

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Reinventing the wheel? How knowledge transfer can benefit the delivery of major infrastructure projects.

The study investigated how successful knowledge transfer strategies can benefit major infrastructure projects by improving processes, materials and construction methodologies to reduce rework and improve efficiencies, thus reducing waste and ultimately improving profits.

The construction industry suffers from extremely low profit margins, due to its fragmented and conservative nature. This paper discusses, how, once the barriers to knowledge transfer have been overcome, it is possible to measure its success, through reduced rework and having a safer working environment. This measurement demonstrates to senior management the importance of having a managed knowledge transfer strategy, where tangible benefits can be presented, emphasising the importance of learning from our mistakes. It highlights the areas where problems can occur and suggests methods for improvement. It also focuses on the importance of having a robust design and minimising change.

A number of researchers state that up to 10% of a construction project cost could be lost due to rework. This emphasises the importance of improving efficiencies and ensuring mistakes are not repeated on projects which align with the radical transformations of the industry discussed in the government's Construction 2025 report.

A case study of a major UK rail infrastructure project was undertaken, which proved how knowledge transfer can improve efficiency and project outcomes. Interviews with key individuals from within the industry including the Institution of Civil Engineers (ICE), High Speed 2 (HS2) and the Knowledge Transfer Network (KTN) were also performed, to obtain further views on knowledge transfer. Also, surveys were carried out with experienced project teams which highlighted the importance of mentoring, lessons learned workshops, linking staff appraisal to knowledge transfer and that information technology, whilst an important tool, cannot be relied upon to inform all.

The results found that, whilst some individuals and projects are endeavouring to improve the way they transfer knowledge, many still find this a challenge. This requires a fundamental transformation of how we transfer knowledge from within projects and across the industry. We need to change from an adversarial and blame culture to a more sharing culture, where we learn from our mistakes, instead of being forced to cover them up. This needs senior management to drive the knowledge transfer agenda, provide contractual incentives for innovation to flourish and make knowledge transfer part of organisational key performance indicators linked to staff performance. This will play a part in achieving the government's objectives and transforming the industry.

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