

Topic - Modeling the Future – modeling of the future architecture and design with implications for environment and society,

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## **Digital building model: typology and lifecycle management**

Lately, there is increasing worldwide pressure that data on buildings be stored in the form of digital models. On the market there exist a large number of applications that enable creation of digital building models either in the form of advanced geometry modeling applications, algorithmic modeling applications or BIM applications. Each of these applications creates a model using its proprietary data format. As it is expected that in the future digital model supports the entire lifetime of the building, this approach raises the question of the sustainability of such digital models. The modern computer industry, at least once a year, launches a new version of the existing application that introduces new functionalities into the program and makes data from previous versions of the application obsolete. One of the suggested solutions for this problem is the IFC data model. This format today becomes more and more important because of its openness and independence from commercial formats which guarantees that projects saved in this format will be permanently usable.

The paper gives an overview of the existing BIM project management software that tackles the problem of managing a large amount of different file formats that appears during a lifecycle of digital building model. The paper examines the problem of the possibility of connecting all types of digital models that include geometric and BIM models as well as the results of building simulation behavior (structural analysis, energy efficiency, lighting, etc.), models generated by generative algorithms, fabrication models, etc. The issue of introducing new information into existing digital formats, such as the standard IFC interoperability format, will also be considered. This analysis examines the perspectives and principles for the development of a future digital model that would fully cover the entire life cycle of the building. The assumed model does not imply a monolithic data structure but a distributed aggregation of different digital formats.

**Keywords:** digital building model, BIM, design process, model lifecycle management