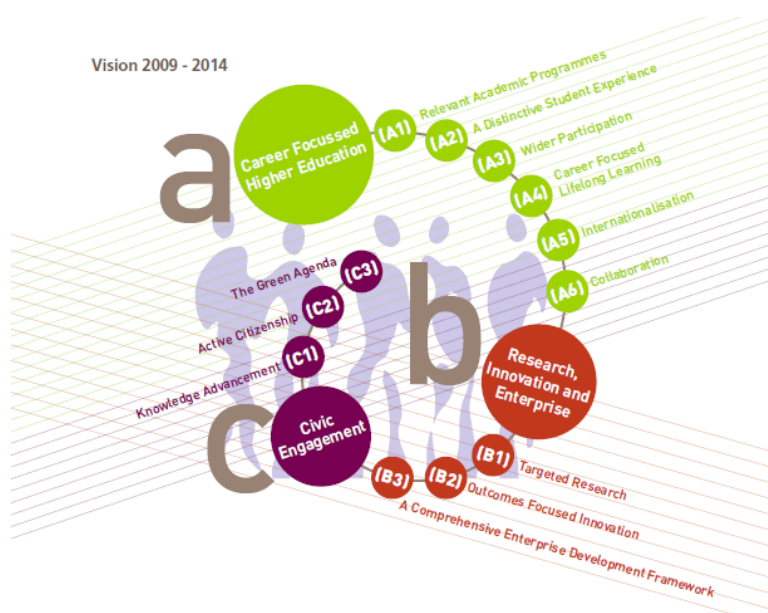
- The HEI is committed to collaboration and knowledge exchange with industry, the public sector and society.

- The HEI demonstrates active involvement in partnerships and relationships with a wide range of stakeholders.
- The HEI has strong links with incubators, science parks and other external initiatives. (In the Preparing and Supporting Environments Dimension the Statement ‘The HEI offers or facilitates access to business incubation’ is also relevant here).
- The HEI provides opportunities for staff and students to take part in innovative activities with business / the external environment.
- The HEI integrates research, education and industry (wider community) activities to exploit new knowledge.

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Occupying a pivotal role in South Dublin, the institute is surrounded by opportunities to collaborate and share its expertise with external stakeholders. This opportunity has been developed to a significant extent in the years since its inception and is driven at strategic, operational and academic levels and through visible senior management activities.

- The Institute has, consistently since its opening in 1992, made a strong strategic link between research, innovation and enterprise. In its most recent strategic plan (2009-2014) it identifies three strategic goals of targeted research, outcomes focused innovation and the development of a comprehensive enterprise development framework within its research, innovation and enterprise pillar. These goals and pillar complement its other two pillars of career focused higher education and strategic engagement.



- The Synergy Centre (an on-campus research and incubation centre, see below) holds a series of high profile business development events throughout the year. Key events for 2016 include ‘Doing Business and Raising VC funds in US’, intellectual property workshops, a showcase event for new start-ups, StartUp Europe Week and events in support of Enterprise Weeks supported by Bank of Ireland and South Dublin Local Enterprise Office respectively.
- When the Institutes of Technology were first established, as Regional Technical Colleges, in the early 1970s, the academic accreditation requirements included the need for all courses to have one external examiner drawn from an academic institution and one drawn from the world of work to ensure courses remained professionally oriented. Over the intervening years most colleges have dropped this requirement but ITT Dublin has retained it and thus retains a very clear link between academic studies and the world of work thus satisfying one of ITT Dublin’s strategic requirements of offering career focused education.
- ITTD is a corporate member of South Dublin Chamber of Commerce. While it is not unusual for staff of Institutes of Technology to be involved at committee level with their local Chambers of Commerce it is unusual for a President of an Institute to be President of a Chamber – a position held by a recent President of ITT Dublin. The current (2016) President is a Council Member.

The HEI demonstrates active involvement in partnerships and relationships with a wide range of stakeholders.

ITTD has established a robust network of relationships with public and private organisations that mutually supports and reinforces each other’s efforts at developing business within the South Dublin region.

- The Institute sponsors an annual South Dublin Student Enterprise Awards. This very comprehensive enterprise award programme includes workshops for primary and secondary school students and resources for teachers to run the awards. The event is run by the Local Enterprise Office (LEO), a part of South Dublin County Council. The finals are held in ITT Dublin and Institute staff participate on the judging and awards panels. The value of the sponsorship is currently (2016) €20,000. <https://www.synergycentre.ie/news/>
- Whereas ITTD sponsors the South Dublin Student Enterprise Awards a reciprocal sponsorship arrangement is in place for the third level enterprise award scheme run by the Synergy Centre with LEO as the main sponsor and also a participant in the judging of the event. The value of this sponsorship is currently (2016) just under €10,000.
- The Institute provides an entrepreneur development programme (New Frontiers, see below) participants for which are selected following interview, submissions etc. The

Institute actively seeks external input to this process, including the use of LEO and other external agency staff, to help select participants. This involvement recognises the fact that LEO, which also has a business start up support role, but not for HPSU (High Potential Start Up) businesses, may be able to help some applicants who are not selected for the New Frontier programme.

The HEI has strong links with incubators, science parks and other external initiatives.

In the 'Preparing and Supporting Environments' Dimension the Statement 'The HEI offers or facilitates access to business incubation' is also relevant here.

Although established initially as undergraduate teaching institutions the Institutes of Technology have all established incubation and business support centres. ITT Dublin's physical and networked ecosystem of applied research, start ups, spin outs and spin ins and incubation facilities is amongst the most comprehensive in the Institute of Technology sector.

- The Institute has established a strong applied research track record in applied health sciences and biondiagnostics. In each of these areas the Institute has applied research facilities dedicated to near-to and market research. These two centres are dealt with below.
- The Institute owns an on-campus incubation centre (called the Synergy Centre) with 1,000 m² of space for business start ups and industry led research. The centre has office units, hot desks, meeting and training rooms, IT facilities, innovation laboratory space for industry-led research and restaurant facilities. <https://www.synergycentre.ie/>
- Recognising that business start-ups may wish to move to larger space to allow for growth and development yet not lose the strong links to research, networking and other business support services ITTD first became a minority stakeholder and then majority owner in Synergy Global, a business incubation centre located off-campus on Citywest Business Campus. Start ups may 'step out' to this facility without losing links to the main campus. This is one of a very few off-campus incubation facilities owned by an Institute of Technology. <https://www.synergycentre.ie/facilities/synergy-global/>
- In addition to the physical facilities on and off campus the Institute has a comprehensive entrepreneur development programme undertaken in collaboration with Institute of Technology, Blanchardstown, a few kilometres north of Tallaght. The New Frontiers programme is funded by Enterprise Ireland – a state agency with responsibility for enterprise development and support for indigenous companies. New Frontiers offers a two stage programme incorporating development and validation of ideas, funding for participation, market research, physical facilities, mentoring, financial management, etc. <http://www.synergycentre.ie/programmes>

The HEI provides opportunities for staff and students to take part in innovative activities with business / the external environment.

For students within ITTD a comprehensive programme of enterprise support workshops, entrepreneur development and an enterprise competition are promoted to encourage students with business ideas. Additionally, the development of relevant social and personal skills is available through participation in volunteering and active citizenship modules.

- The Synergy Student Awards are run by the Synergy Centre and are designed to encourage students with business ideas to develop them while still in college. Workshops are run in business planning and video presentation in advance of the closing date to help students prepare their ideas. The competition is open to individual or team groups and to both full and part time students.
- The Synergy Centre also runs a Summer Graduate Entrepreneur Development Programme. The programme recognises that for many students time during the college year is restricted and takes elements of the New Frontiers programme and makes them available over a four week period during the summer for graduates. The programme includes business start up workshops, peer to peer networking and access to library and research facilities. The output is a short business case document and participants having developed an increased awareness about business start up processes and opportunities.
- The Institute offers a 10 ECTS credit ‘Certificate in Volunteering’. This volunteering programme was established to harness, acknowledge and support the contribution that ITTD students make by volunteering. The programme has specified learning outcomes and a teaching learning assessment methodology designed to develop personal and employability skills while contributing to the capacity of the community.
- The School of Business and Humanities offers a 5 ECTS credit module ‘Active Citizenship’ which is similar in intent to the Certificate in Volunteering and which engages students in their community and in doing so, encourages activities beyond academic study that enhance the holistic learning experience of the student. It aims to recognise the effort that students put into being engaged in their community and help them develop as active citizens.

The HEI integrates research, education and industry (wider community) activities to exploit new knowledge.

The Institute, in addition to its incubator facilities, has developed three applied research centres with specific remits to work collaboratively with industry. The research centres are staffed by academic staff and students and contract research staff. The centres work at the nexus of research, education and industry.

- The Centre of Applied Science for Health (C.A.S.H.) is a 1,350m² research facility adjoining the Synergy Centre. It was completed in 2011 and undertakes interdisciplinary

research leading to the development of intellectual property and its commercialisation. It aims, in particular, to generate new scientific knowledge in the areas of strategies for combating difficult and antimicrobial resistant pathogens, biomedical devices, and translational molecular cell biology research.

- The RF Technology Centre featuring an EMC/Anechoic Chamber which supports applied research in the fields of EMC research, load pull research for RF transistors, wireless sensors, antenna performance testing and low energy and low noise amplifier research. Because this facility is the only such facility in public ownership in Ireland it is widely used by companies testing products.
- Microprocessors for Clinical Research and Analysis (MiCRA) is an Enterprise Ireland Technology Gateway and a member of the Pharmaceutical Manufacturing Technology Centre (PMTc) and the Dairy Processing Technology Centre (DPTC). MiCRA's remit is to deliver commercial viable research and near to market solutions for companies in Ireland. To achieve this aim MiCRA works directly with Industry to address their unmet needs in the area of biondiagnostics and rapid detection technologies. Technology Gateways operate in a similar governance manner to Fraunhofer Institutes in Germany.

Impacts

The impact of ITTD in its region, particularly in respect of the HEInnovate Knowledge Exchange and Collaboration dimension, may be assessed qualitatively and quantitatively.

There are two principal sources of qualitative information. First, the Institute, as part of the national academic quality control system undergoes regular, independent, Institutional Reviews that consist of self evaluation reports, and published independent panel visit reports. Where particularly good practise is observed the Institute receives a 'commendation'. Second, as part of the strategic dialogue process noted above (in the first round) an independent panel advised the higher education authority on the performance of Institutes against the agreed compact. Where the panel felt that particular activities were of benefit to meeting the compact arrangements these were 'noted'. In the second round of strategic dialogue a self reflection and review was undertaken and in this process performance against the agreed targets was commented upon.

- In relation to the most recent Institutional review a commendation was received '...on the excellent working relationships that it has with external stakeholders, including industries, schools, communities and business organisations.'
- In relation to the first round of the strategic dialogue process '...the work being done with Synergy Global and through the Synergy centre with 5 High Potential Start-Ups and a further 3 in the pipeline' was noted as was '...the ongoing work of IT Tallaght in integrating real world business problems of its industry partners into student project work,...' and 'The integration of the Institute into the employer community of its

hinterland, with the President of IT Tallaght assuming the presidency of the local Chamber as an example’.

- In relation to the second round of the strategic dialogue process it was noted that ‘ITTD has exceeded its three targets in this category² with sizeable increases and growth in the number of innovation vouchers, active engagement channels with schools and community groups.

Quantitative data on impacts come from two sources; those gathered by ITT Dublin itself and those published by a state agency following a formal collection process.

- The impact that the Student Enterprise Awards has in the Tallaght area is significant. In the most recent award process 35 second level schools were visited and provided with materials, 643 students from 18 schools took part, 30 workshops took place in the 18 schools and 160 student entrepreneurs participated in the County Final in ITTD.

Knowledge Transfer Ireland is an initiative supported by Enterprise Ireland that collects and publishes data on collaboration, the development of novel intellectual property or the creating of new ventures which are drawn from or based on Ireland’s research base.

In 2014 ITT Dublin:

- Generated €2.1m of research funding of which 10.4% was industry funded which in value terms was one of the highest in the Institute of Technology sector,
- Entered into 42 collaborative research agreements, which was the largest number within the Institute of Technology sector,
- Made 4 invention and software disclosures and progressed 2 international patent applications to PCT (Patent Cooperation Treaty,
- Supported 75 companies in its incubator and entered into 56 contracts with companies for the use Institute based equipment and facilities, the latter figure being the highest within the Institute of Technology sector.

Lessons Learned

- The Institute, in its strategic plan to 2014 commits to a ‘comprehensive enterprise development framework’. What is clear is that instead of a large number of small initiatives that could be difficult to manage and integrate, a relatively small number of high profile activities, facilities and programmes provide a ‘cradle to grave’, and thus comprehensive, approach to enterprise development.
- The network of relationships with agencies, businesses and public and private sector organisations that the Institute has built up over a long time is resilient. It is clear that

² Enhanced engagement with enterprise and the community and embedded knowledge exchange

time has been spent in building open and trusting relationships as evidenced by the extent that the different stakeholders understand each other's roles and are thus able to refer groups and individuals, seamlessly, to the stakeholder that can best meet their needs.

- Recent physical developments such as the removal of a wall around the college and the construction of roads through the campus, thus joining up different parts of Tallaght have opened up the campus. This has led to much greater numbers of people encountering the college who might otherwise have so done with obvious benefits.
- The success of Synergy Global has given rise to thoughts about the further development of 'step out' facilities. In particular, off-campus facilities that might be used to help assist the further development and off-campus expansion of incubator clients – for example engineering and manufacturing companies - requiring access to micro-industrial units and accommodation.

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