

THE EFFECTIVE UTILISATION OF BUILDING INFORMATION MODELLING IN THE FACILITY MANAGEMENT PHASE

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Introduction

The importance placed on sustainable methods of building has progressively emerged throughout the construction industry, with Building Information Modelling (BIM) being at the forefront. BIM has proven itself within the design and construction stage with the many beneficial aspects it can provide to a project but has struggled to be accepted within the operational and maintenance phases of the lifecycle (Kelly 2018). Lee et al (2010) stated the facility management phase is the primary contributor to the overall buildings life-cycle cost. Understanding this, provides the thought that effective management of buildings is a crucial aspect, which is often overlooked.

This formed the basis of this research.



BIM Lifecycle. Source: Catenda (2020) available at "<https://catenda.no/bim-glossary/bim>"

Aims and Objectives

This dissertation aimed to look at the implementation of BIM within the facility management phase (FM) and provide exposure on barriers imposing the effective utilisation. The main objectives were:

- To examine the implementation of BIM in FM within the UK Construction Industry.
- To evaluate the industry's opinions on the current implementation of BIM in FM.
- To identify potential barriers that lie within the application of FM in the BIM lifecycle.
- To provide recommendations for the improvement of BIM usage within FM.

Research

This dissertation began with a review of the existing implementation of BIM in FM within the UK construction industry and the importance of the facility management phase. This was conducted through a review of literature which discussed:

- The building lifecycle - To provide the reader an overview of the subject.
- It then defined the facility management phase and its challenges, outside of BIM implementation.
- Finally, it discussed and defined BIM's usage, furtherly examining BIM in FM, the existing challenges, barriers and opinions.

The reviewed literature helped to identify a number of challenges preventing BIM's accessibility for FM and subsequently formed the basis of survey questions and the questionnaire.

To effectively examine the implementation of BIM in FM within the UK construction industry, it was decided that a mixed method research was best suited.

Firstly, qualitative interviews were organized with respective industry professionals to gain an understanding of the current usage of BIM in FM and to discuss the principle challenges they found to be important.

Secondly, a quantitative questionnaire was employed to provide a wider view of the current industry opinions. This was to reinforce or challenge any responses made within the interview.

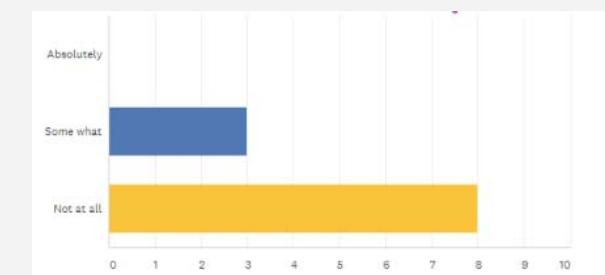
The respondents for both methods were selected based on their industry experience, all of which were BIM Mangers, Operation Managers and an FM software developer.

Findings

The findings of both the interviews and questionnaire, revealed that:

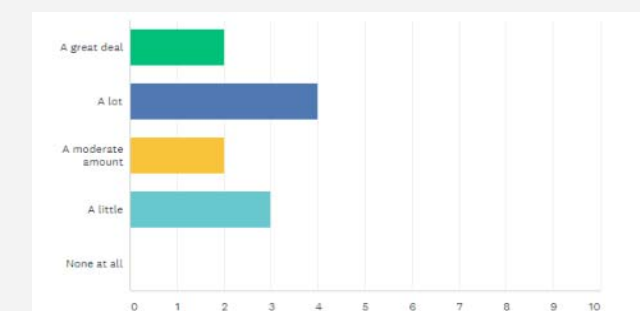
- The absence of BIM in FM is still very much a reality, which coincides with the literature reviewed.
- A lack of strategic value for BIM in FM is governing the lack of implementation.
- BIM is mostly seen as an expensive, and difficult to understand process.
- The principle challenge is interoperability across stakeholders.
- Lack of awareness for BIM standards, regulations and mandates (Figure 1).
- Lack of BIM awareness is leading to difficulties in documentation handover and subsequent building model updating.

However, the findings also highlighted that there is a growing recognition of BIM in FM, with every respondents understanding the importance BIM has and the benefits it can provide. Also worth mentioning, is the respondents advocacy of early engagement of FM within the lifecycle. Identifying the need for not only implementation but acknowledgement of early FM.



"Have the British and International Standards of BIM in FM contributed to your organisations use of BIM in FM?"

Responses to question 9, in the questionnaire.



"Do you believe BIM in FM should be more prioritised?"

Responses to question 5, in the questionnaire.

Conclusion

It was felt the aim and objectives set out within the research were reached and managed to identify the current issues relating to BIM's implementation within the facility management phase.

It was concluded that despite the advocacy of BIM through the standards, mandates and processes provided by industry professionals and government bodies, BIM in FM is still in its infancy and that it is likely down to the construction industry's awareness, understanding and perhaps, its attitude to change.

Recommendations were made by the respondents, showcasing the necessary steps for BIM adoption within FM.

References

- Kelly, G., 2018. *Back To Basics – The What, How And Why Of BIM And FM | BIM+*. [online] Bimplus.co.uk. Available at: <<http://www.bimplus.co.uk/explainers/back-basics-what-how-and-why-bim-and-fm/>> [Accessed 27 May 2020].
- Lee, S., An, H., and Yu, J. (2012). An Extension of the Technology Acceptance Model for BIM-Based FM. Construction Research Congress, 2012,.