

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Investigating Cost Performance of Transport Infrastructure Delivery

Government and clients are investing in transport infrastructure. To achieve the economic and social benefit of transport schemes, it is critical that projects are delivered within budget. This is not the current reality. The phenomenon of cost escalation in the delivery of transport infrastructure is established within the literature and governmental reporting. The principal academic work in this field, by Flyvbjerg et al. (2002), found nine out of ten transport infrastructure projects worldwide go over budget, and that there has been no improvement over time. Their research concluded that the cause of cost overrun is rooted in behavioural theory, through the mechanisms of optimism bias and strategic misrepresentation. However, others question this position, arguing that the root cause is due to complexity and changes over time, termed evolutionary theory.

This study was undertaken to further understand the mechanisms which drive cost performance in transport infrastructure projects. The aim was to establish if there is a relationship between the mechanisms which affect cost, and if so, how this impacts cost performance. The research involved a retrospective longitudinal case study of a major transport infrastructure project within the UK rail industry. Project data collected from client board reports enabled the production of cost, programme and scope profiles. Qualitative evidence was obtained through interviews with project staff. This approach resulted in an in-depth understanding of the principal mechanisms which affected cost performance in this case study project.

The key contribution of this research is in the presentation of a conceptual model that describes the impact to cost performance from project events, legacy events, future scope and value loss. This model, the critical event path, evidences connectivity between the delivery of a transport infrastructure project and the network to which it belongs. The model supports the evolutionary theory of cost performance in transport infrastructure delivery and provides an alternative method to investigate the progression of cost performance in transport infrastructure projects.

Jennifer Henderson

June 2020