



## Vision

Ireland will be a global leader in scientific and engineering research, discovery and innovation.

## Mission

Science Foundation Ireland will progress Ireland's society and economy by supporting the best scientific and engineering research while building an awareness of the role, impact and opportunities science creates.



## Agenda 2020

- 1 To be the best science funding agency in the world at creating impact from excellent research and demonstrating clear value for money invested.
- 2 To be the exemplar in building partnerships that fund excellent science and drive it out into the market and society.
- 3 To have the most engaged and scientifically informed public.
- 4 To represent the ideal modern public service organisation, staffed in a lean and flexible manner, with efficient and effective management.

*Agenda 2020 is Science Foundation Ireland's strategic plan over the period 2012 to 2020 with four primary objectives as listed above.*

## About Science Foundation Ireland

Science Foundation Ireland funds oriented basic and applied research in the areas of science, technology, engineering, and mathematics (STEM) which promotes and assists the development and competitiveness of industry, enterprise and employment in Ireland.

Science Foundation Ireland also promotes and supports the study of, education in and engagement with, STEM and promotes an awareness and understanding of the value of STEM to society and, in particular, to the growth of the economy.

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# Excellent Science

Science Foundation Ireland delivering Ireland's International Rankings:



A total of

**4,406**

**44%** are available in an open access repository

publications reported by Science Foundation Ireland researchers



## International Collaborations

Science Foundation Ireland researchers were engaged in 2,081 international academic collaborations in **62** countries

# Economic Impact

Research Investment Supporting Jobs and Ireland's Economic Future

**€154m**  
spend across relevant Science Foundation Ireland programmes

directly and indirectly supports  
**28,000 jobs**  
in Ireland

**€130m**  
leveraged non-exchequer funding

**38** conferences and workshops awards -  
**4,784** international delegates.  
Projected local economic value to Ireland **€4.8 million**

**€79m**

EU funding secured; **triple** 2014 funding

**Industry Collaboration**  
Science Foundation Ireland awards directly supported

**1,220**  
collaborations with industry  
(with more than one in some companies)

**711** MNC collaborations  
**509** SME collaborations

Involving

- **372** MNCs
- **437** SMEs

individual companies

**€38m**

secured from Private Enterprise in 2015 – up **44%** from 2014

## Talent & Skills

**1,300+**

Post graduate students supported by Science Foundation Ireland

**4,040**

people working on Science Foundation Ireland supported research projects



**24%**

of PhD departures with industry as a first destination

## Education & Engagement

Aiming to achieve the most scientifically informed public in the world.

**550**

Irish primary schools received the Science Foundation Ireland Discover Science and Maths Award



SmartFutures industry mentor programme reached

**92,000**

students since its launch

Science Foundation Ireland researchers participated in

**2,000+**

media interviews

**700+**

public lectures and demonstrations

**SCIENCE WEEK**



involved

**8**

regional science festivals in Dublin, Cork, Galway, Limerick, Waterford, Sligo, Mayo and the Midlands and a national programme of over

**800**

events reaching an audience of

**250,000**



**1,275**

visits to primary and secondary schools



## Partnerships

with international and national funders



# Innovation – The foundation for a strong sustainable economy and a better society for all

Science Foundation Ireland, as the largest competitive funder of science in Ireland, supports the government's vision for Ireland to become a Global Innovation Leader, driving a strong sustainable economy and a better society for all. Our goals align with the National Research Priority areas (NRP) and to Ireland's science and innovation strategy - Innovation 2020. We focus our resources on excellence, talent and impact in the research that we fund and the engagement with science that we enable, from primary school to post-doctoral to world renowned senior researchers. We welcome the commitment to increase public and private investment in research to reach the innovation target of 2.5% of GNP by 2020, which, coupled with academia and enterprise working together, will support the delivery of Ireland's ambition.

All Science Foundation Ireland awards are competitive and involve international peer review for excellence of the science and potential impact for Ireland. The following is a snapshot of innovation funded through Science Foundation Ireland.

## Health and medical

- **Prof Luke O'Neill** and his team (TCD) have demonstrated the potential for a new therapeutic to treat a wide range of inflammatory diseases, including multiple sclerosis and Alzheimer's disease. Their data, published in a paper in the journal *Nature Medicine*, described for the first time a highly potent and specific inhibitor of the NLRP3 inflammasome, a component of the inflammatory response.
- **Prof John Atkins** and colleagues (UCC) published a paper in *Proc Natl Acad Sci USA* where they described a novel mechanism of transcriptional slippage which may help in challenging the virus which causes Foot and Mouth Disease, and in understanding the impact of essential micronutrient deficiencies in humans.
- **Profs Patrick Guiry and Catherine Godson's** (UCD) research represents a new way of understanding how the body copes with body fat and how it controls its response, which could help reduce the cause of many obesity-related diseases. Their research was published in *Cell Metabolism*.
- The annual Science Foundation Ireland Researcher of the Year Award 2015 was presented to **Profs Louise Kenny and Geraldine Boylan** from the **INFANT SFI Research Centre** (UCC) for ground breaking discoveries and development of new technologies for pregnancy research, pre-term physiological monitoring, infant neurological problems and infant and maternal nutrition.

## Food

- Researchers in APC (UCC), led by **Profs John Cryan and Ted Dinan** have explored the biochemical signals that regulate the important health and developmental links between the brain, gut and microbiome. Their work was published in a paper in *Brain, Behavior and Immunity*.
- **Dr David MacHugh's** (UCD) work on the genetic links between extinct wild bovine species (aurochs) and modern domesticated British and Irish cattle is helping us to understand the genetic make-up of current herds and the relationship with milk and beef yields.
- In light of increasing concerns that neonicotinoid insecticides may be having a negative impact on the numbers and activities of pollinators such as bees, **Dr Jane Stout's** (DCU) research has demonstrated that foraging bees prefer food with these insecticides, and this is causing them to eat less food overall. Her work contributed to a paper in the prestigious journal, *Nature*.
- **Prof Helen Roche's** (UCD) work which was published in the journal *Diabetes* shows how monounsaturated fatty acids can reduce the inflammation that leads to insulin resistance and diabetes.



## Services and business processes

- **Prof Rob Kitchin**, ERC Advanced Award Recipient (NUIM) has developed a Smart Dublin initiative called **Dublin Dashboard** which provides all users with detailed, real-time intelligence on the city to support decisions we make every day about journeys, destinations, activities etc.
- Risk in real estate was studied by The Financial Mathematics Computation Cluster led by **Prof John Cotter** (FMC<sup>2</sup>-UCD) with the aim of increasing the understanding of its market risk. The group modelled real estate risk and the associated asset pricing implications. Their work was published in the journal *Real Estate Economics*.
- **Dr Ann-Marie O'Hagan** from the Marei SFI Research Centre, (UCC), has provided one of the only written accounts of the regulation of marine renewable energy in a legal text book (*Routledge Handbook of Maritime Regulation and Enforcement*) which informs the development of international legal research agendas.
- The work of **Dr Fergal McCaffrey** and his team (Lero/DKIT) in medical device technology is enabling manufacturers to meet international regulatory standards set by the International Electrotechnical Commission (IEC), establishing Ireland as a key location for medical device software engineering research.



## Manufacturing and materials

- > **Prof Michael Zaworotko's** (UL) research outlines a technique for the sequestration of CO<sub>2</sub>, either from gas mixtures or directly from air, which could help decrease carbon emissions. His work was published in *Angewandte Chemie*.
- > **Prof Valeria Nicolosi** from the Amber SFI Research Centre (TCD) was awarded €2.5 million for an ERC Consolidator Grant, her fourth ERC award in five years. Her latest research focuses on developing exceptionally long lasting batteries that can be easily adapted to be incorporated into multiple devices such as smartphones, clothing and medical devices.
- > **Dr Peter Crowley's** (NUIG) research on the structure of a PEGylated protein is an important contribution to the design of protein-based therapeutics for the biopharmaceutical sector, a major growth industry in Ireland. This work was published in *Nature Chemistry*.
- > **Prof Jonathan Coleman** from the Amber SFI Research Centre (TCD), in collaboration with Thomas Swan Ltd, produced a novel method for making larger amounts of graphene 2D nanosheets which will prove valuable in making large quantities of materials for future experimental and commercial use. Prof Coleman was included in Thompson Reuters "The World's most Influential scientific minds 2015" list for his work.

## ICT

- > **Dr Naomi Harte** from ADAPT (TCD) published a paper in *IEEE Transactions on Multimedia* that presents a new publicly-shared database for audio-visual speech recognition (AVSR). Progress in the field of automatic AVSR has been limited to date due to the scarcity of suitable research databases. This database is of such sufficient size and quality that it is set to become a resource and benchmark system for research groups worldwide, thereby helping to further the state of the art in AVSR research.
- > **Mr Brian Corbett** and **Dr Fatima Gunning's research** (IPIC/Tyndall) which was published in *Optics Express* takes significant steps in the development of the next generation transmission systems to meet the ever increasing demand for high bandwidth Internet traffic.
- > **Dr Rachel McDonnell's** (TCD) different stylisation techniques for use in 3D animated films, have enhanced the perceived realism, appeal, eeriness and familiarity of the characters. Her work has been published in *ACM Transactions on Graphics*.
- > **Ms Claire McInerney**, Education and Outreach Manager (UL/Lero) led the rollout of the teacher CPD Programme for the Junior Cycle Short Course on Coding.
- > **Dr Chris Bleakley's** (UCD) research focuses on a novel method for indoor WiFi location estimation which could support indoor personal navigation (e.g. airports), patient tracking in hospitals, the locating of emergency contacts and the evacuation of users in emergencies, or the detection of and location of intruders.
- > **Dr Peter Corcoran's** (NUIG) work on iris recognition has important implications for the security of sensitive financial and personal data that people access on their hand held devices. His work was published in *IEEE Transactions on Consumer Electronics*.
- > **Prof Barry O'Sullivan** from the SFI Research Centre Insight (UCC) led the development of 'Magna Carta for Data', an initiative with the European Commission to improve European regulation around data privacy.



## Energy

- > **Oxymem**, a spin-out company from UCD, continued to scale in 2015, with over 40 people now employed in Westmeath. The company's success is built on a technological breakthrough that dramatically reduces the operating costs for wastewater aeration and results in fourfold savings on energy costs when compared to forced aeration. Prof Eoin Casey, the company co-founder, is a recipient of funding from Science Foundation Ireland through a variety of schemes, including the Technology Innovation Development Award (TIDA) Programme.
- > In a paper published in *Nature Materials*, **Prof Paul Hurley** (Tyndall, UCC) and his team, in collaboration with researchers from Stanford University, have found that the introduction of a novel material into the structure of a submerged, water-resistant solar cell results in increased efficiency in energy production. This has important implications in the renewable energy sector.
- > In a paper published in *Energy*, **Dr Kevin McDonnell** (UCD) and his team developed a decision support system for improved biomass supply chain management. This system assists in selecting when and which forest to harvest, and how long to store wood materials, thereby reducing moisture content and optimising the energy efficiency of the biomass resource.
- > Luminescent Solar Concentrators (LSCs) are a simple way to harness light over large areas and convert it to electricity. **Dr Rachel Evans'** (TCD) research has supported the development of novel molecules that help LSCs harvest more light, thereby making these devices more efficient. Her work was published in *Advanced Functional Materials*.
- > **Prof Henry Curran**, Director of the Combustion Chemistry Centre at NUIG, was amongst the 2015 Thompson Reuters 'World's Most Influential Scientific Minds' list of researchers. Ten Irish researchers in total made this list - five from NUIG, one for UCD, one from UL, one from Teagasc and three from TCD.



## SFI Research Centres

In 2013, seven SFI Research Centres of scale and excellence were established, with a further five being added in 2015.

These 12 Research Centres are focused on strategic areas of importance to Ireland covering Pharma, Big Data Analytics, Medical Devices, Nanotechnology/Materials, Marine Renewable Energy, Food for Health/Functional Food, Perinatal Research, Applied Geosciences, Software, Digital Content and Telecommunications.

The data below show the cumulative results for the seven 2013 SFI Research Centres from inception to the end of 2015:

### Excellent Science



Journal  
Publications

**1,837**

ERC awards  
granted

**11**

**940**

Conference  
Publications

**24**

Coordinations  
in major EU  
initiatives

### Talent and Skills

**28** MSc/MEng  
Graduates



**108**

PhD  
Graduates

% of trainee  
departures with  
industry as first  
destination

**23%**

### Economic Impact



**300**

Collaborations  
with industry

**122**

Enterprise Ireland  
commercialisation  
awards

**61**

Licence  
agreements

Funding from non-  
exchequer and non-  
commercial sources

% Industry cost  
share (cash)

**13%**

**10**

Spin out  
companies

**€58 million**

Industry Cash Received

**€14 million**

% Industry cost  
share (total)

**28%**



# Chairman's Statement



By every meaningful measure, 2015 was a year of significant accomplishment across all areas of Science Foundation Ireland's activity. Ireland moved up in the global bibliometric rankings of repute; we had the best year for European Research Council awards and, on a broader EU level, obtained more EU grant awards than ever before. The SFI Research Centres are performing at a high level in terms of industry collaborations and we renewed and created significant international research partnerships.

Science Foundation Ireland also took its communications, education and public engagement to a new level, collating metrics on public opinion towards science, identifying the real barriers to the study of STEM (Science, Technology, Engineering and Maths) which will go on to better inform the impact of our communications and outreach in the future.

## Strategy

There has been good interaction with management on strategy this year, with particular attention on engaging the SME sector in the research eco system; augmenting levels of expertise in strategic emerging research areas in Ireland; increasing representation of women in Science, Engineering and Technology (SET) in Ireland; and approaches to engage and inform the general public on the benefits of scientific research to society and the economy.

We worked together to identify opportunities to deliver Science Foundation Ireland's strategy sooner and more effectively, and agreed actions to exploit the most important opportunities, including the creation of a Communications Sub-Committee of the Board to support the development of a more holistic Communications and Public Engagement Strategy.

The Grant Approval Committee of the Board commissioned an independent evaluation of the organisation's peer review process, recommendations from which will be implemented. PwC provided an update to the Board on risk management. The Board also supported an audit process of Science Foundation Ireland-funded Higher Education Institutes, to include areas such as research integrity, compliance with legal, ethical and licensing obligations, intellectual property (IP) and integrity. A transparent, robust and fair process to deal with allegations of research misconduct has also been developed. (Details of our governance structures can be reviewed on pages 42).

Science Foundation Ireland approved €131 million of new investment awards in 2015. In line with its approved delegated authority, the Grant Approval Committee approved 38 of these awards totalling €67 million.

Science Foundation Ireland was awarded The Excellence through People certification in December 2015 by the National Standards Authority of Ireland. It was also awarded NSAI SWIFT 3000 certification for corporate governance.

## Stakeholder Engagement

In 2015, the Board had worthwhile engagements with many key external stakeholders including a joint Board meeting with Enterprise Ireland; a meeting with Mr Tom Boland, CEO, Higher Education Authority, in relation to increasing PhD students. We also met with Dr Paddy Prendergast, Provost, Trinity College and the award winning SFI-funded team in AMBER (Advanced Materials and Bio Engineering Research), the SFI Research Centre.

We communicated regularly with our stakeholders and employees to ensure they understand our progress and plans. Minister Damien English attended the September Board meeting; there were bi-monthly liaison meetings with our senior staff and officials from the Department of Jobs, Enterprise and Innovation. The Director General held weekly briefing meetings with staff. The Board also benefited from a meeting with all Science Foundation Ireland employees in December to review our progress in 2015.

The SFI Research Centres are performing at a high level

Enterprise agencies Science Foundation  
Ireland, Enterprise Ireland and  
IDA creating an environment for  
world leading industry/academic  
collaboration

Science Foundation Ireland works closely with, and is supported by, a broad network of stakeholders in government, education, industry and the general public. We also, on a day-to-day basis, work with government departments and other agencies, including Enterprise Ireland and IDA. On behalf of the Board, I would like to sincerely thank everyone for their engagement and support in 2015. We look forward to more positive interaction.

## Looking Ahead

In light of the publication of the Government's science and innovation strategy, Innovation 2020, we will review, if necessary, our objectives in Agenda 2020 to ensure that Science Foundation Ireland can support the Government's ambitious goals. As part of this process, we will focus on workforce planning to ensure that our resources are robust and aligned.

An important part of Science Foundation Ireland's mission is to build an awareness of the role, impact and opportunities science creates, and to this end, the Board is very excited by our 2016 campaign, ScienceRising. This campaign enables us to inform the general public of the significant advances our funded researchers are making on society and the economy.

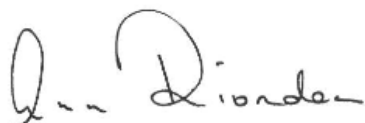
I would like to thank the Board for their support and time commitment to Science Foundation Ireland through their work and attendance at Board and Committee meetings during the year.

I would like to thank Mr. Dermot Curran, who stepped down from the Board in April, for his commitment and contribution to Science Foundation Ireland over the years and I would like to welcome Mr. Dermot Mulligan from the Department of Jobs, Enterprise & Innovation in his place. I would also like to acknowledge the re-appointment to the Board of Dr Pat Duane and Ms Bernie Cullinan in September 2015.

Finally, I would like to acknowledge all Science Foundation Ireland employees for their continued commitment to meeting and delivering on our goals. Science Foundation Ireland employees strive for excellence in everything they do - I am always struck by their energy and passion. We will continue to focus on the culture, values and environment in which we work, and will continually strive towards making Science Foundation Ireland a great place to work.

We look forward to another exciting year in supporting the best scientific and engineering research to progress Ireland's society and economy.

Sincerely



**Ann Riordan**

Chairman  
Science Foundation Ireland

# Director General's Statement



Science Foundation Ireland will progress Ireland's society and economy by supporting the best scientific and engineering research while building an awareness of the role, impact and opportunities science creates.

Looking back on the last year, it is clear that through our ongoing focus on excellence and impact, in line with the Government's National Research Priority areas (NRP), Science Foundation Ireland is supporting outstanding people. Together, we are fuelling innovative ideas, fostering meaningful collaborations with industry and national and international funders to produce the discoveries and innovations that will provide more jobs, economic growth and societal benefits, such as improved health and a better environment for all.

Building SFI Research Centres of global scale, excellence and relevance; attracting and training both young researchers and established stars; making important fundamental discoveries; spinning out companies; creating a greater connection for Irish people with science; and enhancing Ireland's international reputation, were all delivered by Science Foundation Ireland and the research teams we supported in 2015.

## Talent and Skills

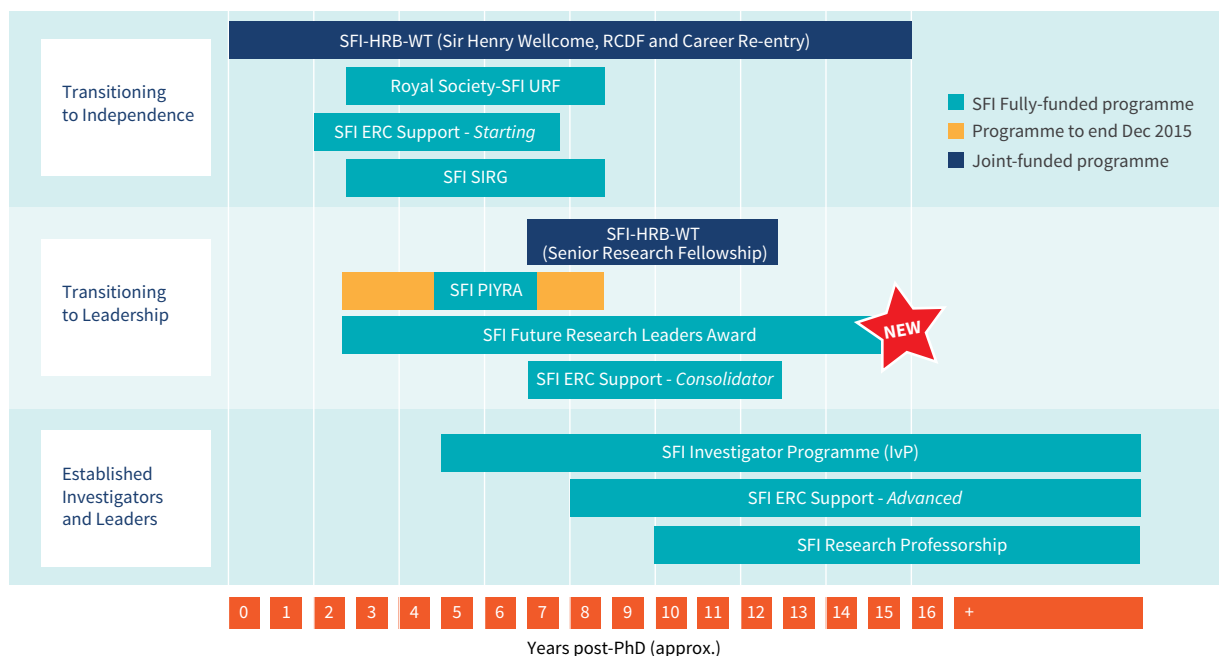
The Expert Group for Future Skills Needs (EGFSN) estimates that skills shortages are significant in ICT in particular, and are beginning to emerge elsewhere. We recognise and support the premise that appropriately trained, outstanding human capital is one of the most significant impacts of publicly-funded scientific research as it can go some way to supporting this need, creating excellent, fully independent research leaders across the STEM spectrum.

Science Foundation Ireland's programmes, developed in collaboration with HEIs and industry, support early- and mid-career researchers. Programmes funded this year include those administered solely by Science Foundation Ireland, for example, Starting Investigator Research Grant (SIRG), Career Development Award (CDA), Research Centres and Research Professorships, and those in partnership with international funders (e.g. The Royal Society and Wellcome Trust). Interestingly, when competing for UK funding, our researchers compete and win alongside their UK peers, clearly demonstrating the international excellence of Irish researchers.

Currently, over 4,040 highly skilled people work on Science Foundation Ireland-supported research projects in the HEIs, including over 1,300 postgraduate students.

Recognising that the talent pipeline is also dependent on a scientifically and mathematically confident cohort of primary and post primary students, Science Foundation Ireland continued to manage and fund a number of formal and informal education interventions in 2015. These included our SFI Discover Primary Science and Maths teacher CPD programme, our partnership with the RDS STEM Learning programme and the Project Algebra initiative with Kildare VEC and the NCCA.

## Programmes for Researcher Career Development



## Economic Impact

Strong economic impact was delivered by Science Foundation Ireland and the community we support in 2015. While we invested €154 million in 2015 across our research programmes, the researchers we supported attracted a further €130 million in international and industry funding to support their research. Science Foundation Ireland awards support 1,220 collaborations with industry, these involve 372 multinational companies and 437 SMEs. Positively, we estimate that this involvement and combined significant investment has an economic impact on the Irish economy by directly and indirectly supporting 28,000 jobs.

Our support of 38 conference and workshops in 2015, which involved 4,784 international delegates also had a projected economic value for Ireland of €4.8 million, all of it supporting the local economy.

## Leveraging EU Funding

Winning competitive grants from the EU, e.g. Horizon 2020, is another key indicator of the health of the Irish scientific system; ERC and H2020 awards are highly competitive and require both innovative and collaborative skills. In 2015, Science Foundation Ireland-funded researchers secured €79 million in EU funding, triple the 2014 funding.

Science Foundation Ireland-supported investigators had a successful year with respect to ERC awards. The 2014-2015 calls saw three SFI-funded Starting Grant winners, four SFI-funded Consolidator Grant winners and four Proof of Concept grants, totalling €13.1 million.

Ireland now hosts 58 ERC grantees (20 women and 38 men) with total EU funding worth approximately €97 million. The top three hosting institutions are Trinity College, University College Dublin and the National University of Ireland, Galway. Science Foundation Ireland catalyses and assists ERC applicants through its ERC Development and Support Grant programmes and will continue to place emphasis here.

In 2015, Science Foundation Ireland increased its involvement in further ERA-Net calls as they are crucial to initiating and maintaining Irish engagement in the most successful cross-European partnerships.

Science Foundation Ireland is committed to supporting H2020 wins through a number of initiatives including supporting competitive bids for Irish researchers in industry and academia to coordinate large projects.

The SFI Investigators Programme in 2015 was aligned to areas of common interest with H2020, in collaboration with a number of other Irish research funders, and these proposals are currently under review.

Science Foundation Ireland approved 62 H2020 Catalyst awards in 2015 which are intended to support activities that seek to build EU consortia and teams for future H2020 applications.

## Partnership and Collaboration

12 SFI Research Centres of scale and excellence have been established with an investment of €355 million from Science Foundation Ireland, and a further €190 million from industry partners committed over the next six years. Many of these were officially launched in 2015. The existing SFI Research Centres have been further supported via additional funding for nine major projects through the SFI Spokes Programme to a cumulative value of €23 million.

A further SFI Research Centres Call is planned in 2016, which should bring the number up to the planned 15-20 Centres, enabling us to fully support government priority areas.

In 2015, our US Ireland R&D Partnership agreement with the National Science Foundation in the US, and authorities in Northern Ireland, was extended to facilitate collaborations between Research Centres in the three jurisdictions – namely the 12 SFI Research Centres, the NSF Engineering Research Centres and Research Centres in Northern Ireland.

Agreements with UK funding agencies, the Royal Society and the Wellcome Trust, have produced joint funding opportunities in 2015 and a new partnership established with the BBSRC will see the first call for proposals in January 2016. A partnership with the EPSRC is under discussion. Science Foundation Ireland also signed agreements with funding agencies from Brazil to cement future collaborations between researchers in Brazil and Ireland. Similar partnerships in China and Japan are in discussion.

## Science Awareness, Engagement and Outreach

To guide and inform our awareness, engagement and public outreach efforts around science, and ultimately to measure our progress, we commissioned and conducted a number of pieces of research.

The Science Foundation Ireland - Science in Ireland Barometer 2015, showed that public attitudes towards STEM and investment in science and innovation were positive. It also identified a number of areas we need to address, including the geographical location of our activities, girl's perceptions of science and more generally, 'the fitting in' factor on particular courses.

We started to action these findings in 2015 through the redefinition of some elements of our Discover Programme call. In an effort to bring science into all homes in Ireland we also announced an RTE/Science Foundation Ireland initiative, the first programme for which will be aired in 2016.

Every element of Smart Futures, our industry role model programme which runs in partnership with Engineers Ireland, was addressed in 2015. I would like to thank Science Foundation Ireland board member, Mr. Barry O Sullivan, CEO of Altcloud and Dragons Den judge, for his tremendous support of this programme and his ongoing quest to inspire other industry CEOs to get involved.

Science Foundation Ireland organised a celebration of Irish Science, attended by An Taoiseach Enda Kenny and Mr Damien English, T.D., Minister for Research & Innovation, in government buildings to showcase Irish achievements in research and innovation. A hugely successful Science Week followed this with an estimated 250,000 people getting involved in events around the country, organised by our Science Week partners.

## 2016

Science Foundation Ireland will build on its achievements in 2015 through an expanded range of actions to support excellent scientific research with the potential for economic and societal impact. Benefiting from consultation with the research community, industry and other stakeholders throughout Q3/Q4 2015, and the publication of the national science strategy - Innovation 2020 in December 2015, Science Foundation Ireland will expand its existing programmes and develop a number of new programmes and initiatives during 2016.

### PhD funding programme

A decline in the number of PhD graduates in STEM research has occurred which may lead to a skills deficit in future years. Science Foundation Ireland will develop a new PhD programme to enhance the quantity and quality of Irish PhD students during 2016.

### Challenge-based funding

There is a growing appetite for competitive funding mechanisms aimed at stimulating solutions-driven collaborations and engagement with the research, civic and enterprise communities. Having already consulted with some stakeholders in 2015, Science Foundation Ireland consulted widely on possible local, national and international challenges, both short and long-term during 2016, with the aim of launching a challenge-based funding programme in 2017.

### Broader international engagement

Science Foundation Ireland will continue to collaborate with selected international research funding agencies and/or government departments in 2016 with the aim of ensuring that Irish researchers have the best possible range of strategically-relevant co-funding partnerships. Science Foundation Ireland's policy is to explore international partnerships that are based on a 'lead agency' model as per previous partnerships, whereby either we conduct the review of proposals as part of an existing programme (e.g. DEL NI) or where the partner agency conducts the review as part of their programme or suite of programmes (e.g. Royal Society, Wellcome Trust, BBSRC, NSF, NIH).

### #ScienceRising - creating a connection with, and pride in science and innovation

Science Foundation Ireland has developed a new communications strategy to create a connection between Irish people, academia and industry locally and internationally, with science and innovation in Ireland. Through #Science Rising, we look forward to working with the SFI Research Centres and funded projects to deliver news, events, awards and CPD during 2016, and also working towards a grand crescendo at our 21st Science Week in November, where we will celebrate the people and the achievements of science in Ireland.

I thank our parent government Department of Jobs, Enterprise and Innovation and Minister Bruton and Minister English for their support, Science Foundation Ireland staff, the Science Foundation Ireland Board, all our supporters and stakeholders in academia, industry and funding agencies nationally and internationally.

I look forward, as always, to a busy, eventful and very positive 2016 at Science Foundation Ireland.



**Prof Mark WJ Ferguson**

Director General, Science Foundation Ireland and  
Chief Scientific Adviser to the Government of Ireland

# 2015

## The Year in Review

### January

- > Science Foundation Ireland, the Health Research Board and the Wellcome Trust renew Biomedical Research Partnership.
- > Science Foundation Ireland participated in the BT Young Scientist Exhibition and Competition.
- > Science Foundation Ireland announced €1.6 million in funding to support 39 science, technology, engineering and maths (STEM), educational and public engagement projects in Ireland.
- > Science Foundation Ireland published its 2016 Annual Plan.



Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, Dr Graham Love, Chief Executive of the Health Research Board and Dr Jeremy Farrar, Director of the Wellcome Trust.

### February

- > Science Foundation Ireland signed agreements with funding agencies from Brazil, to cement future collaborations between researchers in Brazil and Ireland at a special ceremony held in Dublin Castle.
- > Clare McInerney from Lero - the Irish Software Research Centre, was named by Google as one of the global winners of the 2015 RISE Awards.



Sergio Luiz Gargioni, President Confab, Damien English TD, Minister of State for Research & Innovation; Prof Mark Ferguson, Director General, Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland and Alan Harvey, Vice President for Research & Innovation, Dublin City University.

### March

- > At an event organised by Science Foundation Ireland in Washington, An Taoiseach Mr Enda Kenny, T.D. presented Prof Katherine Fitzgerald, Professor of Medicine at the University of Massachusetts Medical School with the Science Foundation Ireland St. Patrick's Day Science Medal, and presented a Certificate of Irish Heritage to Dr France A. Cordóva, Director of the National Science Foundation.
- > A new research alliance between Janssen Biotech Inc., (Janssen), UCC and APC was announced. The partnership will explore the role of viruses in shaping the human microbiome and their potential use as novel treatments and/or biomarkers of inflammatory bowel disease.
- > A new partnership was announced that brings together Stryker R&D scientists and engineers from its global headquarters in Kalamazoo, Michigan (USA) with Stryker R&D design and development experts in Cork to collaborate with Irish Photonics Integration Centre (IPIC) researchers at Tyndall National Institute.



Prof Katherine Fitzgerald, Professor of Medicine at the University of Massachusetts Medical School receives prestigious medal from An Taoiseach Enda Kenny, T.D.

## April

- > Prof Brian Caulfield, from SFI Research Centre Insight and University College Dublin (UCD) where he is a connected health researcher, won the 2015 Google Wearables in Healthcare Pilot Challenge.
- > Science Foundation Ireland announced over €30 million of research funding for 23 major research projects through the Science Foundation Ireland Investigators Programme.
- > San-Francisco based Second Genome Inc., a leader in the development of novel medicines through innovative microbiome science, entered into an alliance with APC at UCC to advance the development of therapies that prevent and treat inflammatory bowel disease.
- > Scoil Mhuire Gan Smál from Blarney, Co. Cork scoop first prize at the national final of the 2015 ESERO Ireland – CEIA CanSat competition.
- > Prof Mark Ferguson presented at a meeting with EU Commissioners Moedas and Hogan in UCD.
- > Prof Mark Ferguson presented at EVOLVE Biomed in the RDS Dublin.



Prof John Doherty, UCD; Prof Martin Steinhoff, UCD; Mr Damien English T.D., Minister for Skills, Research and Innovation; Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland; and Prof Torres Sweeney, UCD.

## May

- > Galway based computational imaging company Fotation and researchers at NUI Galway establish a new collaboration to address technical challenges associated with the development of improved imaging quality for smartphone cameras.
- > Northern Ireland Employment and Learning Minister Dr Stephen Farry awards £3.5 million in research funding for seven research projects involving Queen's University Belfast. The funding will support successful Science Foundation Ireland Investigators Programme projects through the SFI-DEL Investigators Programme Partnership.
- > Science Foundation Ireland partner with RDS and DCU on €440,000 STEM continuous professional development initiative aimed at primary school teachers.



Dr Darrin Morrissey, Director of Programmes Science Foundation Ireland; Dr Stephen Farry, Employment and Learning Minister; Professor James McElroy, Pro-Vice-Chancellor for Research and Postgraduates QUB and Prof John Dalton from one of the funded projects - Application of New and Emerging Technologies to Develop Vaccines against Liver Fluke Infection.

## June

- > Science Foundation Ireland and RTÉ announce a new partnership to support and develop STEM broadcasting.
- > Science Foundation Ireland and the Irish Research Council (IRC) hosted a reception at the Royal Irish Academy to celebrate the success of Ireland's researchers in the most recent calls to the highly prestigious European Research Council (ERC) funding schemes.
- > 549 schools nationwide receive the Discover Primary Science Award for Maths and Science.
- > President Higgins hosted Dr Elaine Dunleavy, NUI Galway as the recipient of the President of Ireland Young Researcher Award at Áras an Uachtaráin.



Mr Damien English T.D., Minister for Skills, Research and Innovation and Niamh Lyons, Interim Director, Communications, Science Foundation Ireland, award a Discovery Primary Science Award for Maths and Science to the Ballinlough NS.

## July

- > Science Foundation Ireland Annual Report published.
- > An Taoiseach opened the Beaufort Building and SeaFest 2015.



Ann Riordan, Chairman of Science Foundation Ireland, Mr Damien English T.D., Minister for Skills, Research and Innovation; and Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland.

## August

- > SFI Research Centre APC, a Microbiome Institute, officially launched at University College Cork.
- > A world-first in magnetism research was published by Prof Michael Coey at the SFI Research Centre, AMBER (the Advanced Materials and BioEngineering Research Centre based at Trinity College Dublin) together with researchers from the Netherlands, Singapore, and the USA in the prestigious journal *Science*.



Prof Fergus Shanahan and Dr Sally Cudmore APC Microbiome Institute.

## September

- > The SFI Research Centre INFANT (Irish Centre for Fetal and Neonatal Translational Research) at University College Cork, Bioscreen Health, Laya Healthcare and IBM launched the 'LEANBH' project in the Cork University Maternity Hospital to provide remote healthcare monitoring to expectant mothers in order to improve the detection and treatment of hypertension and pre-eclampsia during pregnancy.
- > First three awards announced by the Royal Society under the newly established Royal Society-Science Foundation Ireland University Research Fellowship.
- > The UK Biotechnology and Biological Sciences Research Council (BBSRC) and Science Foundation Ireland announced new collaborative funding opportunities to support research and technology development in areas such as bioscience for health, agriculture, food security, industrial biotechnology and bioenergy.
- > For the first time Science Foundation Ireland hosts an outreach event at the National Ploughing Championships.
- > Indian Prime Minister Modi visits Ireland and meets with An Taoiseach Mr Enda Kenny T.D. and Prof Mark Ferguson.



Science Foundation Ireland's Communications, Education and Public Engagement team at the National Ploughing Championship.

## October

- > RTÉ2 and Science Foundation Ireland announced a partnership to support *Insiders*, a new 10-part science series for children aged 7-12.
- > Researchers at AMBER, the SFI Research Centre for materials science based at Trinity College Dublin, announced that they are the first researchers in the world to "pull on heart strings" to measure the fatigue strength of chordae tendineae - cord-like tendons in the heart.
- > Lisa Helen, PhD Researcher from Tyndall National Institute at University College Cork, won the top prize at the Science Foundation Ireland Technology Innovation Development Award (TIDA) pitch off, which took place as part of the Startup Gathering in Dublin.
- > Science Foundation Ireland hosts its first Founders Forum as part of Startup Gathering.



Science Foundation Ireland Research Founders pictured with Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, Gerald Nash T.D. Minister for Business & Employment, and Eoin Killian Costello, Co-Founder & Chief Executive of Startup Ireland.



## November

- > Irish Cancer Society and Science Foundation Ireland invest €2.2 million in a new clinical research network for blood cancers – Blood Cancer Network Ireland.

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- > Over 800 events took place nationwide to celebrate 20 years of Science Week - including the first Celebration of Irish Science hosted by An Taoiseach in Government Buildings.

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- > The Energy Systems Integration Partnership Programme was established with €5.5 million from Science Foundation Ireland, coupled with €5.5 million from five industry partners - AIB, EirGrid, Ervia, Glen Dimplex, ESB and a philanthropic contribution from Mr David O'Reilly, former Chairman and CEO of Chevron Corporation, and current Chair of the UCD Energy Institute Board.

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- > Science Foundation Ireland partners with leading international biopharmaceutical company AbbVie to undertake two new therapeutic research collaborations in Ireland with researchers at the SFI Research Centre APC in University College Cork, and at the Trinity Biomedical Sciences Institute in Trinity College Dublin.

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- > Official launch of the expanded Science Foundation Ireland Irish Software Research Centre (Lero), at the University of Limerick in a €46.4 million investment over six years.

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- > First Science Foundation Ireland Open Policy Debate – measuring impact from publicly funded research held in Dublin.



Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, Mr Richard Bruton, T.D., Minister for Jobs, Enterprise & Employment and Dr Jim Sullivan, Vice President, Pharmaceutical Discovery, AbbVie.

## December

- > Official launch of the newly established SFI Research Centre for Research in Applied Geosciences (iCRAG). iCRAG focuses on the discovery, de-risking and sourcing of raw materials, water and energy resources that are critical to our economy.

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- > Government published its new science and innovation strategy – *Innovation 2020*.

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- > Science Foundation Ireland's Research Centres participate in the national Innovation Showcase attended by over 2,000 entrepreneurs, industrialists and researchers in the Convention Centre Dublin.

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- > SciCom, a new, all-island science communications conference was held in Athlone.



Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, Minister for Skills, Research and Innovation, Damien English TD and iCRAG Director, Prof John Walsh.

# Overview

As outlined in our strategic plan, *Agenda 2020*, Science Foundation Ireland aims to progress Ireland's economy and society by supporting the best scientific and engineering research while building an awareness of the role, impact and opportunities that science can create for everyone.

During 2015, Science Foundation Ireland continued to make great strides in the implementation of its strategy.

## Excellent Science

Over the past number of years, through Science Foundation Ireland investment, Ireland's position in the international ranking of scientific research capability has remained strong. Ireland is in the top 20 countries in global rankings for the overall quality of scientific research (since 2009), moving up to 16th place in 2014 and 14th place in 2015, based on Thomson-Reuters InCites data. Ireland's field specific global excellence is:

**2nd** for Chemistry

**2nd** for Nanotechnology

**2nd** for Immunology

**3rd** for Animal and Dairy

**3rd** for Agricultural Sciences

**4th** for Materials Science

**4th** for Mathematics

## Country Ranking (Thomson Reuters)

### Listed by Citations per Paper

1	Switzerland
2	Scotland
3	Netherlands
4	Denmark
5	USA
6	England
7	Sweden
8	Belgium
9	Wales
10	Germany
11	Canada
12	Austria
13	Finland
<b>14</b>	<b>IRELAND</b>
15	Norway
16	France
17	Israel
18	Singapore
19	Northern Ireland
20	Italy

UP 2  
PLACES  
IN 2015

Source: Essential Science Indicators<sup>SM</sup> from Thomson Reuters

Science Foundation Ireland researchers are contributing significantly to this ranking. In 2015, researchers reported a total of 4,406 publications. Of these, 2,302 publications were attributed to Science Foundation Ireland awards. 44% of publications from active awards have a non-Irish co-author and 9% have a co-author from industry.

## CASE STUDY # 1



(L-R) Prof Louise Kenny and Prof Geraldine Boylan.

### SFI Researcher of the Year Award 2015 - Professors Kenny and Boylan are leading the way in perinatal research

The annual Science Foundation Ireland Researcher of the Year Award was this year presented to two outstanding scientists from the UCC-based SFI Research Centre INFANT- Prof Louise Kenny and Prof Geraldine Boylan. The award, which is determined by an external panel of independent judges, is a commendation of their remarkable scientific impact and exceptional contribution to science and innovation. The co-directors of INFANT, the Irish Centre for Fetal and Neonatal Translational Research, have led ground breaking discoveries and the development of new technologies for pregnancy research, preterm physiological monitoring, infant neurological problems, and infant and maternal nutrition, to name but a few.

Under the Science Foundation Ireland award, Prof Louise Kenny developed a diagnostic test for the early detection of pre-eclampsia. The discovery will lead to significant improvements in the health of mothers and babies. IP was developed and licenced to a UCC spin-out company, Metabolomics Diagnostics. Louise Kenny has supported investor pitches by the company which resulted in their recent success in securing €750,000 of investment from SOS Ventures, AIB Seed Capital Fund and Enterprise Ireland HPSU.

Geraldine Boylan is a scientist, Professor of Neonatal Physiology and a world-leading expert in newborn brain function. Her pioneering work in this area has been instrumental in developing the first ever medical device for automated seizure detection in newborns. She is currently leading an international clinical trial of this device which has been funded by a Strategic Translational Award from the Wellcome Trust.

### Developing and Supporting Talent

Human capital is one of the most significant impacts of publicly funded scientific research. The provision of scientifically trained expertise (PhDs graduates) is a vital output resulting from Science Foundation Ireland awards. Science Foundation Ireland investments deliver fourth level graduates, the majority of whom are expected to transfer into employment in high-tech companies and, to a lesser extent, to the public service, while a significant minority will stay within the academic community.

Science Foundation Ireland initiatives such as the SFI Research Centres Programme and the Strategic Partnerships Programme, involve collaboration with industry and so increase the numbers of researchers who will have spent PhDs or postdoctoral fellowships directly engaging with industry. Science Foundation Ireland programmes such as the Technology Innovation Development Award, which incorporates a commercialisation course, and the Industry Fellowship, which funds one year placements with industry, also increase the employability of researchers from these programmes by industry.

During 2015, Science Foundation Ireland directly supported 4,040 people throughout the research ecosystem in Ireland, this included 529 award holders and 1,355 postgraduate students. Just over half of research team members are Irish, 26% are European (excluding Ireland) and 19% come from outside of Europe. 50% of PhD students are international students.

Over 560 team members left research groups in 2015, 60% of these remained in Ireland, 23% moved to Europe and 14% moved to non-European countries. The number of leavers moving to industry based in Ireland remained steady at 24%.

## Research Team Compositions Tables

There are 3,763 people working on Science Foundation Ireland supported research projects including:

Award Holders

529

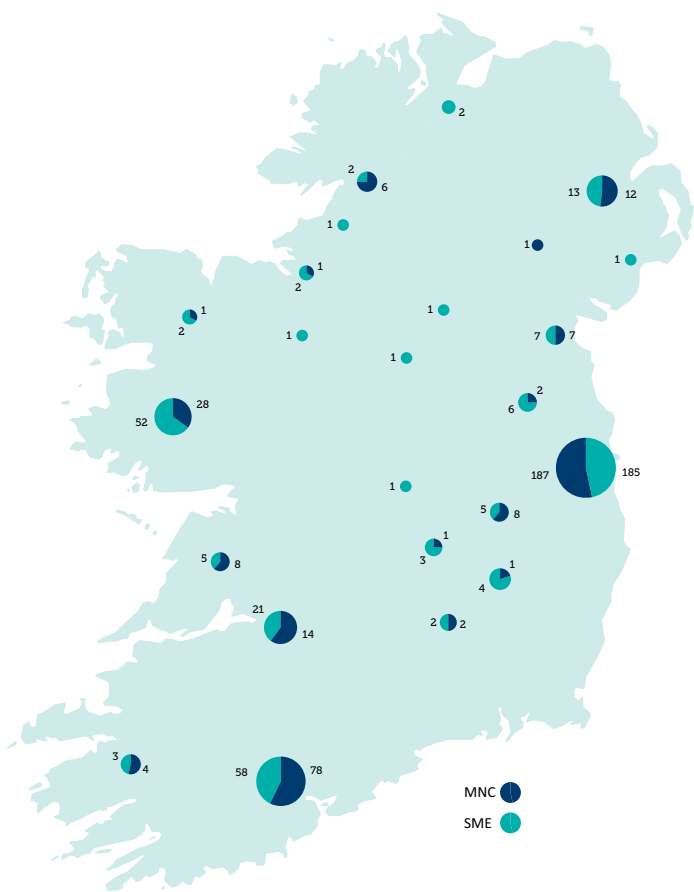
Post doctoral Researchers

915

Post Graduate Students

1,355

## Irish Industry Collaborations by County



## Collaborating with industry

Industry collaboration is one of the key mechanisms for transferring the benefits of public investment in research into sustainable economic development, creating competitive advantage for Ireland. Science Foundation Ireland programmes and initiatives have a strong focus on encouraging and creating collaborations between researchers and industry at home and overseas.

In 2015, Science Foundation Ireland awards directly supported over 1,200 collaborations with industry, 712 with multinational corporations and 508 with SMEs. Over half of these collaborations with industry have a legal agreement in place. 54% of partners are based in Ireland, 15% are in the US, 9% are in the UK and the remaining 22% are spread across other countries.

Collaboration  
1,220

Collaborations  
with industry

involving:

372 MNCs

437 SMEs

The two main reasons for these collaborations cited by Science Foundation Ireland Researchers included:

- (1) learning about and/or testing the potential of ideas and options for possible new directions of future R&D (36%) and
- (2) providing a flexible and cost-effective extension of the R&D resources available to the organisation (27%).

## Research Commercialisations

Pre-commercial outputs in 2015 involving Science Foundation Ireland-funded researchers include:

- 5 spin out companies
- 34 licence technologies
- 73 patents filed
- 47 patents awarded
- 5 standards contributed
- 144 invention disclosures
- 5 assignments

## CASE STUDY # 2



Prof Paul Moynagh.

### Uncovering the role of Pellino proteins in innate and adaptive immunity – promising new drug targets for IBD

Researchers, led by Prof Paul Moynagh, in the Institute of Immunology at NUI Maynooth are identifying new proteins in our bodies that play key roles in controlling inflammatory diseases.

Prof Moynagh and his team have spent the last number of years revealing the importance of a specific protein named Pellino 3. Through examination of clinical samples from patients, the team have discovered that the levels of Pellino 3 are greatly reduced in inflammatory diseases like Crohn's Disease and in obesity. The results suggest Pellino 3 has a protective role in these conditions and presents an attractive target for future therapeutics, a huge breakthrough in our understanding of currently incurable conditions like Crohn's disease and obesity-associated diseases.

Prof Moynagh is currently working with the drug delivery developers, Sigmoid Pharma, to translate this research into the development of new drugs for these diseases.

### Building Partnerships

Science Foundation Ireland has been highly successful at building strategic partnerships in 2015. Science Foundation Ireland partnerships take two broad forms; the partnerships where companies and academic groups submit a joint proposal to Science Foundation Ireland for funding (Strategic Partnership Programme), and the Competitive Joint Partnership Programme, where a company, in collaboration with Science Foundation Ireland, puts out a call to the scientific community to address specific problems. Key achievements during 2015 included:

- > Pfizer and Science Foundation Ireland put out a Competitive Joint Partnership call in 2015 and approved three awards across a number of disease areas.
- > Science Foundation Ireland partnered with the Irish Cancer Society to support the establishment of a new national clinical research network, called Blood Cancer Network Ireland, a virtual clinical research network that will offer early stage clinical trials to blood cancer patients in Ireland. This exciting new collaborative cancer research initiative will provide Irish blood cancer patients with the opportunity to be among the first in the world to test new, potentially life-changing, drugs and treatments.
- > Four Strategic Partnership awards were approved:
  - the Energy Systems Integration Partnership programme (ESIPP) led by Prof Mark O'Malley (UCD), was awarded €5.5 million from Science Foundation Ireland, coupled with €5.5 million from five industry partners - AIB, EirGrid, Ervia, Glen Dimplex, ESB and a philanthropic contribution from Mr David O'Reilly, former Chairman and CEO of Chevron Corporation, and current Chair of the UCD Energy Institute Board. The consortium will work with 17 industry collaborators.
  - Prof Shane O'Mara, (TCD), has been awarded funding from Science Foundation Ireland to collaborate with Alkermes.
  - Prof Kingston Mills, (TCD), has been awarded funding from Science Foundation Ireland and Abbvie to work on biomarkers and drug targets for autoimmune and other immune-mediated diseases.
  - Prof Orla Hardiman and Prof Daniel Bradley, (TCD), were awarded funding in partnership with the Trinity Foundation to examine the entire genetic code of over 1,000 Irish people, along with 21,000 samples from other countries, to identify the genetic basis of Amyotrophic Lateral Sclerosis (ALS), a fatal neurodegenerative disease.



## Enhancing Ireland's International Reputation

Ireland's reputation as a location for world class research continues to grow. In 2015, there were over 3,558 academic collaborations, 2,081 involved international partners in 62 countries. The primary objective for these collaborations is to facilitate joint research and publications.

International Academic Collaborations by Country in 2015

Algeria	1	Kazakhstan	1
Argentina	1	Kuwait	1
Australia	53	Latvia	1
Austria	28	Lebanon	2
Belarus	1	Luxembourg	2
Belgium	29	Malta	1
Brazil	70	Mauritius	1
Bulgaria	2	Netherlands	56
Canada	43	New Zealand	13
Chile	7	Northern Ireland	74
China	94	Norway	11
Colombia	2	Oman	1
Croatia	1	Poland	11
Cyprus	1	Portugal	26
Czech Republic	7	Puerto Rico	3
Denmark	45	Romania	1
Egypt	2	Russia	12
Estonia	2	Saudi Arabia	9
Fiji	1	Serbia and Montenegro	1
Finland	20	Singapore	12
France	110	Slovakia	3
Germany	157	Slovenia	4
Greece	6	South Africa	5
Hong Kong SAR China	3	South Korea	16
Hungary	4	Spain	87
Iceland	1	Sweden	52
India	47	Switzerland	33
Iran	2	Taiwan	4
Israel	9	Turkey	7
Italy	69	United Kingdom	406
Japan	24	United States	383
		<b>Total</b>	<b>2,081</b>



## External funding secured increased by 36%

### Leveraging Funding from Other Sources

Research that is scientifically excellent and that brings direct economic and social benefits should have multiple sources of support. Equally, large research projects require a level of funding that can realistically be met only by multiple investors. Evidence of scientific excellence is supported by the winning of funding from international sources such as the ERC and in the coordination of EU projects.

Science Foundation Ireland-supported researchers leveraged €158 million in external funding in 2015, which represents a 36% increase on 2014. €79 million was secured from the European Union, which was triple the amount secured in 2014.

Amount of External Funding secured by SFI-Funded Researchers in 2015 By Source (All awards)	
	Total Funding Secured 2015
European Union	79,394,690
Private Enterprise	38,079,193
Enterprise Ireland	12,912,309
Irish Research Council	5,239,410
Health Research Board	5,202,901
Other International Government Source	3,430,484
Other Source	3,291,119
Other International Interest Organisation	2,951,968
Wellcome Trust	1,717,332
Environmental Protection Agency	1,246,414
Department of Agriculture Fisheries and Food	953,294
Charity/Non-Profit Organisation (Irish)	859,300
Marine Institute	781,250
Charity/Non-Profit Organisation (International)	716,523
Teagasc	530,000
Department of Communications, Energy and Natural Resources	451,650
Other Irish Government Source	423,075
Higher Education Authority Ireland	176,000
National Institute of Health USA	70,000
National Science Foundation US	38,695
<b>Total</b>	<b>158,465,608</b>

\* Data from SFI outputs 2015. This indicates commitment secured; not in year funding.

Agreements with UK funding agencies including the Royal Society, the Wellcome Trust and the BBSRC, have produced joint funding opportunities for Irish-based researchers. This support builds complementary research competence for Ireland and Irish companies. Three prestigious early career fellowships were made in 2015 under the SFI-Royal Society University Research Fellowship scheme. These awards made by the Royal Society, in competition with applicants across the UK, demonstrate the excellence of researchers in Ireland. Similarly, three awards were made under the SFI-HRB-Wellcome Trust Partnership, which has been extended for another five years and now incorporates investigator, seed and collaborative awards, and the Wellcome Trust Centres scheme.

A new partnership was established with the BBSRC; the first call will issue in January 2016. This scheme allows the BBSRC to support UK applicants, while Irish applicants will be funded by Science Foundation Ireland. This partnership will increase collaboration between Ireland and the UK and will enable Irish researchers to access and utilise UK facilities.

Science Foundation Ireland is committed to supporting Horizon 2020 wins through a number of initiatives including:

- Participation in cross-departmental and High Level Strategic Research Proposal Projects Group.
- The two primary mechanisms for joint programming are Joint Programming Initiatives (JPIs) and European Research Area Networks (ERANets). JPIs in which Ireland is involved include Neurodegenerative Disease Research, Agriculture, Food Security and Climate Change, Healthy Diet for a Healthy Life (HDHL), Climate, Water Challenges for a Changing World and Healthy and Productive Seas and Oceans.
- Science Foundation Ireland, the Department of Agriculture, Food and the Marine and the HRB are actively engaged in the JPI HDHL. Science Foundation Ireland has agreed to double its original commitment and fund two proposals. The Irish parties in these European consortia are Prof Paul O'Toole (APC and UCC) and Prof Douwe Van Sinderen (APC and UCC) with Science Foundation Ireland's contribution being €500,000 in each case.
- A Brussels Events Fund of up to €50,000 per application is available through the Conferences and Workshops Scheme. This fund enables conferences to be held in Brussels for European policymakers and H2020 roadmaps. SFI Research Centre Insight launched their "Towards a Magna Carta for Data" discussion document through this forum in Brussels.

- The Investigators Programme in 2015, in collaboration with a number of other research funders, was aligned to areas of common interest with H2020; these proposals are currently under review. The call was run in partnership with other research funders: Teagasc, the Geological Survey of Ireland, the Irish Research Council, the Environmental Protection Agency, the Marine Institute and the Department for Employment and Learning in Northern Ireland.
- Science Foundation Ireland offered 62 H2020 Catalyst awards in 2015 aimed at supporting preliminary activities that seek to build EU consortia and teams for future H2020 applications. Preliminary activities include workshops, symposia and face-to-face meetings with potential consortium partners.

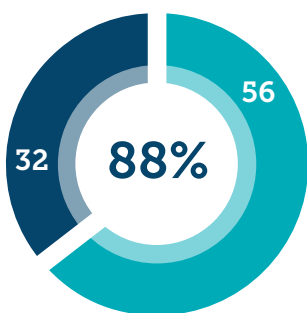
It is important to create a science culture in Ireland where people value the underpinning role of science and technology in their lives and how it addresses the economic, social and environmental challenges we face as a society. Through our education and public engagement programme, Science Foundation Ireland aims to build public confidence and pride in Ireland's STEM achievements to date and our future potential. The programme supports a portfolio of programmes that helps the public better understand the scientific process and that opens the window of opportunity in STEM careers to a greater population.

In 2015, Science Foundation Ireland directly managed Science Week and the Smart Futures, Discover Primary Science and Maths and ESERO Ireland programmes. It also supported the wider research community to engage with the public and, through the Science Foundation Ireland Discover programme call, funded 56 new projects with a reach of approximately 4.6 million engagements.

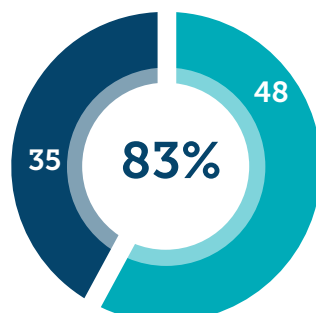
## Public Engagement and Education

Science Foundation Ireland is committed to achieving the most engaged and scientifically informed public in Ireland. We view an engaged public as one that understands the role of science, can judge between competing priorities and arguments, encourages young people to take science, technology, engineering and maths (STEM) choices at school and further education, and feels that it has the appropriate level of engagement with, and influence upon, research.

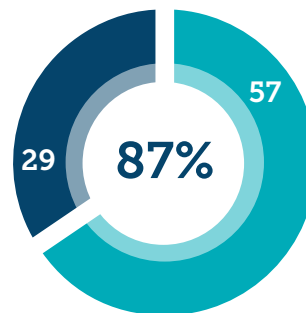
## How the Public Value STEM



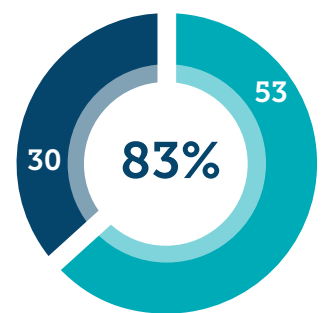
**1. It is important to support training and education in STEM**



**2. Science is important for addressing key challenges affecting our society**



**3. Research in STEM will lead to an improvement in the quality of life in Ireland in the next 20 years**



**4. Government investment in STEM is worthwhile**

■ Strongly agree

■ Slightly agree



CASE  
STUDY

## 3



Clare McInerney.

**Modernising the Curriculum: Coding for the Next Generation**

Clare McInerney, the Education and Outreach Manager at Lero, the Science Foundation Ireland Irish Software Research Centre, is working on the rollout of a Continuing Professional Development Programme for the first official 100-hour Junior Cycle Short Course in Coding, in conjunction with Junior Cycle for Teachers and Intel.

Over the last five years, Clare and Lero have been instrumental in bringing software development to the primary and post-primary education system. They are responsible for introducing Scratch, a visual programming language that makes it easy to create digital content, to Irish schools and currently facilitate the Scratch Competition for school students which has resulted in a staggering increase in school participation in coding. In collaboration with PDST (Professional Development Service for Teachers), over 3,000 teachers have completed Scratch training.

At secondary school level, Clare and her colleagues were commissioned by the National Council for Curriculum and Assessment (NCCA) to write a 100-hour course, the first official programming and software engineering course in the Irish second level education system. They also host computing summer camps aimed at young women from the age of 14 years to encourage more female participation in IT. Clare's extraordinary efforts in education and engagement earned her the accolade of becoming one of 2015's Google Rise Award winners, a prize supporting organisations that encourage girls and underrepresented students in extracurricular computer science programmes.

**Key highlights from the SFI Discover-funded projects in 2015 include:**

Science Foundation Ireland entered a joint agreement with the national broadcaster RTÉ to catalyse an increase in science-related broadcast programming. The objectives of the agreement are to encourage the broader public, who normally don't engage in STEM conversations or programming, to tune in. This pilot programme resulted in two joint commissioning calls for programming to be broadcast in 2016.

In tandem, the Science Foundation Ireland Discover programme call 2015 invited broadcast proposals from other national broadcasters, film makers and animators. This resulted in Science Foundation Ireland supporting projects in production for 2016 including documentary film making with the Galway Film Centre, a travel series to broadcast on TV3, and a science in sport programme on Setanta. The Science Foundation Ireland-supported programme, Brain Freeze, picked up the Kid's Choice Award for Best Animated Series at the Irish Animation Awards.

The agreement with RTÉ also created greater presence of science and technology across RTÉ 1 during Science Week 2015, with an explosive launch on the Late Late Show and science topics featuring in the weather broadcasts across the week. This helped broaden the reach of the week which marked its 20th anniversary in 2015. Science Foundation Ireland supported eight regional science festivals in Dublin, Cork, Galway, Limerick, Waterford, Sligo,

Mayo and the Midlands which ensured that Science Week 2015 included a national programme of over 800 interactive events, lectures and activities for young and old. Through the use of quirky themes and digital content such as the viral Sminky short titled 'Space Pop', Science Week reached into the broader popular media such as the Republic of Telly, Hot Press, farming supplements and social media outlets.

Science Foundation Ireland enabled engagement with the public through a diverse portfolio of projects including support for Coderdojo, BEES – a theatre project on bees and biodiversity, Tech Week and the RDS STEM Learning project. The diversity of projects ensure that there is an offering for a wide cross section of society. The Science Foundation Ireland Research Centre, AMBER, delivered the EngAGE project. This was an intergenerational community learning programme which brought primary school students, teachers, researchers and older people together. This supported life-long learning amongst our older community while engaging young people in this cross generational programme.

Science Foundation Ireland commissioned and completed the Science in Ireland Barometer research in 2015. The research sought to examine the Irish public's awareness and value of STEM in our society. The results are informing Science Foundation Ireland's strategic development, and in particular the education and public engagement programme.

## CASE STUDY #4



### The Magna Carta for Data – Charting the way for citizens' rights in Big Data research

Leading the discussion on data ethics in Europe is the Science Foundation Ireland Insight Centre for Data Analytics. Co-director of the Centre Prof Barry O'Sullivan is heading up Insight's Magna Carta for Data initiative which aims to objectively weigh the benefits of data research to the public with the privacy and data protection rights associated with this increasingly pertinent field of research.

In November 2015, Prof O'Sullivan presented the concept of the Magna Carta for Data at the Alan Turing Institute in Oxford University. The initiative was shaped in the preceding months through the submission of a discussion document to Brussels and participation in a Day of Action on Data for Health and Science. Ongoing consultations within Insight also broadened the scope of the conversation to include not only business, health science and computer science community but social sciences and the humanities as well. The scale of the initiative shows Ireland is very much leading the field in terms of data ethics, at the same time highlighting the draw of Ireland as a frontrunner in data analytic research.

Prof O'Sullivan, was also part of a UCC delegation to the UN headquarters in New York where he presented an overview of data analytics and the challenges posed by Big Data in both the developed and developing worlds.

Amongst the results the barometer found that one in two people in Ireland felt informed in STEM, but 71% felt that STEM is often too specialised to understand. These have informed the targets and outcomes set out in Innovation 2020 and the National Skills Strategy 2025. The barometer also identified particular groups within Irish society that are more disconnected from STEM such as the socioeconomic groups categorised as C2DE, in particular those aged 30 – 55 and women. These findings in 2015 will directly inform future education and public engagement activity.

Under the Smart Futures initiative, Science Foundation Ireland launched a new website and volunteer/school visit management system to support creating national access for post primary students to STEM role models. The programme continued to grow partners, achieving over 1,500 trained volunteers from a variety of organisations representing industry sectors such as computing, financial services and pharmaceutical. The programme has now reached over 92,000 students since its launch. To support the CAO decision timeline and grow awareness of the Smart Futures programme, a cinema ad was produced in late 2015 which ran in cinemas nationwide during November and December.

Science Foundation Ireland-funded researchers participated in a number of education and public engagement activities in 2015, including media interviews and interactions, giving over 700 public lectures and demonstrations and paying 1,275 visits to primary and secondary schools.

Over 500 Irish primary schools received the Discover Primary Science and Maths (DPSM) Awards of Science and Maths Excellence.

Smart Futures industry mentor programme reached

**92,000**

students since its launch

**SMART  
FUTURES**

## Gender in Research

Science Foundation Ireland has programmes and initiatives in place aimed at supporting excellent female researchers at a variety of crucial steps along the career pipeline.

In 2015, Science Foundation Ireland introduced an initiative to increase the number of female applicants to its flagship early career programme, the SFI Staring Investigator Grant (SIRG). SIRG provides the best and brightest early stage researchers with four years funding for themselves and one PhD student under the mentorship of a senior academic. Previously, applications to the SIRG programme were capped at five applications per research body, with no reference to gender balance. In 2015, the cap was raised to 12, provided no more than six of the applications made per research body were from male applicants. The rationale behind this action was that female applications to the programme have been steady at around 25% for a number of years, and this is not representative of the 50% of STEM PhD graduates in Ireland who we know are female. In 2015, 44% of applications to the programme were from women, a significant improvement.

In order to ensure that awards made under Science Foundation Ireland funding schemes do not preclude or unintentionally discourage the hiring of female researchers, Science Foundation Ireland offers a

maternity allowance that provides award holders with funding when they or a team member take a period of maternity or adoptive leave.

As an additional support mechanism for researchers further along the career pipeline, the Investigator Career Advancement (ICA) category of the SFI Investigators Programme stipulates that reviewers consider career breaks and periods of part-time work undertaken by the applicant when assessing their productivity over a timeframe. Successful ICA applicants are also eligible to request funding for teaching buyout so as to further support them in their return to research.

In 2015, Science Foundation Ireland committed to have all its staff and Board undertake unconscious bias training; an international provider has been identified and this programme will commence in 2016.

Through our seats on the Science Europe Gender and Diversity Working Group, and the Athena Swan Ireland Committee, Science Foundation Ireland is constantly benchmarking itself against international best practice and searching for new and innovative ways to further retain and support women in research.

## CASE STUDY # 5



Prof Fergal McCaffery

### Setting the Standard for Medical Device Software Worldwide

Dr Fergal McCaffery's work into medical device technology is enabling manufacturers to meet international regulatory standards set by the International Electrotechnical Commission (IEC), establishing Ireland as a key location for medical device software engineering research.

MDevSPICE, developed by Dr McCaffery's and his team at Dundalk IT, is a framework used by organisations to efficiently and economically comply with regulatory standards. The toolkit also makes their products more attractive to international markets as they can demonstrate to large medical device companies that they are capable of providing them with safe software. In fact, the last two years has seen the publication of four new international standards and technical reports led by members of Dr McCaffery's Team.

Additionally, research into medical device cybersecurity has assisted organisations globally to create safer and more secure medical devices. One specific aspect of this research focused on medical IT Risk Management, the results of which have assisted hospitals around the world to create safer and more secure medical IT networks.

There are currently two spin-out companies in development to further establish the commercial value of this research, all of which will help create high value jobs in the area.

Dr McCaffery is a Principal Investigator with SFI Research Centre Lero.

# SFI Research Centres

## Phase 1 - 2012

### 7 SFI Research Centres (2013 - 2019)



**Advanced Materials and BioEngineering Research Centre**  
www.ambercentre.ie



**APC Microbiome Institute**  
www.ucc.ie/research/apc



**Irish Centre for Fetal and Neonatal Translational Research**  
www.infantcentre.ie



**Centre for Data Analytics**  
www.insight-centre.org



**Irish Photonic Integration Research Centre**  
www.ipic.ie



**Marine and Renewable Energy Ireland**  
www.marei.ie



**Synthesis & Solid State Pharmaceutical Centre**  
www.sspc.ie

## Phase 2 - 2013

### 5 SFI Research Centres (2015 - 2021)



**Centre for Digital Content Technology**  
www.adaptcentre.ie



**Centre for Future Networks and Communications**  
www.connectcentre.ie



**Centre for Research in Medical Devices**  
www.curamdevices.ie



**Irish Centre for Research in Applied Geosciences**  
www.icrag-centre.org



**The Irish Software Research Centre**  
www.lero.ie

A key objective of Agenda 2020 was to establish a cohort of world-leading, large-scale SFI Research Centres to provide significant economic and societal impact for Ireland. In 2013, seven SFI Research Centres were established and in 2015 a further five were added. The total investment into these 12 SFI Research Centres is €355 million from Science Foundation Ireland, and a further €190 million from Industry Partners committed over the six year award period.

These 12 Centres are focused on strategic areas of importance to Ireland covering Pharma, Big Data Analytics, Medical Devices, Nanotechnology /Materials, Marine and Renewable Energy, Food for Health/Functional Food, Perinatal Research, Applied Geosciences, Software, Digital Content and Telecommunications. The SFI Research Centres have been further supported via additional funding for nine major projects through the Science Foundation Ireland Spokes Programme to a cumulative value of €23 million.

**Software**  
**Pharma**  
**Nanotechnology**  
**MEDICAL DEVICES**  
**Applied Geosciences**  
**Digital Content**  
**Industry**  
**commitment** **€355**  
**of €190 million** **million**  
**from SFI**  
**Telecommunications**  
**PERINATAL Energy**  
**RESEARCH Nano Materials**  
**Functional Foods**  
**FOOD FOR HEALTH**  
**BIG DATA** **Marine**  
**Renewable**  
**Energy**

## Key achievements of SFI Research Centres in 2015

### Key Performance Indicators

The SFI Research Centres were funded with a primary objective to deliver significant economic and societal impact to Ireland. Their success is strongly driven by a number of key performance indicators (KPIs). Each SFI Research Centre sets targets for the relevant indicators and is continually measured against these targets. The SFI Research Centres are also mandated to maintain a minimum level of 30% cost share from industry partners which includes a minimum of 10% cash.

The 15 KPIs are reported and validated with SFI Research Centre on a six monthly basis. The following table shows the cumulative KPI results against target for the seven 2012 SFI Research Centres from when they started in June 2013 until the end of 2015.

Combined cumulative KPI results for the initial seven SFI Research Centres against their targets from inception to the end of 2015

	Cumulative	
	Target	Result
Journal Publications	1,012	1,837
Conference Publications	719	940
MSc/MEng Graduates	37	28
PhD Graduates	36	108
% Trainee departures, with industry as first destination	24%	23%
Participation in EU projects	72	71
Coordinations in major EU initiatives	22	24
ERC awards granted	9	11
Funding from non-exchequer, noncommercial sources	€54m	€58m
Industry cash received	€10m	€14m
% Industry cost share (cash)	10%	13%
% industry cost share (total)	30%	28%
Enterprise Ireland commercialisation awards	58	122
Licence agreements	24	61
Spin out companies	4	10

CASE  
STUDY

# 6

### Down to the detail: Cutting edge atom-level imaging with new state-of-the-art microscope

Bolstering success in accruing European Research Council (ERC) funding, Prof Valeria Nicolosi, an investigator in the Centre for Advanced Materials and BioEngineering Research (AMBER) in Trinity College Dublin, was recently awarded €2.5 million for an ERC Consolidator Grant, making this her fourth ERC award in the last five years.

Prof Nicolosi is expanding on previous work in the field of nanomaterials and energy storage. Her latest research will focus on developing exceptionally long lasting batteries that can be easily embedded into smartphones, clothing and medical devices.

2015 also saw the final build and installation of the new NION™ Scanning Transmission Electron Microscope (STEM) in the Advanced Microscopy Laboratory in AMBER. This new world class tool can analyse single atoms and objects a million times smaller than a human hair. Prof Nicolosi led the proposal which was funded through the Science Foundation Ireland Infrastructure Call. With only a handful of NION STEMs in existence, the presence of this technology heralds a new era of research in a wide range of materials ensuring that Ireland remains at the forefront of world-class materials research which ultimately will benefit society at large.



Prof Valeria Nicolosi.

## International Scientific Progress Reviews

As part of the overall evaluation of the SFI Research Centres, a plan was put in place to carry out a detailed two-day scientific and impact progress review of the Centres every two years. The first two-year progress reviews of the seven 2012 SFI Research Centres took place at the end of 2015 when seven separate panels of international scientific reviewers convened in Ireland to review the scientific excellence and impact of the seven Research Centres. The SFI Research Centres performed extremely well and were ranked in the top two categories; **‘outstanding’** or **‘high quality project’** in nearly all respects. There is no doubt that, in addition to strong KPI and cost share results, the SFI Research Centres are also carrying out research which is scientifically excellent. A selection of the review panel comments are highlighted:

## Quotes from International Review Panels - SFI Research Centres delivering Excellence with Impact



**“outstanding** selection of extraordinary investigators with a worldwide recognition of excellence in focused core capabilities”

**“blueprint** for an optimised interaction of industry with academia”



**“Insight** has successfully established itself as a **major international research institute**”

**“The SFI investment** has been used effectively to leverage funding from industry... and new EU and international funders”



**“leader in the field,** with which industry from around the world is seeking to partner”

**“APC has a rich collection** of educational and outreach activities”



**“leaders** in photonic communications, integration, and packaging”

**“in its first two years,** IPIC has had an **outsized impact** on research excellence, economic growth, human capital and international standing”



**“Strong evidence** is provided that the individual projects and the diagnostics and therapeutics developments are state of the art, cutting edge”



**“a considerable investment by industry** in Marine Renewable Energy research”

**“a strong and committed** team of scientists covering a broad spectrum of interests in Marine Renewable Energy Research”

**“the Centre has clearly demonstrated an ability to attract non-exchequer** (mainly EU funding)”



**“excellent collaboration** with pharmaceutical companies...

The presence of the SSPC and facilities and opportunities it provides are a **major factor for investment** in research infrastructure and manufacturing facilities in Ireland”

## Impactfully Engaging with Industry

At the end of 2015, the 12 SFI Research Centres had signed collaborative research agreements with over 300 industry partners with another 200 contracts under negotiation. The Research Centres are collaborating with both Irish and multinational SMEs and MNCs through a wide range of projects spanning a one to six year period. In addition to collaborative research, the SFI Research Centres are actively commercialising IP generated from these industry engagements.

In the past year, two new companies have been spun out and there have been over twenty licensing agreements signed. The SFI Research Centres have also provided skilled personnel to industry with over 20% of Research Centre trainees moving to industry as a first destination.

- Gajo Ltd is a new spin-out from ADAPT and Dublin City University. Headed up by Dr Deirdre Hogan, Gajo was registered in 2015 and shortly afterwards licensed the Gajo Social Media sentiment analysis technology from ADAPT at DCU.
- Exceedence Ltd was officially spun-out from MaREI in 2015 to provide software and expert services in the renewable energy sector.
- ADAPT has completed a license with FBD on their “Sherlock” fraud detection software generating revenue of €100,000.
- IPIC is partnering with Stryker R&D design and development experts in Cork to apply photonics technologies to develop next-generation smart surgical tools that enable faster, simpler, and novel procedures to improve patient outcomes.

## Attraction of International Funding

The 12 Research Centres are acting as international beacons for attracting talent and leveraging non- Exchequer funding with particular emphasis on Horizon 2020. The Research Centres are exceeding targets on ERC awards and are leading and participating in H2020 consortia. In addition, funding has been secured from the Wellcome Trust, the Melinda and Bill Gates Foundation and other philanthropic sources. In 2015, €44 million was drawn down from international funding agencies. Two international partnerships between SFI Research Centres and Engineering Research Centres funded by the US National Science Foundation were awarded in 2015, representing an additional investment of €2 million from Science Foundation Ireland and a matching investment from the National Science Foundation along with significant funding from the Department of Employment and Learning in Northern Ireland. These EU and international collaborations are enabling the transfer of students and postdoctoral researchers and the exchange of ideas and expertise.

- In 2015, CÚRAM was awarded five European Research Council (ERC) grants securing €7 million total funding.
- Amber was awarded over €8 million in funding from the European Research Council through six awards including Starting, Consolidator and Proof-of-Concept grants.

- In 2015, iCrag has secured over €1.3 million in funding from H2020.
- Under the US-Ireland partnership programme, two awards were made to Connect/IPIC and SSPC to support collaborations between Engineering Research Centres in the USA. This has facilitated projects between the Centre for Integrated Access Networks in the University of Arizona, CONNECT and IPIC and the Computer Science Research Institute (CSRI) at the University of Ulster and between SSPC, the Centre for Structured Organic Particulate Systems (CSOPS) at Rutgers University and the Centre of Pharmaceutical Sciences at Queen’s University, Belfast.

## Enhancing Ireland’s International Reputation

SFI Research Centres are enhancing the international reputation and profile of Ireland which is in turn attracting the interest of industry to invest in Ireland.

- A Memorandum of Understanding with the US National Science Foundation (NSF) was extended to facilitate collaborative projects between Engineering Research Centres (ERCs) in the US and SFI Research Centres in Ireland.
- The International Energy Agency (IEA) elected MaREI’s director, Prof Jerry D. Murphy as Leader of the IEA Task ‘Energy from Biogas’.
- Professor Michael Coey from AMBER was awarded the prestigious Gutenberg prize in 2015 by the Cercle Gutenberg which comprises of Nobel Laureates and Members of the French, and other Academies of Science based in Alsace.
- The first annual SSPC-PMTC Process Analytical Technology (PAT) conference, was hosted by SSPC and Pharmaceutical Manufacturing Technology Centre (PMTTC) at the University of Limerick in June 2015 which was attended by world leading academic and industrial pharmaceutical scientists.
- Prof Paul Ross, Principal Investigator in APC has been included in the 2015 Thomson Reuters “World’s Most Influential Minds” list.
- Prof Brian Caulfield, Principal Investigator in Insight won the 2015 Google Wearables in Healthcare Pilot Challenge which took place at Google’s Cambridge headquarters, in Massachusetts, USA.

## Advancing Scientific Excellence

SFI Research Centres are acting as thought leaders across a wide range of disciplines in ICT, Health, Energy, Geosciences and Pharma. They are achieving research excellence and leadership, as measured through indicators such as publications in top-tier journals and conferences, citations, editorship of top tier journals, and invitations to give lectures at top tier conferences. In 2015, over 1000 publications were attributed to the SFI Research Centres. In 2015, ten ERC advanced, consolidator and Proof of Concept awards were granted to SFI Research Centre researchers.

- Researchers in APC, led by Prof John Cryan and Prof Ted Dinan, published a paper in *Brain, Behavior and Immunity* that explored the biochemical signals that regulate the important health and developmental links between the brain, gut and microbiome.
- Researchers in AMBER led by Prof Michael Coey, together with researchers from The Netherlands, Singapore, and the USA, published a paper in *Science* describing how magnetism can be suddenly switched on by adding a layer just one atom thick to a thin film of a specific oxide material. This is not only important for materials science, but it is also a significant discovery that could have potential for storing the World's big data.
- Researchers in CONNECT, led by Dr Ronan Farrell published a paper in *IEEE Microwave and Wireless Components Letters* which will have long-term impact on power amplifiers, one of the key components of advanced intelligent access nodes on the Internet of Things.
- Researchers in MaREI, led by Prof John Ringwood, published a paper in *IEEE Transactions on Sustainable Energy* which demonstrates how energy efficiencies are maximised in the deployment of arrays of wave energy devices.
- MaREI 's research programme is aligning with the needs of data centres and their requirement to use renewable energy.
- SSPC continues to work towards the generation of a 'greener' pharmaceutical industry and the improvement of pharmaceutical processes which will lead to the greater availability and choice of medicines for patients.
- INFANT is developing computer assisted methods of analysing neonatal brainwaves to detect the onset of adverse events such as seizures in the brain. This research aims to improve the long-term health outcomes of new-born babies by the early and accurate detection of neurological problems which will allow the delivery of prompt and appropriate treatment and intervention strategies.

## Education and Public Engagement

The Science Foundation Ireland Research Centres are inspiring future STEM students and training and educating the future cohort of engineers and scientists to take up high value employment in MNCs and SMEs in Ireland. In 2015, the Research Centres ran 294 education and public engagement activities reaching a total of over 2.5 million people.

- The Science Foundation Ireland Research Centres developed new public engagement content to showcase research at public events such as the National Ploughing Championships and at venues throughout the country during Science Week 2015. The Centres also collaborated to provide an interactive exhibit at the BT Young Scientist and Technology Exhibition in January 2015.
- AMBER launched its project Science LIVE! which provides interactive online, guided tours of science centres in Ireland. The virtual tours give primary school classes direct access to Ireland's leading research facilities and scientists, inspiring them to think positively about science careers. This project resulted in the development of a Toolkit which will enable additional Research Centres to implement the programme and expand their geographical reach.
- Insight worked with Scouting Ireland to create a definitive resource of STEM materials for youth members and adult Leaders, which will facilitate their engagement with these subjects outside of the classroom in a fun, non-formal environment.

## Creating Societal Impact

SFI Research Centres are leading key national projects which will have major societal impact.

- CONNECT is leading a project called Pervasive Nation, which will install an Ireland-wide, wireless network which will support Internet of Things research and innovation and will facilitate applications such as flood monitoring and smart-agriculture.



## New Awards in 2015

367 new awards were approved in 2015 across 26 programmes with a value of €131 million. Total payments to 62 research bodies/organisations in 2015 were almost €163 million.

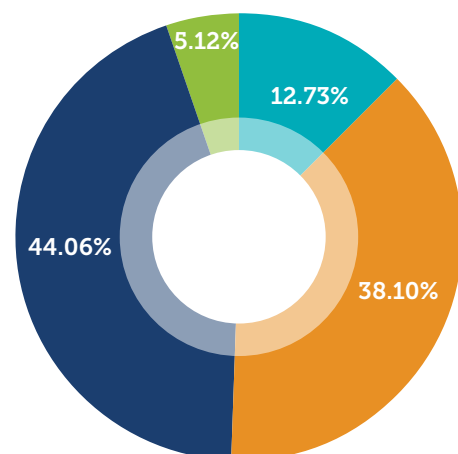
### Summary of award programme decisions in 2015:

- > 23 awards made to outstanding senior researchers through the **Investigators Programme (IvP)**. This programme was run in partnership with the Department for Employment and Learning (DEL) Northern Ireland and funded seven projects involving North–South research collaboration.
- > Six awards were made through the **SFI Research Centres Spokes Programme** involving approximately €16.3 million funding from Science Foundation Ireland, co-funded by over 20 industry partners to a cumulative value of €10.5 million, resulting in total 2015 Spokes funding of over €26 million.
- > Under the **Strategic Partnerships Programme** four awards were made reflecting a Science Foundation Ireland investment of €9.8 million, plus cumulative of €8.9 million from industry, philanthropic, charitable and academic partners, resulting in a total value for partnership-based funding of almost €19 million.
- > Three awards funded under the **SFI-Royal Society Partnership Scheme** resulted in prestigious Royal Society University Research Fellowship (URF) awards to Irish early career researchers.
- > Three **SFI-Pfizer Biotherapeutics Innovation Awards** were made, bringing the total projects funded under two calls of this unique partnership scheme to eight.
- > **€28 million investment in 21 research awards for equipment and facilities** in sectors including applied geo-sciences, pharmaceutical manufacturing, bio-banking, marine renewable energy, internet of things, astronomy, big data and additive manufacturing using nano-materials.
- > **56 awards were made as part of the SFI Discover Programme call totalling €3.9 million** supporting the education and engagement of the Irish public and more specifically Irish young people who we hope will pursue careers in science, technology and engineering to fuel our economy in the future.

## Science Foundation Ireland - A Balanced Portfolio

Science Foundation Ireland offers a balanced portfolio of programmes, many involving national and international collaborations with industry (small and large), charities (Wellcome Trust, Irish Cancer Society) international funders (National Science Foundation, National Institute of Health (USA), Royal Society and BBSRC (UK), Department of Education and Learning (N Ire) and national funders in Ireland (Teagasc, Irish Research Council, Health Research Board, etc.). The portfolio includes both investigator initiated and thematic calls, project grants and large-scale Research Centre awards, short and long-term funding, support for early career researchers, emerging and established research leaders, individual and collaborative awards. Science Foundation Ireland currently invests approximately equal amounts of its budget in Investigator led awards and in large Research Centre-type activities.

### Science Foundation Ireland's budget broken down by Programme Type



- Industry and Entrepreneurship
- Investigator Led Awards
- Research Centres
- Other

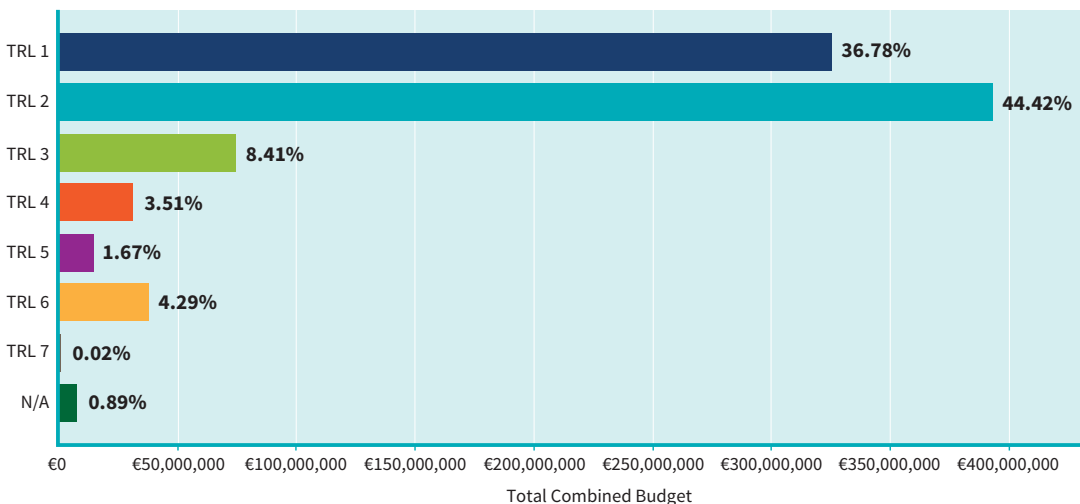
Oriented basic research remains at the core of Science Foundation Ireland's remit. However, as Science Foundation Ireland is increasingly funding more applied research and research that involves industry collaboration and partnership, it is beneficial to categorise awards so that we can assess the maturity of a proposed research programme and potential resultant 'technology,' and how far down the path towards applied use the programme of research intends to bring this technology. To assess the maturity of awards within its funding portfolio, SFI has adopted the same Technology Readiness Level (TRL) evaluation scale as utilised by the Horizon 2020 Programme (outlined below), which is an adaptation of the TRL scale developed by NASA in the 1970s.


As it stands, the majority of Science Foundation Ireland's portfolio of investment currently lies in TRL 1 and 2. With time and given Science Foundation Ireland's expanded remit, it would be expected to see investments moving to span the TRL levels from 1 up to level 6 or 7. SFI's mid-high TRL investments will grow in the future, however, given the Innovation 2020 strategy and national plans to increase public investment in STEM research, a substantial proportion of SFI's investment will continue to be in the lower TRLs.

## Technology Readiness Levels (TRL)

- TRL 1 Basic principles observed
- TRL 2 Technology concept formulated
- TRL 3 Experimental proof of concept
- TRL 4 Technology validated in lab
- TRL 5 Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 System prototype demonstration in operational environment
- TRL 8 System complete and qualified
- TRL 9 Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

### Science Foundation Ireland's Budget Breakdown by TRL





Governance,  
Organisational  
Structural and  
Statutory Notices

# Governance and Oversight

## Corporate Governance Statement

Science Foundation Ireland was established as a body corporate by the Industrial Development (Science Foundation Ireland) Act 2013, as amended.

The members of the Board of Science Foundation Ireland constitute the members of the agency. With the Board having carried out an in-depth review of its policies and procedures during 2014 as well as of the activities of its committees, in 2015 the Board continued its adherence to the highest principles of Corporate Governance. In this, the Board obtained an external evaluation of its Corporate Governance regime during 2015 under the stewardship of the Corporate Governance Committee. The Board achieved Swift3000 certification through NSAI, achieving a score of 3.875 out of 4 in the assessment.

## SFI Board



### Ann Riordan, Chairman of Science Foundation Ireland

An experienced board member, Ann Riordan has held a number of senior positions in the ICT sector. Notably she established Microsoft Ireland in 1990 and was instrumental in establishing the Fastrack to IT (FIT) initiative which has to date trained over 12,000 long-term unemployed people. She has served on the Information Society Steering Committee and the Irish Council for Science, Technology & Innovation. Since her retirement from Microsoft she has served as: President of the Institute of Directors in Ireland; Chairman of the National Standards Authority of Ireland; Chairman of Tourism Ireland; Chairman of the Dublin Regional Tourism Authority and as a public interest director of the EBS Building Society.



### Professor Mark W.J. Ferguson Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland

Prof Ferguson commenced as Director General of Science Foundation Ireland in January 2012 and as Chief Scientific Adviser to the Government of Ireland in October 2012. Previously, Mark Ferguson was appointed Professor in Life Sciences at the University of Manchester in 1984, aged 28, when he was the youngest Professor in Britain. Mark has wide ranging research interests and has received numerous international awards, prizes, medals and honours. Mark founded the Manchester Biosciences Incubator, which has successfully mentored a number of start-up companies and Mark co-founded (with Dr Sharon O'Kane) and was CEO of Renovo, a biotech company developing novel pharmaceutical therapies. Mark has served on many international Committees, Panels and on the Board or Scientific Advisory Board of several international biotech companies. Mark has degrees in Anatomy, Dentistry, Embryology and Medical Sciences, is currently Honorary Professor of Life Sciences at the University of Manchester, a member/Fellow of a number of learned Societies, and was awarded a CBE in 1999.



### **Professor Sir Tom Blundell, Director of Research and Professor Emeritus in Biochemistry, University of Cambridge**

Professor Sir Tom Blundell is Director of Research and Professor Emeritus in Biochemistry, University of Cambridge. He has previously held teaching and research positions in the Universities of London, Sussex and Oxford and leads an active research team in structural and computational biology. Co-founder of Astex Therapeutics, he has also been a member of a number of Boards or Scientific Advisory Boards of both pharma & biotech companies including SKB, Celltech and UCB. Tom has held a number of prestigious roles in public bodies, Royal Commissions and Charities including as a member of the advisory group to the Prime Minister and founding CEO and Chair of the UK Biotechnology and Biological Sciences Research Council. Tom was knighted in 1997 and is a member of several academies. He has received numerous international awards, prizes, medals and honours for his research work and holds Honorary Doctorates from 16 Universities.



### **Mr Liam Madden, Corporate Vice President of Engineering, Xilinx**

Liam Madden leads a world-wide organization of R&D professionals, including teams in Dublin and Cork. Mr. Madden has spent more than 30 years in the US semiconductor industry where he has contributed to a range of industry leading products and technologies. Based in Silicon Valley, he has worked with established companies and start-ups, including a leadership role in a successful IPO. Mr. Madden has extensive experience incubating novel technologies, most recently commercialising the industry's first 3D stacked computer chip. He holds five patents in semiconductor technology. He is a Fellow of Engineers Ireland and in June 2013 was appointed an Adjunct Professor of Electrical, Electronic and Communication Engineering at UCD.



### **Dr. Rita Colwell, Professor both at the University of Maryland at College Park and at Johns Hopkins University Bloomberg School of Public Health and Chairperson of CosmosID Bioinformatics Inc.**

Dr. Colwell served as the 11th Director of the US National Science Foundation (NSF) from 1998-2004. In her capacity as NSF Director, amongst other initiatives, she broadened the NSF range of programmes including cyber infrastructure and also special interaction in science and mathematics education, graduate science and engineering education and the increased participation of women and minorities in science and engineering. Dr. Colwell is a member of the U.S. National Academy of Sciences and has a number of honorary doctorates and serves on science advisory boards worldwide. She received the National Medal of Science from the President of the United States in 2006.



### **Ms. Bernie Cullinan, CEO, Pragma Advisory**

Pragma Advisory a company providing strategic and operational advisory solutions for companies in the SME sector in a broad range of domains. Bernie has held C-level positions in a number of Irish technology companies and continues to be active in this sector. In these roles, Bernie has played a key role in driving growth and shareholder value in the US, UK and Ireland. Bernie is a past Chairman of the Irish Software Association. Bernie has a BComm from UCD, an MBA from UCD and is a Fellow of the Chartered Institute of Management Accountants (CIMA). Bernie is a past President of CIMA and is a member of the DCU Educational Trust.



### **Ms Mary Doyle, Deputy Secretary, Department of Education and Skills**

Mary Doyle sits on the Science Foundation Ireland Board as the appointee of the Minister of Education and Skills. Mary took up her current role in the Department of Education and Skills in June 2012 where she leads the Higher Education Division in the Department. She has worked in the Departments of the Taoiseach, Health, and was Director General in the Office/Department of the Minister for Children and Youth Affairs. She has been a member of the National Economic and Social Council and the National Statistics Board and a Forum Member of the Economic and Social Research Institute. She holds a degree in European Studies from the University of Limerick and a Masters in Public Service Management from Trinity College Dublin/Irish Management Institute.



### **Ms. Geraldine Ruane, Chief Operating Officer, Trinity College Dublin**

Geraldine Ruane is an innovative senior executive with a track record of leading the transformation of blue chip multi-disciplined organisations in both the private and public sectors, creating high performing national and international profitable organisations. As a Chief Executive, Board Member, Chartered Director and Accountant Geraldine possesses broad and deep experience and knowledge of customer focused growth companies in various sectors including Pharmaceutical, ICT, Financial Services, Industrial Services, and Higher Education. In these sectors Geraldine has developed and implemented strategies, designed, developed and implemented major change management programmes. Known for her consultative management style, she has a keen focus on strong leadership, team development and delivering significant business results. Geraldine currently holds the position of Chief Operating Officer in Trinity College Dublin.



### **Mr Aidan W. Donnelly, M.D. of Advest Management Ltd**

Aidan W. Donnelly, is the M.D. of Advest Management Ltd a private equity fund management company. In addition, he is Chairman of NORA, the Irish government agency responsible for Ireland's National Oil Reserves and has a number of interests in renewable and environmental start-up companies. Aidan has extensive experience in the development and management of technology-oriented multinationals in Ireland such as Xerox (Europe) Ltd. Quantum Peripheral Products Ltd, Puritan Bennett, Cabletron Systems, Betdaq (Global Betting Exchange Ltd.) and most recently, ServeCentric Ltd. For over 12 years, Aidan also served in the Irish army, holding the rank of Captain in the Army Ordnance Corp. He earned a M.B.A. (UCG), M.I.E. (UCD) and a B.Sc. (UCG). He is a Chartered Director (C.Dir.) with the IOD.



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### **Dr. Pat Duane, General Manager and Corporate Development, Creganna Medical**

Pat Duane is first and foremost a scientist, who has spent most of his 22 years working in the medical device industry sector. Currently Pat is VP and GM Interventional with Creganna Medical (a company owned by TE Connectivity). He has extensive national and international leadership experience and currently leads a diverse business organisation with cross functional representatives across three continents. Prior experience includes senior business, research and operational roles in Medtronic Inc. Pat holds a Doctorate in Business from Henley Management College, London and his area of interest is the post-acquisition integration of small or medium enterprises into multi-national corporations. Pat holds a Masters in Engineering Design from University College Dublin and a BSc. in Applied Physics from National University of Ireland, Galway. Pat is passionate about innovation and a named inventor on over 12 internationally issued patents.



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### **Mr Barry O'Sullivan, CEO, Altocloud**

Barry O'Sullivan is CEO of Altocloud, a software company with a mission of improving customer engagement experiences for ecommerce and inside sales. Prior to Altocloud, he was SVP at Cisco Systems and has been General Manager of several multi-billion dollar divisions including Collaboration and Voice over IP, which he led from number six to the number one market share position worldwide. O'Sullivan has spent most of his career in Silicon Valley, joining Cisco in 2002, having previously been General Manager of Nortel's contact centre software business. He is co-founder of the Irish Technology Leadership Group. He holds a Bachelors Degree in electrical engineering from UCC and a Masters Degree in computer science from the University of Limerick, as well as a Masters degree in business administration from Santa Clara University, California.



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### **Mr Dermot Mulligan, Assistant Secretary General/Head of the Innovation and Investment Division of the Department of Jobs, Enterprise and Innovation**

Dermot is Assistant Secretary General/Head of the Innovation and Investment Division of the Department of Jobs, Enterprise and Innovation. He reports to the Secretary General of the Department and the Minister and his areas of responsibility include formulation and implementation of Government policy on Science, Technology and Innovation, Enterprise development, North/South Trade and Business Development programmes and Ireland's involvement in a range of international research and technology programmes involving the European Union and the European Space Agency. He has previously worked in a range of Government Departments including the Departments of Health, Finance and Education & Skills. He holds a first degree in Law and an M.Sc. (Economics) in Policy Studies from Trinity College Dublin and an MBA from the University of Warwick.

# Executive Team



## **Prof Mark Ferguson, Director General, SFI and Chief Scientific Adviser to the Government of Ireland**

See full profile on page 37.



## **Mr Donal Keane, Chief Operations Officer**

Mr Donal Keane was appointed Chief Operations Officer at SFI with effect from 1 November 2005, with responsibility for Grants, IT, Finance, HR and Facilities. Donal joined SFI from Dun Laoghaire Institute of Art, Design and Technology where he held the position of Secretary/Financial Controller from 1997 to 2005.

Prior to that Keane held senior management positions at Our Lady of Lourdes Hospital Drogheda, GE Capital and Wang Finance in both Dublin and Toronto, Canada. His professional training was undertaken at Coopers & Lybrand from 1978 to 1982. Donal Keane holds a B.Comm degree from University College Dublin and is a Fellow of the Institute of Chartered Accountants in Ireland.



## **Dr Abigail Ruth Freeman, Director of Strategy and Communications**

Dr Abigail Ruth Freeman was appointed as Director of Strategy and Communications in 2013. Prior to her current appointment Dr Freeman has held a series of positions at SFI. Most recently she was the Director of Programmes, Enterprise and International Affairs, with responsibility for overseeing all SFI research funding programmes and management of funded awards, as well as the Foundation's activities in conjunction with industry and international partners. Prior to this, Dr Freeman held roles as both Director of Enterprise and International Affairs and Head of Industry-Research Development. Dr Freeman joined SFI as a Scientific Programme Manager in November 2006.

Prior to joining SFI Dr Freeman was working as a researcher at Trinity College Dublin (TCD). She holds PhD and Bachelor degrees in Genetics from TCD. During her time there as a student she was awarded a Trinity College Dublin scholarship, the Eli Lilly Chemistry Prize and the Roberts prize for Biology. Dr Freeman's PhD research, on population genetics in hybrid zones, was funded by a prestigious studentship from the Wellcome Trust and was carried out at TCD and ILRI, Nairobi. She was a founding member of the Trinity Research Staff Association; the first Irish association representing contract researchers.



## **Dr Darrin Morrissey Director of Programmes**

Dr Darrin Morrissey was appointed SFI Director of Programmes in September 2014. Darrin joined SFI from Stiefel, a GlaxoSmithKline (GSK)-owned company that develops and manufactures dermatology products. At Stiefel, he held the role of Business Improvement Director and was responsible for leading strategy deployment, change management and business transformation.

Darrin originally joined GSK in 2007 as Head of Oncology for Ireland and led the establishment of GSK's oncology business and the launch of its oncology and haematology therapeutics portfolio. During his time with GSK Darrin also held the role of Global Oncology Marketing Director with responsibility for developing launch strategy for melanoma therapy assets.

Prior to his time with GSK, Darrin worked across a number of pharmaceutical and biotech companies – including Sanofi-aventis, Eli Lilly & Tibotec-Virco – in a variety of commercial and clinical research roles.

Darrin qualified with a BSc in Microbiology and he holds a PhD from University College Cork. His PhD research focused on the molecular mechanisms that underlie cancer metastasis. He also worked as a postdoctoral researcher in UCC, where he conducted 'first-in-human' clinical trials of probiotic bacteria-containing food products.

Darrin also holds a Diploma in Advanced Management Practice awarded by National University of Ireland Galway.



# Organisational Structure



## Board's Responsibilities

The Board has collective responsibility to establish the strategic direction of the Foundation within the legislative framework and allocated resources. The Board holds overall responsibility for the discharge of key functions specified in relevant legislation. The Board is responsible to direct and support the Director General to ensure that the Foundation complies with relevant obligations, to assure the Foundation's system of internal financial control and risk management, to ensure full compliance with corporate governance requirements both in terms of the activities of the Foundation and in terms of their own dealings with the Foundation. The Board supervises and approves the production of the Annual Report and Accounts. The Board approves the annual budget, capital and revenue budgets and monitors expenditure. The Board oversees that a qualified management team and a robust management structure are in place.

## Chair's Responsibilities

The Chairperson's primary duties are to organise the board and set the agenda for Board meetings, taking into account strategic matters and concerns of Board members and to chair all Board meetings. The Chairperson also ensures that the Board receive accurate, timely and clear information about the Foundation's performance in particular in order that the Board can take sound decisions and monitor effectively. The Chairperson is responsible for ensuring that Board members receive induction and are offered opportunities for development and training so as to best ensure Board effectiveness. The Chairperson takes a lead in establishing the highest standards of corporate governance and ensures compliance with the Code of Practice for the Governance of State Bodies.

## Director General's Responsibilities

The functions, powers and duties of the Director General are provided for in the 2003 founding legislation. This sets out inter alia that the Director General is responsible for the development of key divisions of the Foundation including the strategic management of policy, grants, finance, communications and international functions so as to support the development of a high performance organisation.

The Director General is also responsible for the implementation of the Board's plans and policies and the development of strategic plans for the Foundation. The Director General is also charged with the enhancement of the international reputation of Science Foundation Ireland and thereby of scientific research in Ireland. The Director General meets with the Minister for Jobs, Enterprise and Innovation as a stakeholder and develops appropriate relationships with sister agencies and other research funding bodies. The Director General submits strategic plans and proposed budgets to the Board and reports to the Board on progress of Science Foundation Ireland's development and operations based on the setting of targets and agreement of key performance indicators. The Director General is also responsible for ensuring the Foundation has appropriate policies on staffing, corporate governance, procurement, compliance, IT, communications and risk management and monitors adherence to the policies. In terms of development, the Director General ensures that policies on growth and service diversification are effectively planned and implemented.

## Board Secretary's Responsibilities

The Board Secretary is responsible to the Foundation for good governance and for the guidance of the Board in its effective execution of its tasks. The Board Secretary keeps up to date with relevant legal, statutory and regulatory requirements and must also be in a position to support non-executive Board members in the discharge of their duties. The Board Secretary is responsible for ensuring the appointment of Board members is properly carried out and assists with induction and training of Board members. The Board Secretary organises Board and Board Committee meetings, facilitates the flow of high quality information to Board members to ensure the Board can carry out its duties effectively and to ensure that the Board's decisions and instructions are properly communicated and carried out. The Board Secretary is responsible for reviewing developments in Corporate Governance, Ethics, ensuring compliance with the Code of Practice for the Governance of State Bodies and for ensuring that the principles of good governance are adhered to.

The Science Foundation Ireland Board normally consists of 12 members appointed by the Minister for Jobs, Enterprise and Innovation, as set out in Section 8 of the Industrial Development (Science Foundation Ireland) Act 2003.

The quorum for the Science Foundation Ireland Board is five members. Six scheduled Science Foundation Ireland Board meetings were held in 2015 as follows:

Date	Venue	Number of Attendees
11 February 2015	Carton House Hotel	10/12
13 April 2015	Board Room, Wilton Park House	12/12
10 June 2015	Board Room, Wilton Park House	10/11
14 September 2015	Long Room Hub, Trinity College	12/12
19 October 2015	Board Room, Wilton Park House	9/12
14 December 2015	Board Room, Wilton Park House	11/12

## Induction and Professional Development

Induction Sessions for new Board members were held on 29th January 2015, 13th April and 7th September. The Board also received training on Board effectiveness and communication on 11th February 2015. In addition, Board members received training on Risk Management on 14th December 2015.

## Board Membership

### Board Members 2015

Name of Director	Attendance at Board Meetings (6 meetings)
Ms Ann Riordan (Chairman)	6 out of 6
Ms Bernie Cullinan (Deputy Chair)	6 out of 6
Prof Sir Tom Blundell	4 out of 6
Dr Rita Colwell	4 out of 6
Mr Dermot Curran	2 out of 2
Mr Aidan Donnelly	6 out of 6
Ms Mary Doyle	5 out of 6
Dr Pat Duane	5 out of 6
Prof Mark Ferguson	6 out of 6
Prof Liam Madden	5 out of 6
Mr Barry O'Sullivan	6 out of 6
Ms Geraldine Ruane	6 out of 6
Mr Dermot Mulligan	3 out of 3

(1) In compliance with Sections 9(3) and 9(4) of the Industrial Development (Science Foundation Ireland) Act 2003 relating to Board Membership, the following Board Members were re-appointed to the Science Foundation Ireland Board in July 2015:

- Ms Bernie Cullinan; and
- Dr Pat Duane

(2) Mr Dermot Curran, representative of the Department of Jobs, Enterprise & Innovation resigned from the Board in April 2015 and was replaced in September 2015 by Mr Dermot Mulligan

## Board Committees

### Corporate Governance Committee

The key role for this Committee was to review Science Foundation Ireland's corporate governance structure and core governance documents; the Committee also undertook responsibility for setting objectives for improving Board and Committee effectiveness and to review codes of ethics for executives, employees and Board members. The key objective of the Committee was to ensure that Science Foundation Ireland governance structures and procedures could achieve certification through external SWIFT 3000 assessment. Science Foundation Ireland was awarded this certification in June 2015.

The Corporate Governance Committee was formally dissolved on 14 December 2015 with its responsibilities moved into the Audit & Risk Committee.

**Number of meetings:** 0

**Chair:** Aidan Donnelly

**Membership:** Ann Riordan and Mary Doyle

### Audit & Risk Committee

The Audit & Risk Committee monitors the system of internal controls and financial safeguards, oversees the internal audit function and the conduct of audits of Science Foundation Ireland grants made to external institutions. The Committee ensures a system to monitor risk and provide for mitigating actions is in place and kept up-to-date. The Committee also monitors and reviews Science Foundation Ireland financial reports on a regular basis including the Annual Financial Statements. From 2016, the Committee is also responsible to oversee compliance with corporate governance requirements, including with the Code of Conduct for the Governance for State Bodies as may be amended or revised.

**Number of meetings:** Six

**Chair:** Bernie Cullinan,

**Membership:** Geraldine Ruane, Aidan Donnelly, Marcus Breathnach

Audit & Risk Committee	2015
Marcus Breathnach*	3 out of 3
Bernie Cullinan	6 out of 6
Brian Dalton**	3 out of 3
Aidan Donnelly*	2 out of 2
Pat Duane**	4 out of 4
Geraldine Ruane	6 out of 6

\* Aidan Donnelly and Marcus Breathnach were appointed to the committee.

\*\* Brian Dalton and Pat Duane retired from the committee in September 2015.

### Board Nominations Advisory Committee

This Committee formerly was called the Management Development & Board Nominations Advisory Committee. In September 2015, the responsibilities of this Committee were divided between two separate Committees, the Board Nominations Advisory Committee and the Management Development & Remuneration Committee. The Board Nominations Advisory Committee considers the skill sets required on the Science Foundation Ireland Board as well as relevant areas of expertise and advises the Minister of Enterprise, Jobs and Innovation accordingly when Board vacancies arise.

**Number of meetings:** 2

**Chair:** Ann Riordan

**Membership:** Ann Riordan, Mark Ferguson, Dermot Mulligan, Dermot Curran

Nominations Advisory Committee	2015
Dermot Curran*	1 out of 1
Mark Ferguson	2 out of 2
Dermot Mulligan**	1 out of 1
Ann Riordan	2 out of 2

\* Dermot Curran retired from the Management Development & Board Nominations Advisory Committee in April 2015.

\*\* Dermot Mulligan was appointed to the Board Nominations Advisory Committee in September 2015.

### Management Development & Remuneration Committee

The Management Development & Remuneration Committee reviews the performance of the senior management team and planning for management development and succession.

**Number of meetings:** 1

**Chair:** Ann Riordan

**Membership:** Ann Riordan, Bernie Cullinan

Management Development Committee	2015
Bernie Cullinan	1 out of 1
Ann Riordan	1 out of 1

### Communications Committee

The Communications Committee was established in February 2015 to provide advice on the updating and review of Science Foundation Ireland Communications strategy.

**Number of meetings:** 4

**Chair:** Ann Riordan

**Membership:** Ann Riordan, Aidan Donnelly, Barry O'Sullivan, Ruth Freeman/Niamh Lyons

Communications Committee	2015
Ann Riordan	4 out of 4
Aidan Donnelly	4 out of 4
Barry O'Sullivan	4 out of 4
Ruth Freeman*	1 out of 1
Niamh Lyons*	3 out of 3

\* Niamh Lyons was appointed as Interim Director of Communications & Outreach during 2015 to cover Ruth Freeman on maternity leave.

### Grant Approval Committee

The Science Foundation Ireland Grant Approval Committee is delegated the power to approve research grant proposals in line with the delegated authority levels approved by the Board.

**Number of meetings:** 6

**Chair:** Liam Madden

**Membership:** Liam Madden, Pat Duane, Barry O'Sullivan, Rita Colwell, Martin Lyes, Mark Ferguson

Grant Approvals Committee	2015
Rita Colwell	5 out of 6
Pat Duane*	2 out of 2
Mark Ferguson	5 out of 6
Martin Lyes	5 out of 6
Liam Madden	5 out of 6
Barry O'Sullivan**	5 out of 5

\* Pat Duane was appointed to the Committee in September 2015.

\*\* Barry O'Sullivan was appointed to the Committee in February 2015.

## Statutory and Other Notices

### 1. Board Members – Register of Interests

The Board operates to the best practice corporate governance principles and in accordance with the guidelines set out in the Code of Practice for the Governance of State Bodies, as issued by the Department of Finance, both in its activities and in its use of committees. In accordance with these guidelines, Science Foundation Ireland Board Members register their interests in other undertakings with the Secretary.

### 2. Ethics in Public Office Acts, 1995 and Standards in Public Offices Act, 2001

Science Foundation Ireland became subject to the Ethics in Public Office Acts 1995 and 2001 on the 1 January 2005. Science Foundation Ireland has complied with the provisions of the Act.

### 3. Freedom of Information Act, 1997, Freedom of Information (Amendment) Act, 2003 and Freedom of Information Act 2014

Science Foundation Ireland became a prescribed body under the Freedom of Information Act, 1997 from 31 May 2006. Science Foundation Ireland complies fully with the Act. Requests for information under this Act should be addressed to the FOI Officer, Science Foundation Ireland, Wilton Park House, Wilton Place, Dublin 2 or by email [sfifoi@sfi.ie](mailto:sfifoi@sfi.ie)

### 4. Prompt Payment of Accounts Act, 1997

#### 4.(i) Prompt Payment of Accounts Act, 1997

Science Foundation Ireland comes under the remit of the Prompt Payment of Accounts Act, 1997 which came into effect on 2 January 1998, and the European Communities (Late Payment in Commercial Transactions) Regulations 2002, which came into effect on the on 7 August 2002. It is the policy of Science Foundation Ireland to ensure that all invoices are paid promptly. Specific procedures are in place that enable Science Foundation Ireland to track all invoices and ensure that payments are made before the due date.

Invoices are registered daily and electronic payments are issued as required to ensure timely payments. Management is satisfied that Science Foundation Ireland complied with the provisions of the Act in all material respects.

#### 4. (ii) Prompt payment to Suppliers

Science Foundation Ireland is committed to meeting its obligations under the 15 day Prompt Payment Rule, which came into effect on 1st July 2011. This provision ensures that payments to suppliers in respect of all valid invoices received will be made within 15 calendar days. Science Foundation Ireland reports quarterly in the “About SFI - Customer Service” section of the website on the implementation of the 15 day Prompt Payments Rule.

### 6. Employment Equality Acts 1998 and 2004

Science Foundation Ireland wholeheartedly supports the principle of equal opportunities in employment. It opposes all forms of discrimination on the grounds of colour, race, nationality, sexual orientation, ethnic or national origin (and/or area of origin), religion, gender, marital status, age or disability. Science Foundation Ireland’s commitment to implementing equal opportunities is reflected in its policies, practices and procedures, recruitment, promotion, training, use of non-discriminatory language in company documents and publications. The objective is to ensure that all staff are selected and treated only on the basis of their abilities, knowledge and qualifications.

### 7. Protected Disclosures Act, 2014

There were no protected disclosures made to Science Foundation Ireland in 2015.

### 8. Safety, Health and Welfare at Work Act 2005

In accordance with the above Act, Science Foundation Ireland in consultation with IDA implements appropriate measures to protect the safety, health and welfare of all employees and visitors within its offices.

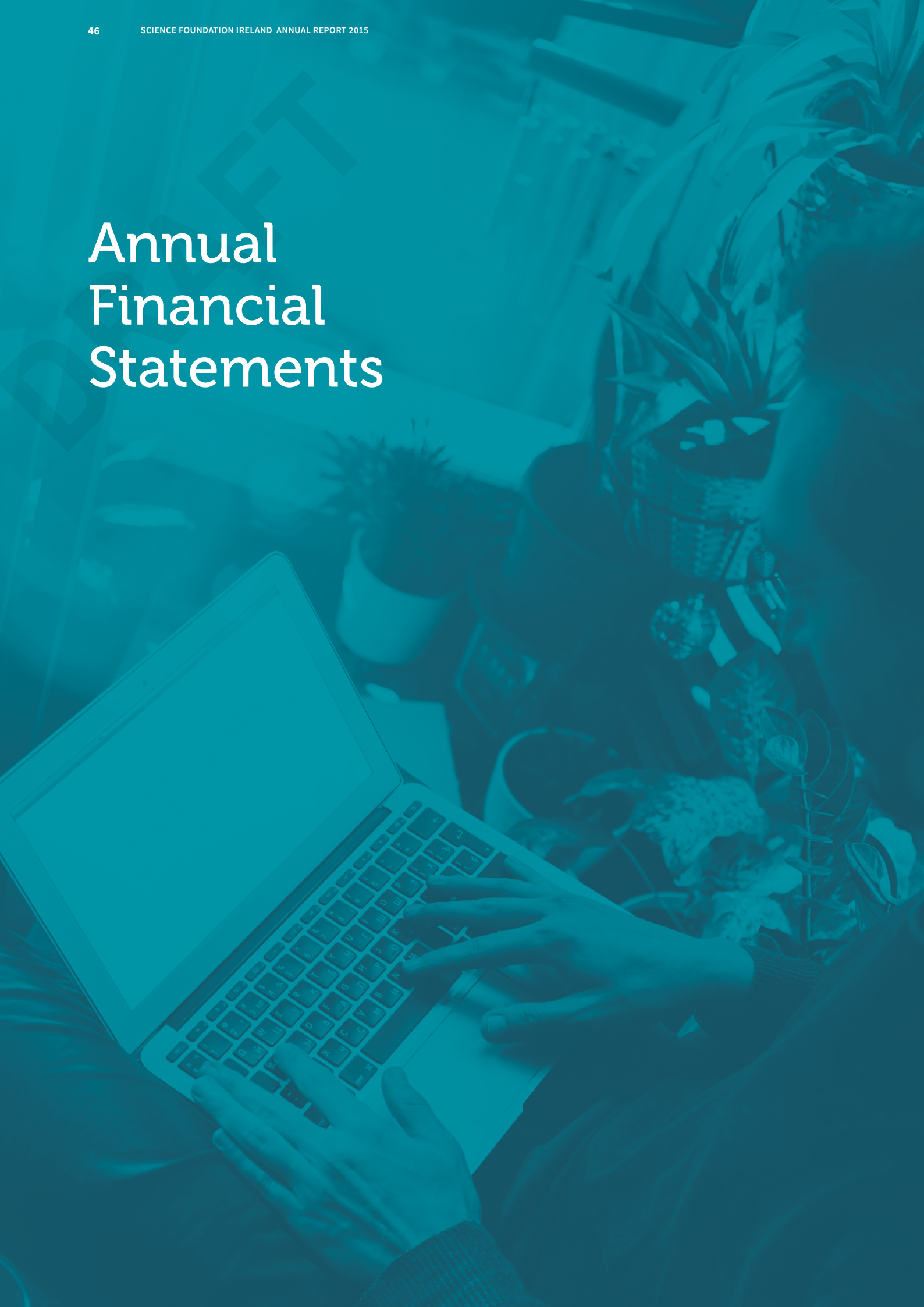
## **9. Clients' Charter**

Science Foundation Ireland has published a Clients' Charter setting out its commitment to a high quality of service. This Charter includes a procedure for dealing with complaints. In 2015, no complaints were received under the Charter.

## **10. Reporting by Public Sector Bodies**

Under Statutory Instrument (SI) 542, 2009 the public sector has specific energy reporting obligations. Science Foundation Ireland's offices are located in Wilton Park House, Wilton Place, Dublin 2. The building facilities are managed by IDA. In each area relevant to energy usage and services to the building, Science Foundation Ireland is satisfied that IDA endeavours to employ the most energy efficient and environmentally friendly means available. In compliance with Statutory Instrument (SI) 542, 2009, Science Foundation Ireland has reported details of energy usage for 2015 through the public sector monitoring & reporting (M&R) website.

# Annual Financial Statements





# Report of Comptroller & Auditor General

## Report for presentation to the Houses of the Oireachtas

### Science Foundation Ireland

I have audited the financial statements of Science Foundation Ireland for the year ended 31 December 2015 under the Industrial Development (Science Foundation Ireland) Act 2003. The financial statements comprise the statement of income and expenditure and retained revenue reserves, the statement of comprehensive income, the statement of financial position, the statement of cash flows and the related notes. The financial statements have been prepared in the form prescribed under Section 24 of the Act, and in accordance with generally accepted accounting practice.

### Responsibilities of the Members of the Board

The Board is responsible for the preparation of the financial statements, for ensuring that they give a true and fair view and for ensuring the regularity of transactions.

### Responsibilities of the Comptroller and Auditor General

My responsibility is to audit the financial statements and to report on them in accordance with applicable law.

My audit is conducted by reference to the special considerations which attach to State bodies in relation to their management and operation.

My audit is carried out in accordance with the International Standards on Auditing (UK and Ireland) and in compliance with the Auditing Practices Board's Ethical Standards for Auditors.

### Scope of audit of the financial statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements, sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of

- ▶ whether the accounting policies are appropriate to Science Foundation Ireland's circumstances, and have been consistently applied and adequately disclosed
- ▶ the reasonableness of significant accounting estimates made in the preparation of the financial statements, and
- ▶ the overall presentation of the financial statements.

I also seek to obtain evidence about the regularity of financial transactions in the course of audit.

In addition, I read Science Foundation Ireland's annual report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by me in the course of performing the audit. If I become aware of any apparent material misstatements or inconsistencies, I consider the implications for my report.

### Opinion on the financial statements

In my opinion, the financial statements:

- ▶ give a true and fair view of the assets, liabilities and financial position of Science Foundation Ireland as at 31 December 2015 and of its income and expenditure for 2015; and
- ▶ have been properly prepared in accordance with generally accepted accounting practice.

In my opinion, the accounting records of Science Foundation Ireland were sufficient to permit the financial statements to be readily and properly audited. The financial statements are in agreement with the accounting records.

### Matters on which I report by exception

I report by exception if I have not received all the information and explanations I required for my audit, or if I find

- ▶ any material instance where money has not been applied for the purposes intended or where the transactions did not conform to the authorities governing them, or
- ▶ the information given in Science Foundation Ireland's annual report is not consistent with the related financial statements or with the knowledge acquired by me in the course of performing the audit, or
- ▶ the statement on internal financial control does not reflect Science Foundation Ireland's compliance with the Code of Practice for the Governance of State Bodies, or
- ▶ there are other material matters relating to the manner in which public business has been conducted.

I have nothing to report in regard to those matters upon which reporting is by exception.



**Seamus McCarthy**  
Comptroller and Auditor General  
27th May 2016

# Board Members' Report

For the year ended 31 December 2015

## Board Members' Responsibilities

### Financial Statements

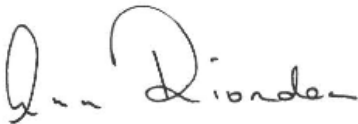
Section 24 (2) of the Industrial Development (Science Foundation Ireland) Act, 2003, requires Science Foundation Ireland to keep, in such form as may be approved by the Minister for Jobs, Enterprise and Innovation with the consent of the Minister for Public Expenditure and Reform, all proper and usual accounts of money received and expended by it and in particular, to keep in such form as aforesaid all special accounts as the Minister may from time to time direct.

In preparing those financial statements, Science Foundation Ireland is required to

- ▶ select suitable accounting policies and apply them consistently;
- ▶ make judgements and estimates that are reasonable and prudent;
- ▶ prepare the financial statements on the going concern basis unless it is inappropriate to presume that Science Foundation Ireland will continue in operation;
- ▶ State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements

The Board is responsible for keeping adequate accounting records which disclose, with reasonable accuracy at any time, its financial position which enables it to ensure that the financial statements comply with the overall requirements of Section 24 of the Industrial Development (Science Foundation Ireland) Act, 2003. The Board is also responsible for safeguarding its assets and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

On behalf of the Board of Science Foundation Ireland:



**Ms Ann Riordan**  
Chairman



**Prof Mark Ferguson**  
Director General

Date: 17 May 2016

Date: 17 May 2016

## Statement on Internal Financial Control

On behalf of the Board of Science Foundation Ireland I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or detected in a timely period.

The Board has taken steps to ensure an appropriate control environment is in place by:

- ▶ Clearly defining and documenting management responsibilities and powers;
- ▶ Establishing formal procedures for monitoring the activities and safeguarding the assets of the organisation;
- ▶ Developing a culture of accountability across all levels of the organisation.

The Board has also established processes to identify and evaluate business risks by:

- ▶ Working closely with Government and various Agencies to ensure that there is a clear understanding of Science Foundation Ireland goals and support for the Agencies' strategies to achieve those goals;
- ▶ Carrying out regular reviews of strategic plans both short and long term and evaluating the risks to bringing those plans to fruition;
- ▶ Setting annual targets for each area of our business followed by regular reporting on the results achieved;

The system of internal financial control is based on a framework of regular management information, administration procedures including segregation of duties and a system of delegation and accountability. In particular, it includes:

- ▶ A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;
- ▶ Regular reviews by the Board of periodic and annual financial reports which indicate financial performance against forecasts;
- ▶ Setting targets to measure financial and other performance;
- ▶ Formal project management disciplines;
- ▶ Clearly defined capital investment control guidelines.

Science Foundation Ireland has established an Internal Audit function, in accordance with the Framework set out in the Code of Practice on the Governance of State Bodies, which reports directly to the Audit Committee. An annual Internal Audit work plan is agreed by the Audit Committee. The work of internal audit is informed by analysis of the risks to which the body is exposed. The Audit Committee meets six times a year and reviews the outcome of the specific internal audits and the on-going adequacy and effectiveness of the system of internal financial control. These reports highlight deficiencies or weaknesses, if any, in the system of internal financial control and the recommended corrective measures to be taken where necessary.

A Risk Management Committee meets on a regular basis to review and manage risks identified throughout the Foundation. These risks are ranked and updated on a comprehensive SFI Risk Register, which is reported as a standing item on the SFI Audit Committee and reported periodically to the Board.

The Board's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of Internal Audit and the Audit Committee which oversees the work of Internal Audit, the control exercised by the Executive managers within SFI who have responsibility for the development and maintenance of the financial framework and comments by the Comptroller and Auditor General in his Management Letter.

I confirm that the Board conducted a review of the effectiveness of the system of internal financial controls for 2015.

On behalf of the Board of Science Foundation Ireland:



**Ms Ann Riordan**  
Chairman

Date: 17 May 2016

# Statement of Income and Expenditure and Retained Revenue Reserves


For the year ended 31 December 2015

	Notes	2015 €'000	2014 €'000
			<i>restated</i>
<b>Income</b>			
Oireachtas Grant	2	<b>170,439</b>	162,365
Other Income	3	<b>824</b>	590
Net Deferred Pension Funding	5(c)	<b>1,145</b>	476
		<b>172,408</b>	163,431
<b>Expenditure</b>			
Administration, Operations & Promotion	4	<b>8,714</b>	8,904
Depreciation	6	<b>115</b>	247
Retirement Benefit Costs	5(a)	<b>954</b>	401
Grants Payable	9(a)	<b>162,706</b>	153,905
		<b>172,489</b>	163,457
Excess of Expenditure over Income		<b>(81)</b>	(26)
Transfer (to) / from the Capital Account	7	<b>(122)</b>	151
Surplus /(Deficit) for the Year after Appropriations		<b>(203)</b>	125
Balance Brought Forward at 1 January 2015		<b>829</b>	704
Balance Carried Forward at 31 December 2015		<b>626</b>	829

The Statement of Income and Expenditure and retained Revenue Reserves includes all gains and losses recognised in the year.

The Statement of Cash Flows and Notes 1 to 17 form part of these Financial Statements.

On behalf of the Board of Science Foundation Ireland:



**Ms Ann Riordan**  
Chairman



**Prof Mark Ferguson**  
Director General

Date: 17 May 2016

Date: 17 May 2016

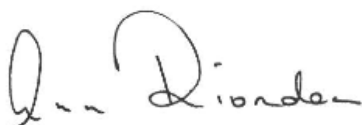
# Statement of Comprehensive Income

For the year ended 31 December 2015

Notes	2015 €'000	2014 €'000 <i>restated</i>
<b>Surplus/(Deficit) before Appropriations</b>	<b>(81)</b>	<b>(26)</b>
Experience gains/(losses) on retirement benefit obligations	<b>(469)</b>	164
Change in assumptions underlying the present value of Retirement benefit obligations	<b>(589)</b>	(126)
Total Actuarial Gain/(Loss) in the period	<b>(1,058)</b>	38
Adjustment to Deferred retirement benefits funding	<b>1,058</b>	(38)
<b>Other Comprehensive Income/(Loss) for the year</b>	<b>(81)</b>	<b>(26)</b>

The Statement of Cash Flows and Notes 1 to 17 form part of these Financial Statements.

On behalf of the Board of Science Foundation Ireland:



**Ms Ann Riordan**  
Chairman

Date: 17 May 2016



**Prof Mark Ferguson**  
Director General

Date: 17 May 2016

# Statement of Financial Position

For the year ended 31 December 2015

	Notes	2015 €'000	2014 €'000 <i>restated</i>
<b>Fixed Assets</b>			
Property, Plant & Equipment	8	<b>220</b>	98
<b>Current Assets</b>			
Receivables	10	<b>723</b>	453
Cash and Cash Equivalents		<b>333</b>	752
		<b>1,056</b>	1,205
<b>Current Liabilities (Amounts Falling due within one year)</b>			
Payables	11	<b>(430)</b>	(376)
<b>Net Current Assets</b>			
		<b>626</b>	829
<b>Long term Liabilities (Amounts falling due after one year)</b>			
		-	-
<b>Retirement benefits</b>			
Pension Liability	5(b)	<b>10,076</b>	7,873
Deferred Pension Funding Asset	5(c)	<b>(10,076)</b>	(7,873)
		-	-
<b>Total Net Assets</b>			
		<b>846</b>	927
<b>Representing:</b>			
Capital Account	7	<b>220</b>	98
Retained Revenue Reserves		<b>626</b>	829
		<b>846</b>	927

The Statement of Cash Flows and Notes 1 to 17 form part of these Financial Statements.

On behalf of the Board:



**Ms Ann Riordan**  
Chairman



**Prof Mark Ferguson**  
Director General

Date: 17 May 2016

Date: 17 May 2016

# Statement of Cash Flows

For the year ended 31 December 2015

	Notes	2015 €'000	2014 €'000 <i>restated</i>
<b>Net Cash Flows from Operating Activities</b>			
<b>Excess Expenditure over Income</b>		<b>(81)</b>	<b>(26)</b>
Depreciation of Fixed Assets	6	115	247
(Increase)/Decrease in Receivables	10	(270)	(69)
Increase /(Decrease) in Payables	11	54	108
<b>Net Cash (Outflow)/Inflow from Operating Activities</b>		<b>(182)</b>	<b>260</b>
<b>Cash Flows from Investing Activities</b>			
Payments to acquire Property, Plant and Equipment	8	(237)	(96)
<b>Net Cash Flows from Investing Activities</b>		<b>(237)</b>	<b>(96)</b>
<b>Cash Flows from Financing Activities</b>			
		0	0
<b>Net Increase/(Decrease) in Cash and Cash Equivalents</b>		<b>(419)</b>	<b>164</b>
Cash and Cash Equivalents at 1 January 2015		752	588
<b>Cash and Cash Equivalents at 31 December 2015</b>		<b>333</b>	<b>752</b>

# Notes to the Financial Statements

For the year ended 31 December 2015

## 1 Accounting Policies

The basis of accounting and significant accounting policies adopted by Science Foundation Ireland are set out below. They have been applied consistently throughout the year and for the preceding year.

### (a) General Information

Science Foundation Ireland was set up under the Industrial Development (Science Foundation Ireland) Act 2003, and by the Industrial Development (Science Foundation Ireland) (Amendment) Act, 2013, with its Head Office at Wilton Park House, Wilton Place, Dublin 2.

Science Foundation Ireland's primary objectives as set out under section 7 of the Industrial Development (Science Foundation Ireland) Act 2003, as amended by the Industrial Development (Science Foundation Ireland) (Amendment) Act, 2013, are as follows:

Science Foundation Ireland funds oriented basic and applied research in the areas of science, technology, engineering, and mathematics (STEM) which promotes and assists the development and competitiveness of industry, enterprise and employment in Ireland. The Foundation also promotes and supports the study of, education in and engagement with, STEM and promotes an awareness and understanding of the value of STEM to society and in particular to the growth of the economy.

Science Foundation Ireland is a Public Benefit Entity (PBE).

### (b) Statement of Compliance

The financial statements of Science Foundation Ireland for the year ended 31 December 2015 have been prepared in accordance with FRS 102, the financial reporting standard applicable in the UK and Ireland issued by the Financial Reporting Council (FRC), as promulgated by Chartered Accountants Ireland. These are Science Foundation Ireland's first set of financial statements prepared in accordance with FRS 102. The date of transition to FRS 102 is 1 January 2014. The prior year financial statements were re-stated for material adjustments on adoption of FRS 102 in the current year. The result of this adoption can be seen in Note 16.

### (c) Basis of Preparation

The financial statements have been prepared under the historical cost convention, except for certain assets and liabilities that are measured at fair values as explained in the accounting policies below. The financial statements are in the form approved by the Minister for Jobs, Enterprise and Innovation with the consent of the Minister for Public Expenditure and Reform under the Industrial Development (Science Foundation Ireland) Act 2003, and by the Industrial Development (Science Foundation Ireland) (Amendment) Act, 2013.

The following accounting policies have been applied consistently in dealing with items which are considered material in relation to Science Foundation Ireland's financial statements.

### (d) Revenue

Revenue is recognised on an accruals basis except in the case of Oireachtas Grants which are recognised on a cash receipts basis.

### (e) Property, Plant and Equipment

Property, Plant and Equipment are stated at cost less accumulated depreciation, adjusted for any provision for impairment. Depreciation is provided on all property, plant and equipment, at rates estimated to write off the cost less the estimated residual value of each asset on a straight line basis over their estimated useful lives, as follows:

(i) Computer Equipment & Computer Software	3 years
(ii) Plant & Equipment	5 years

Residual value represents the estimated amount which would currently be obtained from disposal of an asset, after deducting estimated costs of disposal, if the asset were already of an age and in the condition expected at the end of its useful life.

### (f) Capital Account

The Capital Account represents the unamortised funds utilised for the acquisition of Property, Plant and Equipment and is written down in line with the depreciation policy for these assets.

### (g) Foreign Currency

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rates ruling at the end of the financial year. Revenues and costs are translated at the exchange rates ruling at the dates of the underlying transactions. The resultant surpluses or deficits are dealt with in the Statement of Income and Expenditure and Retained Revenue Reserves.

### (h) Employee Benefits

#### Short term benefits

Short term benefits such as holiday pay are recognised as an expense in the year, and benefits that are accrued at year-end are included in the Payables figure in the Statement of Financial Position.

#### Retirement Benefits

The Industrial Development (Forfás Dissolution) Act 2014 (No 13 of 2014) which was passed into law on 16th July 2014 made provision for the dissolution of Forfás and provided for the establishment of Science Foundation Ireland as a separate legal employer. Under the legislation:

- ▶ Science Foundation Ireland is responsible for the establishment of its own pension scheme.



# Notes to the Financial Statements

For the year ended 31 December 2015

- ▶ SFI Staff who were members of the Forfás Pension scheme join the new scheme on superannuation terms no less favourable than those they enjoyed under the Forfás scheme immediately before the date of transfer.
- ▶ SFI is responsible for the pensions of staff who retire after 16th July 2014.
- ▶ The Department of Jobs, Enterprise and Innovation assumes legal responsibility for the existing Forfás pension scheme and existing SFI pensioners and former staff with preserved benefits.
- ▶ Employee pension contributions are paid to the Exchequer.

Science Foundation Ireland also operates the Single Public Services Pension Scheme ("Single Scheme"), which is a defined benefit scheme for pensionable public servants appointed on or after 1 January 2013. Single Scheme members' contributions are paid over to the Department of Public Expenditure and Reform (DPER).

Pension costs reflect pension benefits earned by employees, and are shown net of staff pension contributions which are remitted to the Department of Jobs, Enterprise and Innovation. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Comprehensive Income, and a corresponding adjustment is recognised in the amount recoverable from the Department of Jobs, Enterprise and Innovation.

The financial statements reflect, at fair value, the assets and liabilities arising from Science Foundation Ireland's pension obligations and any related funding, and recognises the costs of providing pension benefits in the accounting periods in which they are earned by employees. Retirement benefit scheme liabilities are measured on an actuarial basis using the projected unit credit method. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of Jobs, Enterprise and Innovation.

## **(i) Operating Leases**

Rental expenditure under operating leases is recognised in the Statement of Income and Expenditure and Retained Revenue Reserves as they fall due.

## **(j) Research Grant Payments**

Amounts paid to Research Bodies on foot of research grants awarded are charged to the Statement of Income and Expenditure and Retained Revenue Reserves in the year of payment.

## **(k) Critical Accounting Judgements and Estimates**

The preparation of the financial statements requires management to make judgements, estimates and assumptions that affect the amounts reported for assets and liabilities as at the balance sheet date and the amounts reported for revenues and expenses during the year. However, the nature of estimation means that actual outcomes could differ from those estimates. The following judgements have had the most significant effect on amounts recognised in the financial statements.

### *Depreciation and Residual Values*

The Directors have reviewed the asset lives and associated residual values of all fixed asset classes, and in particular, the useful economic life and residual values of fixtures and fittings, and have concluded that asset lives and residual values are appropriate.

### *Retirement Benefit Obligation*

The assumptions underlying the actuarial valuations for which the amounts recognised in the financial statements are determined (including discount rates, rates of increase in future compensation levels, mortality rates and healthcare cost trend rates) are updated annually based on current economic conditions, and for any relevant changes to the terms and conditions of the pension and post-retirement plans.

The assumptions can be affected by:

- (i) The discount rate, changes in the rate of return on high-quality corporate bonds
- (ii) Future compensation levels, future labour market conditions
- (iii) Changes in Demographics

# Notes to the Financial Statements

For the year ended 31 December 2015

## 2 Oireachtas Grant

The Oireachtas Grants voted to Science Foundation Ireland from Vote 32, Science and Technology Development Programme by Department of Jobs, Enterprise and Innovation as shown in the financial statements consist of:

		2015 €'000	2014 €'000
<b>Grants for Current Expenditure</b>			
Pay - Note 1*	Subhead B.4.2	3,709	3,725
Administration Expenses	Subhead B.4.2	4,730	5,100
<b>Grants for Capital Expenditure</b>			
Research Grants	Subhead B.4.2	162,000	153,540
		<b>170,439</b>	<b>162,365</b>

\* Note 1 - The 2015 Pay Allocation is stated net of employee pension contributions of €191,000 (2014: €75,000) remitted to the Exchequer.

Under Section 11 of the Industrial Development Act, 1993, as amended by Section 4(a) of the Industrial Development Act, 2009, the aggregate amount of grants made by the Minister to Enterprise Ireland, IDA and Science Foundation Ireland to enable them to discharge their Capital obligations and liabilities shall not exceed €7,000,000,000. At 31 December, 2015 the aggregate amount made available to the three Agencies was €5.52 billion (2014 - €5.190 billion).

## 3 Other Income

### Research Grant Funding:

	2015 €'000	2014 €'000
Starting Investigator Research Grant (SIRG) Funding [Note (i)]	367	-
Teagasc [Note (ii)]	186	361
Irish Cancer Society Co Fund	142	-
Health Research Board - Co Fund US/Ireland R & D Partnership	-	4
<b>Total Grant Co funding</b>	<b>695</b>	<b>365</b>
ERACoSysMed Co Fund	11	-
European Space Agency [Note (iii)]	120	120
NanoSciE+ [Note (iv)]	(2)	99
Other	-	6
<b>Total</b>	<b>824</b>	<b>590</b>

- (i) EU Marie Curie Fund contribution in 2015 towards SIRG awards made in 2012.
- (ii) Contribution from Teagasc for 50% co-funding of two awards made by SFI in 2014 under the 2013 IVP Programme. Contributions received under Grant Co-Funding for Teagasc are included in Total Grant payments expended in 2015 of €162,706,039.
- (iii) Funding arising from an annual contract between Science Foundation Ireland and ESA for the implementation of a European Space Education Resource Office (ESERO) in Ireland
- (iv) EU Nano Science E+ Collaborative Research Call - income represents final payment due from the EU in relation to this programme.

# Notes to the Accounts

For the year ended 31 December 2015

## 4 Administration, Operations & Promotion

	Notes	2015 €'000	2014 €'000
Remuneration and other pay costs	4(a)	<b>4,274</b>	4,002
Programme Management		<b>768</b>	864
Accommodation		<b>810</b>	843
Professional & Support Services		<b>341</b>	413
Accounting & Internal Audit Services		<b>186</b>	127
Marketing & Supports		<b>1,259</b>	1,630
Specialist & Education Services		<b>212</b>	199
IT Support & Infrastructure		<b>514</b>	489
HR Management*		<b>36</b>	76
Administration Expenses		<b>288</b>	236
Audit Fee		<b>26</b>	25
<b>Total</b>		<b>8,714</b>	<b>8,904</b>

\* Staff related expenditure of €3,350 (2014: €3,934) is included in the HR Management figure.

### 4 (a) Remuneration and other pay costs

		2015 €'000	2014 €'000
Staff Salaries		<b>3,536</b>	3,341
Employers' contribution to Social Welfare		<b>317</b>	310
Holiday pay accrual		<b>38</b>	4
Staff Training and Development		<b>89</b>	102
Staff travel and subsistence costs		<b>136</b>	107
Board Members' Remuneration and Expenses	4(c)	<b>158</b>	136
Superannuation Costs		-	2
<b>Total</b>		<b>4,274</b>	<b>4,002</b>
Sanctioned Positions		<b>49</b>	49
Actual employed		<b>49</b>	49

Science Foundation Ireland deducted pension levies from staff of €239,705 (2014: €234,179) which were paid over to the Department for Jobs, Enterprise and Innovation.

### 4 (b) Employee benefits breakdown

Range of total employee benefits		Number of Employees	
From	To	2015	2014
€60,000	- €69,999	<b>17</b>	13
€70,000	- €79,999	<b>6</b>	8
€80,000	- €89,999	<b>1</b>	1
€90,000	- €99,999	<b>7</b>	7
€120,000	- €129,999	<b>2</b>	2
€140,000	- €149,999	<b>1</b>	1
€170,000	- €179,999	<b>1</b>	1

# Notes to the Accounts

For the year ended 31 December 2015

## 4 (c) Board Members' Emoluments

	Board Fees	Vouched Expenses	Meetings attended	Board Fees	Vouched Expenses	Meetings attended
	2015	2015	2015	2014	2014	2014
	€	€		€	€	
<b>Board Member</b>						
Ann Riordan (Chairman)	20,520	1,492	6 out of 6	20,534	920	6 out of 6
Sir Tom Blundell	13,336	2,597	4 out of 6	-	-	0 out of 1
Barry O Sullivan	-	18,567	6 out of 6	-	-	1 out of 1
Mark Ferguson	-	-	6 out of 6	-	-	6 out of 6
Rita Colwell	11,970	18,212	4 out of 6	11,970	18,465	6 out of 6
Bernie Cullinan	11,970	1,492	6 out of 6	11,970	350	5 out of 6
Geraldine Ruane	998	125	6 out of 6	11,979	318	6 out of 6
Pat Duane	11,970	3,078	5 out of 6	11,970	170	4 out of 6
Dermot Mulligan	-	-	3 out of 3	-	-	-
Aidan Donnelly	11,970	1,887	6 out of 6	11,979	350	6 out of 6
Mary Doyle	-	125	5 out of 6	-	-	5 out of 6
Liam Madden	-	16,527	5 out of 6	-	10,441	5 out of 6
Dermot Curran	-	125	2 out of 2	-	298	5 out of 6
Sean Ahearne	-	-	-	6,789	-	3 out of 3
Peter MacDonagh	-	-	-	6,789	1,171	3 out of 3
General Board Expenses		10,712	n/a		9,101	n/a
<b>Total</b>	<b>82,734</b>	<b>74,939</b>		<b>93,980</b>	<b>41,584</b>	

Board members are paid fees as determined by the Minister for Jobs, Enterprise and Innovation with the consent of the Minister for Public Expenditure & Reform. Certain Board members are excluded from receiving fees from SFI under the "One Person One Salary" remuneration arrangements whereby public servants cannot receive Board fees in addition to a salary. In addition, two Board members, Prof Liam Madden and Mr. Barry O'Sullivan, have waived their Board fees.

The following Board members are based overseas: Sir Tom Blundell is UK based while Rita Colwell, Barry O'Sullivan and Liam Madden are US Based.

The Director General's remuneration package for 2015 was as follows: annual basic salary €175,554 (2014: €175,554) and standard public sector pension arrangements apply. No performance related bonus was applicable.

Professor Ferguson is also Chief Scientific Advisor (CSA) to the Government, a role formerly under the administration of Forfás. There is no remuneration for this role and all administration costs for the office are absorbed by SFI. Total expenses for the year incurred by the Director General in the discharge of both roles amounted to €23,409, (2014: €34,505) of which €4,841 (2014: €7,827) related to CSA activities.

General Board expenses for 2015 include accommodation and meal costs for Board meetings held off site.

During 2015 six Board meetings were held. The following appointments to and resignations from the Board took place in 2015.

1. Dermot Curran retired on 17 April 2015
2. Bernie Cullinan retired and was reappointed on 24 July 2015.
3. Pat Duane retired and was reappointed on 24 July 2015.
4. Dermot Mulligan was appointed on 2 September 2015

# Notes to the Accounts

For the year ended 31 December 2015

## 5 Retirement Benefit Costs

### (a) Analysis of total retirement benefit costs charged to the Statement of Income and Expenditure and Retained Revenue Reserves

	2015 €'000	2014 €'000
Current Service Cost	948	356
Interest on Retirement Benefit Scheme Liabilities	197	120
Employee Contributions	(191)	(75)
	<b>954</b>	<b>401</b>

### (b) Movement in net retirement benefit obligations during the financial year

	2014 €'000	2013 €'000
Net retirement benefit obligation at 1 January	7,873	-
Transfer from Forfás	-	7,435
Current service Costs	948	356
Interest Costs	197	120
Payments to Pensioners	-	-
Actuarial (Gain) / Loss	1,058	(38)
<b>Net retirement benefit obligation at 31 December</b>	<b>10,076</b>	<b>7,873</b>

### (c) Deferred Funding Retirement Benefits

The Board recognises these amounts as an asset corresponding to the unfunded deferred liability for retirement benefits on the basis of the set of assumptions described above and a number of past events. These events include the statutory basis for the establishment of the retirement benefit scheme, and the policy and practice currently in place in relation to funding public service pensions including contributions by employees and the annual estimates process. The Board has no evidence that this funding policy will not continue to meet such sums in accordance with current practice.

The net deferred funding for retirement benefits recognised in the Statement of Income and Expenditure and Retained Revenue Reserves is as follows:

	2015 €'000	2014 €'000
Funding recoverable in respect of Current Year Retirement benefit costs	1,145	476
State Grant applied to pay retirement benefits	-	-
	<b>1,145</b>	<b>476</b>

# Notes to the Accounts

For the year ended 31 December 2015

## (d) General Description of the scheme

Science Foundation Ireland has responsibility for the pension costs of:

1. staff with effect from 16th July 2014, under the Industrial Development (Forfás Dissolution) Act 2014. Staff who are/were members of the Forfás Pension Scheme joined the new Science Foundation Ireland pension scheme on superannuation terms no less favourable than those they enjoyed under the Forfás scheme immediately before the date of transfer from Forfás to SFI.
2. staff who are members of the Single Public Service pension scheme.

Both schemes are defined benefit pension schemes and are fully funded annually on a pay as you go basis from monies provided by the Department of Jobs, Enterprise and Innovation.

The scheme is a defined benefit final salary scheme with retirement benefits linked to final salary and length of service. The valuation used for FRS 102 disclosures are based on an actuarial review of the Science Foundation Ireland Superannuation scheme for the financial year ending 31 December 2015 carried out by a qualified independent actuary, taking account of the requirements of the FRS in order to assess the scheme liabilities at 31 December 2015.

The principal actuarial assumptions were as follows:

Liabilities shown in the Financial Accounts are computed using the Projected Unit Credit method.

	2015	2014
<b>Financial Assumptions</b>		
Discount Rate	2.85% p.a.*	2.50% p.a.*
Future Salary Increases	3.30% p.a.	2.75% p.a.
Future State Pension increases	3.30% p.a.	2.75% p.a.
Future Pension Increases	2.80% p.a.	2.25% p.a.
Future inflation	1.80% p.a.	1.25% p.a.
Revaluation in deferment	2.80% p.a.	2.25% p.a.
<i>* discount rate reflects a duration of liabilities of approximately 31 years (32 years in 2014)</i>		
<b>Demographic Assumptions</b>		
Mortality pre-Retirement	62% PNMLOO (Males)	62% PNMLOO (Males)
	70% PNFLOO (Females)	70% PNFLOO (Females)
Mortality post-Retirement	58% ILT15 (Males)	58% ILT15 (Males)
	62% ILT15 (Females)	62% ILT15 (Females)
<b>Retirement age</b>		
New entrants	Age 65	Age 65
Other members	Age 62	Age 62

The Mortality basis explicitly allows for improvements in life expectancy over time, so that life expectancy at retirement will depend on the year in which a member attains retirement age (age 65). The table below shows the life expectancy for members attaining age 65 in 2015 and 2035.

Year of attaining age 65	2015	2035
Life expectancy - Male	20.9	23.5
Life expectancy - Female	23.5	25.6

# Notes to the Accounts

For the year ended 31 December 2015

## Prior Year Comparatives

Year ending December 31st	2015 €'000	2014 €'000	2013 €'000	2012 €'000	2011 €'000
<b>Closing pension liability</b>	10,076	7,873	-	-	-
Experience (loss)/gain arising on the plan Liabilities	(469)	164	-	-	-
% Liabilities	(4.6%)	2.1%	-	-	-
Total (loss)/Gain recognised in Statement of Total Recognised Gains & losses	(1,058)	38	-	-	-
% Liabilities	(10.5%)	0.5%	-	-	-

## 6 Depreciation

	Note	2015 €'000	2014 €'000
Depreciation of property, plant and equipment	8	115	247
		<b>115</b>	<b>247</b>

## 7 Capital Account

	2015 €'000	2014 €'000
Opening Balance as at 1 January	98	249
Transfer from Statement of Income and Expenditure and Retained Revenue Reserves		
- To fund Fixed Asset acquisitions	237	96
- Amortised in line with asset depreciation	(115)	(247)
Net Movement	122	(151)
<b>Closing balance as at 31 December</b>	<b>220</b>	<b>98</b>

# Notes to the Accounts

For the year ended 31 December 2015

## 8 Property, Plant & Equipment

	Computer Equipment €'000	Computer Software €'000	Fixtures & Fittings €'000	Total €'000
<b>Cost</b>				
At 1 January 2015	679	581	116	<b>1,376</b>
Additions	82	67	88	<b>237</b>
Disposals	(45)	-	(36)	<b>(81)</b>
At 31 December 2015	<b>716</b>	<b>648</b>	<b>168</b>	<b>1,532</b>
<b>Depreciation</b>				
At 1 January 2015	603	559	116	<b>1,278</b>
Charge for Year	78	26	11	<b>115</b>
Disposals	(45)	-	(36)	<b>(81)</b>
At 31 December 2015	<b>636</b>	<b>585</b>	<b>91</b>	<b>1,312</b>
<b>Net Book Amount</b>				
At 1 January 2015	76	22	-	<b>98</b>
Net Movement for Year	4	41	77	<b>122</b>
At 31 December 2015	<b>80</b>	<b>63</b>	<b>77</b>	<b>220</b>

## 9 Grants

	2015 €'000	2014 €'000
		<i>Reclassified*</i>
<b>(a) Analysis of Grants Paid</b>		
Priority Area A - Future Networks & Communications	<b>17,707</b>	18,403
Priority Area B - Data Analytics, Management, Security & Privacy	<b>19,552</b>	19,494
Priority Area C - Digital Platforms, Content & Applications	<b>2,459</b>	16,552
Priority Area D - Connected Health and Independent Living	<b>703</b>	721
Priority Area E - Medical Devices	<b>6,197</b>	11,743
Priority Area F - Diagnostics	<b>8,723</b>	10,106
Priority Area G - Therapeutics: Synthesis, Formulation, Processing and Drug Delivery	<b>20,304</b>	12,980
Priority Area H - Food for Health	<b>10,408</b>	3,263
Priority Area I - Sustainable Food Production and Processing	<b>4,512</b>	3,372
Priority Area J - Marine Renewable Energy	<b>12,365</b>	1,937
Priority Area K - Smart Grids & Smart Cities	<b>3,403</b>	2,278
Priority Area L - Manufacturing Competitiveness	<b>1,829</b>	811
Priority Area M - Processing Technologies and Novel Materials	<b>28,372</b>	17,331
Priority Area N - Innovation in Services and Business Processes	<b>86</b>	734
Basic Biomedical Science (BBS)	<b>16,636</b>	19,901
Other	<b>9,450</b>	14,279
<b>Total</b>	<b>162,706</b>	<b>153,905</b>

\* The analysis of Grant payments has been reclassified to reflect the results of the National Research Prioritisation strategy adopted by the Government following input from the research community, the enterprise sector and research funding departments and agencies.



# Notes to the Accounts

For the year ended 31 December 2015

## (b) Grant Commitments

	2015 €'000	2014 €'000
Outstanding Grant Commitments as at 1 January	460,862	343,241
Grants Approved during the year	131,432	273,950
De-commitments during the year	(3,088)	(2,785)
Grant Payments made in the year - Gross	(162,706)	(153,905)
Amounts received from Teagasc for Co-Funding of two IVP awards made in 2014 - See Note 2(a)	186	361
Amounts received from Irish Cancer Society for Co Funding	142	-
<b>Outstanding Commitments as at 31 December</b>	<b>426,828</b>	<b>460,862</b>

## 10 Receivables

	2015 €'000	2014 €'000
General Debtors	188	150
Prepayments	535	303
<b>Total</b>	<b>723</b>	<b>453</b>

## 11 Payables

	2015 €'000	2014 €'000
General Creditors	188	175
Accruals	187	131
Interagency Balance - IDA*	55	70
<b>Total</b>	<b>430</b>	<b>376</b>

\* Interagency Balances relate to the balances owed by Science Foundation Ireland to IDA at 31 December 2015, being the difference between the amount of money paid to IDA by Science Foundation Ireland and the actual money spent by IDA on behalf of Science Foundation Ireland.

## 12 Commitments under Operating Leases

Science Foundation Ireland is a tenant of IDA (formerly under Forfás tenancy) in Wilton Park House and currently has no commitments under operating leases on the building, but pays rent to IDA as a contribution to the lease costs incurred by IDA.

## 13 Taxation

Section 227 of the Taxes Consolidation Act, 1997, provides an exemption from tax on the income of non-commercial state bodies except where interest is subject to tax at source (e.g. DIRT). The net amount of such income is credited to the Income & Expenditure Account.

SFI is liable to employer taxes in Ireland and complies with related withholding, reporting and payment obligations.

## Notes to the Accounts

For the year ended 31 December 2015

### 14 Related Party Disclosures

Science Foundation Ireland adopts procedures in accordance with the guidelines issued by the Department of Public Expenditure and Reform covering the personal interests of Board members. In the normal course of business, Science Foundation Ireland may approve grants or enter into other contractual arrangements with entities in which Science Foundation Ireland Board members are employed or are otherwise interested.

In cases of potential conflict of interest, Board members do not receive Board documentation or otherwise participate in or attend discussions regarding these transactions. A register is maintained and available on request of all such instances.

### 15 Contingencies and Legal Actions

There are no contingencies or legal actions which require specific provision in the Financial Statements.

### 16 Transition to FRS 102

#### a) Reconciliation of Capital and Reserves

	Note	As at 1 Jan 2014 €'000	As at 31 Dec 2014 €'000
<b>Capital and reserves (as previously stated)</b>	(a)	<b>1,007</b>	<b>985</b>
Holiday pay accrual		(54)	(58)
<b>Capital and reserves (as re-stated)</b>		<b>953</b>	<b>927</b>

#### b) Reconciliation of Surplus/(Deficit) for the year

	Note	As at 31 Dec 2014 €'000
<b>Surplus/(Deficit) for the year (as previously stated)</b>	(a)	<b>129</b>
Holiday pay accrual		(4)
<b>Surplus/(Deficit) for the year (as re-stated)</b>		<b>125</b>

#### (a) Holiday Pay Accrual

Science Foundation Ireland had previously not accrued for holiday pay earned by employees but not availed of at the reporting date. Under FRS 102, the financial statements must recognise such accruals.

The impact of this change is an increase of €54,000 in creditors at the transition date and €58,000 at 31 December 2014. The surplus is reduced by €54,000 in the year-ended 31 December 2013 and by €4,000 in the year-ended 31 December 2014.

### 17 Approval of Financial Statements

The Financial Statements were approved by the Board of Science Foundation Ireland on 17 May 2016.

## Grant Commitments and Payments Analysis 2015

2015 Payments by Programme	
	€'000
Research Centres	44,909
Investigators	36,146
Research Infrastructure Awards	28,766
Centres for Science Engineering & Technology (CSET)	9,228
Strategic Research Centres (SRC)	4,563
Technological Innovation Development Award (TIDA)	4,467
Starting Investigator Research Grant (SIRG)	3,918
Research Professorship Programme	3,091
SFI Discover Programme	3,035
Research Centres - Spokes Awards	3,392
Strategic Partnership Programme	2,674
US Ireland R&D Partnership	2,390
European Research Council Support Programme	2,325
Industry Fellowship Awards	1,751
Career Development Award	1,722
President of Ireland Young Researcher Award (PIYRA)	1,455
Investigator Catalyst Award	1,123
European Research Council Development Award	1,106
SFI-Pfizer Biotherapeutics Innovation Award Programme	896
Research Frontiers Programme	735
ERC Development	669
Advance Award Programme	661
SFI ERC Support Programme	535
SFI Fellowship Programme	509
SFI / Irish Research Council - Postgraduate Scholarship Scheme	522
ICS-SFI Collaborative Cancer Research Centre (CCRC) Programme 2014	367
EU Joint Programme Initiative	346
Conference & Workshop	351
RS-SFI University Research Fellow	263
Translational Research Awards	222
SFI Maternity Allowance	208
HRB/Wellcome Trust awards	111
SFI/Irish Universities Association (IUA) Partnership	90
SFI-HRB-Wellcome Trust Biomedical Research Partnership	70
Joint Programming Initiatives	58
NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	32
STOKES - Professor & Lectureship Programme	31
Walton programme	16
Supplements	11
US-Ireland R&D Partnership Planning Grant	9
Engineering - Professorship & lectureship Programme	6
Charles Parsons Energy Research Awards	-2
International Strategic Cooperation Award	-69
<b>Grand Total</b>	<b>162,706</b>

## 2015 Payments by Institution

	€'000
Trinity College Dublin	46,153
University College Cork	27,120
National University of Ireland Galway	22,407
University College Dublin	19,933
University of Limerick	16,427
Tyndall National Institute	9,983
Dublin City University	4,503
Dublin Institute for Advanced Studies	3,536
Royal College of Surgeons in Ireland	2,592
National University of Ireland, Maynooth	2,436
Teagasc	1,404
Waterford Institute of Technology	774
Cork Institute of Technology	651
Irish Research Council	522
Dublin Institute of Technology	463
Health Research Board	403
The National Institute for Bioprocessing Research and Training (NIBRT)	372
RTE	320
Royal Dublin Society RDS	297
The Royal Society	263
STEPS, Engineers Ireland	210
Institute of Technology Tallaght	184
The Festival of Curiosity	145
Institute of Technology Sligo	143
The Irish Universities Association	121
Galway Education Centre	108
Cork Institute of Technology - Blackrock Castle Observatory	100
SciFest Ltd	100
Galway Film Resource Centre	90
Mind the Gap Films	90
Junior Achievement Ireland	72

## 2015 Payments by Institution

	€'000
Calmast, Waterford Institute of Technology	70
Athlone Institute of Technology	70
Lifetime Lab	68
Atlantic Corridor	63
Gallomanor Communications Limited	60
ICS Skills	59
Marine Institute	50
Cork Electronic Industries Association	44
British Council Ireland	35
St. Patrick's Day Festival	34
Cork City Council	29
Kildare Education Centre	27
Screentime Shinawil	27
CoderDojo Foundation	24
Galway Science & Technology Forum	23
I Wish STEM Company Limited by Guarantee	23
Brigit's Garden	22
Galway Atlanaquaria	22
Whipsmart Media Ltd	21
National Concert Hall	21
Learning Hub Limerick	15
Mayo County Council	14
Ocean FM	10
Kite Entertainment	6
Rough Magic	4
Royal Irish Academy	4
Ballyhoura Development Ltd.	3
The Rediscovery Centre Ltd	2
Institute of Technology Carlow	1
Galway City Museum	-18
Tralee Institute of Technology	-45
<b>Grand Total</b>	<b>162,706</b>

2015 Grant Commitments by Programme	
	€'000
Investigator Programme	30,134
Research Infrastructure	28,785
Research Centres - Spokes Awards	16,360
Research Professorship Programme	12,123
Strategic Partnership Programme	9,832
Technological Innovation Development Award (TIDA )	4,531
US Ireland R&D Partnership	4,502
Discover Programme	3,908
European Research Council Support Programme	3,154
European Research Council Development Award	2,602
Industry Fellowship Awards	2,204
ICS-SFI Collaborative Cancer Research Centre (CCRC) Programme 2014	1,614
Royal Society -SFI University Research Fellow	1,598
SFI-Pfizer Biotherapeutics Innovation Award Programme	1,544
SFI Fellowship	1,277
Inv Catalyst Award	1,248
SFI Research Centres Supplement	1,218
EU Joint Programme Initiative	1,079
President of Ireland Young Researcher Award (PIYRA)	1,058
SFI/Irish Research Council - Postgraduate Scholarship Scheme	717
Career Development Award	643
SFI Maternity Allowance	499
SFI-HRB-Wellcome Trust Biomedical Research Partnership	405
Conference & Workshop	354
NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	32
US-Ireland R&D Partnership Planning Grant	10
<b>Grand Total</b>	<b>131,432</b>

2015 Number of Awards by Programme	
Inv Catalyst Award	62
Discover Programme	56
Technological Innovation Development Award (TIDA )	46
Conference & Workshop	38
Industry Fellowship	29
Investigator Programme	23
Research Infrastructure	21
SFI Maternity Allowance	20
European Research Council Support Programme	11
SFI Fellowship	9
US Ireland R&D Partnership	8
Research Centres - Spokes Awards	6
European Research Council Development Award	5
Strategic Partnership Programme	4
NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	4
SFI/Irish Research Council - Postgraduate Scholarship Scheme	3
SFI-Pfizer Biotherapeutics Innovation Award Programme	3
EU Joint Programme Initiative	3
US-Ireland R&D Partnership Planning Grant	3
SFI-HRB-Wellcome Trust Biomedical Research Partnership	3
Royal Society -SFI University Research Fellow	3
Research Professorship Programme	2
ICS-SFI Collaborative Cancer Research Centre (CCRC) Programme 2014	2
Career Development Award	1
SFI Research Centres Supplement awards	1
President of Ireland Young Researcher Award (PIYRA)	1
<b>Grand Total</b>	<b>367</b>



The following awards are funded through the European Regional Development Fund and Science Foundation Ireland under Ireland's European Structural and Investment.

- ▶ SFI Research Centres
  - ADAPT
  - CONNECT
  - CURAM
  - iCRAG
  - INSIGHT
  - LERO
- ▶ All SFI Spokes Programme awards
- ▶ SFI Investigators Programme awards funded to NUI Galway

**2015 Number of Awards by Institution**

Trinity College Dublin	77
University College Dublin	68
National University of Ireland, Galway	36
University College Cork	35
Dublin City University	25
University of Limerick	16
Tyndall National Institute	15
Royal College of Surgeons in Ireland	12
National University of Ireland, Maynooth	10
Teagasc	8
Waterford Institute of Technology	5
Dublin Institute for Advanced Studies	4
Dublin Institute of Technology	3
Health Research Board	3
Irish Research Council	3
Royal Dublin Society RDS	3
The Royal Society	3
Cork Institute of Technology	2
Lifetime Lab	2
The Festival of Curiosity	2
The Irish Universities Association	2
The National Institute for Bioprocessing Research and Training (NIBRT)	2
Atlantic Corridor	1
Brigit's Garden	1
British Council Ireland	1
Calmast, Waterford Institute of Technology	1

**2015 Number of Awards by Institution**

Cork City Council	1
Cork Electronic Industries Association	1
Cork Institute of Technology - Blackrock Castle Observatory	1
Gallomanor Communications Limited	1
Galway Atlanaquaria	1
Galway Film Resource Centre	1
Galway Science & Technology Forum	1
I Wish STEM Company Limited by Guarantee	1
Institute of Technology Sligo	1
Institute of Technology Tallaght	1
Irish Blood Cancer Network (IBCN)	1
Junior Achievement Ireland	1
Kildare Education Centre	1
Learning Hub Limerick	1
Marine Institute	1
Mayo County Council	1
Mind the Gap Films	1
National Concert Hall	1
Ocean FM	1
Royal Irish Academy	1
Royal Society of Chemistry	1
RTE	1
SciFest Ltd	1
Screentime Shinawil	1
St. Patrick's Day Festival	1
STEPS, Engineers Ireland	1
Whipsmart Media Ltd	1
<b>Grand Total</b>	<b>367</b>

## List of SFI awards made in 2015

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Sinead Waters	Career Development Award	Development of DNA-based biomarkers for compensatory growth in beef cattle	Teagasc	643,462.00
William Donnelly	Conference & Workshop	Digital Enlightenment Forum, Kilkenny, 2015 - "The citizen negotiating the digital world".	Waterford Institute of Technology	3,000.00
Willie Donnelly	Conference & Workshop	Europe's Opportunity in Digital Agriculture	Waterford Institute of Technology	22,465.00
Eugene Kashdan	Conference & Workshop	International workshop Mathematical Methods in Systems Biology	University College Dublin	2,500.00
Aisling McCluskey	Conference & Workshop	30th Summer Conference on Topology and its Applications	National University of Ireland, Galway	10,000.00
Ross McManus	Conference & Workshop	Evolve Biomed 2015	Trinity College Dublin	8,000.00
Alan Donnelly	Conference & Workshop	International Conference on Ambulatory Monitoring of Physical Activity and Movement 2015 (ICAMPAM 2015)	University of Limerick	5,000.00
James Geraghty	Conference & Workshop	Breast Cancer Screening Conference 2015	University College Dublin	5,000.00
Brian Donnellan	Conference & Workshop	International Design Science Conference (DESRIST)	National University of Ireland, Maynooth	4,100.00
Michael Tuite	Conference & Workshop	Workshop on vertex operator algebras and mock modular forms	National University of Ireland, Galway	3,500.00
Marianne Leitner	Conference & Workshop	Irish Quantum Foundations Meeting 2015	Dublin Institute for Advanced Studies	3,300.00
Andrea Erxleben	Conference & Workshop	13th International Symposium on Applied Bioinorganic Chemistry (ISABC13)	National University of Ireland, Galway	4,700.00
Cindy Smith	Conference & Workshop	Microbial Interfaces: Society for General Microbiology Irish Division Meeting 2015	National University of Ireland, Galway	14,000.00
Patrick Frawley	Conference & Workshop	Process Analytical Techniques (PAT) in Pharmaceutical Processing Workshop	University of Limerick	6,400.00
Padraig Dunne	Conference & Workshop	ACAM/CECAM Ireland Workshop Series: Bridging Simulation, Experiment and Industrial Application in Biology and Advance Materials (Year VI)	University College Dublin	18,750.00
Louise Kenny	Conference & Workshop	Inaugural INFANT Research Workshop hosted by UCC College of Medicine & Health.	University College Cork	4,756.00
Oliver Dolly	Conference & Workshop	Neuroscience Ireland Conference : Frontiers in Neurosciences : Diseases and Treatments	Dublin City University	10,212.00
Natalie Harrower	Conference & Workshop	DPASSH2015: 1st Annual Conference on Digital Preservation for the Arts, Social Sciences and Humanities	Royal Irish Academy	3,870.00
Owen Conlan	Conference & Workshop	User Modelling, Adaptation and Personalization (UMAP) 2015	Trinity College Dublin	6,960.00
William Lee	Conference & Workshop	110th European Study Group (Problem Solving Workshop) with Industry	University of Limerick	8,000.00
Joseph Timoney	Conference & Workshop	The 12th International Workshop on Sound and Music Computing 2015 (SMC2015)	National University of Ireland, Maynooth	3,380.00
Fionnuala Ni Ainle	Conference & Workshop	Venous Thromboembolism: Modern Multidisciplinary Care	University College Dublin	11,000.00
Vladimir Dotsenko	Conference & Workshop	11th William Rowan Hamilton Geometry and Topology Workshop	Trinity College Dublin	7,000.00
Dr. Claus Koestler	Conference & Workshop	2015 George Boole Mathematical Sciences Conference	University College Cork	29,000.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Dr. Ken Brown	Conference & Workshop	Co-location of the 21st International Conference on Principles and Practice of Constraint Programming (CP 2015) with the 31st International Conference on Logic Programming (ICLP 2015)	University College Cork	9,000.00
Geraldine Boylan	Conference & Workshop	9th International Conference on Brain Monitoring and Neuroprotection in the Newborn	University College Cork	20,150.00
Jonathan Bones	Conference & Workshop	Opportunities in Biopharma Research Workshop	The National Institute for Bioprocessing Research and Training (NIBRT)	1,500.00
Liam Barry	Conference & Workshop	European Conference on Optical Communications 2019	Dublin City University	4,500.00
Ed Lavelle	Conference & Workshop	Irish Society for Immunology meeting 2015	Trinity College Dublin	6,570.00
Stephen Finn	Conference & Workshop	The 8th Annual TopCaP (Trans-disciplinary Prostate Cancer Partnership) Workshop	Trinity College Dublin	6,000.00
Martin Steinhoff	Conference & Workshop	1st International Symposium Future in Dermatology: Inflammation	University College Dublin	16,270.00
Breandan Kennedy	Conference & Workshop	Frontiers in Ocular Therapeutics	University College Dublin	3,820.00
Keelin O'Driscoll	Conference & Workshop	2015 UK/Ireland Regional Meeting of the International Society for Applied Ethology	Teagasc	2,950.00
Elfed Lewis	Conference & Workshop	European Workshop on Optical Fibre Sensors (EWOFS) 2016	University of Limerick	13,200.00
Olga Piskareva	Conference & Workshop	Irish Association for Cancer Research annual conference 2016	Royal College of Surgeons in Ireland	3,000.00
Oliver Roberts	Conference & Workshop	2nd Workshop on Applications of Novel Scintillators in Research and Industry, 2016	University College Dublin	2,500.00
Xinmin Zhan	Conference & Workshop	International Conference on Recent Advances in Pollution Control and Resource Recovery for the Livestock Sector (LivestockWaste2016)	National University of Ireland, Galway	4,870.00
Cathal Gurrin	Conference & Workshop	MB2016 (Measuring Behaviour)	Dublin City University	10,000.00
Eimear Gallagher	Conference & Workshop	18th IUFOST World Congress of Food Science and Technology	Teagasc	55,000.00
VP Research (UCD)	ERC Support	SFI ERC Support Programme – Prof Lorraine Brennan	University College Dublin	248,993.00
VP Research (UCD)	ERC Support	SFI ERC Support Programme – Prof Madeleine Lowery	University College Dublin	245,130.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof. Redmond O'Connell	Trinity College Dublin	276,531.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof Sarah McCormack	Trinity College Dublin	291,692.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof Mark Ahearne	Trinity College Dublin	299,747.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof Daniel Kelly	Trinity College Dublin	300,000.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof Wolfgang Schmitt	Trinity College Dublin	300,000.00
Dean of Research	ERC Support	SFI ERC Support Programme – Prof Triona Lally	Trinity College Dublin	300,000.00
VP Research (NUIG)	ERC Support	SFI ERC Support Programme – Bioelectro Project	National University of Ireland, Galway	297,075.00
VP Research (UCC)	ERC Support	SFI ERC Support Programme – Dr. John Quinn	University College Cork	300,000.00
VP Research (UCC)	ERC Support	SFI ERC Support Programme – Dr. Thomas Reed	University College Cork	294,493.00



SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
John Cryan	EU Joint Programme Initiative	A Menu for Brain Responses Opposing Stress-Induced Alterations in Cognition (AMBROS/AC)	University College Cork	499,492.50
Cormac Taylor	EU Joint Programme Initiative	ERACoSysMed JTC - The impact of hypoxia on inflammation and tumorigenesis in Ulcerative Colitis (OxyUC)	University College Dublin	295,000.60
Jochen Prehn	EU Joint Programme Initiative	ERACoSysMed JTC - The impact of hypoxia on inflammation and tumorigenesis in Ulcerative Colitis (OxyUC)	Royal College of Surgeons in Ireland	285,000.00
Michael O'Dwyer	ICS-SFI Collaborative Cancer Research Centre (CCRC) Programme 2014	Irish Blood Cancer Network (IBCNC)	National University of Ireland, Galway	2,598,150.00
Michael O'Dwyer	ICS-SFI Collaborative Cancer Research Centre (CCRC) Programme 2014	Irish Blood Cancer Network (IBCNC)	Irish Blood Cancer Network (IBCNC)	-983,767.40
Fiona O'Neill	Industry Fellowship	Patient derived immunotherapies for cancer	Dublin City University	78,617.00
Laura Barkley	Industry Fellowship	Development of Syndecan-2 based therapeutics for the treatment of breast cancer.	National University of Ireland, Galway	114,438.00
James Devaney	Industry Fellowship	Assessment of a nebulised cell based therapy product for Acute Respiratory Distress Syndrome	National University of Ireland, Galway	81,223.00
Grainne O'Keefe	Industry Fellowship	Development of an Aspergillus niger strain for industrial heterologous protein expression.	National University of Ireland, Maynooth	75,959.00
Garry Duffy	Industry Fellowship	Specialised Medical Devices for Biomaterial Based Therapeutic Delivery to the Abdomen	Royal College of Surgeons in Ireland	81,682.00
Stuart Murphy	Industry Fellowship	Investigating process material interaction during abrasive machining of orthopedic medical devices	Trinity College Dublin	73,250.00
Oonagh Giggins	Industry Fellowship	Evaluating The Use Of Smart Sensors In Clinical Research	University College Dublin	63,868.00
Dezhong Zhou	Industry Fellowship	Bio-reducible highly branched poly( $\beta$ -amino ester)-cell penetrating peptide (CPP) conjugate as a new generation of non-viral gene transfection reagent	University College Dublin	90,573.00
Andrea Degasperis	Industry Fellowship	Integrating Heterogeneous Cell Profile Data to Improve Predictive Models of Drug Target Deconvolution in Phenotypic Screening	University College Dublin	106,214.00
Sara Armstrong	Industry Fellowship	Grid Connection Solutions for Renewable Energy Farms	University College Cork	100,182.00
Lorena Monzon	Industry Fellowship	Surface Modification of Stryker Surgical Tools - MOST	Trinity College Dublin	107,549.00
Sean O'Duill	Industry Fellowship	Design of transmitters for Terabit/s capacity optical networks	Dublin City University	81,873.00
Martyn Pemble	Industry Fellowship	Microcontact Printing of Organic Monolayers for the Selective Placement of Carbon Nanotubes	Tyndall National Institute	13,859.00
Dorota Wencel	Industry Fellowship	Real time pH monitor for continuous foetal monitoring during childbirth.	Dublin City University	81,506.00
Eugene Mahon	Industry Fellowship	Multiparticulate Technology Development for Enhanced Oral Delivery of Pharmaceuticals	University College Dublin	77,670.00
Francesco Caiazza	Industry Fellowship	Developing Multiplex Substrate Profiling by Mass Spectrometry as a prognostic tool for colorectal cancer	University College Dublin	127,273.00
Nora Balfe	Industry Fellowship	Identification of leading indicators for railway driver operations	Trinity College Dublin	90,903.00
Maria Chiara Leva	Industry Fellowship	The development of an integrated risk register for process safety performance improvement: a participatory trial	Trinity College Dublin	103,792.00
Nan Zhang	Industry Fellowship	Development of cost-effective microfluidic flow cytometer using microinjection molding	University College Dublin	72,922.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Anthony Ryan	Industry Fellowship	Development and validation of data management modules and analysis pipelines for a Biobank Information Management System	Trinity College Dublin	64,847.00
Peter Fleming	Industry Fellowship	Evaluating the effect of new poly(vinylidene fluoride) material characteristics on the structural properties of membranes produced via phase inversion	Trinity College Dublin	103,836.00
Anna Rotondo	Industry Fellowship	Simulation-based decision support systems for optimal operational management of black box manufacturing systems components	Dublin City University	74,659.00
Maciej Dobrzynski	Industry Fellowship	Computational and experimental study of drug response variability in a collection of breast cancer cell lines cultured in 3D assays	University College Dublin	109,716.00
Nicola Piana Agostinetti	Industry Fellowship	Shallow crustal exploration using passive seismics: bridging the gap between academic research and industrial-scale applications	Dublin Institute for Advanced Studies	93,181.00
Gerard Wall	Industry Fellowship	Development of a SERS-based point-of-care immunosensor incorporating recombinant antibodies	National University of Ireland, Galway	37,421.00
Marcus Claesson	Industry Fellowship	Enhancing the potential of metatranscriptomics for elucidating the role of differential gene expression of lesional bacteria in inflammatory bowel disease	University College Cork	12,037.00
Mark Tangney	Industry Fellowship	Bacteria, Tumours and Imaging	University College Cork	35,195.00
Philip McGinnity	Industry Fellowship	Salmon Aquaculture and the Environment: An exploration by industry and academia of opportunities for collaborative research (primarily farm wild interactions) providing evidence based science to ensure credible methodologies for certification.	University College Cork	32,717.00
Graham O'Mahony	Industry Fellowship	Process Transfer and Optimisation of an Extrusion/Spheronisation Process	University College Cork	17,248.00
Adrian Bracken	Inv Catalyst Award	H2020 Catalyst Award: 'Epigenetic Profiling' of histone modifications for the stratification of Cancer patients for Chemotherapy and Targeted Biologic Therapies.	Trinity College Dublin	19,500.00
Ake Rasmuson	Inv Catalyst Award	H2020 Catalyst Award: From Molecular Aggregation to Crystal Nucleation of Pharmaceutical Compounds	University of Limerick	21,000.00
Andrew Keane	Inv Catalyst Award	H2020 Catalyst Award: Active Distribution System Management Enabled by Distributed Power Electronics	University College Dublin	22,800.00
Aoife Gowen	Inv Catalyst Award	H2020 Catalyst Award: Multi-scale hyperspectral imaging for enhanced understanding and control of food microbiology (HyperMicroMacro)	University College Dublin	23,000.00
Carl Ng	Inv Catalyst Award	H2020 Catalyst Award: PLANTAPARM: plant cell culture based system for the production of the high value compounds	University College Dublin	12,000.00
Cathal Seoighe	Inv Catalyst Award	H2020 Catalyst Award: Deconvolution and analysis of genetic variation in the human epigenome	National University of Ireland, Galway	12,400.00
Catherine Godson	Inv Catalyst Award	H2020 Catalyst Award: Discovery of an integrated risk profile for chronic kidney disease and development of a clinical biomarker panel for personalising medicine	University College Dublin	23,300.00
Christopher Brunson	Inv Catalyst Award	H2020 Catalyst Award: Building city dashboards: Addressing fundamental and applied problems	National University of Ireland, Maynooth	25,000.00
Cian O'Mathuna	Inv Catalyst Award	H2020 Catalyst Award: Advanced Integrated Power Magnetics Technology- From Atoms to Systems	Tyndall National Institute	18,000.00
Damian Flynn	Inv Catalyst Award	H2020 Catalyst Award: Energy storage and demand-side flexibility within future electricity markets	University College Dublin	25,000.00
David Chew	Inv Catalyst Award	H2020 Catalyst Award: Developing geochronology by LA-ICPMS imaging: applications of U-Pb calcite dating in raw materials research	Trinity College Dublin	11,000.00
David MacHugh	Inv Catalyst Award	H2020 Catalyst Award: Development of Next-Generation Control Tools for Bovine Tuberculosis: A One Health Approach	University College Dublin	23,900.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Da-Wen Sun	Inv Catalyst Award	H2020 Catalyst Award: Sensing technologies combined with other cost effective detection methods for accurate assessment of food and feed safety (SPECTRALFOOD)	University College Dublin	17,300.00
Derek Morris	Inv Catalyst Award	H2020 Catalyst Award: Shining a light on epigenetic mechanisms in cognition to understand schizophrenia pathogenesis.	National University of Ireland, Galway	25,000.00
Dmitri Papkovsky	Inv Catalyst Award	H2020 Catalyst Award: A versatile platform for research and personalised medicine of GI disorders based on multiplexed metabolic imaging of intestinal organoids	University College Cork	16,000.00
Domenico Zito	Inv Catalyst Award	H2020 Catalyst Award: Integrated Gigabit/s Millimetre-Wave Transceivers (INGBIT)	Tyndall National Institute	10,000.00
Emanuele Pelucchi	Inv Catalyst Award	H2020 Catalyst Award: Quantum control of nanostructures for quantum networking	Tyndall National Institute	25,000.00
Eoin Casey	Inv Catalyst Award	H2020 Catalyst Award: Interactions between bacterial biofilms and nanoparticles: a focus on the EPS matrix	University College Dublin	11,200.00
Eoin O'Reilly	Inv Catalyst Award	H2020 Catalyst Award: Multiscale Simulation and Analysis of emerging Group IV and III-V Semiconductor Materials and Devices	Tyndall National Institute	17,000.00
Federico Milano	Inv Catalyst Award	H2020 Catalyst Award: Advanced Modelling for Power System Analysis and Simulation	University College Dublin	14,500.00
Gary Donohoe	Inv Catalyst Award	H2020 Catalyst Award: Establishing an Immune based model of cognitive deficits in schizophrenia	National University of Ireland, Galway	19,200.00
Georg Duesberg	Inv Catalyst Award	H2020 Catalyst Award: Investigating Emerging 2D Semiconductor Technology	Trinity College Dublin	16,000.00
Gil U Lee	Inv Catalyst Award	H2020 Catalyst Award: Nanotechnology Enabled Biopharmaceutical Downstream Processing (NanoBiopharm)	University College Dublin	8,000.00
Henry Curran	Inv Catalyst Award	H2020 Catalyst Award: Combustion Chemistry for Sustainable Fuel Utilization	National University of Ireland, Galway	17,500.00
Jim Duggan	Inv Catalyst Award	H2020 Catalyst Award: Data Analytics for Fisheries Ecosystem Management'	National University of Ireland, Galway	20,600.00
John Crean	Inv Catalyst Award	H2020 Catalyst Award: Targeting the Polycomb Repressor Complex chromatin remodeling machinery for therapeutic benefit in Diabetic Nephropathy	University College Dublin	17,400.00
John Donegan	Inv Catalyst Award	H2020 Catalyst Award: Athermal semiconductor lasers for applications in information and communications technologies	Trinity College Dublin	25,000.00
John Lowry	Inv Catalyst Award	H2020 Catalyst Award: The development and characterisation of microelectrochemical sensors and biosensors for real-time neurochemical monitoring of brain energy metabolism	National University of Ireland, Maynooth	24,000.00
John O'Leary	Inv Catalyst Award	H2020 Catalyst Award: Identification of stratified medicine approaches for ovarian cancer	Trinity College Dublin	24,392.00
Jonathan Yearsley	Inv Catalyst Award	H2020 Catalyst Award: Biodiversity, resilience and food security: understanding the role of biodiversity in maintaining food production	University College Dublin	15,236.00
Kevin Devine	Inv Catalyst Award	H2020 Catalyst Award: Antimicrobial Resistance (AMR) in Staphylococcus aureus: investigation of how WalRK mutation generates vancomycin intermediate resistance (VISA), and exploitation of WalRK essentiality to identify novel therapeutic agents and targets	Trinity College Dublin	25,000.00
Kevin McDonnell	Inv Catalyst Award	H2020 Catalyst Award: Low-carbon, high value engine lubricants from waste plastic (P2O)	University College Dublin	16,240.00
Louise Allcock	Inv Catalyst Award	H2020 Catalyst Award: Exploiting and conserving deep-sea genetic resources	National University of Ireland, Galway	23,300.00
Mani Ramaswami	Inv Catalyst Award	H2020 Catalyst Award: Conformational Triggers, Mechanisms and Pathways for Neurodegenerative Disease	Trinity College Dublin	25,000.00
Marina Lynch	Inv Catalyst Award	H2020 Catalyst Award: Targeting glial plasticity to alleviate age-related loss of neuronal function in Alzheimer's disease	Trinity College Dublin	22,800.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Mark Auty	Inv Catalyst Award	H2020 Catalyst Award: SMART engineered high protein food powders with optimised hydration properties	Teagasc	25,000.00
Martin Ulirich Hegner	Inv Catalyst Award	H2020 Catalyst Award: Nanomechanical detection of noncoding RNA for diagnosis in biological fluids	Trinity College Dublin	10,000.00
Martyn Pemble	Inv Catalyst Award	H2020 Catalyst Award: Design, Deposition and Exploitation of Novel Micro and Nano-scale Materials and Devices for Advanced Manufacturing- DEPO-Man	Tyndall National Institute	16,030.00
Mary Murphy	Inv Catalyst Award	H2020 Catalyst Award: Adult and induced pluripotent stem cell-based models to interrogate epigenetic mechanisms in the development of osteoarthritis	National University of Ireland, Galway	22,900.00
Max Ammann	Inv Catalyst Award	H2020 Catalyst Award: Antenna Systems for Minimally Invasive Implanted Medical Sensors	Dublin Institute of Technology	12,900.00
Michael Coey	Inv Catalyst Award	H2020 Catalyst Award: Magnetic electronics and microfluidics	Trinity College Dublin	25,000.00
Michael Lyons	Inv Catalyst Award	H2020 Catalyst Award: Development of high performance low cost hydrogen generators and fuel cells: materials development, underpinning science and engineering solutions	Trinity College Dublin	25,000.00
Niall English	Inv Catalyst Award	H2020 Catalyst Award: Elucidation and Exploitation of Marine Hydrates	University College Dublin	25,000.00
Oliver Dolly	Inv Catalyst Award	H2020 Catalyst Award: Delineating the exocytotic proteins (SNAREs) underlying sensitisation of nociceptor sub-sets in chronic pain : engineering botulinum neurotoxins as improved versatile analgesics	Dublin City University	25,000.00
Padraic Fallon	Inv Catalyst Award	H2020 Catalyst Award: Defining mechanisms that initiate fibrosis to identify new therapeutic strategies	Trinity College Dublin	25,000.00
Pascal Landais	Inv Catalyst Award	H2020 Catalyst Award: Passively mode locked lasers for next-generation short reach communication systems	Dublin City University	20,500.00
Paul Eastham	Inv Catalyst Award	H2020 Catalyst Award: Nanoscale quantum heat pumps enabled by strong light-matter interactions: new routes to optical cooling of semiconductors	Trinity College Dublin	25,000.00
Paula Meleady	Inv Catalyst Award	H2020 Catalyst Award: Regulating the expression of phosphorylated proteins from Chinese hamster ovary cells to improve the efficiency of biopharmaceutical production	Dublin City University	25,000.00
Pavel Baranov	Inv Catalyst Award	H2020 Catalyst Award: Riboseq.ORG - a platform for gene expression analysis at the transcription and translation levels	University College Cork	25,000.00
Peter Parbrook	Inv Catalyst Award	H2020 Catalyst Award: Ultradense Nanostructured Arrays for Nitride Devices	Tyndall National Institute	15,000.00
Rachel McLoughlin	Inv Catalyst Award	H2020 Catalyst Award: Profiling 'immune signatures' predictive of outcome in Staphylococcus aureus infection: Advancing next generation vaccine design	Trinity College Dublin	25,000.00
Robert Forster	Inv Catalyst Award	H2020 Catalyst Award: CAPTIVATE : Capture and Activate Drug Delivery Systems	Dublin City University	13,515.00
Sarah McCormack	Inv Catalyst Award	H2020 Catalyst Award: AMSET: Investigation of Advanced Novel Materials for increased Solar Electrical and Thermal efficiencies in an integrated building component tuneable to different climatic regions	Trinity College Dublin	22,000.00
Sheila McBreen	Inv Catalyst Award	H2020 Catalyst Award: Large Angle Space Surveys for Optical Event Discovery (LASSOED): automated transient and debris detection in large data sets	University College Dublin	19,000.00
Stephen Fahy	Inv Catalyst Award	H2020 Catalyst Award: Thermoelectric efficiency of IV-VI and V2-VI3 materials driven near phase transitions	Tyndall National Institute	25,000.00
Stephen Keely	Inv Catalyst Award	H2020 Catalyst Award: Pharmaceutical and nutraceutical targeting of the farnesoid X receptor for treatment of diarrhoeal diseases and obesity	Royal College of Surgeons in Ireland	25,000.00
Sylvia Draper	Inv Catalyst Award	Targeting Synthetic and Material Advances in the Activity and Function of Light-emitting Molecular Complexes: New Platform Technologies Based on Polyaromatic Ligands	Trinity College Dublin	25,000.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Timothy O'Brien	Inv Catalyst Award	H2020 Catalyst Award: Combinatorial cell therapy for diabetes-related critical limb ischaemia	National University of Ireland, Galway	7,700.00
Tom Ray	Inv Catalyst Award	H2020 Catalyst Award: Building the Next Generation MKID Camera	Dublin Institute for Advanced Studies	18,000.00
Trevor Hodgkinson	Inv Catalyst Award	H2020 Catalyst Award: EndoGrass: manipulating the microbiome to improve forage crops	Trinity College Dublin	23,000.00
Trudee Fair	Inv Catalyst Award	H2020 Catalyst Award: ART: A Lasting Impression	University College Dublin	25,000.00
William Gallagher	Inv Catalyst Award	H2020 Catalyst Award: Optimal Management of Gender-Specific Cancers via Efficient Use of Protein Profiling, Digital Pathology and Systems Medicine Tools (OPTI-PREDICT)	University College Dublin	25,000.00
Alan Ryder	Investigator Award 2014	Advanced Analytics for Biological Therapeutic Manufacture (AA-BTM).	National University of Ireland, Galway	1,461,479.00
Laoise McNamara	Investigator Award 2014	Mechanobiology based approaches for osteoporosis therapeutics	National University of Ireland, Galway	1,131,474.00
Grace Mulcahy	Investigator Award 2014	Application of New and Emerging Technologies to Develop Vaccines against Fasciola hepatica	University College Dublin	725,969.00
Vincent O'Flaherty	Investigator Award 2014	i-PAD: Innovative biological phosphate (bioP) and anaerobic digestion (AD) technology for waste treatment, energy generation and phosphorus recovery.	National University of Ireland, Galway	661,455.00
Walter Kolch	Investigator Award 2014	Overcoming Drug Resistance in Metastatic Malignant Melanoma by Personalizing Treatment	University College Dublin	2,932,737.00
Alexey Lastovetsky	Investigator Award 2014	Meeting the Future Challenges of Heterogeneous and Extreme-Scale Parallel Computing	University College Dublin	1,355,117.00
Tia Keyes	Investigator Award 2014	Microcavity Array Supported Lipid Membranes: Highly Versatile Cell Membrane Models in Sickness and in Health.	Dublin City University	1,682,731.00
Fiona Doohan	Investigator Award 2014	Identifying disease resistance breeding targets in order to enhance the sustainability of cereal production and the security of food supply.	University College Dublin	1,770,102.00
Martin Steinhoff	Investigator Award 2014	Neuro-immune Communication in Skin Diseases: Cytokines and Chemokines	University College Dublin	3,006,118.00
Justin Holmes	Investigator Award 2014	Silicon Compatible, Direct Band-Gap Nanowire Materials For Beyond-CMOS Devices	University College Cork	1,599,393.00
Marco Ruffini	Investigator Award 2014	O'SHARE: An open-access SDN-driven architecture enabling multi-operator and multi-service convergence in shared optical access networks	Trinity College Dublin	1,007,621.00
John O' Doherty	Investigator Award 2014	The Macroalgal Fibre Initiative: 'natural molecules naturally'.	University College Dublin	1,267,222.00
David Reid	Investigator Award 2014	Creating the knowledge for precision fisheries management: spatially aware 'nudging' to achieve Maximum Sustainable Yield using real-time fisheries incentives.	Marine Institute	419,342.00
Anne Marie Healy	Investigator Award 2014	Development of Fixed Dose Combination Products using Advanced Pharmaceutical Processing Technologies	Trinity College Dublin	342,732.00
Michael Rowan	Investigator Award 2014	Alzheimer's disease patient-derived synaptic plasticity-disrupting soluble protein assemblies	Trinity College Dublin	1,174,613.00
Donagh Berry	Investigator Award 2014	Precision cattle breeding using precision genomics	Teagasc	884,497.00
Colm O'Dwyer	Investigator Award 2014	Diffraction optics and photonic probes for efficient mouldable 3D printed battery skin materials for portable electronic devices	University College Cork	637,991.00
Jochen Prehn	Investigator Award 2014	Development of personalised medicine approaches for the clinical application of IAP antagonists in metastatic and high risk early stage colorectal cancer	Royal College of Surgeons in Ireland	1,052,261.00
Noel O'Dowd	Investigator Award 2014	Multi-scale, through-process characterisation for innovative manufacture of next generation welded composites (MECHANICS)	University of Limerick	1,552,839.00
Seamus Martin	Investigator Award 2014	Pro-inflammatory 'Cytokine Fingerprinting' For the Stratification of Psoriasis Patients for Cytokine-targeted Biologic Therapy	Trinity College Dublin	2,524,575.00
Stefano Sanvito	Investigator Award 2014	Atomistic simulators for magnetic memories design: MMDesign	Trinity College Dublin	1,058,808.00

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Patrick Cullen	Investigator Award 2014	Cold Plasma decontamination of Cereal Grains (PlasmaGrain)	Dublin Institute of Technology	1,202,995.00
Richard O'Kennedy	Investigator Award 2014	Metabolomic and array-based biomarker approaches to understand human exposure to potent carcinogenic fresh water toxins	Dublin City University	682,215.00
Jonathan Coleman	NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	Support for NSF Graduate Research Fellow (AMBER)	Trinity College Dublin	5,182.25
Martin Caffrey	NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	Membrane Structural and Functional Biology. Tackling communicable and non-communicable diseases at the membrane level.	Trinity College Dublin	5,182.25
Brian Glennon	NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	Support for NSF Graduate Research Fellow (SSPC)	University of Limerick	5,873.22
Frank Barry	NSF/SFI Graduate Research opportunities Worldwide (GROW) Programme	Support for NSF Graduate Research Fellow (CURAM)	National University of Ireland, Galway	15,546.75
Elaine Dunleavy	PIYRA	Epigenetic Mechanisms of Stem Cell Maintenance	National University of Ireland, Galway	1,058,271.00
Olive Walsh	Postgraduate Scholarship Scheme	Support for Two PhDs in STEM Education & Learning	Irish Research Council	167,819.00
Olive Walsh	Postgraduate Scholarship Scheme	Support for Four PhD Awards - Research into Science Funding Policy	Irish Research Council	286,462.00
Justin Sinnott	Postgraduate Scholarship Scheme	Support for Three SFI-IRC Industry Employment Awards	Irish Research Council	262,700.00
Christopher Bean	Research Infrastructure	In situ Marine Laboratory for Geosystems Research (IMARL).	Dublin Institute for Advanced Studies	2,856,176.00
Linda Doyle	Research Infrastructure	Pervasive Nation - a unique, extensible, National scale, Open IoT (internet of Things) highly distributed Testbed platform for IoT Research, Research integration, Experimentation and Technology/Readiness Level improvement.	Trinity College Dublin	1,811,778.00
Paul Cotter	Research Infrastructure	NextSeq DNA sequencing platform	Teagasc	242,675.00
Peter Gallagher	Research Infrastructure	Connecting Ireland to the International Low Frequency Array (LOFAR)	Trinity College Dublin	1,397,348.00
Paul Townsend	Research Infrastructure	400 Gigabit-per-second and Beyond Advanced Modulation Coherent Communications Testbed	Tyndall National Institute	1,454,865.00
Louise Kenny	Research Infrastructure	INFANT Biobank	University College Cork	355,171.00
John Wenger	Research Infrastructure	Irish Atmospheric Simulation Chamber (IASC) Facility	University College Cork	1,067,431.00
Madeleine Lowery	Research Infrastructure	Human Performance Monitoring Suite	University College Dublin	91,162.00
Stephen Gordon	Research Infrastructure	High throughput transcriptomics for animal disease and zoonoses	University College Dublin	239,850.00
Stefano Sanvito	Research Infrastructure	Additive Manufacturing Nano-Materials Facility (3DAMN)	Trinity College Dublin	3,336,623.00
Plamen Stamenov	Research Infrastructure	Trifolium Dubium - A Flexible Deposition Tool for Complex Thin-film Stacks of Metallic and Dielectric Materials	Trinity College Dublin	3,240,000.00
Ronan Farrell	Research Infrastructure	RadioSpace: An experimental Radio Testbed for 5G and the Internet of Things	National University of Ireland, Maynooth	538,808.00
Kieran Moran	Research Infrastructure	Indoors and Outdoors Motion Analysis System	Dublin City University	223,910.00

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Anita Maguire	Research Infrastructure	Process Flow Spectroscopy (ProSpect); Advanced Reaction Understanding using Flow Nuclear Magnetic Resonance (NMR) and Infrared (IR) Spectroscopies, with On-Line Ultra-Performance Liquid Chromatography (UPLC) and Mass Spectrometry (MS)	University College Cork	1,041,394.00
Peter O'Brien	Research Infrastructure	High Accuracy Photonic Device Flipchip Packaging and Assembly System	Tyndall National Institute	741,700.00
Balz Kamber	Research Infrastructure	Geosciences Electron Beam Mineral Analyser - GeoRise	Trinity College Dublin	636,161.00
Kieran Hodnett	Research Infrastructure	Crystallisation Isolation and Drying Technology Test Bed (CIDT2)	University of Limerick	2,466,420.00
Jimmy Murphy	Research Infrastructure	Towards ESFRI - Open Ocean Emulator for Grid Integrated next generation Marine Renewable Energy systems @ LIR National Ocean Test Facility	University College Cork	2,230,860.00
Jennifer McElwain	Research Infrastructure	Integrated Plant Phenomics & Future Experimental Climate Platform	University College Dublin	1,308,255.00
Daniel J F Toal	Research Infrastructure	MRE ROV for Challenging (Wave, Tidal, Wind) Conditions	University of Limerick	1,955,742.00
Geraldine Boylan	Research Infrastructure	INFANT Discovery Platform	University College Cork	1,548,236.00
VP Research	Research Professorship	Targetted Recruitment - Research Professorship Award	University of Limerick	6,159,304.00
VP Research	Research Professorship	Targetted Recruitment - Research Professorship Award	Trinity College Dublin	5,963,972.00
Lynette Keeney - Dorothy Wang	RS-SFI University Research Fellow	Memories are made of this; Multiferroics Research for Future Generation Memories	The Royal Society	550,562.00
Pauline Scanlan -Dorothy Wang	RS-SFI University Research Fellow	Bacteria-bacteriophage antagonistic coevolution in the gut	The Royal Society	550,562.00
Jonathan Mackey - Dorothy Wang	RS-SFI University Research Fellow	Massive Stars in the Interstellar Medium	The Royal Society	497,162.00
Alexandra Boyd	SFI Discover Programme Call 2014	UCD Science Expression	University College Dublin	35,000.00
Tim Collins	SFI Discover Programme Call 2014	The Appliance of Science	Ocean FM	10,000.00
Eoin Gill	SFI Discover Programme Call 2014	STEAM @ Spraoi and sprOg	Waterford Institute of Technology	15,000.00
Claire Mulhall	SFI Discover Programme Call 2014	Continuous Professional Development on STEM for Primary School Teachers; A National Mark of Excellence	Royal Dublin Society RDS	226,950.00
Jackie Gorman	SFI Discover Programme Call 2014	Midlands Science Festival 2015	Atlantic Corridor	62,000.00
Marcela Whelan Kelly	SFI Discover Programme Call 2014	Discovery Science Festival 2015	Cork City Council	32,500.00
Pat McHale	SFI Discover Programme Call 2014	Mayo Science & Technology Festival 2015	Mayo County Council	16,000.00
Jeremy Bird	SFI Discover Programme Call 2014	Motivating and Advancing Science (MARS) 2015	Institute of Technology Sligo	15,000.00
Ronan O'Higgins	SFI Discover Programme Call 2014	Limerick Festival of Science	University of Limerick	13,200.00
Tom Hyland	SFI Discover Programme Call 2014	Galway Science & Technology Festival 2015	Galway Science & Technology Forum	25,000.00
Claire Mulhall	SFI Discover Programme Call 2014	Curiosity Lab @ Science Week 2015	Royal Dublin Society RDS	31,750.00

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Sheila Donegan	SFI Discover Programme Call 2014	The Robert Boyle Science Week	Waterford Institute of Technology	32,400.00
Anne Heffernan	SFI Discover Programme Call 2014	Eureka!	Mind the Gap Films	100,000.00
Jonathan McCrea	SFI Discover Programme Call 2014	SciCon 2015	Whipsmart Media Ltd	23,572.00
Emma Tomlinson	SFI ERC Development Programme	Halogens in magmatic systems: from mantle to crust	Trinity College Dublin	348,142.90
Laurence Gill	SFI ERC Development Programme	On-site wastewater treatment - the influence of the biomat on contaminant transport and attenuation	Trinity College Dublin	474,797.60
Yvonne Buckley	SFI ERC Development Programme	POPSTAR-SFI: Plant population strategy and response to the environment	Trinity College Dublin	592,360.00
Niall English	SFI ERC Development Programme	Electric field-promoted Photolysis and Energy storage	University College Dublin	565,293.00
Colin Hill	SFI ERC Development Programme	GUTPHAGE: bacteriophage as agents to manipulate the microbiota for human health	University College Cork	621,571.00
G. Jane Farrar	SFI Fellowship	Science Foundation Ireland Fellowship	Trinity College Dublin	175,809.40
Marina Lynch	SFI Fellowship	Science Foundation Ireland Fellowship	Trinity College Dublin	135,990.40
Kenneth Dawson	SFI Fellowship	Science Foundation Ireland Fellowship	University College Dublin	118,895.40
Alan Smeaton	SFI Fellowship	Science Foundation Ireland Fellowship	Dublin City University	128,330.80
John Boland	SFI Fellowship	Science Foundation Ireland Fellowship	Trinity College Dublin	232,783.20
Walter Kolch	SFI Fellowship	Science Foundation Ireland Fellowship	University College Dublin	132,103.40
Walter Kolch	SFI Fellowship	Science Foundation Ireland Fellowship	University College Dublin	115,497.20
Geraldine Butler	SFI Fellowship	Science Foundation Ireland Fellowship	University College Dublin	115,497.20
Prof. Orla Feely	SFI Fellowship	Science Foundation Ireland Fellowship	University College Dublin	122,392.40
Joseph McManus	SFI Maternity Allowance	CSET BDI: Biomedical Diagnostics Institute	Dublin City University	17,051.89
Kingston Mills	SFI Maternity Allowance	New immunotherapeutic approaches based on the Th1/Th17 axis and its regulation	Trinity College Dublin	28,995.80
Annie Curtis	SFI Maternity Allowance	A New Dimension to the Immune Response: Biological Molecular Clocks Controlling Inflammation	Trinity College Dublin	29,018.34
Lynette Keeney	SFI Maternity Allowance	New memory cell test structure devices based on single phase multiferroics	Tyndall National Institute	31,877.21
Gil U Lee	SFI Maternity Allowance	Point of Use Detection of Mastitis (POUMA)	University College Dublin	5,901.05
Gil U Lee	SFI Maternity Allowance	Single Molecule Instrument Research Program: Force Measurements in Live Cells and Multiplexed Pathogen Detection	University College Dublin	16,017.16
Ned Costello	SFI Maternity Allowance	SFI/JUA Partnership - Marie Sklodowska-Curie Actions Programme Officer	The Irish Universities Association	36,578.62
Oliver Daniels	SFI Maternity Allowance	INSIGHT - Irelands Big Data and Analytics Research Centre	National University of Ireland, Galway	36,578.52
Fergal O'Brien	SFI Maternity Allowance	Development of a gene-activated smart scaffold for bone repair	Royal College of Surgeons in Ireland	15,028.04



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Uri Frank	SFI Maternity Allowance	Stem cell fate in Hydractinia: a marine cnidarian	National University of Ireland, Galway	10,022.06
Oliver Daniels	SFI Maternity Allowance	INSIGHT - Irelands Big Data and Analytics Research Centre	National University of Ireland, Galway	32,328.87
Eva M Jimenez-Mateos	SFI Maternity Allowance	micro RNA in the pathogenesis and prognosis of neonatal brain injury	Royal College of Surgeons in Ireland	29,146.00
Radka Fahey	SFI Maternity Allowance	Epigenetic Regulation of Glycosylation and the impact on chemo-resistance in cancer	The National Institute for Bioprocessing Research and Training (NIBRT)	29,146.05
Wolfgang Schmitt	SFI Maternity Allowance	Bio-inspired Chemical Transformations in Confined Supramolecular Environments of Nanoscopic Coordination Cages and Metal-Organic Frameworks	Trinity College Dublin	21,795.35
Kieran Hodnett	SFI Maternity Allowance	Synthesis and Solid State Pharmaceutical Centre (SSPC)	University of Limerick	34,102.90
Paul Townsend	SFI Maternity Allowance	I-PIC Irish Photonic Integration Research Centre	Tyndall National Institute	33,636.02
Andreas Heise	SFI Maternity Allowance	Functional polymers for (nano)medical devices	Dublin City University	37,428.30
Paul Cotter	SFI Maternity Allowance	Obesiotics	Teagasc	31,907.71
Prof. Bernard Mahon	SFI Maternity Allowance	SFI ERC Support	National University of Ireland, Maynooth	13,702.53
Oliver Daniels	SFI Maternity Allowance	INSIGHT - Irelands Big Data and Analytics Research Centre	National University of Ireland, Galway	8,829.86
Louise Kenny	SFI Research Centres Supplement	Business Development/Industry Liaison Manager & Clinical Research Data Manager - INFANT	University College Cork	1,218,483.50
Tia Keyes	SFI TIDA 2014 Training Award	TIDA Training for award 'Microcavity Array Supported Lipid Bilayers; Biometric Test Beds for Drug-Membrane Interactions'	Dublin City University	3,500.00
Siobhan McClean	SFI TIDA 2014 Training Award	TIDA Training for award 'BPVacc: Development of a vaccine against melioidosis with Burkholderia pseudomallei antigens'	Institute of Technology Tallaght	3,500.00
Frank Barry	SFI TIDA 2014 Training Award	TIDA Training for award 'Validation of a novel serum-free medium for production of human mesenchymal stem cells and establishment of in vivo efficacy in a bone	National University of Ireland, Galway	3,500.00
Gerard Boyle	SFI TIDA 2014 Training Award	TIDA Trainings for awards 'Measurement Technology: A non invasive tool for assessing patients in critical care.'	Trinity College Dublin	3,500.00
Gerard Boyle	SFI TIDA 2014 Training Award	TIDA Trainings for award 'Measurement Technology: A non invasive tool for assessing patients in critical care.'	Trinity College Dublin	3,500.00
Fergal O'Gara	SFI TIDA 2014 Training Award	TIDA Training for award 'Small molecule inhibitors of HIF-1: a new class of anti-cancer therapeutics'	University College Cork	3,500.00
Breandan Kennedy	SFI TIDA 2014 Training Award	TIDA Training for award 'Developing Intravitreal Microparticles as a Delivery Mechanism for Small Molecule Inhibitors of Ocular Neovascularisation and Inflammation'	University College Dublin	3,500.00
David O'Connell	SFI TIDA 2014 Training Award	TIDA Training for award 'A novel protein display technology to expand and enhance biosensor measurement of therapeutic molecule kinetics'	University College Dublin	3,500.00
Adrian Lynch	SFI/RTE Joint Initiative	RTE/SFI STEM Broadcast Joint Initiative	RTE	585,000.00
Sibel Erduran	SFI-Discover Programme Call 2015	Step into Science: Engaging Students, Teachers and Parents in Debates	University of Limerick	15,000.00
Adegboyega Ojo	SFI-Discover Programme Call 2015	Apps4Gaps	National University of Ireland, Galway	3,500.00
Valerie Cowman	SFI-Discover Programme Call 2015	Steering Youth to STEM (SYSTEM)	Cork Electronic Industries Association	48,557.00

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Nigel Flegg	SFI-Discover Programme Call 2015	Music and Science: Quadratics to Quavers	National Concert Hall	23,300.00
Mary Colclough	SFI-Discover Programme Call 2015	Science LIVE! – virtual tours of Irish science centres	Trinity College Dublin	29,056.00
Aoibhinn Ni Shuilleabhain	SFI-Discover Programme Call 2015	Maths Sparks: Problem Solving Workshops	University College Dublin	12,656.00
Eilish McLoughlin	SFI-Discover Programme Call 2015	Physics Busking	Dublin City University	31,642.00
Mervyn Horgan	SFI-Discover Programme Call 2015	VEX IQ Junior Robotics Programme	Lifetime Lab	50,000.00
Declan Gibbons	SFI-Discover Programme Call 2015	Science on Screen - Galway	Galway Film Resource Centre	100,000.00
Jessamyn Fairfield	SFI-Discover Programme Call 2015	Bright Club	Trinity College Dublin	10,500.00
Claire Mulhall	SFI-Discover Programme Call 2015	RDS Primary Science Fair Regionalisation	Royal Dublin Society RDS	50,000.00
Fiona Kearney	SFI-Discover Programme Call 2015	Gut Instinct: Art, food and feeling	University College Cork	15,000.00
Jennifer Moroney-Ward	SFI-Discover Programme Call 2015	Science Hub at Learning Hub Limerick	Learning Hub Limerick	15,000.00
Alf Desire	SFI-Discover Programme Call 2015	Famelab Ireland 2016	British Council Ireland	35,850.00
Tomas Ward	SFI-Discover Programme Call 2015	Dublin Maker 2016	National University of Ireland, Maynooth	50,000.00
Aoibheann Bird	SFI-Discover Programme Call 2015	Thesis in 3	National University of Ireland, Galway	15,850.00
Susan Schreiberman	SFI-Discover Programme Call 2015	Letters of 1916: Community Engagement	National University of Ireland, Maynooth	11,900.00
Jenny Beale	SFI-Discover Programme Call 2015	Nature's Power 2: Energy and Environment Education for STEM	Brigit's Garden	24,000.00
Gillian Keating	SFI-Discover Programme Call 2015	I Wish (Inspiring Women in Stem)	I Wish STEM Company Limited by Guarantee	25,000.00
Karen McCarthy	SFI-Discover Programme Call 2015	“The Dissection of Instrumentation- Interactions between Art and Science”	Tyndall National Institute	37,650.00
Shane McCracken	SFI-Discover Programme Call 2015	I'm a Scientist/Engineer, Get me out of here!	Gallomanor Communications Limited	34,000.00
Mervyn Horgan	SFI-Discover Programme Call 2015	“Exploristica” Adventures in Statistics	Lifetime Lab	25,000.00
Orla Feely	SFI-Discover Programme Call 2015	The Scientist's Apprentice – Irish Independent Book Series November 2016	University College Dublin	143,204.00
Lisa McKittrick	SFI-Discover Programme Call 2015	Futurewise	Junior Achievement Ireland	80,000.00
Marc McCarthy	SFI-Discover Programme Call 2015	The Microbiome and Me	University College Cork	43,500.00

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Kate Morris	SFI-Discover Programme Call 2015	Campus Engage Participate Programme - Building STEM capacity in Community-based Learning	The Irish Universities Association	33,998.00
Hannah Spry	SFI-Discover Programme Call 2015	Expansion of Spectroscopy in a Suitcase(SIAS) and CPD in Ireland	Royal Society of Chemistry	50,000.00
Edelle Moss	SFI-Discover Programme Call 2015	SFI Discover Zone at The Festival Big Day Out	St. Patrick's Day Festival	33,367.00
Daniel Vincent McCarthy	SFI-Discover Programme Call 2015	The Curiosity Studio	The Festival of Curiosity	50,000.00
Dominic Mc Evoy	SFI-Discover Programme Call 2015	The Algebra Project in Ireland	Kildare Education Centre	30,000.00
Suzanne Little	SFI-Discover Programme Call 2015	Girl Hack Ireland	National University of Ireland, Galway	43,300.00
Sheila Donegan	SFI-Discover Programme Call 2015	CALMAST STEM Outreach Hub for Southeast of Ireland	Waterford Institute of Technology	50,000.00
Cara Geene	SFI-Discover Programme Call 2015	The Problem-Solving Initiative (PSI)	Trinity College Dublin	220,000.00
Sheila Porter	SFI-Discover Programme Call 2015	SciFest	SciFest Ltd	200,000.00
Sylvia Leatham	SFI-Discover Programme Call 2015	Engineers Ireland STEPS programme - 2016 & 2017: Engineering Futures	STEPS, Engineers Ireland	420,000.00
Niall Smith	SFI-Discover Programme Call 2015	Driving STEM Learning and Awareness using Space as the Theme	Cork Institute of Technology - Blackrock Castle Observatory	200,000.00
Daniel Vincent McCarthy	SFI-Discover Programme Call 2015	The Festival of Curiosity 2016 and 2017	The Festival of Curiosity	200,000.00
Eoin Gill	SFI-Discover Programme Call 2015	Maths Week Ireland	Calmast, Waterford Institute of Technology	120,000.00
Lynn Scarff	SFI-Discover Programme Call 2015	"Going Deeper" at Science Gallery Dublin	Trinity College Dublin	50,000.00
Noirin Burke	SFI-Discover Programme Call 2015	Engaging the public and students with Ireland's Renewable Ocean Energy.	Galway Atlanaquaria	24,000.00
Alan Gillespie	SFI-Discover Programme Call 2015	Peak Performance	ScreenTime Shinawil	30,000.00
Brian McStay	SFI-HRB-Wellcome Trust Biomedical Research Partnership	The genomic architecture of human nucleolar organizer regions and its role in nucleolar biology	Health Research Board	354,966.00
Dermot Cox	SFI-HRB-Wellcome Trust Biomedical Research Partnership	Validation of FcgRIIa as a potential drug target in sepsis	Health Research Board	19,748.75
Dervla O'Malley	SFI-HRB-Wellcome Trust Biomedical Research Partnership	Electrophysiological investigations on the molecular mechanisms underlying gut-to-brain signalling evoked by colonic microbiota	Health Research Board	30,344.00
Anne Moore	SFI-Pfizer Biotherapeutics Innovation Award Programme 2015	A novel antibody approach to enhance T-cell activation for cancer therapy	University College Cork	520,000.00

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Leontie Young	SFI-Pfizer Biotherapeutics Innovation Award Programme 2015	Development of a novel biotherapeutic for the treatment of ER-positive primary and metastatic breast cancer	Royal College of Surgeons in Ireland	514,150.00
Martin Steinhoff	SFI-Pfizer Biotherapeutics Innovation Award Programme 2015	Development of an antibody therapeutic for the treatment of neuropathic pain and chronic pruritus (itch)	University College Dublin	509,760.70
Fergus Shanahan	Spokes Fixed Programme	Gut Inflammation - Discovery and Therapeutic Targeting of the Secretome-Receptome Inflammatory network in Inflammatory Bowel Disease	University College Cork	5,126,382.10
Conchur O'Braidaigh	Spokes Fixed Programme	Observation and Monitoring of Marine Renewable Energy Infrastructure (OM-MaREI)	University College Cork	4,969,328.00
Geraldine Boylan	Spokes Fixed programme	Neoview - Neonatal intensive care viewer for improved patient care and enhanced family well being	University College Cork	402,313.00
Prof. Kieran Hodnett	Spokes Fixed programme	Modelling Of MultiphasE Transport aUtomation in Manufacturing (MOMEiTUM)	University of Limerick	2,486,809.00
Fergus Shanahan & Louise Kenny	Spokes Rolling Programme	The Cork Nutrition and Microbiome Maternal-Infant Cohort Study (COMBINE)	University College Cork	2,726,639.10
Geraldine Boylan	Spokes Rolling Programme	ENRICH: Baby Enrichment Research Programme	University College Cork	648,285.00
Shane O'Mara	Strategic Partnership Programme	The opioid system as the brain's interface between cognition and motivation	Trinity College Dublin	1,058,095.00
Kingston Mills	Strategic Partnership Programme	Biomarkers and drug targets for autoimmune diseases	Trinity College Dublin	600,054.00
Mark O'Malley	Strategic Partnership Programme	Energy Systems Integration Partnership Programme (ESIPP)	University College Dublin	7,127,506.90
Orla Hardiman	Strategic Partnership Programme	Project MinE Ireland: sequencing and analysis of 1,050 Irish genomes to identify the causes of amyotrophic lateral sclerosis	Trinity College Dublin	1,045,962.30
Anthony McCoy	TIDA 2015	Processes development for atomic layer deposited (ALD) barrier layers for interconnect technologies.	Dublin City University	118,051.20
Fiona Doohan	TIDA 2015	Determining the field potential of endophyte formulations to improve barley productivity	University College Dublin	122,925.90
Roger Preston	TIDA 2015	A novel neuroprotective agent for enhanced treatment of ischemic stroke	Trinity College Dublin	120,846.00
Igor Shvets	TIDA 2015	Bringing Condition-Based Monitoring to the Mass Market using Low-Cost Sensors and Intelligent Analytics	Trinity College Dublin	128,346.90
Stephen Keely	TIDA 2015	Optimisation of Novel Farnesoid X Receptor Agonists - A New Class of Anti-diarrhoeal Drug to Underpin and Add Value to an Enabling Patent	Royal College of Surgeons in Ireland	119,936.70
Fionnuala Ní Áinle	TIDA 2015	Optimization of low molecular weight heparin (LMWH) endothelial protective properties: towards novel prevention strategies in cancer metastasis	University College Dublin	128,609.00
Padraig Cantillon Murphy	TIDA 2015	Early detection of lung cancer through novel endoscopic technology	University College Cork	124,155.00
Rocco Lupoi	TIDA 2015	Enhanced boiling heat transfer technology using Cold Spray additive manufacturing	Trinity College Dublin	124,709.00
Ewen Mullins	TIDA 2015	Evaluating the potential of EMT, a novel gene transfer technology, to overcome the industrial challenge of genotype dependency, which limits the engineering of multiple varieties of important crop species	Teagasc	124,764.00
Guillaume Huyet	TIDA 2015	Multi-Section Swept Source Lasers for OCT Applications	Cork Institute of Technology	120,099.20
Valeria Nicolosi	TIDA 2015	Development of Inkjet Printed Microbatteries Based on 2D Nanomaterials	Trinity College Dublin	108,550.00

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Fiona Lyng	TIDA 2015	RAD-TOX: An assay to predict risk of radiation toxicity in cancer patients before selection of treatment modality	Dublin Institute of Technology	105,639.40
Peter Ó Conghaile	TIDA 2015	Development of a Novel Self-Contained Glucose Monitoring Sensor Using Pulsed Power	National University of Ireland, Galway	87,759.70
Colm O'Dwyer	TIDA 2015	Advanced Battery Materials for High Volumetric Energy Density Li-ion Batteries for Remote Off-Grid Power	University College Cork	115,016.10
Tia Keyes	TIDA 2015	Organelle targeted sensing of metal ions and reactive oxygen species.	Dublin City University	129,473.20
Eugene O'Brien	TIDA 2015	Additive Manufactured Internally Porous Struts (IP-STRUTS)	University College Dublin	129,004.20
Aisling Dunne	TIDA 2015	Validation of lipopeptides/lipopeptides as adjuvants and antigens for a new pertussis vaccine	Trinity College Dublin	130,000.00
Sarah Doyle	TIDA 2015	Targeting IL-18 Binding Protein as a novel therapy for the treatment of Age-related Macular Degeneration.	Trinity College Dublin	128,955.70
Fiona Newell	TIDA 2015	CityQuest: a serious game to enhance cognition and improve balance control	Trinity College Dublin	114,054.20
Lokesh Joshi	TIDA 2015	Rapid Sialic Acid test for improved in-process monitoring and quality control of recombinant biopharmaceuticals	National University of Ireland, Galway	117,559.00
Sandra O'Neill	TIDA 2015	Novel anti-inflammatory therapies	Dublin City University	123,772.70
Charles Spillane	TIDA 2015	3D Bio-Printing for Bio-Batteries	National University of Ireland, Galway	109,885.40
Kenneth A. Dawson	TIDA 2015	Upscaled production of engineered bio molecular coronas for targeted delivery	University College Dublin	93,745.63
Dermot Brougham	TIDA 2015	NANO-PREDICT: MRI trackable predictors of liposome biodistribution for preclinical research and cancer staging	University College Dublin	127,090.60
Kingston Mills	TIDA 2015	Discovery of small molecule inhibitors of IL-17RA as therapeutics for autoimmune diseases	Trinity College Dublin	129,561.90
Eoghan O'Neill	TIDA 2015	Novel treatment of staphylococcal device related infections	Royal College of Surgeons in Ireland	95,569.50
Sylvia Draper	TIDA 2015	New materials as Photosensitisers in Adhesive Technologies	Trinity College Dublin	125,517.60
Daniela Iacopino	TIDA 2015	Development of supercapacitors with high surface area porous self assembled electrodes for marine renewable energy extraction	Tyndall National Institute	87,577.40
Andreas Heise	TIDA 2015	Polypeptide Nanoparticles as Carriers for Active Ingredients (PepCap)	Royal College of Surgeons in Ireland	120,294.70
Jennifer McManus	TIDA 2015	Bio-Gel Scaffolds for 3D Cell Culture	National University of Ireland, Maynooth	126,916.40
Annette Byrne	TIDA 2015	Improving the Efficacy of Bevacizumab (Avastin) in Glioblastoma through the Development of a Novel Anti-Invasion Nanotherapeutic	Royal College of Surgeons in Ireland	129,646.40
Alessandro Checco	TIDA 2015	BLC: automatic group learning recommender system	Trinity College Dublin	64,676.20
Robert Forster	TIDA 2015	ConfiMED: A Multifunctional Anti-Counterfeiting and Package Integrity Label	Dublin City University	129,176.70
Udo Greiser	TIDA 2015	Targeted Drug Delivery of Disulfiram Polymer Micelles to Cancer Cells	University College Dublin	129,797.20
Aleksandar Jaksic	TIDA 2015	The world's first high-k Radiation Sensing Field Effect Transistor	Tyndall National Institute	129,797.20
Fergal O'Gara	TIDA 2015	Pre-clinical testing of novel fungal biofilm blockers for the medical device sector.	University College Cork	127,832.90
Manus Biggs	TIDA 2015	Biomimetic electrically conducting polymer scaffolds as novel neuromodulatory neuroelectrodes for the treatment of chronic pain	National University of Ireland, Galway	129,347.40

SFI Research Scientist	Programmes	Research Title	Research Body	Total value of award including overheads
Kevin M Ryan	TIDA 2015	Nanorod Assembly for Photonic Integrated Circuit Applications: Development of a Semiconductor Processing Tool for Low Cost Wafer Integrated Plasmonic Lasers	University of Limerick	123,976.60
Graham Cross	US-Ireland Planning Grant	The Design of Material Systems for Extreme Contact	Trinity College Dublin	2,750.00
Brian Ward	US-Ireland Planning Grant	Development of Optical and Acoustic Techniques for Ocean Surface Boundary Layer Studies	National University of Ireland, Galway	2,635.00
Debra Laefer	US-Ireland Planning Grant	AMASS: Advanced Manufacturing and Assembly of Steel Structures planning grant	University College Dublin	4,200.00
Luis Da Silva	US-Ireland R&D Partnership	Enabling Cellular Network to Exploit Millimeter-wave Opportunities (NEMOs)	Trinity College Dublin	448,542.30
Brian Rodriguez	US-Ireland R&D Partnership	Far-from-Equilibrium Processing of Ferroelectric Thin Films on Glass and Polymeric Substrates	University College Dublin	315,760.70
Eugene O'Brien	US-Ireland R&D Partnership	Bridge Health Monitoring Using Cameras and Computer Vision Methods	University College Dublin	406,886.00
Stephen Hegarty	US-Ireland R&D Partnership	Si-compatible, Strain Engineered Staggered Gap Ge(Sn)/InxGa1-xAs Nanoscale Tunnel Field Effect Transistors	Cork Institute of Technology	347,054.00
Niall Barron	US-Ireland R&D Partnership	Tumor priming sequences combined with novel nanoparticle drug carriers for enhanced therapeutic efficacy in pancreatic cancer	Dublin City University	451,956.70
Frederick Dias	US-Ireland R&D Partnership	Understanding Extreme Nearshore Wave Events through Studies of Coastal Boulder Transport	University College Dublin	349,110.70
Prof. Liam Barry	US-Ireland R&D Partnership: Centre-to-Centre mechanism	Agile Cloud Service Delivery Using Integrated Photonics Networking	Dublin City University	1,633,790.30
Kieran Hodnett	US-Ireland R&D Partnership: Centre-to-Centre mechanism	Partnership in continuous manufacturing for nano-based drug products	University of Limerick	548,550.00
<b>Total</b>				<b>131,432,452</b>

**Front cover image**

Winner of the SFI Image of the Year Competition 2015.

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The image entitled 'Lightening Wires', taken by Matthew Gleeson, won Science Foundation Ireland's Research Image of the Year Competition at the Science Foundation Ireland Science Summit in Kilkenny. Matthew Gleeson is a postgraduate researcher in the Department of Physics and Energy at the University of Limerick. The image was taken as part of a PhD project under the supervision of Dr. Ning Liu and Dr. Christophe Silien at the University of Limerick.

**Description**

This image shows the creation of very small artificial wires (nano wires) which can be used for novel applications in future microchips and computers. The largest of the wires shown here has a diameter similar to that of a human hair and was created using hydrothermal synthesis, a process similar to pressure cooking. The bright white colour is caused by refraction, the bending of light as it passes from one transparent substance to another, as seen here going from the wire to the supporting glass slide.

Science Foundation Ireland  
Wilton Park House  
Wilton Place  
Dublin 2  
Ireland

t: + 353 1 607 3200

e: [info@sfi.ie](mailto:info@sfi.ie)

w: [www.sfi.ie](http://www.sfi.ie)

[@scienceirel](https://twitter.com/scienceirel)