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Innovative research projects in the field of Building Lifecycle Management

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Abstract

In the era of the great development of information technologies and telecommunications, a natural need to develop and implement a unified system of digital building information modelling has arisen. The rapid development of design technology in the field of architecture, engineering and construction leads to the continuous adaptation of the conceptual apparatus for building information modelling (BIM). BIM technology adopts a new definition as a universal tool for describing various elements of intelligent virtual 3D model of a building combining a series of sequential steps related to the investment, such as requirements of design, construction, operation and demolition optimizations and preparations. In the paper, the authors propose directions of research in the field of BLM (*Building Lifecycle Management*).

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1. Introduction

In the age of the rapid development of information systems in the construction sector as well as in manufacturing engineering and service engineering there arises a natural need to develop and implement a coherent system of digital information modelling [11]. This is the second stage of the development of the applied information systems. The first stage concerned setting up of systems of automated design of separate (technological, economic, organizational) processes in various areas of activity (construction, industry, services, etc.) [13] [14] [15]. Selected information systems and automated design systems include elements of artificial intelligence. That has significantly expanded the capabilities of such systems providing the effective operational methods and mathematical models that map the analyzed processes are put in place [16].

Several European countries have been focusing on the BIM development of (*Building Information Modelling*). Danish government has been sponsoring a “Digital Construction” project since 2003. For more than 10 years Finland, Great Britain, Netherlands, some other EU member as well as Norway, US and Australia have been developing national initiatives aiming at implementing digital modelling in construction. They undertake actions under the “Building Smart” theme, which includes the development and coordination of classifications, standards, data exchange formats, uniform public procurement requirements and the accompanying ICT technologies. Joint initiatives of business, educational institutions and governments in the area of “digital construction” aim at designing integrated and coherent digital modelling systems so that all information encapsulated in a construction project could be utilized throughout the whole building life cycle, from its concept until the demolition [17].

In the article, main ways for further BLM methodology development is analyzed (*Building Lifecycle Management*). Further development of these issues requires a lot of effort and can be the subject of a research project.

2. Evolution of Building Lifecycle Modelling

In recent years, efforts have been made to transform the traditional three-dimensional BIM into a four- (4D) [5], five- (5D) or even six- (6D) and seven-dimensional (7D) version on the basis of the application of PLM (*Product Lifecycle Management*) to construction [8][2][9]. This solution has been named BLM (*Building Lifecycle Management*) or unified project management (figure 1) [4].

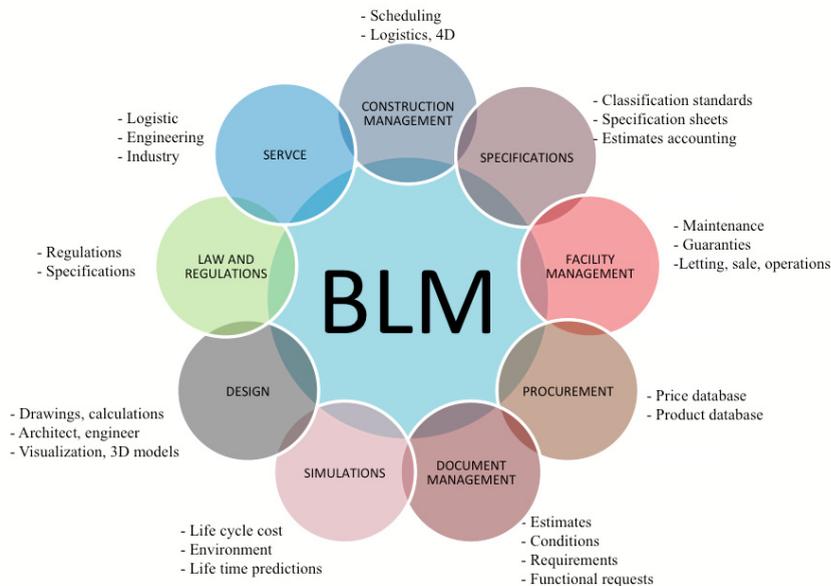


Fig. 1. BLM lifecycle view

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