



Funding opportunity

Manufacturing research hubs for a sustainable future two: outline stage

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| Opportunity status: | Closed |
| Funders: | Engineering and Physical Sciences Research Council (EPSRC) |
| Funding type: | Grant |
| Total fund: | £55,000,000 |
| Award range: | £10,000,000 - £11,000,000 |
| Publication date: | 7 March 2023 |
| Opening date: | 7 March 2023 |
| Closing date: | 10 May 2023 4:00pm UK time |

Apply for funding to establish a large-scale, multidisciplinary research hub in support of manufacturing, environmental sustainability and net zero.

You must be based at a UK research organisation eligible for EPSRC funding.

Projects should address major, long-term challenges facing manufacturing industries.

We will fund up to six projects. EPSRC will fund 80% of the full economic cost of each project up to £11 million.

Funding for each project will be awarded over seven years.

- ⓘ The invited full proposal stage of this opportunity is likely to run on [the Funding Service](#), our new funding platform, rather than via Je-S.
- ⓘ The exact full application requirements and assessment criteria may alter from what is currently published.

Who can apply

Standard EPSRC eligibility rules apply. Research grants are open to:

- UK higher education institutions
- research council institutes
- UK Research and Innovation-approved independent research organisations
- eligible public sector research establishments
- eligible research and technology organisations
- NHS bodies with research capacity

[Check if your institution is eligible for funding.](#)

You can apply if you are a resident in the UK and meet at least one of the conditions:

- are employed at the submitting research organisation at a level equivalent to lecturer or above
- hold a fixed-term contract that extends beyond the duration of the proposed project, and the host research organisation is prepared to give you all the support normal for a permanent employee
- hold an EPSRC, Royal Society or Royal Academy of Engineering fellowship aimed at later career stages
- hold fellowships under other schemes (please contact EPSRC to check eligibility, which is considered on a case-by-case basis)

Holders of postdoctoral level fellowships are not eligible to apply for an EPSRC grant.

Submissions to this funding opportunity will not count towards the [EPSRC repeatedly unsuccessful applicants policy](#).

If you are currently restricted under the repeatedly unsuccessful applicants policy, you may submit unlimited outlines. However, you will only be able to submit one full proposal as principal investigator or co-investigator during the 12-month restricted period.

What we're looking for

Scope

Overview

Manufacturing research hubs for a sustainable future two will deliver a programme of innovative research in the engineering and physical sciences, related to the challenges in commercialising early-stage research and manufacturing.

The hubs will feature high quality, multidisciplinary research, strong engagement with relevant manufacturing industries, and will take a leadership role in their national network. In particular, they will demonstrate a cross-cutting and embedded approach to environmental sustainability, and promote active equality, diversity and inclusion action planning and delivery.

Manufacturing research hubs for a sustainable future two will complement and refresh EPSRC's existing portfolio of [future manufacturing research hubs](#) and the first round of [manufacturing research hubs for a sustainable future](#), and contribute to delivering EPSRC's [strategic delivery plan](#).

As such, you must clearly demonstrate in your application how your proposed hub will contribute to at least one of the following EPSRC priorities:

- engineering net zero
- artificial intelligence, digitalisation and data: driving value and security
- transforming health and healthcare
- quantum technologies
- physical and mathematical sciences powerhouse
- frontiers in engineering and technology
- digital futures

What is a hub?

Hubs are expected to deliver:

- high quality, multidisciplinary research
- a strong ethos of skills development for staff
- efficient management of hub operations
- a clear path to realising impact

Hubs will be leaders within the landscape, driving forward the national manufacturing research agenda in their area and connecting with other players in the community, including users, policymakers, and other public investments (for example Catapults, other hubs and EPSRC investments).

The hub and spoke model will be used, with the hub and spokes working cooperatively towards achieving the overall vision. The lead institution is responsible for the oversight, core management and running of the hub, and the role of the surrounding academic or industrial spokes in different parts of the UK is to input specific expertise in areas that complement those from the lead institution. Grant funding may be used for spoke activities provided the spoke meets EPSRC's [organisational eligibility requirements](#).

The hub is expected to deliver added value (be more than the sum of its parts) by demonstrating strong connectivity between all hub partners and offering additional facilities, training and development than what is already provided by individual institutions.

Hub partnerships and impact should span all scales, building on the successes of previous similar investments to deliver impact in regional economies while also playing a national role in an international context.

In line with UK Research and Innovation's objective to build world class places through research and innovation, you should bring together the right people and organisations from places across the UK, to tackle the challenges relevant to your chosen research area and relevant places. You should consider how your hub:

- aligns with the strengths and needs of places
- delivers positive outcomes for specific places in the UK
- aligns with and supports industrial and civic ambitions or priorities
- supports local and regional specialisation and innovation

Funding opportunity objectives

The objectives are to:

- deliver a programme of high quality, multidisciplinary research related to the challenges in commercialising early-stage research and manufacturing
- create strategic advantage and drive forward the national manufacturing research agenda in a particular area, as leaders within the landscape
- centre and embed environmental sustainability throughout hub aims, objectives, operations and research outcomes, considering the context of each hub's specific research area
- engage with diverse and relevant partners to ensure that research is co-created and co-delivered with users
- embed equality, diversity and inclusion (EDI) within hub operations and activities by developing and delivering an EDI action plan, led by the hub EDI lead, which takes into account the specific EDI context and challenges within the hub's research area and community

Research challenges

This opportunity is to support innovative research programmes in engineering and the physical sciences, related to the challenges in commercialising early-stage research within manufacturing.

The hub research programmes should:

- draw on advances in underlying science and technology
- focus on the design and development of new and existing manufacturing processes, systems and networks
- explicitly consider the pathway to manufacture, including production scale up and integration within the wider industrial system

You will need to articulate the hub's strategy at each stage of the value chain (discovery, understand, integrate or adapt, and demonstration and deploy).

We welcome applications focusing on diverse research areas and diverse sectors and we expect all hubs to integrate environmental sustainability at all stages of the research and innovation process. By this, we do not mean that hub research must focus on sustainable manufacturing as a research area. Instead, we expect hubs to:

- embed environmental sustainability in all aspects of the hub, ensuring that environmental impact and mitigation is explicitly considered at all stages of the research lifecycle and throughout the lifetime of the hub
- identify the major challenges relating to environmental sustainability in the chosen research area and integrate these as part of the hub research programme. You should consider ambitious challenges, which may be at a lower technology readiness level but will support a step change in future sustainability, as well as how to improve and embed sustainability in technology that is closer to commercialisation
- demonstrate leadership in environmental sustainability by carrying out hub operations in an environmentally sustainable way, with consideration of how to minimise the negative environmental impact of running the hub. You should seek opportunities to influence others and leave a legacy of environmental sustainability within the broader operations of your academic and industry partners

Sustainability may be used to cover three broad areas: social, economic and environmental.

While hubs may wish to consider some aspects of social and economic sustainability as part of their programme, this is not the focus of this funding opportunity. Environmental sustainability may include consideration of such broad areas as:

- reducing carbon emissions
- protecting and enhancing the natural environment and biodiversity
- waste or pollution elimination
- resource efficiency and circular economy

Environmental sustainability is complex and there are often conflicting drivers. Hubs will need to take a whole systems approach to enable consideration of the trade-offs, risks and mitigations associated with different approaches and ensure research outcomes are used to support industry and government partners to make informed choices and mitigate unintended consequences.

We are seeking to refresh and complement our existing future manufacturing hubs portfolio. Therefore, we will not fund two hubs in the same research area as each other. We are also not accepting applications in the following areas, as we have sufficient coverage from our existing hubs portfolio:

- vaccines manufacture
- cellular agriculture

Further to this, there are additional existing hubs continuing work, where EPSRC would not fund substantial overlap, and you are advised to ensure this is the case:

- [Future biomanufacturing research hub](#)
- [SUSTAIN manufacturing hub](#)
- [Future electrical machines manufacturing hub](#)

EPSRC staff will check outlines for remit and if we identify that the proposed research has significant overlap with these areas, we will not progress the outline

to panel and the application will be rejected as out of scope. We will make this assessment on the basis of the outline, as written, including the cover letter (where you may include information for EPSRC that will not be seen by the expert panel), so please ensure that the research challenges you propose to address are clearly stated.

Where multiple outlines are submitted within similar areas, we will seek the advice of the panel and consider the portfolio balance across high quality proposals as part of the decision.

Proposals must demonstrably lie primarily within the remit of EPSRC and must be within the scope of this funding opportunity. The research challenges must lie primarily within manufacturing. Any proposals that EPSRC deems out of remit or scope may be rejected without reference to peer review.

Industrial engagement

EPSRC expects a hub director to have a track-record of collaborating with users and for the hub proposals to demonstrate cash and in-kind support from relevant and diverse sectors.

A [recent evaluation of EPSRC manufacturing research](#) has set the bar for future leverage and impact high. Therefore, while there is no required level for cash and in-kind contributions at the point of application, we expect that throughout the lifetime of the hub, the number of project partners will increase, and cash or in-kind contributions will rise to a level at least equal to the EPSRC funding contribution.

To ensure that research outcomes from the hubs can be maximally exploited by industry, we are looking for clear evidence of genuine, substantive partnerships, with co-creation and co-delivery of projects and activities, in addition to financial contributions.

The strategy for engaging with industry should include plans to engage with a new and emerging range of relevant manufacturing companies, including small and medium-sized enterprises, throughout the lifetime of the hub. In the hub governance procedures, advice from users must be appropriately used in the hub decision-making strategy to grow user engagement in terms of funding and numbers of users.

To evidence your approach to developing strong partnerships, you are asked to include a user engagement strategy (mandatory attachment, two pages) in your outline application.

Equality, diversity and inclusion (EDI)

As leaders in the community, hubs will be expected to embed EDI in all their activities throughout the lifetime of the hub. If funded, this will include identifying the specific EDI challenges and barriers in their own environment and developing a strategy to address these, with reference to EPSRC's published [expectations for EDI](#).

Hubs must ensure that they request appropriate resources to develop and deliver their EDI strategy effectively. This must include at least one costed staff post with responsibility for EDI (the hub EDI Lead).

EPSRC does not specify any particular full-time equivalent (FTE), salary level or career stage for this post. Hubs may decide what is most appropriate for their programme, while giving due consideration to flexible working.

At stage two (full proposals), hubs should include information on EDI resources requested (including the mandatory costed staff post for the EDI Lead and any other resources, for example mentoring schemes, training, workshops and data exercises).

Funding available

The total EPSRC funding available for this opportunity will be up to £55 million, to fund up to five manufacturing research hubs for a sustainable future. Funding for each hub will be from £10 million to £11 million, awarded over seven years.

Start dates must be within 1 April and 31 July 2024 and will be awarded with a possible slippage of up to three months from that start date. We will award 80% of the full economic cost of the project, and your organisation must agree to find the balance.

This opportunity is the second in a series of planned opportunities for manufacturing research hubs for a sustainable future over the coming years.

Learn about the [costs you can apply for](#).

Equipment

Funding is available in this opportunity for items of equipment dedicated to the hub, costing up to £400,000 (including VAT). These funds will be awarded at 80% of the full economic cost.

Learn about [EPSRC's approach to equipment funding](#).

Responsible innovation

You are expected to work within the [EPSRC framework for responsible innovation](#).

International collaboration

If you are planning to include international collaborators on your proposal, you should visit Trusted Research for [guidance on getting the most out of international collaboration while protecting intellectual property, sensitive research and personal information](#).

How to apply

You must apply using the [Joint Electronic Submission \(Je-S\) system](#).

You can find advice on completing your application in:

- [the Je-S handbook](#)
- [EPSRC guidance for applicants](#)

We recommend you start your application early.

Your host organisation will also be able to provide advice and guidance.

Submitting your application

Before starting an application, you will need to log in or create an account in Je-S. You will not be able to submit your application until all investigator Je-S accounts are fully active. When creating a new account, please leave at least five working days before the deadline.

When applying:

1. Select 'documents', then 'new document'.
2. Select 'call search'.
3. To find the opportunity, search for: 'Manufacturing research hubs for a sustainable future Round 2 Outlines'.

This will populate:

- council: EPSRC
- document type: outline proposal
- scheme: outline
- call/type/mode: 'Manufacturing research hubs for a sustainable future Round 2 Outlines'

Once you have completed your application, make sure you 'submit document'.

You can save completed details in Je-S at any time and return to continue your application later.

If successful at the outline stage, you will be invited to submit a full application. We will send you guidance on completing a full application at this next stage.

The invited full proposal stage of this opportunity is likely to run on [The Funding Service](#), our new funding platform, rather than through Je-S.

The Funding Service has a digital form-based format. This means that the exact application requirements and assessment criteria may alter from what is currently published. Further information will be published in the full proposal funding opportunity.

Deadline

EPSRC must receive your application by 10 May 2023 at 4:00pm UK time.

You will not be able to apply after this time. Please leave enough time for your proposal to pass through your organisation's Je-S submission route before this date.

You should ensure you are aware of and follow any internal institutional deadlines that may be in place.

Attachments

Your application must also include the following attachments:

- case for support (four pages, mandatory)
- additional document: user engagement strategy (two pages, mandatory)
- cover letter (optional attachment with no page limit and not seen by peer review)

You should attach your documents as PDFs to avoid errors. They should be completed in single-spaced Arial 11 font or similar-sized sans serif typeface. EPSRC will not accept any other attachment types under this opportunity.

Read our advice on [writing proposals for EPSRC funding](#).

Case for support

Your application must include a case for support of up to four pages. You should include the following headings.

Hub concept

This section should:

- describe your hub concept and its context
- clearly state the research challenges that your hub will address. These research challenges must lie within EPSRC's remit and fit within the scope of the opportunity
- provide evidence that the concept is high quality, addressing all points listed in the 'hub quality' assessment criterion

Fit to opportunity

This section should:

- describe how your proposed hub aligns to the funding opportunity objectives described in this guidance
- make the case for why hub funding is required to address the stated research challenges and achieve the stated vision
- describe how the proposed hub, with its spokes, would deliver added value, over and above what would be expected for a standard research programme

Team track record

This section should be up to one side of A4 and should demonstrate that:

- the team has the appropriate expertise and experience to conduct the research
- the director has the appropriate expertise and experience to lead the hub
- the hub and spoke institutions are appropriate environments for the research to be conducted

User engagement strategy

Your application must include a user engagement strategy (uploaded as a two-page additional attachment), which should describe how you will:

- form new collaborations with users throughout the hub lifetime
- attract additional co-funding (both direct and in-kind) from new and existing project partners to reach a level equal to or greater than the EPSRC contribution
- prioritise co-creation and co-delivery of projects with project partners from relevant industries, ensuring that user needs are forefront throughout the development and delivery of hub research and activities
- make best use of the financial, in-kind, and intellectual contributions of project partners to meet the needs and objectives of the hub
- foster genuine and committed engagement with project partners, where project partners are a core part of the delivery team and develop strong relationships with the hub

Project partner letters of support are not required at the outline stage. Project partners that you have already brought on board should be listed on the Je-S form.

The user engagement strategy will be assessed at stage one (outlines) under the 'applicant and partnerships' assessment criterion.

Ethical information

EPSRC will not fund a project if it believes that there are ethical concerns that have been overlooked or not appropriately accounted for. All relevant parts of the 'ethical information' section must be completed.

[Guidance on completing ethical information on the Je-S form.](#)

How we will assess your application

This will be a two-stage assessment process and this outline opportunity is stage one.

At stage one, we are looking for applications that are a good fit for the opportunity. Any outline proposals EPSRC consider to be outside the scope of the opportunity, or not primarily within the remit of the EPSRC [manufacturing the future](#) theme, will be rejected prior to assessment, without recourse to an expert panel. Outline proposals that meet the scope and remit will be assessed by an expert panel.

Applicants who are successful at stage one will be invited to submit full proposals to stage two. At stage two, full proposals will be assessed by postal peer review, followed by an interview panel.

In addition to the recommendations of the panel, EPSRC will take into account the wider portfolio of manufacturing hubs when making the funding decision (we will not fund multiple hubs in the same research area).

In the event of this opportunity being substantially oversubscribed as to be unmanageable, EPSRC reserves the right to modify the assessment process.

Assessment criteria

Stage one assessment criteria (outlines)

Hub quality (primary)

The quality of the proposed hub concept, making reference to:

- the novelty, ambition, adventure, and transformative aspects of the concept
- the timeliness and relevance of the concept to the UK manufacturing industry and other identified stakeholders
- the extent to which the hub would contribute to UK economic, environmental, societal and manufacturing industry needs

Fit to opportunity scope (primary)

The suitability of the proposal for this funding opportunity, making reference to:

- the alignment of the proposal to the funding opportunity objectives
- the appropriateness of critical mass funding and the hub and spoke model for addressing the identified research challenges and the extent to which this would deliver added value

Applicant and partnerships (secondary)

The ability to deliver the proposed hub concept, making reference to:

- the appropriateness of the track record of the applicant or applicants
- the balance of skills of the project team, including collaborators
- the appropriateness of the plans for user engagement
- evidence that hub projects and activities will be co-created and co-delivered with users

Stage two assessment

Stage two of this opportunity is likely to run on [The Funding Service \(TFS\)](#) our new funding platform, rather than via Je-S.

TFS has a digital form-based format. This means that the exact application requirements and assessment criteria may alter from what is currently published. Further information will be published in the full proposal opportunity.

Stage two assessment criteria

At stage two, peer reviewers and panel members will assess the full proposals using the following indicative criteria headings:

- vision: what are you hoping to achieve with your proposed work?
- approach: how are you going to deliver your proposed work?
- environmental sustainability: how will you embed environmental sustainability within all the hub activities?
- applicant and team capability to deliver: using the principles of Résumé for Research and Innovation (R4RI), write a narrative demonstrating you and your team's ability to successfully deliver the proposal
- resources and cost justification: what will you need to deliver your proposed work and how much will it cost?
- ethics and responsible research and innovation: what are the ethical or responsible research and innovation considerations of the proposed work?

These are subject to change. Full details will be provided in the stage two guidance.

Feedback

Feedback will not be provided at stage one unless specifically requested by the expert panel.

Feedback at stage two will be provided in the form of reviewer comments.

Get help with developing your proposal

For help and advice on costings and writing your proposal please contact your research office in the first instance, allowing sufficient time for your organisation's submission process.

Contact details

For help and advice on costings and writing your proposal, please contact your research office in the first instance, allowing sufficient time for your organisation's submission process.

Ask about this funding opportunity

Laura Totterdell, Senior Portfolio Manager

Email: laura.totterdell@epsrc.ukri.org

Telephone: 07714 840842

Naomi South, Portfolio Manager

Email: naomi.south@epsrc.ukri.org

Manufacturing team

Email: manufacturingpeerreview@epsrc.ukri.org

Please include 'Manufacturing hubs round two' in the subject line.

We aim to respond within five working days.

Get help with Je-S

Any queries regarding the submission of proposals through Je-S should be directed to the Je-S helpdesk.

Email

jeshelp@je-s.ukri.org

Telephone

01793 444164

[Je-S helpdesk opening times](#)

Additional info

Learn more about [future manufacturing research hubs](#).

Background

This funding opportunity for manufacturing research hubs for a sustainable future two, follows the [first round of manufacturing research hubs for a sustainable future](#), which concludes in March 2023. The outcomes from round one will be published on [Grants on the Web](#) shortly.

The series of manufacturing research hubs for a sustainable future opportunities builds on the success of previous EPSRC critical mass investments in manufacturing, including EPSRC Innovative Manufacturing Research Centres, EPSRC Centres for Innovative Manufacturing and [EPSRC Future Manufacturing Hubs](#).

Manufacturing is an essential part of the UK economy. The UK manufacturing sector is diverse, with activities in:

- aerospace
- pharmaceuticals
- chemicals
- automotive
- electronics
- biotechnology
- food and drink

The sector needs to be innovative to compete on a global scale, including meeting [UK net zero](#) targets and addressing [UN Sustainable Development Goals](#).

EPSRC aims to support this innovation through the research we fund. By ensuring researchers co-create their programmes with industry, we ensure major, long-term challenges are addressed and emerging opportunities are captured.

[UK Research and Innovation's \(UKRI\) environmental sustainability strategy](#) lays out our ambition to actively lead environmental sustainability across our sector. This includes a vision to ensure that all major investment and funding decisions we make are directly informed by environmental sustainability, recognising environmental benefits as well as potential for environmental harm.

In alignment with this, UKRI is tackling the challenge of environmental sustainability through our '[building a green future](#)' strategic theme, which aims to develop whole systems solutions to improve the health of our environment and deliver net zero, securing prosperity across the whole of the UK.

Our current linear 'take-make-dispose' economy is not sustainable. The world's consumption of raw materials is set to [nearly double by 2060](#) as the global economy expands and living standards rise, placing twice the pressure on the environment, for example via greenhouse gas (GHG) emissions and depleted natural capital.

A circular economy keeps resources in use for as long as possible, extracting the maximum value from them while in use, and recovering products and materials after use. More circular use of resources is crucial to achieving net zero carbon emission targets, as well as reducing waste and pollution harmful to biodiversity, and enhancing health and resource security.

It offers the UK significant economic, social and environmental benefits (see the [Next Manufacturing Revolution report \(PDF, 6.4MB\)](#)), including an estimated £10 billion profit increase for manufacturers, a 4.5% reduction in UK GHG emissions, and [in excess of 200,000 new jobs](#) from only partial implementation.

Responsible innovation

EPSRC is fully committed to developing and promoting responsible innovation. Research has the ability to not only produce understanding, knowledge and value, but also unintended consequences, questions, ethical dilemmas and, at times, unexpected social transformations.

We recognise that we have a duty of care to promote approaches to responsible innovation that will initiate ongoing reflection about the potential ethical and societal implications of the research that we sponsor and to encourage our research community to do likewise.

Supporting documents

[Equality impact assessment \(PDF, 188KB\)](#)

Timeline

- **7 March 2023**
Stage one (outlines) opening date

- **10 May 2023 4:00pm**
Stage one (outlines) closing date

- **Week commencing 3 July 2023**
Stage one (outlines) expert panel meeting

- **11 July 2023**
Stage two (full proposals) opening date

- **19 September 2023 4:00pm**
Stage two (full proposals) closing date

- **Week commencing 12 February 2024**
Stage two (full proposals) interview panel

- **Early March 2024**
Expected funding decision

- **1 April to 31 July 2024**
Grant start date

Guidance on good research

[Good research resource hub](#)

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<https://www.ukri.org/opportunity/manufacturing-research-hubs-for-a-sustainable-future-two-outline-stage>