CDBB
Capability Framework and Research Landscape Scoping Workshop

Workshop: Capability to design, negotiate
and implement the SOCIAL CONSTRUCTS
of policy, legislation and regulation within
which digital built Britain will be created and
managed

Centre for Digital Built Britain

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UNIVERSITY OF
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Centre for Digital Built Britain

This document captures the working notes from the workshop "Workshop: Capability to design, negotiate and implement the SOCIAL CONSTRUCTS of policy, legislation and regulation within which digital built Britain will be created and managed", held at Churchill College Cambridge on 10-11 April 2018

The summary sheets are assembled from the separate working groups from each of two streams; Research and Applications.

The details of the outputs from the individual working groups are captured in turn.

This material was used as a starting point for the creation and development of the Capability Framework and the Research Landscape. It is provided as source material for the interested reader.

Lot 2. Social constructs - Research Summary	
Rank order	**Topic title**
1	Democratization of standards
2	Blockers for circular economy and recycling of building design and build
3	Traceability of design intent into manufacture
4	Visualising risk in design and thus the supply chains - knowledge sharing
5	Legislative requirements and cost constraining design innovation

Research Topic:	
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	

Scope:			
Scope - In		**Scope out**	**What sub-topics might overlap with other topics?**
• Cyber physical & behavioural factors 'cyberhygiene' • Agility & inclusivity • Adaptive agile standards reactive to evidence feedback • Evolutionary processes • Digital participation of wider stakeholders (rather than commercial interests) • Simulation of outcomes of standards (visualisation) • Integration of stakeholders in the contracts reformulation (smart contracts)	• Procurement - Government leading certain standards • Contractual changes driven by change to DBB? Liabilities. Accountabilities • Cross-countries BIM standards integration • Immutable change notification - blockchain • Design change tracking and implications on functionality • Risks/accountability/interdependencies • Monetisation of long term benefits • Distributed ledger of design changes? • Bloc chain application in the BIM open platform (for smart contracts)	• Tracking accountability • Standards policy regulations customers • How can you visualise risk? • Idiot proofing • Acceptability of AI - assisted decision support • Distortions to standards due to commercial interests • Distortion of standards and decision-making due to commercial interests	• Digital transfer cost between sectors - a metric used to compare processes in different sectors

Step 2. Scope change by thinking about stakeholders
• What is the social implication of automation? An 'automation fund' enabling universal basic income

Step 3. Scope change by thinking about spatial differences		
e.g. National/Regional	**e.g. City/local**	**e.g. Asset specific**
• If level 2/BIM reduces risk for over budget/over time why are insurers funders not mandating? • Nationally driven procurement • Is an automated society a "better" society?	• Public/private procurement practices/best practices/ common practices • Is "common practice" "best practice"? • Cost sensitivity of best practice	• Technology transfer across sectors

Step 4. Scope change by thinking about the lifecycle of assets and services						
Articulate user needs and requirements	**Conceive, plan and design (including optimisation and integration)**	**Build and commission (including optimisation and integration)**	**Manage and Operate (refine and enhance, optimise and integrate)**	**Provide valued services to users (and minimise downsides for non-users)**	**Retrofit / Renew / Decommission (with attention to the whole cycle)**	**...Assess, feedback and optimisation**
• Human-centred design • Tools/processes/framework for requirements checking with the client	• Design requirements model - for checking subsequent design changes and 'as built'	• Procurement rules standards for public buildings • As-built model checked against as-design requirements	• Digital quantity surveying		• Updated model (refurb) checked against original design requirements	• Planning for re-purposing - not just retrofit

Research Topic	
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	

Step 1. What are the major research clusters/themes?	What are capabilities and research that will be needed as DBB matures from 'deliver' to 'operate' to 'integrate'?					
	Deliver (create the built asset)		**Operate** (manage asset through life and deliver the services that derive from and depend on the asset)		**Integrate** (deliver services and benefits based on integrated systems and organisations)	
	What capabilities and enabling research?	*Which people / institutions are working on this?*	*What extra capabilities and enabling research?*	*Which people / institutions are working on this?*	*What extra capabilities and enabling research?*	*Which people / institutions are working on this?*
• A more democratic way of creating standards • DBB situated • Standards & security without inhibiting innovation • Open, yet securable DBB methodologies • Broader applicability of DBB methodologies?	• How to guarantee security in data sharing in open BIM platform? • Agile and dynamic standards - tracking best practice? • Tracking the 'DNA of design' to ensure build to function					
• Managing risk	• Knowledge - sharing culture & tools • 'As built' checked against 'as designed' - continuous processes		• Visualising risk and sharing down supply chain			
• Insurance versus regulation interventions						

• Procurement standards as a driver of corporate behaviours
• Procurement
• Are multidisciplinary organisations a competitive advantage?
	• How to reconceptualise procurement?
	• New contracts for procurement routes that better fit digital construction
	• Implications through lifecycle
	  > Procurement
	  > Planning
	  > Regulation
		• Circular economy v offsite manufacture
		• Extra-over between "Lego" in the economy v new components				

• Circular economy • Does optimised constrain adaptability?						

Lot 2. Social constructs (Application summary)		
Rank order	**Topic title**	
1	Mathematical model of effect of collaboration on project delivery	
2	How have other technologies and changes affected social norms and legislation over 3-400 years?	- Case studies + visa versa - What levers in DBB Co-evolution of Technology regulations

Application Topic:	
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	

Step 1. Scope: What topics should we include in this part of the framework – and what demonstrators would illustrate / stretch the boundaries?		
Scope - In	**Scope out**	**What sub-topics might overlap with other topics?**

Scope - In		**Scope out**	**What sub-topics might overlap with other topics?**
• Relationship to responsible research & innovation (RRI) framework? • Use current landscape as a start point • Identify current constraints and barriers • What is the range in the risk and liability for DBB services • Impact of legacy - regulation is brownfield • Comparison of title scales of evolution; - asset (building), - digital (tech), - city, - regulation, - culture • What will law enforcement do and how? EPSRC framework • What human resource obsolescence potential is there? • How does the health and safety regulation change?	• **Need to understand the security landscape needed for DBB to deliver the ambition** • **Social norms and how they change over time - what is the new 'social contract'** • **New forms to support social construction of artefacts** • **Basic norms still exist people:** **- earn a living** **- seek high quality of life** **- require education** **- assets needed to deliver services** • **International** ** -> exports** ** -> inwards investment**		

Step 2. Scope change by thinking about stakeholders (Are there new / different aspects of the topic and its demonstrators?)
• **Data ethics** ** - need a framework** ** - need to understand at:** **   > i. spatial** **   > ii. temporal level** • **Future powers of the likes of health & safety exec or Customs & Excise due to a new digital existence** • **Cultural assumptions**

Step 3. Scope change by thinking about spatial differences (e.g. to consider how can scale make a difference to the demonstrators we would propose)		
e.g. National/Regional	**e.g. City/local**	**e.g. Asset specific**
• Regulate thematically policymaker geographically - Do we? Should we? Explore ... • Energy infrastructure now owned by foreign countries. Is the arising data? (WTF!) • Other nation state influences on DBB - eg Hinkley etc impacts	• **Political cycles v city leadership - What does DBB contribute?** • **Finances driving procurement where private orgs provide public services** • **New commercial modes, business modes and financial products** • **Sharing effects of outsourcing - "Carillion bankrupt turns the traffic lights off in 17 cities"** • **Degree to which operators can be international/based abroad**	

Step 4. Scope change by thinking about the lifecycle of assets and services: Are there new / different aspects of the topic and its demonstrators if we think through the lifecycle of the assets and the services?						
Articulate user needs and requirements	**Conceive, plan and design (including optimisation and integration)**	**Build and commission (including optimisation and integration)**	**Manage and Operate (refine and enhance, optimise and integrate)**	**Provide valued services to users (and minimise downsides for non-users)**	**Retrofit / Renew / Decommission (with attention to the whole cycle)**	**...Assess, feedback and optimisation**

Application Topic:	
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	

Step 1. Scope: What topics should we include in this part of the framework – and what demonstrators would illustrate / stretch the boundaries?

Scope - In	Scope out (or maybe comments from the Table group?)	What sub-topics might overlap with other topics?
• Collaboration - enabler & an outcome • Collaboration as a relationship not a standard • Frameworks as units of performance; - lessons learned - accumulate benefits • Commercial legal contracts - Alliancing (IPI) - Insurance - Risk & reward • Collaboration agreement standard norms - feasible? • Insurance monitoring behavioural framework • Where is data kept - physical - virtual. Not stored in Britain	• **Insurance provision or availability of product IPD** • **Low lagging innovation - Lawyers won't lead** • **Don't rely on drawings**	

Step 2. Scope change by thinking about stakeholders (Are there new / different aspects of the topic and its demonstrators?)

	• **Asset led FM at table** • **Client led Capex based procurement** • **What do we do with data? Education** • **Manufacturer eg Crown Commercial Services** • **Big infrastructure as role models** • **Transparency of payment** • **Reassess legal hierarchy - level/layers of contract** • **Supply chain configuration - See Image 1**	• **Constructive collaboration spider diagram team performance** • **Does everybody know how to negotiate? Skills too commercially focused?** • **Trip Advisor** - **collate history** • **What is acceptable collaborative behaviour? Incentives** • **Resilience of preferred supplier listing**

Step 3. Scope change by thinking about spatial differences (e.g. to consider how can scale make a difference to the demonstrators we would propose)

e.g. National/Regional		e.g. City/local	e.g. Asset specific
• **Central (National) Govt as the client** • **Social outcomes achieve value - GDP** • **Totex mindset** • **Uni of East Anglia methodology team happiness & collaboration** • **British culture and conflict aversion** • **Challenge voluntary or regulated data production**	• **Central (National) Govt as the client** • **Social outcomes achieve value - GDP** • **TOTEX mindset** • **Uni of E Anglia methodology team happiness & collaboration** • **British culture and conflict aversion** • **Challenge voluntary or regulated data production**	• **Local government and authorities**	• **Quality systems exist at a company level** • **BEP level decide numbering** • **Feedback :-)**

Step 4. Scope change by thinking about the lifecycle of assets and services: Are there new / different aspects of the topic and its demonstrators if we think through the lifecycle of the assets and the services?

Articulate user needs and requirements	Conceive, plan and design (including optimisation and integration)	Build and commission (including optimisation and integration)	Manage and Operate (refine and enhance, optimise and integrate)	Provide valued services to users (and minimise downsides for non-users)	Retrofit / Renew / Decommission (with attention to the whole cycle)	...Assess, feedback and optimisation
• **Genuine ongoing improvement (long term relationships)** • **Who holds risk? T5, risk held by closest party**	• **Collaboration** - **for who**		• **Map to uniclass use activities table** • **SIC code classification in eco sector construction not collated**	• **Relate forms of data** - **acknowledge variations**	• **Growth mindset**	

Application Topic	
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	

Step 1. What are major demonstrators that are required?	What capabilities / functionalities of the demonstrators illustrate the maturing of DBB from 'deliver' to 'operate' to 'integrate'?					
	Deliver (create the built asset)		*Operate* (manage asset through life and deliver the services that derive from and depend on the asset)		*Integrate* (deliver services and benefits based on integrated systems and organisations)	
	What would be the big challenges?	*How?*	*What would be the big challenges?*	*How?*	*What would be the big challenges?*	*How?*
• Legislation policy regulation … moderation ("equilibrium") • Focus on compliance/regulation. 'Report' to understand industry case studies	Who is the data controller/data processor	Reconfigure regulations during DBB	Some regulations are "re-interpreted" during operations perhaps due to low awareness or commercial motivation?	Are the shortcuts (desire lines) the signals to regulatory changes needed	Does regulation legislation exist for DBB to deliver integrate. How to avoid the "tragedy of the commons"	Policy levers Social norms as levers
DBB to challenge the current landscape using PAS-183, PAS-185		Add to DBB case studies at a granular level				

Application Topic 4BA22	Delegate names
4B Design, negotiate and implement the Social Constructs of policy, legislation and regulation	**Andrew Gamblen** **Andy Boutle** **Craig Hardingham** **Edonis Jesus** **Raj Chawla** **Liz Kavanagh** **Craig Wootton**

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	What would be the big challenges?	*How?*	*What would be the big challenges?*	*How?*	*What would be the big challenges?*	*How?*

• Hypothesis traditional contracting doesn't work disputes of Mathematical model - evaluate, conclude variables, evidence benefit eg communication rate comms
 	
• Time/cost value ISO4401 Su Butcher 6cdlab control
 	
• Mathematical model for evaluating collaboration
 	
• Evidence in meta analysis con excellence have data
	• Stakeholders into collab process:
	   >Authority into schools
	   > separation into chunks - operate unhelpful
	
	• Project mindset is a challenge for S term focus vs L term relationship
					• Getting evidence from projects to inform variables
					
					• Ensure that knowledge feedback is used in the mathematical model at the start of a project
						• Improving variable coefficients over time for different projects to demonstrate collaboration has an improvement