



**UNIVERSITY OF
CAMBRIDGE**

Department of Engineering

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

A study into the reasons for varying approaches to the implementation off-site construction in the UK Water Sector

The UK water industry functions by investing in and utilising a mixture of technologies, to maintain the quality of drinking water and treatment of waste waters along with environmental quality standards. Regulated water companies historically have a low R&D expenditure compared to other sectors which it is believed restricts development and implementation of new technologies. Past studies have shown the motivation for innovation with such companies to be complex but primarily driven by risk management concerns rather than a desire for technical innovation. Offsite construction is proposed as a solution to meet the increasing demands on Water Companies to achieve regulatory efficiencies to gain programme and cost surety while also reducing associated operational and delivery risks.

There is a lack of research available to assist with understanding the challenges and issues faced by Water Companies and their supply chains in the delivery of offsite strategies within the regulatory framework of a water sector tasked with delivering ongoing capital efficiencies, managing owners and shareholders' expectations constrained within a construction industry emerging from recession which now has competing pressures on resources including greater demands on supply chain capacity.

This research examines the awareness of offsite construction within the sector and the key enablers for the implementation of offsite construction, primarily focussing on commercial models within the UK Water Sector supply chain. The research suggests that some of the impediments to off-site manufacturing are external to the technologies and organisations themselves and to fully embrace offsite manufacturing the sector would benefit from alignment of operational and commercial models when making investment decisions. The commercial models and reward mechanisms do not always support the adoption of offsite construction. Additionally throughout a project lifecycle, the assessment of an offsite solution does not holistically consider the wider issues or benefits that could be gained suggesting that further development of business processes is required when proceeding with capital projects involving offsite construction.

**Stephen Hand
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