

## EPSRC Big Ideas

EPSRC is initiating a new activity, called 'EPSRC Big Ideas'. We are seeking adventurous and exciting ideas from the research community that will have the ability to enthuse the public and Government, and that will be transformative or enabling if successful.

The EPSRC Big Ideas activity will create a supportive environment for new ideas, discoveries and innovations arising from the research community to develop and flourish. We are seeking ideas in the context of three perspectives: *Industrial Strategy*, *fundamental science* and *multidisciplinary research*. Initially, we would welcome ideas particularly within the fundamental research and multidisciplinary areas, to complement activities that are already in progress as part of the Industrial Strategy Challenge Fund.

**This is not a call for proposals.** EPSRC is looking to **generate and prioritise** a number of community-led 'Big Ideas'. These will be used in the development of research strategy, and could potentially attract investment at a later stage as opportunities arise. Please ensure that when completing the form, you write with this in mind, i.e. we are looking for ideas at this stage, not a full research proposal.

A Big Idea is something that will need to be championed and driven with the support of the relevant community or communities. Please be aware that, if prioritised, a Big Idea may require other people to lead and/or be involved in its development; this will be discussed as part of the process of developing an idea further beyond the initial submission. EPSRC may put you in contact with others who have submitted similar ideas in order to develop the idea further, but will seek your permission to do so first.

A number of [Frequently Asked Questions](#) are provided at the end of this document, for further information. **Please read these before completing the application form.**

## Completing the EPSRC Big Ideas form

The following guidance is provided to clarify what is required when completing the application form for EPSRC Big Ideas. Please note:

- the form contains prompts in italics; these are there to help you to complete the form, and can be removed;
- the completed form should be submitted to [bigideas@epsrc.ac.uk](mailto:bigideas@epsrc.ac.uk) or via the Smart Survey [here](#)

*General points of guidance to remember throughout are as follows:*

- **Please use non-technical language and consider the audience.** The language that is used in the form should be wholly accessible to a wide range of audiences, such as: a member of the public, Government, Research Council staff members, non-experts (including other researchers who are not working in the field/s described).

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- Ensure that when describing this opportunity you convey the **excitement, vision and inspiration** of the idea. We are looking for ideas with a '**wow factor**' that will enthuse the general public, Government and the media.
- These ideas will develop over time with support and expertise of both EPSRC and the Big Ideas Advisory Group. Therefore, the initial submission should capture the basic principles of the idea to allow EPSRC to assess its fit to the Big Ideas framework.

*Guidance for completing each section:*

### **Title (maximum 10 words)**

Please give your idea a short title. Please avoid any jargon or technical language.

### **Pitch (maximum 30 words)**

This is an opportunity to give a concise 'elevator pitch' to convey what the proposed idea is and to emphasise the excitement and inspiration of the idea. *If you had just 30 words with which to convince someone to support your idea, what would you say to them?*

### **WHAT is the 'Big Idea'? (Maximum 300 words)**

Clearly describe the idea itself, outlining the vision and aims. Remember to use non-technical language (for a general, non-expert audience). Ensure that you highlight both the excitement and the transformational aspects of the idea.

Please describe the overarching idea, and any component aspects within this. Focus on the **science** and the research challenges involved. Also describe whether this Big Idea is:

- an opportunity that involves many research strands working together to lead to one key output;
- an enabling idea, where successful completion would lead to multiple outputs or breakthroughs across many other areas.

### **WHY does this matter? WHAT impact would it have if successful? (Maximum 300 words)**

Describe clearly and concisely why the idea should be prioritised, by outlining **what difference it will make** (both scientifically and non-scientifically) if successful. Please consider what impact it will have in the broadest sense – e.g. people, academic, knowledge, society and economy.

Further questions to address in describing the potential impact are:

*What is the 'big win' for the UK if successful?*

- How would the impact described provide a major benefit to the UK in terms of: scientific advancement, furthering knowledge and/or technologies, making a difference to people's lives, potential return for the UK economy?
- What is the UK opportunity in pursuing this idea? Would investment in this idea create an opportunity for the UK to get ahead, in relation to potential international competitors?

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Also describe **who will benefit** from the opportunity being realised. Think: public, academic, business, government etc. Describe both who will benefit and how – i.e. how each of the different groups identified will benefit.

### WHY is the idea timely now? (Maximum 200 words)

Describe the timeliness of the idea: Why is this timely **now**? What has changed in the science, the research landscape and/or the political landscape, to make this timely? What would the **risk** for the UK be if we did not support this idea in the near future?

Further questions to consider when completing this section include:

- Is it an 'old' challenge or question that is now becoming possible to address?
- Is this a new challenge or question? Why has it become important now if so?
- Is it time critical?
- Why can it not be achieved currently? What kind of breakthrough is required to achieve this idea? What are the barriers? (E.g. *does it require co-ordination of several areas of research that may be strong individually, but need to be brought together with significant focused effort?*)

### WHAT is the current investment landscape, both in the UK and globally?

#### HOW does the idea relate to other priorities in the UK landscape? (Maximum 200 words, to cover both questions)

This section should provide a comprehensive description of the current landscape in the UK and globally. Please include details of the current **equipment, capabilities, skills and people** in the UK, and describe any relevant initiatives outside of the UK.

*Does the UK currently have the capacity and infrastructure needed to address this opportunity?*

- Please **quantify your answer** by describing the number and value of relevant, significant investments that align to the opportunity presented. Please list the relevant infrastructure and investments as brief bullet points.
- Also **describe any gaps** in people capacity, skills and infrastructure that would make addressing this opportunity difficult.

*Describe the international investment landscape and the UK's position in relation to this opportunity*

- How does the UK compare internationally for this opportunity?
- What is the international investment landscape in relation to this idea? Please quantify the number and value of relevant investments, groups and organisations where known.

*How does the idea fit with other current UK strategic priorities?*

- Describe how the idea fits with other current UK strategic priorities. Other priorities in the research landscape to be considered may include (but are not limited to):
  - Institutes (e.g. Alan Turing, UKCRIC, Henry Royce)
  - Sector deals
  - Industrial Strategy – in particular in relation the Industrial Strategy Challenge Fund areas

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### WHAT will it take to deliver this big idea? (Maximum 400 words)

Please describe the resource and effort required to deliver this idea, in terms of **skills, people, groups, universities, and businesses**. Also describe any key interdependencies that are required to achieve the idea.

*Who will need to be involved to realise the idea?*

- It is not necessary to name individual researchers (unless you wish to do so); please name **the groups and/or universities** that will need to be involved to progress the idea further.

*How much effort and resource is needed to deliver this idea? (Skills; People: groups, universities, industry)?*

- Please **quantify your answer** to describe the scale of effort that will be required to support the realisation of the idea

*Highlight the underpinning research challenges that are required to support the realisation of this opportunity*

- Describe the research challenges that will need to be involved to realise the idea and particularly any interdependencies or multidisciplinary working that will be required to deliver the idea successfully.

*Who else would be interested in supporting the development of this idea?*

- Is there any potential leverage expected from other stakeholders?
- If there are specific groups, or types of industry, that would potentially be interested in developing and supporting the idea, please describe who these are, e.g. SMEs; specific sectors such as pharmaceutical, automotive, defence industries

*What are the potential pathways and mechanisms to achieving the impact described previously?*

- Describe the ways in which the potential impact within this idea will be realised – what routes, pathways and mechanisms will be used to fulfil this?

*Give an initial indication of the expected time to delivery (in years) and value of investment that is required to deliver this idea*

- The nominal value (to the nearest £5M) should be appropriate to the estimated resources and effort required to realise the idea. This information will not be used for decision making purposes when prioritising ideas in the first instance; it will only be viewable by EPSRC at the initial assessment stage.

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### Which of the following does this idea fit with (you may select multiple boxes):

Please indicate which aspects the idea fits with: *Industrial Strategy Challenge Fund* and/or *Fundamental Research* and/or *Multidisciplinary research*

If you select the 'multidisciplinary research' box then please highlight what the relevant disciplines are, and whether the idea is multidisciplinary across engineering and physical sciences, or whether it also crosses other Research Council remits as well. For the latter, please highlight which other Research Councils may be interested in this idea. EPSRC may communicate with these Councils as appropriate.

### Who has been involved in the development of this big idea? (Maximum 100 words)

This can be academics, industry, charities and any other relevant research organisations in the UK. This information will not be shared with the panel at the first stage of consideration of the idea.

We are encouraging collaborative submissions from groups and networks, in addition to individual submissions. Please be aware that EPSRC may put you in contact with others who have submitted similar ideas in order to develop the idea(s) further, but will seek your permission to do so first.

### Contact details for further discussion, if required:

Please provide contact details for one person for correspondence, further information and discussion. This information will not be shared with the panel at the first stage of consideration of the idea.

## Frequently Asked Questions

### Is this a call for proposals?

**No, this is not a call for proposals.** This is an opportunity for the community to pitch their Big Ideas to EPSRC. We are looking for visionary, adventurous and inspirational ideas that will enthuse the public and Government. These will be on a larger scale than an individual research proposal or programme grant. There is no guarantee of funding.

### What is a Big Idea?

To clarify the kind of ideas that EPSRC is looking for during this process, the following qualities may provide a helpful starting point:

- Articulates a vision and has a 'wow factor' - will enthuse the public and Government alike
- Adventurous but also potentially achievable (*given the right people, resources and collective effort*)
- Transformative *and/or* enabling (i.e. it can be either of these qualities)
- Requires significant support, in terms of both the value of investment required, and the number of people that will have to be involved to achieve it
- An idea that can deliver impact, in all of its forms (*people, knowledge, society, economy*)

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- An idea proposed by an individual, or a group, but that will require significant support from the relevant community or communities, to champion the idea and drive it forward.
- An idea that is likely to *generate* the support of the research community - both in intellectual terms, and in terms of securing the involvement of people working in the relevant areas. The idea should galvanise communities to work together to realise the opportunity presented.
- Either:
  - A challenge with a defined problem, but no solution as yet (*as one type of big idea*),  
*or*
  - An idea that does not currently have a defined outcome or end target but is driven by the question: 'Wouldn't it be really great if we could.....?', *and/or*
  - An idea that would be enabling (if successful) and would generate further breakthroughs and outputs in multiple other areas of science

### What is not a Big Idea?

*The following qualities give an indication of what EPSRC is not looking for during this process:*

- An idea that is completely undeliverable (regardless of the level of investment and resource provided)
- Something that is scientifically impossible, i.e. something that is - and always will be - science fiction because it breaks fundamental laws of physics
- A research proposal
- Something that could be achieved now (through existing funding routes), or something that is a 'safe bet' (i.e. it is unadventurous)
- An idea pursued by an individual working independently, without any further engagement from the relevant research community / communities
- 'The obvious' – something that is generally well known already as a challenge
- An idea solely addressing a market need

### What is the difference between a Big Idea and a Grand Challenge?

In simple terms: a grand challenge usually describes an ambitious goal where there is a defined output or end target, and where the application of science and technology is needed to reach the goal.

Some Big Ideas could be framed as grand challenges; however, they could also be either of the following:

- an opportunity that involves research strands working together without a defined outcome, but more focused on trying to answer questions;
- an enabling idea, where successful completion would lead to multiple outputs or breakthroughs across many other areas - some of which may be known, but some of which are currently **unknown**.

## **EPSRC Big Ideas: Applicant Guidance**

### **How does EPSRC Big Ideas fit with the Industrial Strategy Challenge Fund (ISCF)?**

The EPSRC Big Ideas initiative aims to create a pipeline of fundamental and multidisciplinary research ideas, some of which will be suitable to feed into a variety of funding schemes arising from the Industrial Strategy. There is the potential for Big Ideas to be developed into firm business cases for when additional funding opportunities arise

### **Is it possible to submit things at the interfaces of remits with other funders?**

Yes, however we would expect EPSRC Big Ideas to be majority engineering and physical sciences remit, i.e. something that would be led by EPSRC if submitted through the usual routes.

### **Is it possible to submit things outside my usual area of expertise?**

Yes, please provide as much information as possible within the form.

### **What happens to Big Ideas once submitted?**

As there is no closing date, submitted ideas will be batched for consideration by an internal panel, who will check for validity and eligibility. The ideas will then be considered by the Big Ideas Advisory Group, who will select ideas for further development. Please be aware that, if prioritised, a Big Idea may require other people to lead and/or be involved in its development; this will be discussed as part of the process of developing an idea further beyond the initial submission. EPSRC may put you in contact with others who have submitted similar ideas in order to develop the idea further, but will seek your permission to do so first.