

NATIONAL CHALLENGE FUND

*From Ingenuity
to Research
and Solutions*



Rialtas na hÉireann
Government of Ireland



Maoinithe ag an
Aontas Eorpach
Funded by the
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NextGenerationEU

Call Application Document

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Future Digital Challenge

The Future Digital Challenge seeks to realise transformational societal and economic impact from disruptive digital technologies.

The challenge will support researchers in creating and applying disruptive digital technologies that will contribute to our national recovery and resilience. The challenge provides researchers with an opportunity to work with societal stakeholders to identify digital transformation opportunities, co-create solutions and demonstrate the impact potential that new digital products, processes or services can have in creating a more inclusive and sustainable society. In doing so, the Future Digital Challenge will build leadership in deep tech and, by demonstration of impact potential, inform future approaches, research priorities and policy on how digital transformation can enhance our society and economy.

Under this challenge, researchers are invited to develop innovative and sustainable products, processes or services, based on cross-cutting digital technologies including, for example: Sensors; Mobile Communication Systems; Internet of Things (IOT); Data (incl., Small, Big, Open) and Analytics (incl., Artificial Intelligence and Machine Learning); Distributed Ledger Technology (e.g., Blockchain); XR (i.e., Mixed Reality); Simulation and Digital Twins.

Areas of Interest

Applications that identify challenges from any sector are welcome, however, particular focus should be placed on sectors where digitalisation can bring transformational opportunity. Such areas may include (along with illustrative examples of high-level research questions):

- **Science and Knowledge Creation** – How can digital technologies, such as AI, be applied to accelerate how new knowledge is created? How can the democratisation of scientific knowledge and data be advanced?
- **Manufacturing, Value Chains and Logistics** – How can digital technologies increase the competitiveness of the Irish manufacturing sector? How can supply chains be made more adaptive and sustainable?
- **Construction, Buildings and Cities** – Can digital technologies increase the efficiency and reduce the environmental impact of the construction sector? How should buildings be designed to better suit our future needs? How can we better design cities?
- **Agriculture** – How can digital technologies increase the productivity and reduce the environmental impact of the agriculture sector?

- **Transportation** – How can route planning be optimised to reduce the emissions from transportation modes? How can public transport be made more accessible and efficient using digital technologies?

Energy and Natural Resource Management – How can energy demands be predicted more reliably, and renewable energy integrated more efficiently and effectively? How can natural capital quantification be undertaken more efficiently using digital technologies?

This challenge is funded under the Digital Transformation component of the National Challenge Fund. Please refer to the section on Programme Remit for requirements associated with this.

Key Dates

Milestone	Date
Call Launch	1 August 2022
SESAME Open for Applications	End August 2022
Application Deadline	21 October 2022
Funding Decision	November 2022
Award Start Date	2 January 2023
Concept Phase Review	Q2 2023
Seed Phase Review	Q2 2024
Grow Phase Review	Q2 2025
Prize Award Start Date	Q2 2026

Challenge Structure and Funding

The Future Digital Challenge comprises four phases: Concept, Seed, Grow and Prize Award. Participation in the challenge will involve teams progressing through phases to compete for an overall Prize Award of €1M.

Phase	No. Teams	Duration (Months)	Funding (€)
Concept	15	6	50k
Seed	15	12	150k
Grow	5	12	500k
Prize Award	1	24	1M

Additional Guidance (Challenge specific)

Digital Responsibility

Leveraging data and digital technologies has transformative impact potential to address some of the most pressing societal challenges such as climate change, biodiversity loss, and sustainability. However, the ubiquity and power of digital technologies requires that creators and users act responsibly to ensure they are utilised in an ethical way that reflects values such as safety, fairness and inclusion, transparency, and privacy. Where relevant, applications submitted to the National

Challenge Fund should consider the ethical issues associated with digital assets or systems proposed and ensure that appropriate measures are in place to identify, monitor and manage risks across the full life cycle of the digital asset or system.



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INTRODUCTION

1 The National Challenge Fund

The National Challenge Fund is a €65M research fund established under the Government's National Recovery and Resilience Plan (NRRP), funded by the EU's Recovery and Resilience Facility,¹ that will support academic researchers to work with government, enterprise, public sector organisations and societal stakeholders to address national priorities for Ireland. This fund will be coordinated and administered by Science Foundation Ireland (SFI).

The National Challenge Fund will use challenge funding approaches to coordinate, mobilise and accelerate national research and innovation capacity to address key national challenges that underpin recovery efforts aligned to the Green Transition and Digital Transformation. The fund aims to foster collaboration between government departments, agencies, enterprise, the academic research community, and societal stakeholders to identify challenges and mobilise action to address green transition and digitalisation targets set at government level. Research and innovation activities supported will be outcome-focused, maximising the opportunity for research translation and impact.

The National Challenge Fund has three overarching objectives:

- **Impact** – To generate impact through advancement of sustainable solutions that demonstrate positive societal impact for Ireland, and inform national and European policy relating to the Green Transition and Digital Transformation.
- **Collaboration** – To enable collaboration between government departments, enterprise, the academic research community, and societal stakeholders to inform the scoping and validation of challenges relevant to our national recovery, resilience, and competitiveness.
- **Mobilisation** – To support the mobilisation of transdisciplinary teams², comprising academic researchers and societal stakeholders, to advance development of solutions to challenges identified.

The National Challenge Fund comprises eight challenge calls across the areas of Green Transition and Digital Transformation. Table 1 provides a high-level overview of the eight challenges. Please refer to the cover sheet in each document for details on the scope of the thematic areas, dates and specific funding available.

¹ https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

² For the purposes of this document, transdisciplinary refers to teams that may include collaboration between researchers from different academic disciplines (STEM, AHSS, etc) but also other stakeholders with the objective of addressing societal challenges or problems.

Challenge	Description	Launch Date
2050 Challenge	To develop transformative, forward-looking solutions for Ireland to become climate neutral and resilient by 2050	August 2022
Future Digital Challenge	To realise transformational societal and economic impact from disruptive digital technologies	August 2022
A Healthy Environment for All Challenge	To restore and maintain clean air, water and soil for humans, animals and plants.	Q4 2022
Digital for Resilience Challenge	To gain deeper insights and better understanding of the origins and potential impacts of future environmental, social or economic shock events	Q4 2022
Energy Innovation Challenge	To accelerate Ireland's transition to a clean and secure energy system	Q4 2022
OurTech Challenge	To strengthen the connections between people, their communities and with government	Q4 2022
Sustainable Communities Challenge	To create sustainable, inclusive and productive ways of living in balance with nature, the environment and our planet	Q2 2023
Future Food Systems Challenge	To ensure sustainable, productive and resilient food systems	Q2 2023

2 Shaping Our Future

SFI's strategy, *Shaping Our Future*,³ has been developed to unlock the potential of Irish research to meet current challenges, seize future opportunities and support the government's priorities. A key focus will be to deliver tangible benefits for society and SFI will build strategic, national and international partnerships to drive economic impact and to address societal challenges.

3 Impact 2030

Ireland's Research and Innovation Strategy, *Impact 2030*,⁴ sets out a whole-of-government strategy putting research and innovation (R&I) at the heart of addressing Ireland's social, economic and environmental challenges. The National Challenge Fund is a key action in Impact 2030 aimed at bringing about a step-change in Ireland's challenge-based R&I activity and approach. In the scoping of National Challenge Fund calls, SFI has engaged with key Government stakeholders in order to ensure

³ <https://www.sfi.ie/strategy/>

⁴ <https://www.gov.ie/en/publication/27c78-impact-2030-irelands-new-research-and-innovation-strategy/>

alignment with national priorities, and where relevant, to provide access for researchers to stakeholders in government departments and public sector organisations.

4 Creating Our Future

The Government of Ireland *Creating our Future* campaign reached out to all corners of society to gather ideas about what researchers in Ireland should explore in order to create a better future for everyone. An independent expert committee reviewed the submissions and identified sixteen thematic areas where research and innovation might have a role to play in bringing about change. Examples of such areas included a focus on the creation of a more inclusive society, safeguarding of public interest and trust in a digital world, embedding climate action, future-proofing energy and water systems, and supporting innovation in farming and food. The campaign illustrated the potential power of engaging people and communities throughout Ireland in the framing of research questions, as well as the need for greater connectivity and collaboration across research disciplines. The National Challenge Fund is an opportunity for researchers and diverse stakeholders to work together to address issues highlighted by the Irish public. The database of ideas and campaign reports are available online.⁵

5 EU Missions

As part of Horizon Europe, the EU Missions⁶ are an ambitious set of programmes designed to realise solutions to some of the greatest challenges faced by society. They are intended to support Europe's transformation to a greener, healthier, more inclusive, and resilient continent, and will engage Europeans in their design, implementation and monitoring. This approach to supporting research and innovation aligns strongly with challenge funding and, in particular, resonates with the principles employed in the National Challenge Fund, including: solution focus; supporting new forms of collaboration; and fostering engagement with societal stakeholders.

⁵<https://creatingourfuture.ie/>

⁶https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en

PROGRAMME STRUCTURE

6 Challenge Funding

Challenge funding is a solution-focused approach to direct research activities at specific, often complex, challenges or problems. SFI's approach to challenge funding places strong emphasis on the following principles:

- (i) **Transdisciplinarity and teamwork**, reflecting the need to bring together experts and innovators from different disciplines to address complex challenges.
- (ii) **Engagement & Validation** with stakeholders, beneficiaries and end-users of research to understand the nature of specific problems, to test assumptions and to co-create solutions.
- (iii) **Acceleration** through agile and efficient research activities that enable rapid testing, refinement and progression of ideas toward tangible impact.

Challenge funding represents an approach to *engaged research*, which recognises that to address complex societal challenges, stakeholders, beneficiaries and end-users should be involved in the co-creation of research activities and should inform the expected outputs and outcomes to ensure that they are meaningful and relevant. Teams are also encouraged to explore how the broader public can be engaged, for example, through dissemination of findings, consultation or participation in research activities (e.g., citizen science).

7 Programme Phases and Budget

Challenges under the National Challenge Fund will comprise four phases: **Concept, Seed, Grow and Prize Award** (expected innovation activities in each phase are detailed in subsequent sections). Table 1 outlines the duration and funding that can be requested as part of each phase. The award sizes and numbers of teams that progress between phases may differ depending on the specific challenge call.

Table 1. Overview of phases under National Challenge Fund calls. (*Note: Prize award amount may differ by challenge call).

Phase	Duration	Funding
Concept	6 Months	Up to €50k
Seed	12 Months	Up to €200k
Grow	12 Months	Up to €500k
Prize	24 Months	Up to €1M or €2M*

Applicants to the programme can request up to €250,000 in total direct costs over a duration of 18-months (Concept and Seed Phases). Up to €50,000 can be allocated for use during the Concept Phase of the programme (Months 1 – 6) while the remaining €200,000 can be allocated to the Seed Phase (Months 7 – 18).

At the conclusion of the Concept Phase, *all teams* that are deemed competitive and whose project demonstrates high impact potential may progress to the Seed Phase. Following the Seed Phase, a number of teams will progress to the Grow Phase as finalists, where they will receive up to €500k, and will ultimately compete for the overall Prize award of up to €2M.

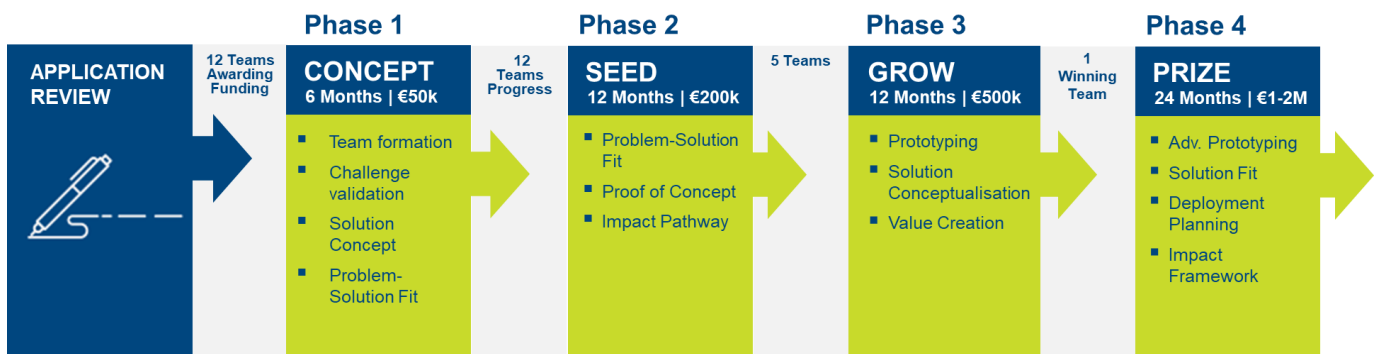


Figure 1. Example of phased structure of a challenge programme under the National Challenge Fund. Innovation activities associated with each phase are also shown. (Numbers of teams and award sizes are indicative and may differ depending on the specific challenge call and outcome of the review process).

Figure 1 outlines the phased structure of the programme. At the conclusion of each phase, teams will be subject to review by a panel of international experts drawn from a range of sectors such as academia, policymaking, impact and investment. This panel will assess the progress of the team and the likelihood of success and make a recommendation as to whether the team should progress to the next phase of the programme. This review process and the review criteria are described in detail in Section 14.

Concept Phase (6 months)

The Concept Phase is intended to support the formation of teams and to assist them in developing a deeper understanding of the challenge/problem they propose to address and to explore the feasibility and viability of a solution concept. The programme is designed to support researchers to reassess their assumptions about an identified challenge/problem through stakeholder engagement⁷ and as such,

⁷ Teams are encouraged to engage and consult with stakeholders across all relevant sectors of society. Please note that if collaborative research activity is undertaken with an industry partner, this must be compliant with the conditions of “effective collaboration”. Please refer to Section 9 for more information.

the Prize Award Phase. During this phase, advanced prototyping can be undertaken and based on this, and activities in previous phases, the winning team will be positioned to deploy and put in place a means of assessing the impact of their solution to the identified challenge.

Skills Development & Mentoring

A core feature of SFI's approach to challenge funding has been a focus on skills development for teams in areas such as innovation, and in particular, human-centric innovation processes such as, for example, design thinking. This arises from the focus of challenges on accelerating the development of solutions for and with stakeholders. Hence, it is important that the experiences and needs of stakeholders are understood, reflected and inform solutions developed. Research teams will participate in a bespoke skills development programme, comprising in-person cohort-based training workshops and online mentoring sessions. Training will be delivered to support the specific innovation activities associated with each phase. Mentoring will also be provided to teams giving them further opportunity to refine application of these techniques and gain key insights. Training will also be provided to teams in areas such as evidence-based entrepreneurship, impact and communications. Further details of these supports will be provided to teams successful in securing funding under the programme. It is expected that core team members participate in these workshops.⁸

Access to I-Corps@SFI

Teams supported under the National Challenge Fund may also have an opportunity to participate in the I-Corps@SFI Academy⁹ and the NSF Innovation Corps (NSF I-Corps) through the I-Corps@SFI Partnership.¹⁰ While this will be particularly beneficial for teams that have identified commercialisation as a route to impact, it may also be useful for teams seeking to further validate aspects of how they will address a challenge. Access to these programmes will likely be provided after the initial Concept Phase. Further details of these opportunities will be available to teams participating in the programme.

In addition to the supports outlined above, teams will have regular progress update meetings with SFI Challenge Research Managers during the course of a programme. These updates will complement the activities undertaken during training and provide agile programme management that enables teams to progress with the pace and adaptability required under the programme.

⁸ Where a core team member is an industry partner, please refer to Section 9.

⁹ <https://www.sfi.ie/funding/funding-calls/i-corps@sfi-academy/>

¹⁰ <https://www.sfi.ie/funding/funding-calls/i-corps@sfi/>

PROGRAMME REQUIREMENTS

8 Programme Remit

The National Challenge Fund enables formation of transdisciplinary teams, involving expertise from across research disciplines as well as from outside of academia. While the remit of the programme requires that proposed solutions rely on or are directly informed by a STEM innovation and that teams include corresponding expertise,¹¹ it is strongly encouraged that teams also include expertise, relevant to, for example, the adoption and deployment of solutions, from non-STEM disciplines such as social sciences, economics, behavioural science and others. It is also noted that the programme is intended to support pre-commercial research activities only.

There are a number of important additional remit conditions stipulated under the National Challenge Fund, that applicants must consider as part of their application.

Green and Digital alignment – Challenge calls are aligned with either the Green Transition or Digital Transformation, in line with the objectives of the EU Recovery and Resilience Facility,¹ and corresponding funding will be ‘tagged’ accordingly. Therefore, for the purposes of the National Challenge Fund:

- Projects supported under **Green Transition** calls must represent research and innovation that focuses on the low carbon economy, resilience and adaptation to climate change.¹²
- Projects supported under **Digital Transformation** calls must represent digital-related research and innovation.¹³

Excluded Areas of R&I – It is highlighted that research and innovation directly related to the further use of fossil fuels, including downstream use (i.e., related to coal, lignite, oil/petroleum, blue and grey hydrogen, and natural gas), as well as research related to incinerators or landfills is *excluded* from support under the National Challenge Fund.¹⁴

¹¹ In alignment with the legal remit of SFI

¹² Tag 022: Research and innovation processes, technology transfer and cooperation between enterprises focusing on the low carbon economy, resilience and adaptation to climate change (Annex VI of [RRF Regulation](#))

¹³ Tag 009bis: Investment in digital-related R&I activities (including excellence research centres, industrial research, experimental development, feasibility studies, acquisition of fixed or intangible assets for digital related R&I activities) (Annex VII of [RRF Regulation](#))

¹⁴ Commission Notice Technical guidance on the application of Do No Significant Harm Principle <https://op.europa.eu/en/publication-detail/-/publication/5dce0e53-718b-11eb-9ac9-01aa75ed71a1/language-en>



their stage of development. It is recognised that projects may be at early stages of development (i.e., up to TRL 4²⁵), in which case a simplified assessment of compliance may be appropriate. All assessments should be based on the latest scientific evidence.

An assessment of the expected compliance with each of the environmental objectives has been performed for each call under the National Challenge Fund (see supporting documentation for the relevant Challenge Call). Applicants to calls are required to complete a similar assessment as part of their application to outline how the proposed outputs are compliant with the principle of DNSH. Updated DNSH self-assessments will be submitted at each stage of the programme. Reviewers will receive these assessments as part of the proposal documentation and will be required to confirm that sufficient information has been provided in the self-assessment to demonstrate compliance. Applicants or awardees may be required to provide additional information to SFI upon request.

Additional guidance is provided in the template available on the SFI website, which must be completed and uploaded as part of an application. It is noted that this must be completed for all submissions to the National Challenge Fund, regardless of whether the call is aligned to the Green Transition or Digital Transformation.

²⁵ https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

HOW TO APPLY

13 Application Procedure

Applications to calls under the National Challenge Fund must be submitted through SESAME, SFI's online grants and awards management system in advance of the application deadline. Full details of this application procedure can be found in the documentation pertaining to the relevant challenge call available for download from SFI/National Challenge Fund webpage.

Applying through SESAME involves completion of an online form with details including team members, alignment to remit and challenge thematic area and requested budget. In addition, applicants will be required to upload information in PDF documents. Applicants must use the templates provided on the call website. Applications to challenge calls under the National Challenge Fund comprise a number of sections detailed below.

13.1 Resubmission Statement

Any submission relating to a previously unsuccessful application to any SFI programme, should provide a statement referencing the previous application and explaining the differences between the previous and current application. This statement must be provided as part of the SESAME application and must make reference to reviewer comments where relevant. This statement will assist SFI Scientific Staff in the assessment of the eligibility of a revised application and will not be shared with reviewers. See SFI's Resubmission policy for further details.²⁹

13.2 Alignment to Programme Remit

This section must be used to outline how the proposed research aligns to the Programme Remit as described in Section 8. Applicants are advised to review this section carefully. This statement will be used to determine the eligibility of the application.

13.3 Idea

This section of the application allows you to provide summary information on the idea you are proposing. As part of this section, you should provide a clear and concise summary of your idea. Ensure that you clearly describe the challenge you have identified and your proposed solution. Describe what is visionary about the challenge and what is unconventional about your approach, why you expect it to succeed and how it will deliver impact.

²⁹ <http://www.sfi.ie/funding/sfi-policies-and-guidance/eligibility-related-information/>

13.4 Team, Challenge, Solution & Societal Impact

This section provides you with the opportunity to provide more detailed information on the team, societal challenge, proposed solution and the potential societal impact that your solution will deliver. Please use the application form template available from the challenge website and ensure all fields are completed. The document must be converted to PDF and uploaded in SESAME as part of your application.

Your application form should provide information on four key areas:

- **Team:** Applicants should provide a clear description on how, through its composition, complementarity and formation, the team brings a unique perspective in addressing this problem. Applicants are strongly advised not to provide biographies of team members but rather to convey the team's ambition and its ability to deliver. This information about the team should be complemented by the curricula vitae submitted as part of the application. Applications may reference individuals outside the core team who are anticipated to play a future role as team members. In such cases, it is important to highlight the discipline and skill set that these individuals will bring to the team.
- **Challenge/Problem:** Applicants should describe clearly the specific challenge/problem that will be addressed, articulate their understanding of it and identify key issues or barriers in addressing this problem. This should include consideration of the specific context of this challenge for Ireland. As part of this description, it is strongly encouraged to include any insights from engaging with stakeholders/beneficiaries and how these validate the problem. Applicants may also include information on the wider European/international relevance of the proposed challenge/problem.
- **Solution:** Applicants should clearly describe the proposed solution.³⁰ This should include a description of how it is novel (either as a new concept or through, for example, the convergence of existing ideas) and how technological development enables this solution. Applicants should describe the current stage of technical development, the current state-of-the-art and how the proposed approach will overcome current barriers. Applicants should include consideration of ethical or regulatory issues where relevant. Evidence that the solution is feasible/viable and associated risks should be provided. Applicants may consider providing high-level milestones/deliverables.

³⁰ Note that a solution may comprise both technical and non-technical aspects which, when combined, address a problem.

- **Societal Impact:** Applicants should outline the societal (incl. economic) impact that their proposed solution can achieve in Ireland and more broadly. Applicants should also outline what outcomes the solution could deliver and what the expected timeframe might be.

13.5 Ethical and Scientific Issues

In preparing your application to the programme, please review the SFI guidance on ethical and scientific issues. As part of its Gender Strategy (Strand 3: Integrating Gender in Research and Innovation), SFI aims to increase awareness of the sex and gender dimension in research, by requesting that researchers demonstrate that they have considered any potential biological sex and/or socio-cultural gender aspects in their proposed research. A statement on this consideration should be included in the appropriate part of the application form.

13.6 Budget

This section should be used to describe the budget (direct costs) and resources you will need. At the application stage, budget requests are required for only the Concept and Seed Phases of the programme. Given the nature of the National Challenge Fund, it may not be possible to provide significant detail in relation to requirements for the Seed Phase; as such, the requested budget and resources for this phase may be indicative. It is recommended that you **maximise** the budget requested at each stage. In this section:

- Provide a breakdown of the indicative eligible direct costs (in €) associated with your application.
- Please review the SFI Grant Budget Policy³¹ for eligible costs and team member salary scales.
- Please include any subcontracting to be undertaken in the Materials & Consumables section.
- Please provide a high-level justification for your Concept Phase requests.

Teaching replacement costs (Technological Universities/Institutes of Technology)

Team Leads and Co-Leads based at Technological Universities (TUs) or Institutes of Technology (IoTs) are permitted to apply for teaching replacement of up to a maximum of 50% of their teaching load for the duration of each phase of the programme. Salary scales for replacement lecturers must be

³¹ <http://www.sfi.ie/funding/sfi-policies-and-guidance/budget-finance-related-policies/>



13.9 Authorisation

For an application to be accepted, it must be authorised for submission by the host research body of the lead applicant. It should be noted that Research Body submission of an application represents their approval of an application and agreement to SFI General Terms and Conditions.³² Submission may only be made by an authorised Research Body representative. In particular, the Research Body is approving:

- The eligibility of the applicants;
- That the applicants are, or will be upon receipt of the grant, recognised as employees of the Research Body for the duration of the grant;
- That the requested budget including salaries/stipends, equipment, travel and consumables are in line with accepted institutional guidelines;
- The availability of infrastructure within the institution as outlined by the applicant in the research proposal;
- That the proposed research programme has not been funded by other sources;
- That relevant ethical and regulatory approval has been or will be sought and must be granted prior to the award commencing;
- That the relevant licences will be in place at the time of award;
- That the details provided in relation to research funding history i.e., current, pending or expired grants, as detailed in the application, are valid and accurate;
- That permission from all team members and collaborators has been obtained, such that SFI may receive their personal information, and may process such data for the purpose of programme communications, organisation of training and peer review.

It is the responsibility of applicants to ensure that their Research Office has successfully submitted their proposal to SFI before the call deadline. After the submission deadline, applications will not be accepted by SESAME and will not be accepted by SFI. Please contact your Research Office well in advance of the call deadline.

³² <https://www.sfi.ie/funding/sfi-policies-and-guidance/sfi-general-terms-and-conditions/>

REVIEW PROCESS

14 Application and Progress Review Process and Criteria

The review process and criteria apply at the application review stage and also at the progress review stages at the end of the Concept, Seed and Grow Phases.

Following submission, applications/progress reports are checked for eligibility.³³ Teams that submit applications that are not deemed eligible under a challenge call of the National Challenge Fund programme or do not sufficiently align with the programme will be notified and their application will be withdrawn.

Following these checks, documentation (e.g., applications or progress reports) will then be assigned to a panel of international experts secured by SFI for review. The reviews for the Concept, Seed and Grow Phase Progress Reviews will also include an interview between the expert panel members and teams. At all stages, projects will be assessed based on the following criteria:

- **Quality, experience and ambition of the team** – Consideration will be given to the team's ambition, complementarity of expertise (transdisciplinary, where appropriate), appropriateness of its composition to address the proposed challenge, and the ability to deliver the proposed impact. Consideration will also be given to the quality, significance and relevance of the individual team members' track record and key achievements.
- **Understanding of the challenge/problem** – Consideration will be given to recognition and understanding of the significance of the problem identified. Stakeholder/beneficiary engagement undertaken in validation of the challenge/problem will also be taken into account.
- **Quality of the proposed solution** - Consideration will be given to the novelty of the technology being developed as well as its significance in enabling the proposed solution and value it creates. Note that novelty may arise through combination, convergence, application or repurposing of technologies in a new or unforeseen way.
- **Transformative societal impact potential of the solution** – Consideration will be given to the potential for the solution to create significant beneficial societal change or impact.

³³ Applications are checked for compliance with: non-technical mandatory criteria (e.g. all sections complete, page numbers not exceeded); technical mandatory criteria (e.g. any applicant eligibility requirements, alignment with the remit of the call); and any other requirements outlined in the call document.

Stakeholder/beneficiary engagement undertaken in validation of the solution will also be taken into account.

- **Feasibility of execution within the budget and timeframe permitted** – Consideration will be given to the feasibility of delivering the project within the budget and timeframe of relevant phases and the likelihood that this can lead to successful delivery of the solution during the Prize Award Phase.

San Francisco Declaration on Research Assessment (DORA)

SFI is a signatory of the San Francisco Declaration on Research Assessment (DORA) and is aligning its review and evaluation processes with DORA principles. In this regard, all types of research output are recognised in the assessment of research quality and impact. In the spirit of supporting open research and as a signatory of Plan S, SFI will also consider a commitment to making data and other types of research, open and accessible.

As part of challenge calls under the National Challenge Fund, all review criteria will be evaluated considering the context-specific nature of the proposed challenge/solution. Only projects deemed to be of both excellent scientific/engineering/technical quality and demonstrating strong impact potential will be recommended for funding or to progress by a panel. Teams that are not funded or do not progress between award stages will be notified by SFI.

Indicative numbers of teams that will be supported or that will progress between phases of the programme are provided in the call document. However, based on the recommendations provided by expert review panels and available budget, SFI reserves the right to fund more or fewer teams than indicated. It is further noted that SFI reserves the right not to grant the Prize Award(s).

The identity of international experts who conduct desk-based reviews shall remain confidential and will not be disclosed to applicants. However, in the case of interview-based review processes, SFI may at their discretion disclose the identities of those panel members in advance of the panel meeting. SFI shall not be liable for the release of information concerning proposals to third parties by those international peer reviewers involved in the review process.

Reviewers engaged by SFI are required to abide by the SFI Reviewer Code of Conduct.³⁴ The submission of an application to SFI shall be construed as consent by the applicant(s) to participate in the peer-review process. SFI reserves the right to return applications without review where they do not meet the eligibility criteria.

SFI reserves the right to modify the review process. Applicants will be notified of any relevant modification to the review procedure. The final funding decisions are at the sole and exclusive discretion of SFI.

POST-AWARD MANAGEMENT AND PROGRESS REVIEW

15 Data Management Plans

Good data governance and stewardship are key components of good research practice. While data Management Plans are not required to be submitted at the application stage of this programme, teams are encouraged to consider data management at an early stage in their project. At the end of the Grow Phase, as part of the Grow Phase Progress Report, teams will be required to provide a short (2 page) Data Management Plan (DMP). In preparing this plan, consideration should be given to [SFI's Guidance on Data Management Plans](#).³⁵ A DMP is a living document which details the procedures for careful handling of data and other research outputs. A DMP follows the data through the lifecycle of the programme of research,³⁶ from collection to analysis and interpretation, sharing and dissemination, and long-term storage.

Data Management Plan Requirements

DMPs will be evaluated by reviewers to ensure that they contain sufficient information on practices and standards as guided below. Although practices and standards vary across disciplines, SFI recommends the use of [Science Europe DMP templates and guidelines](#).³⁷ Each DMP should include the following as appropriate to the programme or project³⁸:

³⁴ <http://www.sfi.ie/funding/sfi-policies-and-guidance/review/>

³⁵ <https://www.sfi.ie/funding/sfi-policies-and-guidance/open-research/SFI-DMP-Guidance-FINAL-140322.pdf>

³⁶ SFI-funded research programmes, as described in call documents, can range from a single research project to a collection of research projects encompassed in several work packages. The data management plan should reflect the relevant standards for individual research projects while describing a cohesive approach to managing data across the overall programme of research as appropriate.

³⁷ <https://www.scienceeurope.org/our-priorities/research-data/research-data-management/>

³⁸ Based primarily on guidance provided by Science Europe: <https://www.scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management/> and supplemented by guidance from the European Research Council of the European Commission: https://erc.europa.eu/sites/default/files/document/file/ERC_info_document-Open_Research_Data_and_Data_Management_Plans.pdf



1. Data description and collection or re-use of existing data
2. Documentation and data quality
3. Storage and backup during the research process
4. Legal and ethical requirements, codes of conduct
5. Data sharing and long-term preservation
6. Data management responsibilities and resources including institutional or project-specific resources dedicated to managing data and ensuring adherence with the [FAIR](#) principles (Findable, Accessible, Interoperable, Re-usable).

16 Progress Review

Review of progress at the end of the Concept, Seed and Grow Phases will be undertaken by panels of international experts. This process will involve the completion and submission of a progress report to SFI and an interview with the review panel. The panel will review progress and future plans and make a recommendation to SFI as to whether the team should progress to the subsequent phase of the programme. Guidance on progress reports will be provided to applicants at the start of each phase.

SFI POLICIES AND POSITIONS

In addition to complying with the General Terms & Conditions, applicants are expected to be familiar and consult with SFI policies/positions and with all relevant national policies when preparing their application to any SFI programme. All members involved in the funded research should be apprised of the following non-exhaustive list of relevant policies, which may be revised from time to time:

Clinical Trials

Research programmes that include clinical trials as part of the study must adhere to the **SFI Clinical Trial and Clinical Investigation Policy**,³⁹ as well as with the requirements set out by the Health Products Regulatory Authority (HPRA).

Animal Usage

Applicants intending to use animals in their research projects are obliged to comply with the **SFI Use of Animals in Research Policy**⁴⁰ and should also ensure that their studies are in line with the HRPAs position on the use of animals in research.

Research Integrity

SFI places paramount importance on ensuring that the highest standards of research integrity underpin all aspects of the research that it supports. To this end, SFI endorses the **National Policy Statement on Ensuring Research Integrity in Ireland**;⁴¹ that is, all institutions and SFI award holders are expected to abide by this policy statement and the **European Code of Conduct for Research Integrity**,⁴² in addition to their respective institutional policies and procedures for handling research misconduct allegations.

Doctoral Education

For postgraduate students funded by SFI, the host Research Body is expected to adopt the principles, standards and good practice for doctoral education as described in the **National Framework for Doctoral Education (2015)**,⁴³ which SFI has endorsed.

³⁹ <https://www.sfi.ie/funding/sfi-policies-and-guidance/ethical-and-scientific-issues/>

⁴⁰ http://www.sfi.ie/resources/SFI-Policy-on-the-Use-of-Animals-in-Research_June_2016.pdf

⁴¹ https://www.iua.ie/wp-content/uploads/2019/08/IUA_Research_Integrity_in_Ireland_Report_2019.pdf

⁴² <https://allea.org/code-of-conduct/>

⁴³ http://hea.ie/assets/uploads/2017/04/national_framework_for_doctoral_education_0.pdf

State aid

All SFI funding granted under this call will be subject to, and must be compliant with, State aid law. As such, proposals must be designed to ensure that any funding received from SFI does not, directly or indirectly, give rise to the granting of State aid. Applicants are referred to the guidance provided by the European Commission in Section 2 of its **2014 Framework for State aid for research and development and innovation (2014/C 198/01)**⁴⁹ and that which has been developed by Knowledge Transfer Ireland.⁵⁰ If in any doubt as to the interpretation or application of this guidance, potential applicants are advised to seek independent legal advice.

Child Protection

Where relevant, applicants and Research Bodies are required to comply with the provisions of the **Children First Act 2015**,⁵¹ and the **National Guidance for the Protection and Welfare of Children 2017**.⁵² It is the responsibility of the Research Body to ensure that they are compliant with all applicable law.

Data Protection Policy

The General Data Protection Regulation⁵³ is a legal framework that sets out guidelines for the collection and processing of personal information of individuals within the European Union. Applicants are advised that they must be compliant with this regulation if they collect or process personal data.

SFI may collect, use and disclose personal data provided in the application and/or otherwise obtained under, or in connection with, the application for processing the submission, for the performance of its statutory powers and functions, and for the general activities of SFI. Further details regarding SFI's collection, use and disclosure of personal data, and the rights of individuals with respect to any personal data held by SFI, are available in the **SFI Privacy Statement**.⁵⁴

⁴⁹ [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627(01)&from=EN)

⁵⁰ <https://www.knowledgetransferireland.com/Model-Agreements/Practical-Guides/Practical-Guide-to-State-Aid-Considerations-in-Research-Development-and-Innovation-for-RPOs-and-Industry.pdf>

⁵¹ <http://www.irishstatutebook.ie/eli/2015/act/36/enacted/en/pdf>

⁵² http://www.tusla.ie/uploads/content/Children_First_National_Guidance_2017.pdf

⁵³ <https://www.dataprotection.ie/docs/GDPR/1623.htm>

⁵⁴ <http://www.sfi.ie/privacy/>

During peer-review procedures, information may be sent to external experts in countries outside of the European Economic Area, including countries that are not recognised by the European Commission as having adequate data protection laws. By submitting an application to SFI, the Research Body and members of the Research Team are agreeing that they consent to the processing and transfer of personal information in this way.

During the application process or at any time thereafter, SFI may contact the Research Body, the Principal Investigator, or any member of the Research Team with regard to funding opportunities, activities or events organised by SFI or other relevant bodies, or for the purposes of monitoring and evaluation (including, but not limited to, the collection of scientific data or data relating to the application process). SFI may choose to authorise a third party to contact the Research Body, the Principal Investigator or any member of the Research Team on its behalf.

Conflict of Interest

SFI recognises that applicants may have a prior relationship with an industry partner engaged in an application for funding to SFI (e.g., industry consultancy role, founder of an academic spin-out company) which may be perceived as a conflict of interest. Where a potential conflict of interest exists, SFI requires that it is disclosed by the applicant to SFI and their Research Body and that any such situations are managed by the Research Body in accordance with the principles and mandates laid out in **Ireland's National IP Protocol 2019**.⁵⁵

Open access

In line with the principles espoused by Plan S⁵⁶ and those of the National Framework on the Transition to an Open Research Environment⁵⁷ SFI is committed to ensuring that all publicly funded research articles are openly available. Where a research publication arises in whole or in part from SFI funded research (i.e., where one or other of the researchers concerned receives SFI funds in support of their endeavours), **SFI's Open Access policy**⁵⁸ should be adhered to. SFI monitors compliance with this policy through scientific and financial reporting, financial audits and its Annual Stocktake of Research Outputs.

⁵⁵ <http://www.sfi.ie/funding/sfi-policies-and-guidance/national-policies-sfi-positions/>

⁵⁶ <https://www.coalition-s.org/principles-and-implementation/>

⁵⁷ <https://norf.ie>

⁵⁸ <https://www.sfi.ie/funding/sfi-policies-and-guidance/open-research/SFIs-Open-Access-Policy-V.3.-04.05.2021.pdf>



Data Management

Good data governance and stewardship are key components of good research practice. Science Foundation Ireland is part of an initiative for the voluntary international alignment of research data management policies.⁵⁹ Applicants may find it helpful to consult with this and Science Europe's framework for discipline-specific research data management if preparing a data management plan as part of their application for funding to SFI.⁶⁰ Applicants should review individual programme funding call requirements regarding data management plans and timelines as to when they are required to be submitted.

Current SFI policies and positions will be reviewed on a regular basis; applicants are advised to consult the policy information in advance of submission of a proposal.

⁵⁹ <https://www.scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management/>

⁶⁰ <https://www.scienceeurope.org/our-resources/guidance-document-presenting-a-framework-for-discipline-specific-research-data-management/>