Strategic focus pays dividends for DCU

Although a relatively young university, Dublin City University has a well-established research and development strategy which has helped to attract some major research projects

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Ireland's third level institutions have an illustrious heritage, but when it comes to research few will have the pedigree or capabilities of one of our newest universities. Dublin City University has been involved in leading-edge research almost since its foundation – and it has built upon its well-established capabilities to position itself at the forefront of Irish academic and translational research.

"DCU was pioneering amongst Irish universities in developing a strategic research plan back in the mid-1990s," said Professor Eugene Kennedy, Vice-President for Research at DCU. "We put in place a designated research centre recognition process, which was an effort on the university's part to encourage multidisciplinary teams where PIs (principal investigators) could get together around strategic research themes."

By having dedicated research centres already in place at the university, DCU was well positioned to benefit from the first round of the Higher Education Authority's PRTLI (Programme for Research in Third-Level Institutions) funding in 1999. Indeed, it is currently the home of four major PRTLI supported Centres – the National Centre for Sensor Research; the National Centre for Plasma Science and Technology; RINCE (Research Institute for Networks and Communications Engineering) and the National Centre for Cellular Biotechnology (NICB)

"Because of these centres, we have been able to demonstrate real national leaderships in areas such as sensors and plasma technologies," said Kennedy. "This is why they are called "National Centres" – the bulk of publications in these areas come from DCU, as does most of the widely cited work."

Because of the infrastructure investments by the HEA already in place, DCU found itself in a very strong position to compete for funding under Science Foundation Ireland's programmes – and has been hugely successful for a third level institution of its size.

Through funding from bodies such as the Research Councils, HEA, SFI, EI, HRB, IDA, EU Framework programmes and industry, it has increased its externally-earned research expenditure from €5m to more than €40m per annum in just six years. Support from Cycle 4 of PRTLI underpins research teams in neurotherapeutics, biophotonics, nanotechnology and emerging strengths in humanities, socal sciences and business.

There have also been a number of more recent achievements for DCU. For example, it currently leads two of SFI's CSETs (Centres for Science, Engineering and Technology), which are multidisciplinary research centres that bring together leading academic and industrial researchers to explore designated research themes in areas of national importance.

The first of these is the Biomedical Diagnostics Institute (BDI), which is led by Professor Brian MacCraith, and involves about 120 researchers with input from such industry leaders as Analog Devices, Hospira and Becton Dickinson, and strong collaboration with the Royal College of Surgeons, NUIG Galway and the Tyndall Institute Cork.

Another CSET located at DCU is called CNGL, the Centre for Next Generation Localisation. This involves some 100 researchers led by Professor Josef van Genabith working on machine translation and localisation technologies, adapting digital content to culture, locale and linguistic environments. It includes industry partners such as IBM, Microsoft, Semantec, DNP and Irish company Traslán.

Additionally, DCU is a major player in a third CSET entitled Clarity, which is the Centre for Sensor Web Technologies. This is led by UCD, with further support from the Tyndall National Institute in Cork, and industry partners include Vodafone, Changing Worlds and the National Museum of Ireland. Finally, it is involved to a lesser extent in a UL-led CSET called Lero, which is the Irish Software Engineering Research Centre.

DCU currently leads two of SFI's CSETs: CNGL and the BDI

While the number of CSETs secured by DCU is an obvious measure of its strength in the research field, so too is the number of Strategic Research Clusters (SRCs) that it has managed to have funded. Over the past 12 months SFI called for applications for these SRCs, and it received some 40 applications. Of the seven funded nationally, three of these are led by DCU researchers.

One is called Precision, led by Professor Miles Turner, and it is concerned with Plasma Technology for Nano Manufacturing. Another is the Irish Separation Science Cluster, led by Professor Brett Paull, and it researches advanced separation methods to enable the delivery of more efficient, faster and comprehensive separation systems that meet industry requirements. Finally, Molecular Therapeutics for Cancer Ireland, led by Professor John Crown, has brought together investigators from DCU, UCD, RCSI, Trinity College and the Irish Cooperative Oncology Research Group, in association with industry partners. The primary aim of the consortium is to build on the existing expertise of Irish institutions in order to develop a coordinated, integrated cancer drug discovery and development programme in Ireland.

DCU is leading all of these SRCs, in partnership with both academic and industrial partners. Indeed, if there has been a shift in the DCU approach over recent years, it is that it is now prioritising translational research, which means that it is looking at effectively translating academic research into significant applications in the wider economy and society.

The existence of these CSETs and SRCs are evidence of DCU's commitment to ensuring that its research can be used and commercialised. The commercialisation of its research has been greatly helped by the establishment of DCU Invent, which is responsible for technology transfer in the university. The Invent team, led by its Director Richard Stokes, has enabled a dramatic increase in the number of invention disclosures and patents emanating from DCU in recent times – from about 7 invention disclosures per year to about 37 this year alone. Additionally, some 14 companies have already spun out of DCU.

"We can see, especially over the past two to three years, the actual effects that our prioritised approach to translational research is having," said Professor Kennedy. "We are beginning to see genuinely significant outputs and real returns on our investments. Obviously, we have been greatly helped by agencies such as SFI, Enterprise Ireland, and the IDA, who recognised the need to support commercialisation across the university sector – and the efforts of these agencies are bearing fruit now."

Professor Eugene Kennedy, Vice-President for Research at DCU