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CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Innovation capability of the UK infrastructure sector supply chain

The fourth industrial revolution is approaching rapidly. The complex construction industry remains fragmented and traditional. In addition, the industry has not experienced the same large-scale change and innovation as other industries have. To meet the challenge that the next industrial revolution presents, the author asserts the need to grow the sector's innovation capability to respond to the continually evolving environment in which it operates. Therefore, the aim of the research conducted is to understand the current state of innovation capability within the UK infrastructure sector. Once the current state of innovation capability is established, recommendations are made on how to improve it and ultimately future proof the sector.

The research approach is to interview a representative sample of experienced executives within the infrastructure sector to provide contextual and current data. The interviews take place across the supply chain and the groups involved are; clients, industry associations, contractors, design consultants and suppliers. Due to the bounded scope of this dissertation, generalisation of the results should be done with caution. However, the results do show good correlation to the existing literature and provide an evidenced understanding of innovation capability in the infrastructure supply chain. The results demonstrate a disconnect and mistrust between the different supply chain groups. An adversarial approach to contracts and focus on reducing capital expenditure is illustrated. However, there are examples of; clients incentivising innovation, industry associations trialling innovations, contractors partnering with others on research projects, design consultants having clear innovation processes and suppliers collaborating with clients to innovate.

It is concluded that innovation capability is present in pockets of the supply chain, but is disaggregated and needs to be improved holistically across the sector. Key to improving the innovation capability across the sector are the system integrators within the supply chain; the contractors and design consultants. They sit centrally in the supply chain and are the gate-keepers between suppliers, clients and industry associations. The author gives five recommendations that can be implemented by the infrastructure sector to kick-start improvement. They are; centralised safe-guarded resources for innovation, adoption of a whole-life cost perspective, adequate strategy and processes for innovation, contracts and procurement mechanisms that incentivise and support innovation and trialling and implementation of innovations becoming the norm within the sector. The paper concludes with areas for future research that could be explored including quantitative assessment of innovation capability within the sector.

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