

ECAO Conference

Modern Methods of
Construction a
UK Perspective



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Definition

Offsite construction is a general term for making parts of a building away from the construction site before transporting them and installing them in their final location.

There are lots of different terms – offsite manufacture, pre-fabrication, etc. – but they all mean the same thing in this context.

The Big Picture

- 7% of UK construction is currently done through offsite construction
- Recommendations are for 25% by 2025
- Currently more push than pull
- Government contracts to 'presume in favour of offsite'
- Using infrastructure projects to lead the way
- Introduced P-DfMA
- 37% of workforce over 50 years of age (15% over 60)
- Between 70k & 100k workers retire each year – only 20K join
- 42% of construction companies employing more than 100 people will be using offsite construction within 5 years

What are the main benefits?

For clients

- Financial – average 7% cheaper due to shorter programme
- Certainty of programme
- Improved quality of outcome
- Improved CSR / ESG
- Less disruption
- Link to lifetime costs

For Government (as above plus)

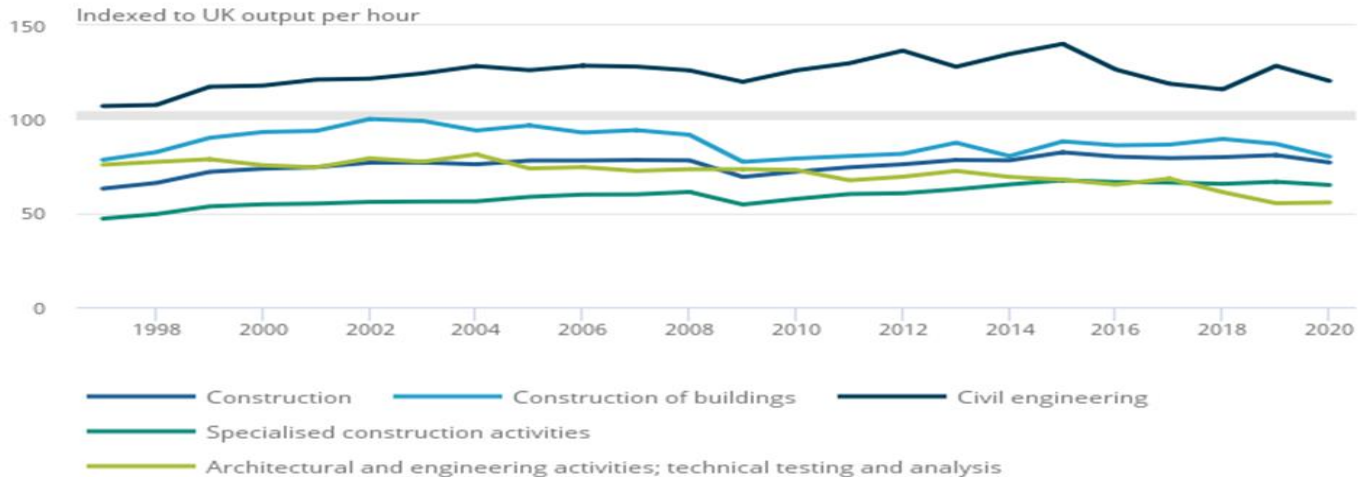
- Faster provision of houses - housing shortage
- Distribution of jobs – out of South East
- Improved national productivity



MMC – UK Perspective

Figure 3: Only the civil engineering industry is above the whole economy in levels of productivity

Output per hour worked, construction industry and sub-industries, UK, 1997 to 2020, level relative to whole economy, index UK = 100



Source: Office for National Statistics – Labour productivity

M&E Contractors survey findings

Scope

- 44 contractors with electrical turnover above C\$9M
- 5% had over 50% of turnover from offsite construction
- 66% had less than 10% of turnover from offsite construction
- 28% manufactured and assembled

Work type

- Multi service risers
- Horizontal modules



The image features a low-angle shot of a modern building's exterior, characterized by a complex network of dark metal beams and glass panels. The sky is a clear, deep blue. On the left side, the University of Warwick logo is displayed in white and teal text. Below the logo, a teal rectangular box contains the text 'Interdisciplinary Biomedical Research Building' in white. The overall aesthetic is clean and professional, emphasizing the university's research focus.

UNIVERSITY OF WARWICK

Interdisciplinary Biomedical
Research Building

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- Multi service risers
- Horizontal modules
- Modular plant rooms and skids
- Pods / utility cupboards
- Prefabricated containment



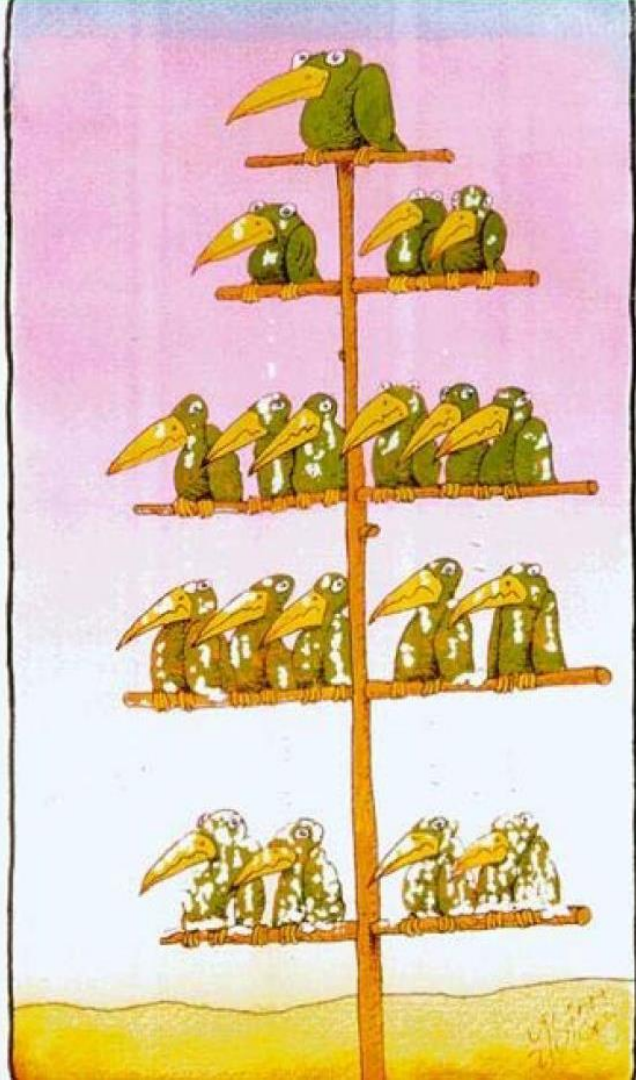
M&E Contractors survey findings



Benefits found in practice

- Improved financial control (82%)
- Improved time control / reliability of programme (82%)
- Improved productivity / less project downtime (81%)
- Improved quality of outcome (78%)
- Helps to address skills shortages in areas where labour is expensive
- Better margins on this work – collaborative contractual approaches
- Reduced bureaucracy - risk assessments / forms etc
- Less conflicts – less QS involvement

Hierarchy



Lords Media Stand - before VE



.. and after VE



Benefits found in practice

- Improved collaboration with supply chain
- Know product works before installed so get better commissioning and performance
- Improved safety performance
- Reduced carbon footprint
- Less waste



Main Challenges

- Securing funding
 - for the upfront investment in manufacturing facilities
 - For continued R&D (and possible venture partners)
- Maintaining an adequate and consistent workload to make the facility viable
- Deciding whether to make the facility in house or open to competitors
- Finding trained people or getting them trained
- Adapting to standardised product ranges / reduced flexibility
- Early design decisions needed
- Sticking to the design
- Transporting to site
- Use in refurbishments

The future

- 28% of survey respondents said clients had expressed a desire to use offsite construction (and this was expected to grow)
- 81% see offsite construction as a commercial opportunity
- The UK has developed a R&D and Innovation centre and is funding innovative developments
 - Digital Twins
 - Robotics
 - ETIM (product classification)
 - Platforms / kit of parts
- Procurement focus on Net Zero, social value and lifetime cost
- Increased uptake of electrical heating and infra red
- ECA is looking at creating a cross industry group to facilitate development and commercial ventures



Thanks for listening