



An Roinn Breisoideachais agus Ardoideachais,
Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education,
Research, Innovation and Science

Impact 2030: Ireland's Research and Innovation Strategy

First Annual Progress Report
May 2022 to May 2023

Date of publication: July 2023



Contents

Contents	2
Executive Summary.....	3
Introduction to <i>Impact 2030</i>.....	5
Pillar One	9
Maximising the Impact of Research and Innovation (R&I) on our Economy, Society and the Environment	
Pillar Two.....	14
Impact of R&I Structures on Excellence and Outcomes	
Pillar Three	18
Innovation Driving Enterprise Success	
Pillar Four	33
Talent at the Heart of the R&I Ecosystem	
Pillar Five.....	37
All-Island, EU and Global Connectivity	
Appendix 1: Updated Metrics.....	41
Appendix 2: Summary Progress Report (to 31 May 2023)	42
Appendix 3: Detailed Progress Report (to 31 December 2022).....	44

Executive Summary

This is the first annual Progress Report for *Impact 2030: Ireland's Research and Innovation Strategy*, a Whole-of-Government Strategy that was developed after extensive stakeholder consultation and published on 18 May 2022. As this report shows, **29 of Impact 2030's 30 Flagship Initiatives are already delivered or well progressed**, with the remaining Flagship Initiative not yet due to start.

This year marks 50 years of Ireland's membership the European Union (EU). Research and innovation (R&I) are a shared competence between the EU and Member States and Ireland's engagement at the EU and in other international fora significantly influences national R&I policy. Between 2022 and 2024, Ireland will progress the implementation of ten of the **European Research Area** priority actions, which complement *Impact 2030* and other national strategies and plans. In addition, Horizon Europe (the EU's Framework Programme for R&I) is the **most important non-Exchequer source of research funding** in the Irish third-level sector and offers significant supports for start-ups and small and medium sized enterprises (SMEs). As of 31 May 2023, the official combined drawdown by the Irish research community under **Horizon Europe** was **€395.3 million**, which places Ireland on track to meet or exceed its target of drawing down €1.5 billion from Horizon Europe over the period 2021 to 2027.

For a small open economy like Ireland, strengthening **international collaboration in R&I** is very important. R&I is part of a positive agenda of co-operation on the island of Ireland (where it is an important part of the Government's *Shared Island* initiative), with the **North-South Research Programme** funding 62 projects to a value of over €37 million in 2022. In November 2022, Ireland, Great Britain and Northern Ireland also launched the **Co-Centre Programme**, a new collaborative funding opportunity worth €74 million that links researchers across academia and industry to perform cutting-edge research in areas of mutual economic, societal, health and environmental importance. Furthermore, Ireland is working with partners in the United States (US) and Northern Ireland to explore options to commercialise research funded by **US-Ireland R&D Partnership** and to develop the transversal and entrepreneurial skills of its researchers from the island of Ireland. **Innovate for Ireland**, an ambitious partnership between industry and Government, was announced in July 2022. Its objective is to attract top doctoral students to Ireland. Subject to matched funding by private investors, a multi-million euro investment will be made by the State over the course of a number of years. The new **International Education, Research and Innovation Strategy** is also well advanced and expected to be published later in 2023.

On the domestic front, individual Government Departments and their Agencies are responsible for driving the research agenda in the sectors under their remits. The Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) plays a central system role by bringing these actors together to ensure a cohesive, Whole-of-Government approach. To this end, DFHERIS established the **Impact 2030 Steering Group** and **Impact 2030 Implementation Forum** to drive implementation of *Impact 2030*. DFHERIS also funds R&I through three of its Agencies: both the Irish Research Council and Science Foundation Ireland are competitive research funders while the Higher Education Authority's block grant to the higher education institutions underpins Ireland's R&I system. In 2021, DFHERIS was responsible for the majority (52%) of Government investment in R&D, with an allocation of €0.5 billion.

In May 2023, an expressions of interest call, which closed on 30 June 2023, was issued for members of the **Impact 2030 R&I Policy Advisory Forum** members. This forum will inform and support national R&I policy development on system-level strategic issues. Meanwhile, the **Government Science**

Advisor and **National Science Advice Forum** will initiate new lines of communication between existing sources of scientific advice available to Government and the wider research community. Similarly, the new **Evidence for Policy function** in DFHERIS is also building connections between researchers and those working across Government on policy development and/or its implementation. A Civil Service Research Network has been established and work is well advanced on structures to facilitate engagement in the higher education sector. DFHERIS also commenced a **review of Ireland's R&I system** and, **to ensure that Irish research practices reflect latest R&I policy developments**, both the *National Action Plan for Open Research 2022-2030* and revised *Principles of Good Practice in Research within Irish Higher Education Institutions* were published in late 2022.

In addition, the Higher Education Authority intends to commence a comprehensive process of developing an **infrastructure investment framework** that will identify ready-to-go projects, thereby optimising any agreed re-allocation of National Development Plan (NDP) underspends to R&I funding. The Government approved this NDP re-allocation because it will further *Impact 2030's* vision of R&I "[making] a real and positive impact across society, the economy and the environment". To ensure that the R&I ecosystem is focused on realising this vision, more and more **people across Ireland** now have **the opportunity to inform the research process**, as illustrated by examples in the body of the report. In addition, the Heads of Bill to establish a **new national R&I competitive funding agency** have been referred to the Office of Parliamentary Counsel to begin drafting the landmark **Research Bill** and Professor Philip Nolan has been appointed Chief Executive Officer Designate of the new agency. This new agency will amalgamate and build on the strengths of the Irish Research Council and Science Foundation Ireland (SFI). It will **put R&I at the heart of Ireland's economic development and its response to social, economic and environmental challenges** by building on existing successful initiatives while strengthening the capacity for multidisciplinary and interdisciplinary approaches.

For example, the new agency will develop a **talent programme to support researchers**, informed by the recently published **OECD Ireland Skills Strategy Report's** evidence around demand for research talent. In the interim, existing **measures to improve researchers' career paths** will continue, including the all-island Irish Clinical Academic Training and SFI Centres for Research Training Programme. In addition, Dr Andrea Johnson and David Cagney have submitted their first report to the Minister arising from their independent *National Review of State Supports for PhD Researchers*. There are very significant complexities involved and implementation options will need very careful consideration.

In summary, **the Irish R&I system continues to maximise its impact on critical sectoral agendas**. For example, the €65 million **National Challenge Fund** was established in August 2022 and uses mission-oriented challenges to incentivise researchers to deliver tangible impacts for society in the areas of Green Transition and Digital Transformation. DFHERIS and the Department of Enterprise, Trade and Employment (DETE) also work with their Agencies and the higher education sector to **cultivate industry-academic collaboration, research commercialisation and innovation diffusion across regions**. In addition, funding of almost €84 million over the period 2021 to 2027 was secured to **expand Technological University research capabilities**, beginning with the strengthening of their R&I offices, to maximise their impact in their regions. *Funding the Future* also allocated €17.8 million to address capacity building in the technological universities. Meanwhile, the research and development (R&D) tax credit was reviewed in 2022 and amendments were made to this credit in *Finance Act 2022* to align with new international norms. The Department of Finance will continue to ensure that Ireland's R&I taxation offering continues to evolve, is targeted to stimulate additional activity by SMEs and provides a strong incentive in light of the changing international tax landscape.

Introduction to *Impact 2030*

Ireland's Research and Innovation System

Ireland's research and innovation (R&I) system contains the full spectrum of basic and applied research, experimental development and innovation. It has been transformed since the start of this century, with total Government investment in research and development (R&D) increasing from less than €250 million to almost **€1 billion every year**¹. Total R&I investment was over €4.8 billion or 2.1% of GNI* in 2021, the highest level ever recorded and with a significant contribution from the business sector.

Despite this, relative levels of investment in R&I are challenged to keep pace with our EU peers and with Ireland's economic growth. In that context, the performance of Ireland's R&I system is noteworthy, with the **Global Innovation Index 2022**² ranking Ireland twenty-third out of a group of 132 countries that account for 94.1% of the global population and 98.5% of the world's GDP. In addition, the **European Innovation Scoreboard 2023**³ categorised Ireland as a Strong Innovator and ninth in the European Union (EU); although this is a drop from sixth in the **European Innovation Scoreboard 2022**⁴, the report makes clear that scores should not be compared from year to year due to changes in methodology.

Only R&I will provide the answers to many of the challenges that threaten our shared future, such as climate change and future pandemics. Continued public and private investment in R&I is vital to secure a sustainable future for all. Ireland's impressive international rankings prove that Ireland's R&I strategies and investments have delivered real results, but sustained and significant public investment is required to achieve our ambition of being an Innovation Leader.

Impact 2030: Ireland's Research and Innovation Strategy

Impact 2030: Ireland's Research and Innovation Strategy is a Whole-of-Government Strategy that was developed after extensive stakeholder consultation. It was launched by the Minister for Further and Higher Education, Research, Innovation and Science, Mr Simon Harris TD, on 18 May 2022 and many of its 30 Flagship Initiatives under its five Pillars have already been delivered or are well progressed. The report provides updates on each Flagship Initiative as well as specific examples of projects that are making a real difference.

As referenced in *Impact 2030*, Ireland is facing key economic and societal challenges, including climate change and the need to transition to a climate-neutral society; economic transformation fuelled by technological and other change; greater international competition and geopolitical instability; increased mobility of talent; and the need to build societal resilience against the threat of shocks. *Impact 2030* puts R&I at the heart of Ireland's response to these social, economic and environmental challenges and leverages our national performance to date to advance the strategic development of Ireland's R&I system between now and 2030.

¹ <https://www.gov.ie/en/publication/70dcd-research-and-development-budget-2020-to-2021/>

² https://www.wipo.int/global_innovation_index/en/2022/

³ https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3683

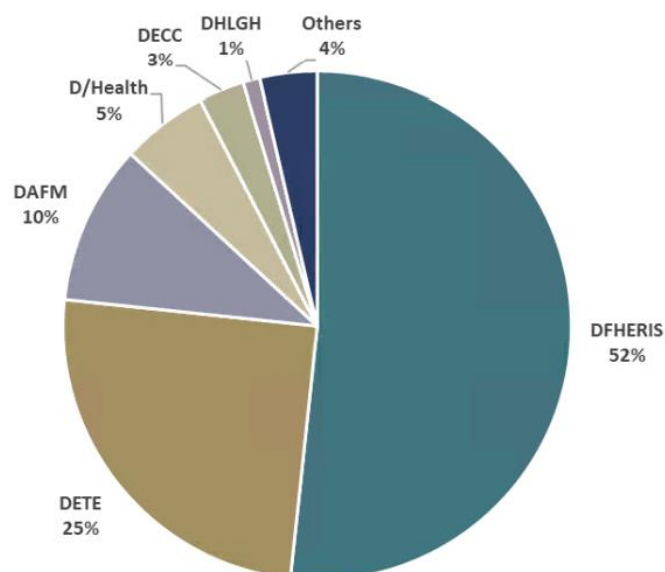
⁴ https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/european-innovation-scoreboard-2022_en

Government Budget Allocations for R&D

Government Budget Allocations for R&D (GBARD) is the internationally recognised indicator for benchmarking State-funded performance of R&D. In Ireland, GBARD includes:

- Government funding for R&D programmes in the higher education sector administered by the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), its Agencies (the Higher Education Authority, Science Foundation Ireland and the Irish Research Council) and others;
- Government funding for business sector R&D, administered through State Agencies including IDA Ireland, Enterprise Ireland and others;
- Government funding for R&D performed in the public sector by Teagasc, the Marine Institute and others; and
- Government contributions to international R&D programmes or organisations solely or mainly concerned with R&D.

DFHERIS funds R&I through three of its Agencies: both the Irish Research Council and Science Foundation Ireland are competitive research funders while the Higher Education Authority's block grant to the higher education institutions underpins Ireland's R&I system. In 2021, DFHERIS was responsible for the majority (52%) of Government investment in R&D, with an allocation of €0.5 billion.



Implementation of *Impact 2030*

Individual Government Departments and their Agencies are responsible for driving the research agenda in the sectors under their remits. DFHERIS plays a central system role by bringing these actors together to ensure a cohesive, Whole-of-Government approach and by galvanising the wider research community to realise the vision and ambition of *Impact 2030*. DFHERIS achieves this primarily through:

- *Impact 2030*'s overarching strategy governance and oversight structures (see below); and
- Inter-Departmental and cross-Agency sectoral initiatives (for example, DFHERIS officials sit on several working groups to further a range of policy initiatives including the climate and sustainability, agriculture and enterprise research agendas).

IMPACT 2030 OVERSIGHT AND GOVERNANCE STRUCTURES

Pillar Two of *Impact 2030* identifies three new oversight and governance structures that will drive implementation of the Strategy:

- The **Impact 2030 Steering Group** is comprised of the five largest R&I funding Departments (DFHERIS; the Department of Enterprise, Trade and Employment; the Department of Agriculture, Food and the Marine; the Department of Health; and the Department of Environment, Climate and Communications), which account for 95%¹ of public funding for R&I, in addition to the Department of the Taoiseach and the Department of Children, Equality, Disability, Integration and Youth. The *Impact 2030* Steering Group drives R&I policy direction in a more agile and responsive manner and leverages wider investment – both public and private – in R&I to deliver the ambitions set out in *Impact 2030*. This includes working together to: (i) position R&I as an integral element of the public policy formation process; (ii) consider joint approaches to non-Exchequer funding opportunities from international or philanthropic sources, including Horizon Europe; and (iii) improve evidence and articulation of the impact of R&I investment on the economy, the environment and people.
- The **Impact 2030 Implementation Forum** (comprising all 18 Government Departments and 15 Agencies that fund and/or perform R&I) engages with and supports the work of the *Impact 2030* Steering Group. It works together to maximise the collective return on public investment in R&I. This includes embedding best practice and consistency of approach and coherence across funders and performers, coordinating relevant activities, sharing information and consulting on common issues in a structured manner.
- Reflecting international good practice as well as stakeholder feedback during the development of *Impact 2030*, Minister Harris has issued an expressions of interest call for **Impact 2030 R&I Policy Advisory Forum** members, which will be comprised of national and international experts and key representative organisations⁵. This Forum will provide an agreed structure for engagement that will inform and support national R&I policy development on system-level strategic issues. The call for members closed on 30 June 2023 and it is anticipated that the inaugural Forum meeting will be held in autumn 2023.

IMPACT 2030 WORK PROGRAMMES





Impact 2030 will be delivered through three three-year Work Programmes; the first multiannual work programme (covering the period 2022 to 2024) was published as part of *Impact 2030*. In 2024 and 2027 respectively, the *Impact 2030* Implementation Forum (IF) will develop the second and third multiannual work programmes.

IMPACT 2030 PROGRESS REPORTS

Annual *Impact 2030* Progress Reports will be published that assess the extent to which each multiannual work programme was delivered in the preceding year, thereby providing ongoing oversight of how Ireland's research-funding Departments and Agencies are working together to progress the strategic objectives and overall vision of *Impact 2030*.

This is the first *Impact 2030* Progress Report and it covers the period from May 2022 to May 2023. **Appendix 3** contains detailed updates on each item in the first multiannual work programme (to 31 December 2022) while the body of the report contains progress updates on each of the 30 Flagship Initiatives (to 31 May 2023) under *Impact 2030*'s five Pillars. The symbols below give an immediate status update, with **Appendix 2** summarising the status of the 30 Flagship Initiatives.

⁵ <https://www.gov.ie/en/press-release/c6f16-minister-harris-establishes-new-research-and-innovation-policy-advisory-forum-and-issues-call-for-members/>

Symbol	Status of Flagship Initiative	Count
	Completed	3
	Underway	26
	Not yet scheduled to commence	1
	Delayed	0

CASE STUDIES

Throughout this report, case studies are included as evidence of the importance of *Impact 2030's* Flagship Initiatives and how the R&I ecosystem is continually working to realise the vision and ambition of *Impact 2030*.

Pillar One

Maximising the Impact of R&I on our Economy, Society and the Environment

Pillar One builds on Ireland's strong ecosystem to place R&I at the centre of Ireland's response to the issues that matter to people such as climate action and digital transformation.

Progress under Pillar One



1) A new national agency will be established to realise this Strategy's vision of R&I at the heart of Ireland's economic development and its response to grand challenges. This will amalgamate and build on the strengths of the Irish Research Council and Science Foundation Ireland.

NEW NATIONAL R&I FUNDING AGENCY

Subject to the timely completion of the transitional and operational programme of work required to establish the new agency (**Flagship Initiative 1**) and the successful passage of the enacting legislation through the Houses of the Oireachtas (**Flagship Initiative 2** below), the agency is intended to be operational by 1 January 2024. The appointment of Professor Philip Nolan as Chief Executive Officer Designate of the new agency with effect from 30 May 2023 marks a significant milestone in the establishment of the agency.

The creation of a new R&I funding agency will capitalise on the recognised strengths of the Irish Research Council (IRC) and Science Foundation Ireland (SFI) in driving world class R&I in Ireland. It will fund excellent R&I in all disciplines across the spectrum of Arts, Engineering, Humanities, Mathematics, Science, Social Sciences, Technology and others. In making competitive funding awards across all disciplines and of varying sizes, the agency will significantly broaden access to research funding programmes. This all takes place in the context of an ambitious programme of reform in the tertiary sector, with the establishment of DFHERIS bringing the Higher Education and Further Education and Training sectors, together with the national R&I system, under the aegis of a single Department. This facilitates a more co-ordinated approach to national policy in these areas, which is informed by international best practice and consultation with stakeholders.



2) A landmark Research Bill will be brought forward by the Minister for Further and Higher Education, Research, Innovation and Science, to give effect to the proposed new R&I competitive funding agency. We will also use this opportunity to consider wider aspects of national research policy.

RESEARCH AND INNOVATION BILL

The Research and Innovation Bill is DFHERIS's legislative priority for 2023 and the Heads of Bill were approved by Government on 5 April 2023. The main objectives of the General Scheme of the Research and Innovation Bill are to:

- Promote and support excellence in R&I across all disciplines;
- Promote and support R&I's contribution to Ireland's economic, social, cultural and environmental development and sustainability;
- Strengthen engagement between the R&I system and enterprise, Government and public bodies, the voluntary sector and society;

- Grow, in collaboration with the Higher Education Authority (HEA) and other public research funders, Ireland's international offering and reputation as a location for undertaking excellent R&I;
- Advance equality, diversity and inclusion in R&I; and
- Promote, develop and assist the carrying out of oriented basic research in strategic areas of endeavour as regards the future development and competitiveness of the State.

The new legislation will place Arts, Humanities and Social Sciences research on a statutory footing for the first time. The establishment of the agency in statute also ensures parity of esteem for the IRC's critical mission of supporting researchers at all career stages.

Pre-legislative scrutiny by the Joint Oireachtas Committee on Education, Further and Higher Education, Research, Innovation and Science is ongoing. Two public hearings on the Heads took place in May 2023 and on 28 April 2023, the Heads of Bill were referred to the Office of Parliamentary Counsel to begin drafting.



3) The National Grand Challenges Programme will use mission-oriented challenges to incentivise researchers to deliver tangible impacts for society in areas such as health, agriculture and climate.

NATIONAL CHALLENGE FUND

Challenge-based funding is a solution-focused approach to research funding that uses prizes, phases, defined timelines, teamwork, mentorship and competition to direct research activity towards addressing pressing societal and economic problems. The National Challenge Fund (NCF) is a €65 million research fund that was established in August 2022 under the Government's National Recovery and Resilience Plan, funded by the EU's Recovery and Resilience Facility (which is expected to give Ireland more than €900 million in grants over its lifetime). The NCF is coordinated and administered by SFI and provides ambitious researchers with the chance to make a difference by developing solutions to eight key challenges in the areas of Green Transition and Digital Transformation. It is expected that solutions are inclusive, equitable and sustainable and adhere to the principles of responsible R&I. Also, consistent with **Flagship Initiative 6 below** (which aims to give people across the opportunity to inform the research process), the NCF requires researchers to work with people directly affected by the problem they are seeking to solve. This *Societal Impact Champion* helps to define the issue and to demonstrate how the team's solution could benefit everyday life for its users.

In total, the NCF aims to fund approximately 90 research teams with up to €250,000 over 18 months to develop their ideas. Under each challenge stream, a number of teams will then be awarded follow-on funding of up to €500,000 before going on to compete for prizes of €1 million or €2 million, depending on the challenge. As of 31 May 2023, 72 teams are active across six challenges. Applications for two further challenges, the Future Food Systems Challenge and the Sustainable Communities Challenge, are currently being assessed. The NCF builds on the expertise gained in previous challenge funding programmes, in which these teams were among the prize awardees:

GRAIN-4-LAB

DR JENNIFER GAUGHRAN, DR BRIAN FREELAND, MS SAMANTHA FAHY, DR SUSAN KELLEHER AND DR KEITH ROCHFORD, DUBLIN CITY UNIVERSITY

This project is focused on developing a solution to tackle plastic usage in Irish research laboratories by using waste produced from the brewing and distilling industry in Ireland. The research team has been working in partnership with organisations such as Waterford Distillery, Murphy & Son, Smallwares and Key Plastics to develop, test and trial the solution.

LEAF NO WASTE

LORRAINE FOLEY AND PROF. JESUS FRIAS CELAYETA, TU DUBLIN; DR LAEL WALSH AND DR SHIVANI PATHANIA, TEAGASC; STEPHEN MCCORMACK, MCCORMACK FAMILY FARMS

This team continues to develop novel solutions that have the potential to address food waste by combining plant fortification with sustainable compostable packaging to enhance the shelf life of fresh produce.



4) The impact of the public research system on policymaking will be strengthened by a dedicated Evidence for Policy function in the Department of Further and Higher Education, Research, Innovation and Science which will build connections between researchers and those working across Government on policy development and/or its implementation.

EVIDENCE FOR POLICY UNIT, DFHERIS

The Evidence for Policy Unit was established in January 2022 and has set up a **Civil Service Research Network** (CSRN) to inform the development of, and support, effective and long-term linkages between civil servants involved in policy development and the higher education research sector. The CSRN comprises members of research and evaluation coordination units across Government Departments, plus representatives from the Central Statistics Office/Irish Government Statistical Service and Irish Government Economic and Evaluation Service. The Departmental nominees consider key areas of cross-sectoral research interest and strategies for communication of Government research priorities to the higher education research sector. In addition, through CSRN, each Department is being surveyed to identify where its evidence base exists and what role its research staff play in developing policy.

The CSRN has met twice to date and discussed issues such as capacity building in higher education and open research. Two further meetings are scheduled for later this year. Where the CSRN identifies that funding is required to promote and generate activity in key priority areas, it will inform the research funding agencies or the IF to allow the funders to review their existing funding allocations and/or strategic research funding decision-making.



5) New science advice structures will be established to connect networks of research capability with Government priorities and needs for expertise.

SCIENCE ADVICE STRUCTURES

It was announced on 1 March 2023 that a Government Science Advisor (GSA) will be appointed and a National Science Advice Forum (NSAF) will be established. The NSAF will assist the GSA and its composition will be drawn from those with established scientific expertise in a range of key disciplines, along with experts in the policy development process. The NSAF and the GSA will ensure that good working relationships are built between those responsible for policy development and those providing scientific advice. They will initiate new lines of communication between existing sources of advice available to Government and the wider research community.



6) People across Ireland will be given the opportunity to inform the research process, starting with the outputs from the *Creating Our Future* campaign.

CREATING OUR FUTURE

In the latter half of 2021, in the midst of the COVID-19 pandemic, the Government invited the people of Ireland to consider how R&I can help to create a better future. SFI was tasked with operationalising this national brainstorm, *Creating Our Future* (COF), which captured the public's imagination and received

over 18,000 ideas from every age group and demographic. The ideas are stored in a database at <https://creatingourfuture.ie/the-ideas/#results>⁶, where they can be filtered by keyword and, where available, by age group and county. The campaign's findings were publicised through the COF Campaign Report, the COF Expert Report⁷ and public engagement at events such as the National Ploughing Championships 2022 and the BT Young Scientist & Technology Exhibition 2023.

The COF Expert Report identified 16 thematic areas and two sets of recommendations (based on an Expert Committee's review of the 18,000 ideas). DFHERIS is working with the *Impact 2030* oversight and governance structures to consider how the recommendations could be implemented.



7) The Irish R&I system will maximise its impact on critical sectoral agendas of Government Departments, Agencies and all stakeholders.

CASE STUDIES

There are many examples of the Irish R&I system maximising its impact on critical sectoral agendas of Government Departments, Agencies and all stakeholders, including the following two examples.

PILLAR ONE: CASE STUDY 1

HEALTH RESEARCH BOARD (HRB) EVIDENCE CENTRE

The HRB Evidence Centre delivered 17 evidence products in the past two years and the impact of previous reviews are starting to deliver significant outcomes for policy and practice, for example:

- (a) In February 2022, an evidence brief on **initiatives to improve health and well-being outcomes in deprived communities** informed the implementation and evaluation of the 19 Sláintecare Healthy Communities Programmes.
- (b) In November 2022, the HRB published a review updating the **evidence base for community water fluoridation (CWF) and its possible systemic impacts**, entitled "*Impact of community water fluoridation on systemic health excluding oral health. An evidence review*". This was the first part of two reports, with the second part, assessing the current impacts of community water fluoridation on oral health, due to be published in 2023. In February 2023, the World Health Organization's Global Oral Health Network recommended the HRB's review to all countries considering community water fluoridation (CWF) as a reliable source examining the issue of CWF and systemic health outcomes. This endorsement from the WHO was sent to every national policy maker in the oral health network, covering over 150 countries, and is an excellent example of the HRB's work having an international impact.
- (c) The **HRB e-cigarettes reviews** continue to have national and international impact. They are being used nationally in the Department of Health's *Stop Smoking National Clinical Guideline* and to inform the *Public Health (Tobacco and Nicotine Inhaling Products) Bill*. They have been cited 131 times in government strategies, academic publications, Dáil Éireann and in national media.
- (d) The evidence review on **assisted reproductive technologies** has actively informed the first publicly funded IVF treatment in Ireland, which is expected to commence later this year. This review has been cited 29 times in Government strategies, Dáil Éireann and across national media.

⁶ An Excel version is also available at <https://creatingourfuture.ie/reports/>.

⁷ Both reports were published in July 2022 and are available at <https://creatingourfuture.ie/reports/>.

PILLAR ONE: CASE STUDY 2

DIGITAL FAMILY LITERACY PROJECT

Funded by IRC Coalesce Programme; led by Dr Ann Devitt, TCD

Low literacy levels are associated with increased unemployment, health problems and lower civic engagement. The OECD 2012 Adult Skills Survey found that one in six Irish adults were at or below level one on a five-point literacy scale. The Digital Family Literacy Project (2019-2022) was designed in collaboration with the National Adult Literacy Agency (NALA) to explore the use of technology in developing literacy skills of parents with unmet literacy learning needs. The team developed a blueprint for online family literacy programmes, working with parents and educators to test and refine the materials. Feedback was very positive, with learners experiencing improved digital literacy skills, self-confidence and greater feelings of social connection to peers.

By developing good practice in family learning in an online/distance context, this project has delivered lasting impact for parents, families, teachers and curriculum developers. The project strongly demonstrates the intersection of the research system with the national skills agenda and the tangible contribution of research to addressing societal challenges such as adult literacy.

Pillar Two

Impact of R&I Structures on Excellence and Outcomes

Pillar Two ensures that excellence is paramount to all publicly funded research and that impact, evidence and evaluation are central to aligning R&I activity with national needs. Strong R&I strategy advisory, governance and oversight structures also ensure that R&I is central to Government policies.

Progress under Pillar Two



8) Undertake a review of Ireland's R&I system to examine the impact of investment to date on national agendas, thereby informing future policy direction, public investment and any future evolution of research prioritisation, as well as providing a baseline for the ongoing evaluation of impact.

BIBLIOMETRIC ANALYSIS

In the last quarter of 2022, DFHERIS commissioned UCD Research & Innovation's Research Analytics and Impact team to undertake a bibliometric analysis of the Irish higher education sector during the period 2011 to 2020. The objective was to use a selection of indicators, and benchmarking of these with international comparators, to provide an indicative measure of the quality of the research outputs produced by sector. This analysis builds on similar work commissioned by the HEA in 2017.

While bibliometric analysis has recognised limitations, it contributes to the development a picture of research trends over time and in comparison with other jurisdictions. Accordingly, this report will form part of DFHERIS's work to better evidence research performance and impact.

Work is underway to develop a systems-level research impact assessment framework for Ireland.



9) Establish a new Policy Advisory Forum on Research and Innovation as a platform for the research and innovation community to engage with Government to optimise the potential and impact of the R&I system.

R&I POLICY ADVISORY FORUM

As previously noted, Minister Harris issued an expressions of interest call for *Impact 2030* R&I Policy Advisory Forum (RIPAF) members, which will be comprised of national and international experts and key representative organisations⁸. RIPAF will provide an agreed structure for engagement that will inform and support national R&I policy development on system-level strategic issues. The call for members closed on 30 June 2023 and it is anticipated that the inaugural RIPAF meeting will be held in autumn 2023.

RIPAF differs from the new science advisory structures (**Flagship Initiative 5** under Pillar One), which are intended to strengthen how scientific expertise itself (across all research disciplines and Government Departments) is provided in Ireland. RIPAF will inform and support national R&I policy development on system-level strategic issues that would benefit from international, as well as national, expertise and experience.

⁸ <https://www.gov.ie/en/press-release/c6f16-minister-harris-establishes-new-research-and-innovation-policy-advisory-forum-and-issues-call-for-members/>



10) Strengthen governance and oversight structures to deliver the vision and ambition of this Strategy with the establishment of an *Impact 2030* Steering Group of key R&I Government Departments, supported by an *Impact 2030* Implementation Forum.

IMPACT 2030 STEERING GROUP (SG) AND IF

The *Impact 2030* SG and IF agreed their terms of reference. The SG met three times between May 2022 and May 2023 (the fourth meeting took place on 29 June 2023) and the IF met four times over the same period.



11) Expand Technological University research capabilities, beginning with the strengthening of their R&I offices, to maximise their impact in their regions.

TECHNOLOGICAL UNIVERSITIES' RESEARCH CAPABILITIES

DFHERIS and the HEA, along with the Regional Assemblies and the Department of Public Expenditure, NDP Delivery and Reform, have worked together to secure almost €84 million over the period 2021 to 2027 from the European Regional Development Fund (ERDF). This investment is funding the **Technological Universities' R&I Supporting Enterprise (RISE) Programme**, which involves the establishment, equipping and staffing of regional R&I offices within technological universities (TUs) in the Northern and Western and Southern, Eastern and Midland Regions and also includes staff development, recruitment, postgraduate training and supervision, networking and collaborative knowledge-transfer and mobility schemes. This Programme will significantly support the advancement of the TU agenda in the areas of research capacity building and regional development through enterprise and R&I facilitation. The HEA will administer the Programme and is working with the Regional Assemblies to finalise the parameters of same.

In addition, as a result of *Funding the Future*, the Higher Education allocation for 2023 increased by €40 million, almost half of which (€17.8 million) will address capacity building in the TUs. Of this €17.8 million, €5 million is allocated to Research Metrics, in line with sectoral priorities in relation to developing research capacity and meeting research-related targets. The balance of €12.8 million is to be used to strengthen leadership, research and support staff capacity. In tandem, a reform programme will be undertaken, with *Funding the Future* identifying five priority strands of reform. The first reform strand ("Enhance quality and international standing of the higher education system across the three missions of teaching and learning, research and engagement") advances *Impact 2030*'s strategic objective of appropriately reflecting higher education's research mission in sustainable future funding approaches. Work on the *Funding the Future* pillars of reform is being addressed through the *Funding the Future Reform and Implementation Group* (FFRIG), chaired by Minister Harris, and its associated sub-groups in conjunction with the HEA.

(See also **Flagship Initiative 20** under **Pillar Three**.)



12) Develop an infrastructure investment framework to identify ready-to-go projects, thereby optimising any agreed re-allocation of NDP underspends to R&I funding.

R&I INFRASTRUCTURE INVESTMENT FRAMEWORK

SFI, in partnership with DFHERIS and the HEA, undertook an independent policy evaluation to: (a) evaluate the performance of SFI's research infrastructure investment programmes from 2015-2021 and recommend opportunities for improvement; and (b) recommend future national mechanisms to invest

in research infrastructure, to include an landscape analysis on which to base potential investment scenario recommendations. This evaluation was completed and published in 2022⁹.

The HEA intends to commence a comprehensive process of developing an infrastructure investment framework by conducting a landscape analysis.



13) Ensure that Irish research practices reflect latest R&I policy developments and leverage the HEA's central role in the HE research system with its new legislation.

This Flagship Initiative ensures that the R&I ecosystem remains up-to-date with best practice, so it will not be considered completed until the final progress report, with progress being reported each year.

PRINCIPLES OF GOOD PRACTICE IN RESEARCH IN IRISH HIGHER EDUCATION INSTITUTIONS

The HEA's *Principles of Good Practice in Research within Irish Higher Education Institutions*¹⁰ act as guiding principles for the HEIs to develop good research practices within their own research environments. Good research practices drive research excellence and further improve research outcomes, thereby enhancing the international reputation of the Irish higher education research system. The Principles were first launched by the HEA in February 2020 and subsequently revised in December 2022 to take account of recent changes to the Irish research landscape. The revised Principles contain nine elements of good research practice, including two new ones:

- Excellence in research and academic freedom;
- Research integrity and ethics;
- Open research;
- Intellectual property and knowledge transfer;
- Researcher development;
- Research project and programme management;
- Dignity and respect;
- Gender equality and inclusiveness (new); and
- Research and sustainability (new).

The HEA developed its revised Principles in consultation with key stakeholders in research policy such as DFHERIS, the National Research Integrity Forum, Irish Universities Association, Technological Higher Education Association, Knowledge Transfer Ireland and the National Open Research Forum.

OPEN RESEARCH

Open research benefits everyone by making research available without barriers to researchers, policymakers, students and the general public. As demonstrated by COVID-19, open and timely access to research publications, data and other outputs is essential to meet societal needs and grand challenges such as climate change, sustainability and disease control.

In November 2022, Minister Harris launched the *National Action Plan for Open Research 2022-2030*¹¹, which sets out a roadmap for meeting national objectives as set out in *Ireland's National Framework on the Transition to an Open Research Environment*. This Plan strengthens Ireland's commitment to open research, including our contribution to the European Research Area Policy Agenda and its priority action to enable the open sharing of knowledge and the re-use of research outputs.

⁹ <https://www.sfi.ie/research-news/publications/SFI-Research-Infrastructure-Indecon-Report-Final-Version-22.pdf>

¹⁰ <https://hea.ie/policy/research-policy/hea-principles-of-good-practice-in-research-within-irish-higher-education-institutions/>

¹¹ <https://repository.dri.ie/catalog/ff36jz222>

The Plan was developed by the National Open Research Forum (NORF), which developed a shared vision and identified nationally coordinated actions to help accelerate Ireland's progress in open research. This was achieved through a planning exercise involving Working Groups, Coordination Groups and public consultation. NORF will also oversee implementation of the Plan and DFHERIS (through the HEA) provided funding of €1.725 million to support the delivery of priority actions, including pilots that are necessary to scope, test and identify future activities and develop national-level services. Beyond this initial commitment, further national and other funding will be sought as part of ongoing coordination activities by DFHERIS and NORF.

PILLAR TWO: CASE STUDY 1

Nothing better illustrates the power of open research than its contributions during the COVID-19 pandemic.

OPEN RESEARCH AND THE COVID-19 PANDEMIC

During the COVID-19 pandemic, open research allowed scientific discovery to evolve much more rapidly than ever before. Cases were first detected in China in December 2019, before spreading quickly to other countries. Even before the World Health Organisation (WHO) declared a Public Health Emergency of International Concern (PHEIC) on 30 January 2020, Chinese scientists had already openly shared the genetic sequence of coronavirus, instantly triggering a race for vaccines worldwide and enabling German scientists to develop a screening test, which was then shared by the WHO with governments everywhere.

On 31 January 2020, over a hundred organisations worldwide, including SFI and the HRB, committed to sharing research data as rapidly and widely as possible, including with public health and research communities and the WHO. There were many initiatives to secure open access. For example, following the WHO's characterisation of the outbreak as a pandemic on 11 March 2020, the White House and a coalition of leading research groups launched the COVID-19 Open Research Dataset (CORD-19) on 13 March 2020. CORD-19 initially consisted of 28,000 papers and now has over 1,000,000 scholarly articles, including over 400,000 with full text, about COVID-19 and related coronaviruses. Also on 13 March 2020, National Science and Technology Advisors from a dozen countries called on publishers to make COVID-19 and coronavirus-related publications and supporting data immediately accessible in appropriate public repositories to support public health emergency response efforts. More than 50 publishers responded to this call. As another example, from April 2020 onwards, holders of intellectual property signed the Open COVID Pledge, thereby committing to share some or all of their intellectual property for the purposes of ending and mitigating the COVID-19 Pandemic. Also in April 2020, the European Commission and several partners established a COVID-19 data portal. These and other open research initiatives allowed the general public to access reliable information while enabling scientific discovery to develop faster than ever before.

The rapid development and approval of COVID-19 vaccines conceals the fact that the history of mRNA, the vaccine's breakthrough technology, is decades old and the result of several incremental achievements by multiple researchers. It must also be acknowledged that countries adopted varying measures to contain and/or mitigate the disease, none of which met with universal approval, and that concerns about global vaccine inequity have persisted alongside vaccine hesitancy. Nevertheless, it is undeniable that opening access to research papers, results and data accelerated innovation and delivered vaccines and treatments at a speed never seen before. These vaccines restored family and societal bonds, preserved mental health, protected jobs and economies and saved millions of lives.

Pillar Three

Innovation Driving Enterprise Success

DFHERIS and the Department of Enterprise, Trade and Employment (DETE) work with their Agencies and the higher education sector to cultivate industry-academic collaboration, research commercialisation and innovation diffusion across regions. Three DFHERIS Agencies play a critical role here, with SFI and IRC providing competitive research funding and the HEA providing research funding through the block grant to the HEIs, which underpins Ireland's R&I system.

Meanwhile, the Department of Finance ensures that Ireland's R&I taxation offering continues to evolve, is targeted to stimulate additional activity by small and medium-sized enterprises and provides a strong incentive in light of the changing international tax landscape.

Progress under Pillar Three



14) Enterprise innovation capability will be broadened and deepened, increasing the number of enterprises and SMEs investing in RD&I, increasing numbers of new high-value, IP rich start-ups from research, linking our multinationals, SMEs and innovation system and public policy, increasing the number of female founders from research and embedding a culture of continuous innovation.

NEW APPROACHES TO BROADENING AND DEEPENING INNOVATION CAPABILITY

DETE's enterprise development Agencies, EI and the IDA, are implementing new approaches to enhancing innovation capability across the indigenous and multinational enterprise base (including innovation diagnostic tools, scorecards, flexible grants, clusters, digitalisation supports, bespoke advisory services, etc.). Achievements to date include:

- **27 Innovation Roadmaps** and **278 Innovation Scorecards** were completed in 2022. The Innovation Scorecard is an online self-assessment tool for small and medium sized enterprises (SMEs), multinational companies (MNCs) and public sector organisations based on the new ISO 56002 Innovation Management System guidance standard. It was developed by EI in partnership with IDA and the Reform and Delivery Office in the Department of Public Expenditure, NDP Delivery and Reform, with grant funding awarded under the Public Service Innovation Fund. The National Standards Authority of Ireland nominated EI's development and deployment of the Innovation Scorecard for the 2022 CEN Standards+Innovation Awards, which acknowledge and celebrate the important contributions of researchers, innovators and entrepreneurs to standardisation. As such, EI's Innovation Scorecard has been recognised as a model of good practice by one of three European Standardisation Organisations (together with CENELEC and ETSI) that has been officially recognised by the EU and by the European Free Trade Association (EFTA) as being responsible for developing and defining voluntary standards at European level.
- EI approved **102 indigenous R&D investment projects worth over €100,000** in 2022, in excess of the target of 100 for the year, putting EI in a good position to achieve the *Impact 2030* target of approving 300 R&D projects worth over €100,000 each over the period 2022 to 2024.
- Since its launch in March 2022, EI's ***Built to Innovate***, a *Housing for All* initiative, has provided a suite of lean, digitalisation and R&I grant aid packages to deliver homes faster, on time and with less expense.
- EI exceeded its target for **High Potential Start-Up Companies (HPSUs)**, with a particularly strong 2022 performance in terms of female founders (outturn of 34, which is 142% of the target of 24).

- **IDA** collaborated with **Skillnet Ireland** to accelerate world-class partnerships between MNCs and Irish SMEs in digital, disruptive, and sustainable technology solutions that can drive enterprise competitiveness, growth, and transformation (please see below).
- The launch, in February 2023, of the €30 million **Innovators' Initiative** (please see below).

IDA COLLABORATION WITH SKILLNET IRELAND

Skillnet Ireland is a DFHERIS Agency and is responsible for advancing the competitiveness, productivity and innovation of Irish businesses through enterprise-led workforce development. In September 2022, IDA and Skillnet Ireland announced a new collaboration between:

- IDA's **Disruptive Technologies Partnering Portal** (DTTP), an online searchable platform that profiles enterprise capacity and needs in digital, disruptive, and sustainable technologies; and
- The **Innovation Exchange** from Skillnet Ireland, where MNCs highlight their challenges and needs and provide an opportunity for Irish SMEs to present solutions to accelerate innovation within both the large and smaller firms.

This new business-to-business engagement framework will accelerate world-class partnerships between MNCs and Irish SMEs in digital, disruptive, and sustainable technology solutions that can drive enterprise competitiveness, growth and transformation. In addition, The Innovation Exchange allows Irish SMEs to avail of mentoring, training and other supports to build the necessary skills to position their proposed solutions to MNCs.

Skillnet Ireland will invest €5 million in The Innovation Exchange over the next five years to support more than 1,000 businesses, while IDA will continue to offer free access to the DTTP for companies and access to a variety of supports to enable business transformation. This collaboration between Skillnet Ireland and IDA is a fantastic opportunity for Irish SMEs and MNCs to work together in partnership to drive digitalisations and collaborative opportunities, utilising the best of the Irish innovative infrastructure.

INNOVATORS' INITIATIVE

In February 2023, EI launched the €30 million Innovators' Initiative, which is funded for seven years and aims to uncover unmet needs across a range of sectors and help generate new ideas for meeting them by funding immersive innovation training programmes in publicly funded research performing organisations (RPOs) (which are primarily funded by DFHERIS). The RPOs will bring together industry collaborators who will provide access to programme participants to observe their needs. While food systems and financial services are among the sectors that may provide fertile ground for different training programmes, EI is not being prescriptive about which industries should be addressed or how many.

The training programmes will aim to create cohorts of highly skilled innovators who can identify market needs through observation of specific growth sectors. These innovators will receive a stipend of €35,000 for the 10 months they spend on the programme. This will support them to generate new product and process ideas, new intellectual property and, in some cases, the creation of new start-up companies. They will also receive a Level 7, 8 or 9 certificate or other qualification from the RPO. On completion of a programme, participants can return to their companies, bringing new skills and training and capacity for innovation with them or they can go on to form new start-up teams. Also, if the innovators have identified a need and no company is filling it, they can apply for support from the EI Commercialisation Fund (see **Flagship Initiative 16** below).

NATIONAL CLUSTERING POLICY AND FRAMEWORK

DETE has progressed a national clustering policy and framework (NCP&F) and commissioned Grant Thornton to provide an evidence base. The NCP&F will strengthen the potential for linkages between multinational and indigenous businesses, RPOs and others in key technology and innovation areas, building on Ireland's nascent clustering landscape and driving innovation and competitive advantage. Grant Thornton's report was published in March 2023¹².

DETE will work with DFHERIS to ensure that the NCP&F increases the level of technology, innovation and skills spillovers, which will improve the standard of R&I within Ireland's RPOs and indigenous and multinational enterprises, in line with *Impact 2030*'s vision.

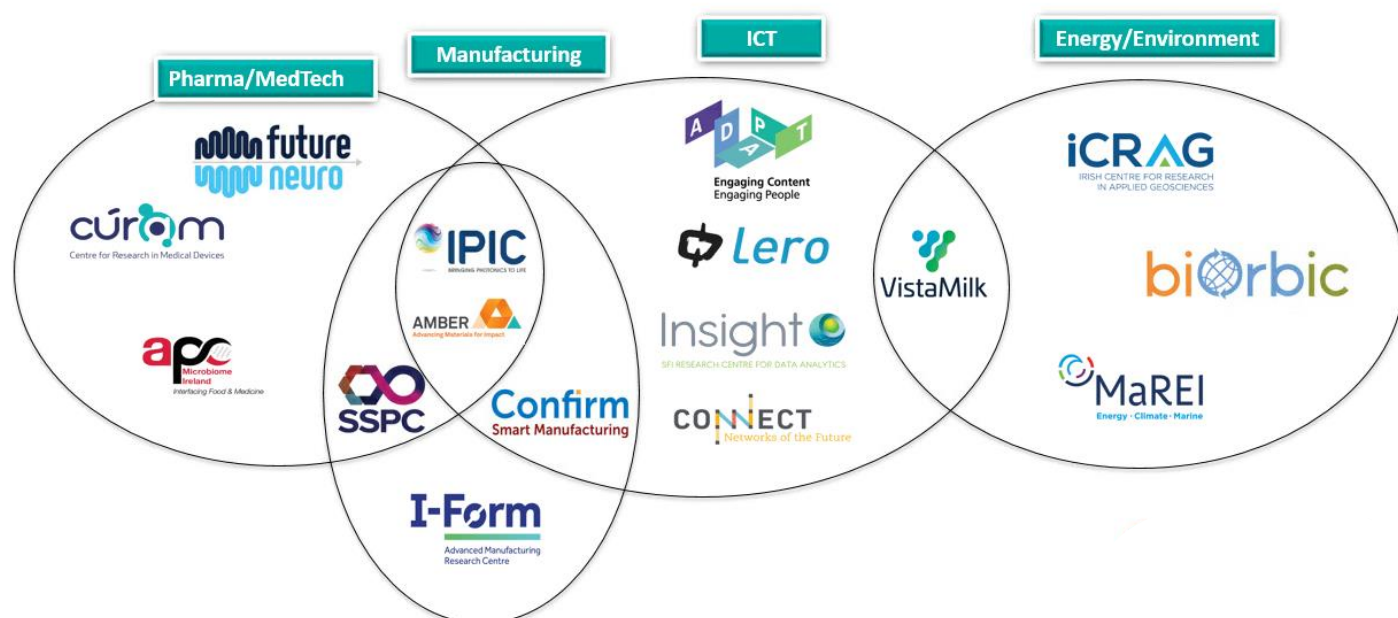


15) Our network of research and development centres and facilities will be developed to ensure that Ireland is at the forefront of technological advances (including in advanced manufacturing 5.0, life-sciences and bioprocessing, ICT, food and agri-tech, space and energy sectors) and to embrace and respond to the twin challenges of climate and digital transition.

SFI RESEARCH CENTRES PROGRAMME¹³

BACKGROUND

SFI is under the aegis of DFHERIS and its 16 SFI Research Centres link scientists and engineers in 910 research bodies across the globe with industry partners worldwide. As at 31 December 2022, the Centres had signed 1,426 collaborative research agreements with 688 companies around the world (366 of which are in Ireland). Almost half (340 or 49%) of these companies are SMEs followed closely by MNCs (317 or 46%), with the remainder being a mix of start-ups and "other" company categories. These partnerships address crucial research questions in the spheres of pharmaceutical/medtech, manufacturing, information and communications technology (ICT) and energy/environment.



¹² <https://enterprise.gov.ie/en/publications/national-clustering-policy-report.html>

¹³ Graphics courtesy of SFI.

POTENTIAL NEW CALL

Currently, SFI is developing a new call proposal for the six Research Centres that were funded from 2020 to 2026. The development of the potential new call has been shaped by an international expert panel convened in 2021; highly valuable input from a wide range of stakeholders from the Irish research and higher education ecosystem, including enterprise; and the experiences and observations of SFI, Government Departments and other Agencies over the course of the existing SRCP. Any new call will further *Impact 2030's* objectives (including interdisciplinary research, open research and equality, diversity and inclusion).

STUDY ANALYSING THE VALUE OF THE PUBLICLY FUNDED SFI RESEARCH CENTRES

LED BY HELENA LENIHAN, UL

A UL-led team that included researchers from University College Cork and the University of Warwick conducted the first evaluation of the impact of the novel, large-scale publicly funded SRCP on companies' R&D profiles. The team's findings were published in the Research Policy journal¹⁴.

In summary, the study found that:

- Over time, companies that collaborate with the SFI Research Centres tend to increase their investment in R&D, redirecting their R&D spending towards more scientific types of research.
- While the impact of collaboration on companies' overall in-house R&D is greater for large firms, SMEs experience a greater increase in applied research orientation.
- The SRCP led to greater potential for breakthrough ideas and disruptive innovations, boosting the Irish economy and making it both more competitive and resilient.

NEW CONSTRUCTION TECHNOLOGY CENTRE

Construct Innovate, Ireland's construction technology centre, was launched in December 2022 with Government funding of €5 million over five years. Its vision is to make Ireland a global leader for sustainable construction and built environment technology.

The centre is a partnership between TCD, UCD, University College Cork, the Irish Green Building Council and UG. It brings together 23 multidisciplinary research groups of over 300 researchers who have a strong track record in R&I, with expertise in digital adoption, modern methods of construction and sustainability.

The multidisciplinary research groups work together under the five pillars of:

- Productivity, affordability and cost;
- Quality and safety;
- Sustainability;
- Skills and training; and
- Collaboration.

The centre's immediate focus is to address the challenges of the housing, followed by addressing other strategic outcomes identified by the Government and construction sector stakeholders.

¹⁴ <https://www.sciencedirect.com/science/article/pii/S0048733321002602?via%3Dihub>



16) Industry-academic collaboration and research commercialisation will be cultivated, with implementation of a new Knowledge Transfer Ireland programme and simplifying the routes for enterprise to engage with the public research system.

KNOWLEDGE TRANSFER IRELAND (KTI)

KTI is the national office that helps business to benefit from access to Irish expertise and technology by making it simpler to connect and engage with the research base in Ireland. KTI provides guidance to business, investors, universities, technological universities and institutes of technologies, RPOs, research funders and Government Agencies to maximise getting State-funded technology, ideas and expertise into the hands of business to drive innovation. KTI sits within EI.

KT BOOST

The EI KT Boost programme is a new four-year €33.4 million programme directed to Irish universities and TUs, including TUs that are currently approved by the State but which may not have reached legal status at the time of application to this programme. Its focus is on developing and supporting Innovation Offices in these HEIs as a part of the overall policy and funding landscape that supports research commercialisation. This will be delivered through funding for people, including the recruitment and development of new skill sets and training within HEIs' Innovation Offices.

The programme opened for applications on 23 February 2023, with a deadline of 24 March 2023. The programme is expected to deliver skills sets that will support an increase in research commercialisation outcomes within the university and TU sector regionally and nationally and develop a consistent operational quality across these sectors. The KT Boost Programme is co-funded by the Government of Ireland and the EU under two ERDF Regional Programmes (the *Southern, Eastern and Midland Regional Programme 2021-2027* and the *Northern and Western Regional Programme 2021- 2027*).

NATIONAL IP PROTOCOL

Ireland's framework for research commercialisation is called the National IP Protocol¹⁵, which provides for best practice, guiding on the expected norms for research-related engagements between industry and State RPOs and the formation of spinout companies from State research.

THE DISRUPTIVE TECHNOLOGIES INNOVATION FUND (DTIF)

DTIF is a €500 million fund to support investment in the development and deployment of disruptive technologies and applications on a commercial basis. It does this by driving collaboration between Ireland's world-class research base and industry as well as facilitating enterprises to compete directly for funding in support of the development and adoption of these technologies. DETE manages DTIF with administrative support from EI.

Between November 2022 and April 2023, funding of almost €63 million was announced for 16 innovative projects. This brings the total allocation of DTIF funding to €306 million, with over €173 million (56%) of the funding awarded to project partners outside of Dublin. The 91 DTIF projects awarded funding across the five Calls to date contain 340 partners, of which 213 are enterprise partners. The linkages between these SMEs and larger enterprises – especially MNCs – are crucial in developing ecosystems and mentoring which can help local firms, including HPSUs, to become embedded in the value chains of foreign direct investment (FDI)-intensive sectors. This will lead to higher domestic value-capture and enable Ireland's SMEs and domestic economy to benefit from positive spillovers.

¹⁵ <https://www.knowledgetransferireland.com/ManagingIP/National-IP-Protocol/>

BIG IDEAS 2022

EI's annual event showcases deep tech start-up innovation emerging from HEIs via EI's Commercialisation Fund, providing founders with direct access to investors and an opportunity to unveil their Big Ideas. Now in its 14th year, Big Ideas 2022 took place on 24 November 2022 as a hybrid event, with a live audience in Croke Park, Dublin and a wider international audience watching online.

ENTERPRISE PARTNERSHIP SCHEME (EPS)

IRISH RESEARCH COUNCIL (CO-FUNDED WITH ENTERPRISE PARTNERS)

The EPS links excellent early career researchers across all disciplines to enterprise. Through this programme, early career researchers develop new advanced knowledge and skills linked with industry and employer needs. For the enterprise partner, the scheme provides a low-risk, flexible route to research talent and innovation in an area closely aligned with its strategic interests.

In 2022, 79 projects were awarded funding under the Scheme's four strands, with a total investment in excess of €8 million. The four strands were as follows:

- Enterprise Partnership Scheme for Postgraduate researchers;
- Enterprise Partnership Scheme for Postdoctoral researchers;
- Employment-Based Postgraduate programme; and
- Google Online Content Safety Scholarship.

The first two strands provide researchers with the opportunity to pursue research in collaboration with enterprise while based at an eligible higher education or research-performing institution. The third strand enables researchers to pursue research in collaboration with a HEI while based in, and employed by, their employment partner.

SFI ACCELERATING RESEARCH TO COMMERCIALISATION (ARC) HUB PROGRAMME

The aim of the SFI ARC Hub Programme is to establish a new model for regional innovation and entrepreneurial training to enhance and accelerate the commercialisation of publicly funded research to create new products, processes and services. The Programme is co-funded by the Government of Ireland and the EU under two ERDF Regional Programmes (the *Southern, Eastern and Midland Regional Programme 2021-2027* and the *Northern and Western Regional Programme 2021- 2027*).

The primary objectives of the programme are to:

- Develop a cohort of entrepreneurial scientists and engineers with the skills to realise commercial opportunities from research activities.
- Enhance and accelerate the translation of research to impact through the commercialisation process.
- Successfully transition SFI-funded research projects into existing national and international closer-to-market supports, as appropriate.
- Drive regional development by accelerating novel, cutting-edge research, towards commercial impact readiness, in areas aligned with Ireland's Smart Specialisation Strategy (see **Flagship Initiative 20** below).

The realisation of the programme will be through the establishment of up to three regional SFI ARC Hubs focused on specific thematic areas. The SFI ARC Hubs, as a distributed consortium of Research Bodies, will create regional ecosystems focused on optimising research translation and training future entrepreneurs through establishing new academic networks and bringing together stakeholders, while leveraging existing supports, as appropriate. The SFI ARC Hubs also support the delivery of the *National Smart Specialisation Strategy for Innovation 2022-2027* (**Flagship Initiative 20** below).



17) Skills and talent from our research and higher and further education systems will be aligned with enterprise needs, including growing the number of 'researchers' to 15 per 1,000 employed in the Labour Force (from 10 per 1,000 currently) and fully embracing lifelong learning.

NUMBER OF RESEARCHERS

As **Appendix 1** shows, the estimated number of 'researchers' (full time equivalents - FTEs) per 1,000 in the labour force for 2020 is 11.18, an increase of 17% on the baseline of 9.52 in 2019. This increase represents significant progress towards *Impact 2030's* target of 15 FTEs per 1,000 in the labour force by 2030 (a 58% increase on the baseline).

EUROPEAN YEAR OF SKILLS 2023

On 9 May 2023, Ministers Harris and Collins launched the European Year of Skills 2023 in Ireland. This initiative will help to address skills shortages in the EU by promoting continuous reskilling and upskilling, including through **apprenticeships up to level 10**. The apprenticeship system is only possible through collaboration and partnership between industry and education and training providers. Employers gain from the apprenticeship model by taking on committed and ambitious learners and from engaging with the education and training system in a way that ensures that apprentices have the full range of skills required by employers.

Consortia-led apprenticeship programmes are being developed by partnerships between employers and education and training providers, reflecting training and employment needs in specific sectors. Also, through the National Training Fund, DFHERIS funds Skillnet Ireland, which is delivering industry-led upskilling programmes across a range of areas (e.g. the Green Tech Skillnet). Supports for employers include an annual grant of €2,000 per apprentice on consortia-led programmes; an annual gender bursary for employers of €2,666; and the new Apprenticeship Online facility, which is designed to make apprenticeship information, supports and services more user-friendly and accessible.

ARTIFICIAL INTELLIGENCE (AI)

AI is part of a suite of digital technologies that will play a major role in shaping global competitiveness and productivity over the coming decades, granting early adopters significant societal, economic and strategic advantages. *AI - Here for Good: A National Artificial Intelligence Strategy for Ireland*¹⁶ sets out how Ireland can be an international leader in using AI to benefit our economy and society, through a people-centred, ethical approach to its development, adoption and use.

In May 2022, the **Expert Group on Future Skills Needs** published a report entitled *AI Skills: A Preliminary Assessment of the Skills Needed for the Deployment, Management and Regulation of Artificial Intelligence*¹⁷. Many of the actions required are already in train or have been identified in the context of existing national strategies. For example, **CeADAR** is Ireland's National Centre for Applied AI and a European Digital Innovation Hub (see **Flagship Initiative 19** below). Over the past ten years, CeADAR helps SMEs and public service organisations to understand how AI and data analytics can benefit them. It also provides funded specialist training, technology demonstrators and project feasibility work to minimise the barriers to technology adoption. Through AI Maturity Assessments, CeADAR signposts relevant supports for companies as they begin their digital transition.

¹⁶ <https://enterprise.gov.ie/en/publications/national-ai-strategy.html>

¹⁷ <https://www.regionalskills.ie/regions/northwest/news/ai-skills-report-final-22-06-22.pdf>

UNIFIED TERTIARY SYSTEM

DFHERIS is also developing a policy vision to progress a more unified tertiary system for knowledge and skills. This is composed of complementary further education and training, higher education and R&I sectors and characterised by:

- Flexible, diverse and aligned learning and development opportunities;
- Clear, navigable and extensive pathways for learners, researchers, educators and innovators;
- Coherent skills and qualifications frameworks aligned to current and future skills needs;
- Diffusion and creation of new knowledge, skills and innovation across the system; and
- Resilience, adaptability and preparedness for the challenges and opportunities future changes may present (e.g. technological, demographic and climate change).

The five key objectives for this vision are to:

1. Offer a wide range of more joined up learning and development opportunities and pathways to learners and researchers;
2. Develop more inclusive cultures to grow equality, diversity and inclusion;
3. Enable the system to adapt to change;
4. Create more unified regional systems; and
5. Provide for the skills, knowledge and talent needs of individuals, the economy and society.

DFHERIS continues to promote and communicate the vision for a more unified system, including through a Policy Platform Paper (May 2022) and through engagement and consultation with stakeholders from across the tertiary system and country. Significant progress has been achieved across many of the actions highlighted in the Policy Platform Paper, including completing the OECD Ireland Skills Strategy Report (as discussed under **Flagship Initiative 22** under Pillar Four).



18) Innovation solutions will be developed to enable all sectors of our enterprise base and society, including our agriculture, construction, transport and energy sectors, to embrace and respond to the twin challenges of climate and digital transition.

TECHNOLOGY GATEWAY NETWORK

EI works with institutes of technology and TUs across Ireland to provide Irish companies (in particular small and micro companies) with access to the expertise of the TUs through the Technology Gateway Network of 16 specialised Gateways and three sectoral clusters. The Programme is co-funded by the Government of Ireland and the EU under two ERDF Regional Programmes (the *Southern, Eastern and Midland Regional Programme 2021-2027* and the *Northern and Western Regional Programme 2021-2027*).

Applications for funding received from CREDIT *Energy Efficiency and Optimisation* Gateway have focused on the renewable energy sector. Applications from other Gateways have also indicated they intend to focus on green opportunities via areas such as the circular economy and increased use of manufacturing improvement techniques to reduce waste.

TECHNOLOGY CENTRE PROGRAMME

The Technology Centre Programme is a joint initiative between EI, the IDA and RPOs. It allows Irish companies and MNCs to work together on market-focused, strategic R&D projects in collaboration with research institutions. The nine Technology Centres in the programme are resourced by highly qualified researchers who provide a unique ecosystem for collaboration in areas identified, by industry, as being strategically important. The Learnovate Centre is recognised as a centre of excellence for the future of work and learning, enabling Ireland's workers to respond to the challenge of digital transition.

GREEN TRANSITION FUND (GTF)

The GTF is a €55 million fund that was launched in June 2022 under the Government's National Recovery and Resilience Plan, funded by the EU's Recovery and Resilience Facility. The GTF supports companies across each of the different aspects of their decarbonisation journey, from initial planning and capability building to investment and R&I. The GTF is targeted to contribute specifically to the *Climate Action Plan 2021* measure of increasing the proportion of carbon neutral heating in low temperature manufacturing processes and it includes five measures related to research, development and innovation (RDI) programmes for Climate Action:

1. R&D Feasibility Grant;
2. Innovation Vouchers;
3. Exploring Innovation;
4. RDI; and
5. Agile Innovation.

OTHER EI CLIMATE AND SUSTAINABILITY JOURNEY SUPPORTS

In addition to the GTF, EI provides a range of climate and sustainability journey supports, including training, business planning supports and funding for capital investment in decarbonisation and energy monitoring. These supports will help underpin the decarbonisation of Irish enterprise and deliver on its 2030 climate action target. In addition, EI continues to align its funding with low carbon transition through a Project Assessment Process. EI is also focused on growing ambitious new start-ups on green, low carbon, circular economy sectors, including through pre-seed call, Green Accelerator (R&I), EU and green investment funds.

AGILE INNOVATION FUND

EI's Agile Innovation Fund is open to eligible Local Enterprise Office clients and supports the development of new or substantially improved products, services, or processes where the total project cost is no more than €300,000. It features a streamlined online application form with fast track approval. The fund is open to companies that are new to R&D; operating in short, product life cycle; and undertaking small/short projects. Grant rates range from 25% to 50% and applications can be submitted online anytime.



19) A major increase will be driven in digital adoption and transformation by Irish based enterprise, helping to strengthen competitiveness and productivity; including through launch of the Digital Transition Fund.

DIGITAL TRANSITION FUND (DTF)

The widespread availability of advanced digital technologies to enterprises of all sizes is causing a wave of innovation in product design and customer services, leading to market disruptions in all sectors as the most innovative enterprises find new ways to create customer value through digital business models. This digital wave will cause many businesses to fall behind the digital innovators and the disruption may have serious impacts on existing business models and could threaten their future survival. That is why the DTF was launched in June 2022 under the Government's National Recovery and Resilience Plan, funded by the EU's Recovery and Resilience Facility. It has been allocated funding of €85 million during the period to 2026 and is administered by EI.

The DTF helps companies at all stages of their digital journey, from the early days of simply going online to digitalisation of products and business processes, to facilitating exporting and to using digital technologies to develop new markets and business models. The fund will provide direct grant support to industry, with eligibility for each grant depending on the company size and level of exporting. This grant support will result in increased digitalisation of businesses across products, processes, supply

chains and business models. This increased digitalisation will bring about productivity gains, access to new markets, increased innovation and improved competitiveness.

DETE is also working on a scheme to make DTF more widely available. A Digital Portal is also being developed to allow enterprises to self-assess their digitalisation status and receive tailored advice on future steps to take on digitalisation. The Digital Portal will also highlight other enterprise supports for digitalisation (such as the Local Enterprise Office (LEO) Trading Online Voucher, Online Retail Scheme and LEO Digital Start programmes).

EUROPEAN DIGITAL INNOVATION HUBS (EDIHS)

As part of the Digital Europe Programme, the EU is investing over €700 million in total to co-fund a Europe-wide network of hubs. The EDIHs will be “one-stop-shops” to help companies (notably SMEs) and public sector organisations to become more competitive in their business/production processes, products or services by providing access to research infrastructure, technical expertise and experimentation at an RPO-based or HEI-based lab. As well as research/testing facilities, EDIHs will also provide other innovation services, such as financing advice, and the training and skills development necessary for a successful digital transformation. Environmental issues will be championed, in particular with regard to energy consumption and low-carbon emissions. EDIHs will also disseminate the latest advances in digital technologies, cybersecurity, AI and high-performance computing (HPC).

EDIHs funded under the Digital Europe programme are 50% co-funded by the European Commission (CION) and by the relevant Member State/associated country. High-quality candidate EDIHs, for which no Digital Europe funding was available, have received a Seal of Excellence, which entitles them to join the network of EDIHs if they are funded by their Member States or region. In June 2022, all four Irish EDIHs (CeADAR, Data2Sustain, ENTIRE and FxC) passed the CION threshold of the restricted call for the EU-wide EDIH network. It was announced in February 2023 that two of the EDIHs (Data2Sustain and FxC) had qualified for co-funding and each is set to receive annual funding of €1.9 million. The other two EDIHs (CeADAR and ENTIRE) received a Seal of Excellence and are being funded under the Government's National Recovery and Resilience Plan, funded by the EU's Recovery and Resilience Facility.

Ireland's four EDIHs are as follows:

- **DATA2SUSTAIN** delivers a comprehensive digital services programme to increase the capacity and speed of SME transformation, with a focus on the circular economy and sustainability areas.
- **FxC** accelerates factories' ambitions to become 'Factories of the Future', integrating ecological, digital and societal solutions into their core business models.
- **CeADAR** focuses on how AI and data analytics can help SMEs and public-service organisations.
- **ENTIRE** helps SMEs in the agriculture, energy and transport sectors to use digital technologies.

FUTURE MANUFACTURING IRELAND (FMI)

Following the publication of the *National Industry 4.0 Strategy* in 2020, DETE established the FMI Unit to support the digital transformation of Ireland's manufacturing sector. This agenda is being achieved by coordinating, clarifying and promoting supports and resources available to the manufacturing sector through the enterprise agencies (IDA and EI) as well as through the State-funded RPOs that have a dedicated focus on Advanced Manufacturing. An ongoing activity of FMI is to support the coordination of such resources through the strategic grouping of four centres under the FMI umbrella. These centres are the SFI Research Centres I-Form and Confirm, the EI/IDA Technology Centre IMR and the IDA-backed Advanced Manufacturing Centre (AMC). Alignment and relative positioning of the activities and

offerings of the respective centres has enabled an end-to-end continuum of resources to be described and communicated to the manufacturing sector.

ENTERPRISE DIGITAL ADVISORY FORUM (EDAF)

In line with the National AI Strategy and the National Digital Strategy, DETE established the Enterprise Digital Advisory Forum (EDAF) to support the Government in driving the digitalisation of enterprise across Ireland. EDAF was first convened in May 2022 and has met quarterly since. It brings together representatives of indigenous enterprise of all sizes, MNCs and experts in digital technologies and their adoption by enterprise. EDAF provides a focused body for Government to hear the views and perspectives of enterprise and experts.



20) Levels of innovation performance in enterprise will be increased across our regions and opportunities for innovation diffusion will be maximised through Smart Specialisation.

NATIONAL SMART SPECIALISATION STRATEGY FOR INNOVATION 2022-2027

Smart Specialisation is an innovation policy concept developed by CION that aims to boost regional innovation, contributing to growth and prosperity by helping and enabling regions to focus on their strengths. Through ERDF for 2022-2027, Ireland is set to receive €396 million from the European Commission to support regional investment. The development of a national Smart Specialisation Strategy was an essential pre-requisite for Ireland to receive this structural funding, which will be supported by national co-financing, rendering the total amount available for Ireland under the ERDF at €853 million. This funding is additional to Exchequer allocations for mainstream programmes.

DETE published an updated *National Smart Specialisation Strategy for Innovation 2022-2027*¹⁸ (S3) in July 2022. S3 covered the period to 2027 and embraced a regional approach to addressing Ireland's RDI challenges. The stakeholder engagement and analysis conducted during the development of S3 identified regional economic and research strengths and emerging areas of opportunity. Many sectors, such as ICT, pharmaceuticals, agrifood and the growing renewable energy sector were identified as strengths right across the country.

S3 focuses on five priority areas:

1. Digitalisation and digital transformation;
2. Green transformation for enterprise;
3. Innovation diffusion;
4. International collaboration on RDI; and
5. Improving the national/regional enterprise R&I system.

Under S3, funding will also go to the technological universities to help fund industry-relevant research and additional staff and initiatives that help with technology transfer between SMEs and HEIs. It will also go towards training, clustering and smart hubs for entrepreneurial research and innovation.

A National Implementation Group (NIG) is responsible for ensuring delivery of S3 and coherence and promotion of S3 principles across the whole of Government.

¹⁸ <https://enterprise.gov.ie/en/publications/national-smart-specialisation-strategy-for-innovation-2022-2027.html>

ERDF CO-FUNDED PROGRAMMES THAT ARE ALIGNED WITH S3

Through EI and the RPOs, DETE is delivering four programmes supported by ERDF that are aligned with S3: Innovators' Initiative (see **Flagship Initiative 14** above); KT Boost (see **Flagship Initiative 16** above); Technology Gateways (see **Flagship Initiative 18** above); and Regional Enterprise Innovation Scoping Scheme 2022 (REISS).



21) A competitive wider business ecosystem in standards, intellectual property, finance and tax measures will be delivered.

WHITE PAPER ON ENTERPRISE 2022-2030¹⁹ (WPE)

In December 2022, DETE published the WPE. The commitments set out therein represent an ambitious vision for enterprise policy in the period to 2030, which will enable Irish-based enterprise to succeed through competitive advantage founded on sustainability, innovation and productivity, delivering rewarding jobs and livelihoods. Pillars 6 ("Stepping up Enterprise Innovation") and 7 ("Building on Strengths and Opportunities") of the WPE are very closely aligned with Pillar 3 of *Impact 2030*. The WPE includes 15 targets covering the Government's ambitions across the areas of employment and seven identified priority policy objectives:

1. Integrating decarbonisation and net zero commitments;
2. Placing digital transformation at the heart of enterprise policy;
3. Advancing Ireland's FDI and trade value proposition;
4. Strengthening the Irish-owned exporting sector;
5. Enabling locally trading sectors to thrive;
6. Stepping up enterprise innovation; and
7. Building on Ireland's existing strengths and opportunities.

On 31 May 2023, DETE published the first in a series of consecutive two-year **Implementation Plans**²⁰ to realise the vision for Irish-based enterprise as set out in the WPE, which will play a critical role in realising the vision and ambitions of *Impact 2030*. Progress on the first Implementation Plan will be monitored and reported upon every six months, with the first report due in the third quarter of 2023.

R&D TAX CREDIT²¹

The primary policy objective behind the R&D Tax Credit is to increase business R&D in Ireland because R&D can contribute to higher innovation and productivity. The Exchequer cost of the R&D credit in 2021 corporation tax returns was €753 million, a €95 million increase over 2020 and the highest since the credit was introduced in 2004. Over 1,600 companies benefitted from the R&D tax credit in 2021.

The R&D tax credit was reviewed in 2022 and a public consultation was held in May 2022. Twenty-one submissions were received from a range of respondents, including companies engaged in R&D activities, advisory firms and Government Departments.

Both the Department of Finance and DETE closely monitor international tax developments and DETE works closely with EI and the IDA to ensure that the R&D tax credit continues to incentivise companies to engage in R&D. Amendments were made to this credit in *Finance Act 2022* to align with new

¹⁹ <https://www.gov.ie/en/publication/3ea07-white-paper-on-enterprise-2022-2030/>

²⁰ <https://www.gov.ie/en/publication/fe4b1-white-paper-on-enterprise-implementation-plan-2023-2024/>

²¹ Source of Exchequer cost and number of claimants: table 11 from <https://revenue.ie/en/corporate/documents/research/ct-analysis-2023.pdf>

international norms (OECD BEPS Pillar Two²²) and related changes to the Foreign Tax Credit Regulations in the United States relating to the US minimum tax regime. Only the provisions governing the payment and/or offset of the tax credit were amended, no changes were made to the quantum of credit that a company may be entitled to claim.

DETE also liaises with industry stakeholders and EI to identify factors inhibiting take-up of the R&D tax credit by SMEs. Where opportunities are identified to enhance the attractiveness of the credit to SMEs, DETE submits proposals to the Minister for Finance as part of the annual Budgetary process.

ACCESS TO FINANCE

During 2022 and 2023, EI supported clients to explore new forms of loan, equity and grant initiatives to maximise enterprise R&I activity and access pre-seed and long-term funding. EI made their clients aware of existing instruments as well as those available from the Strategic Banking Corporation of Ireland (SBCI) and under temporary aid framework supports. EI linked clients to Seed and Venture Capital Scheme 2019-2024 funding for Start-up and post HPSUs, also through ISDs Scaling Group addressing specific needs on 1-2-1 basis where we have identified scaling potential.

The level of investment in energy efficiency by Irish SMEs is lower when compared to their European counterparts so, in July 2022, the **Energy Efficiency Loan Scheme** was offered by SBCI with the benefit of a guarantee from COSME and the European Fund for Strategic Investment. The Energy Efficiency Loan Scheme supports qualifying viable Irish businesses and primary producers (farmers/fishers) by providing access to affordable long-term finance, enabling them to invest in the energy efficiency of their enterprise.

INTELLECTUAL PROPERTY (IP)

The Intellectual Property Office of Ireland (IPOI) is the official Irish government body responsible for IP rights, including patents, designs, trademarks and copyright.

WORLD IP DAY, 26 APRIL 2023

IPOI uses World IP Day to highlight the role that IP rights play in encouraging innovation and creativity. This year, the theme of World IP Day was “*Women and IP: Accelerating Innovation and Creativity*”. As part of this celebration of women inventors, creators and entrepreneurs, IPOI conducted a five-day social media campaign highlighting Irish women entrepreneurs who have recognised the value of protecting their IP and shown the importance of IP as part of their business strategy. **EI** also hosted an event on 27 April 2023 to mark World IP Day. The event looked specifically at the need for women to get more involved in IP protection. This was complemented by a media awareness campaign²³.

²² A key part of the OECD/G20 BEPS Project is addressing the tax challenges arising from the digitalisation of the economy. In October 2021, over 135 jurisdictions joined a ground-breaking plan to update key elements of the international tax system which is no longer fit for purpose in a globalised and digitalised economy. Pillar Two is a key component of this plan and seeks to ensure that the largest MNCs pay at least tax at a rate of at least 15% on the income arising in each of the jurisdictions where they operate.

²³ <https://www.irishtimes.com/sponsored/2023/05/11/enterprise-ireland-urges-businesses-to-protect-intellectual-property/#:~:text=The%20importance%20of%20IP%20protection,is%20real%2C%E2%80%9D%20says%20Turley.>

PILLAR THREE: CASE STUDY 1

This IDA client company is at the forefront of technological advances and is now a global centre for R&D, product development and the manufacturing of world-standard medical devices.

BOSTON SCIENTIFIC, CLONMEL: NEXT GENERATION MEDICAL TECHNOLOGIES

Boston Scientific, Clonmel (BSC) was established in 1998 and designs, develops and manufactures a range of medical devices that support the treatment of more than 400,000 patients globally each year. Products created in Clonmel help patients suffering from conditions such as heart disease, neurological disorders, kidney stones and diseases of the pancreas, bile ducts and oesophagus. In addition, BSC is a significant contributor to the Irish economy, spending €48.2 million on payroll, €46.8 million on Irish materials, €12.6 million on Irish services and €8.5 million on in-house R&D annually.

BSC has been on a journey of evolution and transformation with proactive support and partnership from IDA over the past ten years. In May 2023, BSC's US parent, Boston Scientific Corporation, announced an €80 million investment in its Clonmel operations at an event celebrating the site's 25th anniversary. The funding, supported by the Irish Government through the IDA, will go towards the continued expansion of the company's medical technology manufacturing and R&D capabilities and is expected to enable over 400 jobs in the coming years. Hiring is underway for positions in highly specialised roles within production, engineering, quality, supply chain and R&D functions.

This €80 million investment will allow BSC to complete two major strategic R&D projects in Next Generation Implantable Devices and Next Generation Non-Implantable Devices, with a total proposed R&D spend of €93.5 million. This R&D will yield major technical uplift to the site in terms of engineering, knowledge of materials, product and component miniaturisation, embedded software and electronics, all leading to smaller, better, more functional smart connected medical devices. The subsequent standardisation in technology, design and production across Boston Scientific will place the Clonmel site firmly as a global centre for R&D, product development and the manufacturing of world-standard medical devices and set new standards for competitors to follow.

These next generation Implantable and Non-Implantable Devices projects will leverage and extend existing collaborations with Irish academic and research groups, including Bernal Institute at UL, AMBER at TCD, Tyndall at University College Cork, SFI CURAM Centre, TCD Biomedical Group, Dublin City University School of Mechanical and Manufacturing Engineering and SEAM Technology Gateway at South East TU.

PILLAR THREE: CASE STUDY 2

This is an excellent example of the public research system supporting industry and ensuring consumer safety through proactive and effective collaboration that resulted in research commercialisation.

TEAGASC: INDUSTRY ENGAGEMENT AWARD, 2022 KTI'S IMPACT AWARDS²⁴

EU legislation requires monitoring of chlorate residues in milk and dairy powders – arising from chlorine-based disinfectant use. Consequently, dairy ingredient manufacturers need a high-throughput sensitive test to ensure product quality adheres to infant formula specifications. In 2016, following urgent requests from the Irish dairy industry to develop a rapid, sensitive chlorates test for milk and dairy ingredients, a novel proprietary high-throughput test was validated at Teagasc's laboratories, receiving ISO17025 certification a year later. Exponential growth in demand for the accredited test provided an opportunity for Teagasc to transfer its technology and related expertise to commercial labs (for service provision to clients) and milk processors (for internal testing).



As part of this collaborative and technology transfer process, Teagasc partnered with Independent Milk Laboratories (IML), which offers commercial services to analyse milk constituents; FBA Laboratories, which provides analytical services to agribusiness, farmers and veterinary practitioners; and Kerry Group, which provides technology-based taste and nutrition solutions for food, beverage and pharmaceutical markets, including infant formula.

Following the licensing of proprietary standard operating procedures (SOPs) to the companies, Teagasc supported the establishment of the industry partners' new analytical laboratories – including operation, design, layout, services, equipment and staffing – through consultancy. This combined licensing-consultancy route to commercialisation sets an excellent precedent to develop specialised analytical tests for Irish food processors that, once proven, can then be successfully commercialised by industry.

The project has enhanced the reputation of Teagasc at home and abroad in being able to support industry and, in particular, the wider agrifood sector in Ireland. This is key to maintaining Irish dairy's excellent reputation, while ensuring consumer safety. Such significant impact was awarded the Industry Engagement Award at the 2022 KTI's Impact Awards.

²⁴ The image of Moorepark Animal & Grassland Research and Innovation Centre is courtesy of Teagasc.

Pillar Four

Talent at the Heart of the R&I Ecosystem

Pillar Four seeks to ensure that researchers have the right skills and opportunities to make their maximum contribution, whether in academia, industry, the public sector, civic society or internationally. It promotes diversity and inclusion to ensure that the research community is reflective of society and provides opportunities for all. It fosters a consistent research student experience that enhances researchers' transversal skills and career pathways.

Progress under Pillar Four



22) Connectivity between Irish R&I capability and the wider skills development agenda, including lifelong learning, will be strengthened, building on the insights from the OECD project to review Ireland's Skills Strategy.

OECD IRELAND SKILLS STRATEGY REPORT

The **OECD Ireland Skills Strategy Report** was published on 9 May 2023. This report is the result of detailed policy analysis and extensive stakeholder engagement. It found that the following aspects of Ireland's skills system need to be improved:

- **Governance** is complex and there are significant opportunities for further improvement.
- Although the proportion of young adults with a tertiary degree is significantly above the OECD average and c. 75% of undergraduate entrants finish their degree, **completion rates** vary significantly across sectors, educational institutions, fields of study and student cohorts.
- Many Irish adults are at risk of falling behind because they **do not have the right skills to thrive** in their current employment and are unprepared for changes in the world of work.
- Irish adults' participation in **lifelong learning** to facilitate essential reskilling and upskilling is above the EU average, but falls behind top EU performers by as much as 40%.
- The skills of some adults could be more fully **activated** in the labour market, including adults with low levels of education, women and people with disabilities.
- Irish employers express great concern about labour and skills gaps. **Skills imbalances** in the labour market are relatively high, including i) skills mismatches, which occur when a worker's skills exceed or fall short of those required for the job; and ii) skills shortages, particularly in the areas of digital skills; science, technology, engineering and maths (STEM) skills; and management skills.
 - A comparatively large share of workers is over-qualified (i.e. has a higher qualification than required for the job), leading to productivity loss and wage penalties for individuals.
 - Management capability needs to be improved, particularly among SMEs.
- Strengthening **R&I** could help raise the demand for skills.
 - There are relatively low rates of innovation within enterprises and large differences in the use of skills and the adoption of best practices between MNEs and SMEs.
- **Workplaces** in Ireland could be better designed to stimulate the use of workers' skills through, for example, greater focus on high-performance work practices such as work flexibility and teamwork (which is strongly associated with higher levels of productivity and better business performance).

DFHERIS officials will respond to these recommendations by working with stakeholders to sequence and prioritise investments to enhance Ireland's skills outcomes. This will include examining: (i) options for updating Ireland's legislative framework to be in line with today's skills agenda; and (ii) whether the National Training Fund needs to be modernised to ensure that it remains focused on national skills priorities, having regard to future trends and needs.



23) Nurturing and attracting R&I talent, at all career stages, will be a core mission of the new R&I competitive funding agency under the Department of Further and Higher Education, Research, Innovation and Science. It will develop a talent programme to support researchers not only in their early stages, but also at mid-career: building on the existing successful IRC Laureates and SFI Pathways initiatives.

TALENT PROGRAMME TO SUPPORT RESEARCHERS

Subject to the timely completion of the transitional and operational programme of work required to establish the new R&I funding agency (**Flagship Initiative 1** under Pillar One) and the successful passage of the enacting legislation through the Houses of the Oireachtas (**Flagship Initiative 2** under Pillar One), the new agency is intended to be operational by 1 January 2024. This is necessary before Flagship Initiative 23 can be progressed. As an initial measure in the interim, Minister Harris appointed Dr Andrea Johnson and David Cagney to undertake an independent *National Review of State Supports for PhD Researchers*.

INDEPENDENT NATIONAL REVIEW OF STATE SUPPORTS FOR PHD RESEARCHERS

The Review was announced in October 2022 and the independent Co-Chairs were appointed in November 2022. As outlined in the Terms of Reference, the Review is considering a range of critical issues including stipend levels, visa conditions for non-EU students and the adequacy, consistency and equity of supports across the system. There are very significant complexities involved and options will need very careful consideration as part of the Review.

The Co-Chairs concluded a very comprehensive round of stakeholder consultations and online submissions, with 35 stakeholder meetings held and over 750 written submissions received. The Co-Chairs recently provided their first report to Minister Harris, which indicated that further work and engagement is required with respect to some aspects of the terms of reference, particularly with respect to the status of PhD researchers.



24) Researchers, including research students, will be equipped with skills and career support to advance their own development and to maximise the impact of skilled people emerging from the research system across all sectors in Ireland.

OECD IRELAND SKILLS STRATEGY REPORT

In addition to its recommendations around skills, the OECD Ireland Skills Strategy Report (as discussed under **Flagship Initiative 22** above) contributes to the evidence base around demand for research talent and will inform future policy development under this Flagship Initiative. In the interim, existing measures to improve researchers' career paths will continue; a sample of these is highlighted below.

IRISH CLINICAL ACADEMIC TRAINING (ICAT) PROGRAMME

The HRB aims to strategically invest in research leadership and build capacity among academic researchers and health practitioners to respond to current and emerging health research needs. In 2022, then Taoiseach Micheál Martin launched the second phase of the HRB-funded ICAT programme. With a combined investment of €21.3 million, this all-island programme offers integrated clinical and research training for 42 fellows in medicine, dentistry and veterinary medicine. A total of 81 fellows will be supported over both cycles of the programme.



25) Aligned with national policies for equality, diversity and inclusion, efforts will be made to ensure that the Irish research community is fully reflective of wider society, informed with a report on equality, diversity and inclusion to identify system-level issues that should be addressed.

EQUALITY, DIVERSITY AND INCLUSION (EDI)

In November 2022, Minister Harris launched the *Report of the Expert Group: Second HEA National Review of Gender Equality in Irish Higher Education*²⁵. The Review was launched in March 2022 and was carried out by a six-person Expert Group, chaired by Niamh O'Donoghue, former Secretary General of the Department of Social Protection, and consisted of national and international members with relevant expertise and experience. The review makes a number of recommendations, including that HEIs should develop EDI strategies and action plans that seek to effect change in a way that centralises an intersectional approach to equality issues. Each of the Expert Group's high level recommendations to HEIs are accompanied by a set of indicators. The HEA will monitor progress against these indicators on an annual basis.



26) The new R&I agency under the Department of Further and Higher Education, Research, Innovation and Science, in partnership with the HEA and other stakeholders, will help to improve career pathways into wider sectors, so that researchers can maximise their impact on all forms of organisations throughout Ireland (and beyond), while also realising their own potential.

IMPROVED CAREER PATHS

Subject to the timely completion of the transitional and operational programme of work required to establish the new agency (**Flagship Initiative 1** under Pillar One) and the successful passage of the enacting legislation through the Houses of the Oireachtas (**Flagship Initiative 2** under Pillar One), it is expected that the legislation will be enacted by late 2023 and the new agency established in January 2024. In the interim, there are a range of existing measures designed to support and improve researchers' career paths; a sample of these is highlighted below.

SFI FRONTIERS FOR THE FUTURE PROGRAMME (FFP)

FFP provides opportunities for independent investigators to conduct highly innovative, collaborative research with the potential to deliver impact, including high-risk, high-reward research projects. FFP also seeks to address gender imbalance and to support Emerging Investigators who may be returning to research after a period of leave.

INNOVATE FOR IRELAND

Innovate for Ireland, an ambitious partnership between industry and Government, was announced in July 2022. Its objective is to attract top doctoral students to Ireland. Subject to matched funding by private investors, a multi-million euro investment will be made by the State over the course of a number of years. The programme will embrace all relevant disciplines and will be open to Irish and international students. DFHERIS is continuing its dialogue with private collaborators to develop the programme.

²⁵ <https://hea.ie/assets/uploads/2022/03/Report-of-the-Expert-Group-2nd-HEA-National-Review-of-Gender-Equality-in-Irish-Higher-Education-Institutions.pdf>

PILLAR FOUR: CASE STUDY 1

THE IMPORTANCE OF EDI IN DRUG TESTING²⁶

Historically, drug testing has been conducted predominantly on males. As female and male bodies metabolise drugs differently, women report more unwanted, sometimes deadly, side effects than men.

SEX DIFFERENCES IN DRUG PROCESSING

IN WOMEN		PHYSIOLOGICAL DIFFERENCES	IN MEN	
		Body Composition		
SLOWER PROCESSING OF MOST DRUGS	↑	Fat Mass	↓	FASTER PROCESSING OF MOST DRUGS
MORE ACCUMULATION OF LIPOPHILIC DRUGS	↓	Lean Mass	↑	LESS ACCUMULATION OF LIPOPHILIC DRUGS
DIFFERENT CONCENTRATIONS OF HYDROPHILIC DRUGS (ALSO THROUGHOUT THE MENSTRUAL CYCLE)	↑	Free Water	↓	DIFFERENT CONCENTRATIONS OF HYDROPHILIC DRUGS
HIGHER RESTING HEART RATE	↑	Heart Rate Variation	↓	LOWER RESTING HEART RATE
LONGER QT INTERVALS				SHORTER QT INTERVALS
HIGHER RISK OF ARRHYTHMIAS				LOWER RISK OF ARRHYTHMIAS
SLOWER ABSORPTION OF DRUGS	↓	Gastric Motility	↑	FASTER ABSORPTION OF DRUGS
DIFFERENT EXPRESSION OF CYTOCHROME P450 (E.G. CYP3A4 MORE IN WOMEN)	↓	Stomach Acidity	↓	DIFFERENT EXPRESSION OF CYTOCHROMES p450 (CYP; E.G. CYP2D6 AND CYP2E1 MORE IN MEN)
ESTROGENS AND PROGESTERONE COMPETE WITH DRUGS FOR DEGRADATION BY CYP450		Liver Enzymes		
SLOWER EXCRETION OF DRUGS	↓	Kidney Excretion	↑	FASTER EXCRETION OF DRUGS
SLOWER ELIMINATION OF DRUGS	↓	Colon Motility	↑	FASTER ELIMINATION OF DRUGS

Women tend to have smaller body size and more fat tissue than men, which affects drug distribution, and smaller kidneys, which leads to slower drug elimination. Liver enzymes may behave differently because of oral contraception and some hormone therapy. Women's heart rhythms are different from men's (longer QT interval), which makes women more susceptible to fatal heart disturbances, called arrhythmias. © Sabine Oertelt-Prigione.

PILLAR FOUR: CASE STUDY 2

NEUREKA: LED BY DR CLAIRE GILLAN, GLOBAL BRAIN HEALTH INSTITUTE, TCD

Research has identified myriad environmental, biological and behavioural risk factors for mental health conditions, which affect one in four people worldwide. However, because the lived experience and biology of each person is so complex, it has proven difficult to translate these findings into actionable insights, such as new treatments or prevention methods. The Neureka team, funded by SFI Frontiers for the Future Programme and a European Research Council Starting Investigator Award, aim to tackle this using data science and, in particular, a smartphone app called Neureka.

Neureka gathers repeated cognitive and clinical measurements from thousands of individuals over time to interrogate the dynamics of mental illness on an entirely new scale. Neureka has over 25,000 registered users from more 120 countries around the world. This 'big data' allows the team to figure out new ways of keeping mental health problems at bay and promoting resilience to late life cognitive decline.

²⁶ Based on the "Prescription Drugs: Analysing Sex and Gender" case study in *Gendered Innovations 2: How Inclusive Analysis Contributes to Research and Innovation* (European Commission Policy Review, July 2020).

Pillar Five

All-Island, EU and Global Connectivity

R&I is already part of a positive agenda of co-operation on the island of Ireland (where it is an important part of the Government's *Shared Island* initiative), on an East-West basis, within the EU and with selected international partners, with the potential for this to grow. Pillar Five continues to help Irish-based researchers and innovators to collaborate with the best in their field, and outside it, to enhance the quality of R&I outcomes and the career experience of those involved. It will also advance Ireland's international education and R&I footprint, both through existing collaborations (the European Research Area, Horizon Europe and the US-Ireland Research and Development Partnership) and by advancing Ireland's international education, research and innovation footprint.

Progress under Pillar Five



27) Develop sustainable all-island R&I collaborations, building on the North-South Research Programme.

NORTH-SOUTH RESEARCH PROGRAMME

The North-South Research Programme (NSRP) is funded by the Government's *Shared Island* initiative and delivered by the HEA on behalf of DFHERIS. In July 2021, funding of €40 million was allocated to the NSRP and a further €10 million was announced by the Department of the Taoiseach in December 2022, bringing the total funding for NSRP to €50 million.

The NSRP funds projects from across all to focus on delivering an all-island approach to R&I that is informed by the objectives of the Good Friday Agreement, Sustainable Development Goals, the National Development Plan 2040 and the strategic development of research and higher education. Each funded project serves to strengthen links between HEIs, research communities and researchers across the island of Ireland.

Funding under the first call under NSRP was allocated in October 2022. Funding was awarded on the basis of excellence, assessed through a rigorous and independent international peer-review process. Feedback was provided to all 367 applicants who provided an expression of interest and, in 2022, funding was announced for 62 projects across three strands to a value of over €37 million, including HEA co-funding.

CO-CENTRE PROGRAMME

The Co-Centre Programme, launched in November 2022, is an exciting opportunity for researchers to build strategic collaborative partnerships across Ireland, Great Britain and Northern Ireland through the formation of a Co-Centre. The programme will establish virtual Centres of distributed excellence linking researchers across academia and industry to perform cutting-edge research in areas of mutual economic, societal, health and environmental importance. Co-Centres will be structured according to the existing SFI model and will be funded by all three jurisdictions (Ireland: SFI; Northern Ireland: Department of Agriculture, Environment and Rural Affairs (DAERA); Great Britain: UK Research and Innovation (UKRI)) and co-funded by industry. Funding of €40 million has been provided to SFI through the Shared Island Fund and DFHERIS for the Co-Centre programme. DAERA has a budget allocation of up to £17 million (approximately €20 million) for the programme and UKRI has a budget allocation of up to £12 million (approximately €14 million), which together represent a joint investment of €74 million.

The overall ambition of the Co-Centre Programme is to create a dynamic research network across Ireland, Great Britain and Northern Ireland. This will be led by a cross-jurisdictional collaboration of academic partners working together with industry and other key stakeholders to bring scale, standing and cohesion to the R&I ecosystem. The Co-Centre Programme encourages high quality research and innovation whilst also delivering economic, societal, health and environmental impacts.



28A) Participate in the revitalised European Research Area, grounded in Ireland's R&I priorities and shared EU goals.

EUROPEAN RESEARCH AREA (ERA)

R&I are a shared competence between the EU and Member States. Following the adoption of the new ERA policy framework, Member States were asked in May 2022 to identify which of the agreed **ERA priority actions** they would commit to implementing at national level over the 2022-2024 period. Ireland focused on actions where participation offered clear added value for the participating Departments/Agencies and those that were closely aligned with the priorities in *Impact 2030* and other strategies and plans. Following consultation with stakeholders, Ireland agreed to implement ten actions:

Action	Description	Lead Department
#1	Mainstreaming open science practices	DFHERIS
#3	Reforming the research assessment system	DFHERIS
#4	Promoting attractive and sustainable research careers	DFHERIS
#5	Promoting gender equality and fostering inclusiveness	DFHERIS
#6	Protecting academic freedom and tackling foreign interference	DFHERIS
#7	Promoting knowledge valorisation	DETE
#9	Supporting international cooperation	DFHERIS
#11	Supporting the green transformation	DECC
#12	Developing and implementing industrial technology roadmaps	DETE/DECC
#19	Contributing to the development and implementation of the new ERA monitoring framework	DFHERIS

The focus for 2023 is on progressing implementation of the ERA actions at national level – this includes progressing activities agreed in *Impact 2030* and other national strategies and plans – and contributing to European level activities of relevance to the Irish R&I community.

One of the most important ERA actions is the cross-cutting action to reform **research assessment**, which will play a significant role in optimising the contribution that R&I can make to wider economic and societal priorities at national and European level. In March 2023, DFHERIS brought together a wide range of R&I stakeholders at a workshop to help raise awareness of the European reform initiative and explore the barriers to reform in Ireland. As of June 2023, 12 Irish research funders and higher education institutions are members of the Coalition for Advancing Research Assessment (CoARA).

For a small open economy like Ireland, strengthening **international R&I collaboration** is very important. However, as R&I become increasingly geopolitical, we need to focus our attention on finding the appropriate balance between managing the risks of international cooperation and continuing to collaborate where it is in our mutual interests to do so. DFHERIS is engaging with research performers and funders to raise awareness of the risks and the tools available to their organisations to help mitigate them.



28B) Leverage other EU and international opportunities for the strategic development of Ireland's R&I system.

US-IRELAND R&D PARTNERSHIP

The US-Ireland R&D Partnership is a unique initiative involving agencies in the United States (US), Ireland and Northern Ireland that fund R&I in their respective jurisdictions. The Partnership was formally launched in July 2006 and was developed on the Good Friday Agreement principles of “equality, partnership and mutual respect”. Although the Good Friday Agreement did not specifically identify R&D as a potential area of cooperation, it did identify sectors such as health, environment, and agriculture. The Partnership is a tangible outcome of the US contribution to the peace process and a model for international co-operation in R&D.

The purpose of the US-Ireland R&D Partnership is to accelerate economic development and cooperation across borders by encouraging trilateral research collaboration between the US, Ireland and Northern Ireland. As of March 2023, the Partnership has funded 86 projects valued at €141.068m.

The Partnership is currently exploring options to commercialise the research it funds and to develop the transversal and entrepreneurial skills of participants from the island of Ireland. This involves collaboration with the NSF's Directorate for Technology, Innovation and Partnerships (TIP), which fosters innovation and technology ecosystems; carves out new translation pathways to help researchers to prototype and develop new technologies and solutions; and strengthens workforce development.



28) Implement structures and supports necessary for Ireland to participate fully in Horizon Europe and achieve a drawdown target of €1.5 billion.

HORIZON EUROPE

Horizon Europe is the EU's ninth and current Framework Programme for R&I. Operating from **2021-2027**, Horizon Europe will distribute **€95.5 billion** to fund R&I activities across the EU Member States and a number of Associated Countries. CION administers Horizon Europe funding directly, primarily through open competitive calls where researchers submit proposals for grants.

Horizon Europe is the **most important non-Exchequer source of research funding** in the Irish third-level sector and offers significant supports for start-ups and SMEs. Ireland set a target of drawing down €1.5 billion from Horizon Europe. As of 31 May 2023, the official combined drawdown by the Irish research community was **€395.3 million**, with just over four and a half years remaining in the programme. This places Ireland on track to meet or exceed the €1.5 billion target.

At the strategic level, DFHERIS has overall lead responsibility for Horizon Europe engagement and coordinates cross-departmental policy through a High-Level Group, as well as representing Irish interests in EU policy dialogues, including the Strategic Programme Committee, the Research Working Party, the Partnership Knowledge Hub and the five Mission Working Groups. Currently, the **Horizon Europe Work Programme 2023-2024** is in the early stages of implementation and the **Horizon Europe Strategic Plan 2025-2027** was developed with extensive input from Irish delegates on the various Programme Committees, which will set a course for increased collaboration with European partners. The **Horizon Europe Strategic Plan 2025-2027 Analysis**²⁷ was published on 25 May 2023 and

²⁷ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/strategic-plan_en#documents

provides a solid evidence base to underpin the development of the next Horizon Europe Strategic Plan, as set out in the legal basis. The Analysis makes it clear that addressing the climate crisis requires action on all fronts, which includes transformative innovation policies as well as policies aimed at maintaining economic and social resilience.

At the operational level, EI hosts a **National Support Network** of field experts, which plays an essential role in helping the Irish research community to navigate the European funding ecosystem. The field experts disseminate practical information about grant opportunities to the relevant stakeholders and work to maximise the benefits to the Irish research community. This includes identifying potential beneficiaries for new funding programmes and alleviating the administrative burden of applications. The Network is staffed by National Contact Points (NCPs), who may be employed full time or in combination with another research-related role. There are dedicated NCPs for each sub-programme within Horizon Europe, encompassing all disciplines as well as basic and advanced research.



29) Strengthen Ireland's global footprint with the launch and implementation of the new international education, research and innovation strategy.

INTERNATIONAL EDUCATION, RESEARCH AND INNOVATION STRATEGY

The 2020 Programme for Government, *Our Shared Future*, included a commitment to a review and update Ireland's international education strategy. To inform the new Strategy, DFHERIS commissioned Indecon Economic Consultants to conduct an independent review²⁸ of the 2016-2020 strategy, *Irish Educated Globally Connected*. Based on detailed engagements with stakeholders, the review concluded that the strategy has been extremely effective in achieving its overall objectives. The review undertook a cost-benefit analysis (CBA) which concluded that international education added €2.38 billion per year to Ireland's economy. The publication of the new international talent and innovation strategy is expected in the coming months.

²⁸ <https://assets.gov.ie/215949/cbf7a270-db5a-4717-9507-bb97a8d14e06.pdf>

Appendix 1: Updated Metrics

Metric	Baseline	Current	2030 Target	Source
European Innovation Scoreboard	Strong Innovator 11 th place (2021) (108% of EU Average)	Strong Innovator 9 th place (2023)	Innovation Leader (125% of EU Average)	European Commission's <i>European Innovation Scoreboard</i>
Gross (public and private) Expenditure on R&D as % of GNI*	2.2% (2020)	2.1% (2021)	2.5%	DFHERIS's annual <i>R&D Budget Survey</i>
Business Expenditure on R&D (BERD)	€3.4 billion (2020)	€3.9 billion (2021)	2024: €4.2 billion (+25% vs baseline) 2030: €6.8 billion (+100% vs baseline)	CSO's biennial <i>Business Expenditure on R&D Survey</i>
Increase private funding of R&D performed in the higher education sector	€48 million (2018/19)	€46 million (2020/21)	€100 million	DFHERIS biennial <i>Higher Education R&D Survey</i> (this does not include Innovate for Ireland commitments)
Researchers (Full Time Equivalents) per 1,000 in the Labour Force	9.52 (2019)	11.18 (2020 estimate)	15.00	DFHERIS's annual <i>R&D Budget Survey</i> ; CSO's Q4 <i>Labour Force Survey</i>
Increase indigenous enterprise productivity (value added per person employed in EI client companies)	1.95% average annual increase (2018-2020)	3.5% average annual increase (2018-2021)	2.5% average annual increase (2018-2024)	DETE's <i>Annual Business Survey of Economic Impact</i>
Increase high potential start-ups from academic research	12 (2021)	13 (2022)	30	Enterprise Ireland's Annual Reports
Drive Horizon Europe participation and impact	€1.2 billion under <i>Horizon 2020</i> (2014-2020)	€395.3 million under <i>Horizon Europe</i> (2021-31/05/2023)	€1.5 billion under <i>Horizon Europe</i> (2021-2027)	European Commission/ Enterprise Ireland
How informed the public feel about R&I in STEM	65% (2021)	n/a (no updated <i>Science in Ireland Barometer</i> yet)	80%	Science Foundation Ireland's <i>Science in Ireland Barometer</i>

Appendix 2: Summary Progress Report (to 31 May 2023)

Status	No.	Pillar	Description
✓	1	One	A new national agency will be established to realise this Strategy's vision of R&I at the heart of Ireland's economic development and its response to grand challenges. This will amalgamate and build on the strengths of the IRC and SFI.
✓	2	One	A landmark Research Bill will be brought forward by the Minister for Further and Higher Education, Research, Innovation and Science, to give effect to the proposed new R&I competitive funding agency. We will also use this opportunity to consider wider aspects of national research policy.
✓	3	One	The National Grand Challenges Programme will use mission-oriented challenges to incentivise researchers to deliver tangible impacts for society in areas such as health, agriculture and climate.
✓	4	One	The impact of the public research system on policymaking will be strengthened by a dedicated Evidence for Policy function in DFHERIS which will build connections between researchers and those working across Government on policy development and/or its implementation.
✓	5	One	New science advice structures will be established to connect networks of research capability with Government priorities and needs for expertise.
✓	6	One	People across Ireland will be given the opportunity to inform the research process , starting with <i>Creating Our Future</i> outputs.
✓	7	One	The Irish R&I system will maximise its impact on critical sectoral agendas of Government Departments, agencies and all stakeholders.
✓	8	Two	Undertake a review of Ireland's R&I system to examine the impact of investment to date on national agendas, thereby informing future policy direction, public investment and any future evolution of research prioritisation, as well as providing a baseline for the ongoing evaluation of impact.
✓	9	Two	Establish a new Policy Advisory Forum on Research and Innovation as a platform for the research and innovation community to engage with Government to optimise the potential and impact of the R&I system.
✓	10	Two	Strengthen governance and oversight structures to deliver the vision and ambition of this Strategy with the establishment of an Impact 2030 Steering Group of key R&I Government Departments, supported by an Impact 2030 Implementation Forum .
✓	11	Two	Expand Technological University research capabilities , beginning with the strengthening of their R&I offices, to maximise their impact in their regions.
✓	12	Two	Develop an infrastructure investment framework that will identify ready-to-go projects, thereby optimising any agreed re-allocation of NDP underspends to R&I funding.
✓	13	Two	Ensure that Irish research practices reflect latest R&I policy developments and leverage the HEA's central role in the HE research system with its new legislation.
✓	14	Three	Enterprise innovation capability will be broadened and deepened , increasing the number of enterprises and SMEs investing in RD&I, increasing numbers of new high-value, IP rich start-ups from research, linking our multinationals, SMEs and innovation system and public policy, increasing the number of female founders from research, and embedding a culture of continuous innovation.

Status	No.	Pillar	Description
✓	15	Three	Our network of research and development centres and facilities will be developed to ensure that Ireland is at the forefront of technological advances, including in advanced manufacturing 5.0, life-sciences and bioprocessing, ICT, food and agri-tech, space and energy sectors, and to embrace and respond to the twin challenges of climate and digital transition.
✓	16	Three	Industry-academic collaboration and research commercialisation will be cultivated, with implementation of a new Knowledge Transfer Ireland programme, and simplifying the routes for enterprise to engage with the public research system.
✓	17	Three	Skills and talent from our research and higher and further education systems will be aligned with enterprise needs , including growing the number of 'researchers' to 15 per 1,000 employed in the Labour Force from 10 per 1,000 currently, and fully embracing lifelong learning.
✓	18	Three	Innovation solutions will be developed to enable all sectors of our enterprise base and society, including our agriculture, construction, transport and energy sectors, to embrace and respond to the twin challenges of climate and digital transition.
✓	19	Three	A major increase will be driven in digital adoption and transformation by Irish based enterprise, helping to strengthen competitiveness and productivity; including through launch of the Digital Transition Fund.
✓	20	Three	Levels of innovation performance in enterprise will be increased across our regions and opportunities for innovation diffusion will be maximised through Smart Specialisation .
✓	21	Three	A competitive wider business ecosystem in standards, intellectual property, finance, and tax measures will be delivered.
✓	22	Four	Connectivity between Irish R&I capability and the wider skills development agenda , including lifelong learning, will be strengthened, building on the insights from the OECD project to review Ireland's Skills Strategy.
✓	23	Four	Nurturing and attracting R&I talent, at all career stages, will be a core mission of the new R&I competitive funding agency under DFHERIS. It will develop a talent programme to support researchers not only in their early stages, but also at mid-career: building on the existing successful IRC Laureates and SFI Pathways initiatives.
✓	24	Four	Researchers , including research students, will be equipped with skills and career support to advance their own development and to maximise the impact of skilled people emerging from the research system across all sectors in Ireland.
✓	25	Four	Aligned with national policies for equality, diversity and inclusion , efforts will be made to ensure that the Irish research community is fully reflective of wider society, informed with a report on equality, diversity and inclusion to identify system-level issues that should be addressed.
✓	26	Four	The new R&I agency under DFHERIS, in partnership with the HEA and other stakeholders, will help to improve career pathways into wider sectors, so that researchers can maximise their impact on all forms of organisations throughout Ireland (and beyond), while also realising their own potential.
✓	27	Five	Develop sustainable all-island R&I collaborations , building on the North-South Research Programme.
✓	28	Five	Maximise Irish engagement in the European Research Area and develop other global connections in our pursuit of international collaborations that are underpinned by excellent research and that deliver clear impact.
✓	29	Five	Implement structures and supports for Ireland to participate fully in Horizon Europe and achieve a drawdown target of €1.5 billion.
✓	30	Five	Strengthen Ireland's global footprint with the launch and implementation of the new international education, research and innovation strategy .

Appendix 3: Detailed Progress Report (to 31 December 2022)

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1	Maximising the Impact of Research and Innovation on the Economy, Society and the Environment <i>Research and innovation makes a real and positive impact – across society, the economy and the environment: improving social wellbeing, our economic prosperity and sustainability.</i>				
1.1	Our Public R&I System Foundations				
1.1.1	Improved Agency Structures				
	Create a new national R&I funder that will drive interdisciplinary research, underpinned by research excellence in all disciplines that maximises its impact on grand challenges.	Prepare for and progress creation of new competitive funding research agency, bringing together existing functions and activities of the IRC and SFI in one agency.	DFHERIS IROP	The Minister and Departmental officials met with the board of SFI and the IRC, and officials met with the HEA board to discuss initial plans for the new agency. All parties are committed to constructive ongoing engagement. Plans for the new agency have also been discussed with the <i>Impact 2030</i> Steering Group in terms of how the agency can work optimally with the funding agencies of other Government Departments.	Underway
	Enact a new Research Bill.	Draft a Research Bill to legislate for amalgamation of the functions and activities of the IRC and SFI in a new competitive funding research agency and wider aspects of national research policy as appropriate.	DFHERIS IROP	Initial scoping work was undertaken to inform draft legislative proposals required to create the new competitive funding agency. A High Level Group on the Research Bill was established in October 2022 to advance engagement with the Executives of the HEA (the legal entity under which the IRC operates) and SFI.	Underway
	Reflect Higher Education's research mission appropriately in sustainable future funding approaches.	Ensure higher education institutions' research mission and associated sustainability requirements are appropriately reflected in a future sustainable funding model for higher education.	DFHERIS HEF	1. Quantifiable gap in core system funding of Eur307m agreed with D/PER in April 2022. Memo to government outlining the Department's policy response, Funding the Future, approved in May 2022, and Steering Group for the policy launched in June 2022. First tranche of recurrent funding of Eur40m secured in Estimates for Budget 2023. 2. Options paper on reducing the cost of HE published in advance of the Estimates process. Eur 17.8m of the 40m secured in Budget 2023 has been earmarked to specifically address strategic uplift in our Technological Universities in preparation for enhanced Research activities there.	Underway
	Drive a step-change in Ireland's challenge-based R&I activity and approach.	Roll out the National Grand Challenges Programme.	SFI	Round 1 of the National Challenge Fund was launched in July 2022 with a deadline in October 2022. Twenty-six teams were notified of successful funding in December 2022. Round 2 of the National Challenge Fund launched in October 2022, with a deadline of February 2023.	Underway
		Draw on learnings from National Grand Challenges Programme to inform challenge-based and multidisciplinary appropriates to R&I activity.	DFHERIS IRDP	This action is assigned to DFHERIS and the R&I Policy Advisory Forum. The action is not yet scheduled to commence, given that the National Challenges Fund is still underway and DFHERIS is currently developing the terms of reference for the R&I Policy Advisory Forum.	Not yet scheduled to commence
1.1.2	Accessible Research Expertise				
	Strengthen connections between Government Departments and the public research system.	Identify the research needs of Government Departments, starting with a DFHERIS research needs analysis pilot.	DFHERIS EFP	1. Linked to strategic objective to strengthen the impact of public research system on policymaking. Work undertaken in 2022 to progress a framework to enhance long term linkages between the public policy and research sectors. This includes consultation with stakeholders across the system and build support for a more coherent approach to engagement. 2. DFHERIS Sectoral Research and Evaluation Group established. DFHERIS baselining papers on major areas of sectoral crossover are in development. 3. System outcomes paper finalised.	Underway
		Support the Department of Environment, Climate and Communications in developing a Research and Innovation Strategy.	DECC DHLGH/ Met Éireann	DECC R&I Strategy Terms of Reference have been agreed. Engagement with DECC/DECC agencies colleagues in support of their R&I strategy work.	Underway Underway
	Embed R&I at the centre of public policy development.	Improve the flow of scientific advice provided to Government by research through the establishment of new science advice structures.	DFHERIS IROP	A public consultation was held over summer 2022 to get insights on what the sourcing of science advice might look like in the future, from interested stakeholders and the wider public.	Underway
		Identify initiatives and programmes to strengthen links between researchers and public policy makers.	DFEHRIS EFP	HE Research Group established to inform the development of an action plan. Civil Service Research Network approved by CSMB in December.	Underway
			DCEDIY	1. On 25 September 2022, a report titled "Ensuring the collaborative reform of youth justice in Ireland in line with international research and evidence based approaches" by Ursula Kilkelly et al was published. This report was commissioned and funded by the DCEDIY through the Collaborative Alliances for Societal Changes (COALESCE), an initiative managed by the Irish Research Council (IRC). 2. The 2023 Government of Ireland Postgraduate Scholarship in Childhood Disadvantage was awarded in 2022 for the first time. The scholarship will be awarded to between 1 and 3 recipients a year. 3. Through the DCEDIY research framework, in 2022, DCEDIY commissioned research on a number of topics including on the Public Consultation on the New Policy Framework for Children and Young People 2023-2028, Children in poverty (methodological advice), Conversion therapy, Needs of the older LGBTI+ population, LGBTI+ residents in IPAS accommodation, Support for parents of LGBTI+ children, Mother and Baby Homes Language And Terminology Report, Pregnancy loss in the workplace, Gender recognition for under 16 year olds. 4. In May 2022, Growing Up in Ireland had its annual conference. There were 7 presentations from researchers on diverse topics, all of which showcased the policy relevance of their GUI based research. In 2022, there were at least 22 external research academic publications, which used GUI data. GUI data is one of the most used datasets in Ireland by researchers and academics and it helps them better understand topics about growing up in Ireland today. 5. In 2022, DCEDIY held three research clubs in a series of research seminars in collaboration with UCD Equality Studies Centre on equality topics. The purpose of these sessions were to provide staff with academic insights into policy challenges in relation to equality. All staff of the DCEDIY were invited as were the agencies under our remit and other interested civil servants.	Underway
			DHLGH/ Met Éireann	In-house expertise/development and funding/monitoring of R&I. Linking researchers and policy/decision makers (e.g. emergency management, built environment, transport, etc.). For example, in-house development and funding of climate services to support climate resilience planning and decision making.	Underway
			GSI	GSI have developed and are driving research in collaboration with academic partners to support (i) Geothermal Energy Policy, (ii) Critical Raw Materials policy and to (iii) address issues with construction materials w/DHLGH and (iv) groundwater resource assessments	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1.1.2	Accessible Research Expertise (<i>continued</i>)				
			SEAI	SEAI launched the 2022 SEAI National Energy Research, Development & Demonstration (RD&D) Funding Programme in April 2022, with awards issued in Dec 2022. Prior to call launch, the annual SEAI RD&D cross-governmental and agency stakeholder consultation was undertaken to define energy research and policy priorities to inform this annual Call. Following this consultation, 25 research topic priorities were included within the 2022 Call, with co-funding partners including Dept. of Agriculture Food & the Marine, Department of Transport, ESB Networks, Geological Survey Ireland and the National Parks & Wildlife Service.	Underway
			SEAI	SEAI hosted the 2022 National Energy Research & Policy Conference in September 2022 with a thematic focus of Societal Transformation. This virtual conference was a great success, with presentations and panel discussions with leading experts across energy research, policy and industry, along with opening keynote conversation between Dr Mike Ryan (WHO) and SEAI Director of Research & Policy Insights Margie McCarthy.	Completed
			SEAI	SEAI launched the 2022 SEAI Pilot Fellowship Call in November 2022. This programme, open to postdoctoral or experienced researchers with the support of their 3rd level educational body, aims to provide successful applicants with the opportunity to develop their career through proposing a research project and delivering it while immersed in the diverse activities carried out by SEAI, Ireland's sustainable energy authority. This call will close on 14th February 2023.	Underway
			DRCD	In 2022, DRCD partnered with National University of Ireland to award the first Post-Doctoral Fellowship in Rural Development. The Fellowship was awarded to Dr Lucas Olmedo, a graduate of UCC, for his research project Mapping Social Enterprises and their Impact on Sustainable Rural Development in Ireland. The project will advance research in the field of rural social enterprise by providing the first nationwide study on the relationship between these organisations and different types of rural areas and their impact on sustainable rural development. The research will also generate an evidence base for the development of policy in sustainable development of rural social enterprises. Dr Olmedo will commence the research in January 2023.	Underway
			DRCD	A research proposal was developed with DCEDIY on 'Civic Participation of Young People in Rural Ireland' which will use relevant GUI datasets. The research is being undertaken by the ESRI under the framework agreement with DCEDIY. The ESRI commenced the research in October 2022 and the final report is expected in Q3 2023. This is a commitment under Our Rural Future.	Underway
			DRCD	Various pieces of research, both internal and external, carried out in relation to the feasibility, operation and governance of Hubs/Remote Working Hubs, including a Policy Analyst employed on 12 month contract to conduct investigation into economic impact of ConnectedHubs network.	Underway
			D/Transport	D/Transport participated in interdepartmental working groups such as the EPA's Climate Research Coordination Group and the Commissioners of Irish Lights' involvement in R&D via GLA Research & Development.	Underway
			IRC	The Irish Research Council manages a number of schemes that involve partnership with Government departments and agencies: • New Foundations is run in partnership with Government departments and agencies, who fund specific strands. The collaboration between researchers and policymakers represented in New Foundations awards aligns with the ambitions of Impact 2030 to strengthen evidence-based policymaking and deliver enhanced outcomes for citizens and society. While New Foundations awards are relatively modest in value, typically ranging from €10,000 to €20,000, they play a vital role in supporting and nurturing our research talent, providing an important step on the funding ladder to further awards nationally and internationally. Under the 2022 call, 67 awards were made, representing an investment of almost €875,000. The awards vary from 6 to 12 months in duration, and commenced in December 2022. Strategic Funding Partners for the 2022 call included Department of Foreign Affairs, Department of An Taoiseach Shared Island unit, Department of Rural and Community Development, and TUSLA. • COALESCE, Collaborative Alliances for Societal Challenges, aims to integrate the knowledge and evidence borne through robust research into the sphere of public policy, creating tangible and enduring links between the publicly funded research system and policy makers. The scheme incorporates thematic strands funded by strategic partners including Government departments and agencies, reflecting specific policy priorities. In 2022, partners included the Department of Foreign Affairs, and the National Monuments Service in partnership with the Heritage Council. 21 awards were supported under the 2022 call, ranging between €220,000 and €350,000 in value, with a total investment of €4.9m. The awards vary from 24 to 36 months in duration and commenced in September 2022. • A number of government departments and agencies partner with the IRC on the Government of Ireland Postgraduate Scholarship Programme as a mechanism to deliver on shared national policy objectives. In 2022, these partners were the Department of Foreign Affairs (Andrew Grene Scholarship), Environmental Protection Agency, Met Éireann, and Department of Children, Equality, Disability, Integration and Youth. 239 Government of Ireland Postgraduate Scholarships were announced in September 2022 with a total investment of €27m. 11 of these scholarships are funded by strategic partners.	Underway
			IRC	The IRC co-funds the Public and Patient Involvement Ignite Network (PPI Ignite Network) in partnership with Health Research Board and 7 universities (University of Galway, Dublin City University, Royal College of Surgeons Ireland, Trinity College Dublin, University College Cork, University College Dublin, and University of Limerick). The PPI Ignite Network was established to promote excellence and inspire innovation in public and patient involvement (PPI) in health and social care research in Ireland. Public and patient involvement in research means that the public and patients are involved in planning and doing research from start to finish and helps to tell the public about the results of research. The Network aims to provide a shared voice for PPI across Ireland, aiming to change the research culture, an important contributor to improving health outcomes for the public. The Network is based at seven Universities in Ireland, with a National Programme Office at University of Galway. There are ten national partners and fifty three local partners.	Underway
			SFI	1. Session on evidence based policy with DFHERIS at SFI Summit in Nov '22. 2. Presentation of findings of Creating Our Future in houses of Oireachtas – Prof Linda Hogan, Chair Expert Working Group.	Completed
	Strengthen and embed a culture of innovation across the public service.	Drive initiatives across the public service to deliver on the vision of <i>Making Innovation Real</i> , to harness the power of innovation to deliver world-class public services in Ireland.	DPER	In 2022, DPER continued to coordinate the implementation of the <i>Making Innovation Real</i> , the Public Service Innovation Strategy. This involved the hosting of a number of initiatives, including: Innovation Week, Innovation Network & Fund and the Fostering user led design in Government initiative.	Underway
	Use mission oriented research and public procurement to boost public sector innovation.	Optimise potential of public procurement to drive innovation and develop solutions for the citizen, including building on the success of the Small Business Innovation Research Programme.	DPER	The Public Service Transformation Delivery unit in DPER completed the first cycle of the Future Tech Pilot Initiative. DPER will continue to explore options with EI and DETE with regard to the next iteration of Future Tech Challenge with Small to Medium Enterprises.	Underway
	Strengthen the citizen's voice in the R&I process.	Draw on learnings from <i>Creating our Future</i> to inform how we increase citizen engagement in the research process and enhance visibility of the relevance of R&I to supporting national priorities.	SFI	Creating our Future Campaign Reports were published July 2022. 1. A workshop was held on implementing Creating Our Future recommendations with the Impact 2030 Implementation Forum. 2. Citizen Science is incorporated into the National Challenge Fund Programme. 3. Public engagement activities with the findings of CoF – e.g. ploughing championship and BT Young Scientist & Technology Exhibition.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1.1.2	Accessible Research Expertise <i>(continued)</i>				
	Strengthen the citizen's voice in the R&I process <i>(continued)</i> .	Draw on learnings from <i>Creating our Future</i> to inform how we increase citizen engagement in the research process and enhance visibility of the relevance of R&I to supporting national priorities <i>(continued)</i> .	DCEDIY	Growing Up in Ireland, a national longitudinal study started in 2006, follows the progress of two groups of children, born in 1998 and 2008. Almost 20,000 children and young people are participants in Growing Up in Ireland and this ensures that the experiences of children and young people informs policy formation and monitoring. This data greatly enhances the evidence base on the lives of children, thereby promoting development of evidence-informed policies and programmes for the implementation of children's rights. In July 2022, Government announced a new baby birth cohort for Growing Up in Ireland. This will involve the recruitment of 9 month old babies and their families in 2024. This new baby cohort will also seek to capture in more detail than previously, the diverse experiences of families and children in Ireland – particularly among smaller subgroups in the population, such as diverse ethnic groups, children in migrant families or those with disabilities. We will also be able to do cross cohort studies with the three cohorts to assess how our national policies and measures to improve the lives of children are working. In the reporting period, DCEDIY, through Hub na nÓg, was an active partner on the following research projects which involve direct participation of children and young people • Covision, Children as Innovators, UCD Centre for Interdisciplinary Research (press release on COVID-19 study) • European Joint Doctorate in Occupational Science - P4Play • BEACONS, Bringing Education Alive for Our Communities on a National Scale	Underway
			TUSLA	Tusla is a national partner in the HRB funded PPI Ignite Network. Tusla's aim as a national partner is to share learning and translate PPI in research approach into Tusla research activity and within wider Tusla participation work. It would be of use to the strategy to leverage the Network to understand how to include, involve and engage public contributors in the research process.	Underway
			DRCD	DRCD and NUI Galway's Rural Studies Centre collaborated on a seminar series, Rural Voices, on areas relevant to rural development. The Series provides a platform for Irish academics and key rural stakeholders to present their research or rural projects; to allow them to network with others engaged in a similar space and to initiate discussions around key rural issues. It facilitates the showcase of research relevant to Our Rural Future to a broader public audience. The Series launched on Wednesday 26 January 2022 and is ongoing.	Underway
			DTCAGSM	The Basic Income for Artists (BIA) Pilot Scheme launched in April 2022. This pilot features a research scheme which will examine, over a 3 year period, the impact of a basic income on artists and creative arts workers. The design of the scheme took into account an online consultation aimed at ensuring the general public, artists and those working in the arts and culture sector could contribute to the policy development for the pilot on key issues such as the objectives, eligibility criteria and how to support emerging artists. Baseline surveys were issued to the recipient group and a control group in Q4 2022.	Underway
1.2	Key Challenges and Opportunities				
	The Irish R&I system will maximise its impact on critical sectoral agendas of Government Departments, agencies and all stakeholders.	Strengthen role of R&I as a key enabler of addressing national policy priorities through Departmental, inter-Departmental and cross-agency policy initiatives, greater coordination and collaboration.	SFI	1. Stakeholders in all Government Departments have been identified to ensure cross-departmental and cross-agency collaboration under the National Challenge Fund. Brokerage event with researchers took place in December 2022. 2. A cross agency/department consultation exercise was performed in H2 2022 to garner feedback on SFI Research Centre proposals submitted to an SFI funding call.	Completed
			DCEDIY	1. In 2022, DCEDIY alongside the CSO, oversaw the transition of the Growing Up in Ireland (GUI) study from the ESRI to DCEDIY and CSO. The new governance model began on 1 January 2023. 2. In late 2022, DCEDIY set up two advisory groups for Growing Up in Ireland: a Policy Advisory Group with representation from across a wide range of Government Departments and Agencies; and a Research and Practice Expert Advisory Group, with representation from relevant NGOs and academics. DCEDIY will establish an ethics structure in 2023. These advisory structures will inform GUI research topics and surveys, which address national policy priorities. The Policy Advisory group will build on the existing Interdepartmental Steering Committee and is expanded to include additional policy experts in areas that will be of enormous value to GUI and to addressing national policy priorities. 3. In October 2022, DCEDIY presented to a wide range of stakeholders from across the public service on the policy potential of research and findings from GUI as part of the Public Sector innovation week. (Tues 25th October and at the public sector chapter of the 30% club, Thursday 27 October) 4. Since 2019, DCEDIY has managed and funded a Research Partnership with the Economic and Social Research Institute (ESRI). From this partnership, DCEDIY has commissioned and funded a number of reports per year using data from Growing Up in Ireland (GUI), the national longitudinal study of children and young people. The partnership provides an evidence base that supports and informs Government policy across a wide range of policy areas related to the development in the areas of children and youth. In 2022, there were two publications in the reporting period. In June 2022 - Disrupted transitions? Young adults and the COVID-19 pandemic and in November 2022, "the Social Worlds of 9 Year olds". Both reports had policy implications for a number of Government Departments. 5. DCEDIY also has a research partnership with ESRI in relation to equality and integration. The programme is now in its fifth year. The aim of the research programme is to create, improve and enhance knowledge on migrant integration and equality in order to provide evidence for policy in these areas. The programme builds on a considerable body of research on migrant integration and equality issues by ESRI researchers. In April 2022, there was a publication "Origin and integration: Housing and family among migrants in the 2016 Irish census".	Underway
			EPA	The EPA-IMPACT contract (October 2021 - October 2023) on knowledge transfer led by ERINN Innovation Ltd. has been progressing well. The work was presented and discussed at the meeting of the Climate Action Unit Network led by the Department of the Taoiseach (24 November 2022)	Underway
			DETE	Following the publication of the National Industry 4.0 Strategy in 2020, Future Manufacturing Ireland (FMI) has been established as a unit within the Department of Enterprise, Trade, and Employment to support the digital transformation of Ireland's manufacturing sector (see 3.2 Industry-academic Collaboration and Research Commercialisation). Also our investment in space continues to provide opportunities to Irish based enterprises to scale and grow, to sustain jobs and create new ones, whilst also developing their capabilities to enable the technology transfer and commercialisation of their products and services, in space and other complementary sectors. Key deliverables in the reporting period July 2021-June 2022 include: • The participation of 13 companies and 28 trainees in space related courses organised by Space Industry Skillnet. • The All-Ireland Space Industry event held in Maynooth University in May 2022 attended by over one hundred academia and industry representatives. • 14 new start-up companies securing ESA contracts. • The establishment of the Disruptive Technologies Innovation Fund supported CAMEO consortium.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1.2	Key Challenges and Opportunities <i>(continued)</i>				
			DOD	The Department of Defence has partnered with SFI on the SFI-Defence Organisation Innovation Challenge. Research institutions were invited to propose research projects under five identified themes (plus an open emerging technologies stream) to address specific needs identified within the Defence Forces. Initially ten projects were funded in the Concept Phase (€20,000 per project over three months in late 2021/ early 2022), five projects were selected for the seed phase (€200,000 per project March -December 2022). In November 2022, two winning projects (first place and runner up) were awarded €1,000,000 and €500,000 respectively. The public announcement of these awards is scheduled for February 2023. Total funding for the SFI-Defence Organisation Innovation Challenge is €2.9 million. It is envisioned that the SFI-DefOrg Challenge will be repeated in 2023.	Underway
			DOD	Following the publication of a feasibility Study in 2020, the Defence Organisation (Department of Defence and Defence Forces) established an RTI Unit with a brief to address research technology and innovation both internally and across the Defence Ecosystem. The RTI Unit Strategy addresses five key pillars: RTI governance, defence ecosystem, emerging technology, innovation acceleration and innovation capacity. The joint (civilian-military) unit currently has a WTE staff complement of 5.2 (two civil servants and three military, one part-time secondee from Enterprise Ireland). Key current initiatives include: DefenceSparx, a skills and innovation mind-set development programme with 25 participants from across the department, permanent and reserve defence forces and civilian employees running from October- December 2022. Following the conclusion of the programme, each team of participants will pitch an innovative idea to senior leadership (DoD and Defence Forces) for piloting or mainstreaming in the Defence Organisation. DefenceInnovate: seed funding to support innovative ideas generated in the workplace by Department of Defence and Defence Forces Personnel. SFI-DefOrg Innovation Challenge (outlined above). Building the Ecosystem, a national conference for Irish industry and research institutions with national and international speakers and participation (Aviva Stadium 6 October 2022).	Underway
			DRCD	DRCD has established a structured engagement with Higher Education and Research Institutions related to both policies to bridge the gap between policy and research and to promote inter-institution collaboration. The Higher Education and Research Networks comprise representatives of all interested HEIs in Ireland. In the case of the Rural Development HEI & Research Network, the ESRI, NESC and Teagasc are also members. These networks meet several times per year.	Underway
			D/Transport	D/Transport established a research network under the Sustainable Mobility Policy to bring together entities involved in commissioning and conducting research to strategically determine priorities to support the Policy.	Underway
			IRC	The Irish Research Council is a member of the DFHERIS led Sectoral Research Working Group, and the Horizon Europe High Level Group. The IRC also participates in the ERA workshops co-ordinated by DFHERIS.	Underway
		Development and implementation of sector specific R&I policies and strategies.	IRC	1. The Irish Research Council contributed to the refresh of the HEA's Principles of Good Practice in Research within Higher Education Institutions which were published in December 2022. The nine principles will guide HEIs to develop practices within their research environments to help drive research excellence and further improve research outcomes with a view to enhancing the international reputation of the Irish higher education research system. 2. The IRC is a member of the National Advisory Forum for Doctoral Education (NFDE), and has contributed to the consultation on the refresh of the Framework. The Career Tracking Working Group which is a subgroup of the NFDE includes the IRC. 3. The IRC is a member of the National Research Integrity Forum and has endorsed the National Open Research Forum Action Plan which was published in November 2022.	Underway
			SFI	1. SFI worked with DFHERIS and the National Advisory Forum for Quantum Technologies to lead the finalisation of Quantum 2030 - A National Quantum Technologies Strategy for Ireland (this will be launched by DFHERIS in 2023).	Underway
			DCEDIY	1. The proposal to establish a Cross Government funded Children and Young People's Research Programme was first referenced in the Blueprint for the Policy Framework for Children and Young People 2023-2028 in November 2022. Work is underway to develop the research programme which offers the opportunity to amplify and accelerate these research and policy developments, and to bring a renewed focus on generating research which supports responses to the new and persistent challenges facing children, young people and their families. 2. Research and data project examining the lives of children in care and adults who were in care as children. This project has four main aims: • Cross sectional research with young people who left care circa. ten years ago; • Developing the capacity of the Tusla National Child Care Information System (NCCIS) to track the journey of children through the care system; • Longitudinal research commencing as young people prepare to leave care; • Bespoke qualitative research with children in care, young people leaving care and adults who were in care as children. Since May 2022 DCEDIY has tendered for the cross sectional research project, the contract has been awarded and contract negotiations are currently underway. The key governance and advisory structures have also been set up and we have issued a Request for Quotations (in December 2022) for the website and branding for the project and we hope that work will commence in February. 3. DCEDIY also published a number of research publications which were conducted within DCEDIY.	Underway
			TUSLA	Tusla's Corporate Plan 2021-2023 outlines an action (3.2) to <i>Develop and implement a strategic plan for the Agency that drives increased research in the evaluation of outcomes, and we will commission prioritised research projects.</i> In 2022, the National Research Office led out on an internal Research and Information Needs Analysis and an external desk-based Horizon scanning exercise. A draft Research Strategy for Tusla 2023-2029 has been devised for agency approval, further consultation and implementation.	Underway
			GSI	GSI have completed preliminary work towards a full review of their research strategy, to be carried out in Q1 2024.	Underway
1.2.1	Climate, Environment and Sustainability				
	Position research and innovation as critical enablers to support delivery of our climate action targets and address wider environmental and sustainability challenges.	Clearly articulate the role and contribution of R&I in the Climate Action Plan.	DECC	A standalone R&I Chapter is part of the Climate Action Plan 2023, which also incorporates a list of specific R&I actions in the Annex of Actions	Underway
		Strengthen and enhance R&I collaboration and co-ordination structures in relation to climate, environment and sustainability challenges.	GSI	Commitment in CAP to deliver scientific and technical information to support development of geothermal energy	Underway
			DECC	DECC established a Working Group to assist with drafting the R&I Chapter in the Climate Action Plan 2023	Underway
			EPA	1. During the reporting period, the EPA hosted one meeting of the National Environmental Research Coordination Group (NERCG), and two meetings of the Climate Research Coordination Group (CRCG), a sub-group of the NERCG. 2. The CRCG published the Fourth Report of its Activities in September 2022, which includes an overview of climate-related competitive research funding committed by members of the CRCG, leveraged funding from EU schemes, and core research activities carried out by CRCG members themselves. 3. A sub-group of the CRCG provided input to the development of the Research Classification Ireland.	Underway
			SEAI	The National Energy Research Funders' Forum was launched by SEAI in 2022. This Forum meets on a biannual basis, with 2022 meetings taking place in June and November. The Forum has strong engagement and representation across Government (incl. DECC, DFHERIS, DAFM, DPER, DoT and Dept. of Taoiseach) and agencies (incl. SFI, IRC, Enterprise Ireland, IDA and others). The Forum is utilised to inform the wider network of salient and emerging energy research priorities, including for example guest presentations on tracking Ireland's energy supply, demand, and prices (SEAI); Ireland's Energy Security of Supply Review (DECC); and Insights from Climate Conversations 2022 (DECC). This forum is further harnessed to capture the ongoing cross-government and agency 2023 RD&D stakeholder consultation process, to identify emerging energy research and policy priorities to inform the 2023 SEAI RDD Funding Programme Call.	Underway
		Strengthen the research - policy interface to address complex climate, environment and sustainability challenges using a whole-	GSI	Establishment of Geothermal Advisory Group by GeoScience Policy Division which includes scientific and research advice for policy. Establishment of the District Heating committee including research and stakeholders within DECC/SEAI.	Underway
			EPA	The EPA organised a successful inaugural seminar on 'Environmental Science to Policy' in October 2022. Key learnings and next steps are currently being distilled to take forward the 'Evidence for Environmental Policy' agenda.	Underway
			EPA	The EPA funded E10.7 million of research (42 research projects) addressing climate change and other emerging, complex environmental problems. This funding will contribute to the delivery of high-quality research, evidence-based policy development and further build Irish environmental research capacity.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1.2.1	Climate, Environment and Sustainability <i>(continued)</i>				
	Position research and innovation as critical enablers to support delivery of our climate action targets and address wider environmental and sustainability challenges <i>(continued)</i> .	Strengthen the research - policy interface to address complex climate, environment and sustainability challenges using a whole-of-systems approach <i>(continued)</i> .	SEAI	SEAI awarded almost €19 million in research funding through the 2022 SEAI National Energy RD&D Funding Programme, supporting and enabling a wide range of energy research in Ireland.	Completed
1.2.2	Digital Transformation				
	Maximise the contribution of R&I to Ireland's digital transformation.	Work across Government to strengthen research and innovation in key digital areas as set out in <i>Harnessing Digital - The Digital Ireland Framework</i> .	DFHERIS SPEE	Work is ongoing across DFHERIS and stakeholders to meet the commitments set out by the Skills Dimension of Harnessing Digital. A number of initiatives are ongoing to identify and support Ireland's future skills needs, including the OECD Review of the National Skills Strategy and planning for two new initiatives which are due to launch in 2023 (the DHFERIS/ESRI Research Programme and the Tri-Skill Project [Learnovate/CISCO/Skillnet Ireland], which seeks to create a unique national platform that develops core digital and data skills for Ireland's workforce).	Underway
			DRCD	Further to the funding of the development of Town Centre First plans in 26 local authorities, the Department engaged DCU and .IE to research and develop Digital Town Blueprints for the 26 towns funded under the TCF Plan funding stream. The Blueprint is a framework that uses primary and secondary data to measure a town's digital readiness. It is intended to be used by policymakers, town leaders and public authorities to assess towns, thereby facilitating the creation and effective rollout of a local digital strategy, roadmap and action plan. 26 draft reports were delivered in December 2022 and are currently being finalised in collaboration with local authorities.	Underway
		Ensure Ireland has the skill set to optimise engagement in key digital technology sectors.	DFHERIS SPEE	Extensive support and development is ongoing across HE, FET, Apprenticeships and workforce development through DFHERIS, and agencies such as Skillnet Ireland and SOLAS, to ensure Ireland's talent pipeline remains competitive in the face of digital and green transition.	Underway
			SFI	National Challenge Fund launched in 2022; one of the two 2022 calls was the Future Digital Challenge, bringing disruptive digital technologies to sectors where there is a need to advance digitalisation or where digitalisation could bring transformational opportunity. FI Centres for Research Training is a world class cohort-based training programme that enables doctoral students to acquire skills and knowledge needed for diverse careers pathways. The current programme focusses on the theme "Data and ICT skills for the future". The existing CRTs continued their strong progress in 2022; midterm reviews took place in Q3/Q4 and all six CRTs are performing well.	Underway
1.2.3	Economic Competitiveness				
	Enterprise research, development and innovation drive our national competitiveness, and optimally contribute to other national priorities.	Deliver Strategy Pillar Three actions to support target of increasing indigenous productivity by 2.5% per annum.	DETE	Rollout of the Digital Transition "Grow Digital" Fund supporting companies on their digital journey. Developed the Digital Portal tender, to be issued Q1, 2023. The new Digital Portal will allow businesses to self-assess their digital readiness, provide tailored advice and signpost eco-system supports for digitalisation such as the Online Retail Scheme. In 2022, €9.3m approved to 216 retailers under the Online Retail Scheme. Launched "You're the Business" digital training.	Underway
1.2.4	Health and Wellbeing				
	Maximise R&I contribution to sustaining and furthering the health and wellbeing of the people of Ireland.	Progress the implementation of research and innovation priorities under the HRB's <i>Health Research – Making an Impact 2021-2025</i> with the aim of delivering value for health, the health system, society and the economy.	HRB	<ul style="list-style-type: none"> Funded 33 Investigator-led project with an overall investment of €11.4M. in patient-oriented research, population health research and health services research. Invested €3.6M to support 19 projects with Health Research Charities Ireland, addressing the research priorities of the charities. Supported Ireland's participation in WHO Solidarity Plus and Solid Act to investigate treatments for covid-19. Supported Ireland's participation in the EU VACCCELERATE recommended and EMA-endorsed MONKEYVAX trial to study the clinical benefit and safety of vaccination against Monkeypox. Made 15 Conference and Event Sponsorship awards with a value of €75K. Made 27 Knowledge Translation Awards with a value of €1.1M to support activities that will maximise the potential impact of the research findings on policy or practice or communicate research and research findings to the general public. Leveraged HRB Phase II investment of €3.1M in Evidence Synthesis Ireland (ESI), co-funded with the HSC RDO to build on the substantial learning, capacity and networks created to address urgent evidence needs of government. Supported Irish health researchers in securing €29.2 million in EU health research funding spread across 23 projects and involving thirty-six individual researchers. Irish researchers are coordinating three of these projects. Successful projects are addressing areas such as: Cancer, Crohn's disease, migraine, AI based clinical decision support system for stroke, mental health, digital empowerment for active healthy living, indoor air quality and healthy living and greener pharmaceuticals. Supported researchers in securing funding for 4 successful projects in a new call for green pharmaceuticals bringing in €2.9 million, and a further 5 successful projects in the environment health calls, drawing down €3.4 million Health Research Consent Declaration Committee considered 24 applications: 11 consent declarations were made, 12 amendments were approved National Research Ethics Committees for Clinical Trials reviewed 50 new applications, 332 substantial amendments, totalling 445 National Research Ethics Committee for Medical Devices reviewed 28 new applications and 13 substantial amendments, totalling 41 An 8-week intensive 'bootcamp' was successfully run to address the backlog of substantial amendments for ethical review of clinical trials - 134 substantial amendment applications were reviewed by the NREC members 	Underway
		Support research to inform and assess implementation of Sláintecare and related health policies, increasing the links to public policy development.	D/Health	<ul style="list-style-type: none"> In July 2022, the Sláintecare Fund End of Programme Report was launched capturing innovation in 123 HSE and NGO sector projects since 2019 In September 2022, the DoH IGEEs team published 4 Spending Reviews: <ul style="list-style-type: none"> o Towards Population-Based Funding for Health: Evidence Review & Regional Profiles o Health Capital Investment in Ireland An Analysis of Healthcare Infrastructure Capacity o Healthcare Capital Investment in Ireland: An Analysis of Built Healthcare Infrastructure o A System Dynamics Model of Nursing Workforce Supply In December 2022, the HSE, in collaboration, with the Department of Health, launched the National Strategy for Accelerating Genetic and Genomic Medicine in Ireland. 	Underway
			HSE	<ul style="list-style-type: none"> In 2022 the HSE Research & Development function focused on putting the foundational supports in place that will enable the HSE to operate as a world-class, research-performing, evidence-informed health service. These foundational supports include the development of the following, in collaboration and consultation with key stakeholders across the health sector: <ul style="list-style-type: none"> o The Roadmap for the Reform of Health and Social Care Research Ethics Committees. o The Standard Code of Governance and Management Required for HSE Reference Research Ethics Committees. o The Consent in Research Policy. o The National Clinical Trial Template (CTT) and the HSE CTT Negotiation guide. o Volume 1 of the Code of Practice for Research Governance Processes. o Procured the National Electronic Management System. 	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
1.2.4	Health and Wellbeing <i>(continued)</i>				
	Maximise R&I contribution to sustaining and furthering the health and wellbeing of the people of Ireland <i>(continued)</i> .	Support research to inform and assess implementation of Sláintecare and related health policies, increasing the links to public policy development <i>(continued)</i> .	HRB	<ul style="list-style-type: none"> The HRB completed nine evidence products: one evidence review, six evidence briefs, and two evidence highlights. HRB published: <ul style="list-style-type: none"> o an overview of alcohol and other drug use among young people in Ireland. o a report on the Irish findings from the European Web Survey on Drugs. o an update on the estimate of the prevalence of problematic opioid use in Ireland. HRB published 3 National Health Information Systems (NHIS) Annual Reports and Bulletins. 	Completed
		Strengthen the research culture in the health service and enhance collaboration between the academic system and health service.	D/Health HRB	<ul style="list-style-type: none"> In November 2022, Ireland entered Europe's 1+Million Genome Initiative In 2022, Ireland has entered 18 European Reference Networks (ERNs) for Rare Diseases and 1 Joint Action on the integration of ERNs into the National System In December 2022, the National Irish COVID Biobank, involving 6 universities and 13 clinical sites, became officially operational Formation of the National Cancer Research Group to coordinate research under the National Cancer Strategy (e.g. Cancer Missions) HRB funded seven Applied Partnership Awards, valued at €1.3M, which is an initiative aimed at embedding knowledge users in as partners in the research projects from the outset. HRB funded third phase of SPHERE (the Structured Population Health, Policy and Health Services Research Education programme), in September, at a cost of €6M, with nine academic partners coming to deliver this national programme and with support for a further 5 cohorts. This will add a further 30+ scholars to the 137 trained by SPHERE so far. HRB funded second phase of ICAT (Irish Clinical Academic Training) programme in October 2022, with a new investment of €11M, bringing the total investment to €21M and will result in 80 fellows coming through the programme. ICAT-2 will broaden its intake from all medical specialties so far to also include dentists (HRB-funded) and veterinarians (funded by DAFM). HRB worked with IRC and EPA in the DOROTHY Marie Curie post-doctoral fellowship in public health crises and appointed the first of two cohorts. Ultimately 25 fellows from any discipline will be trained. HRB made 11 further Emerging Investigator awards at a total cost of approx. €8.3M to support the transition to independent investigators who can translate knowledge generated through research into the health care system, policies or practice, or generate research findings informed by policy and practice. HRB funded a Rare Diseases Clinical Trial Network to allow people with rare disease greater opportunities for participation in the latest research and more access to innovative new therapies that will improve outcomes and transform treatment and care. 	Underway
	Maximise R&I contribution to sustaining and furthering the health and wellbeing of the people of Ireland <i>(continued)</i> .	Support research into mental health and wellbeing to inform decision-making and practice.	HRB	<ul style="list-style-type: none"> HRB made progress on the establishment of an Advisory Group for the development of the first National Population Mental Health and Mental Health Services Research and Evaluation Strategy HRB funded 5 mental health research projects aligned with Sharing the Vision 	Underway
1.2.5	Agriculture, Food and the Marine				
	Become an innovative, competitive and resilient agri-food sector and bioeconomy, driven by a dynamic knowledge exchange system, data, technology and talent.	Progress the implementation of research and innovation priorities under <i>Food Vision 2030</i> .	DAFM	<ol style="list-style-type: none"> In Q2 DAFM announced a further 12 awards under the 2021 Thematic Call resulting in a further €9.6m in awards to 12 Irish RPOs and further collaboration with DAERA on four projects. DAFM and MPI New Zealand commenced a joint agreement funding four projects on topics relating to GHG. This resulted in €3.6m in funding to three Irish RPOs. In 2022 DAFM also continued to engage with EU partners in relevant research calls and other innovation initiatives with 11 projects proving successful. This will see nine RPOs receiving a further €3.39m in awards. <p>The combination of all the awards outlined above resulted in direct employment for 107 contract research positions and education opportunities will be provided for 53 post graduate students in the form of PhDs (38) and Masters (15).</p>	Underway
		Prioritise support for research and innovation to enable the agri-food, forestry and marine sectors to deliver greater efficiency and sustainability (environmentally, economically and socially), and the development of a strong bioeconomy.	DAFM Teagasc	<ol style="list-style-type: none"> In 2022 DAFM announced further awards to 12 projects on foot of the 2021 Thematic Call thematic. Areas funded included climate and biodiversity; sustainable animal and plant health and production; agri-digitalisation and the bioeconomy; and safe, healthy food production and processing On foot of a Management Board request DAFM also announced a pilot Policy and Strategic Studies Research Call aimed at addressing business needs of Divisions within the Department. Funding of up to €250k was made available across 20 topic areas. Following evaluation by expert panels and review committees 21 of the 26 submitted proposals were recommended for funding. The governments of Ireland and New Zealand recognised the urgent need to find solutions that address the impact of agricultural production systems on the climate, water quality, and biodiversity. In 2022 both parties came together to develop a joint cooperation agenda around the central mission of Advancing a Progressive International Partnership for Sustainable Agriculture. On foot of this agreement four projects were launched in 2022. In Q1 2022 DAFM invited eligible Irish Research Performing Organisations to submit joint research proposals under the 2022 expanded Agriculture Call under the US-Ireland Research and Development Partnership. DAFM continued to engage in EU research initiatives in 2022. Teagasc launched its Climate Action Strategy 2022-2030. Teagasc participated as a funder in transnational funding calls on Agrobiodiversity and ICT-Agri-Food. 	Underway
		Position Ireland as a leader for marine research and technology.	MI	<ol style="list-style-type: none"> Marine Institute made EUR 7.6m in research awards in 2022 through its competitive marine research funding programme (4.7m for ship-time; 2.9m for R&I Actions) Ireland's newest marine research vessel, R.V. Tom Crean, delivered to Marine Institute on time and on budget. The state-of-the-art 52 metre vessel funded through DAFM capital allocation to the MI, came into service in July 2022. 	Underway
2	Impact of R&I Structures on Excellence and Outcomes				
	<i>The Strategy architecture and the institutional landscape provide an environment where talent and excellence are rewarded and impact assured.</i>				
2.1	System Impact				
	Improve how R&I impact is defined, driven and monitored.	Undertake a comprehensive review of R&I impact in Ireland to date drawing on latest international good practice and apply learnings to improve data collection and analysis.	DFHERIS IRDP	<p>In the last quarter of 2022, DFHERIS commissioned UCD Research & Innovation's Research Analytics and Impact team to undertake a bibliometric analysis of the Irish higher education sector during the period 2011 to 2020. The objective was to use a selection of indicators, and benchmarking of these with international comparators, to provide an indicative measure of the quality of the research outputs produced by sector. This builds on similar work commissioned by the HEA in 2017.</p> <p>While bibliometric analysis has recognised limitations, it contributes to the development a picture of research trends over time and in comparison with other jurisdictions. Accordingly, this input will form part of DFHERIS's work to better evidence research performance and impact.</p>	Underway
			SFI	SFI participated on the oversight group of the bibliometric baseline analysis project implemented by DFHERIS and UCD	Completed

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
2.2	Strategy Governance and Oversight				
	Establish R&I Advisory Forum to provide policy direction and advice on R&I to Government.	Establish R&I Policy Advisory Forum, agree membership, terms of reference and work programme.	DFHERIS IRDP	DFHERIS is currently developing the terms of reference for the Impact 2030 R&I Advisory Forum (which will be chaired by Minister for FHERIS and which will provide an agreed structure for engagement between policy makers, international as well as national experts and the R&I community). This Forum will advise on the strategic development of the national R&I system (for example, about the intersection of the national R&I and EDI agendas).	Underway
	Establish strong governance and oversight structures to deliver the vision and ambition of <i>Impact 2030</i> .	Establish an <i>Impact 2030</i> Steering Group comprised of the five main spending Departments and D/Taoiseach, agree terms of reference and work programme.	DFHERIS IRDP	The <i>Impact 2030</i> Steering Group (comprised of the five largest R&I funding Departments – the Department of Further and Higher Education, Research, Innovation and Science, the Department of Enterprise, Trade and Employment, the Department Health, the Department of Agriculture, Food and the Marine and the Department of Environment, Climate and Communications – which account for 95% of public funding for R&I, in addition to the Department of the Taoiseach and the Department of Children, Equality, Diversity, Inclusion and Youth) steers R&I policy direction in a more agile and responsive manner and leverages wider investment – both public and private – in R&I to deliver on the ambitions set out in Impact 2030. This will include working together to: (i) position R&I as an integral element of the public policy formation process; (ii) consider joint approaches to non-Exchequer funding opportunities from international or philanthropic sources, including Horizon Europe; and (iii) improve evidence and articulation of the impact of R&I investment on the economy, the environment and people. The inaugural meeting of the <i>Impact 2030</i> Steering Group was held in July 2022.	Completed
		Set up a cross-Government Department and Agency R&I Strategy Implementation Forum, agree membership, terms of reference and work programme.	DFHERIS IRDP	The <i>Impact 2030</i> Implementation Forum (comprising all 18 Government Departments and 15 agencies that fund and/or perform R&I) engages with and supports the work of the <i>Impact 2030</i> Steering Group. It works together to maximise the collective return on public investment in R&I. This includes embedding best practice and consistency of approach and coherence across funders and performers, coordinating relevant activities, sharing information and consulting on common issues in a structured manner. This will ensure that R&I priorities best reflect our national agenda and will contribute to the impact of the public R&I system. The inaugural meeting of the <i>Impact 2030</i> Implementation Forum was held in July 2022 with a second meeting held in December 2022. The Implementation Forum has also prepared this Progress Report for 2022 and has agreed its Work Programme for 2023.	Completed
2.3	Evolution of the Irish Higher Education Landscape				
	Reinforce the research excellence and R&I impact of established universities in Ireland.	Build on the local, regional, national and international R&I footprint of the established universities and promote collaboration with the newly established TUs.	HEA	<p>1. On the 16th of December 2022, the revised 'HEA Principles of Good Practice in Research within Irish Higher Education Institutions' were published. This included two new principles, 'Gender Equality and Inclusiveness' and 'Research and Sustainability'. The Principles were originally launched in February 2020 with the aim of promoting good practice in research conduct by: bringing together the main elements of good practice in higher education research; articulating high-level principles within each of these; and signposting to more detailed policies, where available.</p> <p>• Institutions engage with the Principles through their processes and practices and through Annual Governance. Statements submitted to the HEA and through the Strategic Dialogue Process.</p> <p>2. The National Action Plan for Open Research was launched on the 21 November 2022 which outlines the objectives and actions for the next chapter in Ireland's transition towards open research. The process of developing this National Action Plan has been led by NORF, combining the expertise of representatives from policy, research funding, research performing, the library sector, research infrastructures, enterprise and other key stakeholders in the research system across Ireland. NORF is co-chaired by the Higher Education Authority (HEA) and the Health Research Board (HRB). A funding call was run by NORF in June 2022 seeking proposals to address six priority actions in the National Action Plan for Open Research. The six successful projects funded by the HEA were announced in November 2022 and a NORF Project Manager was appointed in September 2022 to monitor the progress of these projects.</p> <p>3. A further NORF funding call is planned in 2023 which focuses on 5 more priority actions: Incentivising Open Research Practices in Ireland, Public Engagement and Open Research, Mapping National Open Research Infrastructure, National Research Data Management Framework and Institutional OA Policies and Rights Retention. As well as funding the priority actions, NORF will also stimulate open research by incentivising and rewarding researchers from all disciplines who are (or aspire to) be at the forefront of this movement. A call to stimulate action on open research in Ireland will also be launched in 2023 and is an open call for projects that align with and address one or more of the three main themes of the National Action Plan: establishing a culture of open research; achieving 100% open access to research publications; enabling FAIR research data and other output.</p> <p>4. The National Research and Integrity Forum signed a contract, covering the period 2021-2023 (inclusive) in 2020 with the online training provider Epigeum which is currently being implemented within the RPOs. It is 50% funded by the Higher Education Authority, with the remaining costs being paid by the RPOs themselves. This current contract will conclude at the end of December 2023. The NRIF Steering Group met in 2022 to consider the following options are around Epigeum training. a) re-contract with Epigeum for a further period; b) establish a project to develop a bespoke online training course for Irish RPOs; or c) a hybrid approach, encompassing elements of the first two options. The HEA has provided the NRIF with funding to scope out the potential options in this area.</p> <p>5. In 2021, EUA Solutions presented the findings from their study 'The National Framework for Doctoral Education in Ireland: Report on its Implementation by Irish Higher Education Institutions' to the NFDE Advisory Forum. The team found that the Framework was very well embedded internally in HEIs. In 2022, it was agreed by the Advisory Forum that a refresh of the principles contained in the current National Framework for Doctoral Education would be developed to reflect the changes on the research landscape. A consultant was appointed in 2022 to carry out a refresh of the Framework. This is due for completion in March 2023.</p> <p>6. The NFDE Advisory Forum has developed a number of working groups to promote and develop the Doctoral Research landscape in Ireland. These working groups include;</p>	Underway
	Maximise the impact of the new Technological Universities on regional R&I activity.	Strengthen institutional R&I capability and monitor TU progress towards post-designation R&I metrics.	DFHERIS HEPR	DFHERIS and the HEA, along with DFHERIS and the HEA, along with the Regional Assemblies and the Department of Public Expenditure, NDP Delivery and Reform, have worked together to secure almost €84 million over the period 2021 to 2027 from the European Regional Development Fund (ERDF). This investment is funding the Technological Universities Research and Innovation Supporting Enterprise (RISE) Programme, which involves the establishment, equipping and staffing of regional R&I offices within technological universities (TUs) in the Northern and Western and Southern, Eastern and Midland Regions and also includes staff development, recruitment, postgraduate training and supervision, networking and collaborative knowledge-transfer and mobility schemes. This Programme will significantly support the advancement of the TU agenda in the areas of research capacity building and regional development through enterprise and R&I facilitation. The HEA will administer the Programme and is working with the Regional Assemblies to finalise the parameters of same.	Underway
			HEA	<p>1. Following progress evidenced in the Year 2 Annual Reports (Q3), the Technological University Transformation Fund awarded €23.47m to the five established Technological Universities in November 2022. A core component of TUTF focuses on building research capacity. This involves funding high quality teaching and research, providing the necessary facilities and resources to strengthen R&I capability, and enabling TUs to recruit high calibre staff to lead teaching agendas and attract national and international research funding.</p> <p>2. On 1 May 2022, the South East Technological University became the fifth TU to be established and the new TU is in receipt of TUTF funding to support its development.</p> <p>3. In April 2022 a consortium of Technological Universities and Institutes of Technology were awarded 18.81m under the National Recovery and Resilience Plan (NRRP). The project, NTUTORR, aims to support digital enhancement of teaching and learning across the technological sector. One core component of the project focuses on achieving the scale and scope of sustainable transformation of the pedagogical and learning environment facilitated by the use of digital infrastructure that assures diversity, equality, and inclusiveness in the areas of examination, assessment, academic integrity and research ethics. The project commenced in April 2022 and is overseen by a National Coordinator.</p>	Underway
		Identify funding sources to support delivery of R&I commitments for TUs.	DFHERIS HEPR	Working with Regional Assemblies and others to attract €84 million of TU research oriented ERDF funding - see previous.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
2.3	Evolution of the Irish Higher Education Landscape (continued)				
	Maximise the impact of the new Technological Universities on regional R&I activity (continued).	Identify funding sources to support delivery of R&I commitments for TUs (continued).	HEA	1. Balances from Landscape Funding Projects (2017-19) have supported several initiatives to support the delivery of R&I commitments for TUs. This includes the Smart Industry Conference held at ATU on 7 October 2022 which explored the economic and social potential of the North West region in terms of education and employment; the delivery of research-led Initial Technology Teacher Education through the development of a Technology, Engineering and Graphics Learning Sciences Lab at TUS; and the integration of systems and processes in the areas of lifelong learning, research, internationalisation and external affairs and engagement, as well as the establishment of a University Data Integration and Intelligence Unit, at SETU. 2. The HEA has been working with the Southern Eastern and Midland Regional Assembly and the North West Regional Assembly to progress the development of the Technological University Regional Research Development and Innovation Integration (RRDII) scheme, which is worth €83m. The RRDII will enable the enhancement of the central research functions of TUs, including the establishment or development of dedicated research offices to enhance engagement with local and regional business, industry, and enterprise stakeholders. The scheme will improve research capacity through investment in human capital and offering opportunities to develop staff training and establish advisory and support services. Other objectives of the scheme include deepening of research-led teaching and learning excellence, extension of research fields, and enhancing the capacity of institutions to serve national and regional strategic objectives. Work was ongoing during 2022 to identify areas that will be eligible for funding under ERDF. A draft Implementation Plan was shared with the Regional Assemblies at the end of 2022 outlining the criteria for funding, eligible costs, the proposed evaluation method, and management of the fund.	Underway
		Identify how to pursue any recommendations on apposite academic career structures and contracts from the OECD 'Review of Technological University Academic Contracts, Career Paths and Organisation'.	DFHERIS HEPR	OECD review noted by Cabinet and published in December 2022. Developing approach to key OECD review recommendations with DPER, HEA, TUs and TUI.	Underway
2.4	Research Infrastructure				
	Advance priority system needs and opportunities through a framework for future research infrastructural investment.	Undertake audit of all existing infrastructure in HEIs and Research Performing Organisations.	SFI/DFHERIS/HEA	SFI, in partnership with DFHERIS and the HEA, undertook an independent policy evaluation to: (a) retrospectively, evaluate SFI's Research Infrastructure investments from 2015-2021 including an assessment of the programmes' performance and effectiveness with recommendations on potential opportunities for improvement; and (b) prospectively, give recommendations on national mechanisms involved in research infrastructure, to include an overview landscape analysis on which to base potential investment scenario recommendations. This was completed and published in 2022.	Underway
		Undertake an independent assessment of infrastructural needs, examining small-scale equipment, larger equipment that is shared and national-level infrastructures.	SFI/DFHERIS/HEA	SFI, in partnership with DFHERIS and the HEA, undertook an independent policy evaluation to: (a) retrospectively, evaluate SFI's Research Infrastructure investments from 2015-2021 including an assessment of the programmes' performance and effectiveness with recommendations on potential opportunities for improvement; and (b) prospectively, give recommendations on national mechanisms involved in research infrastructure, to include an overview landscape analysis on which to base potential investment scenario recommendations. This was completed and published in 2022.	Underway
		Develop a framework for future research capital investment in research infrastructure, in particular to ensure that any underspend of NDP funding that is re-allocated to R&I funding can be drawn down effectively and efficiently at short notice according to an agreed schedule of priorities, thereby best meeting needs across the system.	SFI/DFHERIS/HEA	SFI, in partnership with DFHERIS and the HEA, undertook an independent policy evaluation to: (a) retrospectively, evaluate SFI's Research Infrastructure investments from 2015-2021 including an assessment of the programmes' performance and effectiveness with recommendations on potential opportunities for improvement; and (b) prospectively, give recommendations on national mechanisms involved in research infrastructure, to include an overview landscape analysis on which to base potential investment scenario recommendations. This was completed and published in 2022.	Underway
2.5	Research Culture				
	Embed consistent good research practices to drive research excellence and quality of outcomes.	Using the new HEA legislation, ensure consistency of good practice implementation by HEIs through strengthening of HEA oversight structures.	DFHERIS HEGov	Relevant sections of HEA legislation in relation to HEA oversight structures commenced on 10 November 2022.	Underway
			HEA	On the 16th of December 2022, the revised 'HEA Principles of Good Practice in Research within Irish Higher Education Institutions' were launched. The Principles were originally launched in February 2020 with the aim of promoting good practice in research conduct by: bringing together the main elements of good practice in higher education research; articulating high-level principles within each of these; and signposting to more detailed policies, where available. The function of the Principles is to act as high-level research good practice guidelines. The HEIs are responsible themselves for ensuring researcher awareness of all policies identified in the Principles and for ensuring their enforcement on an institution wide basis. The Principles are key to embedding good research practices in Ireland and enhancing research culture.	Completed
		Work across all public research performers to promote implementation of good practices.	IRC	1. The Irish Research Council contributed to the refresh of the HEA's Principles of Good Practice in Research within Higher Education Institutions which were published in December 2022. The nine principles will guide HEIs to develop practices within their research environments to help drive research excellence and further improve research outcomes with a view to enhancing the international reputation of the Irish higher education research system. 2. The IRC is a member of the National Advisory Forum for Doctoral Education (NFDE), and has contributed to the consultation on the refresh of the Framework. The Career Tracking Working Group which is a sub-group of the NFDE includes the IRC.	Underway
			SFI	During 2022, SFI became a signatory to the Agreement on Reforming Research Assessment and thus became a member of the Coalition for Advancing Research Assessment (CoARA) along with over 360 signatory organisations from Europe, the UK and beyond. The Agreement sets a 'shared direction for changes in assessment practices for research, researchers and research performing organisations, with the overarching goal to maximise the quality and impact of research'.	Underway
			DETE	DETE supports this through its engagement with its agencies and stakeholders	Underway
			DHLGH/ Met Éireann	Regular updates with Met Éireann-funded researchers and oversight of Met Éireann-funded research projects to monitor and drive excellence and impact of research.	Underway
			NDA	NDA is developing guidance for the research community on conducting collaborative research with disabled people. Focus groups are underway and guidance is being drafted.	Underway
			TUSLA	Tusla is a member of the Research Managers Network - an informal network of research managers and researchers in the government and public sector agencies. Set up to share learning and create consistency of approach for research management.	Underway
		Scope out a new HE systems performance framework to review institutional research performance against agreed system-level objectives.	DFHERIS HEPR	Under the HEA Act 2022, responsibility for the preparation of a performance framework for the higher education and research system rests with the HEA, in consultation with the Minister for FHERIS. A draft framework was circulated for consultation to HEI Presidents in Q4 2022. Research & Innovation is one of the five key pillars.	Underway
			HEA	The development of the draft framework has been a multi-phased, iterative process over the course of 2022. Phase 1 and 2 of the drafting process saw input collated from the HEA Executive, and HEA Board and Committees, including System Development and Performance Management, Policy and Strategic Planning, Research and Graduate Education, and Teaching and Learning. Valuable insights were also gathered via the final cycle of reporting under the current Strategy and Performance Dialogue process, where an outline of the draft framework was presented. 17 responses to the draft framework were gathered via a written consultation in Q4 2022. The framework and associated performance agreements will span four years (2023-2027), to support alignment with institutional strategies. Opportunities for alignment with institutional strategy are also embedded in the framework's key themes: Teaching and Learning, Research and Innovation, International, Access and Participation, and Engagement.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
2.5	Research Culture <i>(continued)</i>				
	Embed consistent good research practices to drive research excellence and quality of outcomes <i>(continued)</i> .	Strengthen support for key cross-cutting policy agendas including Open Research and Research Integrity.	HEA	1. Irish Research eLibrary (IRel) was funded €2.6 million from HEA funding to cover additional funding demands and ensure participating member institutions were still provided with access to the wide range of licensed e-resources, open access publishing agreements, and open science infrastructure. 2. €100,000 funds provided in support of National Research Integrity Forum Initiatives 2023. NRIF aim to utilise this funding for two initiatives which are critical to the work programme of the forum and will enhance the impact of the NRIF nationally and its visibility internationally with 1) a high profile event in RI with international speakers and 2) to tailor RI training over 2023 with training providers for the Irish research system. 3. €1.9 million funding provided to the Royal Irish Academy for the next phase of implementing Ireland's National Action Plan for Open Research 2022-2030, building on the momentum acquired by the successful launch of that plan, and the commencement of six competitive research projects funded by Ireland's first investment in national open research implementation: the NORF 2022 Open Research Fund.	Underway
			IRC	The IRC is a member of the National Research Integrity Forum and has endorsed the National Open Research Forum Action Plan which was published in November 2022. The Irish Research Council co-funds the Open Access office within the Digital Repository of Ireland.	Underway
			SFI	1. SFI is working closely with colleagues in the National Open Research Forum and Irel to ensure that the outputs of research are widely available and impact is maximised. 2. Further to a review of current practices, SFI has updated its guidance on Research Integrity to include a tool to support Research Performing Organisations in aligning their relevant policies with the National guidelines and the European code.	Underway
			DHLGH/ Met Éireann	Regular updates with Met Éireann-funded researchers and oversight of Met Éireann-funded research projects to monitor and drive excellence and impact of research.	Underway
			TUSLA	1. Tusla has undertaken a number of initiatives to promote open research e.g. Development of an Open Science Reference Paper and summary paper available on the Tusla Research Centre and a set of pages on the Tusla Research Centre to create awareness amongst staff about open data, open science and open research; a set of open access journals is available on the Tusla Research Centre to all staff and public on Tusla specific subject matter; Tusla has also created an electronic platform to access subscription based databases and journals via Athens username and passwords, the landing page includes the CORE Open Access Research engine; Tusla EMT endorsed the National Open Research Forum Action Plan in 2022; Tusla's National Research and Information Specialist has initiated an open research policy for the Agency; Tusla's National Research and Information Specialist is developing with ICT a Tusla research repository, which will be underpinned by open research principles. 2. Tusla's National Research Office staff and its complement of Research and Information Mentors were offered EPIGEUM Research Integrity training via HRB. Tusla prepared a draft statement to support the National Policy Statement on Research Integrity. Further work is 2023 to promote awareness of good research practices and partner with Tusla HR to consider policy options and pathways to manage research misconduct.	Underway
			DETE	DETE supports this through its engagement with its agencies and stakeholders	Underway
3	Innovation Driving Enterprise Success <i>Enterprise-led research, development and innovation drives start-ups, competitiveness, productivity and high performance in the Irish economy, enabling the business sector to contribute to Ireland's economic and societal resilience and transformation.</i>				
3.1	Increasing and Deepening Enterprise R&I Activity				
	Broaden and deepen enterprise innovation capability, especially within indigenous SMEs.	Implement new approaches to broadening and deepening innovation capability across the indigenous and multinational enterprise base (incl. innovation diagnostic tools, scorecards, flexible grants, clusters, digitalisation supports, bespoke advisory services etc.). Assist an additional 170 FDI RD&I investment projects over the period to 2024. Assist an additional 300 indigenous RD&I investment projects > €100,000 in value over the period to 2024.	EI/IDA	This is ongoing and the expected delivery date will be 2024 i.e. the life time of IDA Ireland's current strategy. Innovation Scorecards and Roadmaps - 27 Roadmaps and 278 scorecards completed in 2022. Enterprise Ireland nominated by NSAI for 2022 CEN standards innovation award for the development and deployment of the innovation scorecard.	Underway
		Increase the number of female entrepreneurs and researchers in enterprise as part of Enterprise Ireland's 2020 Action Plan for Women in Business, including through funding calls targeting women entrepreneurs, and women researchers from third level institutions.	IDA	This is ongoing and the expected delivery date will be 2024 i.e. the life time of IDA Ireland's current strategy.	Underway
			EI	102 R&D projects >€100,000 approved in 2022; with a target of 100 for the year.	Underway
			EI	Enterprise Ireland exceeded target for HPSUs with a particularly strong performance in terms of female founders (achieving 142% of target in 2022, and outturn of 34 against a target of 24).	Underway
	Prioritise emerging areas of opportunity for enterprise.	Provide world-class intelligence on global trends in technology and innovation through a joined-up approach to horizon-scanning.	DFHERIS IRDP	This action is assigned to the Steering Group, Implementation Forum and the R&I Policy Advisory Forum. The action is not yet scheduled to commence, given that the DFHERIS is currently developing the terms of reference for the R&I Policy Advisory Forum.	Not yet scheduled to commence
	Use clustering initiatives to drive innovation and enterprise competitive advantage.	Adopt a national clustering policy and framework to strengthen the potential for linkages between multinational, indigenous businesses, research performing organisations and others, in key technology and innovation areas.	DETE	A national clustering policy and framework is in the initial stages of development. DETE will work with DFHERIS to ensure the policy and framework increases the level of technology, innovation and skills spillovers which will improve the standard of RD&I within Ireland's RPOs and indigenous and multinational enterprises, in line with the Impact 2030 vision.	Underway
3.2	Industry-academic Collaboration and Research Commercialisation				
	Increase the breadth and depth of enterprise collaboration with the public research system.	Continue to build Ireland's R&I capacity in delivering impactful innovation across national sectors of importance through further DTIF competitive calls and novel funding instruments.	DETE/EI	The Disruptive Technologies Innovation Fund, (DTIF), is a €500m enterprise-focused, challenge-based fund that encourages collaboration between SMEs, multinational companies and Irish research institutions. The outcome of the fourth DTIF call was announced in November 2022 resulting in 14 collaborative projects to date. A fifth DTIF call was launched in April 2022 focusing on Advanced and Smart Manufacturing with results expected to be announced in early 2023.	Underway
	Increase the breadth and depth of enterprise collaboration with the public research system <i>(continued)</i> .	Further consolidation, scaling and co-ordinating of our enterprise-focused research performing organisations to deliver more comprehensive R&I solutions and address key gaps in areas of strategic importance, including the development of a new Construction Technology Centre.	EI/IDA	1. Following the publication of the National Industry 4.0 Strategy in 2020, Future Manufacturing Ireland (FMI) has been established as a unit within the Department of Enterprise, Trade, and Employment to support the digital transformation of Ireland's manufacturing sector. This agenda is being achieved by coordinating, clarifying and promoting supports and resources available to the manufacturing sector through the Enterprise agencies IDA Ireland and Enterprise Ireland as well as through the state-funded RPOs which have a dedicated focus on Advanced Manufacturing. An ongoing activity of FMI is to support the coordination of such resources through the strategic grouping of four centres under the FMI umbrella. These centres are the SFI research centres I-Form and Confirm, the EI/IDA Technology Centre IMR and the IDA backed Advanced Manufacturing Centre (AMC). Alignment and relative positioning of the activities and offerings of the respective centres has enabled an end to end continuum of resources to be described and communicated to the manufacturing sector. 2. The Construction Technology Centre was launched in December 2022 with a €5m funding for over 5 years to support the sector with the world-class research and diffuse innovation. Launched our Built to Innovate, an Enterprise Ireland initiative under Housing for All, providing a suite of lean, digitalisation and research & innovation grant aid packages for projects which will result in homes that are built faster, on time and with less expense.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
3.2	Industry-academic Collaboration and Research Commercialisation <i>(continued)</i>				
	Increase the breadth and depth of enterprise collaboration with the public research system <i>(continued)</i> .	Further consolidation, scaling and co-ordinating of our enterprise-focused research performing organisations to deliver more comprehensive R&I solutions and address key gaps in areas of strategic importance, including the development of a new Construction Technology Centre.	IRC	The IRC's Enterprise Partnership Scheme links excellent early career researchers across all disciplines to enterprise. Through this programme co-funded with enterprise partners, early career researchers develop new advanced knowledge and skills linked with industry and employer needs. For the enterprise partner, the scheme provides a low-risk, flexible route to research talent and innovation in an area closely aligned with its strategic interests. In 2022, there were four strands under this scheme - the Enterprise Partnership Scheme for Postgraduate researchers, the Enterprise Partnership Scheme for Postdoctoral researchers, the Employment-Based Postgraduate programme, and the Google Online Content Safety Scholarship. The Enterprise Partnership Scheme's Postgraduate and Postdoctoral strands provide researchers with the opportunity to pursue research in collaboration with enterprise while based at an eligible higher education or research-performing institution. The Employment-Based Postgraduate Programme enables researchers to pursue research in collaboration with a higher education institution while based in, and employed by, their employment partner. In 2022, 79 projects were awarded funding under the Scheme's four strands, with a total investment in excess of €8m.	Underway
			SFI	1. SFI re-launched the Spokes programme which allows for broader co-funding partners. It is a vehicle to enable the addition of new industrial and academic partners and projects to existing SFI Research Centres in new areas of strategic importance. 2. One strategic partnership approved for funding in 2022 - R@ISE: Research at ISE - Immersive Software Engineering	Underway
	Accelerate research commercialisation, with particular regard to High Potential Start-Ups from research.	Enhance direct advisory and financial assistance for industry-academic collaboration and commercialisation of research; including implementation of a new Knowledge Transfer Ireland programme to drive licensing and knowledge diffusion from our universities and new technological universities.	EI	IP management - Knowledge Transfer Ireland – KTI is playing an invaluable role in the knowledge transfer and IP management through its Technology Transfer Offices. The old TTSI programme is coming to an end and a new KT Boost will be launched Q1 2023 and co-funded through ERDF for the duration of 7 years. Additionally, The National IP Protocol is published on the KTI website and acts as a practical guide to managing Intellectual Property and Confidentiality.	Underway
			SFI	SFI's primary contribution to this is the ERDF Accelerating Research to Commercialisation (ARC) Hubs programme. This is due to launch in Q1/Q2 2023. More detail in 3.5 below. SFI's Research Centres, Enterprise Partnerships, and Industry RDI Fellowships were active in 2022 and all also contribute to this action. The Industry RDI Fellowship held two calls in 2022.	Underway
		Drive increased start-up and high potential start-up generation from the commercialisation of publicly funded research by 25%, through targeted grant supports and enhanced entrepreneur development programmes and increasing the numbers of female founders from research, leveraging the EI Commercialisation Fund.	EI	Exceeded target for HPSUs with a particularly strong performance in terms of female founders (achieving 142% of target) and delivered a better balance of Digitech proposals from R&I seeded projects. Taken a different approach to engaging with scalable HPSUs and making a more significant upfront investment and more intensive engagement with the company in relation to their development agenda. Continued to focus on driving commercialisation to support HPSUs from research and in November hosted Enterprise Ireland's Big Ideas 2022 at which twelve investor-ready start-ups pitched their new technology solutions to investors. The event, showcased deep tech start-up innovation emerging from higher education institutes via the Commercialisation fund, providing founders with direct access to investors. Held our annual Enterprise Ireland's Big Ideas event, showcasing deep tech start-up innovation emerging from higher education institutes via the Commercialisation fund, providing founders with direct access to investors and an opportunity to unveil their Big Ideas. Now in its 14th year, Big Ideas 2022 took place on 24th November as a hybrid event with a live audience in Croke Park Dublin and a wider international audience watching online.	Underway
			SFI	SFI's primary contribution to this is the ERDF Accelerating Research to Commercialisation (ARC) Hubs programme. This is due to launch in Q1 2023. More detail in 3.5 below. SFI's Research Centres, Enterprise Partnerships, and Industry RDI Fellowships were active in 2022 and all also contribute to this action. The Industry RDI Fellowship held two calls in 2022.	Underway
	Foster researchers' enterprise and entrepreneurial engagement.	R&I active agencies, in particular the new R&I agency under DFHERIS and the enterprise agencies will drive forward the engagement of the public research system with enterprise to ensure Ireland is at the forefront of technological advances.	DFHERS IRDP	As the new R&I agency is not yet established, this action is not yet scheduled to commence.	Not yet scheduled to commence
3.3	Driving Enterprise Digitalisation				
	Drive a major increase in digital adoption and transformation by Irish based enterprise.	Launch the Digital Transition Fund to drive a major increase in digital adoption and transformation by Irish based enterprise, helping to strengthen competitiveness and productivity.	DETE EI	The Digital Transition Fund/Grow Digital launched in June 2022. This fund is open to businesses seeking to use digital technologies to improve their products, processes, supply chains and services. Work is now under way on a scheme to make this scheme more widely available. A Digital Portal is also being developed to allow enterprises to self-assess their digitalisation status and receive tailored advice on future steps to take on digitalisation.	Completed
		Establish a national network of European Digital Innovation Hubs (EDIHs) to drive the digital transformation of SMEs and the public sector.	EI DETE	• All four Irish EDIHs passed the Commission threshold of the restricted call for the EU-wide EDIH network in late June 2022. • Funding for the EDIHs has been arranged, with two EDIHs being jointly funded through DIGITAL and RRF and two solely through RRF as recipients of the Commission's 'Seal of Excellence', which enables them to become full members of the EDIH network subject to national funding. • DETE officials are currently liaising with the Commission and EI on Irish programme requirements, grant agreements, hub staffing and technical administrative matters. • The EDIHs are expected to become operational in Q1 2023.	Underway
		Implement 'AI – Here for Good' including: - promoting business self-assessment of the trustworthiness of their AI systems, including through development of case studies and toolkits for SMEs; - Establishing an Hub specialising in AI as part of Ireland's European Digital Innovation Hubs, providing expertise and guidance to enterprises on their AI adoption journey; and - Assisting employers to expand workplace-focused AI upskilling and reskilling, including through apprenticeships, SOLAS, Skillnet and enterprise partnerships.	EI DETE	The establishment of European Digital Innovation Hubs (EDIHs) outlined in the National AI Strategy includes the designation of one of these hubs as Ireland's National AI Hub. The National AI Hub will take on the role of National First Stop for AI, acting as a point of contact for businesses engaging in AI adoption and the AI innovation ecosystem. It is expected that these hubs will be operational in Q1 2023. The Enterprise Digital Advisory Forum (EDAF) met with officials from DFHERIS and Skillnet Ireland to discuss the topic of Skills issues as they relate to digital in September 2022.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
3.4	Enterprise Innovation to Realise Climate Action Goals				
	Develop innovation solutions to enable all sectors, including our agriculture, construction, transport and energy sectors, to embrace and respond to the challenge of climate change.	Assist the ongoing growth and scaling of Ireland's RPO ecosystem to better meet the needs of enterprise for the climate transition.	EI	Technology Gateways Programme: Application for funding received from CREDIT gateway that will focus on the renewable energy sector. Applications from other Gateways have also indicated they intend to focus on Green opportunities via areas such as the Circular Economy and Increased use of Manufacturing improvement techniques to reduce waste. Additionally the Construction Technology Centre was established and launched in December 2022.	Underway
			SFI	1. Under the National Challenge Fund, three calls under the Green Transition Theme were launched during 2022 (2050 Challenge, Healthy Environment for AI Challenge and the Energy Innovation Challenge) to incentivise R&D in these areas. 2. Co-Centres call launched with the UK and Northern Ireland. The programme will establish virtual Centres of distributed excellence which will be co-funded by Industry. The two thematic areas are "Climate" and "Sustainable and Resilient Food Systems".	Underway
			DHLGH/ Met Éireann	Engagement with Enterprise Ireland and other actors to disseminate opportunities arising from EUMETSAT programmes and DestinE initiatives.	Underway
		Develop new RD&I programmes for climate action as part of the Government's €55 million NRRP Climate Fund.	EI	Five measures related to RD&I programmes for Climate Action have been included under the newly launched RRF Green Transition Fund (GTF). These include: 1. R&D Feasibility Grant 2. Innovation Vouchers 3. Exploring Innovation 4. Research, Development & Innovation (RD&I) 5. Agile Innovation The fund launched in June 2022. In the six months that the GTF has been in operation almost half a million Euro of funds were approved for projects under these schemes (€454,479). - EI launched the Green Transition Funds and a range of EI climate and sustainability journey supports, include training, business planning supports and funding for capital investment in decarbonisation and energy monitoring. Continued to align EI funding with low carbon transition through a Project Assessment Process. These supports will help underpin the decarbonisation of Irish enterprise and deliver on its 2030 climate action target. capturing the carbon footprint of companies integrated into application process for Green Transition offers.	Underway
3.5	Smart Specialisation aligned with national R&I priorities				
	Increase innovation performance in enterprise across our regions and maximise opportunities for innovation diffusion through Smart Specialisation.	Launch and ongoing implementation of Ireland's forthcoming	DETE	Smart Specialisation published July 11th 2022. First meeting of National Implementation group took place December 15th 2022.	Underway
			SFI	Funding secured from the European Commission under the European Region Development Fund programme to develop the SFI Accelerating Research to Commercialisation (ARC) Hubs programme. This is due to launch in Q1/Q2 2023.	Underway
		Launch and ongoing implementation of Ireland's forthcoming European Regional Development Fund programmes aligned with Smart Specialisation.	DETE	Through EI, DETE will four programmes supported by ERDF that are aligned with S3: Innovators' Initiative (to be launched in 2023); KT Boost (to be launched in 2023); Technology Gateways; and Regional Enterprise Innovation Scoping Scheme 2022 (REISS).	Underway
3.6	Wider Business Environment				
	Deliver a competitive wider business ecosystem in standards, intellectual property, finance and tax measures.	Ensure our tax offering for R&D remains competitive and more accessible to SMEs.	DETE	1. Ongoing Liaison with industry stakeholders and enterprise agencies to identify factors inhibiting take-up of the R&D tax credit by SMEs. 2. Development of proposals amending the design of the R&D tax credit to enhance the attractiveness of the credit to SMEs. 3. Submission of developed proposals to the Minister for Finance as part of the annual budgetary process.	Underway
			D/Finance	The primary policy objective behind the R&D Tax Credit is to increase business R&D in Ireland, as R&D can contribute to higher innovation and productivity. The R&D tax credit was reviewed in 2022 and a public consultation was held in May 2022. Twenty-one submissions were received from a range of respondents, including companies engaged in R&D activities, advisory firms, and Government Departments. Amendments were made to this credit in Finance Bill 2022 to align with new international norms.	Underway
		Enhance enterprise engagement on standards development and use for innovation and grow the number of firms with Innovation Management certification.	EI NSAI	1. Commence the rollout of the Innovation Management professional certification and initiate a focused social media campaign to increase customer engagement. This programme is relevant to CEOs, senior managers, innovation managers, marketing and R&D managers with responsibility to sustainably grow their business through innovation. Enterprise Ireland is delivering this Innovation Planning workshop to support clients to develop a clear and coherent innovation plan and access the key tools to implement it. 2. NSAI 2022 -2026 Strategy initiatives regarding SME engagement are examined and continually improved, as new standards are adopted to help strengthen and enable SME digitalisation and aid in the future compliance with EU legislative proposals. 3. Continue the work to grow the NSAI Innovation committee and actively contribute to the development of the international standard for Innovation Management system – requirements and enhancing the knowledge valorisation of the ISO 56000 series.	Underway
		Explore new forms of loan, equity and grant initiatives to maximise enterprise research and innovation activity.	DETE, DAFM, EIBG and SBCI, EI	1. In H2 2022 Enterprise Ireland supported clients to address these challenges and access pre-seed and long-term funding through existing instruments, Strategic Banking Corporation of Ireland (SBCI) and temporary aid framework supports, and by linking clients to SVC funding for Start-up and post HPSUs, also through ISDs Scaling Group addressing specific needs on 1-2-1 basis where we have identified scaling potential. Additionally two new SME loan schemes developed in partnership with DETE, DAFM, EIBG and SBCI. 2. Challenges facing clients include working capital and seed funding for HPSUs. In H2 2022 we supported clients to address these challenges and access pre-seed and long-term funding through existing instruments, SBCI, and temporary aid framework supports, and by linking clients to SVC funding for Start-up and post HPSUs, also through ISDs Scaling Group addressing specific needs on 1-2-1 basis where we have identified scaling potential. 3. The Irish Innovation Seed Fund Programme was officially launched in February 2022. This fund was made up of a €30m investment from DETE, through Enterprise Ireland, which is matched by a €30m investment from the European Investment Fund. The Ireland Strategic Investment Fund will co-invest a further €30m alongside on a deal-by-deal basis. Investments will be targeted at the early stages of external funding for innovative, high growth, scalable sectors including: – Lifesciences; Healthcare & Pharma; Food and Agri-tech; Technology & Digitalisation; and Climate and Sustainability. It is envisaged that the programme will focus on supporting key priorities such as women entrepreneurs, regional development, and sustainability.	Underway
		Raise awareness amongst SMEs about the benefits of registering patents, trademarks and innovative designs and exploiting the value of intangible assets.	IPOI	As the IPOI ensures the provision of information services which are relevant, adaptable, and fit for purpose, an enhanced communications programme will be undertaken. The metrics of outreach output will be collated and quantified in Q2 and Q4 and assessed for engagement impact across all mediums and platforms utilised.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
4	Talent at the Heart of the Research and Innovation System <i>We will be a global leader in nurturing, attracting and retaining talent to drive research and innovation in our higher education and research system, enterprises, communities and public services.</i>				
4.1	Students				
	Strengthen connectivity between R&I and the wider skills development agenda in Ireland.	Work with stakeholders across the tertiary system to ensure course offerings are responsive to R&I needs and that institutions are best equipped to support their students.	HEA	<p>The revised 'HEA Principles of Good Practice in Research within Irish Higher Education Institutions' were launched in 2022 and include two new Principles: 'Gender Equality and Inclusiveness' and 'Research and Sustainability'. The Principles were originally launched in February 2020 with the aim of promoting good practice in research conduct by:</p> <ul style="list-style-type: none"> • Bringing together the main elements of good practice in higher education research, • Articulating high-level principles within each of these, and • Signposting to more detailed policies where available. <p>EUA Solutions carried out their study of 'The National Framework for Doctoral Education in Ireland: Report on its Implementation by Irish Higher Education Institutions'. They reported this to the NFDE Advisory Forum. The study was commissioned by HEA, QQI, THEA and IUA to investigate the level of implementation of the NFDE, to identify examples of good practice within the sector, and to provide recommendations on further implementation and deepening the practice of provision</p> <p>In 2022, it was decided by the Advisory Forum that a refresh of the principles contained in the current National Framework for Doctoral Education would be developed to reflect the changes on the research landscape.</p> <p>The NFDE Advisory Forum has developed a number of working groups to promote and develop the Doctoral Research landscape in Ireland. These working groups include; Research Career Profiles, Career Tracking and Postgraduate Student Engagement. Support of PhD student training through Strands I & II of the North South Research Funding programme, for which projects began in September 2020.</p>	Underway
		Leverage successful initiatives such as the Regional Skills Fora and Skillnet for those in employment seeking to upskill.	DFHERIS - SPEE	Upskilling and training programmes to the value of €45.7 million were delivered to over 25,000 companies and over 87,000 workers in 2022 through 70+ Skillnet Business Networks.	Underway
	Foster a consistent standard of research student experience.	Scope out a work programme for ensuring such a consistent standard, underpinned by Ireland's <i>National Framework on Doctoral Education</i> .	DFHERIS IRDP	A national review of state supports for PhD researchers was announced in October 2022, with two independent co-chairs appointed in November 2022. The scope of the Review will include: current PhD researcher supports including financial supports (stipends, SUSI supports and others); the adequacy, consistency and equity of current arrangements across research funders and higher education institutions, including equity and welfare considerations; the status of PhD researchers (student, employee) including a review of international comparators and models; impact on the funding of research programmes of any adjustments to current supports; graduate outcomes for PhD graduates including return on investment/benefits to the researcher; and visa requirements and duration for non-EU students. The review will be completed in 2023.	Underway
			DFHERIS HEPR	In 2022, the HEA updated the Principles of Good Practice for Research in Irish HEIs. The National Advisory Forum for Doctoral Education met quarterly and oversaw a programme of work, with sub-groups focused on Career Profiling; Career Tracking and PG Student Engagement. A consultant has been contracted to undertake a refresh of the National Framework on Doctoral Education. This work will be concluded Q1 2023. Work on ensuring greater consistency across the HE system with regard to academic support activities of PhD students progressed, with high level principles identified by IUA and THEA institutions.	Underway
			DFHERIS HEGov experience	HEA legislation includes relevant provisions for student engagement and issuing guidelines, codes and policies to HEIs which could include issues such as research student experience	Completed
			HEA	The Career Profiling Working Group is a sub-group of the NFDE Advisory Forum to which it reports regular updates on the status of the project. This project, which aims to inform PhD students and prospective PhD students on what to expect when embarking on their research studies, is in its final stages. The group have developed a PhD roadmap which will become a digital resource. IUA are also supporting in the development of a microsite which is to be hosted on the QQI website and replicated or linked, so that it would be as accessible from the HEA Website. It will be available to prospective students nationally and internationally.	Underway
	Attract the best talent to Ireland.	Attract the best students globally to take part in the Irish experience, learning from the best and gaining cutting-edge experience through existing programmes and through the development of new initiatives, for instance, by way of a partnership between industry and Government.	DFHERIS IROP	Innovate for Ireland was announced on 1 July 2022. Innovate for Ireland is an ambitious partnership between industry and government. Subject to matched funding by private investors, a multi-million euro investment will be made by the State over the course of a number of years. The programme will embrace all relevant disciplines from Science, Technology and Engineering to Arts, Humanities and Social Sciences and will be open to Irish and international students. Further detailed work will be done with private collaborators to develop the programme.	Underway
			HEA	<p>1. The Career Profiling Working Group, a sub-committee of the NFDE Advisory Forum, has developed a PhD roadmap which will become a digital resource. The roadmap will allow prospective PhD students to gain vital insight into what to expect from carrying out a research degree in an Irish HEI. The IUA are supporting the development of a microsite which is to be hosted on the QQI website and accessible from the HEA Website.</p> <p>2. In 2022 four additional Irish HEIs negotiated membership of European University consortia. There are now eleven Irish partners in total. The HEA provided national funding support to the seven original in 2021. In Q4 2022 the HEA agreed to extend a similar level of support c. €442k (HEA €242k/DFHERIS €200k) to each of the four new partners in 2022.</p>	Underway
			IRC	<p>1. The IRC's Government of Ireland Postgraduate Scholarship Programme is open to applicants from any country, with applicants falling into one of two categories based on nationality and residency. Category One applicants must be a national of an EU Member State or Ireland, Norway, Liechtenstein, Switzerland or the UK, and have been ordinarily resident in a EU Member State or Ireland, Norway, Liechtenstein, Switzerland or the UK for a continuous three of the five years preceding the year of application. Category Two applicants are those that fall outside of the two criteria applicable to Category One. While the majority of scholarships are awarded to Category One applicants, a proportion of scholarships each year are made to exceptional applicants under Category Two. In 2022, the success rate for Category Two applicants was 5.3% in STEM and 8.5% in AHSS.</p> <p>2. The IRC's Enterprise Partnership Scheme is open to applicants from all countries.</p> <p>3. In September 2022, the IRC hosted an Early Career Researcher event targeted at the 2022 Government of Ireland and Enterprise Partnership Scholarship awardees. The event provided a networking opportunity for the new cohort and expert advice about diverse career pathways and ways of communicating their research from leaders in these fields in the form of two panel discussions. There was also an information session on supports for postgraduate researchers, including international postgraduate researchers.</p>	Underway
4.2	Inclusion				
	Strengthen equality, diversity and inclusion among our research community.	Commission a report on inclusion and diversity in the Irish research system to identify EDI issues that host institutions need to address.	HEA	In November 2022, Minister Harris launched the Report of the Expert Group: Second HEA National Review of Gender Equality in Irish Higher Education. The Review was launched in March 2022 and was carried out by a six-person Expert Group, chaired by Niamh O'Donoghue, former Secretary General of the Department of Social Protection, and consisted of national and international members with relevant expertise and experience. The review makes a number of recommendations, including that higher education institutions should develop EDI strategies and action plans that seek to effect change in a way that centralises an intersectional approach to equality issues.	Completed
		Continue to embed the Athena Swan Charter across higher education institutions.	EDI	The HEA continues to fund the extension of the Athena Swan Charter to Ireland. There are currently 112 award holders in Ireland (110 Bronze; 2 Silver). 18 institutions hold awards, including 4 legacy awards. 94 sub-units also hold awards. This data reflects awards made up to and including the April 2022 assessment round as well as Legacy Award applications from Technological Universities as of December 2022.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
4.2	Inclusion (continued)				
	Strengthen equality, diversity and inclusion among our research community (continued) .	Consider recommendations flowing from the next HEA Review of Gender Equality in HEIs.	EDI	2nd HEA Review of Gender Equality in Irish HEIs published December 2022	Not yet scheduled to commence
		Increase the number of research students from underrepresented groups by expanding the PATH programme.	HEA	Under the PATH 2 – 1916 Bursary Fund, bursary recipients can continue to receive their bursary for postgraduate study up to Level 10. In 2021/22, 20 bursary recipients went on to postgraduate study. The objective of the 1916 Bursary Fund, provided under strand 2 of PATH, is to encourage participation and success in higher education by students who are the most socio-economically disadvantaged and who are from communities significantly under-represented in the student body availing of higher education.	Completed
			NDA	The NDA has provided guidance to the HEA and DFHERIS on criteria for awards being made under PATH4 to enhance Universal Design in HEIs, allow for common understanding, guidance and strategic direction for UD in Higher Education. This strand of the PATH4 programme aims to increase participation opportunities for students with intellectual disabilities and students with autism. The NDA assessed project submissions made from HEIs, together with the HEA, in order to finalise funding allocations.	Completed
4.3	Talent and Excellence				
	Invest in research talent across the full span of a research career as a foundation for an innovation society	Through the new R&I agency, invest in talent by providing stability and consistency across funding programmes.	DHFHERIS IRDP	As the new R&I agency is not yet established, this action is not yet scheduled to commence.	Not yet scheduled to commence
	Ensure that researchers in Ireland have the right opportunities, skills and career incentives to maximise their impact and realise their potential.	Scope out initiatives to address career advice, opportunities and transversal skills development across HEIs and funders.	HEA	EUA Solutions carried out their study of 'The National Framework for Doctoral Education in Ireland: Report on its Implementation by Irish Higher Education Institutions'. They reported this to the NFDE Advisory Forum. The study was commissioned by HEA, QQI, THEA and IUA to investigate the level of implementation of the NFDE, to identify examples of good practice within the sector, and to provide recommendations on further implementation and deepening the practice of provision In 2022, it was decided by the Advisory Forum that a refresh of the principles contained in the current National Framework for Doctoral Education would be developed to reflect the changes on the research landscape. The NFDE Advisory Forum has developed a number of working groups to promote and develop the Doctoral Research landscape in Ireland. These working groups include; Research Career Profiles, Career Tracking and Postgraduate Student Engagement. The Career Profile Working Group, a sub-committee of the NFDE Advisory Forum, has developed a PhD roadmap which will become a digital resource. The roadmap will allow prospective PhD students to gain vital insight into what to expect from carrying out a research degree in an Irish HEI. The IUA are supporting the development of a microsite which is to be hosted on the QQI website and accessible from the HEA Website. Input was provided to the research classifications work carried out by DFHERIS.	Underway
	Ensure that researchers' assessment maximises their impact on wider objectives.	Embed emerging international best practice and explore options to reflect the wider impact of their work as part of a researchers' career assessment.	HEA	The HEA engaged with the research classification re-structuring for the fields of research and socio-economic objective classifications. The aim of this is to accurately represent the current features of Irish research. The classification will be used in future government reporting on nationally-funded research across all departments and agencies. The Career Tracking Working Group, a sub-committee of the NFDE Advisory Forum, has developed a PhD roadmap with the end goal of this becoming a digital resource. The roadmap will allow prospective PhD students to gain vital insight into what to expect from carrying out a research degree in an Irish HEI. A microsite is to be developed with access to be available from the HEA and QQI websites.	Underway
		Consider the inclusion of targets in engaging the public in research as part of the research dimension of the <i>Higher Education System Performance Framework</i> .	DFEHRIS HEPR	Under the HEA Act 2022, responsibility for the preparation of a performance framework for the higher education and research system rests with the HEA, in consultation with the Minister for FHERIS. A draft framework was circulated for consultation to HEI Presidents in Q4 2022.	Underway
			HEA	Research and Engagement are both included as a Key Themes in the draft System Performance Framework. In the development of Performance Agreements, HEIs will indicate performance objectives under both of these key themes with reference to transversal themes as relevant. These performance objectives will include targets aligned to KPIs, which will be selected by HEIs from a catalogue of available data indicators collected through existing reporting mechanisms.	Underway
4.4	Diversity of Career Opportunities				
	Promote researcher mobility.	Increase evidence base underpinning demand for research talent, skills and intersectoral mobility, to include the development of a research graduate career tracking system.	DFHERIS HEPR	In 2022, a sub-group of the National Advisory Forum for Doctoral Education was established with a focus on research graduate career tracking. The sub-group intends developing a proposal for a national researcher career tracking project. It is expected that this work will further progress in 2023.	Underway
			HEA	The Career Tracking Working Group had its first meeting in November 2022. This working group was developed under the National Framework for Doctoral Education (NFDE) Advisory Forum with the aim of establishing a proposal with regards to the "tracking" of research graduates' careers after they have completed their studies. The objectives of this, is to ultimately develop a "career road map" which will offer prospective research graduates a better look into the career paths available to them should they pursue a PhD and also give better overall insight into where research graduates are going after completing their studies i.e. academic careers, professional careers etc. This coincides with the 4th Pillar of Impact 2030 - Talent at the Heart of the Research and Innovation System - which aims to highlight career pathways into wider sectors for researchers, so that they can maximise their impact on all forms of organisations throughout Ireland (and beyond). At the last meeting Career Tracking Meeting the below points were discussed. 1.Establishing inclusion criteria for researchers in the tracking project(including timeline) 2.Scope of questions within the project, including generating evidence-based information on career progression 3.Principles to be adhered to in ensuring data handling is fully compliant with GDPR regulations and data is anonymised	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
4.4	Diversity of Career Opportunities <i>(continued)</i>				
	Promote researcher mobility <i>(continued)</i> .	Support and strengthen existing researcher mobility programmes and scope out new initiatives, in particular through the new R&I agency and the HEA.	IRC	1. DOROTHY (DevelOp interdisciplinary approaches to health crisis collaboratively) is a postdoctoral research programme that is co-funded by the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie Actions (MSCA), managed by the Irish Research Council (IRC) in partnership with the Health Research Board (HRB) and the Environmental Protection Agency (EPA). The programme is open to researchers from all disciplines whose projects are focused on public health crises. DOROTHY Fellowships are 36 months in duration with the first 18 months hosted in a HEI/RPO outside of Ireland and the remaining 18 months hosted in a HEI/RPO in Ireland. 25 fellows will be recruited over 2 calls. The first DOROTHY call opened in March 2022, with 8 fellowships awarded in December 2022. The first cohort will commence their fellowships in April 2023. 2. The IRC in partnership with the French Embassy in Ireland manages the Ulysses Scheme which aims to foster new collaborations and knowledge exchange between Irish and French based researchers across all disciplines by providing seed funding for reciprocal travel visits over the course of 12 months. The longer-term goal is to establish lasting professional networks of researchers and institutes. In 2022, 20 awards were made, and the successful researchers were honoured at a special Bloomsday-themed reception hosted by the French Ambassador to Ireland, H.E. Mr Vincent Guérand at his Dublin Residence to celebrate the 25th anniversary of the Ulysses Scheme. Since its establishment in 1997, the Ulysses Scheme has funded over 700 awardees across all research disciplines. 3. The IRC's New Foundations scheme enables awardees to pursue research, networking or dissemination activities within and across the diversity of disciplines. The networking and dissemination support provided includes travel grants to enable researcher mobility. 4. The IRC manages the COALESCE Better World Award strand which is funded by the Department of Foreign Affairs. This award provides opportunities for new collaborations between researchers in Ireland and researchers in eligible partner countries, based around excellent research projects aligned to the policy priorities set out in 'A Better World: Ireland's Policy for International Development.' 5 awards were made under this strand in 2022.	Underway
			SFI	1. SFI-NSF (US National Science Foundation) student mobility programme was launched in 2022. 2. Six awards made in September under the first Industry RD&I Fellowship programme launched in 2022 3. Awards made under the SFI Fellowship programme in July 2022 4. SFI Supplemental Grant for Displaced Researchers - Ukraine, 8 awards made in 2022. 5. SFI Research Professorship Programme - one new Res Prof awarded in 2022, through a joint appointment with a UK institution.	Underway
		Support international mobility with the assistance of EU funding supports like Horizon Europe's Marie Skłodowska-Curie Actions and our EURAXESS office.	DFHERIS IROP	DFHERIS continues to support the EURAXESS Ireland Office which is hosted by the IUA and facilitates researcher mobility. In 2022 EURAXESS Ireland processed 729 new hosting agreements and 469 agreements were extended. The hosting agreements covered researchers from approximately 70 different non-EEA countries. DFHERIS renewed the SLA with the IUA for this service in 2022 with updates to reflect the current directive.	Underway
5	All-Ireland, EU and Global Connectivity <i>Research and innovation contributes to a shared island and innovative Europe through strong all-island, European and global R&I collaborations.</i>				
5.1	All-Ireland Collaboration				
	Deepen and widen R&I linkages across the island of Ireland.	Strengthen all-island research collaborations through cooperation between research funders and the Government's Shared Island Initiative.	HEA	The North-South Research Programme promotes and develops research and innovation practices across the island of Ireland. The Research Programme ran its first call in 2021 in 2022 issued funding for 62 projects across 3 strands to the value of €37.28m (which includes HEA co-funding). Funding was awarded on the basis of excellence, assessed through a rigorous and independent international peer-review process. Feedback was provided to all 367 applicants who provided an expression of interest and the first round of payments were processed in October 2022. The North South Research Programme plays an integral part in expanding on the research and innovation partnership with Northern Ireland and as such adheres heavily to Pillar 5 of Impact 2030 which relates to All-Ireland, EU and Global Connectivity.	Underway
			IRC	The IRC's New Foundations Scheme includes a strand co-funded by the Department of the Taoiseach's Shared Island unit. In 2022, 8 research projects bringing together researchers North and South to examine political, economic, civic and social cooperation and connection on the island of Ireland were announced. The Shared Island strand of the New Foundations programme sees researchers develop partnerships either North/South on the island of Ireland, East/West between Ireland and Britain, or through an international collaboration relevant to the island of Ireland and the Good Friday Agreement. The awards, totalling €150,000 focus on the Shared Island priorities set by Government as part of the revised National Development Plan (2021-2030) and key issues from the Shared Island Dialogue series. The projects range between 6 to 9 months in duration.	Underway
			SFI	1. Co-centres programme launched with funding provided by Science Foundation Ireland (SFI), Northern Ireland's Department of Agriculture, Environment and Rural Affairs (DAERA) and UK Research and Innovation (UKRI), and co-funded by industry. Successful Co-centres will be established in 2023.	Underway
			GSI	1. Joint projects under development as part of Interreg Peace Plus funding. 2. Currently Masters by Research funding call open with partners from NI eligible to participate.	Underway
		Review First Call under HEA North South Research Programme and roll out Second Call.	HEA	The North-South Research Programme (NSRP) is funded by the Government's Shared Island initiative and delivered by the HEA on behalf of DFHERIS. In July 2021, funding of €40 million was allocated to the NSRP and a further €10 million was announced by the Department of the Taoiseach in December 2022, bringing the total funding for NSRP to €50 million. The first round of reporting is underway and will close at the end of January 2023.	Underway
5.2	European Research Area				
	Participate in the revitalised European Research Area, grounded in Ireland's R&I priorities and shared EU goals.	Identify the ERA research priorities for Ireland and how to contribute to implementation at national level.	DFHERIS IRDP EU Int	In May 2022, Member States were invited to identify the ERA actions that they planned to implement at national level over the period 2022-2024. Following engagement with national R&I stakeholders during summer 2022, Ireland committed to participate in ten actions. DFHERIS is leading on seven actions (#1; #3; #4; #5; #6; #9 and #19); DETE is leading on #7 and DECC on #11; DECC and DETE are jointly leading on #12.	Completed
		Participate in the implementation of the ten-year European Pact for R&I and the ERA Policy Agenda.	DFHERIS IRDP EU Int	Ireland has committed to participating in ten ERA actions. National activities to implement the actions are aligned with Impact 2030 and other relevant national strategies. Ireland is also actively participating in the ERA governance structures to progress implementation of the ERA actions at European level - in particular the Competitiveness Council (R&I), ERAC (high level strategic advisory body) and the ERA Forum (implementation body). DFHERIS has engaged with stakeholders to coordinate Ireland's contribution to European level activities and to raise awareness of initiatives of relevance to the Irish R&I community.	Underway
5.3	Horizon Europe				
	Maximise Irish engagement in the EU's Framework Programme for R&I, Horizon Europe.	Strengthen national governance and support structures to optimise and improve Ireland's participation and collaboration in Horizon Europe.	DFHERIS IRDP FP	2022 was first full year of Horizon Europe operations. During this period Irish organisations drew down over €260 million, the highest receipts yet under the Framework Programmes. DFHERIS, in conjunction with the relevant line Departments, helped coordinate the launch of 8 new Partnerships and 5 Missions. These structures will require further governance efforts over the lifetime of Horizon Europe. The High Level Group for Horizon Europe met 3 times in 2022 and progressed work on the governance of Partnerships and Missions, as well the development of national metrics. DFHERIS also advanced Ireland's interests on a range of European fora, including the Strategic Programme Committee, the Mission Working Groups and the Partnership Knowledge Hub. The Work Programme 23-24 was developed with extensive input from Irish stakeholders.	Underway
			IRC	1. Since 2012, the IRC has invested in the Irish MSCA Office in a strategic partnership with the IUA. The Office provides high quality practical supports for applicants to the MSCA and the ERC (SSH). 2. The IRC is the national support agency and National Delegate for Horizon Europe Cluster 2 and joint National Contact Point (NCP) for the ERC. The Director of the Irish Research Council is also the national expert for the ERC SSH. 3. The IRC is also a member of the Horizon Europe High Level Group.	Underway
			SFI	SFI has agreed to sign up to a new EU Health Partnership on personalised medicine.	Underway

Pillar	Strategic Objective	Actions for 2022-2024 Work Programme	Update from	Progress to 31 December 2022	Status 31/12/2022
5.4	Other European and Global Cooperation Opportunities				
	Leverage other EU and international opportunities for the strategic development of Ireland's R&I system.	Identify and participate in European opportunities, including the European Universities Initiative and the dialogue on a European Strategy for Universities.	IRC	<p>1. The IRC is the lead agency for the DOROTHY COFUND, cofunded by the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie Actions (MSCA), the Irish Research Council, the Health Research Board (HRB) and the Environmental Protection Agency (EPA). The mobility element integrated into the programme means that DOROTHY postdoctoral fellows spend 18 of the 36 months of the fellowship in a HEI/RPO outside of Ireland, thereby building networks and collaborators which benefit Ireland's R&I system in the return phase of the fellowship spent in Ireland. The first cohort of DOROTHY fellows were awarded in December 2022 and will commence their fellowships in April 2023.</p> <p>2. The IRC is the handling agency for the ERA-NET COFUND Humanities in the European Research Area (HERA), a network of 26 humanities research councils across Europe. HERA's objective is the continued growth and development of collaborative and transnational humanities research across Europe. The most recent Joint Research Programme for HERA, 'Public Spaces' was launched in 2019 and concluded on 31 January 2023. The Public Spaces programme funded 20 transnational projects. The IRC organised a closing conference for Public Spaces in Wroclaw, Poland from 7-9 September 2022, entitled 'Humanities in Crisis, Crisis in Humanities'. The conference included a specific event for early career researchers, encompassing workshops and seminars as well as mentoring opportunities. Alongside the conference, the IRC organised an expert group meeting in Wroclaw to devise the next call text for the network, which is anticipated to launch at the end of 2023.</p> <p>3. The IRC is also the national contact point for CHIST-ERA, European Coordinated Research on Long-term Challenges in Information and Communication Sciences & Technologies ERA-NET. The IRC participated in the 2022 call focused on the topics of security and privacy in decentralised and distributed systems (SPIDDS) and machine learning-based communications systems, towards wireless AI (WAI). The call closed in early February 2023. For projects selected for funding, each partner of the consortium will be funded separately by their respective national/regional research funding organisation.</p> <p>4. In early 2022, the IRC hosted a call for the appointment of the National Coordinator for the European Social Survey, an academically driven social survey designed to chart and explain the interaction between Europe's changing institutions and the attitudes, beliefs and behaviour patterns of its diverse populations. The ESS is funded through the European Commission's Framework Programmes, the European Science Foundation and national funding bodies in each country including the IRC.</p> <p>5. The IRC is a member of Gender-NET Plus funded under Horizon 2020 alongside 15 other international partners across 13 countries.</p> <p>6. The GenderAction Plus consortium, of which the IRC is a partner, has formed 2 community of practice groups. The IRC is a member of the Research Funding Organisations Community of Practice and is task leader on gender bias in the evaluation process. One of the key objectives of the community of practice is for countries with more established gender actions and policies to share learnings with those whose policies are less developed.</p>	Underway
			SFI	1. SFI signed up to CoARA (Coalition for Advancing Research Assessment)	Underway
		Optimise our membership of international research organisations, ensuring that our engagement reflects our existing and emerging strategic priorities. Review Ireland's membership of international research organisations.	DFHERIS IROP	DFHERIS continued to contribute to a number of International Research Organisations (IROs) and participate in their governance (EMBL, ESO, LOFAR, etc.). DFHERIS coordinated Ireland's input to a request for LOFAR to become an ERIC. DFHERIS officials are now actively preparing a Memo for Government decision on CERN membership for Ireland.	Underway
	Forge global strategic relationships that are based on complementary priorities and values.	Promote Irish bilateral relationships with strategically significant other countries with shared interests and values.	DFHERIS IRDP EU Int	Ireland continued to deepen existing bilateral relationships with the UK, US and China. The co-centres programme to create new collaborative research centres across Ireland, Great Britain and Northern Ireland was announced in October 2022. It is expected that the successful bidders will be announced in Q4 2023. There was a virtual meeting of the Ireland-China Joint Committee, which was established to oversee implementation of the MOU on science, technology and innovation in October.	Underway
			DFHERIS IRDP	The US-Ireland R&D Partnership links researchers across Ireland, Northern Ireland and the United States. This collaborative approach helps to accelerate innovation in a number of key sectors including health, energy and sustainability. To date 85 projects have been successfully funded under the US-Ireland R&D Partnership across key sectors including agriculture, health, science and engineering, telecommunication, energy and sustainability, and cybersecurity. Funding raised to December 2022 is valued at \$162.437m or £118.2323m or €139.535m. Ireland hosted the annual meeting of the Partnership's Steering Group in Dublin in June 2022.	Underway
			IRC	In 2022, the IRC enhanced its collaboration with the Arts and Humanities Research Council (AHRC) in the UK. In December 2022, the IRC co-hosted a digital sustainability webinar alongside the AHRC for award holders under the AHRC-IRC Collaboration in the Digital Humanities main research grant announced in 2021.	Underway
			SFI	1. SFI-NSF (US National Science Foundation) student mobility programme was launched in 2022. 2. SFI collaborated with the Fraunhofer Society to organise three virtual workshops between Fraunhofer Institutes and SFI Research Centres. The workshops were focused on: (a) Renewable Energy; (b) Digital Health; and (c) Bioeconomy. The goal was to bring together the relevant researchers, identify synergies/areas of interest and make connections with a view to collaborating on EU funded projects. Collaborative Horizon Europe proposals have resulted.	Underway
		Through a new international education, research and innovation strategy, identify how to strengthen Ireland's global R&I footprint.	DFHERIS International	In early 2022, DFHERIS conducted a public consultation on its new International Education, Research and Innovation Strategy 2030. The Department received 54 individual responses from a range of stakeholders including HEIs, student groups, State actors, business organisations and individuals. Since then officials from DFHERIS have been engaging with key stakeholders in a series of bilateral engagements to further explore ideas raised in the consultation. The new strategy is now nearing completion. It expands upon previous strategies in that it aligns international education, research and innovation policy in a single strategic framework. This new approach will foster greater cooperation and opportunities internationally. A detailed work programme for the strategy is also being developed, with work commencing after the official launch of the new strategy in H1 2023.	Underway