

Will traditional delivery methods become obsolete?



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This short paper sets out some of the key findings from the Offsite Manufacturing & Technology session at the Constructing Excellence Annual Conference on 12 December 2017.

Context

Interactive polls were used throughout the day to give verify how participants viewed offsite manufacturing and technology. 61% of respondents were positive that their organisation were in a good position to exploit the full benefits of offsite manufacturing and technology, whilst only 11% felt negative. This may reflect the positive and forward-thinking organisations that engage with Constructing Excellence rather than the industry as a whole.

On the topic of whether traditional delivery methods will become obsolete the participants were less convinced, with just 38% believing they would become obsolete and 37% thinking they would be around for a while.

What needs to change?

There was much discussion on what needs to change for the built environment to reap the full benefits of offsite manufacturing and technology. Some of the key points are summarised below. The 'how' is the trickier bit and that is what Constructing Excellence will be focusing on in 2018. Some of the key areas for change included issues such as client demand, education and training, supply chains, culture and attitudes and design.

Client demand

- Better procurement to support the economies of scale needed to make offsite effective
- Change forms of contract to support better payment mechanisms that support pre-manufacture
- Early involvement of the supply chain
- Stop short-term procurement models that don't support long-term engagement with supply chains
- Innovation needs to be Employer-led, so how can we address their concerns around performance security and solvency issues around offsite elements?

Education & Training

- Training needs to change to reflect the current and emerging needs of the industry
- Need to start attracting new skill sets into the industry
- A lack of skills could drive greater investment in automation and hence productivity, so could be regarded as a good thing?
- Will off-site construction lead to a loss of craftsmanship on-site?
- Does a push towards offsite commoditisation lead inevitably to automation and ultimately unemployment?
- There is room for traditional and modern methods of work, but the larger schemes will need to move much quicker to modern methods of construction.

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Supply chain structure

- Re-invent and revise the contracting model
- Look outside the sector to see how other supply chains are structured and operate
- Embrace SMEs to increase the level of innovation and avoid dominance of large manufacturers and lack of choice
- Better utilisation of capital
- How will the finance required to move towards off site manufacturing models be accessed when tier 1 balance sheets / reputations maybe aren't up to the job?
- Modular or offsite construction is more effective when combined with advanced work face planning (AWP). Do we include this as a coexisting strategy?
- Offsite manufacturing needs more than just designer early engagement - it needs everyone. Do we need to change silos via our procurement routes?
- Localism and the reliance on SMEs for the bulk of our construction outside trophy projects will hold back the take up of offsite construction. Discuss
- Radical. Could offsite and automation be driven through a large levy on site workers, the levy could be used to match fund and drive innovation
- We need to learn from other industries in supply chain management and integration. Fragmentation is a huge barrier to progress and improved productivity
- Improved design and supply chain management saved automotive.

Culture and attitudes

- Embrace change and be more forward thinking
- Invest more in R&D
- Work more collaboratively with manufacturers and the offsite industry
- Remember the dinosaurs are extinct!
- Is it traditional skills that let us down or Our approach to their use - is it business models and culture not deliver methods that need to change?
- Modularisation - barriers can be integration issues and logistics of getting to site.

Long-term investments

- Change attitudes towards risk
- Better utilisation of capital
- Allow supply chain opportunity to deliver pre-manufactured components at scale
- How do we balance upfront savings with longer term value especially in Infrastructure projects?
- Do we think that the consistency of standardisation through offsite will help us to unlock funding for future construction projects?
- Lack of margin prevents this happening in the supply chain. Consolidation first?

Design for manufacture

- Skills needed to deliver effective design for manufacture
- Early involvement of the design team
- Understand the need to invest in design
- Standardisation of digital models and components
- Doesn't the focus on off site construction with people doing the same task daily result in homogenised products?
- How do we successfully challenge design standards to allow for implementation of innovation?
- How do we inspire the millennial generation to want to enter into an industry if it is moving towards a commoditised and standardised (boring?) approach?
- Have we got the right construction products for a modular/DfMA and circular economic construction sector?
- Offsite manufacture delivers benefits through modular design and design for customisation. How do we address the design approach of the M&E consultant
- There are too many bespoke modular systems. If systems are more compatible or interchangeable this gives more customer choice and reduces risk if company fails
- We need to embed new approaches to design in stages 0 to 2.

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Evidence and data

- Recognise and celebrate good practice such as through the Constructing Excellence Awards
- Collect data to clearly demonstrate the benefits of offsite including value for money, cost benefits and waste minimisation
- We've slipped back into why and what on Offsite please concentrate on 'how'!
- Should (could) we skip off-site and move straight to 3D printing on-site?
- The off-site big bang or marginal gains? If we start taking steps now to adopt a bigger proportion of pre-manufactured components, what % and can we measure it?

Where is the solution?

- Need to look at the world stage to solve this problem. This is a threat as well.....
- Does the industry need to go bust before we really change it
- Will disruption come from outside the industry?
- Does any industry, apart from construction, have what are referred to as 'Biblical' trades? Traditional ways, or moribund thinking?
- Look at aerospace, software, shipbuilding, automotive for inspiration. Construction model is broken, not delivering shareholder value
- What can the construction industry learn from Lego to enable offsite construction?



Get involved

Constructing Excellence welcomes all organisations that share our values and mission. Get in touch to find out how your organisation can become part of the UK's leading movement for change devoted to delivering excellence in the built environment.

www.constructingexcellence.org.uk

Telephone +44 (0)3330 430643
helpdesk@constructingexcellence.org.uk



[@constructingexc](https://twitter.com/constructingexc)

Constructing Excellence, BRE,
Bucknalls Lane, Watford, Herts, WD25 9XX

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