

Implementing a Research Strategy at CCT College

2019-2024

Version 1

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PART ONE: INTRODUCTION AND CONTEXT

1. Introduction

CCT College has a rapidly expanding research culture fostered through institutional staff development and supports as well as a commitment to recruiting high quality staff with a strong record of research performance. This Strategy represents another stage in the evolution of this research culture, formalising processes and supports already in existence and augmenting these with proposed enhancements, informed by developments in the broader research environment and the strategic aspirations of the College.

1.1 Background

Expanding the research culture of an academic institution is an iterative process. The publication of a research strategy at CCT College, builds on an internal discussion document produced by Dr. Dermot Douglas in 2017 entitled *Towards a Research Strategy for CCT*. This comprehensive and wide ranging document incorporates a vision for research at CCT which includes the creation of new knowledge and the attainment of national and international prominence for institutional research output.

Douglas also outlines a number of pragmatic and immediate tasks, the execution of which will underpin the expansion of the research culture at CCT College. These include:

- An institution wide audit of professional and scholarly activity by faculty
- The identification of emergent institutional research themes for prioritisation and development materially or otherwise
- Developing the research capability of staff and students
- The creation of research linkages with other HEIs and the promotion of a research ethos and culture across the college
- The targeting of research funding

Douglas also advocates that mechanisms are put in place to ensure that cutting edge research is disseminated to faculty to inform their teaching practice.

1.2 Implementing a Research Strategy

The formalisation of research strategies and supports at CCT College via a cohesive institutional research strategy is a natural development underpinned by the aforementioned discussion paper, institutional strategic objectives, new programme development and the expanding research activity of CCT staff.

The vision of the College as outlined in the *CCT Strategic Plan 2018-2020* includes:

Championing a co-operative teaching and research culture that connects with other higher education institutions, schools, industry, local communities, government and non-governmental development agencies. (CCT College, 2018 p.5)

The CCT Quality Assurance Manual also incorporates a section entitled *Standard 8: Quality Assurance of Teaching Staff & Human Resources*. Integral to quality assurance processes is the following priority:

.. for CCT is to be a learning organisation where scholarship, professional development, innovation and research activity convert into knowledge that is used to inform curriculum delivery, curriculum content, programme design and development, enhancing the student experience, and for overall enrichment of the College and its community. (CCT College, 2018, no page)

The same policy articulates that

CCT is committed to ensuring appropriate access to library resources and personnel, educational consultants and in-house expertise as well as the regular dissemination of user-friendly research resources. This will be coordinated through the Centre for Teaching and Learning, incorporating the College's Library Service. Through the Centre for Teaching and Learning, CCT will also provide sessions to faculty and students to develop and enhance their research, scholarship and innovation activity. (CCT College, 2018, no page)

1.3 National Context

The importance of research activity is a central tenant of the *National Strategy for Higher Education to 2030 (2011)*. One of the report's high level objectives states that research in the Irish higher education system will be characterised by:

its international level quality, by a strong and broad base across all disciplines, as well as significant focus in niche areas that are aligned with and are a significant support for Irish national economic social and cultural needs.(National Strategy for Higher Education, 2011, p.27)

Innovation 2020 published by the Department of Business, Enterprise and Innovation also emphasises the importance of excellent research in "strategically important areas that have relevance and impact for the economy and society" (2015, p.8).

In 2012, the Government's research prioritization exercise was published outlining fourteen national research priority areas. In 2018, these priorities were revised to reflect recent changes in the ICT and wider business sectors (see Figure 1). The incorporation of new research priority areas within ICT and business aligns to the strategic development of programme provision at CCT College offering potential for future research at CCT to have national and international significance in terms of relevancy, knowledge transfer and impact.

Fig. 1 Updated Strategic Priority Areas 2018 – 2023

Theme	Priority Area
ICT	Future Networks, Communications and Internet of Things Data Analytics, Management, Security, Privacy, Robotics and Artificial Intelligence (including Machine Learning) Digital Platforms, Content and Applications, and Augmented Reality and Virtual Reality
Health and Wellbeing	Connected Health and Independent Living Medical Devices Diagnostics Therapeutics
Food	Food for Health Smart and Sustainable Food Production and Processing Energy
Energy, Climate Action and Sustainability	Decarbonising the Energy System Sustainable Living
Manufacturing and Materials	Advanced and Smart Manufacturing Manufacturing and Novel Materials
Services and Business Processes	Innovation in Services and Business Processes

Source: Department of Business Enterprise and Innovation, (2018, p.8)

This Research Strategy has also been written against a background of focused Government job creation and skills initiatives. The Government's latest *Action Plan for Jobs 2018* emphasises the importance of "industrial-academic research" (Department of Business, Enterprise and Innovation, 2018, p.65) in areas such as robotics, artificial intelligence and fintech. CCT College is experienced in providing programmes with a strong industry focus. There is significant potential therefore for joint industry-academic research at the College.

Since 2014, the Government has also put a number of mechanisms in place via Enterprise Ireland to support academic institutions pursuing research funding from Horizon 2020, the EU's programme for research and innovation, also known as the Eighth EU Framework Programme (FP8). This programme comprises 80 billion worth of funding. It is important to note that this and future European research

frameworks are open to private higher education providers. Calls from the Horizon 2020 fund have emanated from a wide range of categories including

- ICT
- Integrating Research, Innovation and Education
- Innovation in SMEs

Many of the calls in these areas align to the research and teaching interests of faculty at CCT College indicating potential for CCT to target European research funding in the future. The European Commission recently published its proposal for Horizon Europe, an impressive €100 billion research and innovation programme that will succeed Horizon 2020 (European Commission, 2018).

PART TWO: RECENT DEVELOPMENTS

2.1 Definition of Research

Since the publication of Dr. Douglas' discussion paper "*Towards a Research Culture at CCT*", a number of initiatives have been undertaken by senior management of the College in response to key recommendations proposed in this paper.

In the paper, Dr. Douglas calls for a 'widening of the definition of research' (Douglas, 2017, p.5). Douglas suggests:

CCT should adopt an inclusive and nuanced view of what it considers to be 'research activity'. This should include the full range of professional activity that takes place outside the classroom and may encompass, *inter alia* - research being conducted for a higher degree (Masters, PhD and Professional Doctorate); funded research; scholarly activity resulting in publication; development of new policy, procedure or product; innovation; consultancy; representation on national and international bodies; peer review activity; new programme development; advocacy; punditry; patents; etc. (Douglas, 2017, p.5)

This aligns to the definition put forward in the *National Strategy for Education to 2030* which proposes that research "Include research and innovation activities across the entire spectrum of innovation activities from basic through applied research to development and consulting activities" (2011,p. 67).

Based on this broader definition of research, the professional development and scholarly activity of faculty at CCT has been collated and ingested into a central Professional Development and Scholarly Activity Register. Categories include:

- Board and Committee membership
- Book Chapter
- Book Editing

- Conference paper
- Conference proceedings
- Consultancy
- Digital Artefact
- Journal article (peer reviewed)
- Journal Publication (professional, magazine)
- Journal publication (Editorial or Advisory Board membership, Editor in Chief, Managing Editor, peer reviewer etc.)
- Panel membership (validation, accreditation)
- Post- Doctoral research
- Programme design

The CCT Register of Professional Development and Scholarly Activity indicates that the majority of staff at CCT College are engaged in a wide range of scholarly activity including the publication of articles in highly ranked peer reviewed journals; the publication of conference proceedings; the pursuit of further study; programme design; consulting; advisory board membership and journal management.

2.2 Research Informed Teaching

In line with the recommendation by Dr. Douglas for cutting edge research to be disseminated to all faculty, a Subject Alerts Service has been established by the by the CCT Hume Library. This service permits staff at CCT to receive customized and automated journal and subject alerts from the College's portfolio of database subscriptions direct to their email accounts.

2.3 Developing the research capability of staff and students

The following developments have taken place to support the development of the research capability of staff and students

- A professional development series for faculty has been launched. This series includes a number of research related talks delivered by experts in the field on topics such as becoming research active, expanding your research output and research funding opportunities for private higher education institutions.
- A new institutional library was constructed which is now managed by a professionally qualified librarian. The Library collection has also been expanded to include research support titles for faculty which are available in print and online format.
- The Library also contains the new Centre for Teaching and Learning which acts as a focal point for workshops and one to one consultations on research.
- New *Subjectsplus* software has been installed which facilitates the creation of CCT branded research guides for faculty.

- A new Head of Enhancement was recently recruited to the Senior Management Group whose remit includes expanding the research capacity of the institution.
- CCT College has expanded institutional research output by increasing funding for staff to undertake further study and/or research related professional development activity.
- CCT College has boosted institutional research output via increasingly sophisticated recruitment campaigns which target faculty with excellent research track records.

Fig. 2 Recent Developments at CCT College 2017-2019

SYSTEMS	PEOPLE	SUPPORTS
<ul style="list-style-type: none"> • Publication of the CCT College Strategic plan which champions a 'co-operative teaching and research culture.' • Publication of 'Towards a Research Culture at CCT College, an internal Discussion Paper by Dr Dermot Douglas.' • Publication of CCT College's first institutional research strategy entitled 'Implementing a Research Strategy at CCT College.' • Establishment of a central CCT Register of Scholarly Activity, evidencing a vibrant and rapidly expanding institutional research culture. • The installation of Subjectsplus software to produce research related support guides for CCT faculty. 	<ul style="list-style-type: none"> • Appointment of a Head of Enhancement whose remit includes the expansion of institutional research capacity • Strategic targeting of faculty with an excellent research track record for recruitment purposes. • Expansion of funding for staff to undertake further study and research related professional development. • Appointment of a CCT Programme Design Lead 	<ul style="list-style-type: none"> • Construction of the New CCT Hume Library now led by a professionally qualified librarian • Expansion of the CCT Library collection to include research support titles. • Establishment of a Subject Alerts Service by CCT Hume Library • Establishment of a Centre for Teaching and Learning in the CCT Hume Library which serves as a focal point for research related workshops, one to one consultations and the dissemination of print guides. • Establishment of a Teaching and Learning page on Moodle for faculty with a research support section. • Launching of a CCT professional development series for faculty incorporating research related talks and workshops from experts in the sector.

PART 3: STRATEGIC GOALS AND PRORITIES

3. VISION

CCT College will engage excellent systems, supports, staff, students and networks to produce high quality institutional research that enriches the teaching and learning experience of the College and has national and international impact on the wider education and business communities. A culture of research, enquiry and innovation will pervade all aspects of College life.

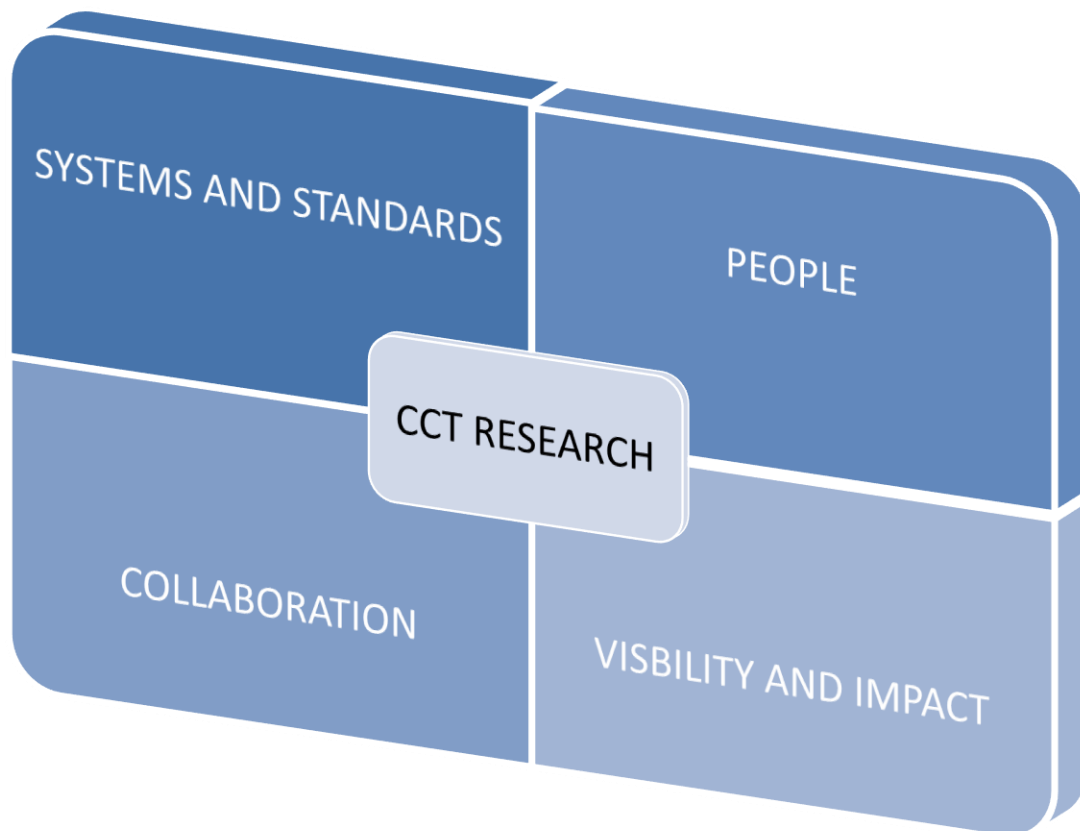
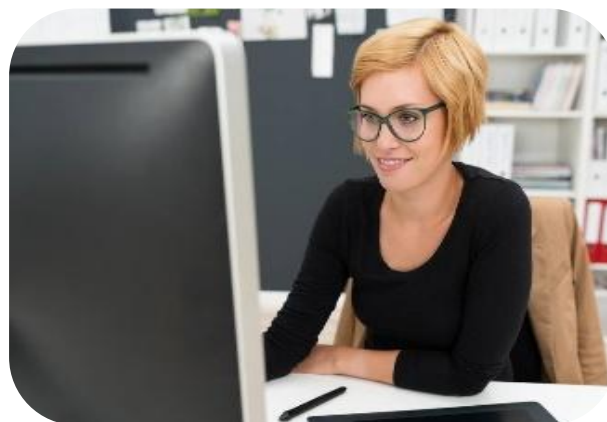


Fig 3 Research Goals at CCT College



Goal 1: Systems and Standards

To implement state of the art research systems to support the development and showcasing of high quality institutional research



Goal 2: People

To expand institutional research output through the strategic development and recruitment of high quality staff



Goal 3: Collaboration

To forge dynamic collaborations with academic institutions, companies, research organisations and other agencies for research purposes



Goal 4: Visibility and Impact

CCT College will promote the visibility of institutional research, also monitoring and capturing the impact of this research nationally and internationally

3.1 SYSTEMS

Goal 1: To have state of the art research systems to support the development and showcasing of high quality institutional research. See the following five priorities.



Priorities 1-6

1. **Research Strategy:** An institutional research strategy will be published every five years incorporating measurable objectives with clearly stated actions and responsibilities. The Strategy should also incorporate stakeholder feedback and be responsive to new developments and opportunities in the research landscape.
2. **Working Group:** To oversee the effective implementation of the institutional Research Strategy, a dedicated Research Strategy Working Group must be established which reports to the Academic Council. It is proposed that the Working Group be jointly led by the Dean of School and the Head of Enhancement. Membership should also academic management, the Head of Programme Development, interested faculty and student representation. The aims and objectives of the Working Group include:
 - Implementation of the institutional research strategy and associated action plan
 - Promotion of an ethos and culture of research, institution wide
 - Identification and support of emergent research areas at CCT College

- Promotion of research pathways to faculty at all stages of their career
- The development of realistic and effective research plans for the individual schools including individual publication plans with interested members of faculty
- Organisation of an annual institutional research day incorporating faculty presentations and a student poster exhibition
- Overseeing the expansion of the institution's technical research infrastructure
- Forging links with other academic institutions for research purposes
- Identification of appropriate sources of research funding
- Keeping abreast of national and international developments pertaining to research
- Promotion of mechanisms to showcase institutional research activity and impact
- Promotion of high quality student research
- Ensuring compliance with institutional research ethics approval procedures as per the CCT Quality Assurance Handbook to safeguard the academic standing of the college and to ensure compliance with GDPR. There is a renewed focus on research integrity sector wide with the publication of a national statement on research integrity by the Irish University Associations which reinforces the importance of integrity so that there is 'full confidence in the Irish research system' (IUA, no date, p.2)

- 3. Institutional Repository:** Establish a CCT open access, online institutional repository to showcase faculty and student research on an open access basis. This is in line with developments in the private and public higher education sectors nationally. Items for inclusion include scholarly activity by faculty and final year student project and dissertations awarded a mark of 2.1 upwards. Students and faculty sign a consent form prior to their work being uploaded to the institutional repository and retain ownership of their copyright.

SPARC (the Scholarly Publishing and Academic Resources Coalition) works to enable the open sharing of research outputs and educational materials in order to democratise access to knowledge. SPARC (no date) describe the benefits of open access institutional repositories as wide ranging including:

- More exposure to researchers' work
- Increased citation of researchers' publications
- Persistent access to research content
- Preservation of research output
- Access to faculty research by students and the public

- 4. Institutional Journal:** CCT College will publish an open access journal. In house expertise exists to underpin this development. Institutional journal publishing is an important stimulus to the expansion of a research culture as it incorporates a range of scholarly activity such as

editorial board membership. Editorial and Advisory Board membership and article submissions will be cross institutional. A double blind review methodology will also be employed, sourcing high quality peer reviewers from across the sector. High quality submissions from students will also be accepted, subject to review. This journal should be indexed on the Directory of Open Access Journals (<https://doaj.org/>) and on relevant academic databases.

5. **Strengthen Linkages Between Research and Teaching.** This Strategy calls for an intensification of research and teaching linkages in the fourfold manner proposed in the National Strategy for Higher Education to 2030. See figure 4. The National Strategy for Higher Education also asserts that ‘excellence in teaching and excellence in creative or engaged scholarship go hand in hand.’ (2011, p.54)

Fig 4 Approaches to Linking Research and Teaching

Approach	Description
Research-Led	The curriculum is led by the research interests of the teachers
Research-orientated	The curriculum emphasises the processes by which knowledge is produced
Research-based	The curriculum includes activities in which students actually conduct research through projects and other course works
Research informed	The curriculum is informed by systematic enquiry into the teaching and learning process itself

Source: National Strategy for Higher Education to 2030 (2011, p.54)

3.2 PEOPLE

Goal Two: To expand institutional research output through the strategic development and recruitment of high quality staff. This goal encompasses the following six priorities.



1. Talent Acquisition: CCT College will continue to conduct targeted, sophisticated recruitment campaigns to secure experienced faculty with an excellent track record in research.

2. Identification of Emergent Research areas: Douglas (2017) recommended that identification of emergent research areas be undertaken, subsequent to an institutional audit of research activity at CCT College. Data from the CCT Central Register of Professional Development and Scholarly Activity, indicates that emergent areas of research are already identifiable. They include:

- Self-Efficacy in higher education students
- Dev Ops
- Computer languages (Typesetter, JavaScript etc.)
- Open source software
- The National Forum for the Enhancement of Teaching and Learning's National Professional Development Framework
- Programme Design
- Quality Assurance

The College's strong teaching and learning background (the College has been awarded four Teaching Hero awards by the National Forum for the Enhancement of Teaching and Learning) means that there is significant potential for faculty to publish extensively on pedagogical

approaches and practice in the areas of ICT and business education. With new programme delivery, other emergent areas of research will be identified as the skillset of existing staff is developed and new faculty recruited. Identification and review of research areas can be managed on an on-going basis by the proposed Research Strategy Working Group, subsequent to ratification by the Academic Council.

2. **CCT Skills Research Skills Training** CCT College will Implement a research skills training programme for faculty which is separate to the College's Teaching in Excellence Series. The series will be delivered by a combination of internal and external guest speakers on the following subject areas

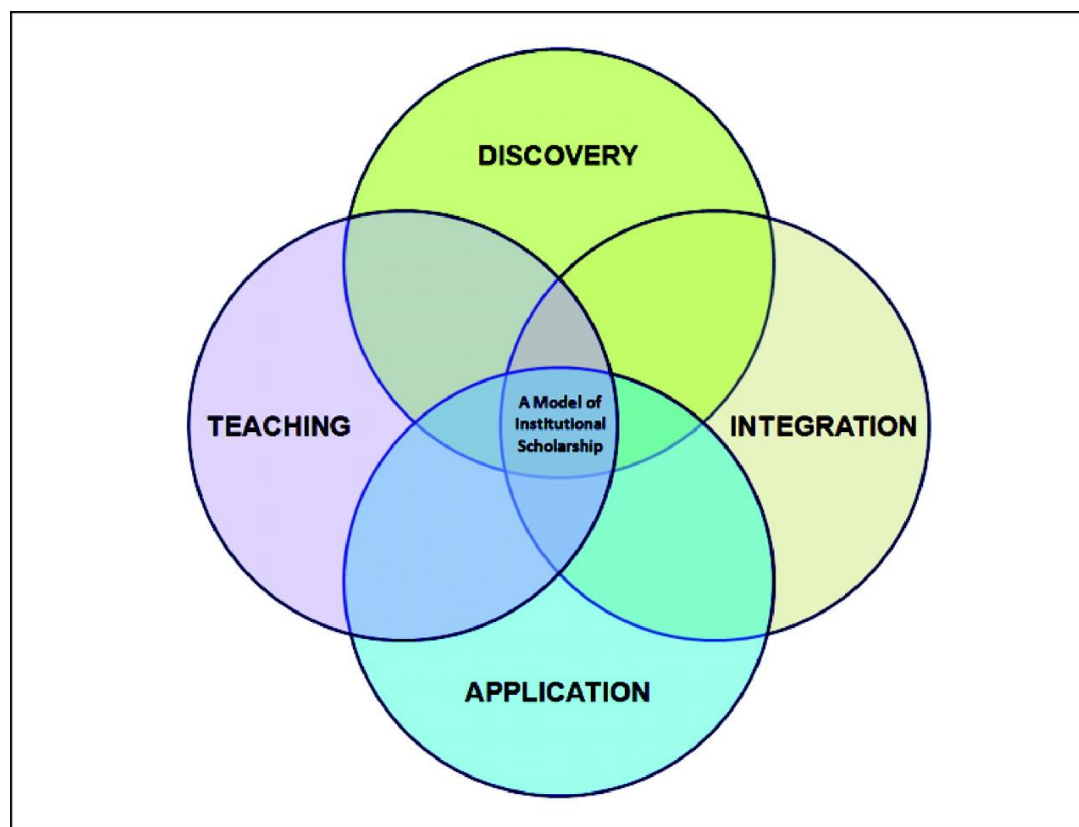
- Planning and managing your research
- Research pathways (discipline related research, pedagogical research etc.)
- Research data management
- Integrating research into your teaching practice
- Knowledge transfer/commercialisation of research

Key elements of the research skills training programme should be integrated within the proposed Certificate in Teaching and Learning at CCT College.

3. **Provide clear research pathways for staff.** This Strategy proposes that the Boyer model of scholarship (1990) be promoted to CCT faculty which categorises scholarship in the following four categories:

- Discovery (advancing knowledge)
- Integration (synthesising knowledge)
- Service/Engagement (advancing/applying knowledge)
- Teaching (advancing/applying knowledge about how to teach/promote learning)

Figs. 5 & 6 Boyer (1990) Fourfold Model of Scholarship



Source: <http://www.jdentaled.org/content/75/12/1569>

Type of Scholarship	Purpose	Measures of Performance
Discovery	Build new knowledge through traditional research.	<ul style="list-style-type: none"> • Publishing in peer-reviewed forums. • Producing and/or performing creative work within established field. • Creating infrastructure for future studies.
Integration	Interpret the use of knowledge across disciplines.	<ul style="list-style-type: none"> • Preparing a comprehensive literature review • Writing a textbook for use in multiple disciplines. • Collaborating with colleagues to design and deliver a core course.
Application	Aid society and professions in addressing problems.	<ul style="list-style-type: none"> • Serving industry or government as an external consultant. • Assuming leadership roles in professional organizations. • Advising student leaders, thereby fostering their professional growth.
Teaching	Study teaching models and practices to achieve optimal learning.	<ul style="list-style-type: none"> • Advancing learning theory through classroom research. • Developing and testing instructional materials • Mentoring graduate students. • Designing and implementing a program level assessment system.

Source: https://www.researchgate.net/figure/Boyers-Model-of-Scholarship_tbl1_267217100

Boyer ascribed equal weighting to discipline related and pedagogical research. This model of scholarship is particularly useful in a computing and business college with a strong teaching pedigree as it provides the opportunity for research to be generated from a variety of approaches including teaching as well as knowledge creation, integration or application.

This Strategy also proposes that the full gamut of research methodologies be promoted to faculty to foster an ethos of research and innovation institution wide. These include:

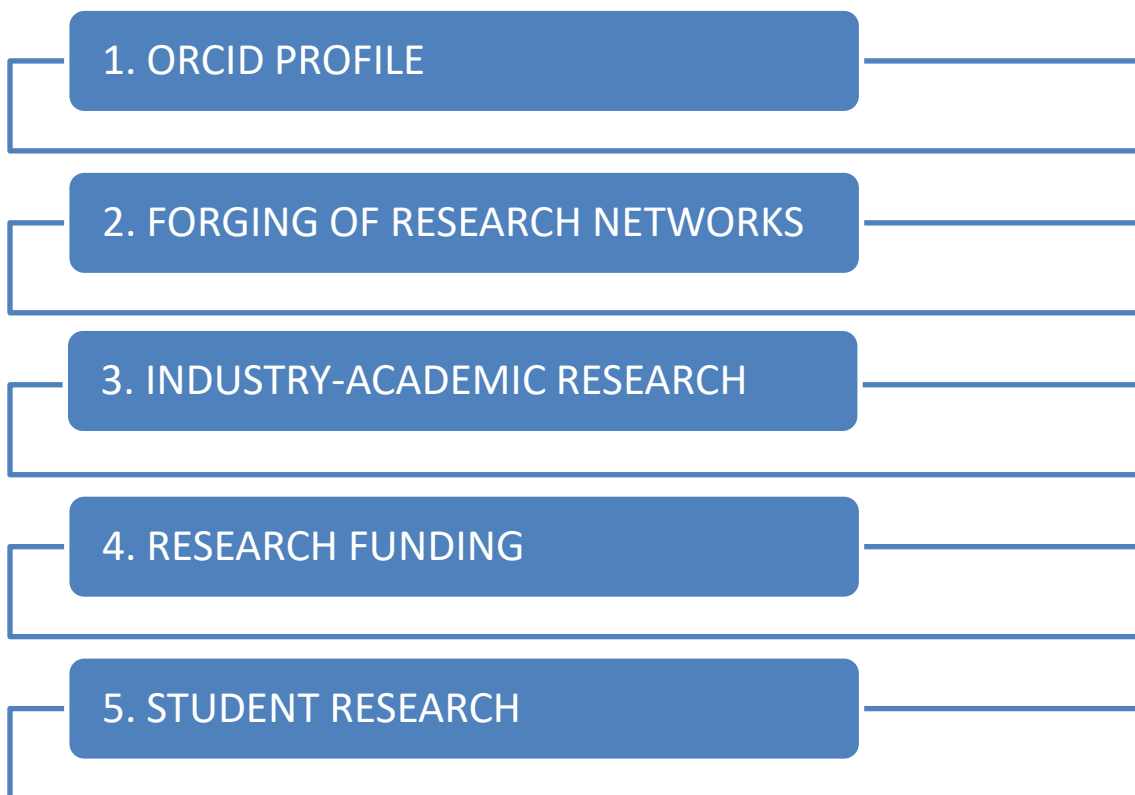
- Action Research
- Applied Research
- Basic Research
- Correlation Research
- Descriptive Research
- Ethnographic
- Experimental
- Exploratory
- Grounded Theory
- Historical
- Phenomenological
- Qualitative
- Quantitative

Multi-disciplinary research will also be encouraged. A variety of research approaches and pathways can be explored in the CCT Research Skills Training programme and via the proposed Research Strategy Working Group.

4. **Further Study:** The recent audit of the professional development and scholarly activity at the College revealed that the number of staff with PhDs has increased significantly through funded staff development and targeted recruitment campaigns. This approach should continue as it is positively impacts institutional research output.
5. **Recognition:** Research activity will inform promotion and advancement at CCT College where appropriate. Two CCT Research Scholarships will be established one for the School of Business and the other for the School of ICT. Each scholarship will facilitate fifteen paid hours per annum (equivalent to the hourly rate of pay for CCT Lecturers) for a faculty staff member to undertake research. The selection and awarding of research scholarship awardees will be managed by the CCT Academic Council.

3.3 COLLABORATION

Goal Three: To forge dynamic collaborations with academic institutions, companies, research organisations and other agencies to advance institutional research output and funding. To support this goal, the following five priorities will be undertaken.



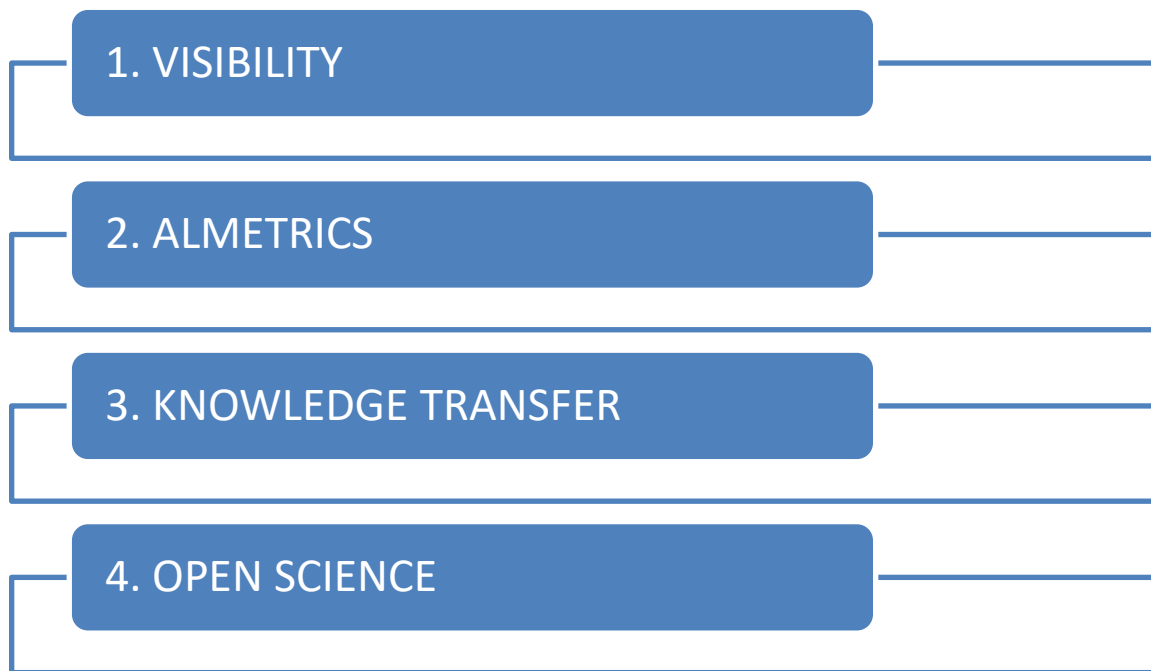
1. **ORCID:** CCT College will encourage faculty to set up individual ORCID profiles. Researchers can join ORCID individually for free. ORCID registration is a requirement for a wide variety of research agencies and organisations. ORCID is powerful therefore in connecting researchers to a global research ecosystem. JISC describes ORCID as follows:

ORCID is an open, non-profit, community-driven effort to create and maintain a registry of unique researcher identifiers and a transparent method of linking research activities and outputs to these identifiers. ORCID is unique in its ability to reach across disciplines, research sectors and national boundaries. It is a hub that connects researchers and research through the embedding of ORCID identifiers in key workflows, such as research profile maintenance, manuscript submissions, grant applications, and thesis/dissertation completion. (JISC, no date)

2. **Forging of Research Networks:** The CCT Register of Professional Development and Scholarly Activity indicates that a number of lecturers are already engaged in cross institutional research involving universities and other higher education organisations. CCT College should continue to forge networks at institutional and faculty level, nationally and internationally via the Higher Education Colleges Association, the Irish University Association, THEA and other organizations. It is critical that CCT College also initiates a dialogue on research as well as teaching and learning when engaging with these organizations.
3. **Industry-Academic Research:** CCT College works closely with industry to source graduate opportunities and design career relevant programmes. As programme expansion grows in the College, there may be opportunities for greater industry-academic research at student level (applied projects and dissertations) but also in relation to faculty research (action research, ethnographic research, exploratory research, experimental research etc.). CCT College is currently establishing an Employer Forum and should incorporate research collaborations and projects with industry into its terms of reference for further investigation and development. Population of the Forum can also include companies in business and ICT with experience of or demand for joint industry-faculty research.
4. **Research Funding:** CCT College should scope research funding opportunities as a private higher education institution. The European COST Action fund facilitates the costs of forging a research network (attending conference and meetings in Europe etc.). The COST fund is particularly suited to the early career researcher wishing to build research networks for publication purposes or for submissions to research funds. Information and support on the COST fund is provided nationally by Enterprise Ireland.
5. **Student Research.** The establishment of an open access institutional repository provides students who have been awarded a mark of 2.i and above for their final year applied projects or dissertations the opportunity to publish this research on an open access basis. Student-faculty co-publications should also be encouraged where the student has been awarded a high mark for their final year project. A CCT student-faculty co-publishing toolkit will be created to underpin this form of scholarly activity. Student-faculty co-publishing is a mutually beneficial endeavour which enables students to hone their research skills for publication whilst providing faculty with the opportunity to expand their research output.

3.4 VISIBILITY AND IMPACT

Goal 4: CCT College will promote the visibility of institutional research and will monitor and capture its impact nationally and internationally. To support this goal, the following four goals will be undertaken.



1. **Visibility:** CCT College will promote the research output of faculty via ORCID; a proposed institutional repository and staff via online profiles. This is important in terms of showcasing the academic caliber of faculty at CCT and raising awareness of institutional research output. The College will also conduct an annual Research Day incorporating a student poster exhibition.
2. **Impact:** CCT College will adopt a broad approach to measuring research impact incorporating tools such as the Leiden Manifesto (<http://www.leidenmanifesto.org/>) and altmetrics in tandem with traditional citation impact scores.
3. **Knowledge Transfer:** Information on knowledge transfer and the commercialisation of research will be incorporated into the College's Research Skills Training programme to raise awareness of the opportunities that can arise by undertaking industry related research.
4. **Open Science:** CCT College will promote open science practices where possible incorporating open access publishing and open data sharing where appropriate, in line with developments across the sector. An open science statement with concomitant supports will be produced by the CCT Hume Library. CCT will also publish a peer reviewed, open access journal published on an annual basis.

CONCLUSION

As CCT College continues to grow and expand, research is increasingly central to the College's operations, permeating all aspects of the teaching and learning experience, programme design and staff development. The institution's first research strategy formalises existing systems and supports, incorporating new ambitions so that CCT College is more closely connected to the wider research environment and its institutional scholarship is outward facing.

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