Open for
new ideas
SFI Future
Innovator Prize

Science Foundation Ireland

Future Innovator Prize

Driving STEM-led innovation to address society's greatest challenges

**Information Workshop**
8th October, 2018

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Few sign up to science for a glamorous lifestyle, colossal salary or generous dental plan. They do it to gain insights and knowledge and, they hope, **to make the world a better place**. Too often, that last objective proves hard to achieve — not because of uncaring researchers living in ivory towers, but because the way in which some types of study are done and rewarded does not set the correct priorities. **That needs to change**.

"The best research is produced when researchers and communities work together", Nature **562**, 7 (2018)
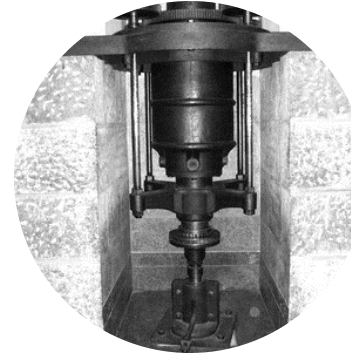
History of Challenge Prizes
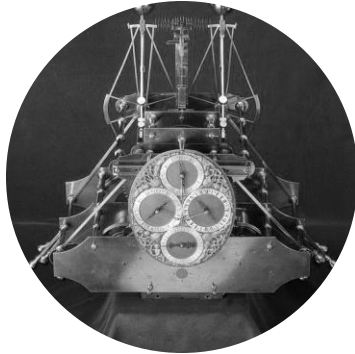
Longitude Prize
1714

Winner: John Harrison
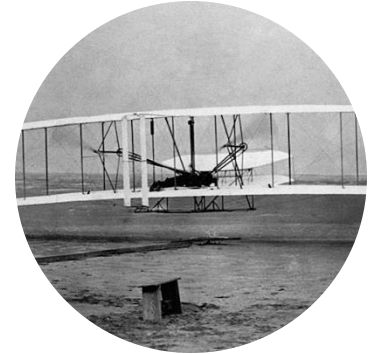

French Food Preservation Prize
1795-1809
Winner: Nicolas Appert

Turbine Prize
1823-1827

Winner: Benoit Fourneyron

Prix d'Aviation Michelin
(Michelin Prize)
1908
Winner: Wilbur Wright

Precise time information is integral to GPS

Europe produces about 25 billion cans of food every year
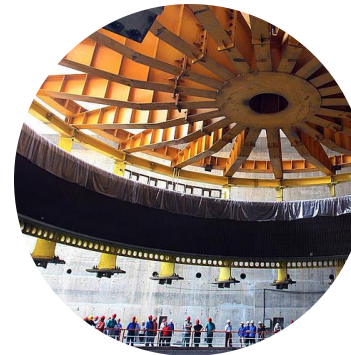
Three Gorges Dam uses turbines 10m in diameter capable of rotation speeds of 75 revolutions per minute

From 124.7 km to 3,790 km

Challenge Prizes Today

Progressive Insurance Automotive XPRIZE

Northrop Grumman Lunar Lander XCHALLENGE

Ansari XPRIZE for Suborbital Spaceflight

Qualcomm Tricorder XPRIZE

Mobility Unlimited Challenge

Societal Challenges

What is a Challenge?

Visionary

Inspirational

Achievable

- A challenge is a **bold and ambitious goal** that drives innovation toward addressing a **complex**, often **intractable**, **societal issue/problem**.

- Achieving the stated goal, by developing a solution to a challenge, has the potential for **transformative societal impact**.

- Solutions to challenges often comprise both **technical and non-technical** aspects. Challenges always involve multiple stakeholders/beneficiaries and end-users.

- A challenge can be an obstacle or **opportunity**.

- A challenge should be: **visionary**, **inspirational** and **achievable**.

Challenge Examples

Shell Ocean Discovery XPRIZE
Develop technologies to detect the source of chemical and biological signals underwater, technologies launch from shore or air and, with restricted human intervention, their entries will have limited number of hours to explore the competition area (at depths of 2000 and 4000 meters)
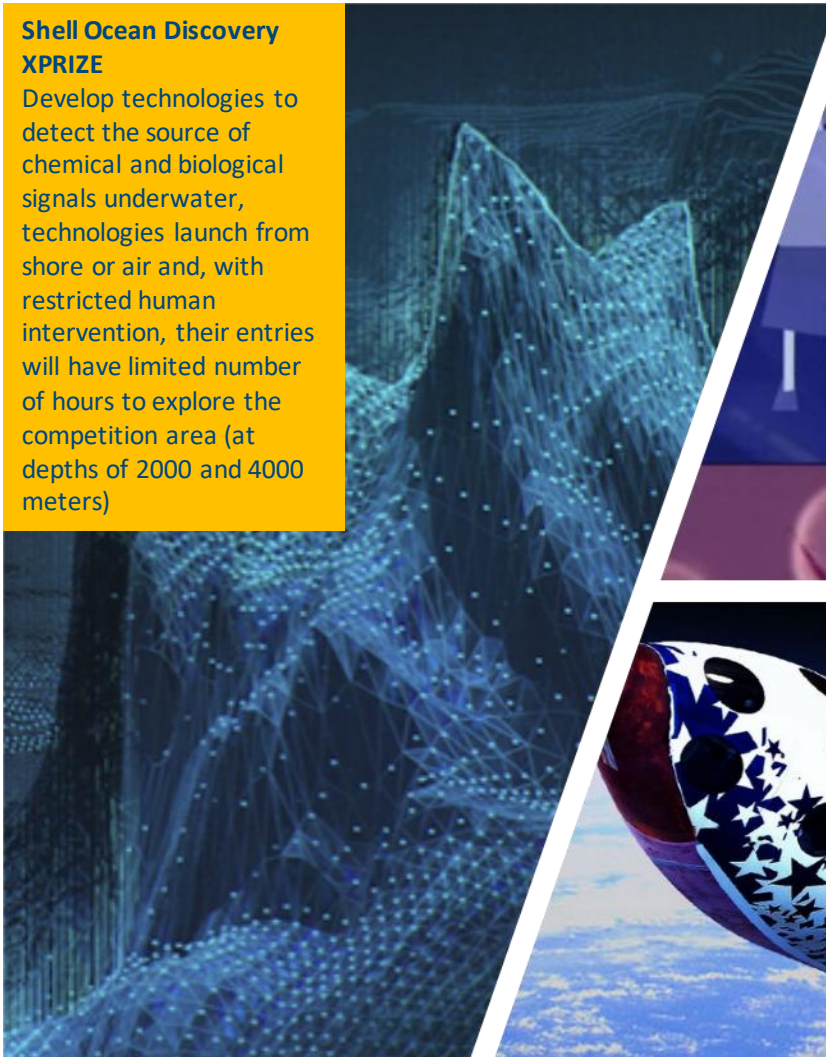
Longitude Prize
Create a cheap, accurate, rapid and easy-to-use point of care test kit for bacterial infections
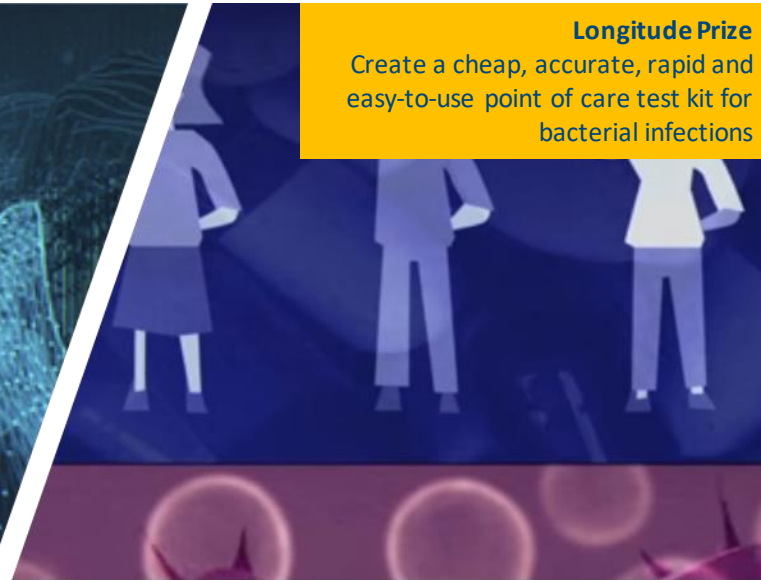
Ansari Prize
Build a reliable, reusable, privately financed, manned spaceship capable of carrying three people to 100 kilometres above the Earth's surface twice within two weeks

What is Challenge Funding?

- **Incentivizes and rewards** RD&I activities to develop disruptive and impactful solutions to key national societal and economic challenges.

- **Fosters collaborative, interdisciplinary and convergent research** activities that may, in turn, lead to new discoveries and disruptive innovations that have the potential to transform how we live.

- Creates the **opportunity for an equity-based engagement between stakeholders**, enabling them to identify appropriate co-investment of resources required to share the **risks and rewards** that arise by addressing challenges.

Incentivise & Reward

Collaboration

Equity

Context
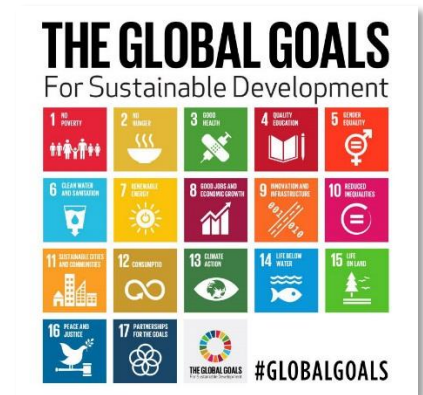
Ireland's Opportunity

Advanced, agile and highly networked innovation ecosystem
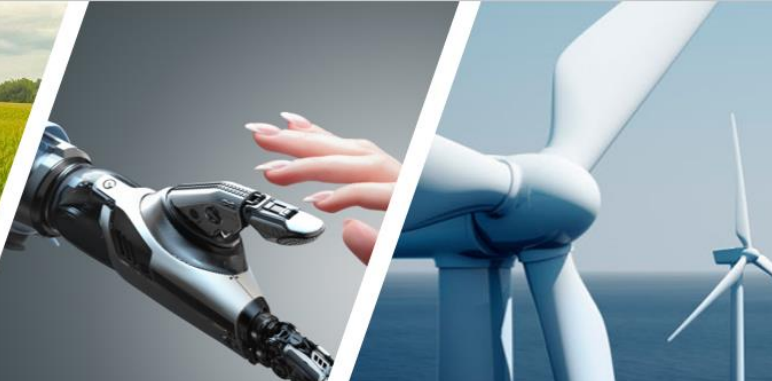
Potential to **drive societal and economic impact here** in Ireland but also give Ireland a unique advantage in addressing challenges that have **global implications**

Ireland – The **world's test-bed** for challenge funding

Challenge funding can **amplify our innovation capabilities** to create sustainable, equitable and innovation-led growth

SFI Future Innovator Prize

The overarching ambition of the SFI Future Innovator Prize is to **enable the development of disruptive STEM-led solutions to key national challenges**.

TEAMS

MOTIVATED
DIVERSE
INTERDISCIPLINARY

+

IDEAS

NOVEL
UNCONVENTIONAL
CONVERGENT

=

CHALLENGES/SOLUTIONS

TRANSFORMATIVE
NATIONAL
GLOBAL

Scale of Challenge Prizes

Prize	Amount
Wendy Schmidt Oil Cleanup XCHALLENGE	860,000.00
Wendy Schmidt Ocean Health XPRIZE	1,720,000.00
Shell Ocean Discovery XPRIZE	6,020,000.00
SFI Future Innovator Prize*	1,000,000.00
Progressive Insurance Automotive XPRIZE	4,300,000.00
Northrop Grumman Lunar Lander XCHALLENGE	860,000.00
NESTA Longitude Prize	8,960,000.00
NESTA Inventor Prize*	56,000.00
Famae Prize	1,000,000.00
EIC Horizon Prize - Low-Cost Space Launch	10,000,000.00
EIC Horizon Prize - Innovative Batteries for eVehicles	10,000,000.00
EIC Horizon Prize - Fuel from the Sun: Artificial Photosynthesis	5,000,000.00
EIC Horizon Prize - Early Warning for Epidemics	5,000,000.00
EIC Horizon Prize - Blockchains for Social Good	5,000,000.00
EIC Horizon Prize - Affordable High-Tech for Humanitarian Aid	5,000,000.00
Ansari XPRIZE for Suborbital Spaceflight	8,600,000.00

* National

Objectives of the Prize

- To support 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.

- To promote **convergence** of knowledge, practice and methods from different disciplines and sectors.

- To promote **engagement** between researchers and stakeholders/beneficiaries of research.

- To **accelerate societal impact** from publicly funded research.

SFI Future Innovator Prize
What Makes Something Disruptive?

6 QUESTIONS to judge whether an innovation is **disruptive**

1. Does it target **nonconsumers** or people who are **overserved** by an incumbent's existing offering in a market?

2. Is the offering **not as good** as an incumbent's existing offering as judged by historical measures of performance?

3. Is the innovation **simpler** to use, more **convenient**, or more **affordable** than the incumbent's existing offering?

4. Does the offering have a **technology enabler** that can carry it upmarket and allow it to improve?

5. Is the technology paired with a **business model innovation** that allows it to be sustainable?

6. Are existing providers motivated to **ignore** the new innovation and not threatened at the outset?

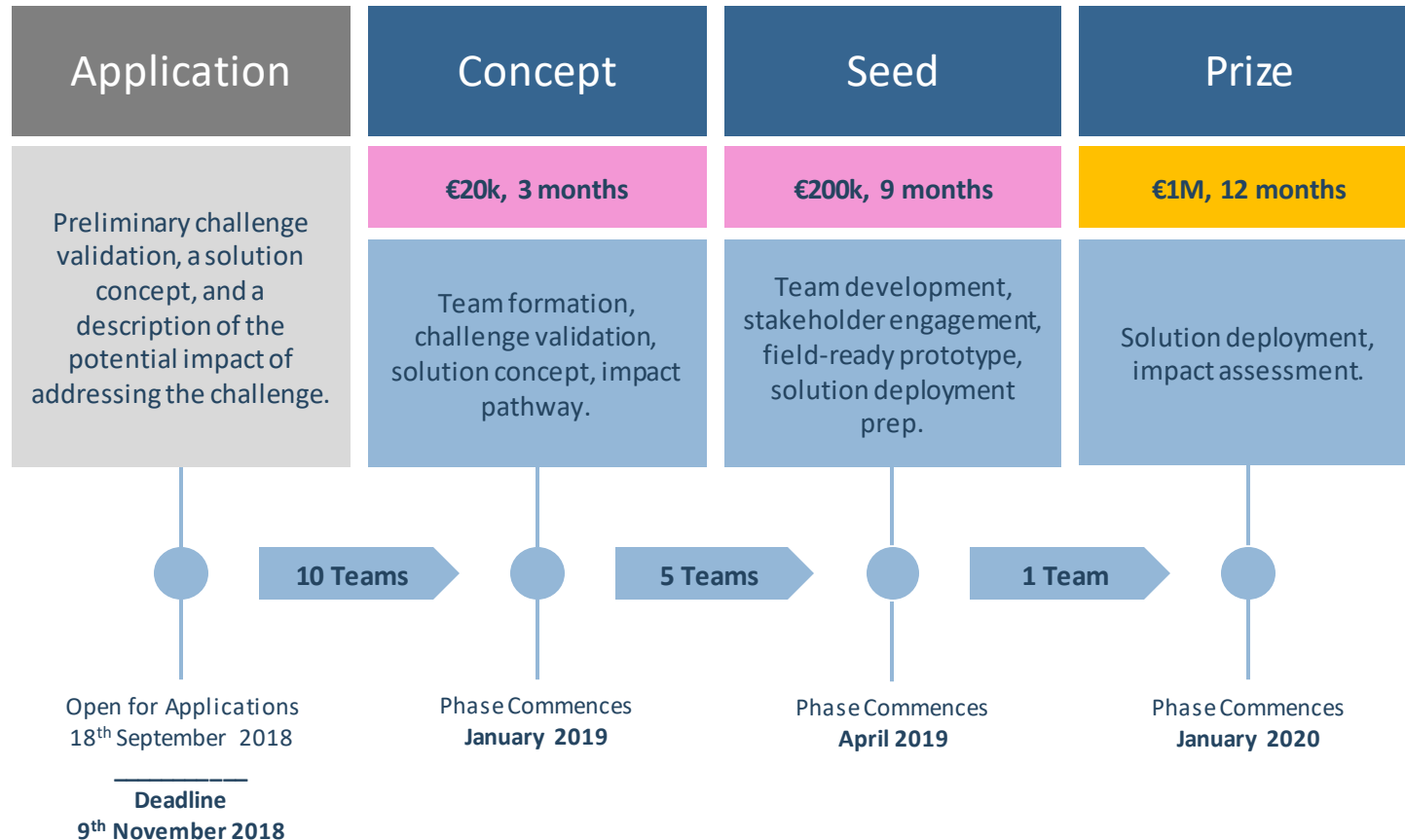Learn more at www.ChristensenInstitute.org

SFI Future Innovator Prize
Venture Model

- Programme will be **highly competitive**, operate to **aggressive timelines** and employ **performance-based funding release** (teams that do not progress will have funding decommitted)

- SFI will employ a **venture model** in management of teams/awards
    - Your success is our success
    - Not just invest but be <u>invested</u>

- SFI will **leverage its network and its resources** (where appropriate) to support teams as they progress through process
    - Mentorship/Training
    - Networking/"Opening Doors"
    - Awareness Raising
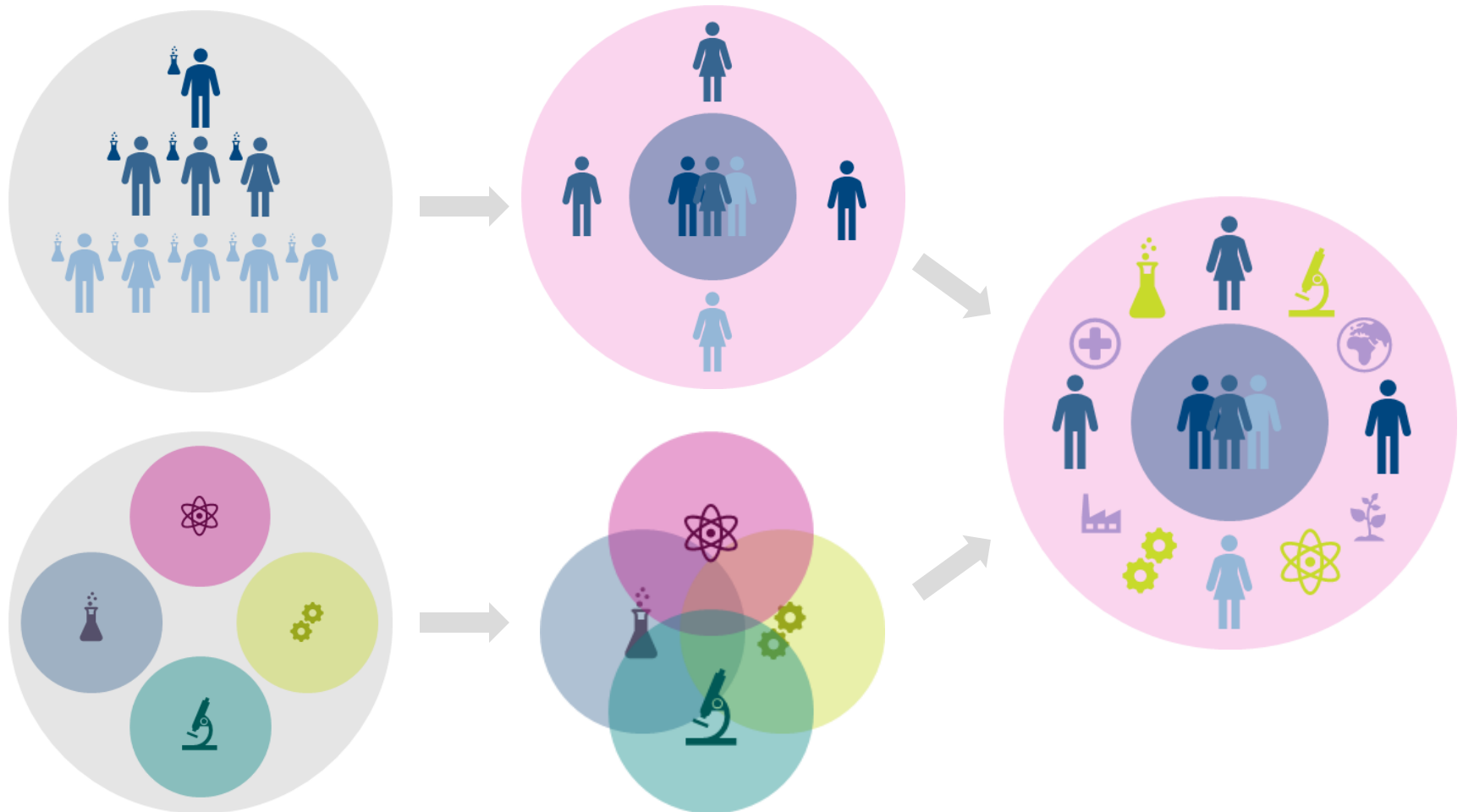   - Profiling e.g. Social Media, Events

SFI Future Innovator Prize
Structure & Funding

Application	Concept	Seed	Prize
	€20k, 3 months	€200k, 9 months	€1M, 12 months
Preliminary challenge validation, a solution concept, and a description of the potential impact of addressing the challenge.	Team formation, challenge validation, solution concept, impact pathway.	Team development, stakeholder engagement, field-ready prototype, solution deployment prep.	Solution deployment, impact assessment.

10 Teams → 5 Teams → 1 Team

Open for Applications
18th September 2018

Phase Commences
January 2019

Phase Commences
April 2019

Phase Commences
January 2020

**Deadline
9th November 2018**

Focus On Teams

Diverse, Interdisciplinary, Convergent

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Who Can Apply?

Team Lead	Academic researchers (established, postdoctoral) and postgraduate students (MSc/MEng, PhD)*
Team Co-Lead	
Societal Impact Champion	Advocate, non-technical leadership, KOL, SME

*Participation by postgraduate students (MSc/MEng, PhD) is strongly encouraged, however, they may not be Team Lead (they can be the Team Co-Lead)

SFI Future Innovator Prize
Who Can Apply?

Team Lead **Team Co-Lead**	Member of Academic Staff *OR* Contract Researcher *AND* PhD (or equiv.) holder	Should have track record demonstrating: research publication, securing of research grants as lead investigator or as co-investigator; and experience, capability and authority to mentor and supervise postgraduate students and team members.
Team Co-Lead	**Postgraduate student** (i.e. a full-time student undertaking a postgraduate qualification, e.g. MSc/MEng, PhD, by research in a STEM discipline	NA

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Postgrads & Students

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Who Can Apply?

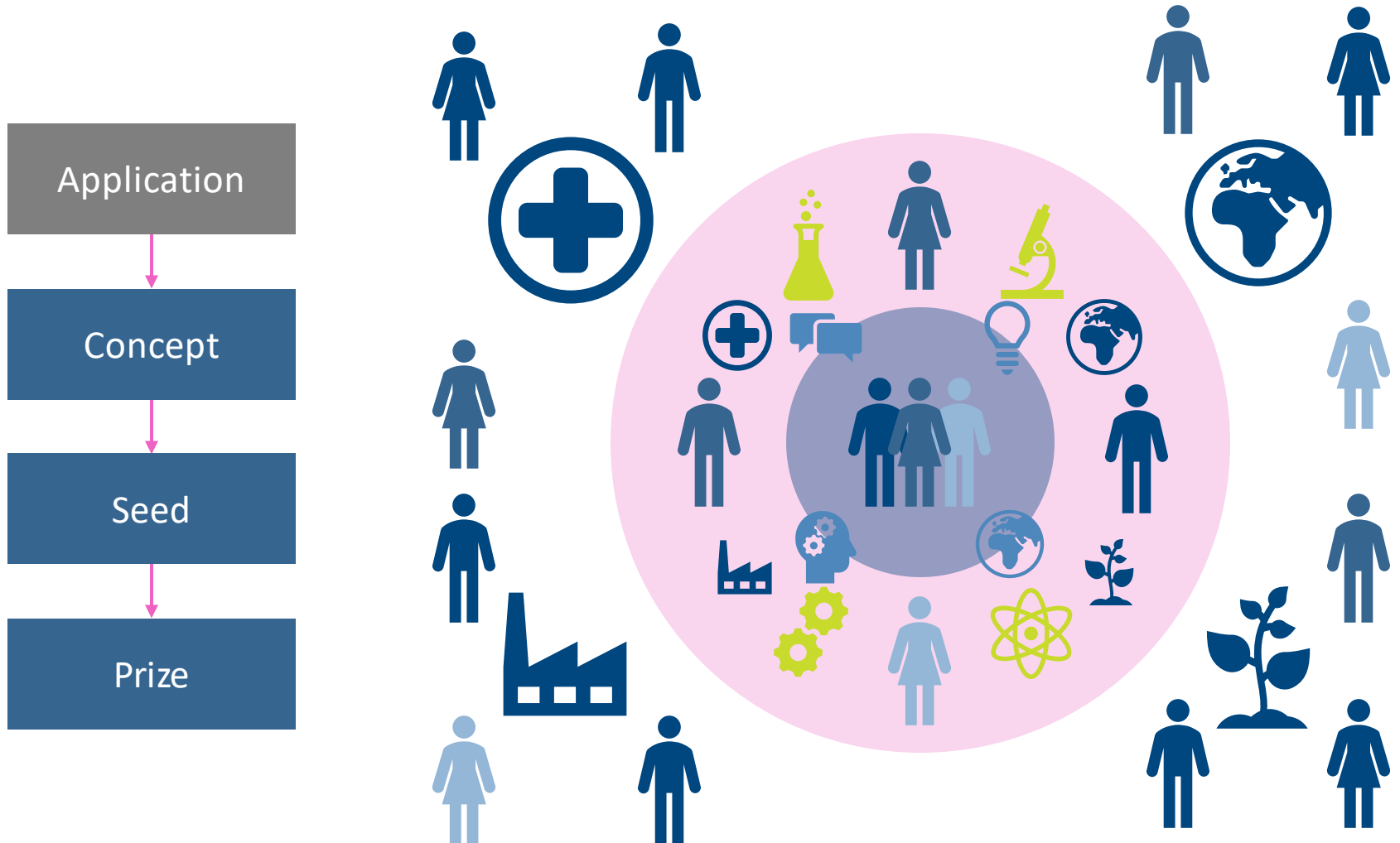| Scenario	Lead Applicant	Co-Lead Applicant	
A	Academic Staff or Contract Researcher; Holds a PhD (or equivalent)	Academic Staff or Contract Researcher; Holds a PhD (or equivalent)	Permitted
B	Academic Staff or Contract Researcher; Holds a PhD (or equivalent)	Full-time postgraduate student at an eligible Irish research body	Permitted
C	Full-time postgraduate student at an eligible Irish research body	Academic Staff or Contract Researcher; Holds a PhD (or equivalent)	Not Permitted
D	Full-time postgraduate student at an eligible Irish research body	Full-time postgraduate student at an eligible Irish research body	Not Permitted

Societal Impact Champion
Role & Examples

Key opinion leader	Subject Matter Expert	Charity

Societal Impact Champion

Advocacy/champion role, assist in maximising the societal impact of the solution. Provide non-technical leadership and support the lead and co-lead to identify and validate challenges in addition to advising on solution development.

- Social Entrepreneur
- Industry
- Philanthropist

Patient Representative	Charity	Public Sector	NGO

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Team/Solution Evolution

Application

Concept

Seed

Prize

SFI Future Innovator Prize
Application

Section 1	Section 2	Section 3	Section 4
Applicant Team & Idea	**Team, Challenge, Solution & Societal Impact**	**Budget & Resources**	**Authorisation**

Section 1 — Applicant Team & Idea

Summary
- Team
- Idea

Idea
- **Visionary** about the challenge?
- **Unconventional** about your approach
- Why you expect it to **succeed?**
- How it will deliver **impact?**

Section 2 — Team, Challenge, Solution & Societal Impact

Team
- **Unique perspective** and **unfair advantage**

Challenge
- **Importance** and the **opportunity** for Ireland
- **Visionary** and **inspirational**
- **Engagement/Barriers**

Solution
- **Novel**, **unconventional**
- **Disruptive** potential
- **Feasible/viable**
- **Risks**

Outcomes/Impact
- **What** and **When**?

Section 3 — Budget & Resources

Budget
- Breakdown of the indicative **eligible direct costs**

Concept Phase (€20k)
- Staff
- Materials & Consumables
- Travel

Seed Phase (€200k)
- Staff
- Equipment
- Materials & Consumables
- Travel

Consult
SFI Grant Budget Policy

Section 4 — Authorisation

Authorisation for submission by the **host research body** of the lead applicant

Section 5

Curricula Vitae

Core Applicant Team

Section 6

Letters of Support

Host Research Body, Co-Applicant*, Societal Impact Champion

SFI Future Innovator Prize
Eligible Costs*

Concept

€20k, 3 months

Team formation, challenge validation, solution concept, impact pathway.

Staff
Contributions to salaries

Materials & Consumables
Promotional materials, engagement activities, hackathons, design-sprints

Travel
Stakeholder Visits, Meetings

Seed

€200k, 9 months

Team development, stakeholder engagement, field-ready prototype, solution deployment preparation.

Staff
Contributions to salaries (researchers, technicians, admin staff – subject to justification), stipends

Equipment
Laptops, instrumentation

Materials & Consumables
Laboratory or engineering materials/consumables, promotional materials, engagement activities, hackathons, design-sprints

Travel
Stakeholder Visits, Meetings, Workshops

*Please Consult Research Offices, SFI Grant Budget Policy

Challenge Canvases

CHALLENGE CANVAS #1
TITLE: _____

Visionary
Why is this challenge visionary? Will it require a novel solution?

Inspirational
How is this challenge idea going to inspire those involved and others to become involved? How will this challenge support engagement between the public/private sectors? How will it capture the imagination of the general public?

Achievable
How is this challenge idea ambitious yet achievable? Can it be addressed in the timeframe of 3-5 years? What resources are needed to address this challenge? What is the opportunity and why now? Would an interdisciplinary, STEM-led approach enhance achievability?

Impact
What social and economic impact will addressing this challenge give rise to? How will its outputs and outcomes deliver impact? Who will benefit from solutions to this challenge? How will they benefit?

Barriers
What are the current barriers to addressing this challenge? How can they be addressed? What are the opportunities from addressing these barriers?

CHALLENGE CANVAS #2
TITLE: _____

Inputs
People, equipment, infrastructure, funding, services, partners, stakeholders.

What Inputs are needed to address barriers?

E.g. Expertise from industry, regulator, VC company; national funding agency.

Actions
What actions/tasks/work need(s) to be undertaken to achieve successful outcomes?

What Actions are needed to address barriers?
E.g.
An industry partner to translate academic research to market quickly.
or
A regulatory process needs to be changed to accelerate innovation.
or
A VC fund needs to be setup in advance to ensure commercial success.
or
A new national funding programme needs to be developed.

Outputs
What are the key outputs? Research projects, prototypes, software, pilot line, partnership established, funding available.

E.g. Regulation changed, policy changed, investment fund created, software completed, prototype developed.

Impact
What are the outcomes? Increase/decrease in, enhancement in performance etc.; Ultimately what impact will be realised for the economy and society?

Success
What will be achieved? What will be measured? What is the timeframe?

Challenge Canvases

CHALLENGE CANVAS #1

TITLE: _____

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Challenge Canvases

CHALLENGE CANVAS #2

TITLE: _____

Inputs	Actions	Outputs	Impact	Success
People, equipment, infrastructure, funding, services, partners, stakeholders.	What actions/tasks/work need(s) to be undertaken to achieve successful outcomes?	What are the key outputs? Research projects, prototypes, software, pilot line, partnership established, funding available.	What are the outcomes? Increase/decrease in, enhancement in performance etc.; Ultimately what Impact will be realised for the economy and society?	What will be achieved? What will be measured? What is the timeframe?

What Inputs are needed to address barriers?

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E.g. Regulation changed, policy changed, investment fund created, software completed, prototype developed.

Key Dates

Prize Launch
18th September 2018

Workshop
8th October 2018

Application Deadline
9th November 2018

Funding Decision
December 2018

Concept Phase **Commences**
January 2019

Concept Phase **Review**
March 2019

Seed Phase **Commences**
April 2019

Seed Phase **Review**
December 2019

Prize Award
January 2020

General

- **Please consult the SFI Future Innovator Prize webpage for updates.**

- **Please consult the Research Impact section on the SFI website.**

- **Submit completed application forms to innovation@sfi.ie**

- **For further information/queries, please email innovation@sfi.ie**

SFI Future Innovator Prize Team

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