

Ontology Approach for Building Lifecycle Data Management

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ABSTRACT

The Architecture, Engineering and Construction industry involves multiple disciplines and activities throughout the Building Lifecycle Stages (BLS). To enable collaboration amongst these disciplines iterative and coordinated exchange of information is required. This improves the design process over multiple BLS. Since the last decade, BIM is a well-known approach to achieve collaboration through semantic representation and exchange of domain data. Despite the improvement, there is a lack of efficient implementation and management of building lifecycle functionalities in existing BIM solutions, because of their fundamental heterogeneity, complexity and adaptability. This research focuses on these issues and addresses a clear perception through analysis of BLS from various standards and norms. The paper concentrates on the demonstration of efficient representation of various BLS through the ontological approach and their effective involvement in BIM data management. With the validation and evaluation through SPARQL queries, this paper presents an ontological framework for building lifecycle data management.