-Partners in Excellence-

Brazil-Ireland Research Event

Rio de Janeiro, 12-13 April 2018

Ireland's Research Funding Landscape

Peter Brown
Irish Research Council

An innovation driven culture

Source: Nature / Science Foundation Ireland

10th **Most innovative country**

(from 21st place 10 years ago)

1st **Knowledge Diffusion**

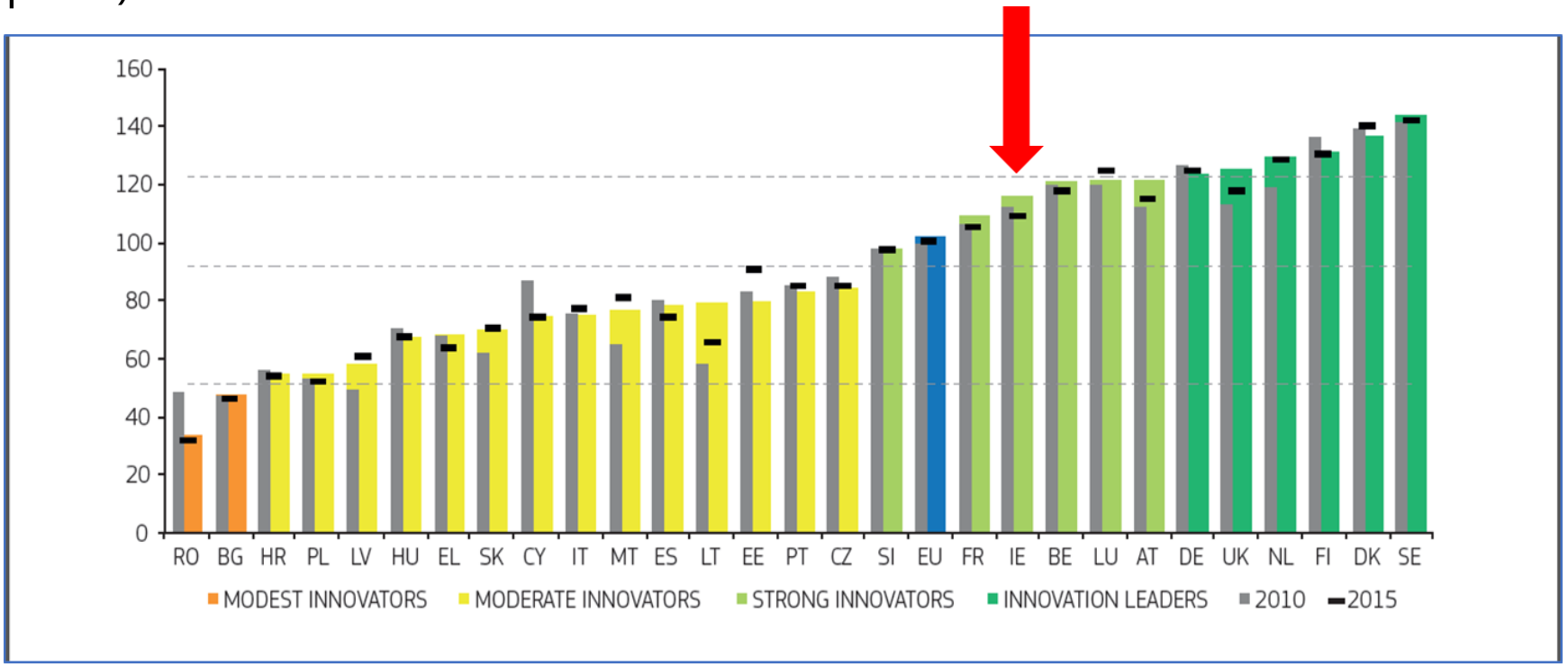
2nd **Knowledge Impact**

1st **Attracting high-value FDI**

An Roinn Gnó, Fiontar agus Nuálaíochta
Department of Business, Enterprise and Innovation

Where Ireland is now …

A ‘Strong Innovator’ European Innovation Scoreboard 2017 (10th place)



Innovation 2020: Targets and Commitments

- Increase Ireland's R&D investment to achieve an intensity **target of 2.5%** of GNP by 2020
- **Double private investment** in publicly performed research
- **Increase** the number of **research personnel in enterprise** from 25,000 to 40,000
- **Increase research masters and PhD enrolments by 500** and deliver a 30% increase in post-doctorate researchers
- Drawdown **€1.25bn** from **Horizon 2020** for Irish institutions and companies
- **Stimulate RDI activity** within **enterprise** by **tailoring** enterprise RDI **supports** and making them more readily accessible
- **Increase Intellectual Property** activity within enterprise
- Introduce the '**Knowledge Development Box**' to ensure that Ireland remains an attractive location for companies engaged in innovative, value-creating activities

Research Priority Areas from 2018 to 2023

INNOVATION 2020

ICT

- Future Networks & Communications, IoT
- Data Analytics, Management, Security & Privacy, Artificial Intelligence 9incl. Machine Learning)
- Digital Platforms, Content & Applications, Augmented & Virtual Reality

Energy, Climate Action and Sustainability

- Decarbonising the Energy System
- Sustainable Living

Health and Well-Being

- Connected Health
- Diagnostics
- Medical Devices
- Therapeutics

Manufacturing

- Advanced & Smart Manufacturing
- Manufacturing & Novel Materials

Food

- Food for Health
- Smart & Sustainable Food Production & Processing

Innovation in Services & Business Processes

- Innovation in Services & Business Processing

An Roinn Gnó, Fiontar agus Nuálaíochta
Department of Business, Enterprise and Innovation

Innovation 2020 Commitments

- **Innovation2020** explicitly recognizes that investment more broadly in

RESEARCH FOR KNOWLEDGE and

RESEARCH FOR POLICY

Addressing all disciplines, including the ARTS, HUMANITIES and SOCIAL SCIENCES

is a key requirement within the Irish research and innovation system

Trends in Ireland's R&I metrics

	1996	2006	2016
Innovation Union Scoreboard ranking	N/A	13th	7th (10th in 2017)
Gross R&D expenditure as % of GNP	1.27%	1.38%	1.43%
Public investment in R&D as % of GNP	€261m 0.36%	€763m 0.47%	€719m 0.32%
Business expenditure on R&D as a % of GNP	€541m 1.04%	€1,466m 1.05%	€2,292m 1.01%
PhD enrolments	2,260	4,151	8,368
EU drawdown	€191m (FP4 in total)	€199m (FP6 in total)	€513m (Horizon 2020 to date)

Irish higher education landscape

- 24 HEA-funded higher education institutions:
  - 7 universities
  - Dublin Institute of Technology (DIT)
  - 13 Institutes of Technology
  - 6 Colleges of Education (merging, or in the process of merging)
- A number of (partly) publicly-funded small colleges and private third-level colleges (e.g. Royal College of Surgeons in Ireland)

Population 2016: 4.76m

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AN tÚDARÁS um ARD-OIDEACHAS

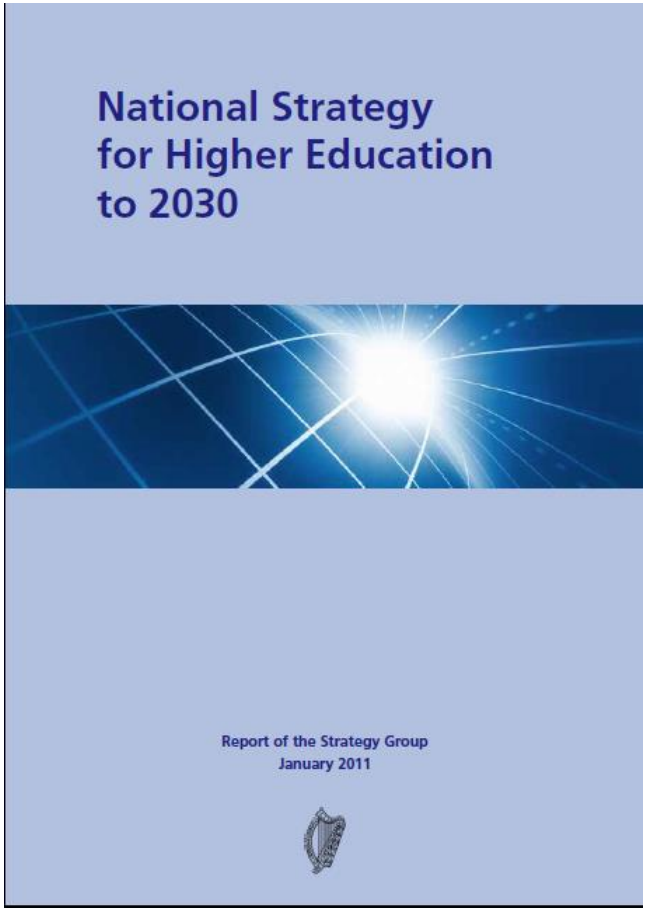

TRANSFORMING
HEALTHCARE EDUCATION,
RESEARCH AND SERVICE
RCSI Strategic Plan 2018–2022
RCSI

DIAS

Institiúid Ard-Léinn Bhaile Átha Cliath
Dublin Institute for Advanced Studies

Ireland's globally embedded Institute for Advanced Studies
The world's 2nd , and Ireland's only, IAS; dedicated to frontier research
33% of researchers hosted from outside Europe; 22 nationalities
Addressing unanswered questions about our island, our planet and our universe
Sections: Astronomy/Astrophysics, Geophysics, Theoretical Physics and Celtic Studies
Professor Erwin Schrodinger, Nobel Prizewinner, first Director at the Institute .
www.dias.ie

Technological Universities

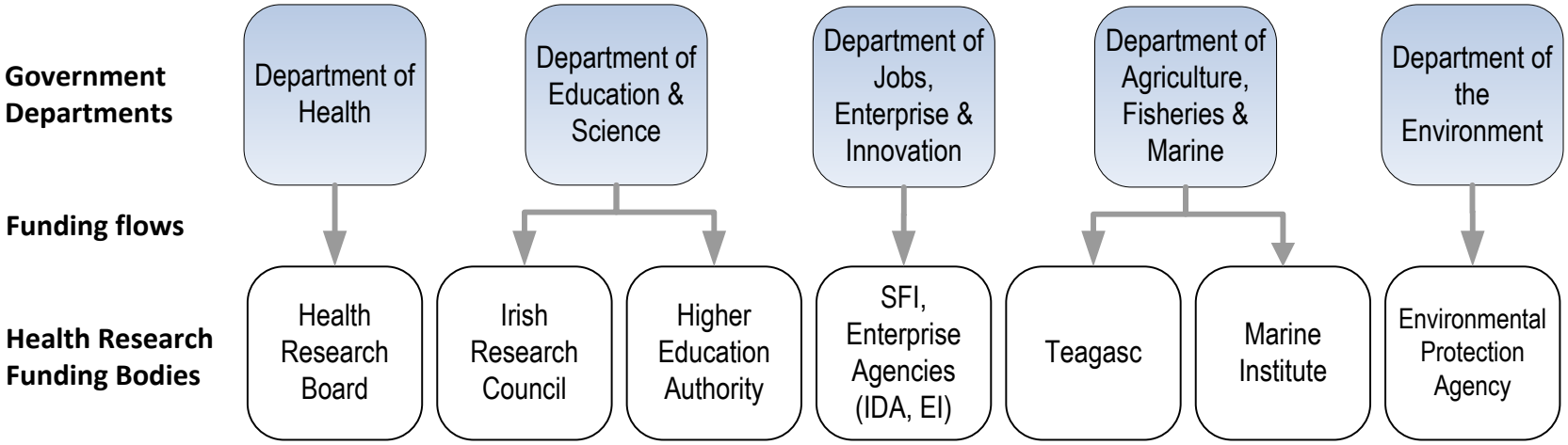


- Foreseen in the National Strategy for HE to 2030
- At least two Institutes must merge to form a TU
- Four consortia at present:
  - TU4Dublin: DIT, ITB, ITTD
  - TUSE: WIT and ITC
  - CUA: ITS, GMIT, LYIT
  - MTU:ITT and CIT
- Research & Innovation will be at the forefront of the activities of a TU => R&I will grow significantly

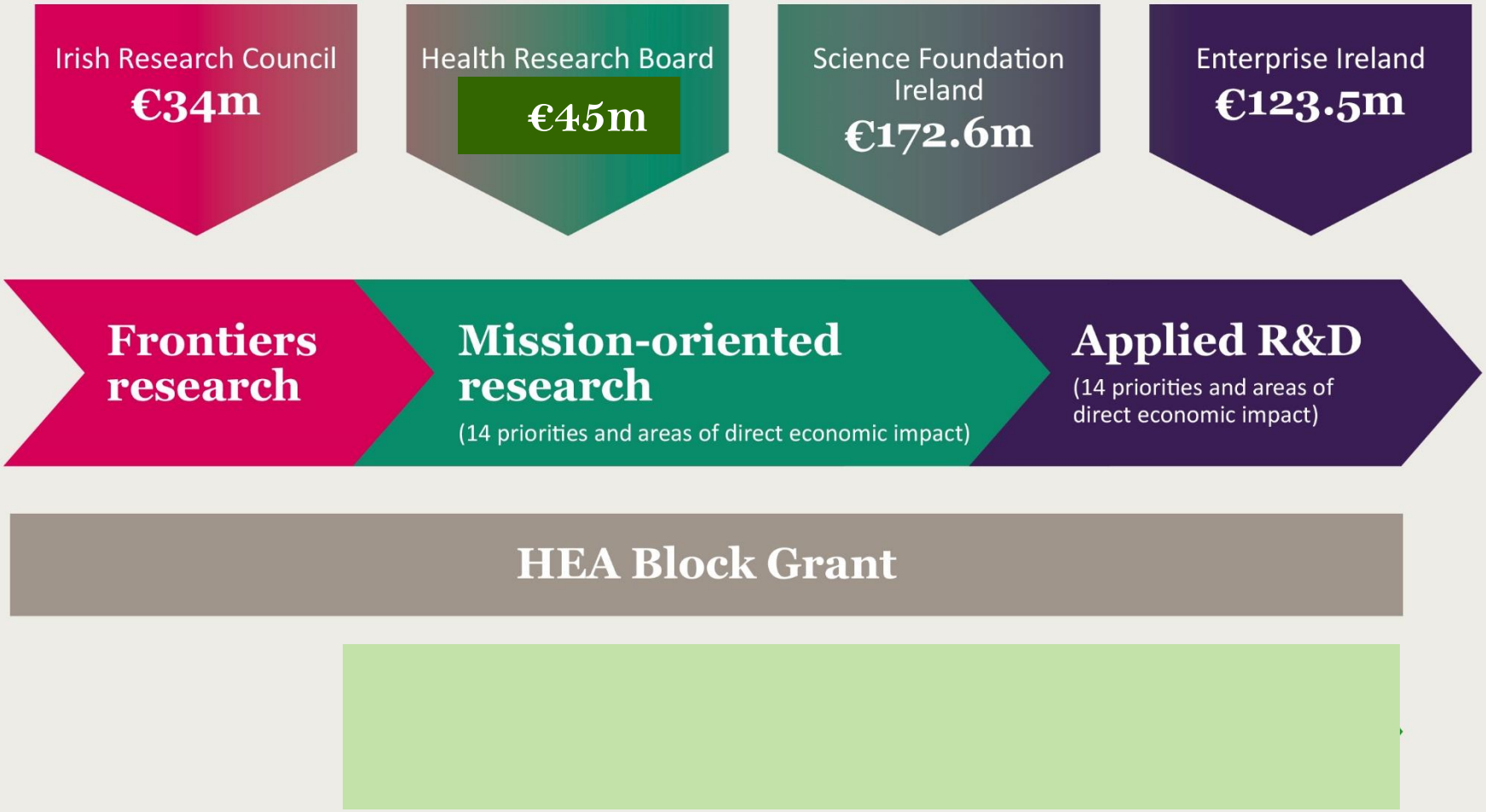
Ireland's Research Funders – working together to deliver impact

Funders in Ireland

Relationship between government departments and funders of health research in Ireland



Funding Landscape (2017)



The Irish Research Council

Funds excellent research **across all disciplines**

Provides support **from early career to professor-led research**

Enriches Ireland's **pool of knowledge and expertise**

Provides **policy advice**

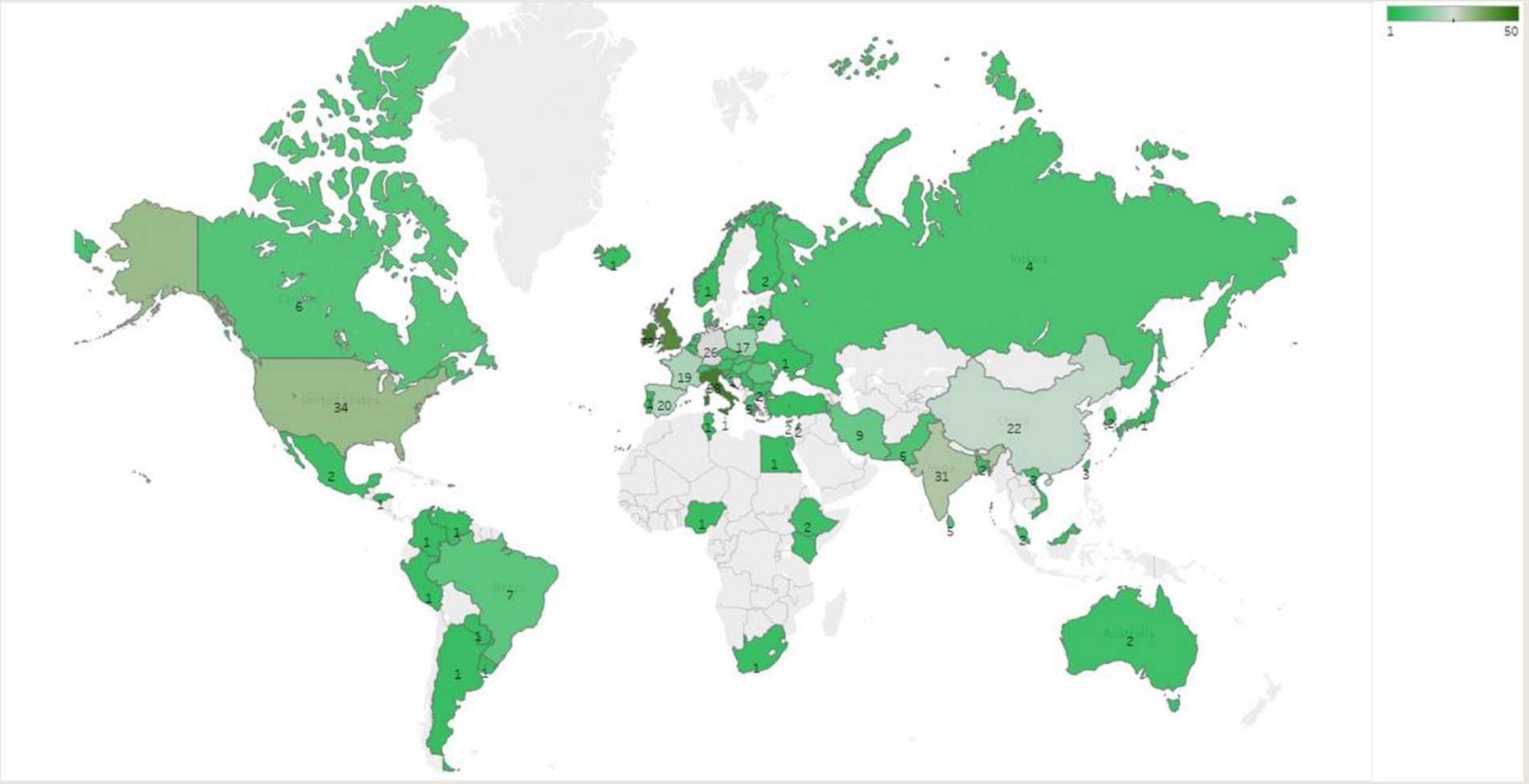
Our mission is to enable and sustain a vibrant and creative research community in Ireland

Irish Research Council

- Addressing the **three key pillars** of national research and innovation policy framework: research priorities, research for knowledge and research for policy
- Supporting the **broad development of excellent people** in our higher education institutions
- Delivering on the **high-level skills agenda** of the Department, to include innovation, creativity, and advanced analytical skills as well as expert knowledge
- Exposure of early-career researchers to **rigours of international experts** at the earliest stage, driving excellence and resilience

Our mission is to enable and sustain a vibrant and creative research community in Ireland

Council funds 1200 early-career researchers from 62 countries



Our mission is to enable and sustain a vibrant and creative research community in Ireland

IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

15 years of the Irish Research Council

7776
awards

=

4984
postgraduate scholars

+

1287
postdoctoral fellows

+

703
project awards

+

802
networking awards

78,000*
individual peer reviews

200
funding calls

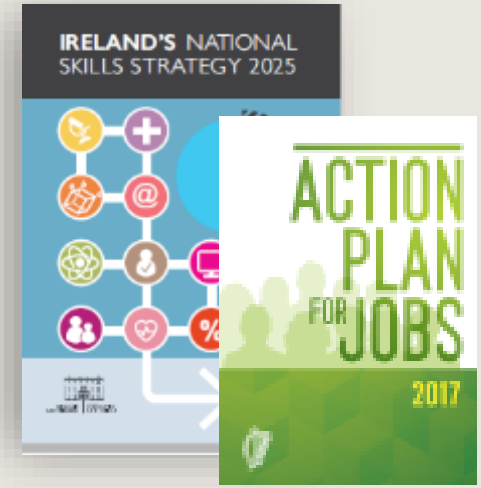
466
funding partners

€462,774,000
total investment

*estimate

Innovation in enterprise

Bringing skills, talent & research to enterprise



Industry-Ready

Enterprise-facing scholars
highly employable

Our Partners

70%+ SMEs

15% large indigenous companies

10% multinationals in Ireland

Addressing national challenges

Bringing research & expertise to government & civic society

Partnerships with Government Departments and Agencies

An Roinn Gnóthaí Pobail, Comhionannais agus Gaeltachta
Department of Community, Equality and Gaeltacht Affairs

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Oifig an Aire Leanaí agus Gnóthaí Óige
Office of the Minister for Children and Youth Affairs

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Dochas

IPRT Irish Penal Reform Trust

crisispregnancyprogramme

An Roinn Coimirce Sóisíalaí
Department of Social Protection

TJ
An Ghníomhaireacht um Leanaí agus an Teaghlach
Child and Family Agency

THE IRISH HOSPICE FOUNDATION

THE WHEEL
Support and Representation for Community & Voluntary Organisations

Priming for ERC success

European Research Council Awards

77% (10/13)

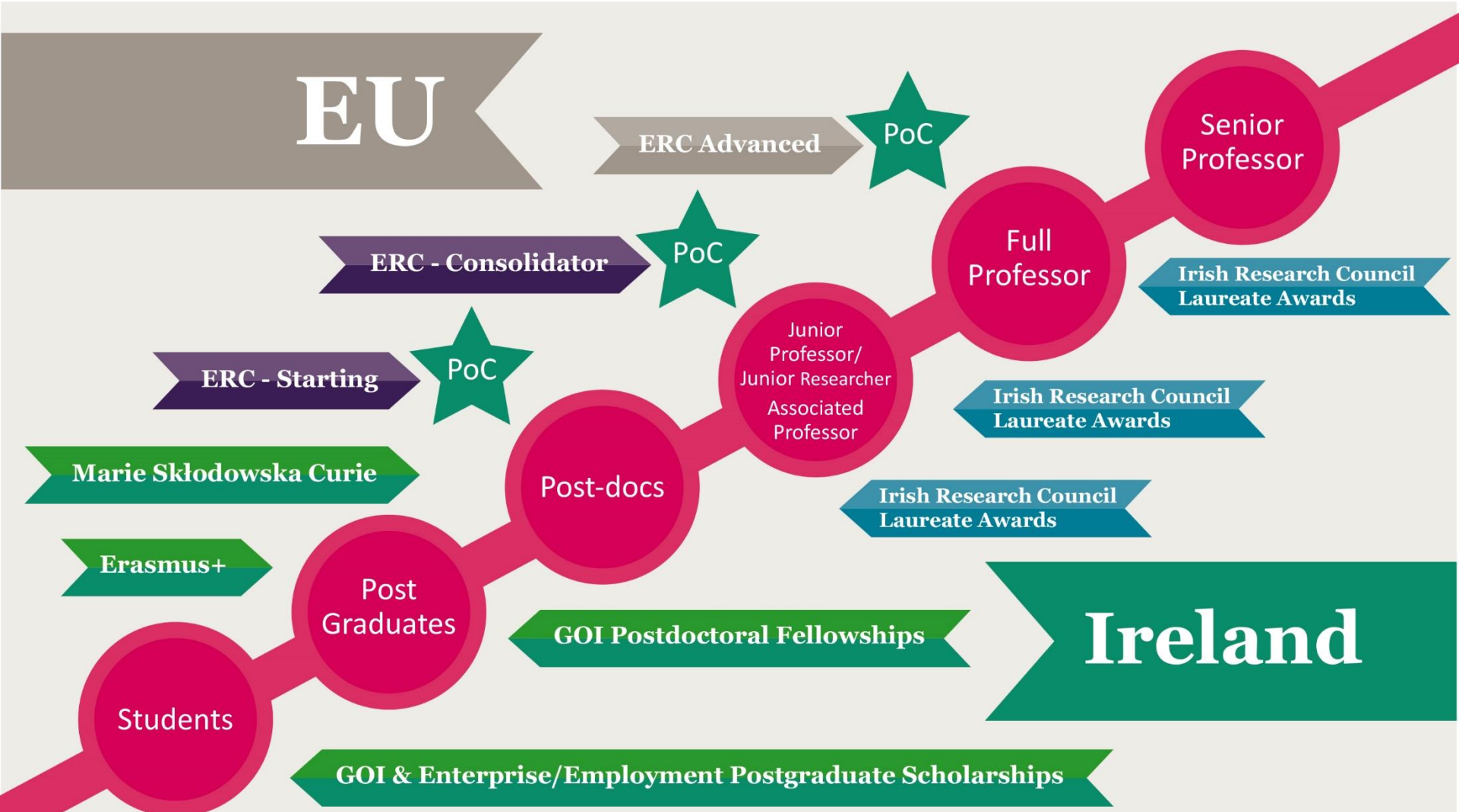
home-grown Starting Grant awardees in Ireland under H2020 are Council alumni or mentors

67% (16/24)

of home-grown ERC awardees in Ireland under H2020 (since 2014) are Council alumni or mentors

€1.2m investment from IRC has leveraged **€18.5m** in ERC Starter Grant Funding

New Irish Research Council Laureate awards: addressing key national gaps



Irish Research Council Laureate Awards

research.ie/2018/03/22/government-announces-e29-6m-investment-in-frontier-research

IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

About us | What we do | Funding | Partnerships | Awardees | News

You are here: Home / News / Government announces €29.6 million investment in frontier research

Government announces €29.6 million investment in frontier research

Posted: 22 March, 2018

Richard Bruton TD, Minister for Education and Skills, and John Halligan TD, Minister ... for Training, Skills, Innovation, Research and Development, today

Other Latest News

Researchers mark one hundred years of women's suffrage and social change
8 March, 2018

€3.8 million funding call launched today for postgraduate researcher-employer partnerships
1 February, 2018

International engagement strategy (forthcoming)

The Council's international engagement strategy will build on our already extensive range of international activities. These can be broadly grouped within the following themes:

- **Joint funding programmes, including ERA-NETs and MSCA COFUNDs**
- **The Council's core research awards, which are open to the world**
- **European and international policy cooperation and networks**
- **Support for European research infrastructures (ERICs)**
- **National contact point and delegate roles for European framework programmes**

International engagement strategy

Our vision for the progress achieved by the end of 2020 is for the following:

- Formal partnerships in place with UK research funders.
- Establishment of strategic relationships with international research funders/councils.
- Achievement of Ireland's H2020 overall drawdown target for MSCA
- Better take-up of opportunities for Irish researchers to join UK or international teams as co-principal investigators.
- New opportunities for researchers, across all career stages, to collaborate on a north–south basis (island of Ireland).

Science Foundation Ireland

- Makes **grants** to Higher Education Institutes (HEIs) in Ireland
- Based on competitive, international merit review for scientific **excellence** and **impact**
- Trains **people**
- Builds **infrastructure**
- Produces **scientific results** and technology (Research Output)
- Transfer of the **Research Output** to existing and new companies for **economic and societal impact**
- Supply of appropriately trained people along the entire **science and technology pipeline**
- **Significant industrial collaboration** attracting, anchoring and starting companies
- **Leverages** other research funding e.g. Industrial / EU / Charitable / Philanthropic / International
- Fosters high levels of **collaboration** between academia, industry, charity, disciplines, sectors, institutions, people and countries
- Operates in an **open**, **agile** and **engaged** mode with a willingness to **seize** new opportunities
- Engages the **public** to **grow scientific literacy** and citizenship

17 SFI Research Centres – 5 new Centres in 2017

ADAPT	Centre for Global Digital Content and Engagement
AMBER	Advanced Materials and BioEngineering Research Centre
APC	APC Microbiome Institute
BEACON	Circular Bioeconomy Research Centre
CONNECT	Future Broadband, Cellular and Internet of Things networks
CONFIRM	Smart Manufacturing and Industrial Automation Research Centre
CÚRAM	Centre for Research in Medical Devices
Future Milk	Precision (Smart) Agriculture Research for Dairy
Future Neuro	Neurological Diseases Research Centre
iCRAG	Irish Centre for Research in Applied Geosciences
I-Form	Advanced Manufacturing Research Centre
INFANT	Irish Centre for Fetal and Neonatal Translational Research
INSIGHT	Centre for Data Analytics
IPIC	Irish Photonic Integration Research Centre
LERO	Irish Software Research Centre
MaREI	Marine and Renewable Energy Ireland
SSPC	Synthesis & Solid State Pharmaceutical Centre

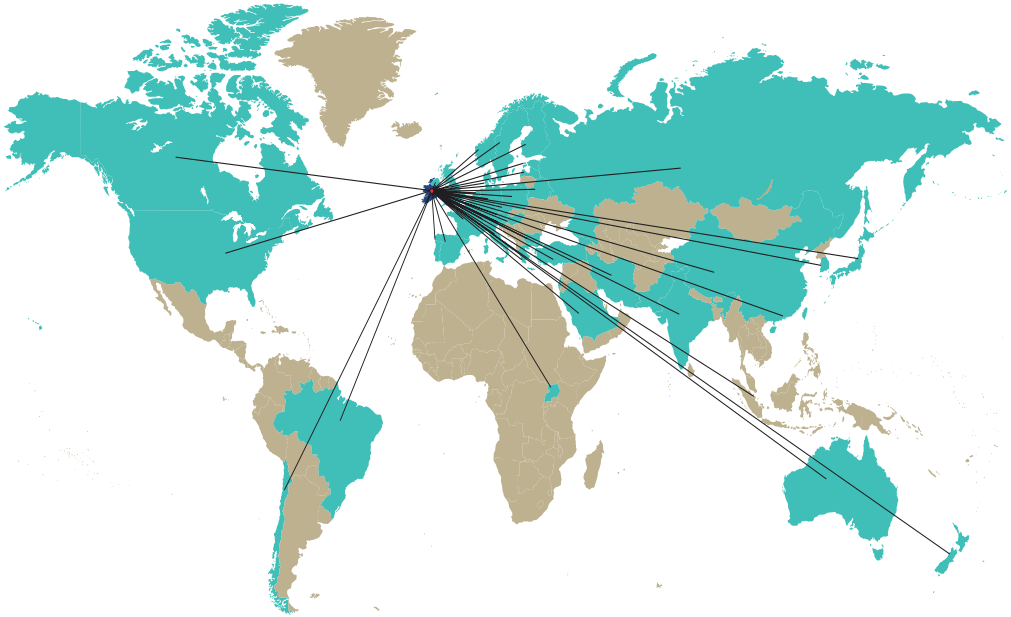
SFI Research Centres

- **17 world-leading SFI Research Centres** of scale and excellence
- SFI commitment **€434 million**
- Industry commitment **€235 million**
- EU funding target of >**€300 million**
- **19** Research Bodies
  - All 7 universities
  - Tyndall, RCSI, NIBRT Teagasc, Marine Institute, IOTs
- **322** Companies – 157 MNCs, 165 SMEs
- **Collaboration** with
  - Higher education institutions,
  - Industry
  - National and international funders

Top Priorities for Science Foundation Ireland International Engagement

- Develop industrial and academic linkages
- Facilitate collaborations with world-class centres of research excellence
- Raise international awareness and recognition of Irish science and high-quality research
- Leverage SFI funding to secure funding from international sources, with a particular emphasis on supporting researchers to access EU funding and networks
- Learn from other countries that have focused on R&D and Innovation as key national policies
- Recruit high-calibre researchers and students to Ireland

International Collaborations in 2016



International Collaborations

Science Foundation Ireland researchers were involved in

2,359

international academic collaborations in 63 countries.

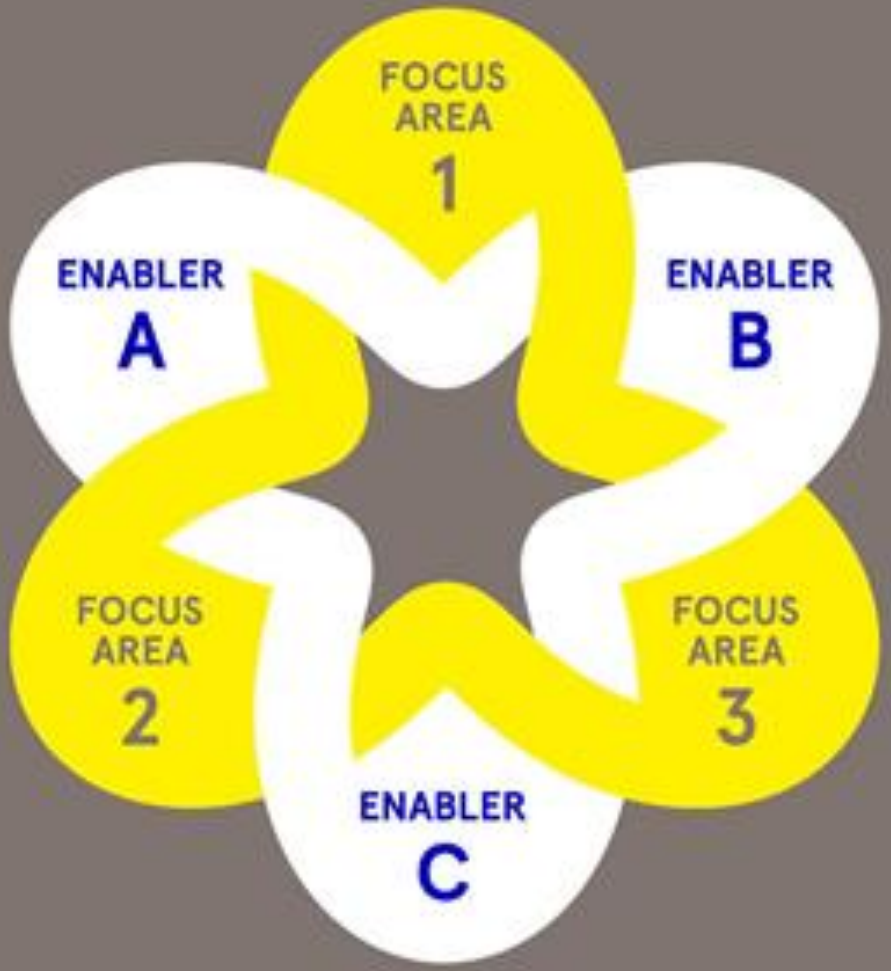
A total of **4,199** publications reported by Science Foundation Ireland researchers

40% are available in open access repository.

HRB - Overview

- **State agency under Department of Health**
  - **Budget ~€46m, funding portfolio ~€150m+, staff of ~70**
- **Providing evidence for policy (to DOH)**
  - E.g. Public Health Alcohol Bill, food pyramid, water fluoridation
- **Information for service planning**
  - Drugs, disability, mental health
- **Funding health research**
  - Patient Oriented, Population Health, Health Services Research
  - Infrastructure, capacity building, specific projects

HRB strategy 2016 - 2020



Focus areas and Enabling themes

FOCUS AREA 1
Address major health challenges

FOCUS AREA 2
Support healthcare interventions

FOCUS AREA 3
Address the research needs of the Irish health & social care system

ENABLER A
Support exceptional researchers and leaders

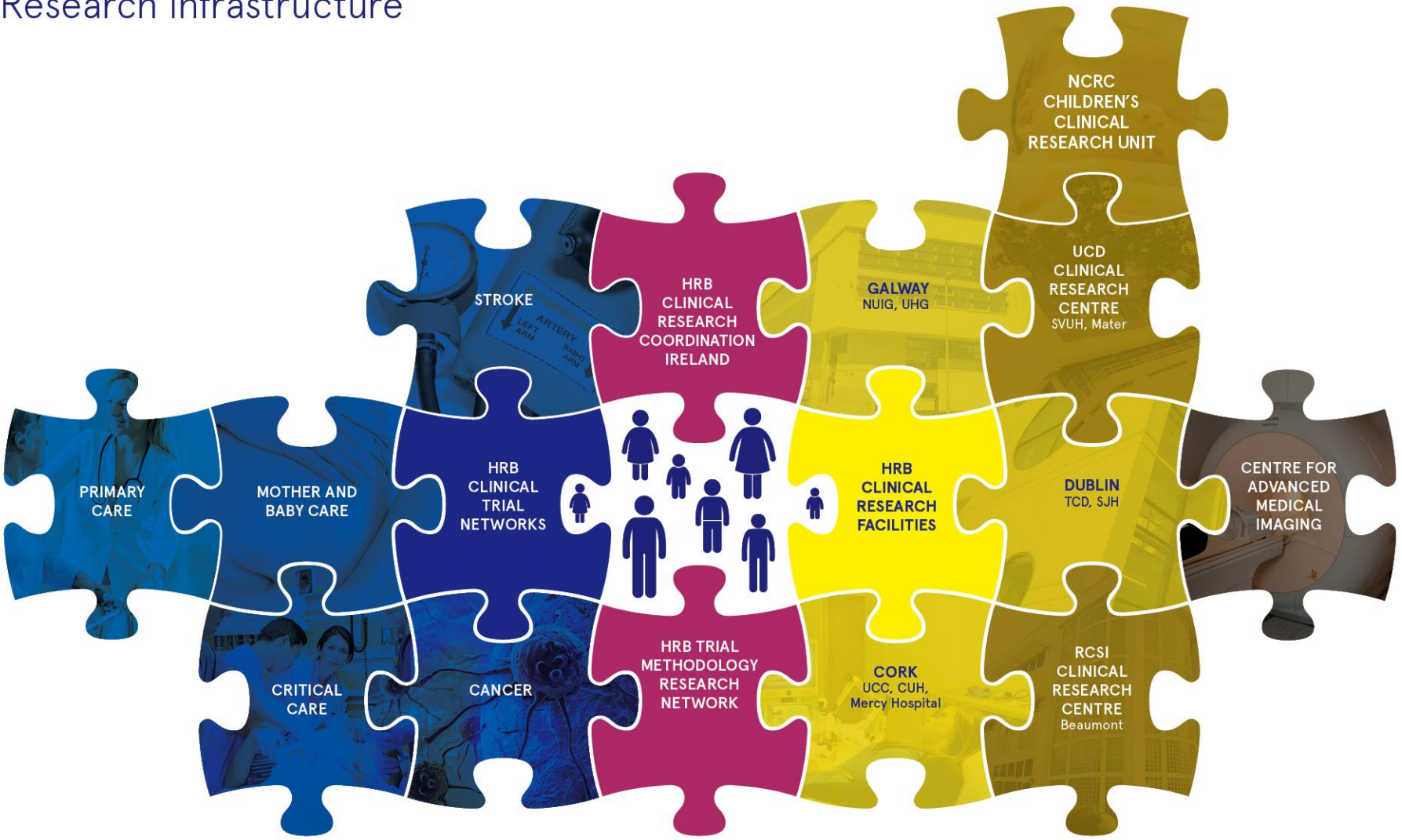
ENABLER B
Build a strong enabling environment

ENABLER C
Enhance organisational performance

Patient-Focused Research for Better Health & Care

HRB Creating A Strong Clinical Research Infrastructure

Health Research Board



Enterprise Ireland

ENTERPRISE IRELAND
where innovation means business

- Enterprise Development agency
- Innovation support agency
- Export Development agency

Taftie
The European Network of Innovation Agencies

1:1 Support - Help with companies' Research, Development & Innovation

ENTERPRISE IRELAND
where innovation means business

- **Mandate to drive collaboration and commercialisation of state-funded research**
- **Mandate to drive Irish participation in H2020**

In-Company RDI Grant Support	Industry-Higher Education Collaboration Supports		
	Innovation Vouchers; TECHNOLOGY GATEWAYS delivering solutions for industry an Enterprise Ireland network; INNOVATION PARTNERSHIP PROGRAMME collaborating for future success	esa European Space Agency	enterprise europe network Business Support on Your Doorstep
• 100 company projects p/a	• 1100 company projects p/a	• €12M international funding for companies p/a	• 700+ industry contacts made to the EEN p/a to help them connect with international sources of innovation

Technology Gateway Network

thea
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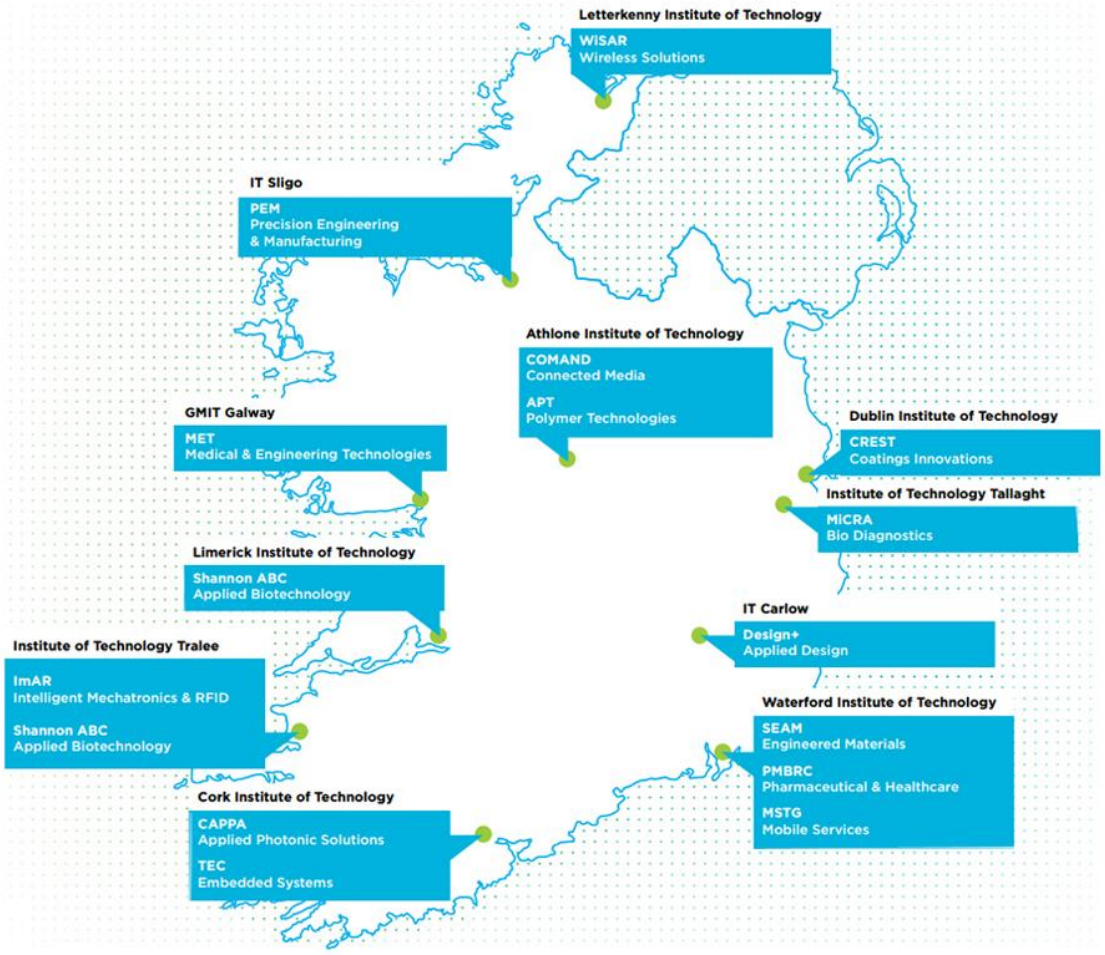
IRELAND



- Enterprise Ireland funded 'Technology Gateways' in IOTs
- Model that engages SMEs in collaborative RDI with IOTs
- Builds capability in key research areas
- Builds and deepens industry research partnerships

ENTERPRISE IRELAND
where innovation means business

1: Many Support - Helping clusters of companies to work together to do Research, Development & Innovation

ENTERPRISE IRELAND
where innovation means business

Industry Led Centres	
TECHNOLOGY CENTRE ENTERPRISE IRELAND IDA IRELAND SUPPORTED	
• ~800 companies per annum engaged with Technology Centres	• 400 companies in receipt of €140M international collaborative research funding since 2014 (€253M for Academic Researchers)

14 Technology Centres

TECHNOLOGY CENTRE
ENTERPRISE IRELAND
IDA IRELAND SUPPORTED

- **Collaborative entities established and led by industry.**
- **Resourced by highly qualified researchers associated with research institutions**
- **Undertake market focussed strategic R&D for the benefit of industry.**
- **Allows Irish companies and multinationals to work together in these centres.**

1. Energy Research Technology Centre
2. Cloud Computing Technology Centre
3. E-Learning Technology Centre
4. Pharmaceutical Manufacturing Technology Centre
5. Connected Health Technology Centre
6. Data Analytics Technology Centre
7. Dairy Processing Technology Centre
8. Food for Health Ireland Technology Centre
9. Governance Compliance and Risk Technology Centre
10. Manufacturing Research Technology Centre
11. Composites Technology Centre
12. IT Innovation Technology Centre
13. Meat Technology Centre
14. Microelectronics Technology Centre

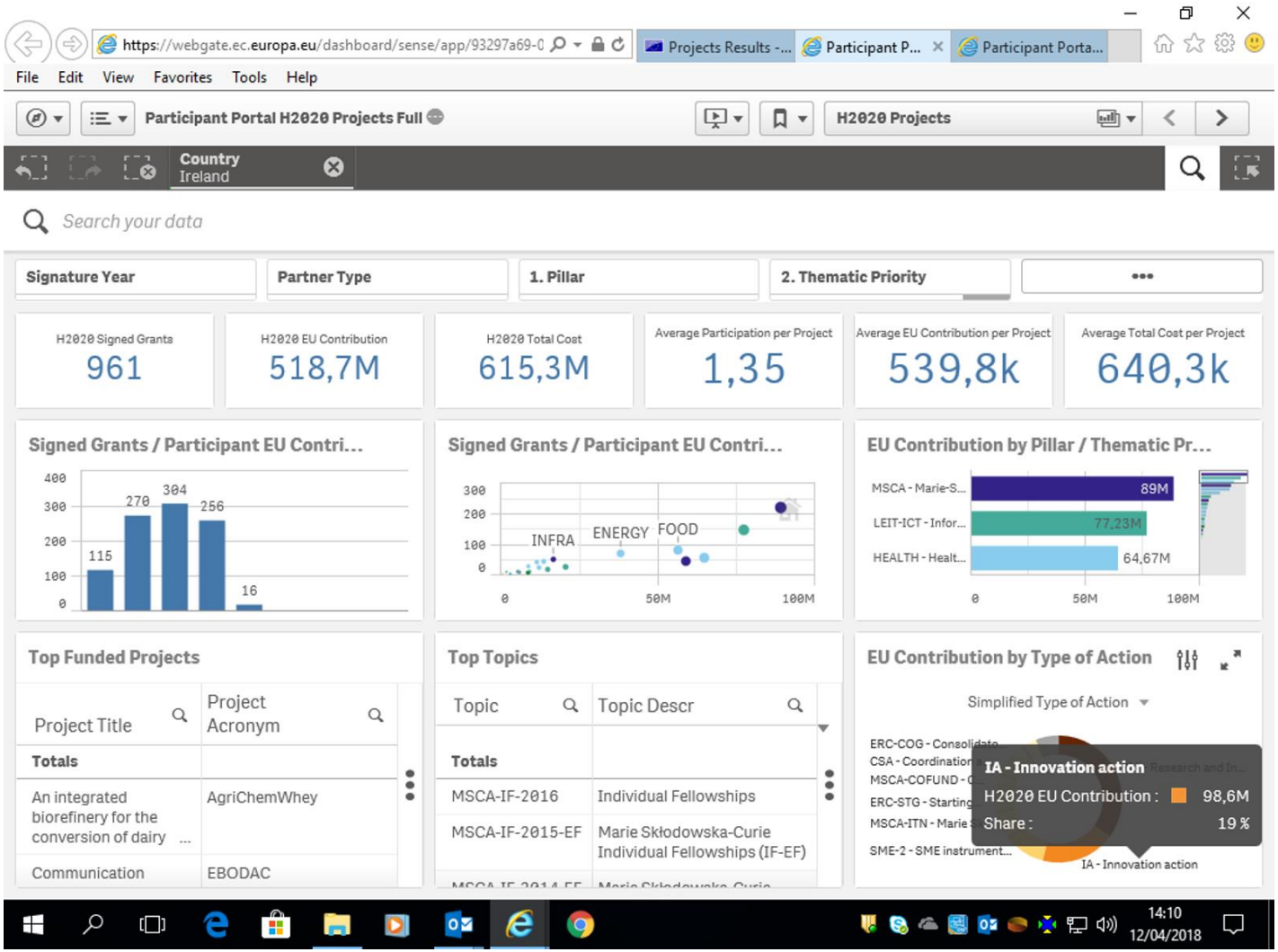
Network of cross-institutional research collaborations

thea
Technological Higher Education Association
IRELAND

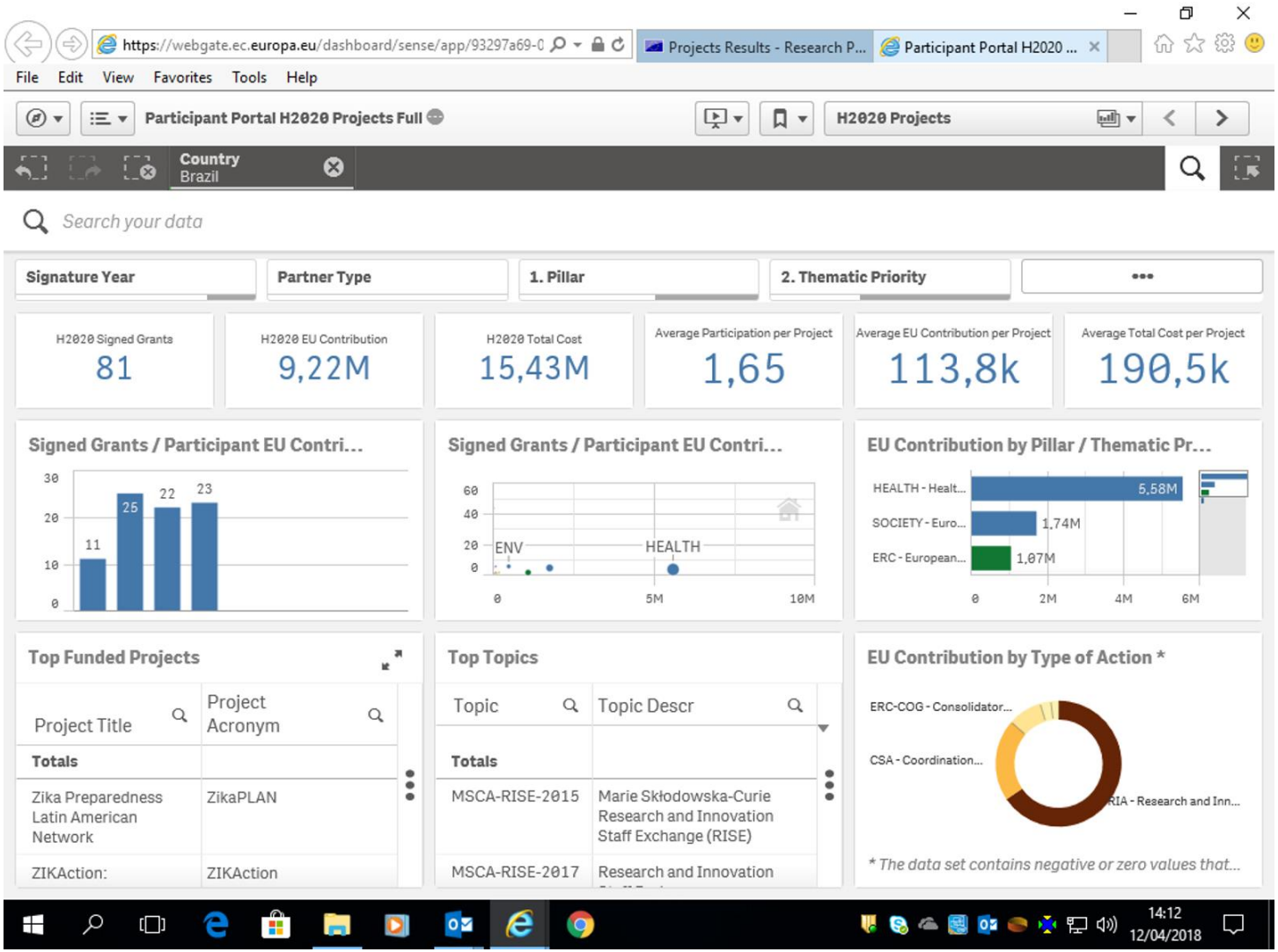
- IOTs are involved in 9 out of 14 of the EI/IDA Technology Centres
- IOTs are involved in 10 out of 17 SFI Centres.

SFI Centre	Research Area	Technology Centre	Research Area
ADAPT	Digital Content	**IC^4**	Cloud Computing and Commerce
APC	Gastrointestinal Health	**iCOMP**	Composites/Materials
CONNECT	Future Networks and Communications	**PMTC**	Pharmaceutical Manufacturing
IPIC	Photonics Integration	**MCCI**	Microelectronic Circuits
LERO	Software	**IERC**	Energy Research
MAREI	Marine and Renewable Energy	**CeADAR**	Data Analytics
SSPC	Pharmaceutical Process/Manufacturing Innovation	**DTPC**	Dairy Processing
CONFIRM	Smart Manufacturing	**Learnovate**	E-Learning
I-FORM	Advanced Manufacturing		
FutureMilk	Precision Dairy		

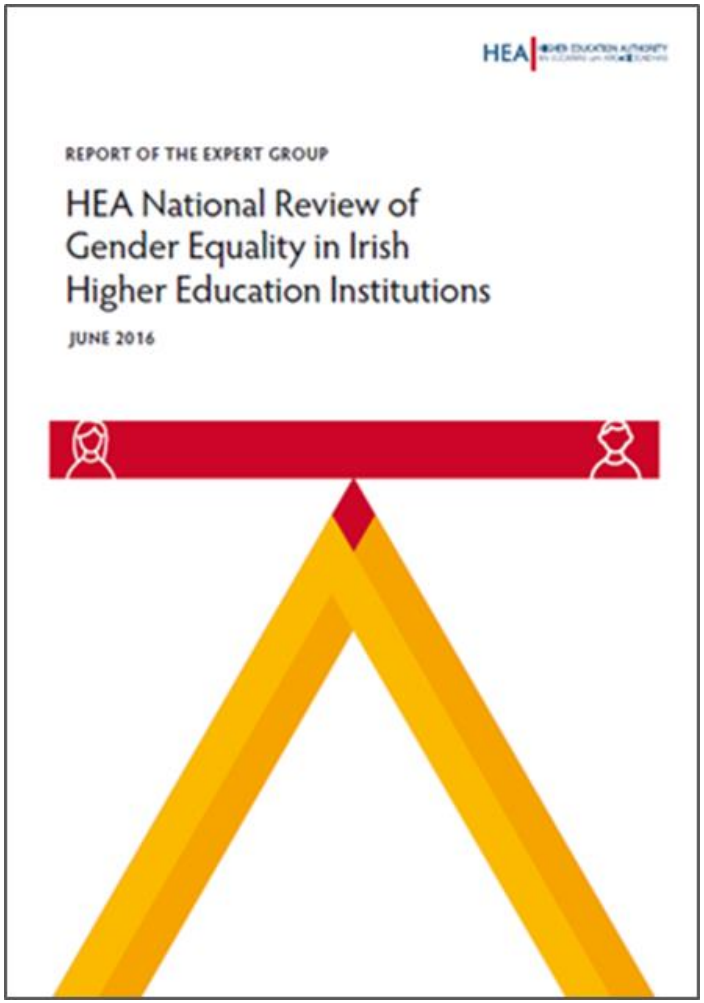
H2020 profile - Ireland



H2020 profile - Brazil



Advancing gender equality in Irish higher education institutions



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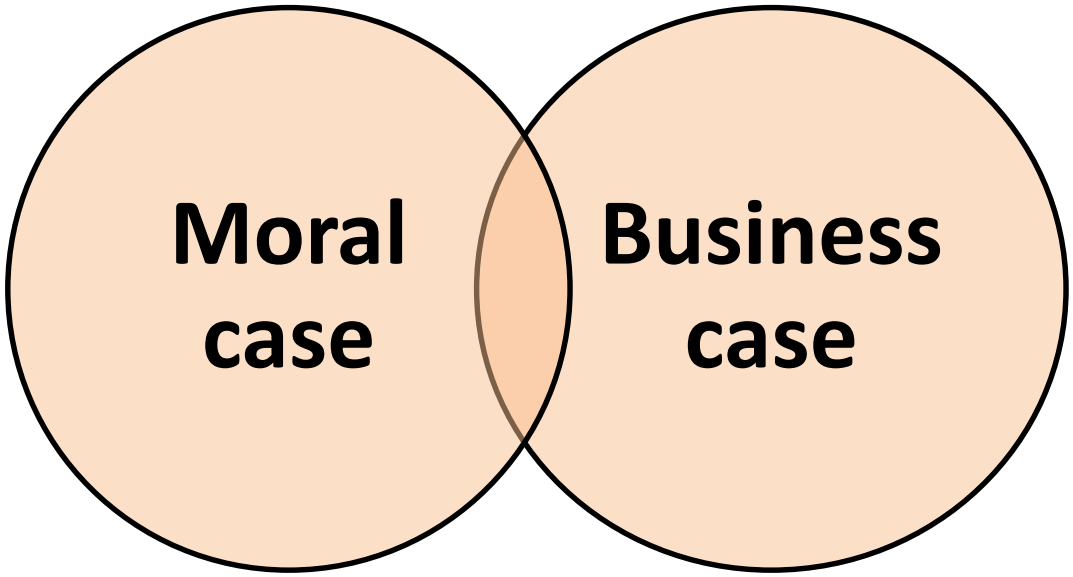
Why gender equality?

'The under-representation of women threatens the goals of science in achieving excellence, as well as being wasteful and unjust' - European Commission, 2001



…HEIs which allow gender inequality to exist cannot perform to their full potential

Recommendations

Each stakeholder group to use these recommendations to develop a tailored implementation plan, specific to the particular stage that each organisation is at in addressing gender inequality.


Leadership
Athena SWAN
Governance and Management structures
HEIs
Gender action plan
Organisational culture
Recruitment and promotion

-Partners in Excellence-

Thank you

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