Future Manufacturing Research Hubs 2016

Call type: Invitation for outlines

Closing date: 19 November 2015


Summary

EPSRC is inviting outline applications for a number of large-scale, multidisciplinary research Hubs to address major, long-term challenges facing manufacturing industries, as well as capture opportunities from emerging research areas.

Research Council funding for each Hub will be up to £10 million over seven years, supporting a programme of innovative research in the engineering and physical sciences, related to the challenges in commercialising early stage research. The Hubs will feature high quality, multidisciplinary research, strong engagement with relevant manufacturing industries, and will take a leadership role in their national network.

A two-stage assessment process will be used, involving outline applications and full proposals.

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Background

Manufacturing is an essential part of the UK economy, whether contributing to the UK’s Gross Domestic Product, exports or economic resilience, or driving the need for research and development as well as highly skilled jobs. The UK manufacturing sector is diverse, including activities in the aerospace, pharmaceutical, chemical, automotive as well as food and drink industries.

The vision for the EPSRC Manufacturing the Future theme is for the research we sponsor to help provide future opportunities for this sector, whether addressing major, long term challenges, or capturing emerging research areas.

The UK manufacturing innovation landscape has shifted significantly in the last few years and our investments should reflect our place in this changing landscape, linking with developments such as the Government’s Industrial Strategy, the High Value Manufacturing Landscape Analysis by Innovate UK, the establishment of the Catapult Centres as well as reports such as the Foresight report on the Future of Manufacturing (https://www.gov.uk/government/publications/future-of-manufacturing). The Foresight Report highlighted a number of opportunities and drivers for future manufacturing including:

- Mass personalisation of low-cost products, on demand
- Distributed production
- Digitised manufacturing value chains
- Environmental sustainability/circular economy
- A systems-based approach
- A wider view of value creation.

To help manufacturing industries respond to these opportunities and drivers, we are looking to evolve the nature of our critical mass investments, building on the successes of the Innovative Manufacturing Research Centres (https://www.epsrc.ac.uk/research/centres/imrcs/) and the EPSRC Centres in Innovative Manufacturing (https://www.epsrc.ac.uk/research/centres/innovativemanufacturing/). This call continues this evolution by seeking to support further Future Manufacturing Research Hubs (following on from last year’s call), to add to our existing critical mass portfolio.

Our vision for these investments is to support UK manufacturing industries by supporting the commercialisation of early stage research opportunities in emerging areas, through a network of critical mass research Hubs.

The objectives for this call are for the Hubs to:

- Create and deliver a coherent programme of high quality, multidisciplinary research that addresses major, long term challenges facing manufacturing industries, as well as captures future industrial opportunities from emerging research areas
- Engage strongly with relevant manufacturing industries, to enhance knowledge exchange between academia and industry, and deliver significant impact
- Take a leadership role in the national research landscape, conducting outreach activities and driving research excellence and capability in their area through further, wider activity
• Take a leadership role in the national innovation landscape, influencing and working with other stakeholders in the innovation chain (particularly Innovate UK & the Catapult network), to catalyse activity and ensure acceleration of impact

• Work collegiately with other Manufacturing the Future critical mass activities (e.g. Hubs, Centres, Programmes) to advocate for manufacturing research, nationally and globally.

Scope of call
The scope of this call is to support innovative research programmes in the engineering and physical sciences, related to the challenges in commercialising early stage research.

The Hub research programmes should:

• Draw on advances in underlying science and technology, such as (but not limited to) information and communications technology, advanced and functional materials, biotechnology or sustainable/green technologies

• Focus on the design and development of new and existing manufacturing processes, systems and networks, looking to take advantage of the opportunities to manufacturing sectors offered by such developments

• Explicitly consider the pathway to manufacture, including production scale up and integration within the wider industrial system.

Applicants will therefore need to articulate the Hub’s strategy at each stage of the value chain (discovery, understand, integrate/adapt, demonstration and deploy). EPSRC support will be focused on early stages in the value chain. The strategy for later stages in the value chain, often described as the “valley of death”, needs to be ambitious but realistic, describing how funding for development and commercialisation would be secured and the expected roles of different partners along the pathway to manufacturing.

A key characteristic of the Future Manufacturing Research Hub model is that the research is driven by the long-term research challenges of users. User collaboration is therefore an essential aspect for these Hubs.

All proposals must lie predominantly within EPSRC’s remit. However, where aspects of a proposal overlap with the remits of other research councils, we will consult with those councils regarding their potential interest in becoming involved.

EPSRC will only fund one Hub within an area and therefore will not fund Hubs in areas already covered by existing Future Manufacturing Research Hubs, EPSRC Centres for Innovative Manufacturing (https://www.epsrc.ac.uk/research/centres/innovativemanufacturing/) or other EPSRC critical mass activities (e.g. End Use Energy Demand Centres). However, the EPSRC Centres for Innovative Manufacturing in Additive Manufacturing, Advanced Metrology, Composites, Continuous Manufacturing and Crystallisation, Emergent Macromolecular Therapies, Industrial Sustainability, Intelligent Automation, Through-life Engineering Services and Ultra Precision are due to finish shortly so EPSRC would accept bids in these areas, as well as bids from any areas not already covered.
For more information about EPSRC’s portfolio and strategies, see our website: https://www.epsrc.ac.uk/research/ourportfolio/.

**Future Manufacturing Research Hub characteristics**

The core Hub activity should be based in a single location, with other institutions or groups acting as ‘spokes’, inputting specific expertise in areas that complement those from the lead institution.

**Hubs**

Applicants will need to demonstrate that their Hub will:

- Deliver a programme of high quality research with a strong, multidisciplinary team, building on a history of excellence in research and ensuring a strong engagement with training and the people pipeline

- Have a clear, shared Hub vision, encompassing a core mission for the Hub, a strategic view of the research programme and activities (i.e. not a portfolio of separate research activities), the host institutional strategy, Hub sustainability, and a mechanism for reviewing this vision

- Maintain a strong operational core to ensure the efficient operation of the Hub, with an appropriate, robust management structure in place, including good measures of progress, clear team roles and a recruitment strategy

- Demonstrate creative and innovative research approaches, drawing on emerging research opportunities and bringing in new disciplines, being self-sustaining in the generation of new research ideas and providing space to fail

- Show the added value of being a Hub, with strong connectivity between parts of the Hub, with a coherent, focussed portfolio of projects and being resilient to change, e.g. succession plans for key investigators/researchers

- Have a clear business need and a clear path to commercialisation for translation of emergent research opportunities, providing a suite of equipment/techniques for industry to access and de-risk research

- Actively seek to maximise the benefits from the research to UK manufacturing industries (through commercialisation, translation into policy/practice, partnership and/or other approaches) and demonstrate these impacts to Government, industry and other stakeholders

- Have significant direction and support from collaborators (e.g. co-creation of the business case with industry), exposing academia to industrial problems, with the expectation that this support will increase over the lifetime of the grant, but not with one partner dominating

- Have a framework for engagement with collaborators, managing and evolving the group of collaborators through the lifetime of the Hub

- Drive forward the national (manufacturing) research agenda in their area, building on the Hub and Director’s high profile and authority in the research landscape
• Engage with (national & international) academia beyond core Hub membership, supporting feasibility projects, sharing equipment and promoting networking

• Provide leadership in the innovation landscape, influencing and working with other stakeholders to accelerate impact and generate growth

• Work with other public investments in the manufacturing landscape (e.g. the Catapult network) to align capabilities, link up resources and ensure that research outputs can be taken towards commercialisation

• Respond to the changing manufacturing landscape, by refreshing their research agenda and evolving their partnerships

• Work as a cohort with other Manufacturing the Future critical mass activities (e.g. Hubs, Centres, Programmes) and EPSRC to further the manufacturing research agenda, influencing policy and contributing to the national debate in manufacturing.

Spokes
Spokes should provide specific expertise in areas that complement those from the Hub. This expertise could be in the form of research skills/capability, or in research translation and knowledge exchange.

We expect the overall number and identity of spokes to evolve over the life of a Hub, with spokes being engaged with the Hub at differing levels of intensity and over differing timescales, in the same manner that the Hub collaborators would evolve.

Research spokes would comprise groups providing research expertise not in the core Hub research group, whether from a separate institution or from the wider Hub host institution. Research spoke engagement could cover a range of activities, including sharing platform support resources, sharing equipment, feasibility projects and promoting. The Hub is also expected to network and engage other researchers across the UK with relevant expertise, beyond the hub and spokes.

Innovation spokes would act with the Hub to improve the impact of the Hub. They would act as a conduit working across TRLs, facilitating the translation of research outputs from the Hub to business, providing a clear path to commercialisation for translation. Potential innovation spokes could include Catapults, UK national laboratories, Government organisations having acknowledged science standing and independent verification capacity and Research and Technology Organisations. Funding for the innovation spokes’ activities will depend on the business model of the spokes.

Funding available
The EPSRC Manufacturing the Future Theme will provide up to £10M (Research Council contribution, not FEC) to support each Future Manufacturing Research Hub for up to seven years in duration. The exact number of Hubs supported through his call will be dependent upon the outcome of the Government spending review.

The £10M funding for each Hub is available to support the following activities.

• ‘Platform’ research funding, supporting:
  o Retention of key staff and nurturing collaborations
  o Networking with other centres in the UK and overseas
- Core research activities or technologies that are necessary or valuable to the Hub, including the appropriate dissemination of research knowledge
- Feasibility studies to be conducted as part of the outreach programme.

- ‘Grand challenge’ research funding to support up to two major research projects/themes, the focus of which are driven by long-term manufacturing research challenges of users and/or capturing future industrial opportunities from emerging research areas.

- Operational funding, supporting:
  - Hub administration, management and governance
  - Hub marketing, communications and business development
  - Hub outreach and public engagement
  - Creativity@home funding to help take creativity and radical idea generation to a higher level, see annex 2.

- Pathways to impact and commercialisation activities (https://www.epsrc.ac.uk/funding/howtoapply/preparing/economicimpact/).

### Equipment
Where possible, researchers are asked to make use of existing facilities and equipment, including those hosted at other universities. If equipment is needed as part of the research proposal, applicants must follow the following rules for requesting equipment.

Individual items of equipment over £10,000 in value and up to the current OJEC (Official Journal of the European Communities) procurement threshold can be included on research proposals submitted through this call, but research organisations will be expected to make a contribution to the cost.

Requests for equipment over the current OJEC threshold on proposals associated with this call will not need to go through the separate Strategic Equipment Panel but will be considered as part of the assessment of the Hub proposals.

For more information on equipment funding, please see: https://www.epsrc.ac.uk/research/facilities/equipment/.

### Eligibility
For information on the eligibility of organisations and individuals to receive EPSRC funding, see the EPSRC Funding Guide: https://www.epsrc.ac.uk/funding/howtoapply/fundingguide/.

Although this call is a targeted funding opportunity provided by EPSRC, for this call we will only accept applications led by UK Higher Education Institutions (HEIs).

### How to apply
A two-stage application process will be used.

- **Stage 1 Outline proposal** - application details are detailed below.
• **Stage 2 Full proposal** - application details are contained in Annex 1, for future information. Further details of the Je-S submission route, including the full proposal deadline, will be made available to the successful outline applicants. Only successful applicants will be invited to submit an application to the full proposal stage. No other applications will be accepted.

**Submitting your outline application**

You should prepare and submit your proposal using the Research Councils’ Joint electronic Submission (Je-S) System (https://je-s.rcuk.ac.uk/).

**Although both single and multi-institutional bids are welcome, only one Je-S application form should be submitted per bid. Joint Proposals will not be accepted.**

When adding a new proposal, you should select:

- Council ‘EPSRC’
- Document type ‘Outline Proposal’
- Scheme ‘EPSRC Outline’
- On the Project Details page you should select the ‘Future Manufacturing Research Hubs 2015 - Outlines’ call.

Note that clicking ‘submit document’ on your proposal form in Je-S initially submits the proposal to your host organisation’s administration, not to EPSRC. Please allow sufficient time for your organisation’s submission process between submitting your proposal to them and the call closing date. EPSRC must receive your application by **16:00 on 19 November 2015**.

Guidance on the types of support that may be sought and advice on the completion of the research proposal forms are given on the EPSRC website (https://www.epsrc.ac.uk/funding/howtoapply/) which should be consulted when preparing all proposals.

**Please also note that it is the responsibility of the lead organisation to ensure all the documentation required is submitted with the proposal form.**

You should consult your Research Administration at the earliest opportunity when preparing your outline proposal, specifically with regard to costing your outline proposal and any internal procedures you need to follow.

**Guidance on writing your outline application**

In addition to the proposal details that you need to complete in Je-S (including outline costs and a non-technical summary of the proposal), you will also need to prepare the following attachments:

- Outline Case for Support
- CV of proposed Director
- Statement of support from the host university(ies).

**Outline Case for Support**

The case for support should be a maximum of four sides of A4 and should use the following headings:
• **Overall vision for the Hub.** This should include the Hub vision and how it meets the aims and expectations of the Future Manufacturing Research Hub model. It should also include an overview of the manufacturing research opportunities and challenges and the approaches to addressing them. This should include evidence that users have been closely involved in the preparation of this proposal from the outset. Separate letters of support from users are not required at the outline stage.

• **Leadership qualities of the Director.** In addition to the information provided in the CV, please provide evidence that the Director has the necessary skills and competencies to drive the Hub vision.

• **UK need for a Future Manufacturing Research Hub** in this area. This should be set in an international context with reference to relevant academic research, business requirements and potential manufacturing opportunities.

• **Capability of the Hub team.** This should include evidence:
  o that you have the necessary skills within the team to address the proposed research challenges, or a route to access those skills
  o of user collaboration, direction and the ability to leverage cash and in-kind support from these users.

• **Appropriateness of this funding mechanism.** It will be important to articulate not only that the overall research challenges and business opportunities are best addressed through this type of funding, but also that it is appropriate for the EPSRC to provide the funds, given the funding research landscape.

• **Resources requested** including the percentage of time the principal and co-investigators will be spending on the project. Explain the distribution of funding requested for the directly incurred costs of the proposal (i.e. the ‘platform’, ‘grand-challenge’ and operational support funding).

**CV of proposed Director**

This should be a maximum of two sides of A4. Please provide a CV for the Director that demonstrates a track record in managing large complex research grants and of collaborating with users. The CV should be uploaded into Je-S as ‘CV’ attachment type.

**Statement of support from the university(ies).**

Please attach letters from all universities involved articulating how the Hub aligns with the university’s research strategy. The letter should be signed by the Pro-VC for Research or equivalent.

Please combine all letters into one document and upload into Je-S as ‘Host organisation Statement’ attachment type.

**Attachment formats**

Please note that on submission to council all non-PDF documents are converted to PDF. The use of non-standard fonts may result in errors or font conversion, which may result in changes to the layout of the document and could affect the overall length of the document. For this reason we recommend that the documents are converted to PDF files before uploading.
Assessment

Assessment process
A two-stage assessment process will be used.

Stage 1: Outline Proposal
The outline bids will be considered by a peer review panel based solely on the information provided on the Je-S form, in the case for support and the accompanying attachments.

The peer review panel, with industrial and academic members, will first categorise the proposals into broad areas and then prioritise proposals within those categories according to the assessment criteria. The panel will also comment on the relevant merit of the proposals across the categories.

EPSRC will decide, based on the advice of the peer review panel, which proposals to invite to the full stage.

Stage 2: Full Proposal
Full proposals will be sent to independent peer reviewers, including at least one nominated by the applicant. The peer reviewers’ role will be to comment on all the assessment criteria, but primarily on the quality of the research. Applicants will be invited to respond to the reviewers’ comments.

Full proposals that receive sufficiently supportive reviewer comments, as determined by a full proposal sift panel, will be then be rank ordered against each other via an interview stage.

The interview panel, with industrial and academic members, will rank the proposal against the full assessment criteria, using the reviewer comments, PI response and overall interview performance. The PI plus up to three others identified on the proposal will be allowed to attend the interview, including at least one representative of the collaborators. If the PI is not the Director, then the Director should attend the interview as well.

EPSRC will decide, based on the advice of the interview panel, which proposals to fund.

Assessment criteria

Stage 1: Outline Proposal
The criteria for assessment of outline proposals will be, in no particular order of priority:

- Fit to the scope of the call, including appropriateness of EPSRC funding
- Hub vision, including alignment to institutional strategy(ies)
- Leadership qualities of Director
• Innovative nature of the manufacturing research programme
• UK need for the Hub, including the relevance of the collaborators
• Capability of the Hub team to tackle the research challenges, engage with users and to deliver impact, including levels of collaborator engagement
• Appropriateness of resources requested and management arrangements.

It is important that all the assessment criteria are met as outline proposal assessment will consider all of them equally.

Stage 2: Full Proposal
The criteria for assessment of full proposals will be, in no particular order of priority:

• Quality of the manufacturing research programme
  o The appropriateness of the proposed methodology
  o Degree of novelty in the research plans and approach
  o The ambition, adventure, and transformative aspects identified

• National Importance of the manufacturing research programme
  o Potential for transformative impact on the research community, society and the UK economy including emerging industries

• Pathway to Impact
  o The effectiveness of the activities identified to help realise the Hub impacts, including networking and outreach to other research and user groups, as well as public engagement
  o Appropriateness of the resources requested for this purpose
  o The relevance and appropriateness of the beneficiaries and collaborators

• Applicant team
  o Leadership qualities of the Director
  o Appropriateness of the track record of the applicant(s)
  o Balance of skills of the project team to deliver the aims and objectives of the Hub
  o Appropriate team training and development

• Resources and Management
  o Appropriate management and governance plans, including the level of business/user direction and support
  o Appropriate resources requested and justified

• Proposal Assessment
  o Overall strategy for the Hub, including vision and plans for longer term sustainability
  o Level of commitment from the university(ies).

Moving forward
There will be a briefing session for those groups invited to submit a full bid at the EPSRC Offices in Swindon in early February 2016.
We do not expect to see large changes in requested resources from outline to full proposal. Significant changes to the bid, and therefore from the proposal considered at the outline meeting, will be considered a new proposal and rejected.

**Guidance**

**Guidance for reviewers**

Information about the EPSRC peer review process and guidance for reviewers can be found at: [https://www.epsrc.ac.uk/funding/assessmentprocess/](https://www.epsrc.ac.uk/funding/assessmentprocess/).

Peer reviewers will not only be directed to this call for proposals when contacted to review proposals but specific guidance will also be available to them based on the information in this call.

The outline and interview panels will also be given specific guidance based on the information in this call.

**Additional grant conditions**

In addition to the standard terms and conditions for grants, successful Hubs will have the following additional grant conditions:

- EPSRC expectations for the Director of the EPSRC Hub
- Hubs to have a fixed starting date
- Hubs to report progress to EPSRC when requested, and at least on an annual basis
- EPSRC to agree the management structure, including terms of reference and membership
- EPSRC involvement in Hub management and other activities throughout the grant
- Hub investigators to be advocates for EPSRC
- Hub investigators to attend EPSRC organised and other national events identified by EPSRC as requested
- Publicity/branding guidelines, to include the Hubs being named 'Future XXXX Hub', where XXXX is the name of the research area
- Hubs to undergo a mid-term review of their activities, led by EPSRC, which will determine whether the Hub’s funding for the last three years is released
- Hubs to have collaborative agreements in place with any project partner before collaboration begins
- Hubs to engage as part of the cohort of Hubs.

**Key dates**

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<th>Activity</th>
<th>Date</th>
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<tr>
<td>Invitation to submit outline proposals</td>
<td>17 September 2015</td>
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<tr>
<td>Deadline for outline proposals</td>
<td>19 November 2015</td>
</tr>
<tr>
<td>Successful outline applicants informed</td>
<td>Late January 2016</td>
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<tr>
<td>Briefing meeting with successful outline applicants</td>
<td>Early February 2016</td>
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</table>
Deadline for full proposals | Late March 2016
---|---
Full proposal sift panel | Mid June 2016
Prioritisation interview panel | Early July 2016
Announcement of successful proposals | Late July 2016

**Contacts**
For further information, advice or queries regarding the application procedure please contact:

Future Manufacturing Research Hubs central email
ManufacturingPeerReview@epsrc.ac.uk

Dr Tracy Hanlon  
Senior Portfolio Manager – Manufacturing the Future Theme  
01793 44 4514, tracy.hanlon@epsrc.ac.uk

Dr Richard Bailey  
Theme Lead (Acting) – Manufacturing the Future Theme  
01793 444423, richard.bailey@epsrc.ac.uk

If you have any questions about preparing and submitting your proposal using Je-S, please contact the Je-S helpdesk (JeSHelp@rcuk.ac.uk, 01793 444164). Your Research Administration should also be able to offer advice about costing and writing your proposal and the Je-S system. Please allow enough time before the closing date for your organisation’s submission process.

**Change log**

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<td>30/09/15</td>
<td>2</td>
<td>Updated contact details. Clarify that separate letters of support from users are not required at the outline stage.</td>
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</table>
Annex 1: Full Proposal Applications

Applicants must have been successful at the outline stage in order to submit an application to the full proposal stage.

Please note that EPSRC reserves the right to reject a full proposal where the resources are substantially different from those indicated in the outline proposal or where there have been other significant changes from the outline proposal that have not been discussed with EPSRC.

Submitting application

You should submit your proposal using the Research Councils’ Joint electronic Submission (Je-S) System (https://je-s.rcuk.ac.uk/).

Further details of the Je-S submission route will be made available to the successful outline proposals.

Proposals must be submitted on one Je-S proposal form even if they are multi-institutional bids. Multiple forms will not be accepted.

Note that clicking 'submit document' on your proposal form in Je-S initially submits the proposal to your host organisation’s administration, not to EPSRC. Please ensure you allow sufficient time for your organisation’s submission process between submitting your proposal to them and the Call closing date. EPSRC must receive your application by 16.00 on xx March 2016.

It will be mandatory to have at least one user-collaborator named as project partner in Je-S, as your proposal will not validate without one. It is also mandatory that some of the collaboration will involve a direct cash contribution. It is not acceptable for the only project partner making a cash contribution to be closely linked to the Institutions involved in the bid (e.g. university spinouts).

Guidance on writing a full application

Your full proposal should consist of:

- single Je-S application form for each Hub
- full case for support - 12 pages
- CV of the proposed Director - two pages
- pathways to impact - four pages
- justification of resources - two pages
- work-plan - two pages
- project partners’ letters of support
- a letter of support from each of the HEIs involved
- infrastructure strategy plan - two pages (equipment dependant).

Guidance on what is required in the proposal sections is below.

Full Case for Support

The case for support should be a maximum of 12 sides of A4 under the following headings:

- Track record. In addition to the information provided in the CV, provide evidence of the Director’s leadership qualities, as well as their skills and competencies to drive the vision of the EPSRC Hub. Also show that the team
has the capability and capacity to address the identified research needs (2 of the 12 pages)

- **Vision and rationale for the Hub.** Explain succinctly the overall vision for the Hub and how this will achieve the call objectives of a Future Manufacturing Research Hub as detailed on page 1 of this call.

  The vision should be set in an international context with reference to relevant academic research and business requirements, i.e.:
  - how will the research contribute to, or help maintain the health of manufacturing and other research disciplines,
  - how will the research contribute to current or future UK economic success and/or enable future development of key emerging industry(s)?
  - what is the national strategic need for a unique world leading research activity in this area
  - how it will address users’ key manufacturing and business research needs, to enable them to be innovative in a ten-year timescale
  - how does the research fit with and complement other UK research already funded in the area or related areas?

  The vision and rationale should also set out how the Hub will take a leadership role in the national research and innovation landscape, conducting outreach activities and working with other stakeholders.

  It should articulate why funding in this area is timely and relevant. It should also provide evidence that this bid has been co-created with users.

- **Platform’ funding.** Explain the activities this part of the funding will enable in underpinning the vision and activities of the Hub. Include details of how it is envisaged the programme of research will progress, as well as the user engagement in the platform activities and how it will impact on their business.

- **Grand Challenge’ funding.** Give an overview of the research theme(s), their underlying key research challenges and the broad approach to addressing them. Provide the scientific details and the methodology for the initial projects, ensuring there is sufficient detail to allow peer review to assess the quality and ambitious nature of the research. Include details of how it is envisaged the programme of research will progress, as well as the user engagement in the platform activities and how it will impact on their business.

- **Management.** This should give details of how the Hub will be run. This should include:
  - the governance of the EPSRC Hub, taking into account that the Principal Investigator is responsible for delivering the grant objectives
  - administrative support arrangements, which should be in place from the start of the grant
  - the strategy as to how the flexibility of resources will be used across the platform and grand challenge activities, including a risk management strategy
  - how the Hub will further enhance its research portfolio to increase its impact on its user community.

  The case for support should be uploaded to Je-S as per standard research grant applications.
CV of the proposed Director

This should be a maximum of **two sides of A4**. Please provide a CV for the Director that demonstrates a track record in managing large complex research grants and of collaborating with users. The CV should be uploaded into Je-S as ‘CV’ attachment type.

Pathways to Impact

This should be a maximum of **four sides of A4**. Explain the Hub’s strategy for engagement with the entire value chain (from discovery, to understanding through to integration/adaptation, demonstration and deployment), to achieve and accelerate impact from the Hub’s activities.

The scale of the Hubs, together with their position in the value chain, gives you the potential to be adventurous and to propose some stretching activities in this area, including people movement/secondments and proof of concept work.

This section should cover how the potential pathways to impact will be delivered, looking across the research landscape and innovation landscape, including:

- **Community outreach activities** to:
  - promote networking and collaboration with non-Hub researchers, driving research excellence
  - directly supporting non-Hub researchers in collaborative research in areas of direct relevance to the Hub
  - embed a responsible approach to innovation ([https://www.epsrc.ac.uk/index.cfm/research/framework/](https://www.epsrc.ac.uk/index.cfm/research/framework/))
  - engage the wider public in research.

- **User engagement activities**, explain the framework to manage and evolve the group of collaborators through the lifetime of the Hub, covering:
  - how and when potential users have been / will be identified
  - what form the engagement will take, including how the outputs of the research are made available to potential users
  - the strategy to maintain and control the balance between the needs of the users and the requirement to carry out ambitious research.

- **Innovation chain engagement**, influencing and working with other stakeholders (particularly Innovate UK & the Catapult network), to ensure acceleration of impact and time to market, including:
  - promoting follow-on work and very early stage commercialisation
  - how to engage appropriate funding agencies (other than EPSRC) required to support the Pathways to Impact.

- **Metrics** that will be used to measure both quantitatively and qualitatively the impact and success of the Hub in terms of research, people and policy.

It is recognised that activities described in this section may well overlap in purpose and so cover a number of these headings.

Justification of Resources

This should be a maximum of **two sides of A4**. This should justify the resources required to undertake the research programme (Platform and Grand Challenge), support the Hub operations and implement the Pathways to Impact.
Please provide a table totalling the Directly Incurred resources requested for each of the four heading in the Resources Available section (i.e. the two research programmes, Hub operations and Pathways to Impact resources).

Any justification for equipment over £10k should also include justification for any maintenance or support costs that are requested and details of the proposed contribution to the cost of the equipment from the involved research organisations or project partners. It should also include an explanation if there is only a sole supplier for the equipment.

Please note that resources cannot be requested for travel and subsistence for any of the collaborators identified in the bid. The Justification of Resources should be uploaded to Je-S as per standard research grant applications.

**Two-page Workplan**

A full detailed seven year workplan is not required as it is accepted that a detailed research programme for the latter years is not known and depends on research results from not only the Hub but also other research groups nationally and internationally.

However, it is expected that sufficient detail can be provided for the first two/three years to enable peer review to have confidence that there is a structured approach. An indication of the milestones and decision points and mechanisms for shaping the research programme is also expected.

The workplan should be uploaded to Je-S as per standard research grant applications.

**Project Partner Statements of Support**

Statements of support are required from all project partners involved in the proposal and listed on the Je-S form. These letters from project partners should:

- confirm their rationale for support for the Hub from their business needs and drivers, and detail how they have been involved in the preparation of the proposal
- confirm the contribution of cash and in-kind support
- show an outline of their intended involvement during the lifetime of the Hub
- be dated and on headed paper, making clear the role of the signatory in the user organisation.

The letters should be uploaded into Je-S as ‘project partner letter of support’.

**Letter from the host university(ies).**

Letters are required from all universities involved in the proposal and should be signed by the Pro-VC for Research, or equivalent. The letters should explain:

- how the new Hub would align with the university’s research strategy
- what commitment (direct or in-kind) the university will be contributing
- what support will be given to the Hub Director.

Please combine all letters into one document and upload into Je-S as ‘Host Organisation Statement’ attachment type.
Infrastructure Strategy Plan

This 2-page document only needs to be included if resources for equipment over the current OJEC threshold are requested. This document should articulate your infrastructure strategy and include:

- Description, Cost, Support and Contribution: A tabulated list of all items of equipment requested, indicating the level of contribution from the universities and project partners and how much you would be requesting from EPSRC
- Strategic Case: An explanation of why the requested equipment is essential to achieve the vision of the Hub
- Ensuring Maximum Value: A description of how this complements and adds value to the equipment that already exists within the proposed Hub and how this fits into the national provision
- Usage: Information on how the Hub would maximise usage of the applied-for equipment and plans for the management of the equipment and access to it
- Support: An explanation of the strategy for long-term sustainability of the equipment after the end of the grant
- Alternatives: Information on alternatives that could be used to support the research programme if the equipment was not fully supported.

This infrastructure strategy plan (or business case) should be uploaded into Je-S as an 'Additional document'. (Please note that Je-S is now set up to request three quotes and a business case for each piece of equipment over the current OJEC threshold. Therefore, if there is more than one such piece of equipment requested, applicants should attach additional 'additional documents' with documents saying that the whole case is in the first attachment.)

Attachment formats

Please note that on submission to council all non-PDF documents are converted to PDF. The use of non-standard fonts may result in errors or font conversion, which may result in changes to the layout of the document and could affect the overall length of the document. For this reason we recommend that the documents are converted to PDF files before uploading.

For advice on writing proposals, see:
https://www.epsrc.ac.uk/funding/howtoapply/preparing/.

Please note that it is the responsibility of the lead organisation to ensure all the documentation required is submitted with the proposal form.
Annex 2: Creativity@home

EPSRC, working with professional facilitators, has set up an initiative to support project investigators, researchers and teams to help generate and nurture creative thinking and galvanise team dynamics that paves the way for individuals and teams to take creativity and radical idea generation to a higher level – the initiative is known as creativity@home (https://www.epsrc.ac.uk/funding/howtoapply/routes/network/ideas/creativityathome/).

Objectives for creativity@home include:

- learning a range of creative problem solving tools and techniques and how this might aid creativity in research
- engaging researchers in blue skies idea generation
- learning how to work effectively in teams, understanding different styles of approaching problems and how to influence others
- exploring the future research vision and cross-disciplinary opportunities in the group using new facilitation tools and techniques
- developing a cohort of trained people that have learnt and are applying creative problem solving techniques so that the approaches and culture become embedded within the project team.

Activities that have taken place previously have included:

- training and subsequent support for project managers and students in creative facilitation techniques enabling them to run mini sandpits and cross-disciplinary idea generation workshops
- away days for multidisciplinary teams exploring how they might work better/more effectively together
- Creative Problem Solving training for groups of researchers that enhances their approach to problem solving in their research
- professionally facilitated idea generation workshops creating new research directions and people connections.

For creativity@home, you and the research programme team are the key resource. Your group will be given access to professional facilitators and the aims and objectives are left up to you and your group to decide. The professional facilitators will work in partnership with you throughout the initiative - the timescale and all facilitation activities will be planned in consultation with you. The facilitators will focus on the process enabling your group to think freely and explore new tools and exciting research directions.

Funding for creativity@home will be accessible via your grant award and is to pay for facilitator time, travel & subsistence and basic facilitator materials.

Creativity@home is a flexible resource. How best to use the resource is up to you to decide when exploring options with your chosen facilitators. There is no maximum value that you may apply for, however you will need to justify the resource that you request.

If your application is successful EPSRC will provide you with a list of facilitation companies that you may contact. Of course, you may already work with a facilitator; in this case, EPSRC is pleased for you to continue your engagement.
How do I include funding for creativity@home?

If you are interested in working with professional facilitators to enhance your Hub research programme then you should request resource to cover this in the outline application stage. At the full proposal stage, applications will need to include:

- Je-S form – applicants should include appropriate resource to cover the creativity@home activity under the heading Other Directly Incurred Costs
- Justification of Resources – justify why you believe that the creativity@home initiative will enhance the experience of the researchers and strengthen your research programme. Broadly outline what type of activities you are interested in pursuing and the associated need for the resource.

The assessment process will assess the benefit of the creativity@home activity to maximising the potential of your Hub research programme.