CDBB Network: Methodologies for planning complex infrastructure under uncertainty

Benefits to Infrastructure planners, policymakers, researchers

"**If we are to transform and improve Britain's built infrastructure we need to understand the complex interdependencies of multiple systems that make it work. Fundamental to this is modelling that recognises complexity and uncertainty.**"

- Gordon Masterton, Prof of Future Infrastructure at the University of Edinburgh, and former President of the Institution of Civil Engineer

Summary

Infrastructure investments are typically capital intensive with long lifetimes. Larger projects also have public and private stakeholders and take years to develop and build. Investment decisions are thus intrinsically made under great uncertainty against a complex planning background.

This Network has taken an interdisciplinary approach to understanding:

• The state-of-the-art in use of modelling support for infrastructure planning decision making, both in industry and policy, and in research;

• Needs of the practitioner community for research and innovation on methodology;

• The research communities which must be engaged to achieve these needs, and methodologies which might be applied to the challenges arising from the community.

The network has worked through literature review; in-depth discussions with key individuals; an online survey; and two scoping workshops (the first on innovation and capability needs, the second on how the research community can support these needs).

Key Findings

1. Need for enabling work on stakeholder needs and state-of-art to support design of full projects in some areas

2. A more nuanced understanding of success and failure will support rational policy debate

3. Importance of two way communication between decision makers and analysts for common understanding of needs and evidence

4. The importance of sufficient resource for analysis to support strategic planning

5. Making relevant data more widely accessible will support both better decision making and research

6. Design of funding structures is key to developing the right interdisciplinary collaborations for innovation work

Impact and Value

Bringing new analysis methods to planning practice will improve project delivery

Next Steps/Further Work

• Identify companies and government units who wish to work together on infrastructure projects in the area of the network.

• Particular emphasis on developing means of integrating new analysis methods into business-as-usual, starting from current skills and practices

Long-term Vision

Researchers and practitioners working together on innovation for the benefit of society.

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Collaborate with us

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