



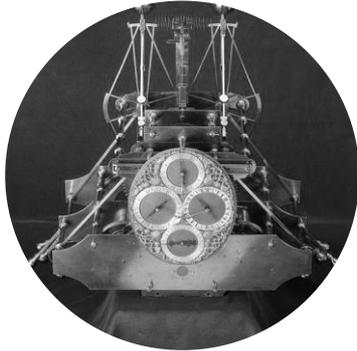
SFI Future
Innovator Prize

**Open for
new ideas**

Artificial Intelligence (AI)
for Societal Good Challenge

Stephen O'Driscoll
Challenge Research Team

History of Challenge Prizes



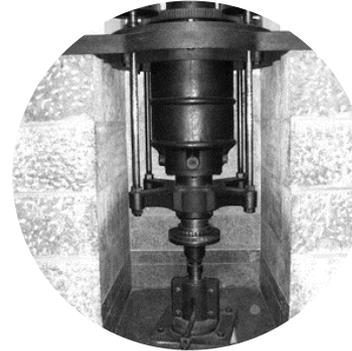
Longitude Prize
1714

Winner: John Harrison



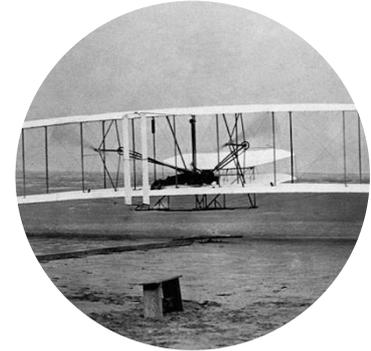
**French Food
Preservation Prize**
1795-1809

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
10 m in diameter capable of
rotation speeds of 75 revolutions
per minute



From 124.7 km
to 3,790 km

Challenge Prizes Today



Ansari XPRIZE for Suborbital Spaceflight



Progressive Insurance Automotive XPRIZE



Northrop Grumman Lunar Lander XCHALLENGE



Qualcomm Tricorder XPRIZE



Mobility Unlimited Challenge

Societal Challenges

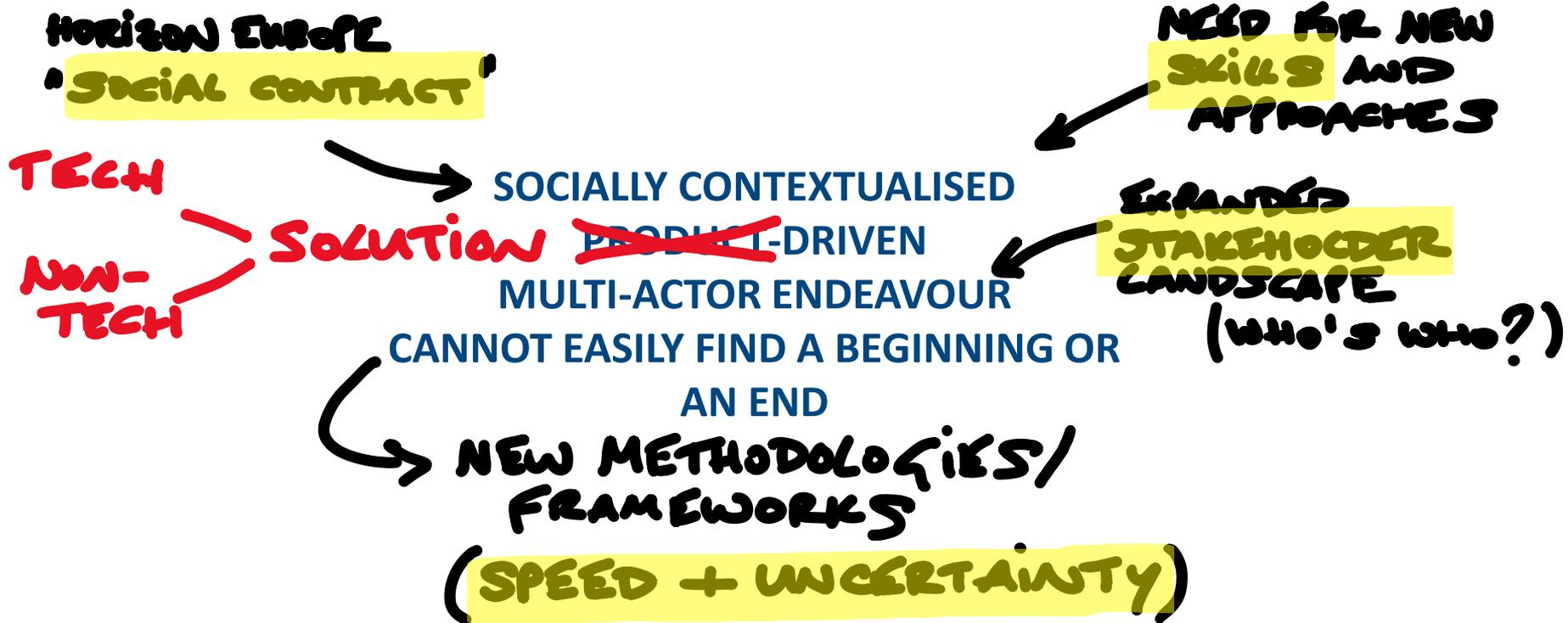


UN Sustainable Development Goals



17 Goals – 169 Targets – 232 Indicators

"SCIENCE IS MESSY..."





Visionary



Inspirational



Achievable

What is a Challenge?

- A challenge is a **bold and ambitious goal** that drives innovation toward addressing a **complex, often intractable, societal issue/problem**.
- **Transformative societal impact**.
- Challenges complex - **technical and non-technical** aspects - **multiple stakeholders/beneficiaries and end-users**.
- A challenge can be an obstacle or **opportunity**.
- A challenge should be: **visionary**, **inspirational** and **achievable**.

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.
- **Opportunity for an equity-based engagement between stakeholders**, enabling them to **share the risks and rewards** that arise by addressing challenges.



**Incentivise
& Reward**



Collaboration



Equity

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**



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

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



SFI Challenge Portfolio



SFI Challenge Portfolio

SFI Future Innovator Prize 2018



AI For Societal Good Challenge (SFI Future Innovator Prize 2019)

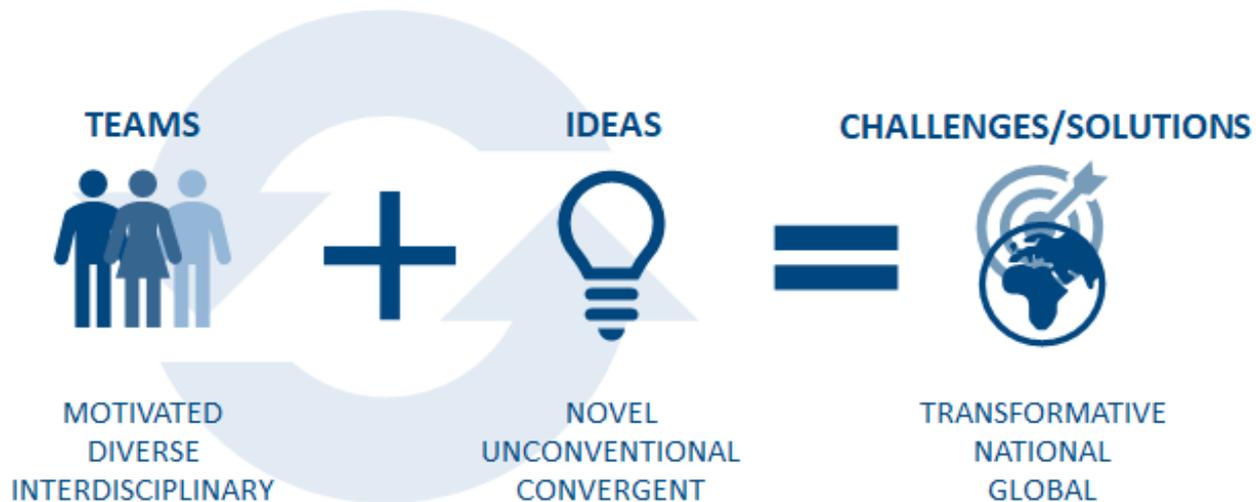


Zero Emissions Challenge (SFI Future Innovator Prize 2019)



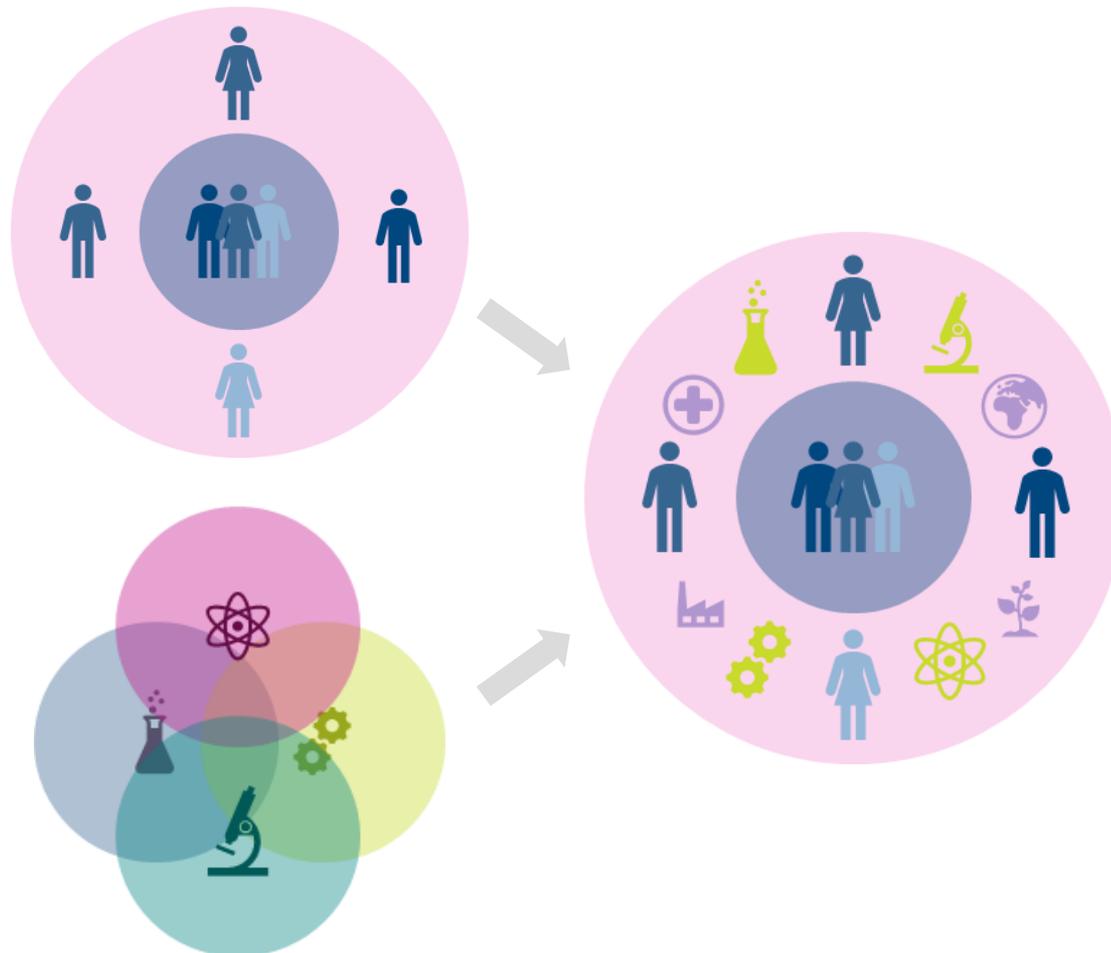
SFI Future Innovator Prize

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



Focus On Teams

Diverse, Interdisciplinary, Convergent



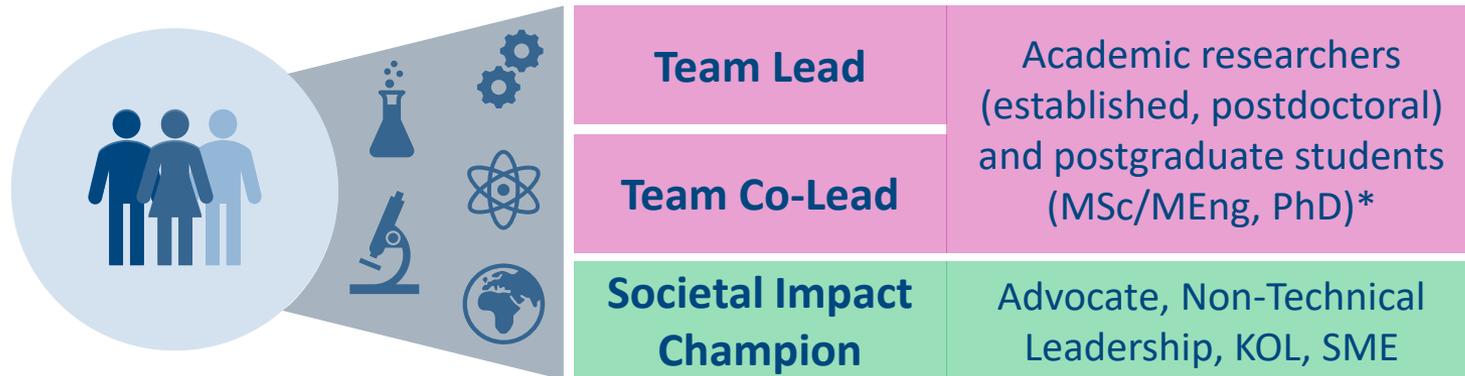
2018 Cohort

Diverse, Interdisciplinary, Convergent



SFI Future Innovator Prize

Who Can Apply?



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

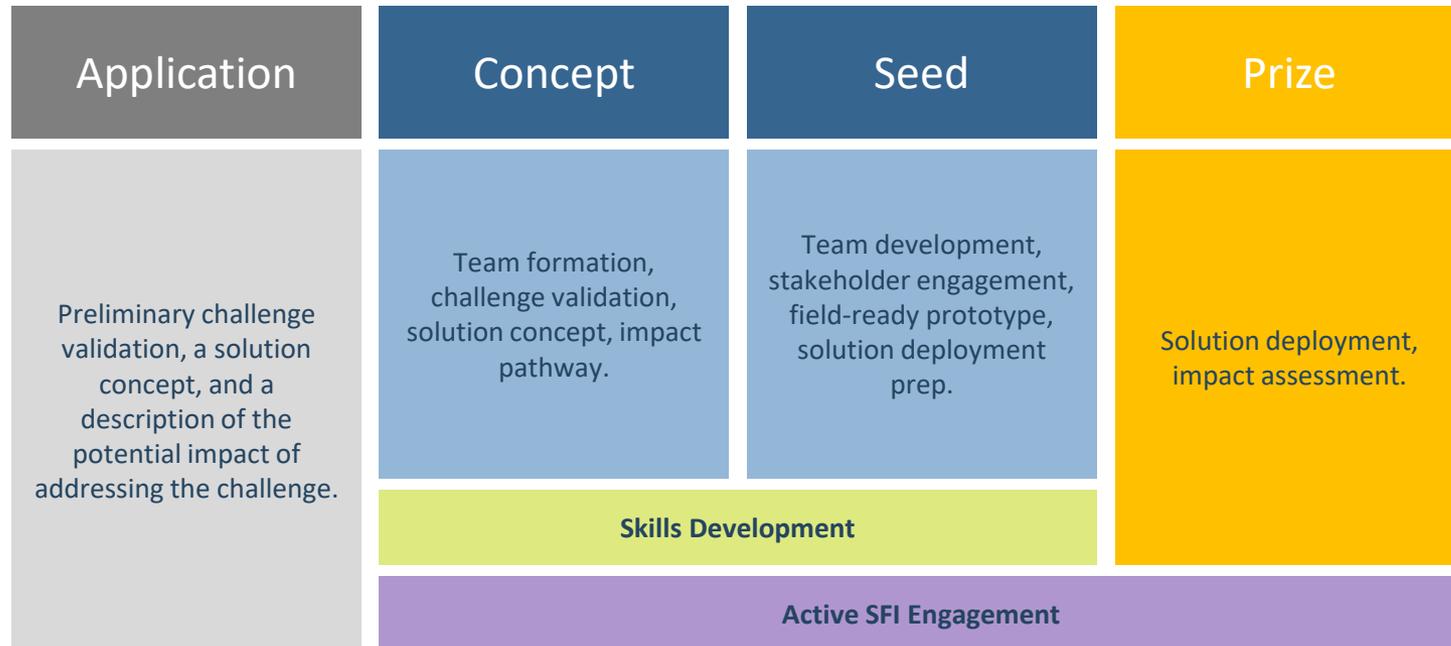
Societal Impact Champion

Role & Examples



SFI Future Innovator Prize Model

Structure & Funding



SFI Future Innovator Prize

Societal Impact Champion & Validation



SFI Future Innovator Prize

Societal Impact Champion & Validation



SFI Future Innovator Prize

Venture Model

SFI will employ a **venture model** in management of teams/awards

- Your success is our success
- Not just invest in you but be invested in you

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

2018 Cohort

Skills Development



Theory of Change & Impact



Value Creation



FutureScope



Service Design



2018 Cohort

Final Competitors



AI for Societal Good Challenge

What Are We Looking For?

- Applications from teams to address **significant societal challenges** through the development of disruptive STEM-based solutions based on interdisciplinary approaches that **leverage artificial intelligence (AI)***
- Teams must be interdisciplinary with **AI expertise represented** (experts in disciplines outside of STEM such as the arts, humanities and social sciences should be considered)
- Applications should **align to a UN SDG** - consideration should be given to the nature of the target(s)
- Societal Impact Champion must come from **outside academia**

***Artificial intelligence (AI)** refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications).

UN Sustainable Development Goals



Facts and Figures

Goal 2 Targets

Links

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

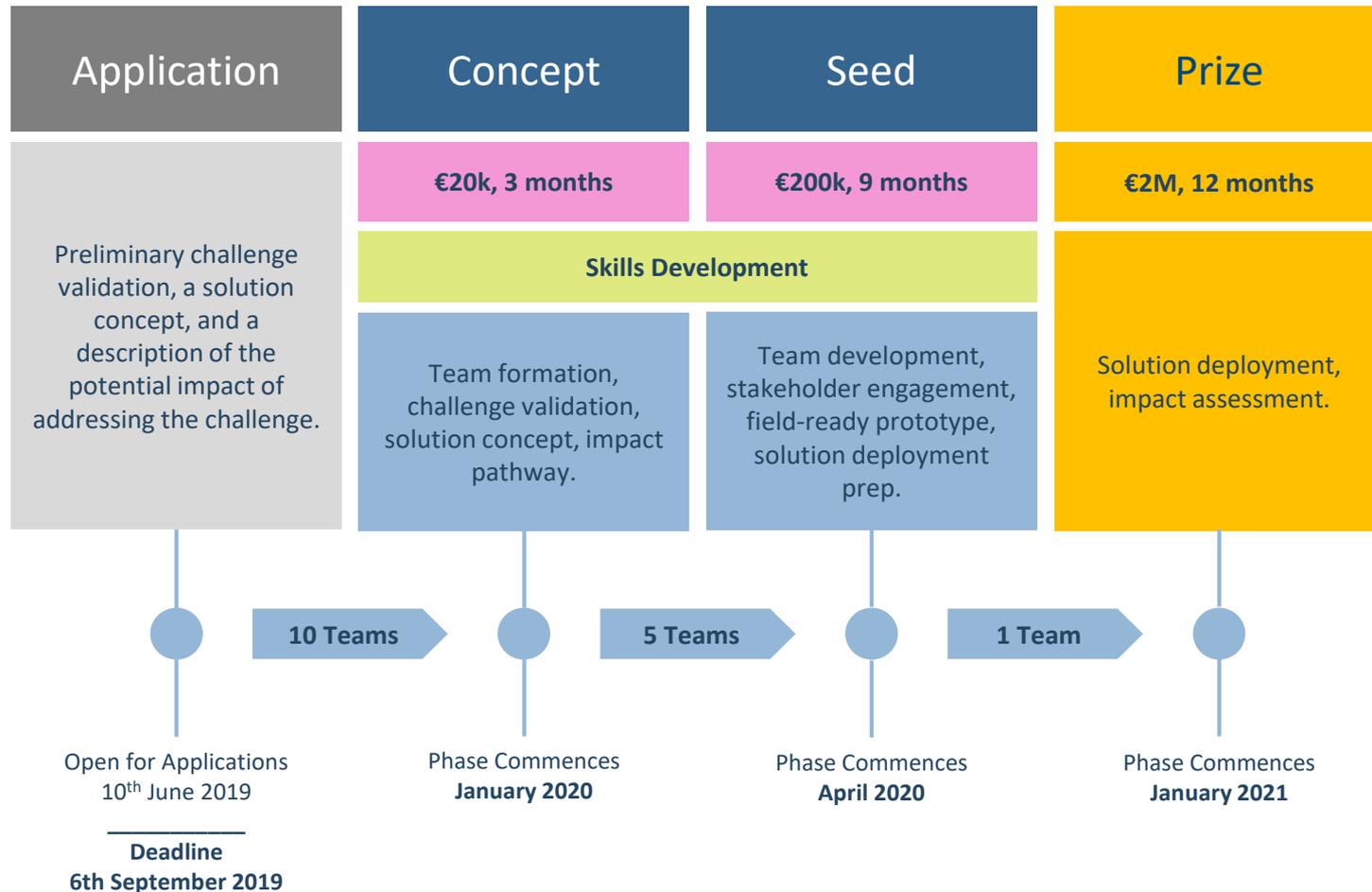
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.

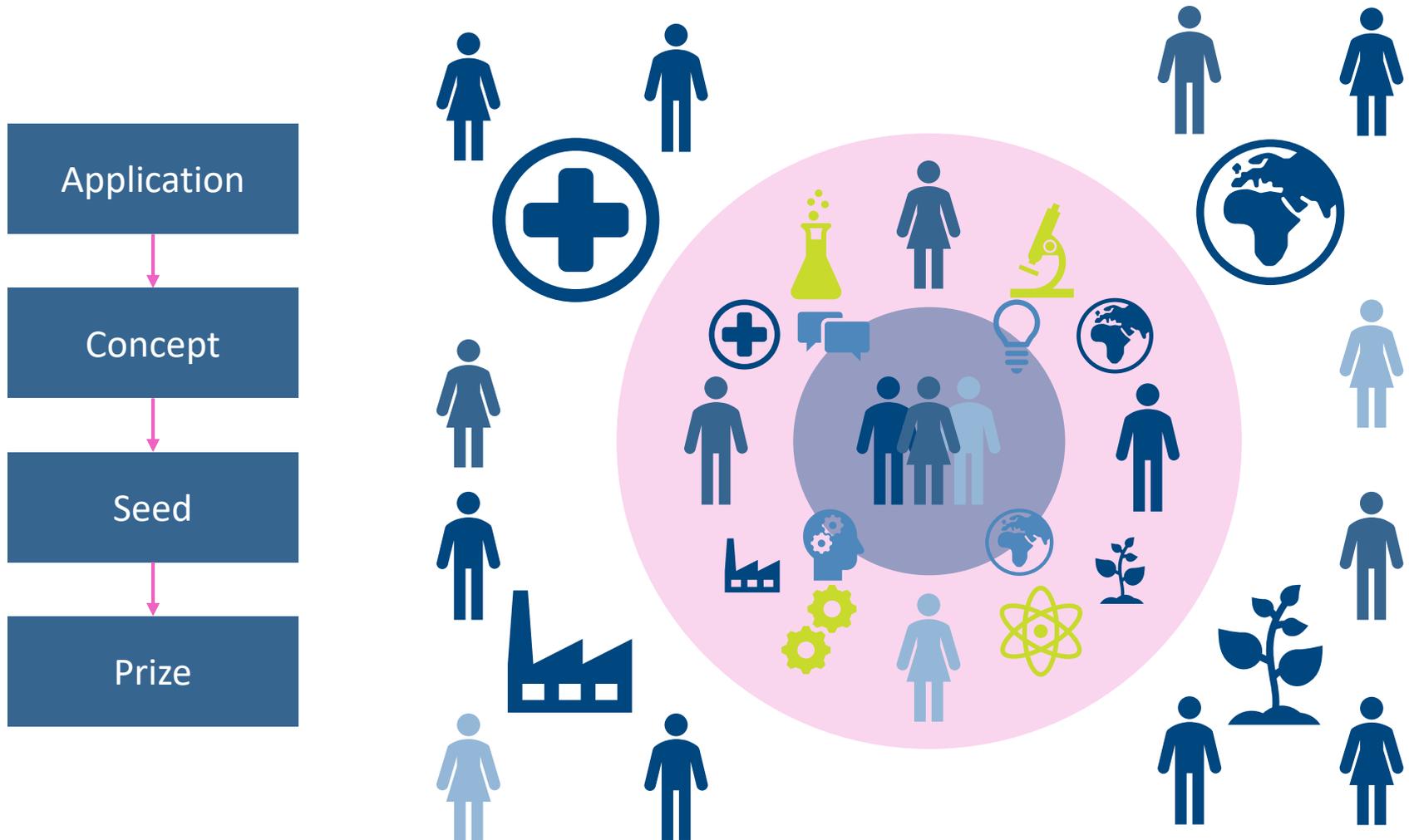
AI for Societal Good Challenge

Structure & Funding



SFI Future Innovator Prize

Team/Solution Evolution



SFI Future Innovator Prize

Application (via SESAME)

Applicant Team & Idea	Team, Challenge, Solution & Societal Impact	Budget & Resources	Authorisation
<p>Summary</p> <ul style="list-style-type: none"> • Team • Idea <p>Idea</p> <ul style="list-style-type: none"> • Visionary about the challenge? • Unconventional about your approach • Why you expect it to succeed? • How it will deliver impact? 	<p>Team</p> <ul style="list-style-type: none"> • Unique perspective and unfair advantage <p>Challenge</p> <ul style="list-style-type: none"> • Importance and the opportunity for Ireland • Visionary and inspirational • Engagement/Barriers <p>Solution</p> <ul style="list-style-type: none"> • Novel, unconventional • Disruptive potential • Feasible/viable • Risks <p>Outcomes/Impact</p> <ul style="list-style-type: none"> • What and When? 	<p>Budget</p> <ul style="list-style-type: none"> • Breakdown of the indicative eligible direct costs <p>Concept Phase (€20k)</p> <ul style="list-style-type: none"> • Staff • Materials & Consumables • Travel <p>Seed Phase (€200k)</p> <ul style="list-style-type: none"> • Staff • Equipment • Materials & Consumables • Travel <p>Consult</p> <p>SFI Grant Budget Policy</p>	<p>Authorisation for submission by the host research body of the lead applicant</p> <p>Curricula Vitae</p> <p>Core Applicant Team</p> <p>Letters of Support</p> <p>Host Research Body, Co-Applicant*, Societal Impact Champion</p>

SFI Future Innovator Prize

Eligible Costs*

Concept	<p>Staff Contributions to salaries</p> <p>Materials & Consumables Promotional materials, engagement activities, hackathons, design-sprints</p> <p>Travel Stakeholder Visits, Meetings</p>
€20k, 3 months	
<p>Team formation, challenge validation, solution concept, impact pathway.</p>	

Seed	<p>Staff Contributions to salaries (researchers, technicians, admin staff – subject to justification), stipends</p> <p>Equipment Laptops, instrumentation</p> <p>Materials & Consumables Laboratory or engineering materials/consumables, promotional materials, engagement activities, hackathons, design-sprints</p> <p>Travel Stakeholder Visits, Meetings, Workshops</p>
€200k, 9 months	
<p>Team development, stakeholder engagement, field-ready prototype, solution deployment preparation.</p>	

*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 needs 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

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

Challenge Canvases

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 What is the timeframe?

Key Dates



Thank You

For further information/queries, please email challenges@sfi.ie