

## **BIM requirements across a construction project lifecycle: A PRISMA-compliant systematic review and meta-analysis**

### **ABSTRACT**

Building information modelling (BIM) has been progressively adopted within the architecture, engineering, construction, and operation (AECO) industries across the globe. The main goals behind the BIM adoption are to save procurement costs, reduce greenhouse emissions, and improve the productivity of the AECO industry. However, these goals are still difficult to be achieved due to the ambiguity of BIM requirements across a construction project lifecycle. Therefore, in such a situation, there is a need to increase understanding among the AECO industry players on the requirements of BIM implementation in order for them to fully grasp the benefits of BIM. This article sets out to redefine the required components of BIM requirements for a successful implementation of BIM across a construction project lifecycle. A systematic review was guided by the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) method in evaluating relevant published studies. The study systematically derived 39 papers covering the various aspects of BIM requirements across a construction project lifecycle. The initial findings highlighted that the required components of BIM requirements predominantly reside within policy, process, technology, environment, and people interlocking themes. These five themes further produced a total of 41 subthemes. The findings then led to the development of a BIM requirements' process map across a construction project lifecycle. This study contributes to the body of knowledge by extending the required components of BIM requirements across a construction project lifecycle. This study also provides some valuable insights for AECO industry players across the globe on the full benefits of BIM.

**Keyword:** Building Information Modelling (BIM); BIM activities; BIM requirements; BIM specifications, Systematic review