

Centre for Digital Built Britain

Systems thinking and the CDBB

Research Landscape Framework

Notes from the meeting of 5th Sept. 2018

6th September 2018

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Introduction

These notes capture the presentation materials and the highlights of the discussion at a workshop of members of the Expert Group to review the Capability Framework structure and content.

Objectives and Agenda

The objectives of the meeting:

- to explore whether and how applying systems thinking might improve the Research Landscape Framework
- to reflect upon the systemic aspects of digital built Britain

Agenda

1. Introduction, objectives and agree agenda
2. Exploring the potential contribution from applying systems thinking to the framework
3. Next steps and conclusion

The Research Landscape Framework – Purpose and attributes

The Purpose of the Framework:

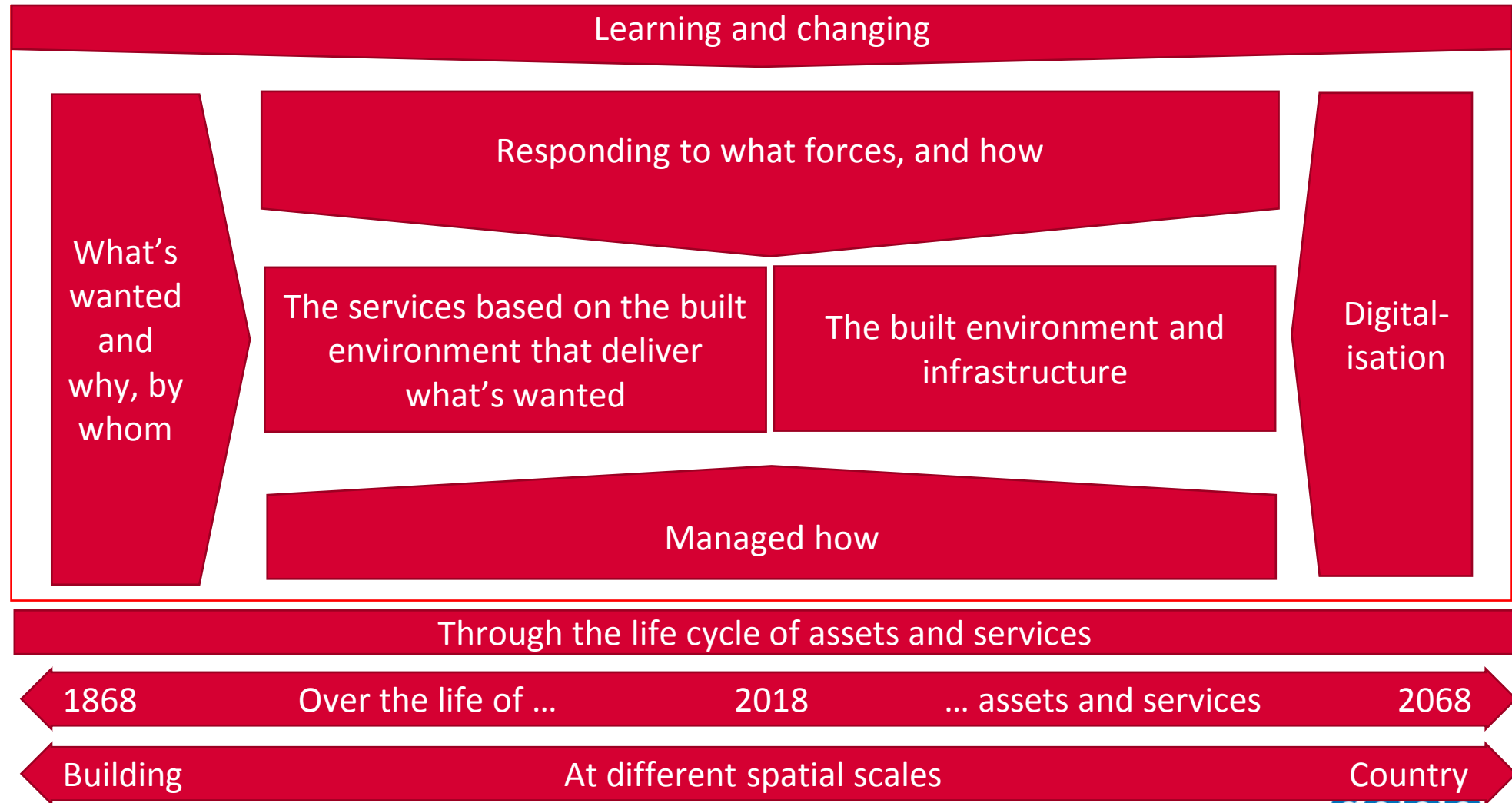
- A thinking tool to explore the capabilities needed to deliver digital built Britain (and hence candidate topics of research)
- A framework to assure coverage

Desirable attributes of the Framework

- Exhaustive coverage of candidate capabilities
- Enables the surfacing and exploration of capabilities
- Reaches boundaries and embodies context
- Caters for evolution over time
- Responds to the vision of (includes all elements of) digital built Britain

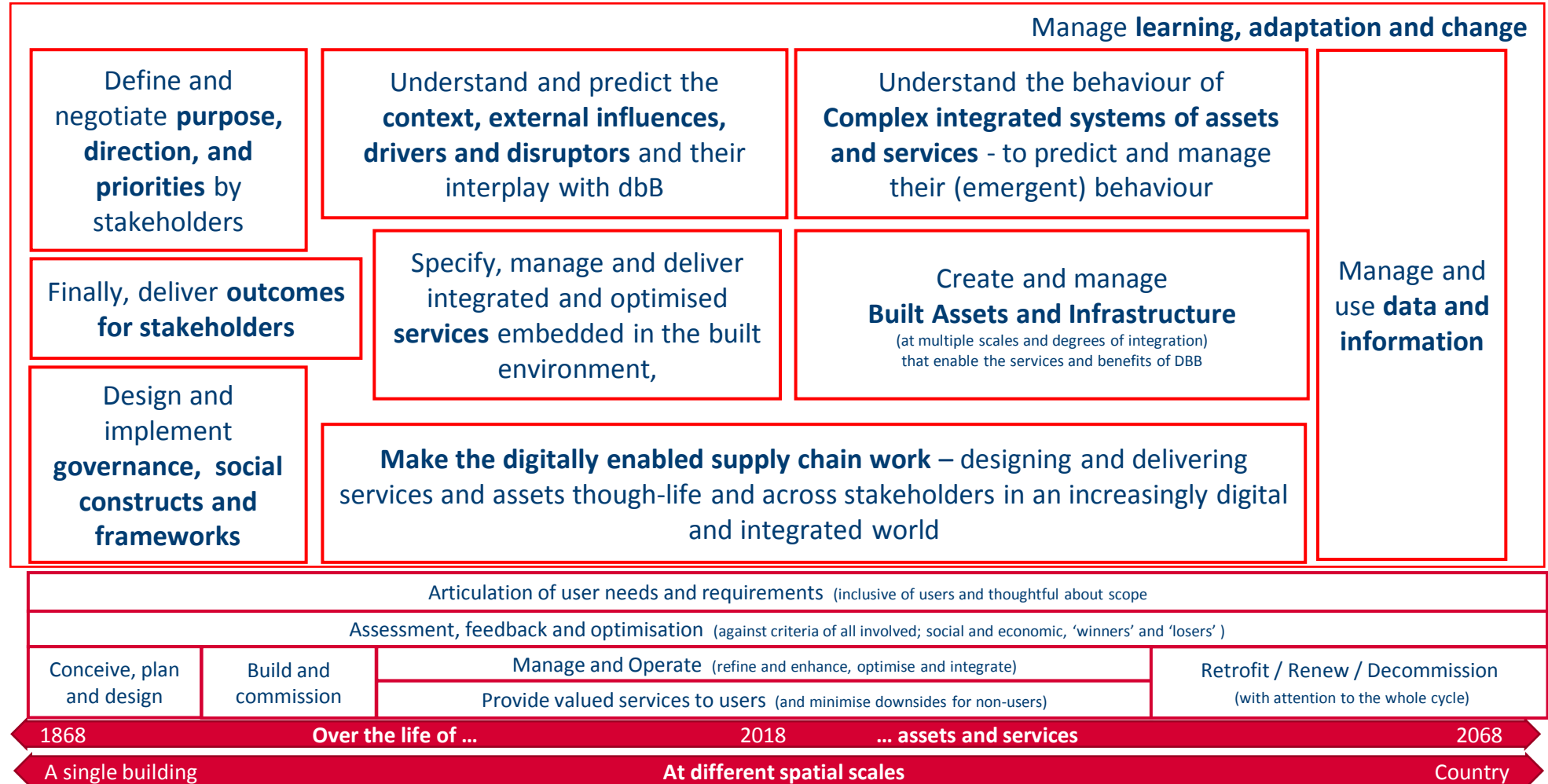
A framework of capability areas

What **insights** and **capabilities** are needed, and when, in order to deliver and enjoy digital built Britain....



A framework of capability areas – each with layers of detail

What **insights** and **capabilities** are needed, and when, in order to deliver and enjoy digital built Britain....



Identifying capabilities needed, the research agenda and current capabilities

- The Framework encourages thinking through different dimensions of capability (“verbs not nouns”)
- Perspectives ‘take a view’ which can be explored
 - for the specific and
 - for the generalisable
- Use cases maintain pragmatism

Comments, observations and refinements of the Framework based on discussions (1 of 5)

Add consideration and exploration of the emergent and dynamic behaviour of users

Explore a separation of the why' and the 'how' and between "content" and "process" within the framework

Currently with an embedded presumption of specification before action. Explore an additional orientation towards "Enabling", recognising emergent phenomena and ever-changing contexts

How to value the non-occurrence of a negative (especially of emergent phenomena)

Will be critical because of pace of change

Consider multiloop learning, including the definition of "goodness", of "better" (Dependent upon the boundaries of the system and the timescale / horizon of consideration)

Manage learning, adaptation and change

Define and negotiate **purpose, direction, and priorities** by stakeholders

Understand and predict the **context, external influences, drivers and disruptors** and their interplay with dbB

Understand the behaviour of **Complex integrated systems of assets and services** - to predict and manage their (emergent) behaviour

and enjoy digital

Finally, deliver **outcomes for stakeholders**

Specify, manage and deliver integrated and optimised **services** embedded in the built environment,

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

Manage and use **data and information**

Begs the question of the outcomes envisaged for dbB "What's the value proposition?"

Design and implement **governance, social constructs and frameworks**

Make the digitally enabled supply chain work – designing and delivering services and assets though-life and across stakeholders in an increasingly digital and integrated world

Recognise all aspects of intangible value of data and information

Hence the focus on the capability to negotiate and articulate envisaged outcomes

Ensure other intangible assets are addressed within the framework

Articulating KPIs for outcomes – where the built environment is an enabler

Ownership of and access to data – through-life

The ratio of new to refurbish is dramatically across the world

Articulation of user needs and requirements (inclusive of users and thoughtful about scope)
 Assessment, feedback and optimisation (against criteria of all involved; social and economic, 'winners' and 'losers')

Conceive, plan and design	Build and commission	Manage and Operate (refine and enhance, optimise and integrate) Provide valued services to users (and minimise downsides for non-users)	Repurpose	Retrofit / Renew / Decommission (with attention to the whole cycle)
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1868 Over the life of ... 2018 ... assets and services 2068
 A single building At different spatial scales Country

Comments, observations and refinements of the Framework (2 of 5)

- Framework focuses on ‘capability’, but implementation will need to recognise issues of competence and capacity. Capacity-building will have major implications for “development” agenda as well as “research”
- Note that many (most) of the issues arising are more generic than specifically ‘digital’ – avoid any presumption that digitalisation is a panacea – ‘digital’ should be seen as a means to an end, rather than an end in itself
- On the other hand, recognising that digital can be ‘generative’ in the sense of enabling and stimulating developments and trajectories that are unpredictable, even with a knowledge of the digital technologies used
- Note also the “generative” impact of investments (such as transport infrastructure) which can have benefits which are unforecastable and delivered / recognised some considerable time later
- Think through ‘actors’ and their interests, objectives and intentions
- Consider power relations and their potential to influence debates and outcomes in non-obvious ways

Comments, observations and refinements of the Framework (3 of 5)

- Address the reality of users already developing dbB (e.g. open maps), the impact of companies such as Google and Facebook and their capacity to reshape the data landscape – all these are emergent and dynamic and fast-moving. This is an entire aspect which needs to be assimilated within the Framework
- A key part of the contextual changes will be the move towards a collaborative economy characterised by asset sharing and a preference for service consumption over ownership
- Recognise the significance of embedded knowledge, organisational memory (and wisdom) especially about consequences of decisions and trade-offs
- Explore issue of guiding mind, stewardship, accountability and enforcement
- Focus on interfaces (as a mechanism to allow sub-systems to develop independently enabling parallel innovation)

Comments, observations and refinements of the Framework (4 of 5)

- Beware the potential of “perspectives” to create artificial boundaries and silos (impeding learning)
- Consider “Lessons from Practice” (especially with industry involvement and from other sectors) as a theme/topic in its own right
- Seek lessons from the trajectories of “knowledge engineering” and “design informatics”
- Identify where and how “discoverability” of information (together with its origin and provenance) is to be developed (and prioritised) as a capability

Comments, observations and refinements of the Framework (5 of 5)

About the Framework's presentation and use

- Explore different ways of presenting the Framework – particularly the lifecycle model (maybe using a spiral to illustrate progress)
- Recognise the role of the framework over time as a way of maintaining visibility of progress with the research agenda and landscape
- In designing the programme consider
 - How best to identify the delta between today's performance and the outcomes sought
 - How best to parallel work to achieve fastest implementation
 - Use TRLs as a recognised measure of performance / capability

Next steps

- Evolution of the framework
- Continuing discussion