

UK interconnected test-beds to support a research and innovation internet environment

Call type: Invitation for outlines

Closing date: 16:00 on 28th October 2015

Related themes: ICT, Digital Economy, Global Uncertainties, Research Infrastructure

Summary

The EPSRC Information and Communication Technologies (ICT) Theme is inviting outline proposals for grants to link existing test-beds in order to undertake a variety of internet-relevant research. Joining test-beds and equipment using high speed, dedicated connections could significantly enhance the capability of these resources. This would enable new uses of the test-beds and thus research, enhancing the UK research landscape in areas relating to the internet.

Funding up to £5 million is available, which is expected to support between three and five consortia up to a duration of 5 years, subject to the quality of the proposals received. This is also subject to funds being available to EPSRC.

Background

UK universities currently contain a great number of limited scale test-beds for undertaking a variety of internet based research. These vary widely in size, scope and type. The scope of these test-beds are sometimes constrained by their lack of connectivity to other such test-beds and infrastructure across the UK. Furthermore the test-beds are predominantly used by the researchers at the institution where the test-bed is located, and in some cases by small extended communities who have formed around a large programme of research. Normally, access by other academic researchers, industry and smaller companies is limited.

Linking existing test-beds and equipment using high data speed, dedicated connections could significantly enhance the capability of such resources. In addition to this, joining test-beds will enable the growth of the user base for existing equipment, which will strengthen the UK ICT research landscape. This is to enable world leading research in areas related to the internet such as: algorithms for massive data analytics; network resource capacity planning for connected cities; federated cloud computing; inter-data centre networking and photonics.

Call objectives

The objectives of the call are:

- To add value to existing lab-based test-beds and existing research infrastructure by:

- Connecting existing UK test-beds, research infrastructure and equipment to create new experimental environments and consortia resulting in a more versatile research environment; thus yielding impact that is more than the sum of its experimental test parts.
- Providing support for personnel, both technical and managerial, to enable access to the new connected test-bed consortia where there is not currently a provision.
- To maximise the UK ability to respond to important technology agendas and influence standards for future technologies such as the Global IEEE InterCloud Testbed Initiative (<http://www.intercloudtestbed.org/>) and the Horizon 2020 Programme in the Future Internet (<http://ec.europa.eu/digital-agenda/en/future-internet>).
- To enhance the UK's position in the global ICT landscape by joining existing test-beds and infrastructure to enable world leading research.
- To provide underpinning support to key strategic priorities and areas including the Internet of Things, Future Intelligent Technologies, Big Data Analytics, and the current cross-ICT priority *Towards an Intelligent Information Infrastructure* (TI3).

For more information about EPSRC's portfolio and strategies, see our website: <http://www.epsrc.ac.uk/research/ourportfolio/>

Funding available

Funding up to £5 million is to be available, which is expected to support between three and five consortia up to a maximum duration of 5 years, subject to the quality of the proposals received. Please note that the funding available through this call is intended for the **primary purpose** of establishing linked test-beds and the associated consortium to support internet-relevant research. Although a strong element of this will be concerned with the research interests and aims of the consortium, this call does not have the budget to support entirely new research programmes. Instead we encourage applicants to demonstrate the added value that will be brought to existing research programmes, as well as potential future research that would be enabled.

It is expected that the largest proportion of funds will be allocated to support the formation of consortia and execution of related activities (for example via recruitment of additional managerial and technical staff, consumables, consortium building activities and other general running costs).

Funding is also available to contribute to JANET connections at transmission rates greater than 1Gbit/s, but requests for this resource should be well justified and assurances should be in place that arrangements for these connections would be made (<https://www.ja.net/products-services/janet-research/lightpath>).

As a broad indicator, Janet "Lightpath" services can be provided to eligible organisations (typically Universities and Research Council facilities that already have a primary service connection to Janet) at capacities up to 1Gbit/sec without direct cost to projects subject to technical feasibility assessment and available budgets. It should be noted that the portfolio of layer2 network services available on JANET is evolving beyond the classic "Lightpath" that people may be familiar with and applicants are strongly advised to seek an informal confidential

discussion with JISC staff to consider the most appropriate service in the context of interconnecting their test-bed at a given capacity. Other organisations such as industrial and commercial companies may also be eligible to connect to JANET in the context of supporting collaborative research and development, but may be subject to different connection policies and tariffs. Please contact the JANET Service Desk (service@ja.net) to request a more detailed discussion.

Resources requested for dark fibre connections that could not be negotiated from JANET, or through collaboration with the EPSRC National Dark Fibre Infrastructure Service (<http://www.ndfis.org/>), or negotiated from industry will be considered but should be discussed with EPSRC prior to submission of an outline proposal.

Equipment

Where possible, researchers are asked to make use of existing facilities and equipment, including those hosted elsewhere. If equipment is needed as part of the research proposal, applicants must follow EPSRC's rules for requesting equipment over £10,000 in value. Individual items of equipment up to the current OJEC (Official Journal of the European Communities) procurement threshold can be included on research proposals submitted through this call, but research organisations will be expected to make a contribution to the cost. Proposals which require funding for single items of equipment above the OJEC threshold will not be considered as part of this call.

For more information on equipment funding, please see:

<http://www.epsrc.ac.uk/research/ourportfolio/themes/researchinfrastructure/subthemes/equipment/>

The current OJEU threshold can be found at:

<http://www.epsrc.ac.uk/research/facilities/equipment/>

Eligibility

This call is open only to those organisations which have existing test-beds for undertaking internet-relevant research. Potential applicants **must** discuss their proposal with Ellie Gilvin (ellie.gilvin@epsrc.ac.uk) prior to submission, as per guidance below.

For information on the eligibility of organisations and individuals to receive EPSRC funding, see the EPSRC Funding Guide:

<http://www.epsrc.ac.uk/funding/howtoapply/fundingguide/>

As this call is a targeted funding opportunity provided by EPSRC, higher education institutions, and some research council institutes and independent research organisations are eligible to apply. A list of eligible organisations to apply to EPSRC is provided at: <http://www.rcuk.ac.uk/funding/eligibilityforrcs/>

How to apply

Submitting application

Following a conversation with EPSRC staff contacts, you should prepare and submit your proposal using the Research Councils' Joint electronic Submission (Je-S) System (<https://je-s.rcuk.ac.uk/>).

When adding a new proposal, you should select:

- Council 'EPSRC'
- Document type: Outline Proposal
- Scheme: Outline
- On the Project Details page you should select the 'UK interconnected test-beds to support a research and innovation internet environment' call.

Note that clicking 'submit document' on your proposal form in Je-S initially submits the proposal to your host organisation's administration, not to EPSRC. Please allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date. EPSRC must receive your application by **16:00 on 28th October 2015**.

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

Guidance on writing application

Once you have successfully completed pre-outline discussions (see below) you will be invited to submit an outline proposal. For this outline stage you will be required to submit a four page Case for Support, as outlined under the 'Assessment' section in this document. The Case for Support document should use headings to clearly demonstrate fit to the assessment criteria.

If the attachments are uploaded as Word documents, please be aware that once the application has been submitted to the Council, all the attachments will be converted and held as an Adobe Acrobat file (PDF). Also please note, that whilst we support a wide range, **we do not support all MS Word font types**. Therefore if an unsupported font type is used a different font type may be substituted which may result in changes to the layout of the document. For this reason we recommend that the documents are converted to PDF files before uploading.

For advice on writing proposals see:

<http://www.epsrc.ac.uk/funding/howtoapply/preparing/>

User Engagement Strategy

Successful applicants will be required to develop and execute a strategy for engaging with potential users of the linked test-beds beyond the membership of the consortium funded through this call (resources for this activity can be requested and must be justified in the application). This strategy should be reviewed and updated regularly as part of the formal management and monitoring of the grant; further details are given on this under the 'Monitoring' heading of this document.

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 ensure that the linked test-beds are made available to potential users;
- suitable metrics for determining the success of the strategy in delivering value to users.

Assessment

Assessment process

Pre-Outline. Interested applicants should discuss their proposal with Ellie Gilvin (ellie.gilvin@epsrc.ac.uk); in order to provide a basis for the conversation applicants must first complete the form at the following link, in good time to allow sufficient response:

<http://www.smartsurvey.co.uk/s/RIIE-PreOutline/>

It expected that interested applicants will have completed this by the **end of September** to allow sufficient time for further discussion, and the pre-outline submission must address the points below. The purpose of the pre-outline stage will be to consider the suitability of the proposal in the broadest sense:

- Are the test-beds proposed for connection suitable and viable?
- Is the infrastructure required for connection justified and available?
- Is there a fit to EPSRC priorities, in particular (but not exclusively) those of the ICT and Digital Economy Themes?
- Is the value added by connecting the test-beds clearly articulated? Is there a clear strategic vision?

Applicants with outlines which broadly fit the call criteria and contribute to the objectives will be invited to submit a proposal to the closed Outline stage.

Closed Outline stage. Outlines will consist of a proposal form and a four page case for support which should address each of the call criteria:

- One page should focus on articulating what currently existing equipment is to be linked together. This should include details of the test-beds to be connected and the team that will manage and operate the resultant consortium. Effectively this page forms the track record of both the applicants and the existing test-beds.
- The other three pages should address the other assessment criteria paying special attention to clear articulation of the strategic case and the potential impact of the consortium.

The outline proposals will be considered by a panel of industrialists and academics drawn from relevant communities. Successful outline proposals will be invited to submit a full proposal.

Full proposal stage. Full proposals will be invited from those successful at the outline stage. Full proposals will consist of:

- Case for Support (up to 8 pages, comprising up to 2 pages of track record and up to 6 pages describing the proposed consortium and its context as per outline above)
- Pathways to Impact (up to 2 pages)
- Justification of Resources (up to 2 pages)
- Diagrammatic work plan (1 page, clearly demonstrating both the work involved in setting up the linked test-bed system and work to be carried out once this is operational)
- Host Organisation Statements (up to 2 pages, one from each institution, to demonstrate support for use of existing university test-bed infrastructure)
- CVs will only be accepted for named and visiting researchers, these should be no more than 2 pages each. Letters of support will only be accepted from named Project Partners, these should follow the guidance at <https://www.epsrc.ac.uk/funding/howtoapply/preparing/writing/lettersofsupport/>.

Full proposals will be sent out for expert postal peer review. EPSRC will aim to receive at least three reviews. Should the reviews not be sufficiently supportive EPSRC reserves the right to reject proposals before the interview stage. If a proposal receives sufficiently supportive reviews the applicants will be invited to attend an interview panel prior to which they will be invited to write up to 2 pages responding to the reviewers' comments. The interview panel will be composed of industrialists and academics drawn from relevant communities.

Assessment criteria

The criteria for assessment of proposals are as follows, with Added Value, Consortium Development, and Strategic Case as primary criteria:

Value added to research quality. The proposal must demonstrate the added value of connecting existing test-beds to others across the UK. The quality and strengths of current research must be highlighted, with a clear articulation of how the additional resources would translate into an enhanced experimental environment for future internet-related research with a value that is more than the sum of its parts.

Strategic case. The proposal must demonstrate a clear strategic case for the proposed consortium, with a rationale for why the consortium partners are the most appropriate to deliver the vision in keeping with the scope of this call (as described in summary and background sections of this document), at the current time. It must also clearly articulate the strategic vision of the resulting consortium for the future.

Consortium Development. The proposal must demonstrate that there are existing, operational and proven test-beds and how the grant would be used to widen their use to external communities, thereby establishing a consortium which would be expected to have a life beyond the period of the grant.

National importance. The proposal must describe the extent to which, over the longer term, the additional investment:

- Contributes to, or helps maintain the health of other research disciplines, contributes to addressing key UK societal challenges, contributes to current or future UK economic success and/or enables future development of key emerging industry(s).
- Meets national strategic needs by establishing or maintaining a unique world leading research activity (including areas of niche capability).
- Fits with and complements other UK research already funded in the area or related areas, including the relationship to the EPSRC portfolio and our stated strategy set out in "Our Portfolio."
<https://www.epsrc.ac.uk/research/ourportfolio/>

The extent to which applicants are able to address each bullet point will depend on the nature of their research. Applicants should indicate how their research relates to EPSRC's research areas and strategies (proposals may be relevant to more than one EPSRC research area) and complements EPSRC's current portfolio. Information on the portfolio is available through the EPSRC's Grants on the Web (GoW) <http://gow.epsrc.ac.uk/>.

Suitability of the proposed pathway to impact. The applicants must identify who will benefit from the connected test-beds and the research outputs, describe how they may benefit and what will be done to ensure that they have the opportunity to benefit. The proposal should describe how the connected test-beds will result in internationally relevant and competitive research that is also of benefit to UK industry.

The proposal must also describe how the linked test-bed will be actively developed and promoted to other users outside of the consortium (academic and industrial, UK and international) to deliver the strategic vision.

Applicants' ability to deliver. The proposal must demonstrate that the team has an internationally leading reputation and an ability to deliver the service they envisage.

Resources and management. The proposal must demonstrate that there are existing, operational and proven test-beds and how the grant would be used to widen their use to external communities, thereby establishing a consortium which would be expected to have a life beyond the period of the grant.

The proposal must demonstrate that the activities of the grant and consortium formed will be managed appropriately. It should describe the management arrangements for the linked test-beds and provide a time line for the management and operation of the resulting consortium.

Sustainability. The proposal must also demonstrate that there is a convincing plan to sustain the consortium at the end of the proposed period of funding.

Monitoring

EPSRC will form a Research and Innovation Internet Environment (RIIE) review panel to oversee and provide independent advice on the activities of the funded consortia. The review panel will be managed by EPSRC and consist of

independent representatives of the academic and user communities. The panel will monitor the consortia in the following ways:

- Each consortium will complete an annual report in accordance with a template that will be provided by EPSRC, signed off by the PI. The review panel will consider these reports and feedback will be provided through EPSRC.
- If there are concerns regarding a consortium the review panel may be formally convened to meet with the PI and Co-Is to discuss the issues with and seek resolutions.
- As a grant condition EPSRC will formally reserve the right to call a mid-term review if it is felt by EPSRC or the review panel that a funded consortium is significantly underperforming against the objectives laid out in the proposal. EPSRC will reserve the right to terminate funding should the mid-term review find that it is not performing its proposed function.
- In addition to taking a view on the progress of individual consortia the RIIE review panel will consider the progress of the RIIE consortia as a whole against the objectives of the call.

Guidance

Guidance for reviewers

Postal peer reviewers will be directed to this 'call for proposals' document. As it is not possible to generate a dedicated review form with call-specific assessment criteria for this call, reviewers will be asked to complete a peer review form as used for Platform Grants

(<https://www.epsrc.ac.uk/funding/assessmentprocess/review/rev/>). Reviewers will also be sent specific guidance in addition to this form to ensure all assessment criteria are addressed since there are certain questions on this review form that are not directly appropriate to the assessment criteria for this call. We ask that reviewers **read thoroughly** this information, along with the assessment criteria when writing their review. Applicants are asked to note this instruction, in order that they tailor their proposal to addressing the assessment criteria rather than those that appear on the platform grant review form.

Information about the EPSRC peer review process and guidance for reviewers can be found at: <http://www.epsrc.ac.uk/funding/assessmentprocess/review/>

Additional grant conditions

In addition to the standard terms and conditions for grants, successful applicants will be required to complete an annual report, as outlined in the section on Monitoring in this document. EPSRC formally reserve the right to call a mid-term review if it is felt by EPSRC or the RIIE review panel that a consortium is significantly underperforming against the objectives laid out in the proposal. EPSRC will reserve the right to terminate funding should the mid-term review find that it is not performing its proposed function.

Key dates

Activity	Date
Call issued	3 rd September 2015
Applicants encouraged to have submitted pre-outline submission	30 th September 2015
Closing date for outline proposals	28 th October 2015
Outline short-listing panel	3 rd December 2015
Closing date for full proposals	17 th February 2016
Full proposal interview panel	14 th & 15 th June 2016

Contacts

For queries relating to the scope of the call for the peer review process please contact:

Ellie Gilvin
ICT Senior Portfolio Manager
Ellie.gilvin@epsrc.ac.uk
01793 444260

For queries relating to Je-S please contact the Je-S help Helpdesk:

JeSHelp@rcuk.ac.uk
01793 444 164

Please contact your organisation's research office for help with the application process. You should allow enough time before the closing date to allow for your organisation's submission process.

Change log

Name	Date	Version	Change
E Gilvin	17/8/15	1	N/A
E Gilvin	8/9/15	2	Correction: Key dates for 2016 updated to correct year.
E Gilvin	8/1/16	3	Interview dates rearranged