

SCIENCE FOUNDATION IRELAND

Science Foundation Ireland - Defence Organisation

Innovation Challenge

2021 Call Application Handbook

KEY DATES

- | | |
|--------------------------------|--|
| • Call Launch | July 6, 2021 |
| • SESAME Open for Applications | July 30, 2021 |
| • Webinars | July 20 & August 10, 2021, 14:00 Dublin Local Time |
| • Open Day(s) | September, 2021 (Details TBC) |
| • Application Deadline | October 1, 2021, 13:00 Dublin Local Time |
| • Funding Decision | November, 2021 |
| • Award Start Date | January 1, 2022 |
| • Prize Award Start Date | January 1, 2023 |

Terms of Reference

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All responses to this Call for Submission of Proposals will be treated in confidence and no information contained therein will be communicated to any third party without the written permission of the applicant except insofar as is specifically required for the consideration and evaluation of the proposal or as may be required under law, including the Industrial Development (Science Foundation Ireland) Act, 2003, the Industrial Development (Science Foundation Ireland) (Amendment) Act 2013 and the Freedom of Information Acts 1997 and 2003.



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SFI-Defence Organisation Innovation Challenge Programme 2021

CHALLENGES

The SFI-Defence Organisation Innovation Challenge is the first collaboration between Science Foundation Ireland and the Defence Organisation (Dept. of Defence and Defence Forces). This is a pilot programme intended to support the Defence Organisation (DefOrg) to explore collaborative and capacity building opportunities with the Irish STEM research community. For this pilot, the DefOrg has nominated five challenge areas to focus engagement and to work with researchers to explore STEM-based solutions. Given the rapid rate of technology advancement, the DefOrg is interested in exploring solutions based on cutting-edge technologies including (but not limited to): Artificial Intelligence (incl. Machine Learning); Data Analytics; Robotics; Virtual, Augmented and Mixed Reality; Unmanned Aerial Vehicles (UAVs) and Advanced Communications. The solutions, and underlying technologies proposed, should be innovative and advance the state of the art. The SFI-Defence Organisation Innovation Challenge employs a phased funding programme under which finalists compete for an overall Prize Award of €1M.



Enhance the efficiency and effectiveness of the fire extinguishing capability of rotary-wing aircraft.

Develop and demonstrate the feasibility of a solution that significantly enhances the efficiency and effectiveness of the fire extinguishing capability of a rotary-wing aircraft.

Cyber-physical system to assist in, or potentially automate, manoeuvring of aircraft between a hangar and apron.

Develop a cyber-physical system that will assist, or potentially automate, the manoeuvre of aircraft between a hangar and apron.

Recovery of Rigid Hull Inflatable Boats (RHIBs) at sea.

Develop a system that enables safe retrieval of rigid hull inflatable boats (RHIBs) to the deck of a moving vessel while both vessels are at sea. Retrieval should be undertaken safely and with minimal human intervention.

Prevention and detection of water ingress to vessels.

Develop methods capable of preventing or detecting, in real-time, water ingress to vessels.

Reduce the environmental impact of Defence Forces aircraft, land vehicles and vessels.

Consider and develop a range of potential approaches that will assist in reducing the carbon footprint of Defence Forces aircraft, land vehicles and vessels.

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1 About the SFI-Defence Organisation Innovation Challenge

In September 2020, the Department of Defence and the Defence Forces (hereinafter referred to collectively as the *Defence Organisation or abbrev. DefOrg*) published a feasibility study which examined the establishment of a Research, Technology and Innovation (RTI) capability for the Defence Organisation¹. The study concluded that the establishment of such a capability is “*feasible and would deliver a range of benefits to the DefOrg and would contribute to national prosperity through an economic multiplier effect*”. Establishment of this capability is now part of the Department of Defence and Defence Forces Strategy Statement 2021 – 2023².

In support of efforts to establish this capability and the common objective to deliver positive impact for Irish society from research and innovation, SFI, the Department of Defence and Defence Forces have partnered to create the **SFI-Defence Organisation Innovation Challenge**. The innovation challenge is a pilot initiative which aims to incentivise and support academic researchers to develop technologies for utilisation and impact across the Defence Organisation that also have beneficial application and strong positive impact potential for Irish society. The programme will focus on supporting applied research toward development of innovative solutions based on new, or through the adaptation or convergence of existing, technologies that address current and future capability requirements of Defence Organisation operations and missions.

The SFI-Defence Organisation Innovation Challenge will follow the SFI Future Innovator Prize programme model and comprise three phases: Concept, Seed and Prize Award. Following application review, successful teams will initially be provided with access to funding of €20k to undertake team building, scoping and validation activities. At the conclusion of the Concept Phase, the progress of teams will be reviewed to determine those most competitive to progress to the Seed Phase. Teams that progress to the Seed Phase will be provided with access of up to €200k to further validate and prototype their proposed solutions. Finalists will compete for an overall prize award of €1M. Further details on the structure of the programme are provided in Section 8.

Participation in this programme will involve close collaboration with the Defence Forces. Applicants are strongly encouraged to attend the information workshops/webinars in advance of the application

¹ <https://www.gov.ie/en/publication/d8cab-feasibility-study-for-the-establishment-of-a-research-technology-innovation-rti-capability-for-the-defence-organisation/>

² <https://www.gov.ie/en/publication/114cb-department-of-defence-and-defence-forces-strategy-statement-2021-2023/>

deadline. Furthermore, teams successful in their application to the programme will have a subject matter expert within the Defence Forces assigned to their team as liaison.

2 SFI Strategy 2025 – *Shaping Our Future*

Science Foundation Ireland’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 priorities outlined in Ireland’s recent Programme for Government: Our Shared Future⁴. SFI’s strategy has two core ambitions: *Delivering Today* and *Preparing for Tomorrow*. As part of *Delivering Today*, a key focus will be to deliver tangible benefits that improve the lives of people in Ireland. SFI will build strategic, national and international partnerships to drive economic impact and to address societal challenges. The SFI Defence Organisation Innovation Challenge contributes to this effort.

3 State aid and SFI Grant funding

As per SFI’s Grant Conditions (inclusive of SFI’s General Terms & Conditions⁵, Letters of Offer and SFI Policy documents⁶), all SFI funding granted is subject to, and must be compliant with, State aid legislation based on Article 107(1) of the Treaty of the Functioning of the European Union (TFEU)⁷.

Namely, research activities undertaken as part of a Grant awarded under the SFI-Defence Organisation Innovation Challenge programme, and agreed to subject to SFI’s Grant Conditions, must be “non-economic” in nature and be designed to ensure that any funding received does not, directly or indirectly, give rise to the granting of State aid.

Where an application for funding involves an industry collaborator, recipients of Grant funding under the SFI-Defence Organisation Innovation Challenge programme are required to demonstrate compliance with the conditions of “effective collaboration” and the conditions relating to the allocation between the parties of the results and/or intellectual property rights arising from the collaboration as per the Framework for State aid for research, development and innovation (2014/C 198/01) (the “Framework”)⁸.

³ <https://www.sfi.ie/strategy/shaping-our-future/index.xml>

⁴ <https://www.gov.ie/en/publication/7e05d-programme-for-government-our-shared-future/>

⁵ <https://www.sfi.ie/funding/sfi-policies-and-guidance/sfi-general-terms-and-conditions/>

⁶ <https://www.sfi.ie/funding/sfi-policies-and-guidance/>

⁷ [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016XC0719\(05\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016XC0719(05)&from=EN)

⁸ [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627(01)&from=EN)

Where a proposed programme of research activities involves a collaboration with an industry party or “undertaking”⁹, for all or part of the term of the Grant, applicants must complete an “Industry Collaboration Form” (ICF). The ICF is to assist applicants in defining the relationship with the relevant industry partners in order to comply with the conditions of “effective collaboration”. SFI requires that the ICF is completed and returned to SFI on or before the date that the Collaborative Research (or Intellectual Property Rights) Agreement has been ‘agreed’ with, or signed by, the relevant partner(s).

Additional guidance on state aid and the ICF is available in the relevant section of the SFI website¹⁰.

4 Objectives of the SFI-Defence Organisation Innovation Challenge

The overarching ambition of the SFI-Defence Organisation Innovation Challenge is to develop new technologies aligned with national defence policy that also have potential to deliver significant societal impact in Ireland.

The specific objectives of the SFI-Defence Organisation Innovation Challenge are:

- To promote the development of new technologies that support missions and capabilities aligned with national defence policy;
- To accelerate the development and demonstration of technologies that have broad potential for utilisation and impact across the Defence Organisation with positive impact for Irish society;
- To raise awareness of the role that STEM research plays in addressing Defence Organisation capability requirements;
- To foster collaboration between the Defence Organisation, researchers and Research Performing Organisations (RPOs).

These objectives are underpinned by those of the SFI Future Innovator Prize which are:

- To support the development of novel, potentially disruptive, technologies to address significant national and global challenges;
- To support the formation of high-performance, interdisciplinary teams based on integration of diverse STEM disciplines and complementary skillsets;

⁹ The concept of an “undertaking” under EU competition rules is an entity that is engaged in an “economic activity” (offering a good or service on a market) regardless of its legal status or the way that it is financed.

¹⁰ <https://www.sfi.ie/funding/sfi-policies-and-guidance/state-aid/>

- To promote the convergence of knowledge, practice and methods from different disciplines and diverse sectors;
- To promote engagement between researchers and stakeholders/beneficiaries of research;
- To accelerate societal impact from publicly funded research.

Whilst the SFI-Defence Organisation Innovation Challenge is based on the Future Innovator Prize there are differences relating to application process and team composition.

5 What is Challenge-Based Funding?

Challenge-based funding (or challenge funding) is a solution-focused approach to research funding that uses a combination of grants, competition, incentive prizes and strict timelines to direct research activities at specific, often complex, problems. It focuses on finding the most innovative and impactful solutions using competitive processes to incentivize innovators. SFI's approach to challenge funding places strong emphasis on:

- **Interdisciplinarity and teamwork** – The complex nature of challenges requires experts from different disciplines to work effectively together. SFI's challenge funding programmes strongly encourage interdisciplinary teams to apply. As part of applications to this programme, teams should highlight interdisciplinarity and the advantage it gives them.
- **Engagement & Validation** – Engaging with stakeholders, beneficiaries and end-users of research in an area relevant to a challenge is critical to understanding and exploring the nature and boundaries of specific problems, in testing assumptions and developing new perspectives. It is also crucial as part of the validation process that solutions are co-created with these groups to ensure they address real needs.
- **Acceleration** – Working at pace requires both extensive engagement and efficient exploration and modification of ideas based on learnings. This approach is encouraged in challenge-based funding through the use of strict, often stage-gated or phased, timelines and competitive processes involving incentives such as prizes.

6 Challenges

Under the SFI-Defence Organisation Innovation Challenge, five challenge areas have been nominated to focus engagement with researchers to explore STEM-based solutions. Solutions proposed, and underlying technologies on which they are based, should be innovative and advance the state of the art. Applicants are encouraged to consider the use of a range of technologies including (but not limited to): Artificial Intelligence (incl. Machine Learning); Data Analytics; Robotics; Virtual, Augmented and

Mixed Reality; Unmanned Aerial Vehicles (UAVs) and Advanced Communications. The solutions, and underlying technologies proposed, should be innovative and advance the state of the art.

Challenge 1 - Enhance the efficiency and effectiveness of the fire extinguishing capability of rotary-wing aircraft.

Climate change has been a key factor in increasing the risk and intensity of wildfires globally. In April 2021, Killarney National Park suffered significant damage due to wildfires with an estimated 2,000 ha (approx. 4942 acres) burned. In Europe from 2000-2017, approx. 480,000 ha (1M acres) were burned every year (totalling over 8M ha). During this time, more than 600 firefighters and civilians lost their lives and the economic cost estimated at €3bn per year. In the United States in 2021, there have been 20,780 wildfires recorded up to May with over 221,000 ha (over 0.5M acres) burned, while in the 2019-2020 Australian bush fire season, a total of 18.6M ha (over 45M acres) is estimated to have burned. In addition to the immediate impacts which can include loss of life, damage to land, buildings and other infrastructure (e.g. electricity cables), wildfires also contribute to greenhouse gas emissions, air and water pollution, and impacts on wildlife.

In Ireland, the Irish Air Corps provides an aerial fire-fighting capability using rotary-wing aircraft (i.e., helicopters) equipped with underslung 'Bambi-Bucket' water carrying/drop devices. The ability of the Air Corps to fight fires is dependent on a number of factors including: weather conditions, visibility and proximity to a water source. Under this challenge, the Air Corps would like to explore development of a solution that can enhance its fire-fighting capability.

Under this challenge, applicants are invited to address the following:

- Develop and demonstrate the feasibility of a solution that significantly enhances the efficiency and effectiveness of the fire extinguishing capability of a rotary-wing aircraft. As part of this solution, applicants may wish to consider several aspects individually or in combination, including (but not limited to):
 - Environmentally safe flame-extinguishing solutions;
 - Suspension fire extinguishing system design;
 - Mission planning (including weather conditions);
 - Water targeting systems.

Solutions proposed must not compromise safety or involve modifications to aircraft.

Challenge 2 - Cyber-physical system to assist in, or potentially automate, manoeuvring of aircraft between a hangar and apron.

The Irish Air Corps operates a fleet of 26 aircraft (10 rotary wing, 16 fixed wing). Manoeuvring aircraft between the hangars and apron requires a person to operate a tow tractor/heli-lift, in addition to personnel to 'wing-walk', i.e., observe and ensure adequate clearance between the aircraft and hangar doors, obstacles and other aircraft. Impact damage is a significant issue that can cause an aircraft to be grounded until repairs can be undertaken. Therefore, the process of manoeuvring aircraft in this manner is manpower intensive and can result in technicians being distracted from performing technical inspections of aircraft in advance of their day's flying.

Under this challenge, applicants are invited to address the following:

- Develop a cyber-physical system that will assist, or potentially automate, the manoeuvre of aircraft between a hangar and apron.
- The system must be adaptable to different types of aircraft with minimal or no human intervention.
- The system must be capable of significantly reducing the time needed to manoeuvre an aircraft from hangar to apron without damage to the aircraft, hangar or apron infrastructure, while maintaining or increasing safety for personnel.

Solutions should not involve modification to aircraft or significant modification to hangar or apron infrastructure.

Challenge 3 – Recovery of Rigid Hull Inflatable Boats (RHIBs) at sea.

The Navy has a fleet of nine vessels. Currently, six of these ships use a Caley Davit launch and Recovery System with MST¹¹ RHIB used for small boat operations in the Irish Area of Operations. The current system uses a boat rope tensioned manually by one member of the RHIB recovery team. At present the existing system for launching and recovering MST RHIBs, on board P50 and P60 class warships involve the manual heaving and paying out of the boat rope. Although this method has served adequately and enabled the Irish Naval Service to deploy RHIBs, it poses an unnecessary risk to the safety of deck crew.

Under this challenge, applicants are invited to address the following:

¹¹ <https://www.mstltd.com/>

- Develop a system that enables safe retrieval of rigid hull inflatable boats (RHIBs) to the deck of a moving vessel while both vessels are at sea. Retrieval should be undertaken safely and with minimal human intervention.

Solutions proposed must not damage either vessel or surrounding equipment during operation, or reduce the safety of personnel involved. Adaptation or modification to vessels may be considered as part of a solution provided these adaptations subject to consultation with subject matter experts.

Challenge 4 - Prevention and detection of water ingress to vessels.

Despite the integral design and water-tight integrity of vessels (e.g., P50 and P60 class), water ingress can occur during some operations. Current measures mitigate against some of the effects of ingress such as humidity and temperature changes. Despite these measures, degradation of electronic and mechanical equipment can occur which gives rise to reduced performance and increased maintenance costs. Degradation of equipment in these types of scenarios is difficult to detect and manage. While several current approaches employ sensors with HVAC and vent systems, or in monitoring water-tight integrity, there is a need to develop more sophisticated methods of monitoring and predicting when issues will occur.

Under this challenge, applicants are invited to address one of the following:

- Develop methods capable of preventing or significantly reducing water ingress to vessels.
- Develop new approaches to detect and locate in real-time water ingress to vessels.
- Develop new technologies to reduce or eliminate the effects of corrosion on vessels.
- Develop methods to capture data, analyse trends and predict issues relating to equipment.

Solutions proposed must not compromise safety or involve significant modifications to vessels.

Challenge 5 - Reduce the environmental impact of Defence Forces aircraft, land vehicles and vessels.

The Defence Forces comprises the Irish Army, Naval Service and Air Corps. Across these branches there are 9 naval vessels, 26 aircraft and 1650 vehicles. Considerable efforts have been made over the previous decade to reduce consumption through measures which include technical intervention, changes to patrolling patterns and improved fleet management. Due to the operational outputs required of the Defence Forces, further reductions in consumption are limited and patterns will remain varied. It is therefore imperative that new technologies and fuels are considered which will further reduce the organisations carbon footprint.

As part of this challenge, researchers are invited to consider a range of potential approaches that will assist in reducing the carbon footprint of Defence Forces aircraft, land vehicles and vessels.

Under this challenge, applicants are invited to address one of the following:

- Investigate the applicability of novel technologies (including designs) to enhance efficiency and reduce carbon footprint including inter alia hydrogen technology, electricity, fuel cells.
- Identify and integrate sustainable bioenergy solutions that can reduce the carbon footprint of naval vessels, aircraft and heavy land vehicles.
- Optimise mission design, across all domains, with a view to minimise fuel consumption and carbon footprint.

6.1 Disruptive Ideas

Additionally, under the SFI-Defence Organisation Innovation Challenge, the DefOrg is keen to foster engagement with researchers who may have disruptive ideas that do not directly align to the challenge areas identified. In such cases, researchers are encouraged to consider a number of areas of interest to the DefOrg (see Appendix 1) and engage with DefOrg stakeholders to discuss potential applications.

7 Who Can Apply?

The SFI-Defence Organisation Innovation Challenge is intended to support interdisciplinary and collaborative STEM research teams. It is expected that teams will encompass a range of technical (both scientific and engineering) and non-technical skills to address activities associated with problem understanding and solution development.

Applications to the programme will be accepted from core (applicant) teams comprising two researchers who are either at established or postdoctoral (incl. Research Fellow) career stage based at an eligible research body¹².

As indicated in SFI's Gender Strategy¹³, SFI is committed to removing and mitigating any existing or perceived factors that may limit the participation of women in STEM careers. As such, women are strongly encouraged to apply to this programme.

Gender Strategy

SFI is committed to increasing the number of SFI grants held by female researchers, as described in its Gender Strategy (Strand 2: Gender Balance in Research Teams). Female candidates are strongly encouraged to apply

¹² <https://www.sfi.ie/funding/sfi-policies-and-guidance/eligibility-related-information/>

¹³ <https://www.sfi.ie/funding/sfi-policies-and-guidance/gender/>

to this funding call. Further details on SFI's data on application submission and success rates by gender can be found on the SFI website.

Applications to the SFI-Defence Organisation Innovation Challenge must identify a core applicant/leadership team comprising:

- **Team Lead** (Lead Applicant) - It is expected that the Team Lead will have responsibility for managing the activities of the team, will provide technical leadership and have overall responsibility for delivery of research programme objectives.
- **Team Co-Lead** (Co-lead Applicant) – The Co-Lead may be included in the team and will provide technical leadership as part of the research programme and should bring complementary technical/disciplinary expertise to that of the Team Lead. This may be in an area of STEM or in relevant areas related to international development or sustainability. This team member must be based in a SFI eligible research body¹⁴ and will be designated Co-Applicant in the application.

Under the SFI-Defence Organisation Innovation Challenge, following successful application, a DefOrg Liaison will be assigned to work with the team lead and co-lead. The DefOrg Liaison is expected to be integral to the team and will work as part of the team to provide insights as well as organisational, operational or mission context to support the team in understanding and validating problems, and the development of a solution. It is anticipated that the DefOrg Liaison will, through their participation as a core team member, assist in establishing an innovation culture with the Defence Organisation and garner support and buy-in that will assist the team in planning for potential future deployment/demonstration.

Teams successful at application stage will have the opportunity to expand during the course of their award and be able to recruit additional researchers (e.g. at postgraduate or postdoctoral career stage) or collaborators (e.g., researchers, beneficiaries, end-users) if required. 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. Consideration should also be given to the broader challenge/solution context which may require input from experts in disciplines outside of STEM such as the arts, humanities and social sciences (AHSS).

¹⁴ <https://www.sfi.ie/funding/sfi-policies-and-guidance/eligibility-related-information/>

Given the nature of the SFI-Defence Organisation Innovation Challenge Programme and the important role industry can play in addressing societal challenges, the participation of industry (in particular, small and medium-sized enterprises), as part of the extended team may be appropriate. Please refer to Section 3 for guidance on State aid and SFI Grant Funding.

7.1 Applicant Team Composition & Eligibility

For the SFI-Defence Organisation Innovation Challenge, applications will be accepted where the Lead Applicant and Co-Applicant satisfy the following eligibility criteria.

Eligibility Criteria

- Be a **member of academic staff** of an eligible Research Body¹⁵ (permanent or with a contract that covers the period of the award),
or
- Be a **contract researcher** with a contract that covers the period of the award (contract may be subject to receipt of the award).
and
- Hold a PhD or equivalent. Please consult the SFI Policy on PhD Equivalence⁶ for further information. In certain cases, SFI will accept applications from teams where the Co-Applicant does not hold a PhD or equivalent. In such cases, pre-approval from SFI should be sought no later than one month in advance of the application deadline. Pre-approval requests should be sent by email to challenges@sfi.ie and provide strong rationale for the request.

NOTE: Members of the Core Team (Lead Applicant and Co-Applicant) are permitted to be named on only one application to the programme. Core Team members may not be named in the Core Team of applications to concurrent, open calls of the SFI Future Innovator Prize programme. They may, however, participate in an application through inclusion in the broader challenge team.

Unlike the standard SFI Future Innovator Prize, applications will not, on this occasion, be accepted where the lead applicant or co-applicant is a postgraduate researcher (e.g., MSc, MEng or PhD student).

¹⁵ <https://www.sfi.ie/funding/sfi-policies-and-guidance/eligibility-related-information/>

In cases where the Lead and/or Co-Lead is a postdoctoral researcher, the application must include a Letter of Support from an established researcher confirming they will act as a mentor to the Lead/Co-Lead for the duration of the award (see Section 10.6 for further details).

8 Programme Structure and Funding

The SFI-Defence Organisation Innovation Challenge comprises three phases: **Concept**, **Seed** and **Prize Award** (see Figure 1).

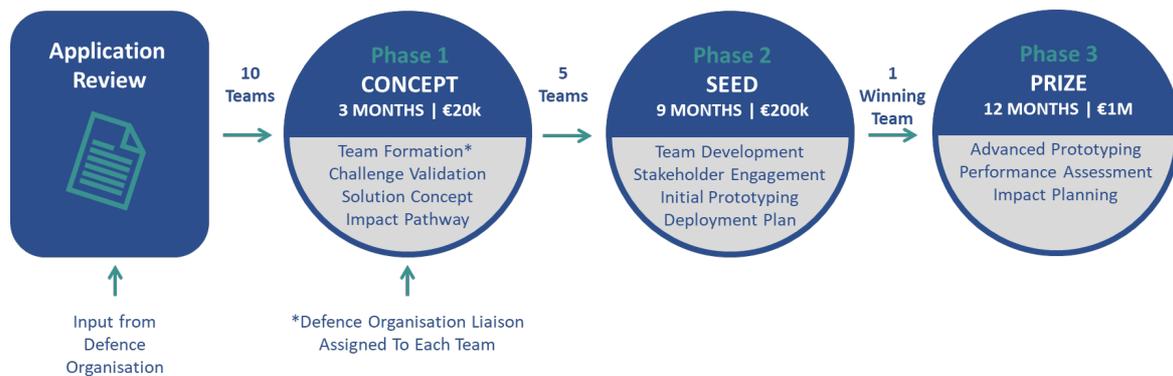


Figure 1. Phased structure of the SFI-Defence Organisation Innovation Challenge.

Applications to the programme can request up to €220,000 in total direct costs over a duration of 12-months. Up to €20,000 can be allocated for use during the Concept Phase of the programme (Months 1-3) while the remaining request of up to €200,000 can be allocated to the Seed Phase (Months 4 – 12). It is expected that up to ten¹⁶ teams will be funded through the programme and enter the Concept Phase. At the conclusion of the Concept Phase, up to five teams will progress to the Seed Phase as finalists. At the conclusion of the Seed Phase, one team will be awarded the €1M prize award.

Under this programme, teams successful at application stage will undertake significant engagement activities with subject matter experts from the Defence Forces during the Concept Phase. The Concept Phase will focus strongly on validating and scoping the challenge or idea selected by the team, as well as exploring problem-solution fit. This engagement process is expected to continue during the Seed Phase. This process will be facilitated throughout the award by the assignment of a DefOrg Liaison to work closely with the academic team.

¹⁶ SFI reserves the right to fund a greater or fewer number of teams at either phase depending on quality and budget availability.

8.1 Application

Applications to this programme should provide information on four key areas:

- expertise and experience of the core team relevant to the selected challenge (reference to other team members and their expertise may be included);
- challenge validation undertaken through engagement with subject matter experts in the Defence Organisation;
- description of the solution concept, and a justification as to why it is feasible;
- a description of the potential impact and societal benefit of solving the problem.

In this context, *challenge (or problem) validation* refers to a process whereby stakeholders, beneficiaries and end-users have been consulted in order to: identify/define a problem and establish its significance; and assess the potential impact were the problem to be solved.

Following submission, applications are checked for eligibility¹⁷. As part of these eligibility checks, input will be sought from the Defence Organisation on the alignment of applications to the Innovation Challenge programme. Teams that submit applications that are not deemed eligible under the programme or do not strongly align with the programme will be notified and their application withdrawn.

Following these checks, eligible applications are then assigned to a panel of international experts secured by SFI which reviews the applications based on the following criteria:

- **Quality, experience and ambition of the applicant team** – Consideration will be given to the team’s ambition, complementarity of expertise, the appropriateness of its composition for addressing the proposed challenge and that necessary partnerships/collaborations are in place 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 (in particular, generation and translation of knowledge, leadership, teamwork and collaboration, delivering societal or economic impact, and stakeholder engagement).
- **Significance of the challenge/problem** – Consideration will be given to recognition and articulation of understanding of the significance of the problem identified and any insights

¹⁷ 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 publication and prior funding requirements, alignment with the legal remit of SFI and alignment with Research Priority Areas, where required); and any other requirements outlined in the call document.

contributing to its formulation. Any stakeholder/beneficiary engagement undertaken in validation of the problem will also be taken into account.

- **Novelty of the proposed solution, including its potential to deliver disruptive innovation** – Consideration will be given to the innovation potential of the overall proposed solution, including the novelty of the technology, comprehension of the current state of the art, value for money, the sex and gender dimension etc. Note that novelty may arise through combination or convergence 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. Any 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 the Concept and Seed Phases and likelihood that this can lead to successful delivery of the solution during the Prize Award Phase.

As part of application review, key stakeholders from the Defence Organisation will provide input on each application for consideration by the panel of international experts. This input will be used to inform the recommendations of the application review panel.

Only applications deemed to be of both excellent scientific/engineering/technical quality and demonstrating strong impact potential will be recommended for funding by the panel. Applicant teams whose proposals do not proceed will be notified by SFI. Applicant teams that do not proceed at this stage will not receive feedback.

San Francisco Declaration of Research Assessment (DORA)

SFI is a signatory to the San Francisco Declaration of Research Assessment (DORA) and is aligning its review and evaluation processes with the 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.

The identity of international experts who conduct reviews shall remain confidential and will not be disclosed to applicants. 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.

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.

Ethics and Scientific Issues

In preparing your application to the programme, please review the SFI guidance on ethical and scientific issues. Applicants' attention is drawn specifically to SFI's Gender Strategy, indicating that they should fully consider potential biological sex and socio-cultural gender dimensions associated with challenge identification/definition and solution development.

Data Management Plan

Please note that successful applicants will be required to submit a Data Management Plan (see Section 15 for further guidance) along with a description of how they plan to disseminate their research and ensure that the outputs of this research programme are openly available. This must be submitted on or before the due date of the final report.

8.2 Concept Phase

The Concept Phase is intended to support teams to develop a deeper understanding of the challenge/problem they propose to address and to explore the feasibility and viability case for the solution concept presented in their application.

For this programme, teams will be assigned a DefOrg Liaison who will be a subject matter expert on the challenge/problem to be addressed. It is expected that the DefOrg Liaison will become an integral part of the team and play a key role during the Concept Phase providing technical input/insights as well as assisting teams to gain insight on procedural or organisational issues that may affect project development. The DefOrg Liaison will also assist teams in broader engagement with other DefOrg subject matter experts or site visits to observe facilities or equipment.

Teams will be expected to further validate the challenge/problem selected, provide detail on the proposed solution and its implementation, and describe an impact pathway for their solution. As part of the impact pathway, teams must describe technical and non-technical barriers to be overcome, the opportunity associated with addressing those barriers and how the solution will achieve impact.

During this process, the core team will have the opportunity to recruit additional team members with skills and knowledge to support the objectives of the proposal. It may be appropriate for a broader range of stakeholders and beneficiaries to be considered for inclusion as members of a team as it expands.

At the end of the Concept Phase, representatives from each team will be invited to pitch their concept to a panel of international experts drawn from a range of sectors including academia, industry, entrepreneurship and investment. This panel will assess the progress of each team and the likelihood of success and make recommendations as to what teams should progress to the Seed Phase of the programme. In preparation for the end of phase review, teams will be required to submit progress reports several weeks in advance.

The role of this panel will be to review team progress and select the most competitive teams to progress to the Seed Phase. It is expected that up to five teams will progress to the Seed Phase.

8.3 Seed Phase

The Seed Phase enables teams to undertake further stakeholder engagement and collaborative co-development of a prototype. The development of this prototype should be guided by the needs of stakeholders and beneficiaries and be informed by key measures of success identified through engagement with stakeholders and beneficiaries. During this prototyping process, the team should commence planning for further development and deployment of the solution. The programme is intended to support pre-commercial activities only, and as such development of existing products is not permitted. Notwithstanding this, as part of the Seed Phase it may be necessary for successful applicants to consider potential commercialisation routes as part of the project to fully scope solution deployment. In this context, teams should take into consideration the necessary requirements to facilitate this process and it is anticipated that the collective skill set of the challenge team will support such activity. The Seed Phase will culminate with teams pitching to an international prize panel who will assess progress made in developing the prototype and validation of the deployment plan. In preparation for the end of phase review, teams will be required to submit progress reports a number of weeks in advance.

Following assessment of the finalist teams in the Seed Phase, one team will be selected to receive the prize award to support further development of their solution.

8.4 Prize Award

The winning team will finalise and implement their plan for solution deployment with a view to translating the solution within two years of the end Prize Award Phase.

NOTE: SFI reserves the right not to grant the Prize Award(s) if the review panel does not identify a winning team. In addition, the final funding decisions are at the sole and exclusive discretion of SFI, which are arrived at following consideration and approval by the SFI Executive Committee and the SFI Grant Approval Committee. SFI reserves the right to modify the review process. Applicants will be notified of any relevant modification to the review procedure.

8.5 Skills Development

In addition to the provision of funding, SFI may organise training workshops during the Concept and Seed Phases to support team skills and knowledge development. The topics of these workshops are selected to complement team activities within the specific phases of the programme. Further details of these workshops will be provided to teams successful in securing funding under the programme. It is expected that core team members attend these workshops.

9 Application Procedure

Applications to this call of the SFI Future Innovator Prize must be submitted through SESAME, SFI's online grants and awards management system in advance of the application deadline indicated on the first page of this document. Full details of this application procedure can be found in the **SFI-Defence Organisation Innovation Challenge SESAME Guide** available for download from the SFI-Defence Organisation Innovation Challenge webpage.

Application through SESAME, involves completion of an online form with details on, for example, team members and requested budget. In addition, applicants will be required to complete application forms (MS-Word templates available on the challenge website) which are then uploaded to SESAME (in PDF format). The content of these templates is dependent on the application stream, so applicants are advised to select the appropriate form.

Applications to the SFI-Defence Organisation Innovation Challenge comprise several sections which are highlighted below:

9.1 Idea

This section of the application should provide a clear, concise summary of the idea. Applicants should ensure that they clearly describe what elements of the challenge/problem they intend to address and the proposed solution. Describe what is novel or unconventional about the approach, why applicants expect it to succeed and how it will deliver impact.

9.2 Pre-Application Defence Organisation Engagement

It is important that applicants engage with Defence Forces stakeholders in advance of application submission. This is to ensure that the ideas proposed in their application are relevant to the Defence Forces and have potential to deliver impact. Evidence that engagement has taken place must be provided as part of an application. Information about any engagement (i.e. name of stakeholder(s), when meetings/calls took place or how often) along with any key insights about the challenge or problem to be addressed should be provided.

Information webinars will be held for researchers to provide further context for the call. These webinars will be jointly hosted by SFI and the Defence Organisation. Furthermore, to facilitate researchers in gaining a greater understanding of challenges and operational context and requirements, it is anticipated that a number of open days may be arranged whereby researchers can visit Defence Forces installations to see equipment and speak with Defence Forces subject matter experts. Individual follow-on sessions with experts may also be arranged. Further details of these arrangements will be provided as part of call information webinars and on the programme call website.

9.3 Team, Challenge/Problem, Solution & Societal Impact

This section provides applicants with the opportunity to provide more detailed information on the team, problem, proposed solution and the societal impact that your solution will deliver. It is important to complete each section.

- **Team:** Briefly describe the applicant team. Describe how, through its composition and formation, the team brings a unique perspective and unfair advantage in addressing this problem. Applicants are advised not to use this section to provide biographies of team members rather it should convey the team's ambition and ability to deliver. This section should articulate why the team is competitive. The information provided in this section should be complemented by the curricula vitae submitted as part of the application.

- **Challenge/Problem:** Describe clearly the challenge/problem to be addressed and the team's understanding of it. Applicants should consider as part of this description, providing information on the importance/significance of the issue along with the opportunity for the Defence Organisation and Ireland in addressing it. How have the key insights from engaging with stakeholders/beneficiaries allowed applicants to validate the problem? Describe what are the key issues and how the team will overcome these? Has this problem national/international relevance?
- **Solution:** Describe clearly the solution proposed. Applicants should describe how the proposed solution is novel and/or unconventional? What is its current stage of technical development? What is the current state-of-the-art? How will the proposed approach (technical/non-technical) lead to disruptive innovation? How feasible/viable is the solution? What are the risks? As part of this description, applicants should consider providing a number of high-level milestones/deliverables (and achievement times).
- **Societal Impact:** Describe the societal impact the solution can achieve. What outcomes will the solution deliver for the Defence Organisation and when (provide an indication of key milestones, deliverables and timelines)? How will the solution have a beneficial impact on society? Can the impact of the solution be transformative?

Please download the application form from the challenge website. All fields should be completed, the document should be converted to PDF and then uploaded in SESAME as part of an application.

NOTE: In preparing your application to the programme, please review the SFI guidance on ethical and scientific issues. In particular, applicants should fully consider potential biological sex and socio-cultural gender dimensions associated with challenge identification/definition and solution development.

9.4 Budget

This section should be used to describe the budget (direct costs) and resources needed. Given the phased structure of the SFI-Defence Organisation Innovation Challenge programme, it will 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 should be indicative and be based on what is currently envisaged. It is recommended that applicants maximise the budget requested at each stage. In this section:

- Provide a breakdown of the indicative eligible direct costs (in €) associated with the application.

- Please review the SFI Grant Budget Policy¹⁸ for eligible costs and team member salary scales.
- Please include any subcontracting to be undertaken in the Materials & Consumables section.

As part of this section, please also provide a high-level justification for Concept Phase requests. In addition to direct costs, SFI also makes an indirect or overhead contribution to the host research body, which is reflected as a percentage (30%) of the direct costs (excluding equipment). Overheads are payable as a contribution to the Research Body for the indirect costs of hosting SFI-funded research programmes and are intended to enable the research body to develop internationally competitive research infrastructure and support services.

NOTE: Please refer to SFI's Grant Budget Policy and team member salary scales for further information.

9.5 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 Conditions¹⁹. 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.

¹⁸ <http://www.sfi.ie/funding/sfi-policies-and-guidance/budget-finance-related-policies/>

¹⁹ <https://www.sfi.ie/funding/sfi-policies-and-guidance/sfi-general-terms-and-conditions/>

- 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 peer review.

9.6 Curricula Vitae

Please upload curricula vita for each of the core applicant team members (i.e. Lead and Co-Lead) using the template available on the challenge website. The CV not only provides an opportunity to give information about education, employment record and research outputs where relevant, but also allows applicants to identify up to five key achievements in research and impact. The current template allows for the provision of additional information such as periods of leave from research if relevant.

Please note that reference to metrics such as journal impact factor, h-index and total number of publications are not permitted.

Failure to use this template or deviating from the instructions in the template may result in an application being deemed ineligible.

9.7 Letters of Support

As part of an application to the prize, several Letters of Support must be provided. These include:

- A Letter of Support from the **Host Research Body of the Lead and Co-Lead applicants** which should comment on the significance of the proposal and related infrastructure and services available to the applicant. In addition, in cases where team members will be transferring from another active SFI research grant, an outline of the management plan (i.e., a description of how the individual will be replaced on the original award) to assure how these awards progress satisfactorily should be provided. Note also the Host Research Body Letter of Support should contain a description of the institutional policy regarding management of conflicts of interest.
- In cases where one applicant is an established researcher and the other is a postdoctoral researcher, the application must include a Letter of Support from the established researcher endorsing the postdoctoral researcher. This Letter of Support must confirm that the established researcher has agreed to act as mentor for the duration of the award. In cases where the established researcher is not the current mentor/supervisor, the Letter of Support must outline how this situation will be managed and must be countersigned by the current mentor/supervisor of the postdoctoral researcher. The Letter of Support must include details

of the postdoctoral researcher's current role and funding arrangements including remuneration level. The grant identification code and grant title under which the postdoctoral researcher is currently funded should also be provided.

- In cases where both applicants (i.e. Team Lead and Co-Lead) are postdoctoral researchers, a Letter of Support must be provided for each researcher from an established researcher from their Host Research Body endorsing the application. Each Letter of Support must confirm that the established researcher has agreed to act as mentor for the duration of the award. In cases where the established researcher is not the current mentor/supervisor, the Letter of Support must outline how this situation will be managed and must be countersigned by the current mentor/supervisor of the postdoctoral researcher. The Letter of Support must include details of the postdoctoral researcher's current role and funding arrangements including remuneration level. The grant identification code and grant title under which the postdoctoral researcher is currently funded should also be provided.

Members of the applicant team may be located at different eligible research bodies. In this case, funding awarded under the prize programme will be administered through the Research Body of the Lead Applicant.

NOTE: No additional Letters of Support may be included at the application stage. Any additional/unsolicited Letters of Support will be removed from an application.

10 Intellectual Property

Intellectual Property (IP) management practices will be in accordance with national guidelines. In particular, the management of IP arising out of the SFI-Defence Organisation Innovation Challenge Programme must comply with the practices and procedures described in the national IP protocol document Ireland's National IP Protocol 2019²⁰. Applicants are also encouraged to review the Department of Defence and the Defence Forces Intellectual Property Policy²¹.

The arrangements related to the management of IP arising from the SFI-Defence Organisation Innovation Challenge Programme are the responsibility of the Research Bodies and shall reflect the

²⁰ <https://www.knowledgetransferireland.com/Reports-Publications/Ireland-s-National-IP-Protocol-2019-.pdf>

²¹ <https://www.gov.ie/pdf/?file=https://assets.gov.ie/138814/db9632ec-44cd-45d1-afdf-aac284d4a5ba.pdf#page=null>

collaborative nature of the project, the level of commitment of partners and compliance with State aid regulations.

11 Review Process

The SFI-Defence Organisation Innovation Challenge programme involves three stages of review: Application, Concept and Seed/Prize. Panel members secured by SFI are internationally-based experts in their respective fields and may be drawn from a range of backgrounds relevant to a challenge programme or area including: academia, industry, investment and civil society.

Application Review

Application review is undertaken by a sitting panel of international experts secured by SFI. In advance of the panel meeting, all applications are made available to the panel members for review. In addition, each application is assigned to at least two members of the panel who act as lead reviewers at the panel meeting. All panel members submit scores, against the criteria above, for each application in advance of the panel meeting. At the panel meeting, the lead discussants introduce each of the applications to the panel for discussion by the panel. Following discussion, the panel may rescore each application. Having reviewed all applications, the panel then ranks the applications based on order of priority of funding and makes a funding recommendation to SFI.

Following submission of applications, the average time to award notification under this programme is approximately one month.

Concept Phase Review

Teams successful in their application to the programme undertake challenge and solution validation activities over the 3-month course of the Concept Phase. A number of weeks in advance of the conclusion of the Concept Phase, teams must submit a progress report and participate in an interview-based review by a sitting panel of international experts (Concept Phase Review Panel). The purpose of this panel is to review the progress/performance of the teams over the course of the Concept Phase and recommend those teams that should progress to the Seed Phase.

Prior to the interview-based review, teams submit a progress report. These reports along with the original application and any feedback provided by the application review panel are made available to the panel for review. Each team report is assigned to at least two members of the panel who act as lead reviewers at the panel meeting. All panel members submit scores, against the criteria above, for each report in advance of the panel meeting. At the panel meeting, the lead discussants introduce

each of the reports to the panel in advance of the interview. Following the presentation from the team and Q&A session with the panel, each panel member may rescore the team based on its review of the report, presentation and responses provided during the Q&A session. Having interviewed all teams, the panel then ranks teams in order of priority of progression and makes a recommendation to SFI.

NOTE: SFI may invite some members of the Application Review Panel to sit on the Concept Phase Review Panel to ensure that a robust evaluation of progress can be undertaken.

Seed Phase/Prize Panel Review

Toward the end of the Seed Phase of the programme, teams must submit a final progress report and participate in an interview-based review by a sitting panel of international experts (Seed Phase Review/Prize Panel). The purpose of this panel is to review the progress and performance of the teams over the course of the Seed Phase, evaluate their future plans, and recommend an overall prize winner.

Prior to the interview-based review, teams submit a progress report which is, along with the original application, concept phase report and any feedback provided by previous review panels, made available to the panel for review. Each team report and associated documentation is assigned to at least two members of the panel who act as lead reviewers at the panel meeting. All panel members submit scores, against the criteria above, for each report in advance of the panel meeting. At the panel meeting, the lead discussants introduce each of the reports to the panel in advance of the interview. Following the presentation from the team and Q&A session with the panel, each panel member may rescore the team based on its review of the report, presentation and responses provided during the Q&A session. Having interviewed all teams, the panel then recommends an overall prize winner to SFI. The panel may also, at its discretion, recommend runner-up prize winners.

NOTE: SFI may invite some members of the Application Review or Concept Phase Review Panels to sit on the Seed Phase/Prize Panel to ensure that a robust evaluation of progress can be undertaken.

12 Progress Review and Prize Award Management

Review of progress at the end of the Concept and Seed Phases will be undertaken by a sitting panel of international experts. This process will involve the completion and submission of a progress report to SFI and an interview with the sitting panel. The sitting 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.

Prior to completion of the Seed Phase, the remaining teams will submit a progress report to SFI, followed by a final presentation and interview with a prize panel. This panel will assess the potential societal and economic impact of the work undertaken to date, through the Concept and Seed Phases of the programme, and recommend an overall winning team that will receive the prize award.

13 Conflict of Interest

Experts engaged by SFI are required to abide by the SFI Reviewer Code of Conduct²². Amongst other requirements, this includes operation in a confidential, fair, independent and equitable manner. Experts are required to confirm, in advance of carrying out their review(s), that they will do so in a confidential manner. The identity of experts who conduct the postal reviews shall remain confidential and shall not be disclosed to the applicant. SFI shall not be liable for the release of information concerning proposals to third parties by those international experts involved in the peer-review process. Adherence to the SFI Reviewer Code of Conduct also requires experts to immediately identify and declare where a conflict of interest exists or arises; in such cases, alternative reviewers will be appointed. Reviewers must adhere to high standards of integrity during the peer-review process. They must not compromise the intellectual property integrity of the application and may not appropriate and use as their own, or disclose to any third party, ideas, concepts or data contained in the applications they review.

14 SFI's Policies and Positions

In addition to complying with SFI's Grant 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. The following is a non-exclusive list of relevant policies; it should be noted that these are reviewed and updated 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 Policy²³, as well as with the requirements set out by the Health Products Regulatory Authority (HPRA).

²² <http://www.sfi.ie/funding/sfi-policies-and-guidance/review/>

²³ <https://www.sfi.ie/funding/sfi-policies-and-guidance/ethical-and-scientific-issues/>

Animal Usage

Applicants intending to use animals in their research projects are obliged to comply with the **SFI Use of Animals in Research Policy**²⁴ 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**;²⁵ 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**.²⁶

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)**,²⁷ which SFI has endorsed.

Intellectual Property Management

Intellectual Property (IP) should be managed according to the policies set out in the Government publication: **Ireland's National IP Protocol 2019**.²⁸ The IP arrangements are the responsibility of the Research Body and shall reflect the collaborative nature of the project, the level of cash and in-kind commitment made by the Industry Partner and compliance with State Aid Regulations.

Gender Strategy

Research should fully consider potential biological sex and socio-cultural gender dimensions as key analytical and explanatory variables. As articulated in the SFI Gender Strategy (Strand 3: Integrating Gender in Research and Innovation),²⁹ applicants are advised to demonstrate that they have considered any potential sex/gender aspects in their proposed research programme.

²⁴ http://www.sfi.ie/resources/SFI-Policy-on-the-Use-of-Animals-in-Research_June_2016.pdf

²⁵ https://www.iua.ie/wp-content/uploads/2019/08/IUA_Research_Integrity_in_Ireland_Report_2019.pdf

²⁶ http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf

²⁷ http://hea.ie/assets/uploads/2017/04/national_framework_for_doctoral_education_0.pdf

²⁸ <http://www.sfi.ie/funding/sfi-policies-and-guidance/national-policies-sfi-positions/>

²⁹ <https://www.sfi.ie/funding/sfi-policies-and-guidance/gender/>

The strategy also sets out a target for 30% of SFI's portfolio of award holders to be female and for research teams to be composed of at least 40% of each gender by 2020. As such, applicants should consider how these targets can be achieved at all levels of the research team.

Maternity Supplement

SFI is committed to removing and mitigating any existing or perceived factors that may limit the participation of women in Science, Technology, Engineering and Mathematics (STEM) careers. SFI invites its award holders to apply for a supplemental discretionary allowance to support their SFI funded award when either an SFI Awardee or a team member, including PhD students funded on an SFI award takes a period of maternity or adoptive leave.³⁰

Appeals Process

This policy establishes procedures and responsibilities for the appeal of the declination of a proposal by SFI.³¹

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. Potential 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)**³² and that which has been developed by Knowledge Transfer Ireland.³³ 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**,³⁴ and the **National Guidance for the Protection and Welfare of Children 2017**.³⁵ It is the responsibility of the Research Body to ensure that they are compliant with all applicable law.

³⁰ <https://www.sfi.ie/funding/sfi-policies-and-guidance/gender/>

³¹ <http://www.sfi.ie/funding/sfi-policies-and-guidance/review/>

³² [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)

³³ <https://www.knowledgetransferireland.com/Model-Agreements/Practical-Guides/Practical-Guide-to-State-Aid-Considerations-in-Research-Development-and-Innovation-for-RPOs-and-Industry.pdf>

³⁴ <http://www.irishstatutebook.ie/eli/2015/act/36/enacted/en/pdf>

³⁵ http://www.tusla.ie/uploads/content/Children_First_National_Guidance_2017.pdf

Data Protection Policy

The General Data Protection Regulation³⁶ 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**.³⁷

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

³⁶ <https://www.dataprotection.ie/docs/GDPR/1623.htm>

³⁷ <http://www.sfi.ie/privacy/>

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**.³⁸

Open access

In line with the principles espoused by Plan S³⁹ and those of the National Framework on the Transition to an Open Research Environment⁴⁰ 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**⁴¹ should be adhered to. SFI monitors compliance with this policy through scientific and financial reporting, financial audits and its Annual Stocktake of Research Outputs.

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.⁴² 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.⁴³ 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.

15 SFI Resubmission Policy

Applications to any call that are based primarily on unsuccessful submissions (following peer review) to any SFI programme must demonstrate that the review comments resulting from the initial application have been considered in the preparation of the new submission. SFI will not review resubmissions that have not clearly considered the major comments or concerns resulting from the prior review and these proposals will be withdrawn without review. Please see SFI Policy on

³⁸ <http://www.sfi.ie/funding/sfi-policies-and-guidance/national-policies-sfi-positions/>

³⁹ <https://www.coalition-s.org/principles-and-implementation/>

⁴⁰ <http://norf-ireland.net/>

⁴¹ <https://www.sfi.ie/funding/sfi-policies-and-guidance/open-research/SFIs-Open-Access-Policy-2019.pdf>

⁴² <https://www.scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management/>

⁴³ <https://www.scienceeurope.org/our-resources/guidance-document-presenting-a-framework-for-discipline-specific-research-data-management/>

Resubmission of Grant Applications⁴⁴ for further information. Applicants to an SFI call for proposals must declare whether a new submission relates to a previously submitted application to any SFI scheme. If the application is a resubmission, a statement referencing the previous application and explaining the differences must be provided and making reference to reviewer comments where relevant. Please email this statement to challenges@sfi.ie prior to the deadline. This statement will assist SFI Scientific Staff in the assessment of eligibility of a revised application and will not be shared with reviewers.

16 Further Information

All information related to the SFI-Defence Organisation Innovation Challenge is available on the programme webpage:

<https://www.sfi.ie/funding/funding-calls/future-innovator-defence/>

For all additional queries please contact: challenges@sfi.ie

⁴⁴ <http://www.sfi.ie/funding/sfi-policies-and-guidance/eligibility-related-information/>

Appendix 1.

Disruptive Ideas.

Under the SFI-Defence Organisation Innovation Fund, the DefOrg is keen to foster engagement with researchers who may have ideas that do not align directly to the challenge areas identified. In such cases, researchers are encouraged to consider a number of technology areas of interest to the DefOrg and through engagement with DefOrg stakeholders submit proposals for disruptive/radical technology to address challenges in these areas.

The areas of interest under this call are:

- **Information and Communications Technologies (ICT)** including:
 - Wireless Communications.
 - Artificial Intelligence (incl. Machine Learning).
 - Virtualisation and Simulation (incl. Cyber-physical systems).
 - Cybersecurity.
- **Peacekeeping** including:
 - Imaging Systems – Imaging systems capable of operating in a range of settings and environments during day and night.
 - Drone Technologies – Drone and other aerial platforms for detection tasks.
- **Climate Change and Sustainability** including:
 - Novel energy storage strategies and systems.
 - Robust, portable and efficient solar panel technologies.
- **Disaster Relief** including:
 - Water Systems - High-performance, low-cost water purification, detection, storage and supply systems.
 - Survivor Detection - Remote or at-distance technologies capable of detecting survivors in a range of land and/or water-based scenarios.
 - Humanitarian Aid Delivery – Systems to support and assist in the delivery and management of humanitarian aid.
- **Medical Technologies** including:
 - Diagnostics – Rapid, portable, low-cost disease diagnostics capable of reliably operating in low-resource or challenging environments.



- Virtual health – Tele-health/medicine, mobile apps and other technology-based solutions enabling patient health to be managed remotely over large distances.
- Wearables – Unintrusive or small form factor devices that may be worn or integrated with personal equipment to monitor physical activity, health or bio-signals.