



## EFFECTIVE USE OF BIM TECHNOLOGY IN CONSTRUCTION

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**Annotatsiya:** *Dunyo qurilish sohasida keskin o‘zgarishlar ro‘y bermoqda. Yangi texnologiyalar qurilish sohasini yangi bosqichga ko‘tarmoqda. BIM-texnologiyasi raqamli iqtisodiyotning qurilish sohasiga joriy qilinishining vositasi bo‘lib xizmat qilmoqda. Ushbu maqolada BIM-texnologiyasining afzalliklari haqida so‘z boradi.*

**Kalit so‘zlar:** *Raqamlashtirish, binoning hayotiy sikli, BIM, BIM-texnologiyasi, BIM ishtirokchilari.*

**Аннотация.** *В мировом строительном секторе происходят кардинальные изменения. Новые технологии выводят строительную отрасль на новый уровень. BIM-технология служит средством внедрения цифровой экономики в строительную сферу. В данной статье речь пойдет о преимуществах BIM-технологии.*

**Ключевые слова:** *Цифровизация, жизненный цикл здания, BIM, BIM-технология, участники BIM.*

**Annotation.** *Drastic changes are taking place in the global construction sector. New technologies are taking the construction industry to a new level. BIM technology serves as a means of introducing the digital economy into the construction sector. This article will focus on the advantages of BIM technology.*

**Keywords:** *Digitalization, building life cycle, BIM, BIM technology, BIM participants.*

**Enter.** *The economy of our country is developing and the national market is expanding. Technologies for the development of business, production, and construction of buildings and structures are coming to us very slowly from highly developed countries, but even then they are introduced and used mainly in developed cities.*

If we look at the market of users of automated design systems (LAT, Russian CAD) in Uzbekistan, the market is not very saturated and developed. Enterprises focused on an intensive and high-tech approach to design are the owners of various software licenses, consisting of three-dimensional design, modeling, engineering calculation tools, and other various programs.

***The main part.*** However, this does not mean that the enterprise has automatically moved to a higher level of performance in terms of speed, quality, and complexity indicators. In many cases, organizations in the field of urban planning are trying to create a group design environment and an engineering information system. However, it is important not only to use the purchased software strictly and skillfully but also to organize the technological chain and to form a unified design environment to increase the satisfaction of the transition of the object to different stages of its life cycle. At this stage of market development, new technologies play a special role, the most important of which is BIM [1].

***Building Information Modeling (BIM)*** is the process of collective creation and use of information about the building that forms the basis for all decisions made during the life cycle of the object. BIM is based on a three-dimensional information model, based on which the work of the investor, customer, general designer, general contractor, and operating organizations is organized.

BIM technology helps to combine existing information in the organization with new knowledge that is created in the organization during the transition to BIM. It provides data exchange between the existing systems of the enterprise and BIM. The information model will be a data provider for the procurement system, calendar planning system, project management system, internal ERP system, and other systems of the enterprise.

In modern society, the informatization process called "digitization" has been going on for a long time, but in the construction industry paper documentation is mostly used. This indicates that working with data in construction is more complicated than in other industries. Today, fundamental changes are taking place in construction.

Construction companies that want to implement BIM can evaluate the advantages of the new technology, the most prominent of which are the following [2]:

- ***A reduction in the number of errors.*** Working with a three-dimensional model allows you to avoid errors inherent in traditional 2D design: mismatch of plans and cuts, outdated information in the specification, etc. Conflicts between structural elements of the building and its engineering networks, incompatibility of technological holes for engineering systems, and incorrect calculation of the volume of materials are the most common. First of all, this is due to the lack of interaction between specialists involved in the design of different departments. It should be noted that identifying errors at the initial stages is much "cheaper" than identifying and eliminating them on the construction site.

- ***Reduction of the number of project solution changes.*** Although careful development of the model at the design stage increases the duration of this stage, it allows coordination and approval of the main design solutions before starting the development of working documents.

- ***Improves communication between customers and designers.*** Modern tools of three-dimensional models and visualization allow for improved communication with customers, investors, and contractors by organizing a unique dialogue directly within the model.

- ***Improving the company's image.*** The emergence of BIM technologies on the market certainly affected the requirements of customers. Many of them, including the state, prefer organizations that use information modeling technology in their work. The "transparency" of the BIM model is a good argument when looking for a source of financing. With the help of the model, the investor can see how his money is working, and he can correctly plan the cash flows if he connects it with the calendar graphs of the project [3].

The main value of using BIM technology is information. In the model, elements are created that contain not only geometric shapes but also information about the physical properties of materials, their value, assembly and assembly costs,

manufacturers, and other parameters. The peculiarity of BIM technology is that the construction object is designed as a whole, when the model is changed, all parameters and objects related to it are automatically changed, respectively, drawings, visualization, specification, and calendar graph [4].

In addition, BIM covers all stages of the building's life cycle: planning, specification, design, production, construction, operation, reconstruction, and dismantling. At each stage of the life cycle, any element of the model is filled with new information for use in subsequent stages.

Based on the above, BIM is necessary not only for designers. The model covers all stages of the object's life cycle, so it is used by developers, builders, equipment manufacturers, and customers.

Of course, organizations implementing BIM face many challenges. One of the main problems is the exaggeration of the results expected from the implementation and the misunderstanding of the technology itself. BIM technology is not a software product, it is a process. The process of working with information, the process of changing the way of interaction of all participants of the construction. If these processes are not properly organized in the organization, the introduction of a software product based on BIM technology does not solve problems but complicates them [5].

In addition, during the initial design process, production efficiency drops compared to traditional technology, which forces management to abandon the idea at the first stage. The transition to BIM will take several years, but the organization will already be spending. In addition to the purchase of software, this includes the costs of restructuring business processes, purchasing new equipment, training personnel, and if the organization does not have an ALT department, at least the creation of a BIM manager position.

**Summary.** Thus, the transition process is quite expensive and time-consuming. Real dividends from the use of BIM technology will begin to come after 2-4 years. However, the application of this technology to the construction industry will increase the competitiveness of the enterprise, create an additional job in the labor market, allow



specialists to fully understand modern design processes, reduce the time spent on design, improve the quality of project documents, and give a special look to the projects being produced. 'causes to appear.

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