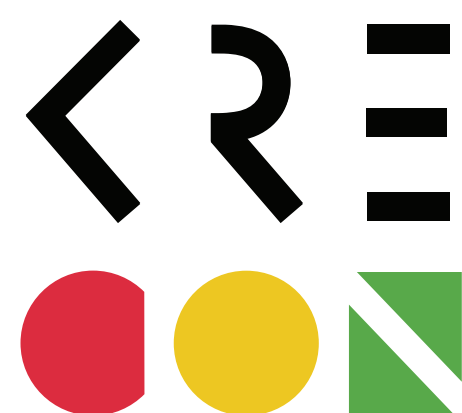
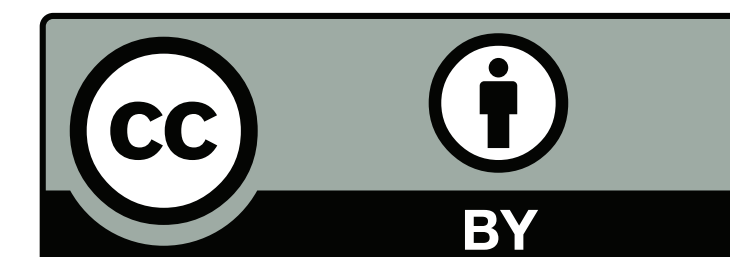




Knowledge
Research
Education
Conference
2025

13 – 14 November 2025
Cutting-Edge Research
Challenges and Opportunities



Excellence & Impact **– examples from Ireland**

Mark W. J. Ferguson

Director General of Science Foundation
Ireland & Chief Scientific Adviser
to the Irish Government

NTK
50°6'14.083"N, 14°23'26.365"E
Národní technická knihovna
National Library of Technology

National Centre for Information
Support of Research, Development,
and Innovation


MINISTRY OF EDUCATION,
YOUTH AND SPORTS



EXCELLENCE & IMPACT

Examples from Ireland

Professor Mark WJ Ferguson

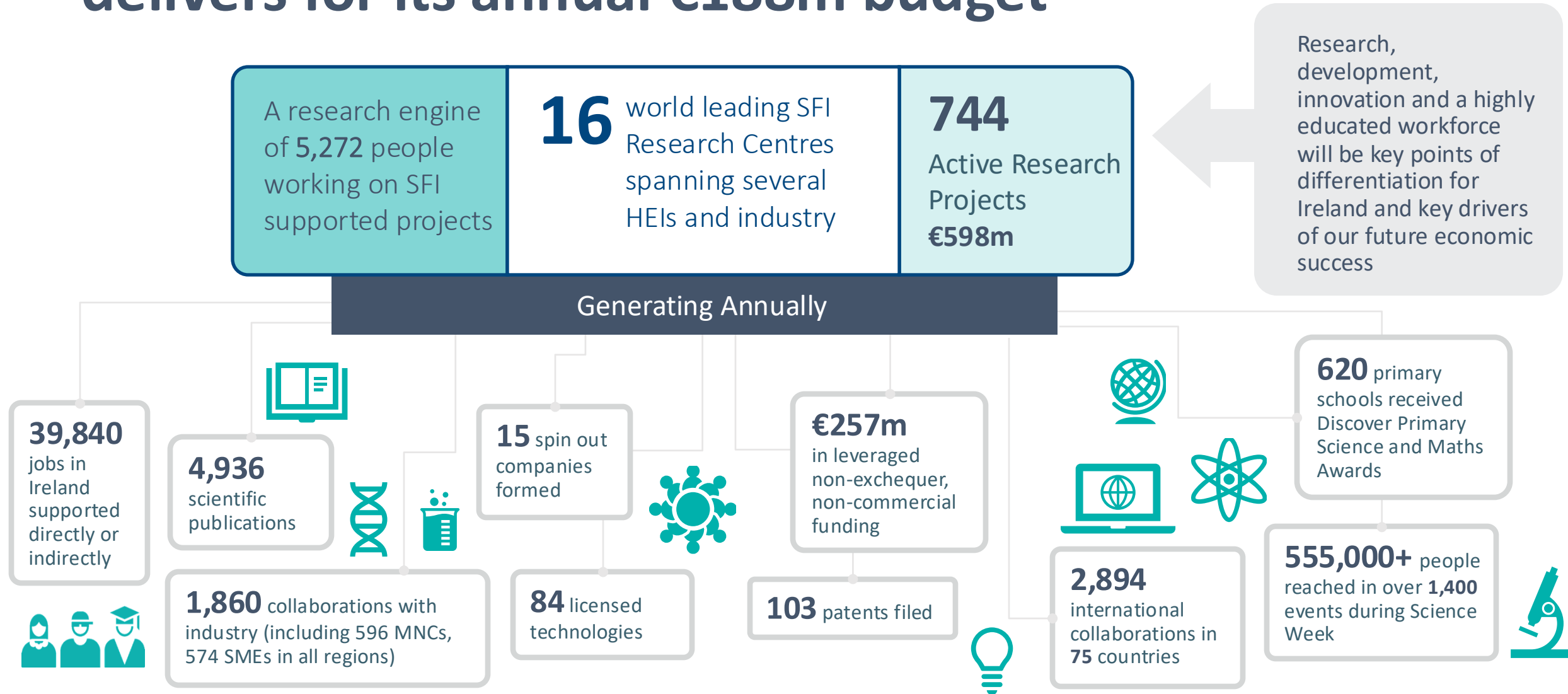
Retired (2012-2022) Director General Science Foundation Ireland
& Chief Scientific Adviser to the Government of Ireland

What we need:

Excellent

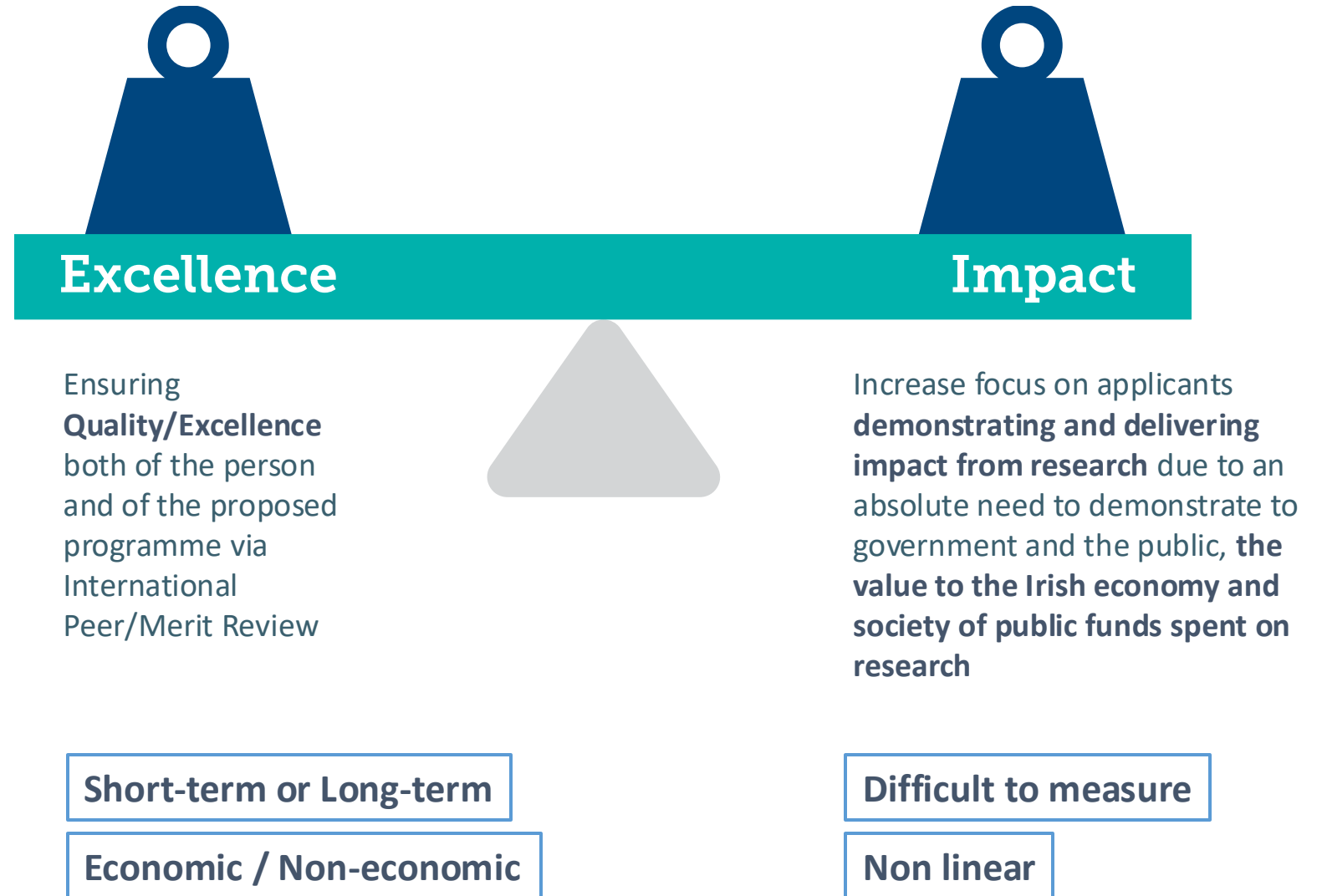
- Research
- Translation to Products
- Translation to Policy
- Innovation
- Industrialisation
- Training

What Science Foundation Ireland delivers for its annual €188m budget



Impact and Excellence Concept

Impact can be described as “**the demonstrable contribution that excellent research makes to the economy and society**”.



% of publications in the top 1% as measured by citations

Country	Funder	# Documents in Web of Science	Documents in the Top 1%
Ireland	All	181,071	1.71
Ireland	Science Foundation Ireland	18,026	2.66
USA	All	9,659,152	1.78
USA	National Science Foundation	552,738	2.89
USA	National Institutes of Health	831,835	2.88
Switzerland	All	566,747	2.63
Denmark	All	313,829	2.47
Singapore	All	235,214	2.20
United Kingdom	All	2,682,452	1.83
Finland	All	245,252	1.78
New Zealand	All	175,858	1.76
Israel	All	288,086	1.65
China	All	4,002,157	1.06
EU	All	11,258,058	1.26
EU	European Research Council	72,787	4.82

IRELAND: From 1980 - 2002, for any funder, the % of publications in the top 1% is **1.02%**.

Therefore the overall system has improved – with a disproportionate impact from high quality SFI-funded publications

26 SFI funded researchers are in the 2018 list of highly cited researchers (top 1% in the world) produced by Clarivate Analytics – 10 in the SFI APC Research Centre

6 Pillars of Impact and 3 Cross Cutting Themes



Ireland's Standing in Global Research & Innovation

Ireland ranked 12th
in the world by
the Global Innovation
Index 2019



Ireland 12th place in global rankings
for the overall quality of
scientific research



Innovation scoreboard

Ireland is...

1st In the world for knowledge diffusion

3rd For knowledge impact

5th For knowledge absorption

Field Specific Rankings by Publication Quality

Ireland ranks*:

1st Immunology

2nd Agricultural Sciences

5th Materials Sciences

5th Neuroscience & Behaviour

**Ireland's ranking statistics are gathered via InCites by Clarivate Analytics*

Funding a diverse portfolio of uncorrelated risk

- Large Centres
- Individual awards from junior to senior
- International partnerships
- Industrial partnerships
- PhD training
- Bottom-up proposals
- Top-down priorities
- Translation to products and policies
- Entrepreneurship
- Infrastructure
- Challenge / Prize based funding

SFI Centres for Research Training (CRT)

- €100M investment in training of approx. 700 postgraduate research students to create **talent pipeline for the research and innovation sector** in Ireland
- Thematic area: **Data, Digital and ICT Skills for the Future**
- 6 new **Centres for Research Training** will build on research excellence to train **cohorts of future research leaders** with the skills and knowledge required to address the challenges of an ever-changing work environment
- **Cohort based** involving collaboration across all HEI's in Ireland and international partners
- **Enterprise engagement** in design and delivery of training programmes (over 100 companies signed up to date)
- **World-class training programmes** will include enterprise-relevant discipline-specific and transversal skills
- **Student co-supervision and placements** in enterprise, other non-academic establishments, or in the groups of international collaborators
- First PhD Student intake – September 2019



6 SFI Centres for Research Training in:

- Machine Learning
- Digitally Enhanced Reality
- Foundations of Data Science
- Artificial Intelligence
- Advanced Networks for Sustainable Societies
- Genomics Data Science

Objective: To be the best research training programme in the world, providing major opportunities for PhD students in Ireland and a rich source of outstanding graduates, who will be sought by the private and public sectors



SFI Research Professors

Attracting 'star' global research talent

- €5M research funding from SFI for 5 year
- University pays the salary – up to €250K pa
- In strategically-important research areas for Ireland



Chemistry (pharma/energy)
Prof. Mike Zaworotko
University of Limerick (UL)
Moved to Ireland from the U.S.



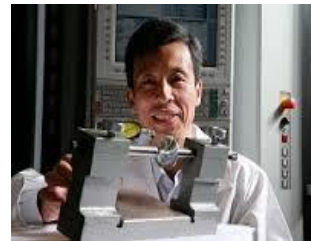
Electrical Eng. / Internet of Things
Prof. Bogdan Staszewski
University College Dublin (UCD)
Moved to Ireland from the Netherlands



Medical devices / Clinical trials
Prof. William Wijns
National University of Ireland, Galway (NUIG)
Moved to Ireland from Belgium



Biophotonics / Med devices
Prof. Stefan Andersson-Engels
University College Cork (UCC)/ Tyndall
Moved to Ireland from Sweden



Manufacturing
Prof. Fengzhou Fang
University College Dublin (UCD)
Moved to Ireland from China



Digital Platforms and Content
Prof. Dr. Aljoša Smolić
Trinity College Dublin (TCD)
Moved to Ireland from Switzerland



Quantum Materials / Quantum Technology
Prof. Séamus Davis
University College Cork (UCC)/ University of Oxford
Moved to Ireland from USA



Infectious Diseases
Prof John Dalton
National University of Ireland Galway
Moved to Ireland from Queen's University Belfast.



Mining and Mineral Resources
Prof Murray Hitzman – iCrag/UCD
Moved to Ireland from USA (Associate Director for Energy & Minerals, US Geological Survey)



Manufacturing
Prof. Paul Michael Weaver
University of Limerick (UL)
Moved to Ireland from the U.K.



Energy Technologies
Prof. Piet Lens
National University of Ireland, Galway (NUIG)
Moved to Ireland from the Netherlands

SFI Research Centres are the epitome of SFI's transformational effect on the national research system

- **16 world-leading SFI Research Centres** of scale and excellenc
- SFI commitment **€434 million**
- Industry commitment **€235 million**
- EU funding target of **>€300 million**
- **19 Research Bodies**
 - All universities
 - Tyndall, RCSI, NIBRT Teagasc, Marine Institute, IOTs
- **360 Companies** – 167 MNCs, 193 SMEs (736 collaborative research agreements)
- **Collaboration** with
 - Higher education institutions,
 - Industry
 - National and international funders



SFI + IRC = RESEARCH IRELAND

- International Referees for research excellence (and impact). No one from Ireland. Paid. Written reports and interview panels. No standing panels.
- All international collaborations lead agency (non Irish) eg NSF, NIH, UKRI, Royal Society.
- Diverse portfolio of programmes supporting all career stages and scales of investment – each with a Board approved Standard Operating Procedure and defined objectives, KPIs and measurements of success .
- Well defined governance procedures for programme approval, individual grant approval and monitoring.