



PURPOSE **CASE**
BUILT **STUDY**

National Centre for Sensor Research

Dublin City University co-located multiple disciplines to advance scientific discovery, elevate its profile as a research institution, and grow the Republic of Ireland's knowledge economy.

Executive Summary

Organization

Dublin City University

Location

Dublin, Republic of Ireland

Construction Type

New construction

Opening Date

2002

Project Area

3,200 square meters (34,445 square feet)

Total Budget

€9.6 million

The Atlantic Philanthropies Investment

€4.8 million (\$5 million)



In the late 1990s, the Republic of Ireland’s Higher Education Authority and The Atlantic Philanthropies entered into a public/private venture—the Programme for Research in Third Level Institutions (PRTLTI). These partners set out to build the country’s knowledge economy through significant investments in research infrastructure, equipment, and human capital as the means to generate higher-income jobs and a more skilled workforce. The National Centre for Sensor Research (NCSR) at Dublin City University (DCU) provides a compelling illustration of PRTLTI’s approach and impact, demonstrating how strategic investment from philanthropies and governments can create powerful ripple effects and strengthen a country’s economy.

In the years leading up to this project, DCU was making research contributions in the complex field of sensor technology. Its leaders recognized that improved laboratory, administrative, and meeting spaces would enhance the University’s ability to attract more talented students and faculty, conduct multidisciplinary collaboration, and accelerate a range of scientific discoveries. The University pursued that vision by launching a capital project that would elevate its profile within and beyond the Republic of Ireland.

The project consolidated five programs to increase synergy and teamwork across disciplines, build momentum for new research breakthroughs, and reduce costs for building construction and subsequent operations. Together, these research and educational programs, including the NCSR, were housed in a new Stokes Research and Engineering Building. PRTLTI and Atlantic provided funds for construction. The adjacency of the NCSR to other research programs within the Stokes Building was especially important to

the Centre’s aspirations, as its research “required input from all the scientific disciplines . . . to achieve these sophisticated sensor technology components.”

Since taking its place in the Stokes Building in 2002, the NCSR has attracted national and international researchers, partners, and funders, and has been the home for productive interdisciplinary collaboration. The University has leveraged the Centre’s infrastructure and human capital to attract more funding, translate research findings into real-world applications, and further its mission to “transform lives and societies.” Emboldened by the investment, the University has gone on to produce industry-ready graduates, and in 2015 it placed 75th in the *Times Higher Education* ranking of the world’s top universities aged less than 50 years.

The NCSR was one of many successful projects that inspired additional cycles of the PRTLTI. On a broader scale, Atlantic support was leveraged through PRTLTI’s deep investments in research infrastructure across Ireland’s seven universities, attracting financial and human capital from outside the nation to help create a strong knowledge economy. Today, the Republic of Ireland is consistently ranked among the world’s top 20 countries in research output according to the Irish Universities Association.

This case study, which features the National Centre for Sensor Research housed within the Stokes Building, is based on research conducted by MASS Design Group in July 2015. Funded by The Atlantic Philanthropies, this case illustrates how capital projects can enable new levels of scientific capability, collaboration, and results, while contributing to the development of sector-wide infrastructure that fuels economic growth.

Purpose Built Series

Capital projects often bring lasting benefits to nonprofit organizations and the people they serve. Given this opportunity, foundations grant more than \$3 billion annually to construct or improve buildings in the United States alone.ⁱ Each capital project affects an organization's ability to achieve its mission—signaling its values, shaping interaction with its constituents, influencing its work processes and culture, and creating new financial realities. While many projects succeed in fulfilling their purpose, others fall short of their potential. In most instances, organizations fail to capture and share lessons learned that can improve practice.

To help funders and their nonprofit partners make the most of capital projects, The Atlantic Philanthropies and the S. D. Bechtel, Jr. Foundation commissioned *Purpose Built*—a multi-faceted study by MASS Design Group, a nonprofit architecture and research firm. In 2015 and 2016, MASS conducted interviews, reviewed literature, and examined a diverse set of completed projects around the world; each project was supported by one of the above funders.

The study generated a set of core principles as well as tools for those considering or conducting capital projects:



Introducing the Purpose Built Series is an overview of the study and its core principles.



Making Capital Projects Work more fully describes the *Purpose Built* principles, illustrating each with examples.



Planning for Impact is a practical, comprehensive tool for those initiating capital projects.



Charting Capital Results is a step-by-step guide for those evaluating completed projects.



Purpose Built Case Studies report on 15 projects to illustrate a range of intents, approaches, and outcomes.

See the full *Purpose Built* series online at www.massdesigngroup.org/purposebuilt.

i Foundation Center, *Foundation Maps* data based on grants made in the United States, 2006-2015.

“What gets innovations to the market is when scientific programs are informed by the needs of industry, or [when] industry defines part of the scientific programming and contributes either in cash or in kind to the research activity. That’s what’s been going on in the NCSR and at DCU.”

**—Richard Stokes,
Director of Innovation,
DCU Invent**



Above. The building entrance doubles as a passage to the University’s interior; the design of this traffic pattern exposes students, faculty, and visitors to the facility and its focus.

Cover. A student at work in one of the Centre’s laboratories.

Introduction

The Republic of Ireland (ROI) is a country of more than 4.6 million people.¹ Following a deep recession in the 1980s, the country struggled to mitigate the effects of emigration and the loss of its skilled workforce in particular. By the latter part of the decade,² three in four university graduates left to seek work in other countries.³ Unemployment grew to nearly 16 percent in the 1990s.⁴ The Higher Education Authority (HEA),⁵ which governs the nation’s seven universities, was poorly funded but believed there was a need to invest in doctorate-producing research universities—known as third-level institutions—to combat the brain drain. By enhancing its research capacity at these institutions, the country could develop a knowledge economy⁶ that would attract foreign direct investment and create new opportunities for university graduates.

A lack of public and private investment was a systemic problem across universities. The Republic of Ireland ranked below Bangladesh by standard research metrics,⁷ in part because the country spent merely 11 percent of the European national average on research.⁸ Additionally, since the government was expected to fund education, private investment was virtually nonexistent. There was no established pipeline funneling basic or applied university research into industry, nor was there a reciprocal channel for industry investment into

research universities. Thus, third-level institutions lacked funding to expand and strengthen the infrastructure, equipment, and human capital necessary for robust development of the Irish research sector.⁹

THE PROGRAMME FOR RESEARCH IN THIRD LEVEL INSTITUTIONS

In the late 1990s, the HEA created the Programme for Research in Third-Level Institutions (PRTL), which sought to “facilitate Irish institutions to produce world-class research . . . through a combination of capital funding for infrastructure and recurrent funding for the development of human capital.”¹⁰ The HEA began the program with an investment of €6 million.¹¹

Charles F. “Chuck” Feeney, Founding Chairman of The Atlantic Philanthropies, understood that investing in research at third-level institutions was important to developing a knowledge economy, and subsequently led Atlantic to support Irish universities starting in the late 1980s. Anticipating that €6 million would be too small an amount to achieve lasting impact, Atlantic approached the HEA¹² with an offer to provide €93 million to the PRTL if the government agreed to match funds. Don Thornhill, HEA’s chairman at the time, said that Atlantic’s push for more investment was “absolutely essential. The strategic approach to funding the PRTL would possibly have continued without Atlantic intervention, but at a much slower schedule.”¹³



Above. An aerial view of the Dublin City University campus, a relatively young institution located in a historically impoverished neighborhood.

Capitalizing on great potential, PRTL I ultimately involved five cycles of funding for third-level institutions—with each cycle informing investments in the next. Through the initial cycle from 2000 to 2003, PRTL I provided €206 million, €177.5 million of which supported building and infrastructure.¹⁴ Atlantic funded half of the first two cycles as well as part of the third. Across the PRTL I lifecycle, Atlantic invested a total of €178 million.ⁱⁱ

In a holistic approach to research growth across the Republic of Ireland, PRTL I required each of the country’s seven universities to develop strategic research plans and to apply for funding through a competitive process.

DUBLIN CITY UNIVERSITY

While several of Ireland’s universities have centuries of history (e.g., Trinity College, Dublin was founded in 1592), Dublin City University (DCU) was established in 1989 and is among the youngest in the country. DCU is located north of Dublin’s city center in a historically impoverished neighborhood. Perceived as a “young, underdog institution,”¹⁵ DCU represented the type of university that Atlantic aimed to invest in: It had a faculty and administrative team

ii Overall, Atlantic provided 16 percent of the Programme’s total €1.22 billion investment for all cycles. Grants from Atlantic have funded 100,000 square meters of new research facilities, 46 research institutes or programs, 1,000 research positions, and 1,600 new postgraduate positions in the country.

with high capability and potential, but lacked infrastructure needed to achieve its ambitions. The University’s mission to “transform lives and societies through education, research, and innovation,”¹⁶ and its focus on research with direct application for communities and industry, aligned well with the overarching goals of Atlantic and the HEA to foster a knowledge economy.ⁱⁱⁱ

THE NATIONAL CENTRE FOR SENSOR RESEARCH

The University achieved some success during its first decade—notably in its work in sensor research, an applied science that creates benefits such as more accurate medical diagnoses, efficient energy use, effective industrial processes, safer food, and a cleaner environment. In the 1990s, the Irish Government’s Technology Foresight Programme identified sensors as a key area of science, engineering, and technology research; by 1999, DCU researchers had more research publications and citations for sensor technology than all other Irish universities combined.¹⁷ The NCSR mission, to “promote sensor technology to benefit society and Ireland’s economy,”¹⁸ fit the University’s approach to applied science, and its industry-focused work aligned with country-wide goals to attract international funding, create high-paying jobs, and build human capital. By using PRTL I funding to create new NCSR facilities, the University would increase

iii Independent of the support for the National Centre for Sensor Research cited in this case study, Atlantic would ultimately give a total of €118 million in grants to purchase land on the DCU campus and help develop 20 buildings, research centers, and student facilities.



Above. Located at the south end of the University, the Stokes Building anchors the campus entry. Its visual prominence highlights the importance of research and engineering at the University.

its appeal to government and private sector decision-makers and gain additional investment in its signature research.

The existing laboratories on the University’s campus were built for teaching and lacked the specialized equipment needed for research. Housed in an assortment of prefabricated buildings, the teams that comprised the NCSR were spread across multiple locations. Declan Raftery, the former Centre manager, described its physical space, saying, “It was hard to convince people that it was an interdisciplinary and new collaboration, because you were moving between two or three different buildings to meet key individuals at labs spread all over the place.” NCSR staff members indicated that the lack of quality research space made it harder for DCU’s scientists to collaborate and compete with peer universities that had more sophisticated infrastructure. This also made it difficult for the University to attract and retain high-caliber researchers.

Project Mission

University leaders recognized that integrating lab spaces would amplify the strengths of the National Centre for Sensor Research and improve its ability to attract human capital—as well as build a stronger workforce of University graduates. The University’s current president and the Centre’s founding director, Brian MacCraith,

recalled, “It was very clear that sensor research at DCU was not only strongest nationally, but actually had already created at least a presence internationally. It was very clear, at that stage, that the potential of bringing all this [expertise] together, with appropriate infrastructure, could be very significant indeed.”

The University began planning a building with space to co-locate multiple disciplines as well as infrastructure supporting specialized equipment and personnel. When completed, the project would enrich education quality and attract researchers as well as University and industry partners. By bringing essential expertise together in productive facilities, the NCSR would elevate the University’s profile and research capacity in ways that aligned with the HEA’s goals.

This project would allow the University to draw additional investment beyond PRTL funding, enhance its ability to compete with peer institutions, and spur broader economic growth.¹⁹

Process

FUNDING THE PROJECT

DCU leaders used multiple funding streams to launch a single capital project that would advance several institutional priorities. In 1999, three of the University’s applications were awarded PRTL funds, with the National Centre for Sensor Research receiving €9.6 million for facilities, equipment, and human capital. This funding was combined with awards made to improve other DCU research centers and its Schools of Mechanical and Electrical Engineering, establishing a total budget of €25.6 million to design and build the Stokes Research and Engineering Building. Five program groups would be



Above. The University entrance opens to the Stokes Research and Engineering Building, which houses the National Centre for Sensor Research.



Above. A formal meeting room hovers over the two-story main entrance to the Stokes Building and is accessed via the second floor.

included in the new space. In the words of Facilities Manager Mick Burke:

At the time, it just came about that there was also a need for a new building for the engineers, both electrical engineering and mechanical engineering, and there were also various research initiatives like the Research Institute for Networks and Communications Engineering (RINCE). It was decided at the time, rather than spend the money just for the NCSR and spend another pot of money just for the engineers, it was better to combine the money because you get more space per dollar, so to speak.

ESTABLISHING IMPORTANT PARTNERSHIPS

To give voice to each of the five future occupants' needs, the Stokes Building project team included a liaison from each group, plus representatives from the University's Estates, Finance, and President's Offices. The Estates Office has responsibility for the University's building program and for maintenance, health, and safety services. Estates hired an external project manager to interface among all occupant groups. The project team selected Murray Ó Laoire Architects (MÓLA) to design the building. MÓLA had recently completed the University's Chemical and Biological Sciences Building, which involved many of the same faculty members who would contribute to the Stokes project. This existing relationship between architects and faculty brought prior knowledge of laboratory design to the project, and enhanced communication among stakeholders. As one project team member described, "Some of the experience gained from the building project helped to form [our] views in terms of what was required in the Stokes Building."

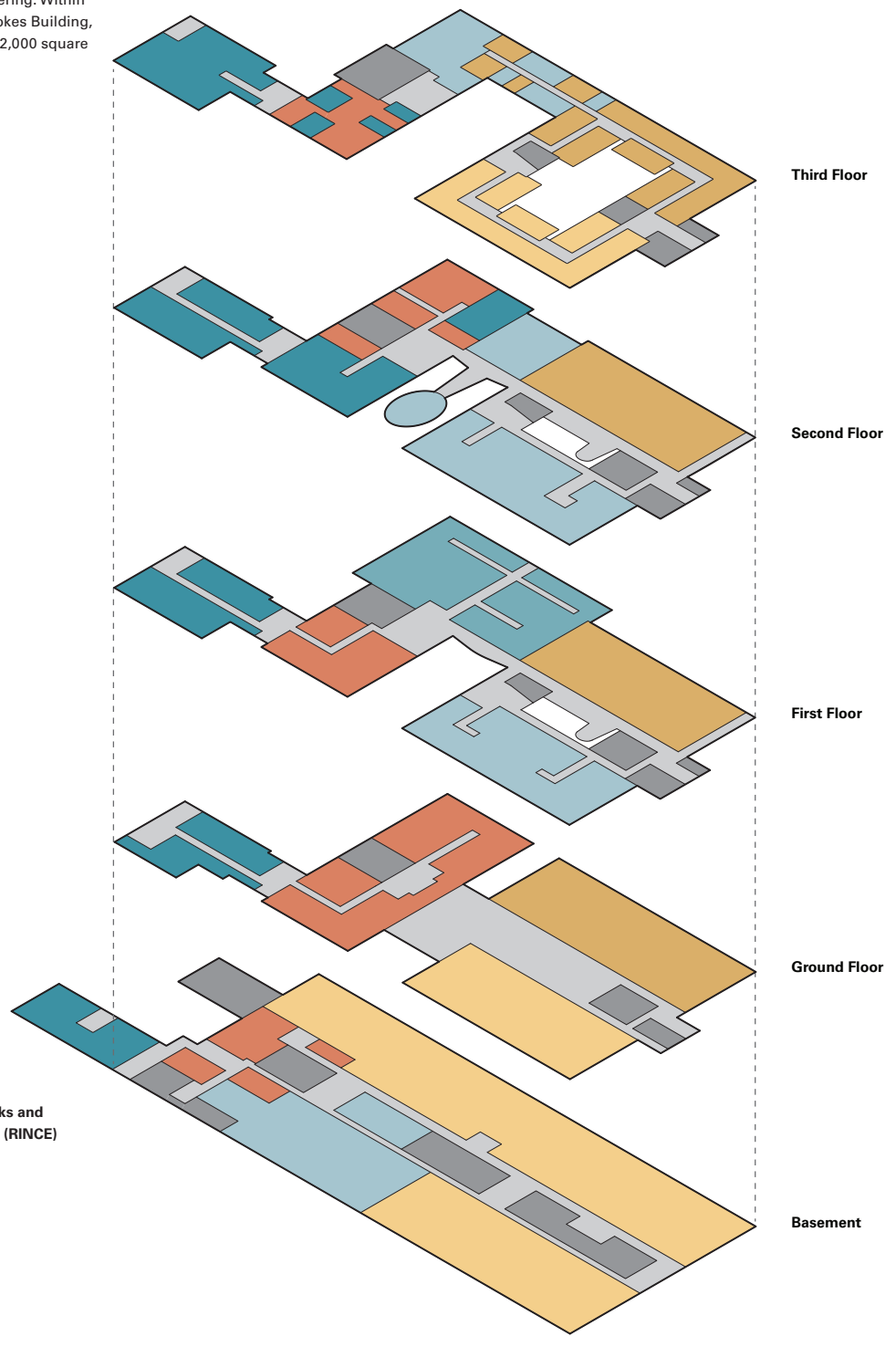
DESIGNING FOR EXTERNAL AND INTERNAL CONNECTIONS

To create a link between DCU and its northern Dublin neighborhood, the site at the south entrance of the University was selected for the construction of the Stokes Building. The design of the five-story building was intended to make a statement of transparency and commitment to research and innovation—helping science become more accessible and connected to everyday life in Dublin. The front doors would serve as a main entry to the campus, with windows lining the façade so passersby could peer into laboratories. A two-story "winter garden" would provide indoor gathering space; it was designed to be a major thoroughfare to the campus, allowing University visitors to pass through the building and into the campus interior. A formal meeting room would be suspended above the entry space. Building occupants would share use of this meeting room and another large conference room—these spaces would be used to convene research teams and host sessions with potential University and industry partners.

One researcher commented, the NCSR has "an ethos around collaboration, and the NCSR's building facilitates that . . . you bump into people all the time and you engage."

To help staff from all program groups in the Stokes Building come together without losing a sense of their respective strengths, traditions, and accomplishments, the design needed to preserve each group's identity within the building. Helping each staff team contribute its distinct expertise was especially important to the collective intent of the NCSR. As one professor described, sensor research "required input from all the scientific disciplines . . . no one scientific discipline had all the knowledge necessary to achieve these sophisticated sensor technology components." For example, athletic wear that monitors a user's heart rate requires an understanding of the human body, as well as the ability to develop electronics and sensing technology. The building design would provide each department with its own space and "front door," combining subtly different materials, colors, and design features to reflect a unique identity. The National Centre for Sensor Research would be located in one wing of the building—adjacent to other program laboratories to encourage multidisciplinary research and spark innovative convergence. The labs themselves would employ a flexible design with mobile lab benches and adaptable ceilings to house sophisticated research equipment—and to change as research needs evolved.

The Stokes Building on the DCU campus houses four research programs as well as the schools of electrical and mechanical engineering. Within the 11,500 square meters of The Stokes Building, the NCSR dedicated space is about 2,000 square meters.



Impact

ADVANCING INDUSTRY-FOCUSED RESEARCH

Since the Stokes Building opened in 2002, the National Centre for Sensor Research has produced high-quality research—facilitated by superior space and equipment, access to an expanding pool of human capital at the University, and new opportunities for ready collaboration among scientific disciplines. The Centre has grown from 115 researchers in 1999²⁰ to over 250 in 2016.²¹ These researchers represent three DCU schools: Chemical Sciences, Biotechnology, and Physical Sciences.

The NCSR brings together expertise from across DCU programs, concentrating sensor research in one location. In the words of one faculty member, the NCSR “helped consolidate interdisciplinary research and provide the capital resources to actually enable it to be carried out.” The facility’s focus on interaction helps build and connect human capital, encourage work across departments, and produce stronger research outputs. As a researcher commented, the NCSR has “an ethos around collaboration, and the building facilitates that . . . you bump into people all the time and you engage.”

NCSR staff members now initiate promising research efforts to attract new partners and funding. For example, the Biomedical Diagnostics Institute, founded in 2005 as part of the NCSR, grew to be so successful that it eventually “spun out” to occupy an entirely new facility. In 2007, that Institute received €12.5 million from the PRTLTI to construct a laboratory as well as administrative and educational facilities.²² The NCSR also received €2.4 million in 2010 from the Beaufort Marine Research Awards to develop new approaches for monitoring water quality.²³ At a macro level, in 2015 DCU published 800 research papers, compared to 150 in 2000.²⁴



Above. An image of a laboratory experiment conducted in the Centre. The connection of science and industry is becoming a hallmark of the NCSR approach.

University researchers also receive support from the on-campus incubator, DCU Invent, to apply for patents and pursue funding to commercialize scientific advancements. Since 2001, DCU Invent has produced over 30 spin-off companies.²⁵ Richard Stokes, the director of innovation at DCU Invent said, “What gets innovations to the market is when scientific programs are informed by the needs of industry, or [when] industry defines part of the scientific programming and contributes either in cash or in kind to the research activity. That’s what’s been going on in the NCSR and at DCU.”

CREATING SYSTEMS OF SUPPORT

The elevated stature and growth of research at DCU required development of systems to sustain the infrastructure created through PRTLTI, particularly after the economic downturn in 2007. A facilities manager recalled:

In 2007, investment in capital equipment literally dropped off the edge of the cliff face. And three to four years ago, we realized that even suppliers of equipment had stopped supporting their own equipment. That was an issue we were going to have to address: the replacement, management, or farming out or outsourcing of equipment.

The University responded with related strategies—implementing a platform for infrastructure management and sharing equipment with other universities. The Science and Technology Enhancement Platform (STEP) is a research administration unit at DCU, working across its centers to oversee equipment and provide grant application and management services. Before the economic downturn, these research centers duplicated administrative roles. Through STEP, the University is able to consolidate administrative staff and better balance workloads over multiple programs and years.

STEP also provides infrastructure maintenance and management for DCU research centers. This oversight allows for better decision-making when determining if equipment has reached a point where maintenance costs exceed its value. When much of DCU’s equipment approached 10 years of age, STEP staff saw opportunity to optimize partnerships with other universities. One manager recalled:

Instead of trying to buy new high-end equipment, we abandoned that and [instead] created a workflow with Trinity College and University College Dublin . . . it doesn’t make sense to invest €15 million in equipment when we can access it 15 minutes down the road.

In 2014, staff at DCU believed this new management platform would generate ongoing learning and benefit for the University as it continued to grow and weather changes in public funding.

ELEVATING THE UNIVERSITY

The achievements of the National Centre for Sensor Research have advanced the University's mission to "transform lives and societies through education, research, and innovation." As of 2016, DCU is the fastest growing university in Ireland.²⁶ The Stokes project affords students an opportunity to work on applied research projects with industry partners; many of these students pursue research careers in academia and in industry. This synergy produces graduates that are more employable. According to MacCraith, "[The University's] graduates keep getting snapped up by industry, because not only have they worked with industry to find [solutions to] problems, but they've actually worked with industrial researchers."

Dublin City University's progress in generating industry-ready graduates, applied research, and commercial innovations led the institution to establish a new motto: "Ireland's University of Enterprise." As of 2015, DCU was ranked 75th in the *Times Higher Education* ranking of the world's top universities under 50 years old.²⁷ Researchers attributed these rankings to DCU's ability to leverage NCSR's infrastructure and human capital to improve education, increase the amount and quality of research funding, and translate research findings into real-world practice.

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The University's elevated stature has helped it compete for national and European funding—creating a "virtuous cycle" of attracting investment and partnerships to grow its research capacity. According to MacCraith, the initial PRTLTI award of €9.6 million has attracted between €150 and €200 million in research funds for the University.



Above. An aerial image of DCU's campus. Supported by investors, including the government and The Atlantic Philanthropies, the University was ranked 75th among the world's young universities in 2015.

The building's professional environment allows the NCSR to recruit qualified researchers, faculty, and industry partners who generate funding for the University more easily. As of 2015, the NCSR actively collaborates with 11 universities around the world. MacCraith described it as one of DCU's "flagship research centers," that has created a model within the University and across Ireland.

SPURRING INVESTMENTS IN RESEARCH NATIONWIDE

According to one project team member, the University's achievement in leveraging investments in the National Centre for Sensor Research, "informed the national approach to how large-scale research centers could operate." Similar stories of success across Ireland have altered and elevated the university research landscape, attracting jobs and investment, and forming a stronger knowledge economy.

The PRTLTI ultimately spanned five funding cycles, with the first three incorporating significant contributions from The Atlantic Philanthropies. The results and knowledge gained from each cycle inspired and informed subsequent rounds, and brought wider attention to the value of investing in research. From 1999 to 2015, €1.22 billion in Exchequer and private matching funding went to Irish research over the five PRTLTI cycles, with 64 percent allocated to buildings and equipment.²⁸

Due to the success of the PRTLTI, universities and policymakers across the country advocated that the government provide additional funding for research programs and human capital. As former Centre Manager and current Chief Operations Officer for the University Declan Raftery described, "We now have facilities, but we need funding to fund staff, technicians, and postgraduate students to fill those facilities." In 2003, their advocacy resulted in the founding of Science Foundation Ireland (SFI). SFI funds scientific programs and research—similar to the National Science Foundation in the United States—and has contributed €355 million for research centers and human capital as of 2016.²⁹ MacCraith described, "I don't believe Science Foundation of Ireland . . . could [have] been successful without the underlying infrastructure that came about through the investment of Atlantic."

The impact of the NCSR within the University mirrors broader systemic changes across the Republic of Ireland economy as a result of the Programme for Research in Third Level Institutions. From 1998 to 2011, 50 multi-national companies invested in the Republic of Ireland due to the research and development activities in the NCSR and other research centers.³⁰ MacCraith believes that investors are "attracted by the quality of the human capital in Ireland, and many of those are coming through the research centers." He elaborated, saying, "It's the combination of the infrastructural investments, of capital investments of Atlantic, and the focus, through the government on Science Foundation Ireland, on human

capital; that combination has enabled Ireland . . . to I think punch way above its weight at this stage.” Today, it is consistently ranked among the top 20 nations in the world in terms of research, on par with Australia and France.³¹

Investments from the PRTLTI have substantially contributed to growing a knowledge economy in the Republic of Ireland. For example, an analysis of the first three cycles studied 50 companies impacted by PRTLTI, and placed the commercial value of this impact at €753.7 million as of 2011.³² The model has also been implemented across borders. In 2001, Atlantic launched a similar collaboration, called the Support Programme for University Research, with the Northern Ireland government, which has invested a total of £94 million in new facilities, equipment, and staffing for 12 centers of excellence and one institute at its two universities.³³ Colin McCrea, Atlantic’s former Senior Vice President, described the PRTLTI as “the single most successful thing that Atlantic has done anywhere in the world.”³⁴

Conclusion

The construction of a singular National Centre for Sensor Research within the Stokes Research and Engineering Building has effectively expanded the research capability at Dublin City University and within the Republic of Ireland, spurring vibrant economic growth. Designed to enhance collaboration across disciplines, the new facilities have brought experts together to produce a range of scientific contributions at the Centre—elevating the University’s profile and attracting new human capital, partnerships, and funding. The success of this capital project demonstrates the value of the large-scale Programme for Research in Third Level Institutions, affirms the potential for governments and philanthropies to partner effectively, and shows how strategic investments in infrastructure can bring about positive economic change nationwide.

Videos

For additional information on this case study, see the following videos available at www.massdesigngroup.org/purposebuilt:

Creating a Center of Excellence

Impacting the University

Changing Research in Ireland

Lessons from the National Centre for Sensor Research

Connect with partners to scale outcomes.

Government investment enables large-scale impact: Philanthropy has the ability to work in tandem with government to amplify the impact of public investments. Atlantic's involvement in the Republic of Ireland's Programme for Research in Third-Level Institutions helped activate a nascent initiative created with the well-founded intent to improve national research infrastructure through universities. PRTLTI began as a modest €6 million government program; Atlantic pushed for a more significant commitment to the country's knowledge economy, offering to accelerate investment if the government would match its funds. Atlantic's initial commitment of €93 million leveraged a government match that ultimately led to an incredible scale of investment. Together, Atlantic and the Republic of Ireland government—along with other private investors—would ultimately provide €1.22 billion in funds over five cycles of the PRTLTI. Atlantic's full contribution of €178 million, made by contributing half the funds in each of the Programme's first two cycles and participating to a lesser degree in a third cycle, provided the basis for this initiative to generate meaningful impact in its early years and prove its merit to attract continued major investment from others.

Define donor support as more than construction funding.

Don't be afraid to invest in an underdog: When foundations invest in underdog institutions, they can create opportunities for entities that may lack the necessary human capital or infrastructure to build organizational and financial capacity for the future. Although Dublin City University was a relatively small, young institution in an underserved area of the city, its leaders demonstrated leadership in research as well as foresight when they committed to growing the National Centre for Sensor Research. The Atlantic Philanthropies' decision to support DCU gave the organization the confidence and means to elevate its vision, resulting in facilities and activities that have increased educational, research, and funding opportunities for the University, and establishing a model for other research centers around the country.

End Notes

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p. 10 Courtesy of Donovan Wylie/Magnum Foundation. "DCU Campus Aerial."

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