

## **CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT**

### **An investigation into the relationship between schedule quality and project success in the UK construction industry**

This research aims to improve the understanding of construction project delay by analysing the impact of the Integrated Master Schedule (IMS) quality on project success. An estimated 37% of construction projects experienced delayed completion in 2017 (Glenigan et al., 2018). Whilst there are many drivers to project success, the control of time has often been considered a key element (BMG Research, 2014). Understanding how IMS quality impacts project success could contribute to reducing the likelihood of project delay.

Various industry-recognised techniques exist to assess the quality of the IMS, with the Defence Contract Management Agency 14-Point Assessment (DCMA 14PA) identified as the most common (Bragadin and Kähkönen, 2019). Despite the recognition of the DCMA 14PA as the most commonly utilised method, a lack of evidence exists to support its use in the UK construction industry.

An evidence-based approach was used to assess the relationship between IMS quality and project success. The DCMA 14PA was undertaken on 198 project IMS files. The results were compared with the projects ability to achieve the planned completion date set out in the contract documents and included in the baseline IMS at project award. To evaluate the strength of relationship, Pearson's correlation analysis and linear regression were completed for each of the DCMA 14PA criterion, followed by multiple regression analysis.

In addition to the statistical analysis, a Planning Functional Survey (PFS) was developed with the intention of gauging the current level of knowledge in the UK construction industry with regards to IMS quality assurance processes and the DCMA 14PA. The results of the survey were cross-examined with the results of the correlation analysis to provide a deeper understanding of identified relationships.

The results of the multiple regression analysis demonstrated no statistically significant linear relationship between the DCMA 14PA and project delay. The research concluded that whilst the criteria measured by the DCMA 14PA is deemed appropriate by Planning professionals, it cannot be solely relied upon to measure the adequacy of the IMS, it must be used in conjunction with other methods. In addition, the UK construction industry has implemented the DCMA 14PA as an industry standard. To realise the full benefit of the assessment, the DCMA 14PA needs to be implemented as it was intended, as a guideline to promote conversation.

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