



Quick Reference

Please note that you must read the full Call document for guidance before submitting your proposal

UKRI Interdisciplinary Circular Economy Centres – Full proposals

Call type: Invitation for proposals

Closing date: 16:00 21 April 2020

Funding Available: This call is only for applications that were assessed in the previous outline stage of this funding call and were subsequently invited to submit to this second stage.

Up to £22.5m is available in total for up to five Centres (each application should request a maximum UKRI contribution of £4.35m, at 80% FEC, to account for indexation). Centres should all conduct interdisciplinary research that accelerates understanding and solutions to enable circularity of a resource flow (materials, material systems, products and/or services), including consideration of (multi-) sector contexts.

How to apply: This call forms the second part of a two-stage process. An outline stage has already been held. **Applications will only be accepted from those who were successful at the outline stage** and have been invited to submit a full proposal. At this stage, applicants must:

- Submit a Notification of Intent to Submit by 16.00 on 07 April 2020 via the form on the call page, and;
- Submit their full proposal by 16.00 on 21 April 2020 via Je-S.

Assessment Process: Full proposals will undergo postal peer review followed by an independent, interdisciplinary interview panel. UKRI will consider the coverage across disciplines, institutions, resource flows and sector contexts when making decisions.

Key Dates:

Activity	Date
Je-S opens	03 February 2020
Intent to submit deadline	07 April 2020, 16.00
Full proposal submission deadline	21 April 2020, 16.00
Postal peer review	May - June 2020

Full proposal interview panel	20 - 22 July 2020
Funding decision communicated	early August 2020
Grant start date	1 October 2020

Additional information:

This call forms part of the £30 million UK Research and Innovation (UKRI) Interdisciplinary Circular Economy programme, developed by the Arts and Humanities Research Council (AHRC), Biotechnology and Biological Sciences Research Council (BBSRC), Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), Natural Environment Research Council (NERC), and Innovate UK, with DEFRA and BEIS. This is funded through the UKRI Strategic Priorities Fund. The programme will support up to five interdisciplinary Centres via this £22.5m call (alongside £2.5m of future funding to enable small and medium enterprise involvement with Centres). The programme is also supporting a Coordinator and integration Hub.

UKRI have a target to attain £10m of leverage across the programme (the Centres, Hub and SME funding). To deliver this target, Centres will be expected to elicit at least £1.5m of Project Partner contributions (in-kind or cash) over the lifetime of the Centre.

UKRI welcomes and encourages applications led by and involving any discipline. This call is being run by EPSRC on behalf of the UKRI Councils listed above.

UKRI are holding consortium building workshops to help applicants to be inclusive, and fill gaps in expertise by drawing from complementary, wider community expertise. This will include a workshop with policy officials from relevant government departments, industry and other groups. Applicants are expected to use these workshops to broaden their consortia, and to address outline panel feedback related to the scope and composition of their outline proposal. Further information on these workshops will be available by mid-February on the call web page.

There are specific requirements, such as on interdisciplinarity, spend dates and monitoring & evaluation. These will be reflected in specific grant conditions, which those funded will need to comply with. Centres will be required to deliver against a fixed annual spend profile for the UKRI contribution to the centre, in line with the overall profile for the overall programme.

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**UK Research
and Innovation**

UKRI Interdisciplinary Circular Economy Centres

Call type: Invitation for proposals

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Summary

Note that since the original publication of this call document, UK Research and Innovation has announced changes to requirements on 'Pathways to Impact'. As a result of this change, applicants are no longer required to provide a 'Pathways to Impact' plan or complete an 'Impact Summary' within grant applications. These requirements will be removed for all UKRI opportunities by 01 March 2020. This call document has been revised to allow applicants further space to outline their impact plans and activities; please read the revised How to apply section in this version carefully before applying.

This call is running over two stages. The first (outline) stage has concluded – outline applications were assessed by an independent, interdisciplinary panel and successful applicants informed. This call document provides further information for the second (full proposal) stage of the call. **Applications may only be submitted by applicants who have been successful at the outline stage**

and were subsequently invited to submit to this second stage. All other applications will be rejected.

UK Research and Innovation (UKRI) is inviting proposals for Interdisciplinary Circular Economy Centres, each focused on a nationally important resource flow. The term “resource flow” is defined broadly in the Scope section, but refers to processes involved in how a resource (materials, material systems, products and/or services) transforms between states as it flows through the system. The research should take an interdisciplinary whole-systems approach, including considerations of the resource’s related waste streams and (re-)uses, within the range of (multi-) sector contexts being considered by the Centre. Up to £22.5m is available in total to fund up to five Centres, lasting up to 48 months, from 1 October 2020.

Centres are expected to have taken an inclusive approach to build on and extend the diversity of their investigator team since outline stage, as appropriate to meet the interdisciplinary needs of the call, and to address outline panel feedback. Based on outline panel feedback, this may include integrating with other outline proposals. The PI is not expected to change between the outline and the full proposal bid, except where the PI has been successful in the parallel Coordinator call and has chosen to undertake that role instead; in this case the PI should inform UKRI which Co-I has been nominated as a replacement (with justification) before submitting the full proposal.

Applicants considering major changes between the outline and full proposal stage to their Centre’s scope or core management team should discuss with UKRI before proceeding. Changes to the core management team may be, for example, where a significant number of Co-Investigators on the outline proposal do not feature on the full proposal; it is not necessary to inform UKRI where a number of Co-Investigators have been added following the consortium building workshops, or where there are minor changes to scope or investigators to reflect outline panel feedback. UKRI reserves the right to reject a full proposal where there have been significant changes that have not been discussed with UKRI.

Centres must deliver actionable solutions. **They should be designed and delivered in partnership with relevant users, including industry and government** (national and, where appropriate, regional and/or local). Centres will also engage across the wider Circular Economy programme. Successful applicants will be required to develop and execute a strategy for engaging with potential users of the research funded in the project, including policy officials, industry and the third sector.

The programme is designed to provide the underpinning research understanding to enable the transition to a more circular economy. Proposals should highlight why the proposed resource flow is nationally important and how interdisciplinary investigation would enable the implementation of effective, evidence-backed solutions that improve the sustainability of economic growth, supporting better social, economic and environmental outcomes. This includes the role of government to achieve this transition, the broader cross-sector context of the resource flow, and key barriers to achieving these objectives.

Centres will need to focus on interdisciplinary research to enable a more circular economy, engaging directly with businesses across sectors, policy-makers, the third sector, consumers and other relevant communities and stakeholders. Centres are expected to investigate the benefits, risks, costs and trade-offs

associated with adopting a more circular approach. The focus on circular economy in this call does not presuppose how best to deliver environmental, social, cultural, economic and technical benefits for any particular resource flow.

UKRI have a target to attain £10m of leverage across the programme (the Centres funded through this call, the Interdisciplinary Circular Economy Hub and future SME funding). To deliver this target, Centres will be expected to elicit at least £1.5m of Project Partner contributions (in-kind or cash) over the lifetime of the Centre. It is recognised that different sectors, disciplines, institutions and resource flows will elicit different levels of contributions.

At this stage, it is important for applicants to demonstrate a significant level of initial Project Partner contributions towards the £1.5m figure, and detail planned approaches to eliciting more leveraged support. If necessary for UKRI to meet the overall £10m target, successful Centres that have not met the £1.5m target may be required via an additional grant condition to elicit additional stakeholder support before the grant mid-point. **The application must also demonstrate a clear plan for stakeholder engagement over the lifetime of the Centre, which demonstrates that the Centre will achieve the target over its lifetime, as well as the expected user impact more generally.**

Centres will be part of the £30 million UKRI Interdisciplinary Circular Economy programme, collaboratively developed by the Arts and Humanities Research Council (AHRC), Biotechnology and Biological Sciences Research Council (BBSRC), Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), Natural Environment Research Council (NERC), and Innovate UK. The programme will support up to five interdisciplinary Centres through this call, a Coordinator and Integration Hub, and UKRI delivery of community building events. The programme is funded by the UKRI Strategic Priorities Fund.

A condition of these grants will be for Centres to engage with other Centres, central Government, UKRI and the Interdisciplinary Hub, including by having representatives of each on the Centre's advisory board. Centres will be expected to work collaboratively with the Circular Economy Coordinator(s), and if funded, the Circular Economy Hub, participating in the Hub's activities.

UKRI and the Circular Economy Coordinator(s) are organising consortium building workshops, bringing together applicants invited to submit a full proposal, and the wider academic community, industry, third sector and policy officials. Workshops will provide further briefing on the overall programme and enable networking before submission of full proposals. **Applicants invited to submit a full proposal are expected to attend the UKRI-organised workshops at a minimum, and to use the workshops to diversify and enhance their project teams as appropriate and in response to panel feedback, and to develop and strengthen links with policy makers and users.** Further information will be available by mid-February on the call web page.

Beyond the up to £22.5m available for Centres through this call, a further £2.5m will be available through future Innovate UK competitions for small and medium enterprise (SME) involvement with the Centres. This funding will enable SMEs to engage with the Centres and conduct collaborative research and development (CR&D) aligned to Centres' interests. Centres should budget at this stage for

interactions with SMEs to scope out and create CR&D bids; no additional funding will be provided by UKRI other than any awarded through the competitions.

A mandatory Notification of Intent to Submit for this first stage must be submitted via the call page before **16:00 on 07 April 2020**.

Full proposals will undergo postal peer review followed by an independent, interdisciplinary interview panel. **The panel will be provided with any feedback given to applicants at the outline stage, and it is expected that applicants will have explicitly stated in their proposal how they have addressed this feedback** (or indicated why they have not).

Background

The circular economy opportunity

Links to key policy, evidence and other reference documents (including those referred to in this section) can be found in Annex 1.

The UK economy is currently too linear: virgin raw material resources are turned into products, used and often disposed of as waste. Without significant change in how resources are managed, raw material consumption is set almost to double by 2060 (OECD – Global Material Resources Outlook to 2060) as the global economy expands and living standards rise. This will increase pressure on the environment even more so than today.

The UK Government recognises the benefits of adopting more circular approaches in several key strategies:

- In the Industrial Strategy, Government set its ambition to double resource productivity by 2050 and work towards zero avoidable waste by 2050; the Growing the Bioeconomy strategy sets out the opportunity for the bioeconomy to support these aims.
- In the Clean Growth Strategy, Government announced their aim to work towards zero food waste to landfill by 2030.
- In the 25 Year Environment Plan, Government announced it would work towards zero avoidable plastic waste by 2042, reform producer responsibility schemes and accelerate the shift to consistent recycling collections.
- The Resources and Waste Strategy for England sets out the UK Government's commitment to a more resource efficient economy, where resource usage is optimised and waste avoided.

The overarching objective of the Government's Resources and Waste Strategy is to reduce adverse impacts of resource use on natural capital – from extraction, disposal and greenhouse gas emissions associated with production, consumption and waste management. There are also resource security considerations. The Strategy states that the Government's preferred model is a circular economy approach. It brings out the importance of the waste hierarchy in achieving this goal, placing emphasis on preventing waste, then reuse followed by recycling/material recovery, waste to energy and landfill.

The programme also aligns with the goals of the Scottish Government's Zero Waste Plan, the Environment (Wales) Act, and the Investment Strategy NI.

A shift to a more circular economy, where resources are processed with sustainability, waste minimisation and efficiency in mind and where products are designed to encourage optimal utilisation and then recycling/repurposing/reuse, provides an opportunity for the UK to achieve more sustainable and clean economic growth and prosperity. While all predictions are uncertain, the circular economy value opportunity has been estimated as being worth \$4.5 trillion worldwide by 2030 (Accenture).

Key aspects of a circular economy can include:

- resource efficiency in production through greater use of industrial symbiosis systems;
- design of products so they are durable, repairable and recyclable or for buildings, to be repurposable and disassemblable;
- systems for sharing, re-use and resale including product servitisation systems;
- material substitution, recovery and recycling.

A more circular economy can achieve greater sustainability and security of material supply and leave economic activity less vulnerable to virgin raw material price fluctuations or supply shortages. It can lead to development of innovative processes, systems and products that use resources more productively, and minimise waste. A more circular economy reduces pressure on natural capital stocks and on the environment as a waste sink, with potential environmental and social benefits such as improvements in health, wellbeing and natural habitats.

Transition to a circular economy requires significant advances in current knowledge and understanding. It requires the ability to understand and reconfigure whole-systems and change business practices, supply chains and market structures. It also requires knowledge of how people experience and engage with resources and products and what influences their behaviour. It must address the implications of how new business models and approaches would be financed and how these should interact with the regulatory framework. Any outcomes need to also consider the ethical, public acceptability and responsible innovation aspects from the start of the research activities.

Importantly, consideration also needs to be given to the risks and trade-offs associated with the circular economy. These include the consequences for certain sectors and employment levels, how circularity relates to product safety, considerations of environmental impact of new products and processes, and how the risks can be mitigated and solutions identified to enable a stable transition. Circularity is appropriate where it leads to the desired outcomes, and does not cause adverse impacts such as increasing overall greenhouse gas emissions. This consideration of risks and trade-offs as well as benefits needs systems-wide, interdisciplinary thinking, with action across business, government and society.

The UK has an excellent and internationally recognised research base across arts and humanities, biological, engineering, environmental, physical and social sciences. This research base is well-placed to enable the formation of

interdisciplinary communities that will be required to address knowledge gaps relating to the circular economy. However, many current activities focus on a specific technology or economic sector, or part of the system – and these individual activities are often not joined up.

Opportunities exist to gain benefits from circular approaches for many resource flows within and across multiple economic sectors. As all resources – and their related waste streams, uses and sector contexts – have their own supply chain and stakeholders, each will have their own particular challenges that will inform where and when new approaches to circularity are appropriate, with a particular need for cross-sectoral learning and collaboration.

Programme objectives

This programme is funded by the UKRI Strategic Priorities Fund (SPF), set up to build upon the vision of a 'common research fund' set out in Sir Paul Nurse's independent review of the Research Councils. The fund will drive an increase in high-quality multi- and interdisciplinary research and innovation, ensure that UKRI's investment links up effectively with Government departments' research priorities and opportunities, and ensure that the system is able to respond to strategic priorities and opportunities.

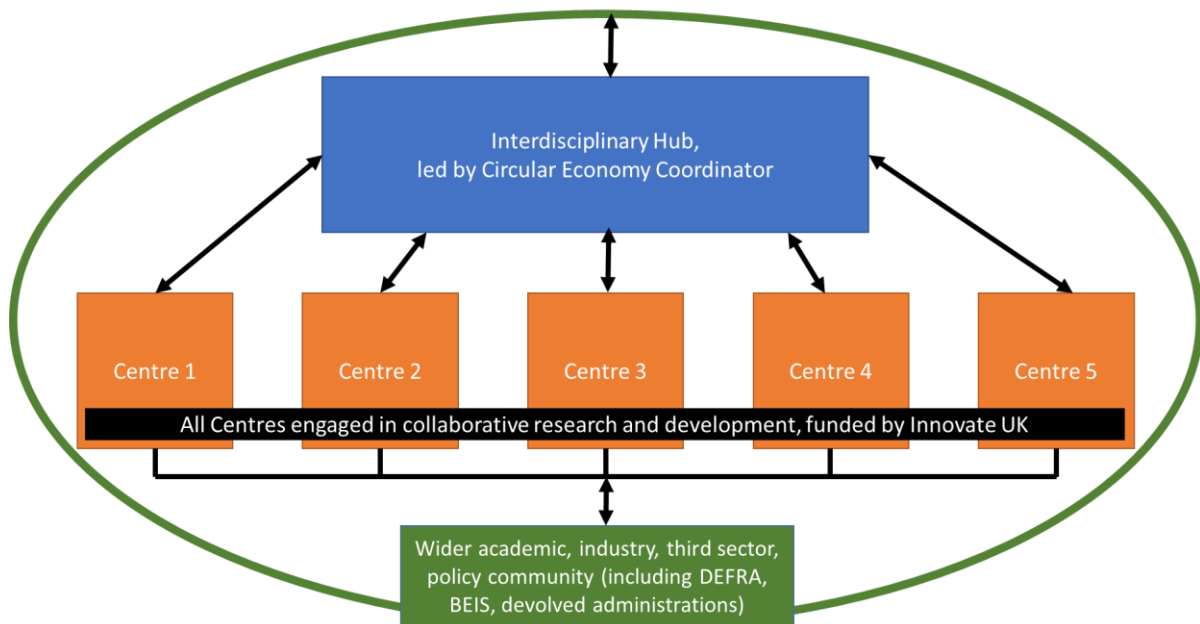
This programme will build an interdisciplinary circular economy research and innovation community that will co-produce knowledge and advance understanding of the whole-system drivers of downstream outcomes. This will support policymakers and industry with frameworks to make more effective evidence-based decisions, and develop clear implementation pathways. It will be used to accelerate innovative solutions needed to enable change, and support strong national leadership and coordination facilitating cross-sector stakeholder engagement.

The programme has three key objectives, to:

1. Accelerate understanding and solutions to enable circularity of specific resource flows (including related waste streams and uses, and within sector contexts), by:
 - Identifying opportunities for change at different stages within the whole-system (e.g. material supply, design, value and function, manufacturing, reuse and recycling, resource recovery, waste) and across research, policy, business and individual consumers – and delivering pathways for change within resource flows and related waste streams and uses, through comprehensive fundamental analysis. It will include consideration within and across sector contexts.
 - Enabling identification, quantification and assessment of the environmental, social, cultural, economic, behavioural and technical benefits, risks, costs and trade-offs associated with the circular economy, and how these are valued and understood by different actors
 - Supporting Government, businesses, the third sector and consumers, to improve outcomes, including evidence to inform policy decisions, and to understand the barriers to change and how to overcome them. This will take on board the full range of considerations from environmental and resource security benefits to economic benefits;

- Accelerating the implementation of new solutions to improve sustainability and reduce environmental impacts (e.g. in design, business/retail models, industrial dynamics, materials, (re)manufacturing and recycling processes, life cycle analysis, natural capital approaches, and cross-cutting technologies), and measures to encourage, incentivise and address barriers to adoption of these solutions (e.g. regulation, taxes and subsidies, behavioural interventions)
 - Offering further understanding of behaviour, values and behavioural change (including causal understanding from experiments) across the whole-system to increase the relevance and uptake of solutions.
 - Providing fundamental understanding of feasible transformation pathways where many agents interact to bring about circularity (consumers, business, third sector, government).
2. Provide national leadership, coordinate and drive knowledge exchange across the programme as a whole and with policy, consumer, third sector and business stakeholders, by:
- Consolidating cross-Centre learning and creating a common understanding of definitions and language for the tools used to deliver circularity (e.g. life cycle analysis, business models, understanding decision making and design);
 - Undertaking comprehensive whole-system research on circularity and examining interrelationships between resource flows and sectors with consideration for specific users and their needs, as well as how new business models can be financed and how regulatory systems may need to evolve;
 - Bringing in expertise from UKRI-wide programmes and resources in emerging fields such as big data, artificial intelligence, the creative economy, and synthetic biology.
3. Ensure research is embedded with stakeholders by involving businesses, policymakers, consumers and society, the third sector, and other affected groups and communities at every part of the programme – including provision of funding to enable SME involvement.

These objectives will be progressed by up to five Centres, and an integration Hub led by a Coordinator. At the time of publication, UKRI are in the process of appointing the Coordinator, who will start no later than 17 February 2020. The Coordinator will develop a proposal for the integration Hub, which would be expected to start in January 2021. The Hub will play a significant role in terms of cross-cutting aspects of research. Centres will be expected to work closely with the Hub, and vice versa, to deliver against the objectives of the programme, and interact with the wider stakeholder community.



Scope of Centres

Applicants considering major changes between the outline and full proposal stage to their Centre's scope or core management team should discuss with UKRI before proceeding. What constitutes the "core management" will vary based on the proposed management structure. However, as an example, a major change may be where a significant number of Co-Investigators on the outline proposal do not feature on the full proposal; it is not necessary to inform UKRI where a number of Co-Investigators have been added following the consortium building workshops, or where there are minor changes to scope or investigators to reflect outline panel feedback. **UKRI reserves the right to reject a full proposal where there have been major changes that have not been agreed with UKRI.**

The Scope section from the outline call is copied in Annex 1. It is still expected that Centres will meet these requirements, including requirements of:

- Interdisciplinary research, which can be from across the breadth of UKRI's remit, and that will support the transition to a circular economy for a specific resource flow, its related uses and wider (multi-) sector contexts. "Resource flow" is defined broadly in Annex 1, but refers to processes involved in how a resource (materials, material systems, products and/or services) transforms between states as it flows through the system.
- Consideration of the resource flow within a whole-systems approach: Centres are expected to consider all processes involved in how a resource transforms between states from conception to end of life as it flows through the system including consideration of circularity of related waste streams. As such, a Centre may focus on multiple materials as part of a wider resource system, such as to investigate potential benefits of material substitution, or the impact of alternative processing techniques on the wider resource system.

- The resource flow should be strategically important to the UK (e.g. in terms of the market size, environmental and societal impact, relevance in multiple sector contexts etc.), but applicants should also consider the global context - for example, global supply chains and markets, international comparisons or wider impacts of a more circular economy.
- Applications should demonstrate how the Centre can contribute to UK government commitments relating to resource efficiency, reducing embodied greenhouse gas emissions, and achieving climate change commitments (Net Zero Target) - such as those in the Resources and Waste Strategy for England and the Clean Growth Strategy
- Centres must work inclusively, bringing a diverse perspective of research disciplines together, and ensuring co-creation with supply chain partners and other relevant stakeholders. Research conducted should be focused on advancing the knowledge and understanding in specific real world contexts, but should also be fundamental and experimental in approach

A typical Centre will comprise:

- A Principal Investigator and a number of Co-Investigators with track record of excellence within their disciplines, who will jointly form the management team to lead the Centre
- Postdoctoral Research Assistants distributed across the project
- A Centre (/project) manager
- A named lead from one of the host institutions (academic or otherwise) for knowledge mobilisation and for external communications, whose role will include coordinating knowledge exchange between the Centre, Hub and the wider landscape
- Funds for impact activities including engagement and collaboration outreach across key disciplines and sectors, with policy officials, and to the public – and internationally if appropriate.
- Funding for translation of research outputs and the development of information and products for users across the relevant supply chain. This includes engagement with any SMEs to scope out and create collaborative research and development projects for future Innovate UK competitions
- Funding cannot be requested from these grants for PhD studentships or related funding. However students, funded from other sources, can be incorporated into the broader project plan, provided that PhD students' work is not part of the critical path of the Centre's research.

Centres should retain flexibility within the overall programme of work to allow for the Centre to respond to emerging priorities and opportunities.

It is expected that management of Centres will require more investigator time (whether for the Principal Investigator, or distributed across the team) than standard UKRI grants. The expectation of a dedicated project manager reflects the need for coordination across the Centre and with the wider programme, enabling the required interdisciplinary, whole-systems approach. As part of the management process, Centres will be expected to set an appropriate statement

of objectives and Key Performance Indicators (KPIs) focused on key outputs and outcomes within six months of the Centre grant starting. KPIs should be appropriately set against baselines, to be considered at the start of the Centre.

It is critical that Centres build outreach into their delivery, acting as national leaders for the circular economy. This includes:

- Working collaboratively with other Centres, the Interdisciplinary Circular Economy Hub (if and when awarded), and the wider academic, industrial, policy and stakeholder community to maximise the impact of the overall Circular Economy programme, and deliver programme-wide case studies. This includes identifying and exploiting potential opportunities to work with other existing UKRI investments, where appropriate, to maximise impact, and active participation in the activities of the Hub. There is also an expectation that Centres will pool resources for cross-cutting activities, such as communication of outputs.
- Working closely with policymakers, both in central government and, where appropriate, regionally and locally. Links to various relevant central and devolved government strategies are in Annex 2. Centres will be expected to run policy forums to enable this knowledge exchange.
- Consideration of public engagement

The governance and outreach requirements should be underpinned by an appropriate advisory structure. This includes an independent advisory board, which should meet at least annually, and should include representation from key academic, industrial, relevant policy officials and other stakeholders. UKRI and, if funded, the Circular Economy Hub will also nominate one member to sit on each Centre's advisory board. Applications should focus on the planned approach and structure; the exact membership is not required until grants are awarded.

This funding has more detailed monitoring and evaluation requirements than many standard UKRI grants, reflecting the strategic nature of the programme. Centres will need to account for this, including quarterly highlight reporting, detailed yearly reporting (for example, on outcomes, case studies, risks, and progress against objectives and key performance indicators), and participation in a mid-term review and final evaluation. The programme is overseen by a Programme Management Board and Strategic Advisory Group, and the Centres will be required to provide regular progress reports to the Board and Advisory Group, and if necessary, to implement their recommendations.

It is recognised that some areas of the circular economy have the potential to raise societal, ethical, philosophical, legal and regulatory issues and risks. Consideration of these issues is essential to ensure that the research carried out is considered within a societal context and that any such issues that are raised are fully explored as the research develops. For further information on responsible innovation and ethical requirements, applicants are referred to the following guidance document:

<https://epsrc.ukri.org/research/framework/>

Applicants are also referred to ESRC's Framework for Research Ethics:
<https://esrc.ukri.org/funding/guidance-for-applicants/research-ethics>

Applicants are expected to demonstrate details of capacity building in proposals, with evidence of a strong commitment to support the development of researchers (including early career researchers), both in the Centre itself, but also in maximising and leveraging opportunities across the programme. This is a crucial element of achieving the equality, diversity and inclusivity expectations for Centres. Activities focussed on early career researchers and wider capacity building including for stakeholders will be welcome.

Funding available

Up to £22.5 million will be available through this call. **Note that contrary to the expectation stated in the outline call document, UKRI will now apply indexation to proposals funded through this call. The maximum value of a Centre has been reduced slightly to account for indexation: as a result, full Centre proposals should not exceed £4.35 million (80% FEC).**

Proposals should be for up to 48 months duration, starting on 1 October 2020. The overall spend profile for the programme presumes an approximately flat profile across the Centres' lifetime (that is, the same amount paid across the five Centres each quarter). Applicants are asked to provide a document detailing their proposed spend profile (on a quarterly basis), in line with this overall programme spend profile. Spend profiles will be confirmed with projects recommended for funding, at the post-panel stage.

Please note: Due to the nature of this funding, grant extensions will only be considered under exceptional circumstances (in line with the Equality Act 2010) and will require UK Research and Innovation agreement on a case-by-case basis. The Research Organisation remains responsible for compliance with the terms of the Equality Act 2010, including any subsequent amendments introduced while work is in progress, and for ensuring that the expectations set out in the UK Research and Innovation statement of expectations for equality and diversity are met.

UKRI intend to support five Centres each looking at a different resource flow. This is to ensure that in totality, a breadth of research and innovation capability is developed in the UK, enabling cross-sector learning to contribute to delivering a broad-based, more circular economy. All Centres will address their resource flow from an interdisciplinary approach, and proposals are welcome from research areas across the UKRI remit.

Securing the engagement and buy-in of relevant users will be key to the success of the Centres, and support from Project Partners is a requirement for Centres. Centre proposals are expected to detail the cash and in-kind contributions Project Partners will provide. UKRI have a target to attain £10m of leverage across the programme (the Centres, Hub and SME funding). By splitting equally, Centres would be expected to elicit at least £1.5m of Project Partner contributions (in-kind or cash) over the lifetime of the Centre in order to deliver this target.

It is recognised that different sectors, disciplines, institutions and resource flows will elicit different levels of stakeholder contributions. For this reason:

- The £1.5m figure is not a condition at the point of application, but a target figure over the lifetime of Centres, and across the breadth of the Centre. At this application stage, applicants should demonstrate a

significant level of initial Project Partner contributions towards the £1.5m figure, and detail planned approaches to eliciting more leveraged support.

- Reviewers and the panel will be asked to assess evidence of “significant” contributions at application stage, and what is a reasonable lifetime target for a given Centre, **in the context of each application’s chosen resource flow, and the disciplines and sectors involved**. Applicants should make the case for why the total Project Partner support at application stage, and planned approaches towards the lifetime target, are appropriate in the context of their resource flow, sectors and disciplines. As a result, some Centres may work towards a target greater than others.

UKRI will assess progress towards the £10m target once Centre grants start, and continuously until the mid-term review. Successful Centres that have not met the £1.5m target may be required via an additional grant condition to elicit additional stakeholder support before the grant mid-point. The level of Project Partner support should be reviewed by each Centre’s advisory board, as well as by the programme-level Strategic Advisory Group, and at the mid-term review.

It is therefore important that Project Partners detail their contributions explicitly (cash and/or in-kind value) in their letters of support, and that the values of these contributions match the information submitted through Je-S. The application must also demonstrate a clear plan for stakeholder engagement over the lifetime of the Centre, which demonstrates that the Centre will achieve the target over its lifetime, as well as the expected user impact more generally.

UKRI will subsequently run competitions worth up to £2.5m for SMEs to engage in collaborative research and development (CR&D, relating to the work of one or more of the Centres – further information is below under User Engagement.

Equality, Diversity and Inclusion

The long term strength of the UK research base depends on harnessing all the available talent. UKRI expects that equality and diversity is embedded at all levels and in all aspects of research practice and funding policy. We are committed to supporting the research community, offering a range of flexible options which allow applicants to design a package that fits their research goals, career and personal circumstances. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcome applications from academics who job share, have a part-time contract, or need flexible working arrangements.

Peer review is central to UKRI funding decisions; we require expert advice and robust decision making processes for all UKRI funding initiatives. We are committed to ensuring that fairness is fully reflected in all our funding processes by advancing policy which supports equality, diversity and inclusion. Please see EPSRC’s Equality and Diversity webpages <https://epsrc.ukri.org/funding/equalitydiversity/> for further information.

Responsible Innovation

EPSRC is fully committed to develop and promote 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.

Responsible innovation creates spaces and processes to explore innovation and its consequences in an open, inclusive and timely way, going beyond consideration of ethics, public engagement, risk and regulation. Innovation is a collective responsibility, where funders, researchers, interested and affected parties, including the public, all have an important role to play. Applicants are expected to work within the EPSRC Framework for Responsible Innovation given on the EPSRC website (<https://epsrc.ukri.org/research/framework/>).

Applicants are also referred to ESRC's Framework for Research Ethics: <https://esrc.ukri.org/funding/guidance-for-applicants/research-ethics>

Guidance on Journal-based metrics

As part of our commitment to support the recommendations and principles set out by the San Francisco Declaration on Research Assessment (DORA; <https://sfdora.org/read/>), UKRI reviewers and panel members are advised not to use journal-based metrics, such as journal impact factors, as a surrogate measure of the quality of individual research articles, to assess an investigator's contributions, or to make funding decisions.

The content of a paper is more important than publication metrics, or the identity of the journal, in which it was published, especially for early-stage researchers. Reviewers and panel members are encouraged to consider the value and impact of all research outputs (including datasets, software, inventions, patents, preprints, other commercial activities, etc.) in addition to research publications. We advise our peer reviewers and panel members to consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

Equipment

Equipment over £10,000 in value (inclusive of VAT) is not available through this call. Smaller items of equipment (individually under £10,000) should be included under the Directly Incurred - Other Costs heading (at the full proposal stage).

For more information on equipment funding, please see: <https://epsrc.ukri.org/research/facilities/equipment/>

Eligibility

Only applicants invited to submit a full proposal following the outline stage may apply. The PI is not expected to change between the outline and the

full proposal bid. The only exception to this would be where the PI has been successful in the parallel Coordinator call and has chosen to take this role instead, as the successful Coordinator cannot be an investigator on any Centre full proposal. In this case the PI should inform UKRI which Co-I has been nominated as a replacement before submitting the full proposal.

Centres are expected to have built on and extended their investigator team as appropriate to meet the interdisciplinary needs of the call, and to address outline panel feedback. Based on that feedback, this may include integrating with other outline proposals. Applicants considering major changes between the outline and full proposal stage to their Centre's scope or core management team (for example, where a significant number of Co-Investigators on the outline proposal do not feature on the full proposal) should discuss with UKRI before proceeding.

UKRI expects the choice of investigators to reflect the full scope of the proposal, with each investigator representing a different area of research. Applicants are expected to provide details of how they envisage the proposed Centre would enable interdisciplinary research and innovation. UKRI would expect investigators to direct and coordinate the programme, providing expert guidance and drawing in others as appropriate; the direction of the Centre must encompass the combined expertise available in the wider applicant team, and not solely rely on the experience of the Principal Investigator. Overall the team must include the full, diverse range of skills and expertise needed to address the call objectives.

For this call, standard UKRI research grant eligibility rules apply relating to the status of the organisation and the employment status of individuals applying. Investigators from **all disciplines supported by UKRI** are welcomed and encouraged to apply.

Eligible organisations are Higher Education Institutes, Research Institutes and Research Organisations that can apply for funding from UKRI Research Councils. A list of eligible organisations to apply to UKRI is provided at: <https://www.ukri.org/funding/how-to-apply/eligibility/>.

Certain Public Sector Research Establishments (PSREs) are also eligible to apply. If PSREs wishing to apply have not previously applied for UKRI funding and are not currently designated Independent Research Organisation (IRO) status, the **Self Registration for Organisations link** must be selected and completed in Je-S before the application is created. They may be required to complete an eligibility form; to be eligible, PSREs will need to demonstrate research capacity and capability relevant to UKRI, as per the standard eligibility rules. PSRE applicants should contact UKRI at the earliest opportunity to discuss their interests in applying (contact details are at the start of this call document).

For information on the eligibility of individuals to receive funding, see: <https://epsrc.ukri.org/funding/applicationprocess/fundingguide/eligibility/investigators/>

Please ensure sufficient time to create Je-S accounts for Investigators who do not currently have one.

Unsuccessful proposals from this call are not subject to the EPSRC repeatedly unsuccessful applicants policy (<https://epsrc.ukri.org/funding/applicationprocess/basics/resubpol/rua/>).

The Circular Economy Coordinators **are not** eligible to be an Investigator on any full proposal for a Circular Economy Centre.

How to apply

Notification of Intent to Submit a full proposal

Any applicant intending to submit a full proposal must submit a Notification of Intent to Submit via the online survey on the call page by 16:00 07 April 2020. This is only to facilitate the peer review process, and Notifications of Intent will not form part of the assessment process. The following will be asked for:

- Names, departments and institutions of the Principal and Co-investigators
- A brief description of any evolution of the team and/or changes made to the proposed resource flow and/or sector contexts from the outline proposal (maximum 200 words)

The Notification of Intent to submit is not intended to restrict detail in the final submission, but applicants considering major changes to the scope of their Centre or to the project team between the Notification of Intent to submit and the full proposal closing dates should discuss with UKRI before proceeding.

Submitting a full proposal

You should prepare and submit your proposal using the Research Councils' Joint electronic Submission (Je-S) System (<https://je-s.rcuk.ac.uk/>). **This call will only open in Je-S on 03 February 2020.**

Although multi-institutional bids are welcomed, only one Je-S application form should be submitted for a given full proposal. It is the responsibility of the lead organisation to ensure all the documentation required is submitted with the proposal form.

When adding a new proposal, you should select:

- Council 'EPSRC'
- Document type 'Standard Proposal'
- Scheme 'Standard'
- On the Project Details page you should select the UKRI Interdisciplinary Circular Economy Centres – Full Proposals.

Full proposals must have the 'Related Grant' field completed in Je-S. Please use the option 'Follow up to outline proposal'.

Note that clicking 'submit document' on your proposal form in Je-S initially submits the proposal to your host organisation's administration, not to UKRI. Please allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date. UKRI must receive your application by 16:00 on 21 April 2020.

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://epsrc.ukri.org/funding/applicationprocess/>) which should be consulted when preparing all proposals.

Guidance on writing a full proposal

Full proposals must include as a minimum (other attachments may be permitted in some cases, as detailed):

1. A single Je-S application
2. Case for Support – twenty-two pages
 - Two page track record on the interdisciplinary team, focused specifically on managing complex, interdisciplinary research projects, in an inclusive way
 - Ten pages to address the assessment criteria. This section should include:
 - **An explicit statement of any changes to scope and/or the investigator team between outline and full stage, including how the outline panel’s feedback has been addressed**
 - Background
 - Overall vision and ambition for the Centre
 - Research programme and methodology – this should be focused on high-level objectives, research questions and challenges, with technical detail in the eight-page technical annex
 - The strategic national need being addressed by the Centre, including the relevance of the resource flow to the UK’s future economy, environment, security and society, and how the Centre research programme will address relevant Government priorities and targets
 - Added value of the Interdisciplinary Circular Economy Centre mechanism (i.e. why this call?)
 - Collaboration and user engagement (as discussed in the User Engagement Strategy section of the call document, below), and how the research programme will address the needs of stakeholders from across the existing supply chain, providing benefits and impact to consumers, Government, business (across a range of sector contexts), and other stakeholders.
 - How the Centre will engage collaboratively with other parts of the programme (the other Centres and Hub), and with government

- Details of the planned approach to Project Partner and other stakeholder engagement, including plans for attaining the Project Partner contribution target
 - Eight page technical annex. This is intended to provide additional information on the research programme (for example on individual work packages or themes) for the expert reviewers. Please ensure there is sufficient detail to allow peer review to assess the quality and ambitious nature of the research. There are no stipulations about the format of the technical annex, but it should complement the other sections of the case for support – primarily, the section on research programme and methodology.
 - Two page management strategy. This should not focus specifically on the Principal Investigator, but should demonstrate the strategy and track record across the proposed management team.
 - Demonstration of how the proposed interdisciplinary management structure and the team composition will enable them to manage an interdisciplinary Centre
 - How equality, diversity and inclusion is embedded in plans for building collaborations, including in how the core interdisciplinary team will embed ED&I into all activities, how the diverse range of perspectives in the community will be reflected and encouraged, and how the team will create an inclusive and accessible environment for broad participation.
 - Day-to-day management strategy for ensuring individual research projects meet the overall vision for the Centre, and for use of resources
 - Details of the strategy for engaging with stakeholders including relevant government departments and user groups. This should include the planned structure for the independent advisory group(s), and how inclusivity will be built into stakeholder engagement
 - Monitoring strategy, which should include how KPIs will be baselined, set and monitored, and the major decision points and how these will be used to reassess the direction of the research programme.
 - A plan for engaging in the required monitoring and evaluation activities, including a statement of initial objectives and Key Performance Indicators (linked to key outputs and outcomes) for the Centre, and a plan for developing and monitoring these, and producing case studies, once the Centre begins
3. CVs, up to two A4 sides each, for named research staff (including Researcher Co-Investigators), or visiting researchers. **CVs are not required for Principal or Co- Investigators, and should not be attached.**

4. Justification of Resources – two pages

A two page narrative description of the need for the resources requested. Resources for the project management of the programme and impact activities (including stakeholder and user engagement, interactions with other parts of the Circular Economy programme including other funded Centres and the Hub, public engagement, and responsible innovation) should be described here.

5. Spend profile – one page (use type Other Attachment in Je-S)

This document will not be sent to reviewers or the panel. A one page summary of the proposed spend profile, on a quarterly basis. The balance of spend across financial years should be realistic to meet the Centre objectives; however, it must take into account that UKRI will have to meet the overall programme spend profile across the five Centres, which is based on a flat profile across the grant lifetime (that is, the same amount paid in total across the Centres each quarter). This page should include a table with a value for all 16 quarters across the four years, and a brief narrative to justify the proposed spend profile.

Spend profiles will be confirmed with projects recommended for funding, at the post-panel stage. As UKRI has to meet the overall programme spend profile, UKRI does not guarantee that applicants' requested spend profiles can be agreed to, especially if they differ significantly from the programme spend profile.

6. Workplan - two pages

It is not expected that this will be a Gantt chart for the full duration of the Centre. It is expected that the work plan includes a comprehensive plan for at least the first 24 months, which relates to the management strategy to give appropriate milestones for when important decisions on the direction of the research will be taken.

7. Project Partner Letters of Support

Letters must:

- Outline the benefits the Project Partner hopes to achieve from participating in the Centre
- Explain how their involvement enhances the quality of the Centre
- Include an indication of the level and nature of financial, staff and/or other support they are willing to put into the Centre **(this should match the in-kind and cash contributions detailed on the Je-S application form).**
- Be signed, dated (with dates no more than 6 months before the call closing date) and on letter headed paper. The signatory should hold a sufficiently senior position to authorise the commitments detailed on behalf of the organisation.

Only statements of support from Project Partners specifically contributing to the Centre in some way should be included. Letters

expressing general support for an area or the Centre will not be accepted, and will be removed from the proposal before the peer review stage.

EPSRC defines a Project Partner as any collaborating organisation (other than a host academic institution) that is contributing to the grant, but not receiving any funding from the grant. In exceptional circumstances, where a partner cannot be formally recorded as a Project Partner (for example, because they are due to financially benefit from the grant), the partner's specific contributions can be captured using the 'letter of support' document type. A maximum of three such letters are allowed.

8. Host Organisation statement – two pages per institution; there should be one statement for each host organisation involved (**each two pages maximum**), all attached together as one document. Letters should include the institution's commitment to the Centre for the lifetime of the award, and the alignment of the Centre's proposed research to the institution's strategy.

Do not upload any other attachments. If submitted they will not be sent to reviewers or the panel.

Je-S form

Further guidance on completing the Je-S form can be found at <https://je-s.rcuk.ac.uk/Handbook/pages/GuidanceonCompletingaStandardG/EthicalInformation.htm>. Other relevant guidance includes: EPSRC's policy on animal use in research (<https://www.epsrc.ukri.org/about/standards/animalresearchpolicy/>) and the Responsible Innovation Framework (<https://epsrc.ukri.org/research/framework/>).

Please note that on submission via Je-S, **all** non-PDF documents uploaded are converted to PDF; the use of non-standard fonts may result in errors or font conversion, which could affect the overall length of the document. We recommend that all attachments are uploaded into Je-S as Adobe Acrobat files (PDF) to prevent layout changes to the document.

All attachments must be completed in single-spaced typescript in Arial 11 or another sans serif typeface of equivalent size, with margins of at least 2cm. For example, Arial Narrow is not an allowable font type. Text in embedded diagrams or pictures, numerical formulae or references can be smaller, as long as it is legible. Text in tables and figure labels not within embedded diagrams or pictures should be at least 11 point. For advice on writing proposals see: <https://epsrc.ukri.org/funding/howtoapply/preparing/>

User Engagement Strategy

Importantly the Centres must deliver actionable solutions. **They should be designed and delivered in partnership with relevant users, including industry and government** (national and, where appropriate, regional and/or local). Connections should be made from across the existing supply chain, for the Centre's given resource flow. Centres will also engage across the wider programme, with other Centres and the Hub.

Successful applicants will be required to develop and execute a strategy for engaging with potential users of the research funded in the project (resources for impact activities can be requested and must be justified in the application). This

strategy should be reviewed and updated regularly as part of the formal management of the grant.

The strategy should cover:

- how and when potential users have been / will be identified;
- what form the engagement will take;
- what steps will be taken to engage actively with relevant stakeholders, including policy officials, industry and the third sector, and to ensure that outputs and case studies of the research are made available to potential users and more widely (for example, via social media);
- suitable metrics for determining the success of the strategy in delivering value to users;
- Collaboration and engagement with the wider Circular Economy programme, with detail on how the Centre would identify and exploit potential opportunities to work with other existing UKRI investments, where appropriate, to maximise engagement and impact.

While applicants need to consider this strategy in their full proposal, UKRI recognises that flexibility is needed given the dynamic nature of this field. The exact nature of interactions with e.g. central Government may be determined between Centres and Government departments once the Centres are running.

Involvement from industry and users of all sizes can facilitate innovation, and can help to ensure the uptake of outputs of the research by users. To reduce financial barriers to SMEs and enable them to participate in the Centres, UKRI will subsequently run competitions worth up to £2.5m for SMEs to engage in collaborative research and development (CR&D). This funding will only be available for CR&D relating to the work of one or more of the Centres, and SMEs receiving this funding will be required to engage with the Centres during their CR&D projects.

User engagement will therefore include interactions with SMEs funded through these competitions. Further details will be communicated once the Centres have begun in October 2020, but it is expected that competitions will run as follows:

- Competitions will be open to any eligible SME, in line with Innovate UK's usual processes (e.g. on state aid, size of SMEs, being UK registered)
- SMEs will have to demonstrate that their CR&D project is aligned to the work of at least one Circular Economy Centre. It will be expected that SMEs can demonstrate engagement with the Centres before applying to these competitions
- The CR&D funding will enable industrial research studies or other small innovation projects (e.g. developing technologies or business models)

Full proposal assessment process

Full proposals will be subject to postal peer review. Applications that receive sufficiently supportive comments will be invited to submit a response and for interview. UKRI reserves the right to introduce a sift stage before interview.

As an objective of the programme is to deliver research that supports Government in making policy decisions, full proposals will also be shared with DEFRA (representing the UK Government), who will provide comments on the proposal's relevance to Government strategies and research & innovation priorities, and potential for policy impact. Applicants will be invited to submit a response to the Government's comments at the same time as submitting a response to postal peer reviewers' comments.

Reviewers' comments, the UK Government's comments, and the response will be considered at a panel meeting, at which applicants (the Principal Investigator and up to three other members of the team) will be interviewed. Applicants may be asked to present to the panel at the start of the interview. The panel will be selected by UKRI to reflect the call remit and the need for interdisciplinarity.

The panel will be asked to assess the applications against the full proposal assessment criteria and produce a rank ordered list. The panel will also be asked to consider the coverage across disciplines, institutions, resource flows, and sector contexts and make recommendations to UKRI about this. UKRI will consider both the rank ordered list and the coverage across disciplines, institutions, resource flows, and sector contexts in making a final funding decision. If the set of proposals at the top of the list do not provide the necessary coverage, UKRI may fund proposals lower on the rank ordered list instead, in order to deliver this coverage across the set of Centres.

Feedback will be in the form of reviewers' comments. The interview panel will be invited to provide any further feedback, where appropriate.

Assessment criteria

- Quality (Joint Primary)
 - The novelty, relationship to the context, and timeliness
 - The ambition, adventure, and transformative aspects identified
 - The appropriateness of the proposed methodology
 - The overall vision of the research programme
- Fit to Call (Joint Primary) – this criterion relates to the fit to the scope and aims of the Interdisciplinary Circular Economy programme and this call
 - The strategic importance of the proposed resource flow to the UK's future economy, environment, security and society, offering benefits to consumers, Government, business (across sector contexts), and other stakeholders

- How the proposal will contribute to Government research priorities, commitments and relevant national targets
- A strong approach to forming an inclusive and accessible environment that provides for the interdisciplinary partnership of researchers with the diverse range of necessary skills to address the challenges identified in this call, and the programme ambition of supporting cutting-edge multi- and interdisciplinary research
- Evidence of potential to engage with actors across the whole-system of the proposed resource flow and elicit leverage towards the Centre target, delivering the development of actionable solutions and improved environmental, social, economic and/or health outcomes
- National Importance of the circular economy research programme (Secondary Major)
 - Contributes to, or helps maintain, the health of other disciplines
 - Contributes to addressing key UK societal challenges and/or contributes to the future UK economic success and development of emerging industry(s)
 - Meets national needs by establishing/maintaining a unique world leading activity
 - Complements other UK research already funded in the area, including any relationship to the UKRI portfolio (which can be consulted using Gateway to Research, at <https://gtr.ukri.org/>)
- Impact (Secondary), including:
 - The degree to which the impacts identified for this work are complete and realistic
 - Relevance and appropriateness of any beneficiaries or collaborators (e.g. co-design)
 - Clear communication strategy for engaging with the topic, dissemination and knowledge exchange, including links to the overall Circular Economy programme and the Coordinator/Hub
 - Plans for promoting interdisciplinary cultures
 - Stakeholder engagement in the Centre's research programme development
- Applicant team (Secondary)
 - Appropriateness of the track record of the applicant(s), including for managing complex, interdisciplinary activities
 - Balance of skills of the project team, including academic partners

- Resources and Management (Secondary)
 - Effectiveness of the proposed planning and management
 - Appropriateness of resources requested and justified
 - Suitability of proposed strategy for flexible allocation of resources, engagement with other investments and the wider programme, and use of independent advisory board
- Advocacy for research and innovation in the circular economy (Secondary)
 - A demonstration that the applicant team would act as an ambassador to the wider research and user communities and advocate for circular economy research and innovation
 - **Note that this is an additional criterion, which will not be assessed by reviewers and will only be assessed at the interview stage**

Guidance for reviewers

Information about the EPSRC peer review process and guidance for reviewers can be found at: <https://epsrc.ukri.org/funding/assessmentprocess/review/> EPSRC are managing the programme on behalf of UKRI; consequently EPSRC's peer review process and reviewer guidance, which is similar to that of the other Research Councils, is being used.

Guidance for reviewing standard grants can be found here: <https://epsrc.ukri.org/funding/assessmentprocess/review/formsandguidancenotes/standardgrants/> . Postal peer reviewers will be directed to this call document and contacted to review the proposals.

Grant additional conditions (GACs)

Grants will be subject to the standard UK Research and Innovation grant conditions; however, due to the nature of this funding, it is proposed that the following grant additional conditions will be added to this call:

- This call is subject to the following conditions:
 - GAC 1 – Engagement with stakeholders and Integration Hub

Centres form part of the UKRI Interdisciplinary Circular Economy programme. This grant is awarded on the condition that the project will work in strategic partnership with other Centres funded through this call and the Interdisciplinary Circular Economy Hub, once awarded, and will undertake a wider networking role with the research and user community outside the Centres and Hub.

The project investigators will attend Hub meetings as required, providing regular project updates and reports, and engaging fully with the Hub management and steering group. Failure to do so will result in the suspension of the grant.

- GAC 2 – Governance

Further to RGC 7 Monitoring, this grant is subject to the framework principles of the UKRI Interdisciplinary Circular Economy programme and will be expected to work alongside other grants and governance structures under this scheme where appropriate.

EPSRC will nominate a member of UKRI staff (The Project Officer) who will be your primary point of contact. The Project Officer will ensure that the project is being run in accordance with the terms and conditions and in line with financial due diligence. The Project Officer(s) should have access to all documentation of Governance and Reporting bodies, in so far as it relates to the administration and application of the grant. As funding administrators, all UKRI staff have agreed to maintain the confidentiality required by all parties involved in EPSRC funded research.

This grant must establish and run an independent Advisory Board, or equivalent body, to oversee the running of the project and provide advice on the strategic direction and activities of the project. The terms of reference and membership of this group (at least 50% independent membership and an independent Chair) should be agreed with UKRI. The Project Officer will also be expected to attend and participate in Advisory Board and other appropriate meetings for the duration of the grant.

A representative of the Interdisciplinary Circular Economy Hub, if awarded (funded through this overall programme) must be invited to meetings of the Advisory Board.

GAC 2a – Management Structure

The Grant Holder should have established an appropriate management structure with clear lines of responsibility and authority to oversee the day-to-day running of the Centre. This should be in place within three months of the start date of the grant. The management structure must be approved by UKRI in advance, as must any changes to this structure. The Project Officer will be UKRI's main contact with the project, and must receive all meeting minutes of the management committees. UKRI reserve the right to attend any meetings.

Adequate resourcing to support an appropriate management structure, as specified in the funding call documentation, should be maintained throughout the lifetime of the grant and costed appropriately.

- GAC 2b – Collaboration agreement

Where the grant is associated with more than one research organisation the basis of collaboration between the organisations, including the allocation of resources throughout the project and ownership of intellectual property and rights to exploitation, is expected to be set out in a formal collaboration agreement. It is the responsibility of the lead Research Organisation to put such an

agreement in place within three months of the grant start date. The terms of collaboration agreements must not conflict with the Research Councils' terms and conditions.

A copy of the agreement between the research organisations must be provided for and approved by the Project Officer.

- GAC 3 – Review

In addition to the requirements set out in standard UKRI grant conditions RGC 7.4 Research Monitoring and Evaluation, 7.5 Disclosure and Inspection, UKRI reserve the right to instigate a review of all or part of the grant at any stage during the lifetime of the award as well as after the grant has finished. A mid-term review of this grant will take place to assess the performance of the grant in line with the peer reviewed body of work, published scheme assessment criteria and Key Performance Indicators/milestones and deliverables. A mid-term review and final evaluation of the programme will also take place, which the Grant Holder will be expected to contribute to. UKRI will give the Grant Holder due notice of the date of any review and will provide details of the Terms of Reference and documentation required. Any review will be conducted by an expert panel, which will make recommendations to UKRI for the grant's future.

- GAC 3a – Reporting

In addition to the requirements set out in the standard UKRI grant condition RGC 7.4.3, the Grant Holder is responsible for providing quarterly progress reports against non-financial performance metrics. A detailed list of performance metrics and instructions for reporting will be agreed with the Grant Holder upon commencement of the grant.

- GAC 4 – Project Partners

It is a requirement of this funding that the Grant Holder attains a target of Project Partner contributions (which can be cash or in-kind). Where this value was not attained in the original proposal, the Grant Holder must be able to demonstrate at the mid-term review that the target for contributions has been obtained, or will be obtained by the end of the grant.

Unless UKRI agrees that the target should be lower, the target will be £1.5 million.

- GAC 5 – Expenditure

At the start of the grant the financial spend profile will be agreed by UKRI. The financial profiles are based on those provided in the BEIS allocation letter to UKRI.

In addition to any reporting requirements set out in GAC 3a, the Grant Holder must immediately notify the UKRI Project Officer(s) of any accumulation, slippage or variation in expenditure greater than

5% of the annual profiled funding. UKRI reserves the right to re-profile the grant if required.

Any deviation from the agreed allocation of funding and profiled costs must be negotiated and approved through written consent by UKRI. The approval of profile changes should not be assumed and will be dependent on spend across all associated grants.

At the end of the grant period a breakdown of the expenditure should be submitted along with the final expenditure statement.

Where the Grant Holder holds a competition to distribute a proportion of funds awarded to a Third Party, this competition will be carried out in accordance with the principles of Peer Review upheld by EPSRC

<https://epsrc.ukri.org/funding/assessmentprocess/prprinciples/> .

Prior agreement on the process stages and assessment criteria must be sought from UKRI and agreed by the Centre's advisory board in advance. The Grant Holder and any third party recipient must comply with expectations of the use of public money for the purpose of this grant. All expenditure incurred, irrespective of source, must comply with these expectations.

- GAC 5a - Cost and time overrun

No slippage or grant extensions (beyond exceptional circumstances in line with the Equality Act 2010) will be allowed. EPSRC will not be responsible for any cost overrun incurred during the course of this grant. The Research Organisation(s) will be required to make up any shortfall from alternative sources.

- GAC 5b – Start date of the Grant

Notwithstanding RGC 5.2 Starting Procedures, this grant has a fixed start date of 1 October 2020 – no slippage of this date will be permitted. Expenditure may be incurred prior to the start of the grant and be subsequently charged to the grant, provided that it does not precede the date of the offer letter.

- GAC 6 – Publicity and Branding

In addition to RGC 12.4 Publication and Acknowledgement of Support, the Grant Holder must make reference to the UKRI Interdisciplinary Circular Economy programme and UKRI funding and include the UKRI logo and relevant branding on all online or printed materials (including press releases, posters, exhibition materials and other publications) related to activities funded by this grant.

- GAC 7 – Equality, Diversity and Inclusion

In addition to RGC 3.4, the Grant Holder is expected to prepare a full equality, diversity and inclusion plan for the duration of this grant to demonstrate good practice in equality, diversity and inclusion throughout the lifetime of this funding award. This must be recorded through the grant reporting process. Outcomes relevant to

equality, diversity and inclusion should also be reported as described in RGC 7.4.1.

- GAC 8 – User Engagement Strategy

The grant holders must develop and execute a strategy for engaging with potential users of the research funded in the project. This strategy should be reviewed and updated regularly as part of the formal management and reporting process agreed for this grant.

Moving forward

Further information on consortium building workshops will be available by mid-February on the call web page.

Submissions to this call will not count towards the EPSRC Repeatedly Unsuccessful Applicants Policy. Further information about the policy can be found at: <https://epsrc.ukri.org/funding/howtoapply/basics/resubpol/rua/>

Key dates

Activity	Date*
Intent to submit deadline	07 April 2020, 16.00
Full proposal submission deadline	21 April 2020, 16.00
Postal peer review	May - June 2020
Full proposal interview panel	20-22 July 2020
Funding decision communicated	early August 2020
Grant start date	1 October 2020
Grant end date	30 September 2024

*UKRI aims to adhere to the key dates as published; however, there may be exceptions where the panel meetings may have to change due to panel member availability.

Contacts

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Change log

Name	Date	Version	Change
Nick Cooper and Lisa Coles	24.01.2020	1.0	Version for publication
Nick Cooper and Lisa Coles	05.02.2020	2.0	<p>Removal of need for Pathways to Impact document, and minor amendments to remove references to Pathways to Impact.</p> <p>Addition of two pages to Case for Support limit, and of two bullet points under Case for Support description to cover engagement with other Centres/Hub/Govt, and on Project Partner contributions/ stakeholder engagement.</p> <p>Addition of clarifications that impact activities (and funding for these) remain encouraged.</p>

Appendix 1

Je-S attachments Check List for Outline proposals

Attachment Type	Maximum Page length	Mandatory/ Optional	Extra Guidance
Case for Support	Twenty-two pages	Mandatory	Comprising: up to 2 pages on track record; up to 10 pages addressing the assessment criteria; up to 8 page technical annex, up to 2 page management strategy. Further details are in the main call document.
Justification of Resources	Two pages	Mandatory	Further guidance in call document.
CVs	Two pages	As required by EPSRC	For named and visiting researchers, and researcher co-investigators; not required for PI or Co-Is
Workplan	Two pages	Mandatory	Further guidance in call document.
Project Partner Letters of Support	No page limits	As required by EPSRC	Must be included from all named project partners. Must be on headed paper, and be signed and dated within six months of the call closing date. Details of contribution must match contributions detailed on the Je-S application form.
Host Organisation statement	Two pages per institution	Mandatory	Please combine letters from each university (each maximum two pages) into one document for attachment.
Letters of Support	No page limits	As required by EPSRC	In exceptional circumstances a maximum of three letters can be submitted.
Proposal Cover letter	No page limit	Optional	The cover letter can be used to highlight any important information to EPSRC. This attachment type is not seen by reviewers or panel members.
Spend Profile (Type: Other attachment)	One page	Mandatory	To contain a table of preferred spend profile (by quarter) and brief narrative. Further guidance on requirements in the call document. This attachment type is not seen by reviewers or panel members.

Please ensure you adhere to the above attachment requirements when submitting your proposal. Any missing, over length or unnecessary attachments may result in your proposal being rejected.

Annex 1: Scope section from outline call

This Scope section is taken from the outline call. It is still expected that Centres will meet these requirements, but this section has been annexed to reflect the fact that Centres will already have chosen a resource flow focus at outline stage, and are not expected to make significant changes.

Applicants are invited to submit outline proposals for interdisciplinary research Centres that will support the transition to a circular economy for a specific resource flow, as defined below. UKRI expects to fund five Centres, each focused on a different resource flow, their related uses and wider (multi-) sector contexts. This will allow a detailed investigation of the benefits and trade-offs of a more circular economy, with opportunities for cross-sectoral learning and research. Appropriate consideration should be given to sector contexts, in order to analyse whole-systems consequences, barriers (e.g. regulatory), potential economic opportunities and the behaviour of the breadth of relevant actors. The separately-funded integration Hub will then deliver overarching coordination to provide a focus for wider national progress and will work closely with Centres to consider cross-cutting areas and to integrate research and innovation across resource flows. **Research can be from across the breadth of UKRI's remit.**

Centres are expected to focus on the lifecycle of **one resource flow**. UKRI recognises that different disciplines will interpret this in different ways, and UKRI intends the definition to be broad to allow for interdisciplinary collaboration. What a more "circular" approach looks like is context-dependent and will vary for different resource flows and sector contexts; Centres are expected to investigate the benefits, risks, costs, trade-offs and barriers associated with adopting a more circular approach and the role of actors (be they government, businesses, consumers or others) to achieve desired outcomes. The focus on circular economy in this call does not presuppose how best to deliver environmental, social, cultural, economic and technical benefits for any particular resource flow, or its related waste streams, uses or sector contexts.

In general, "resource" refers to material assets (materials/materials systems, whether virgin or secondary) used to create products and services, serving a range of functions and delivering varied forms of value, and the components or products derived from the identified material assets. In considering the "resource flow", Centres are expected to consider all processes involved in how a resource transforms between states from conception to end of life as it flows through the system including consideration of related waste streams. As such, a Centre may focus on multiple materials as part of a wider resource system, such as to investigate potential benefits of material substitution.

Overall a more circular economy should lead to waste minimisation. Nevertheless Centres should cover related waste streams – any discarded substance or object relating to the resource system. The proposed research should therefore consider the full value chain of production for selected resource flows – the activities required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and re-use, recycling, repurposing, remanufacturing or disposal after use.

For this call, universally-applicable themes such as water or energy are not eligible to be the main focus of a proposed Centre, as they act across a number of resource flows. However, UKRI would expect these cross-cutting elements to be considered where they relate to the specific resource flows being studied in each Centre.

Each Centre will explore a resource flow that will be strategically important to future sustainability of the UK economy and quality of life. Centres can focus on either current or emerging resource flows and should demonstrate the strategic importance of the resource flow in terms of:

- The size of the opportunity – how important the resource flow will be to the UK in the longer term, in terms of the market size, environmental and societal impact, relevance in multiple sector contexts etc.
- How the Centre can contribute to UK government commitments relating to resource efficiency, reducing embodied greenhouse gas emissions, and achieving climate change commitments (Net Zero Target) - such as those in the Resources and Waste Strategy for England
- The extent to which interdisciplinary research could have a significant impact on the resource flow, increasing circularity and resource efficiency to a) reduce costs and material use, b) reduce pollution and greenhouse gas emissions, and c) improve quality of life. The research should provide actionable solutions, reducing uncertainty in policymaking and industry, while also offering insight into the benefits, risks and trade-offs across the whole system of transitioning to a more circular approach.

While the focus is on the resource flow's relevance to the UK, Centres will be expected to consider the global context – for example, global supply chains and markets, international comparisons or the wider impacts of a more circular economy. This may be directly via the work taking place in the Centre, or in interactions with the Circular Economy Hub.

The scope of this call is intentionally broad and it is for applicants to determine nationally important resource flows, related waste streams and the (multi-) sector contexts. It is expected that applicants will demonstrate why their proposed resource flow is of future strategic importance to the UK, and why adopting a more circular approach to that resource flow now would deliver against the objectives of this programme.

UKRI is not specifying any priorities for resource flows, or sector contexts. However, for illustrative purposes only, examples of resource flows could include (but are not limited to):

- Goods and services (e.g. clothing, consumer electronics, pharmaceuticals, financial and retail services)
- Bioeconomy and natural resources (e.g. biological resources and processes, paper and forestry, rare earth metals, food manufacture, agriculture, or other industrial processes - and their waste and by-products)
- Materials systems and related waste streams (relating to current and or future materials e.g. construction or transport)

For any resource flow, a whole system approach is required. The scope and focus of resource flow and sector context(s) should be selected so that research challenges are appropriate for the expected funding timeframe of up to four years. In considering this, applicants may want to consult (links in Annex 2):

- The outputs of two UKRI workshops held in June 2019
- DEFRA's Resources and Waste Strategy for England, which sets out DEFRA's priorities in this space
- The Government's Bioeconomy strategy, which sets out BEIS's priorities for the bioeconomy

Delivering a step-change towards a more circular economy will rely on the added value created by bringing research disciplines together, ensuring co-creation with supply chain partners and other relevant stakeholders (e.g. relevant sector councils), and securing consumer engagement. Research conducted should be focused on specific real world contexts, but should also be fundamental and experimental (for technologies, focused on technology readiness levels [TRLs] 1-3). Additional funding will be provided via a subsequent Innovate UK call to enable SMEs to engage with this research and pursue business-led collaborative research and development to test out emerging ideas.

A crucial aspect of this call is that the required improvement in outcomes will need interdisciplinary research and innovation. Centres will therefore need a truly interdisciplinary approach and to consider the whole system. They will provide further understanding of behaviour change and the contextual factors which influence the system, enabling the design, production and uptake of acceptable, usable, realistic solutions (noting the focus on fundamental research), delivering the innovative solutions needed, and improving understanding of feasible transformation pathways to bring about circularity and improved outcomes.

Annex 2: Links to key policies and strategies

UKRI have provided links below to policies and strategies of relevance to the circular economy. As outlined in the call document, UKRI is not specifying any priorities for resource flows, and the inclusion or exclusion of documents relating to a given resource flow is not intended to indicate any prioritisation. However UKRI hopes that these documents will provide general guidance to applicants in making the case for their given resource flow.

Public sector strategies, policies and activities

UKRI Delivery Plans: <https://www.ukri.org/about-us/delivery-plans/>

Government strategies:

- Industrial Strategy:
<https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future>
- Clean Growth Strategy
<https://www.gov.uk/government/publications/clean-growth-strategy/clean-growth-strategy-executive-summary>
- 25 Year Environment Plan
<https://www.gov.uk/government/publications/25-year-environment-plan>
- Resources and Waste Strategy for England
<https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>
- Growing the Bioeconomy:
<https://www.gov.uk/government/publications/bioeconomy-strategy-2018-to-2030>

Scottish Government's Zero Waste Plan:

<https://www2.gov.scot/Publications/2010/06/08092645/11>

Environment (Wales) Act:

<http://www.legislation.gov.uk/anaw/2016/3/contents/enacted>

Investment Strategy NI: <http://www.isni.gov.uk/home/>

Other references in the call document

OECD Global Material Resources Outlook to 2060, OECD, 2018:

<http://www.oecd.org/environment/global-material-resources-outlook-to-2060-9789264307452-en.htm>

Accenture report: <https://www.accenture.com/gb-en/insight-creating-advantage-circular-economy>

Ellen MacArthur Foundation: <https://www.ellenmacarthurfoundation.org/>

Outputs of UKRI circular economy workshop:
<https://epsrc.whp.rcuk.ac.uk/newsevents/pubs/ukri-circular-economy-workshops-june-2019/>

Other relevant UKRI documents

Outputs of 2016 Research Council workshop:

<https://ahrc.ukri.org/documents/project-reports-and-reviews/circular-economy-workshop-report/>

BBSRC reports on the bioeconomy, biotechnology and bioscience:

<https://bbsrc.ukri.org/documents/1607-evidencing-the-bioeconomy-report/>

<https://bbsrc.ukri.org/documents/forward-look-for-uk-bioscience-pdf/>

<https://bbsrc.ukri.org/documents/capital-economics-biotech-britain-july-2015/>

Technopolis Impact assessment of EPSRC funding on the circular economy:

<https://epsrc.ukri.org/newsevents/pubs/impactassessmentepsrcfundingcirculareconomy/>

Other relevant documents suggested by UKRI

Example relevant links to the Waste and Resources Action Plan (WRAP) website:

<http://www.wrap.org.uk/about-us/about/wrap-and-circular-economy>

<http://www.wrap.org.uk/content/employment-and-circular-economy>

<http://www.wrap.org.uk/content/econometric-modelling-and-household-food-waste>

http://www.wrap.org.uk/sites/files/wrap/Courtauld_2025_Annual_Review_2017_18.pdf

UN Sustainable Development Goals:

<https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>

UN Global Resources Outlook, 2019:

<http://www.resourcepanel.org/reports/global-resources-outlook>

BEIS Green Finance Strategy:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813656/190701_BEIS_Green_Finance_Strategy_Accessible_PDF_FINAL.pdf

CCC: Net Zero: <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>

Reports from the Natural Capital Committee:

<https://www.gov.uk/government/collections/natural-capital-committee-documents>

Scottish Government circular economy strategy:
<https://www.gov.scot/publications/making-things-last-circular-economy-strategy-scotland/>

Zero Waste Scotland website: <https://www.zerowastescotland.org.uk/our-work/circular-economy>

Welsh Government Sustainable Management Guide:
<https://gov.wales/sites/default/files/publications/2019-06/sustainable-management-of-natural-resources-guide.pdf>

POST Note on Designing a Circular Economy:
<http://researchbriefings.files.parliament.uk/documents/POST-PN-0536/POST-PN-0536.pdf>

Bibliometric analysis of circular economy research:
https://www.researchgate.net/publication/329293962_Worldwide_Research_on_Circular_Economy_and_Environment_A_Bibliometric_Analysis

Deloitte/Utrecht report on circular economy in the EU:
https://circulareconomy.europa.eu/platform/sites/default/files/171106_white_paper_breaking_the_barriers_to_the_circular_economy_white_paper_vweb-14021.pdf

Next Manufacturing Revolution report:
<http://www.nextmanufacturingrevolution.org/nmr-report-executive-summary>

Reports from the Valuing Nature Network: <http://valuing-nature.net/natural-capital-synthesis-reports-0>

ESRC suggested publications

<https://www.cccep.ac.uk/publication/sustainable-growth-in-the-uk-seizing-opportunities-from-technological-change-and-the-transition-to-a-low-carbon-economy/>

<https://steps-centre.org/publication/the-circular-economy-and-the-global-south/>

<https://steps-centre.org/publication/chinas-low-carbon-future-offers-global-opportunities/>

<https://steps-centre.org/publication/the-new-politics-and-geographies-of-scarcity/>

<https://steps-centre.org/publication/destabilisation-of-sustainable-energy-transformations-analysing-natural-gas-lock-in-in-the-case-of-germany/>

https://www.cusp.ac.uk/themes/p/bookchapter_gb_circularity-thinking/

<https://www.cusp.ac.uk/themes/aetw/pwg/>

https://www.cusp.ac.uk/themes/aetw/gb_ce-sp/
Blog (based on research findings) – Brennan

<https://www.cusp.ac.uk/themes/p/sustainable-value-and-trade-offs/>

<https://www.cecan.ac.uk/sites/default/files/2019-01/11%20-%20Waste%20Crime%20%28final%29.pdf>

https://resourcerecoveryfromwaste.files.wordpress.com/2019/05/rrfw_programme_brochure_web_spreads.pdf

https://resourcerecoveryfromwaste.files.wordpress.com/2018/09/rrfw_industry_co-creation_report_sept2018.pdf

<https://www.sciencedirect.com/science/article/pii/S0048969718331887>

<https://www.mdpi.com/2071-1050/10/5/1401>

<https://www.tandfonline.com/doi/full/10.1080/23789689.2017.1405654>

<https://www.mdpi.com/2071-1050/9/9/1603>

https://resourcerecoveryfromwaste.files.wordpress.com/2019/01/rrfw-2019_multidimensional-value-assessment-of-cos.pdf

https://resourcerecoveryfromwaste.files.wordpress.com/2018/10/rrfw-psa-synthesis-report_final.pdf

https://resourcerecoveryfromwaste.files.wordpress.com/2018/07/rrfw_2018_evolution-of-mht-for-resource-recovery-from-msw-in-uk.pdf