UNIVERSITY OF CAMBRIDGE
Centre for Digital Built Britain

CALL FOR PROPOSALS FOR RESEARCH NETWORKS IN DIGITAL BUILT BRITAIN

Summary

This is a call for proposals to form networks of collaborators drawn from research, practitioners and others to contribute to the work of the Centre for Digital Built Britain (CDBB). The networks are i) to propose the capabilities needed for the UK to deliver and benefit from Digital Built Britain and identify the enabling research to deliver those capabilities, ii) to describe the state of the art and leading-edge practice today, and iii) to build communities of people interested and able to participate in future research, demonstrator and pilot projects. The networks will be invited to define their scope of work and focus of attention. About a dozen networks are envisaged, working in parallel, each in different areas in order to cover the very wide range of topics that need to be covered. The work will extend through 2018, providing contributions in December which CDBB will integrate into a final document in Q1 2019 which will set out the research agenda and the state of the art for Digital Built Britain.

Key Dates

Call for proposals	10th April 2018
Closing date for receipt of proposals	5pm 18th May 2018
Target date to inform successful bidders	8th June 2018
Provision of State of Art review and of interim findings on the research landscape	16th September 2018
Final Report	20th December 2018
Workshops to discuss final outcomes	First quarter 2019

Background

The Centre for Digital Built Britain (CDBB) is a partnership between the Department of Business, Energy & Industrial Strategy and the University of Cambridge to deliver a smart digital economy for infrastructure and construction for the future and transform the UK construction industry's approach to the way we plan, build, maintain and use our social and economic infrastructure. The successful delivery of Digital Built Britain will require the creation (and adoption) of many new capabilities by UK plc, down the AEC supply chain, across the service providers utilising the built environment, within government and policymakers, and among the citizens of the UK.

Within the CDBB the Research Bridgehead has been set up to map out and to support the creation and adoption of those capabilities, from identification, through early stage research, to formalisation and codification to a point where the capabilities can be adopted by stakeholders. The Research Bridgehead aims to build effective relationships with the research community to identify and signpost expertise and insight, enabling results of innovative academic research to inform the development of Digital Built Britain (DBB) and become part of professional practice. The Bridgehead will manage the identification and delivery of the DBB research programme to optimise value. It will actively feed in to the wider development of DBB and gather

research requirements. The Bridgehead will develop a network model that will bring together academic researchers, industry and stakeholder organisations to drive the creation of a digitally-enabled landscape.

In the longer term, the Bridgehead will co-ordinate and guide the support of research and other mechanisms to create, demonstrate and make available the capabilities needed.

This call invites proposals to form 'research networks' in order to inform and develop this activity by:
- Defining the capabilities that will be required for the UK to adopt and deliver on the vision for DBB and defining the research required to enable those capabilities
- Describing the current state-of-the-art in research and the leading-edge capabilities already available in the UK and abroad
- Building a community of researchers, developers and interested stakeholders interested in key topics and able to mobilise in due course to conduct research, transferring and disseminating results in order to build UK capability

It is expected that bidders will form Research Networks to cover chosen parts of the landscape of possible capabilities and research. Bidders are invited to nominate their areas of focus.

CDBB will undertake the task of integrating the contributions from the networks into an overall presentation of the proposed research agenda to deliver DBB.

Because the entire domain of DBB is so wide, the Research Bridgehead has created a draft framework of nine major topic areas (see Figure One). This framework was the foundation for the Research Network Scoping workshops held on 10th and 11th April. Bidders are encouraged to align their chosen scope with this framework in order to maximise the likelihood of consistency between networks.

The scoping workshops aimed to

- Explore, albeit briefly, the candidate content of each of the major topic areas, including areas of overlap or gaps between major topic areas.
- Signpost research needed to address such topics
- Identify current research and research groups that represent the state-of-the art
- Identify whether and how the framework itself should be modified

Bidders interested in accessing a description of the original framework should contact research@cdbb.cam.ac.uk. The framework will be refined and revised as necessary and bidders (and network leaders) will be notified. Photographs of outcomes of the workshops are available, again by contacting that email address. Write-ups of the workshops will be available as soon as possible.

The framework structure and its components

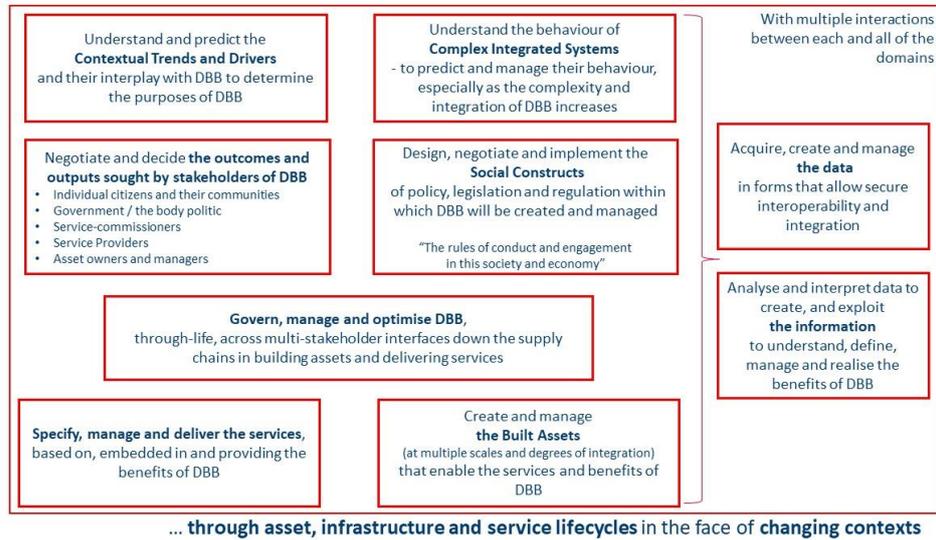What **insights** and **capabilities** are needed, and when, in order to ….

Understand and predict the **Contextual Trends and Drivers** and their interplay with DBB to determine the purposes of DBB

Understand the behaviour of **Complex Integrated Systems** - to predict and manage their behaviour, especially as the complexity and integration of DBB increases

With multiple interactions between each and all of the domains

Negotiate and decide **the outcomes and outputs sought by stakeholders of DBB**
• Individual citizens and their communities
• Government / the body politic
• Service-commissioners
• Service Providers
• Asset owners and managers

Design, negotiate and implement the **Social Constructs** of policy, legislation and regulation within which DBB will be created and managed

"The rules of conduct and engagement in this society and economy"

Acquire, create and manage **the data** in forms that allow secure interoperability and integration

Govern, manage and optimise DBB, through-life, across multi-stakeholder interfaces down the supply chains in building assets and delivering services

Analyse and interpret data to create, and exploit **the information** to understand, define, manage and realise the benefits of DBB

Specify, manage and deliver the services, based on, embedded in and providing the benefits of DBB

Create and manage **the Built Assets** (at multiple scales and degrees of integration) that enable the services and benefits of DBB

… **through asset, infrastructure and service lifecycles** in the face of **changing contexts**

Figure One: The draft framework of major topics

Outputs from the Research Networks

Each network is requested to deliver reports, covering their chosen defined scope, as follows.

By 20 December 2018	A report detailing the capabilities that will be required for the UK to adopt and deliver on the vision for DBB and defining the research required to enable those capabilities
By 16th September 2018	A report describing the current state-of-the-art in research and the leading-edge capabilities already available in the UK and abroad, evidenced by a literature review An interim report describing the emerging conclusions regarding the capabilities needed and enabling research
Quarterly	A brief report of activity, progress and outcomes

By way of illustration of what we seek in defining the required research, bidders might like to consider identifying the 'call titles' of proposed programmes of research. These then should be linked explicitly to the capabilities to be delivered, supported by arguments justifying those as the most important capabilities.

Coordination of the networks

Please inform us as early as possible about your intention to submit a proposal and your chosen scope. With the explicit permission of those involved we will suggest alliances and interactions (at any stage of the bid process and the work) in order to arrive at a better and more coherent outcome.

CDBB recognises the challenge of coordinating the work of the parallel networks. We ask networks to identify how they will align their work with others where there may be overlaps. We envisage that we will invite networks to one or two half-day workshops during the course of the work to share insights and maintain alignment. Please budget accordingly.

Please invite CDBB to any network events to enable us to track the evolving thinking.

We envisage integrating the networks' reports in January 2019 and sharing a draft of our work with CDBB's Expert Group. We will publish the networks' reports in whole or in part and/or the integrated report as appropriate, either as portfolio volumes or as an integrated document. We then envisage a conference in early March 2019 to discuss the final outcomes of the programme.

Managing a network

CDBB wishes to contract with only one lead organisation for each network. Networks must be led by an academic institution.

Networks which involve researchers, practitioners and policymakers will be strongly preferred because such networks are more likely to cover the scope required.

Networks are free to choose how their networks will be managed and how funds will be used and disbursed. Proposals should describe how networks intend to use their funds and the resources that will be brought to bear. These descriptions, together with descriptions of the governance processes and the approach to the work, will be assessed in the light of the assessment criteria.

Contracts will be with the University of Cambridge and will be fixed-price. The standard form contract pro-forma is available upon request from research@cdbb.cam.ac.uk.

Funding

CDBB envisages funding between nine and fifteen networks in amounts which will depend upon the scope selected by the network. We envisage requested budgets ranging from £10,000 to £50,000 (to include VAT if relevant).

How to submit proposals

Please contact us as soon as possible to tell us of your intention to submit a proposal and the scope that your envisaged network would like to cover. This is important so that we can avoid duplication of work, encourage alliances where appropriate and identify gaps, so we can discern the need to stimulate networks where there are gaps.

Proposals should describe:

- The topic you propose to address, the primary areas within that topic and the expected boundaries
- How you propose to do the work, describing how you will achieve a robust and complete result.
- How you will identify overlaps with adjacent networks and how you will engage with adjacent networks
- Key risks and uncertainties and how you will address them
- Things you need of CDBB
- Collaborators within the network, noting the nature of proposed contributions
- How you will encourage people to join the network and contribute, especially for people who may join the network later
- Workplan and fixed price budget
- An estimate of the resources you propose to deploy to deliver the work

We envisage proposals of approximately ten pages; we appreciate brevity but not at the expense of clarity.

Assessment Process

CDBB will assess the proposals, guided by opinion from independent reviewers. We aim to inform successful bidders by 8th June.

Assessment Criteria

The criteria for assessing the proposals will be:

- Scope and fit: To what extent does the proposal provide good coverage of a range of topics, especially for the resources requested? Does the proposal provide a self-consistent scope where the proposed sub-topics are evidently related to provide a coherent cluster?
- Quality: Does the proposal describe how the work will be done in a way that imparts confidence that the work will be of high quality, thorough and complete? Does the proposal describe how the diverse contributions of a range of collaborators will be coordinated and assimilated to give excellent insights? Does the proposal reveal a good grasp of the current situation, both in terms of research and how such research relates to practice?
- Likelihood of success: Does the proposal describe a workplan which seems likely to succeed, and are risks identified, together with plans for their management?

- Inclusiveness: Does the proposal indicate how the network will gather and consider inputs from appropriate sources of expertise, insight and experience? Is it clear that the sources are drawn from a wide enough and appropriate community? If such sources are not in the network at the start, then is it clear how they will be engaged?
- Value for money: Is the proposed budget reasonable in light of the proposed scope of the work and the resources that are proposed? Is it evident that funds sought will be deployed where they add the most value to delivering the result?
- Added value: Are there aspects of the proposal which promise extra value, extra effectiveness or a particular contribution to the end objective of the work?

Contacts

Please submit proposals to research@cdbb.cam.ac.uk.

Please direct any questions in an email to research@cdbb.cam.ac.uk.