



” BIM from investment to property management

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More and more new technological solutions are applied in the construction industry, just as in other sectors of the economy. One of such solutions is BIM technology. Implementation of BIM already in the early stages of an investment and its consistent use during the project can allow for easy integration of all the components of the investment stage, resulting in the subsequent efficient management of the property. Property management is not just about overseeing the current condition of a property, but also planning for future goals leading to property maintenance and development. Collection and processing of data to obtain information is an important activity during rational investment planning and property management. Therefore, the use of the BIM concept is a great help both at the management stage, and above all at the investment stage.

BIM – DEFINITION

The concept of BIM is a very broad and has many meanings. The shortcut BIM is translated in several ways:

- Building Information Model – model of information about a building object;
- Building Information Modelling – modelling information about a building object;
- Building Information Management – managing information about a building object.

The key word in the above acronym expansions is information. BIM is a process or methodology for managing information about construction objects. BIM consists of the methodology and the tools used to achieve the investment objectives. The BIM methodology is based on a digital representation of a building object in detail, at various stages of the object's "life". Its aim is to integrate the input and output information about the object, which enables easier operation and subsequent management of it. The process integrates data from the planning, design, and construction phases to maintenance, management, and even demolition. The methodology improves the organization and management of documentation related to the construction project. BIM makes it possible to create a certain simulation of the above-mentioned processes, which makes it much easier to control the implementation of particular stages during the whole investment.

In the BIM process, a database is created about the object during construction. Based on it, it is possible to control the cost and schedule of activities related to the investment, as well as the management of the building. Such a model is a detailed source of knowledge about the building. For various investments, including real estate, BIM can also be used to estimate operating costs and benefits. It also allows certain construction decisions to be made. BIM enables efficient exchange of information between industries involved in the investment and construction process. To be able to fully effectively reap the benefits of implementing the technology, it is worth creating a plan assuming individual actions, implementation stages, taking into account the time frame. The BIM model can be created at different levels of detail, depending on the needs and the desired effect.

BIM IN PROPERTY MANAGEMENT

The main task of BIM in property management is to optimize costs, to plan sustainable operation and to develop a real estate during the operation stage. BIM methodology assumes the creation of an extract copy of a building in a digital version, which is a database about the building. A 3D model created in accordance with the assumptions of the BIM methodology is not only a "drawing" of the building, but is a description of the features of the building's elements. During the creation of such a model, information is collected about the relationships between individual building elements. The resulting database contains detailed data about e.g. the location of windows, doors, their number, surface, or about the entire power grid and others. It can

also contain data about materials of the components, their properties, etc. As a result, it is possible to easily estimate costs related to the use of materials, construction and installation of subsequent elements of the building object.

The benefits of using BIM in property management include, first of all, easier flow of information. For example, the collection and storage of information about the operation of technical installations, about planned inspections of installations and similar key data, facilitates the organization of work and can have a significant impact on reducing operating costs. The software used with the BIM methodology in property management provides insight into current and historical data on the building, installations and other infrastructure elements. The insight into historical data facilitates the simulation of future events. It is possible to plan costs of energy supply, to plan actions in case of emergency. Having such data integrating different parts of the facility, one can accelerate the reactions in case of various security incidents. It is important to correctly implement BIM at the investment and construction stage to easily manage all installations, energy, and ultimately increase safety. It also makes it easier to plan various modifications, renovations and forecast as well as reduce the costs associated with them. The use of this technology in management will also enable the presentation of changes resulting from renovations or other events that cause changes in the facility.

The BIM model can be useful not only in the work of managers and managing organizations, but it can also facilitate a potential tenant in the implementation of the apartment furnishing design, which will ultimately avoid later problems with the organization of the space. It also makes it possible to determine operating costs during the lease. Having a BIM model also facilitates the implementation of others, for example, in case of a change of investor, contractor or manager, who, thanks to the use of technology, will have a holistic view of the construction investment at every stage.

The BIM model used in property management can be a continuation of the model created during the investment and construction phase. However, this is not always possible. BIM can also be implemented for an existing building. This is more difficult, it would be necessary to make an accurate inventory of the existing building and make a digital copy of it - a 3D model.

The use of BIM technology in property management, as well as at the investment stage, has many advantages. However, the disadvantages of this methodology should also be mentioned. One of the main disadvantages is that the implementation of the technology can be quite expensive, and the modelling of the property itself can be a complicated, labour-intensive, and therefore time-consuming process. As a result, the technology may be met with reluctance by users who are accustomed to paper versions of various types of documents.

BIM IN THE WORLD AND IN POLAND

All over Europe, the implementation of BIM is becoming more and more common. The use of new technology contributes to economic growth. One of the first countries that started to implement BIM technology in public projects was the United Kingdom. Several years ago, BIM was used there from the early stages of investment mainly in the private sector, and since a few years also in the public sector. Then we should mention Germany, France and Scandinavian countries, where the use of BIM technology is also quite common. Outside Europe, it is worth mentioning the USA, where with time also organizations operating in the public investment sector started to use BIM to manage construction investments.

In Poland, there are no requirements or obligation to use the BIM methodology yet, but it is worth remembering how many advantages the implementation of this technology brings. In 2020, the Ministry of Development and Technology published a manual 'BIM Standard PL' on the principles of implementing cubature investments

so that they comply with standards and construction law. Currently, activities are carried out to popularize the use of the technology and standardize its implementation in public investments. Definitely, the interest in BIM is growing in Poland. Companies operating on the Polish construction market often develop their own standards and use BIM technology during their construction investments.

SUMMARY

The aspects of the BIM concept presented in this article are only a part of a rather broad topic that is constantly developing and gaining popularity in our country. A number of advantages of implementing BIM causes an increase in interest in this methodology. While familiarizing oneself with the operation and possibilities offered by this technology, one should not forget about its disadvantages. Increasingly widespread use of the technology may contribute to the emergence of increasingly complex and intricate building structures.



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