



Construction
Leadership
Council

Innovation In Buildings Workstream

Schools Working Group
Initial Scoping Workshop
30 August 2019

1.0 INTRODUCTION

The Construction Leadership Council's ("CLC") Innovation In Buildings workstream is embedding innovative construction techniques to improve productivity and capacity in the Construction Industry, and the quality and whole-life performance of buildings.

The workstream has taken action to overcome some of the key barriers to take up and commercialisation of 'Smart Construction' in the housing sector and would now like to determine if it is appropriate to extend this activity into the education sector.

The CLC defines 'Smart Construction' as follows:

Building design, construction and operation that through collaborative partnerships makes full use of digital technologies and industrialised manufacturing techniques to improve productivity, minimise whole-life cost, improve sustainability and maximise user benefits.

An initial Scoping Workshop was held on 30 August 2019 at the BEIS Conference Centre in London to:

1. review the list of barriers to the use of smart construction in the residential sector as historically identified (distributed prior to the workshop)
2. assess the degree to which those barriers are applicable to the education sector, and also identify any sector-specific barriers
3. prioritise the barriers
4. determine appropriate mitigation measures
5. determine if the barriers identified warrant CLC involvement
6. assuming CLC involvement is warranted, determine if the identified actions should be allocated to existing CLC workstreams, or if a dedicated Education workstream should be pursued.

2.0 ATTENDEES

Peter Blunt	Innovare Systems
Tim Carey*	Willmott Dixon
Ross Chipperfield	Manufacturing Technology Centre
Steve Cook	Willmott Dixon
Richard Crosby	Blacc
Steve Dixon	Arcadis LLP
Joe Dyde	Buildoffsite
Gavin Fraser	BEIS
Pat Griffin	BAM
Jamie Hillier	Kier
Jade Lewis	Saint-Gobain UK & Ireland
Ana Matic	Scott Brownrigg
Hershil Patel	Department for Education
Joseph Priestley	Zurich
Rob Tyler	Bailey Garner
Edwin Wealend	Cundall
Sara Williams	ARC Partnership
Wayne Yeomans	McAvoy Group

*Chair

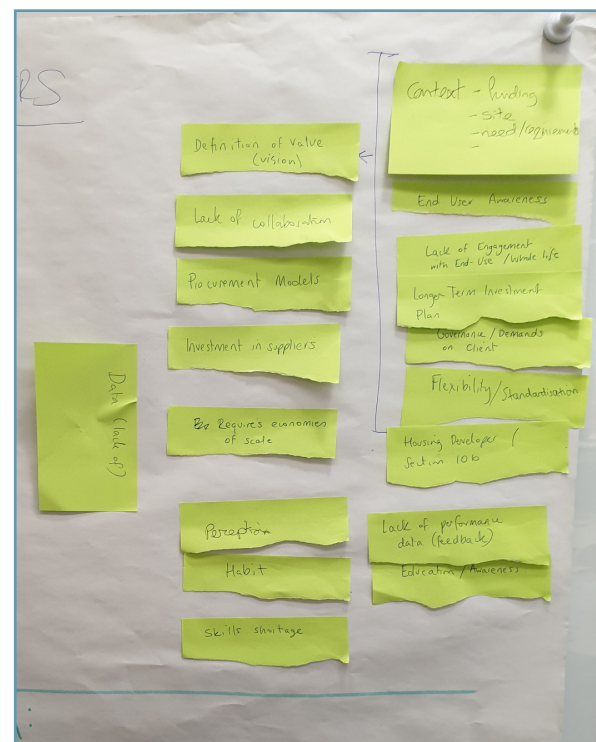
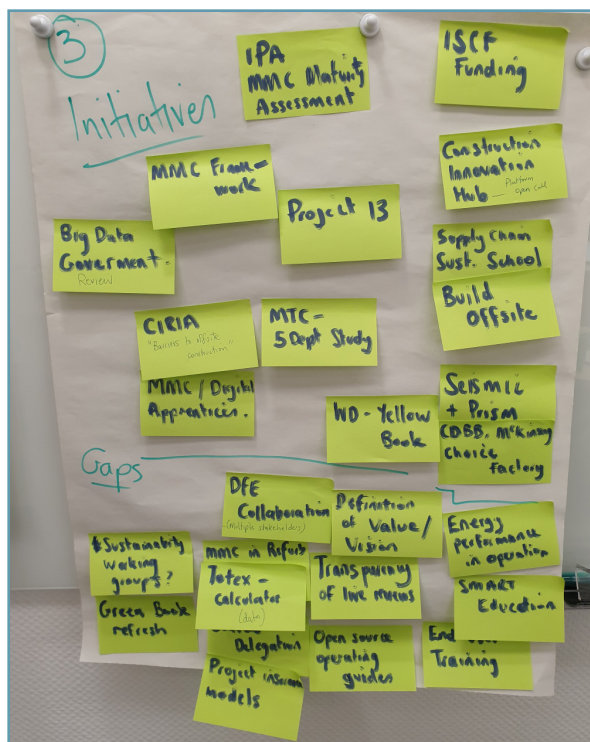
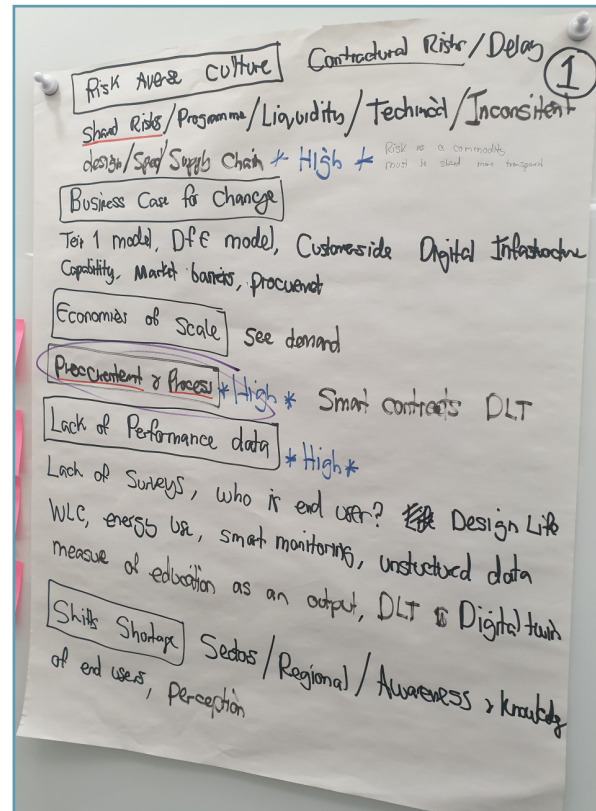
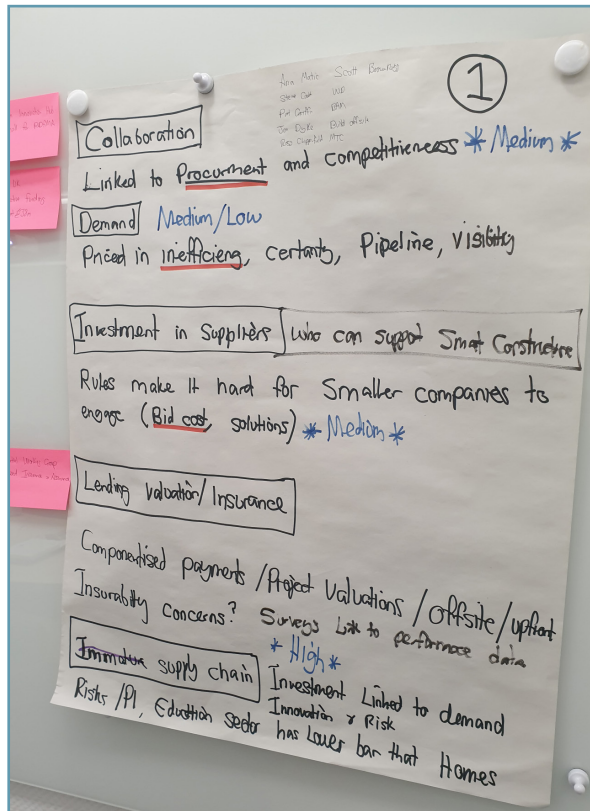
3.0 METHODOLOGY

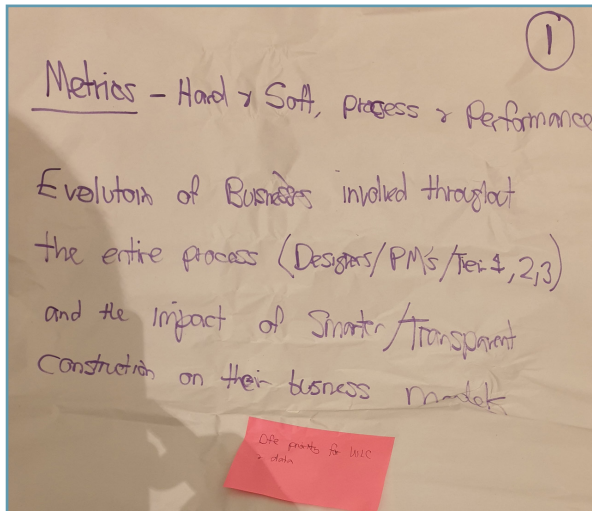
The participants were divided into three groups and asked to debate / discuss items 1-3 above before feeding back to the wider group.



4.0 GROUP OUTPUTS

The following outputs are recorded verbatim as given on the day during the workshop and have deliberately not been amended to avoid bias. They therefore reflect the views of the attendees and are not representative of the CLC.





Key to Ranking:

High
Medium
Low

Working Group 1

Barriers

- **Immaturity of supply chain – lower bar than residential for supply chain entry**
- **People want to push risk to A N Other party as opposed to owning it themselves. This has lead to risk being traded as a commodity - often to supplement their declared profit margins - as the industry seems currently unable to have an educated conversation as to what constitutes a reasonable level of return.**
- **The increased use of digital construction should make the transaction process more transparent and therefore minimise the risk (e.g. through improved quantification, repeatable design, etc.) which in turn will fight against the current paradigm and require new thinking.**
- **Inconsistent approach to design increases risk profile**
- **Lack of quantifiable performance data. Data historically captured via DfE frameworks but not consistent or distributed**
- **Need to really understand who is the end user**
 - Collaboration – linked to procurement and competitiveness
 - Priced-in inefficiency – cost higher than it needs to be
 - Lending valuation and insurance requirements
 - What is the business case for change?
- Economies of scale required – linked to demand. Need a visible and certain demand pipeline – should be achievable given that the DfE knows the number of schools needed
- Skills shortage in traditional labour forces – different impact regionally
- There are far higher technical barriers to comply with on education projects (e.g. Output Specification) than in other sectors
- From a certification perspective barriers may be less as there are no specific lending requirements (as the DfE is self funded) - no specific insurance / financing requirements over and above
- Government use an evidence-based decision making process as part of the DfE's project business case – makes it difficult to utilise new methods

Associated Initiatives Already Underway

- **Whole life costings focus - DfE Smarter Construction working group**
- Construction Innovation Hub
- Innovate UK – ISCF funding streams
- CITB / Supply Chain School
- CLC risk workstream / Housing Minister's MMC working group (led by Mark Farmer) looking at property and quality assurance

Working Group 2

Barriers

- ***Too many policies – need space to be innovative***
- ***Insurance costs increasing post-Grenfell. The DfE has their own risk protection agency and can self-insure their own assets***
- Pipeline – security of supply – commitment to – government department is the owner – need to work with other departments
- Volatility of demand - not consistent demand – peaks and troughs – DfE can set an example for others
- Process – planning, framework, procurement and policies – LA planners, MHCLG – can link up demand for other building types to increase aggregation (size of pie)
- Lack of agreement amongst end-clients and their advisors as to what constitutes true value
- Differing requirements across projects
- Are DfE procuring for value? The ratchet mechanism in the (currently out for tender) MMC Framework doesn't promote value generation just cost reduction.
- Feels like weight on the DfE – knowledge lacking in other departments – industry can help support in collaboration with the Smarter Construction working group (IPA) moving to Construction Innovation Hub
- Cross-government collaboration is needed and industry will then follow
- The building as a whole life asset – should be utilised as much as possible to maximise ROI – design to enable different uses for same building
- Need input from a mix of other industries to improve innovation

Comments from Other Groups

- Do we know what the average lifespan for a school is?
- Are we overdesigning? – The DfE responded that in actual fact the opposite is true, school buildings are used for much longer than they are originally designed for
- Seismic solution also incorporates deconstruction requirements

Working Group 3

Barriers

- ***A key barrier to smart construction is inconsistent definition of value***
- Multitude of stakeholders who all have own needs and different demands
- Lack of collaboration and suitable procurement models
- Lack of incentive to provide smart construction
- Easier to provide the usual?
- Supplier investment lacking – link to visible pipeline needed as previously mentioned
- Perception and habit
- Skills shortage
- Lack of data and feedback loop

Associated Initiatives Already Underway

- CIRIA - Quantifying the Benefits of Offsite Construction
- Project 13
- Seismic
- Prism
- Construction Innovation Hub
- Centre for Digital Built Britain

Gaps to Address

- Definition of value and use of data
- Developing a more holistic DfE business case which assess all relevant factors
- End user training
- Operating guides
- Project insurance models

Feedback from Others

- There would be benefits to the DfE re-communicating their vision with respect to school provision.

5.0 KEY THEMES THAT EMERGED

Lack of Collaboration

The way in which education work is currently procured limits the sharing and collaboration between competing solutions, contractors and supply chain, and incurs duplication of effort.

Potential solutions could include Innovate UK Collaborative Funding Rounds and Construction Innovation Hub's Open Call for P-DfMA.

Lack of Performance Data

Too little quantifiable data with respect to building performance in use, commercial benefits of selected procurement route, delivery certainty, etc. is digitally captured, structured and/or shared.

Lack of Visible Demand

Whilst the DfE have a large and visible (to them) new build and refurbishment building programme these are released on a cyclical basis in small batches and of insufficient aggregation to initiate sufficient confidence in the MMC market to invest significantly.

Increased framework values and durations could provide a greater incentive to drive smart construction, supply chain investment and the learning required to shape future procurement and delivery.

Immature Supply Chain

In parts of the supply chain there is a lack of liquidity / financial strength (in part due to the previous point), which from a risk perspective limits who can deliver at scale.

Risk-Averse Culture

Project risks are not often transparent or shared and risk is often traded as a commodity.

Procurement Models

Current procurement and contractual models are lacking and need to be updated to share risks more transparently and promote value (once defined) over pure cost.

Distributed Ledger Technology (also known as Blockchain) was mentioned as a potential way to reduce payment risk and securely collate digital information through the process from relevant parties.

There is priced-in inefficiency in every education project - the very high cost required to bid on frameworks, mini competitions and 2 stage tenders, etc. also limits the types of organisations that can afford to be involved.

CONCLUSIONS

Towards the end of the afternoon, energy levels were still high and it was felt that:

- there were definite areas ("barriers") identified which would bring benefit to all if addressed
- further work was required to provide a more accurate prioritisation of these, and specific mitigation proposals developed
- the CLC could provide support in this regard
- the key theme areas identified - whilst having inter-dependencies with other CLC workstreams - warranted a specific approach.

As a follow on, it was agreed to arrange another workshop to further develop the thoughts arising from the day and create an action plan and delivery team for 2020.

As the main customer and stakeholder 'in the room', the DfE will play a significant and valuable role in the process.



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