

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

BIM in higher education in the UK and future industry requirement

Building Information Modelling (BIM) has gained a foothold in the United Kingdom's (UK) construction industry since the Government's 2016 BIM level two mandate. The industry has never seen such a paradigm shift towards a new way of collaborative working. Given the rapid adoption rate of BIM processes and technologies, the industry is facing a skills shortage and research shows that higher education institutions (HEIs) worldwide are reacting slowly to the global construction industry's BIM skills requirements. There is little to inform construction industry firms about new graduates' BIM skills and even less describing how firms will need to confront this skills gap to meet industry trends up to 2025. The purpose of this research is to address this gap in the literature in the context of the UK industry.

Chronologically, this dissertation is well placed between the advent of the UK Government's BIM level two mandate in 2011 and the next BIM milestone in 2025. Via a mixed methods approach, this study first investigated the BIM progression that the construction industry is likely to experience in the next seven years. It achieved this through a series of structured interviews with industry professionals and academics, building a vision of industry BIM practice in 2025. This yielded the qualitative data that was compared to the data from a survey of UK HEI course leaders regarding the current state of BIM education practice. These data sets were used to determine whether the HEIs are going to be able to fund the increase in requirement for BIM-enabled graduates. Finally, this study proposed a number of measures that construction industry firms could take to address the potential graduate skills gap.

Analysis of the findings suggest that undergraduate BIM education focuses on teaching BIM modelling software and is varied with regards the teaching of BIM in the context of the industry and the specifications. It also concludes that undergraduates are not getting the opportunity to work collaboratively in cross-discipline teams to prepare them for the workplace.

For these reasons, the study recommends that firms focus on collaborative training with their supply chain, focusing on data management and contextualising BIM rather than modelling technology. The research finds that the next generation of students are already digitally-enabled and the modelling software training seen so frequently in industry is not the priority for the future. This study also proposes that the long-term health of the industry's BIM talent pool would be well served by construction firms building structured relationships with academia and also lobbying professional institutions to drive the requirement for digital engineering in the UK's HEI curricula.

It is hoped that this work will offer UK construction industry companies an insight into the BIM preparedness of incoming graduates and their skill sets and how internal training programmes will have to respond to meet the UK's 2025 BIM agenda.

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