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Overview of implementation BIM-technology at the construction companies of Kazakhstan

One of the main tasks of the State Program of Industrial and Innovative Development of the Republic of Kazakhstan for 2020-2025 is technological development and digitalization. Digitalization is a new phenomenon that is changing all sectors of the economy and social structure. The digital transformation of the economy sets new parameters for the country's competitiveness. Innovative development and digitalization are becoming complementary phenomena. Nine key technologies will transform industrial manufacturing: multidimensional digital modeling, autonomous robots, vertical and horizontal integration, the industrial Internet of things, cloud technologies, cybersecurity, virtual reality, additive manufacturing, big data and analytics. Countries striving for competitiveness must have the resources to create projects in these technological areas.

The technology of multidimensional digital modeling - building information modeling, or BIM (Building Information Modeling) is increasingly being used in design and construction. BIM technology is more than just a new type of design, it is an approach to the design, construction, equipment, maintenance and repair of a building, which involves the collection and integrated processing in the design process of all architectural, design, technological, economic documentation and information about the building with all its interconnections, when the building and everything related to it are considered as a single object [1].

The building information model characterizes the geometry, quantity and properties of building elements, geographic information, material costs, and project schedules. As a result of building a model, drawings, lists of necessary materials can be generated, the scope of work, the timing of their production can be determined. When changes are made to the project, they are reflected in all parameters of the model, in all construction documents and schedules.

So what is holding back the complete transition of the design and production of building structures in the Republic of Kazakhstan to BIM technologies, with so many advantages?

The reasons for holding back this transition are:

1) Insufficient awareness of design companies and manufacturing plants about the benefits of BIM technologies;

2) High cost of BIM software systems - technologies;

3) Lack of free resources for the study and development of new technology;

4) Lack of specialists in BIM - technologies;

5) Lack of regulations, norms and recommendations for the implementation of BIM at enterprises.

A complete transition to BIM technologies in Kazakhstan cannot happen without government support and requires special steps [2]:

- development of regulatory documents, BIM standards of the Republic of Kazakhstan on the application of information modeling technology;

- development of unified regulations and recommendations for the implementation of BIM technologies at enterprises for the design and production of building metal structures;

- creation of a special fund - to support the transition of business to BIM;

- tax incentives for enterprises - members of BIM;

- organization of training new and retraining of existing specialists from design, construction and operating organizations, construction companies in new types of digital modeling.

Currently, BIM is using in the Republic of Kazakhstan only by advanced design organizations and manufacturing plants. For example, the winner of Tekla BIM Awards-2018 in the nomination "Best industrial project in the CIS" was the Almaty company AAEngineering, which presented a project for the modernization of a mining and processing plant at the Pustynnoye deposit, carried out the supply of equipment and construction and installation work. Application of BIM - technologies allowed reducing all terms by 25%.

The transition to information modeling in Kazakhstan is not the task of a separate enterprise that designs and manufactures building structures; it is an issue at the level of the entire sphere of the construction industry, associated mainly with the new organization of interaction between the participants. In this regard, the process of introducing and further using information modeling technology in the design of metal structures should be carried out in accordance with the general rules, norms and recommendations established for the entire construction industry based on a unified approach [3]. The creation of conditions for the introduction and development of BIM technologies in the private sector of the construction market of the Republic of Kazakhstan will lead to the further development of the entire construction industry of the republic, increase the competitiveness of local companies in foreign markets, increase the efficiency of investments in construction and operation, and will give a new stimulus to the development of the economy of Kazakhstan as a whole.

Reference list

1. Talapov V.V. Introduction into Building Information Modeling. / monograph. - Saratov: Vocational education, 2017 .- 392 p.

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