

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

3D BIM model adoption in Facility Management: An exploratory case study

Purpose – This dissertation investigates user adoption of an operational facility’s 3D building information modelling (BIM) model. The high-level aim is to understand how to utilise models developed for facilities undergoing modification in the operational phase by assessing employees working in the facility (facility users) for the factors affecting model adoption and potential model improvements.

Design/methodology/approach - The case study approach assesses facility users (n=19) adopting a facility BIM model developed by designers modifying the facility using two research objectives. Research objective one assesses the facility users’ adoption characteristics using the extended technology acceptance model (TAM2), including Trust as an additional characteristic. Research objective two identifies useful inherent and new model features using focus groups with the nominal group technique providing ranked feature lists.

Findings - The current literature discussing BIM in a facility’s operational phase draws guidance from BIM experts and BIM-proficient facility managers and is light on BIM adoption, focusing on utilising non-geometric data. The facility users were apathetic towards non-geometric data preferring geometric-visual features, with the most popular inherent uses being viewing, planning and briefing others. The suggested new features indicate that the existing concept-level model has sufficient detail and is best used as a logistical planning tool.

Model use continues post-research, and the identified useful features do not appear to be mediated by the ease of using the model or previous BIM-related software experience. However, associating the model with BIM-related software appears to negatively affect adoption – an adoption barrier unrecognised in the literature review.

Practical implications – The results call for a better understanding of the actors in a facility’s operational phase to improve adoption when administering BIM, especially if there is the intention to utilise non-geometric data from the design and construction phases. Facilities with models should look beyond the asset management guidance to determine if the model can solve other facility challenges - in this facility’s case, improving operational efficiency through planning.

Originality/value - Through engaging facility users without BIM experience, adoption barriers and model features have been identified that are not present in the existing literature and guidance. Further similar studies are needed to build a realistic view of using BIM within a facility’s operational phase.

Key Words: *Facility management activities, Building Information Modelling, BIM, Technology Acceptance Model, TAM, TAM2.*