

Title: A framework of attributes for as-built BIM models: A systematic review

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Abstract: Accurate digital twins are crucial in improving facility management. However, facility owners often encounter inaccurate digital twins due to incorrect as-built Building Information Modeling (BIM) models. By understanding the attributes of correct as-built BIM models, it is possible to reduce the production of inaccurate digital twins. This study aims to establish a framework of attributes for developing as-built BIM models. To achieve this, a systematic review of published articles using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) technique was conducted to identify relevant attributes for developing as-built BIM models. Next, a comprehensive conceptual framework was established for the development of as-built BIM models. Through the analysis of 50 articles, nine attributes of as-built BIM models were identified and grouped into three categories: data quality, data interoperability, and data security. Data quality encompasses accuracy, completeness, ease of understanding, coordination, consistency, and up-to-date. Data interoperability includes accessibility and compatibility, and data security pertains to security. The study findings could provide valuable guidance to industry practitioners and policymakers in developing strategies for producing correct as-built BIM models, ultimately improving the production of accurate digital twins and enhancing overall facility management.

Keywords: building information modeling, as-built bim, digital twin, systematic review, facilities management

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