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THE IMPACT OF THE DIGITAL REVOLUTION ON CONSTRUCTION IN THE FUTURE: CURRENT TRENDS AND DEVELOPMENT PERSPECTIVES

Воздействие цифровой революции на строительство в будущем: текущие тенденции и перспективы развития

The purpose of this research is to study the current trends of digitalization of the construction industry, the problems hindering digital transformation and options for solving these problems.

At the moment, one of the key development trends is the rapid digital transformation of various spheres of the economy. In this regard, it can be noted that the challenge of digitalization is also relevant for construction.

1. Building Information Model – BIM. BIM is an object-oriented model of a building or structure, usually in three dimensions, containing data on geometry, physics and functional characteristics of the object. The main advantage of this design is the ability to collaborate between several departments of the organization (engineers, designers, estimators, etc.) in real time. This helps all project participants to clearly understand what each employee is doing and to exchange information and revisions on the project in a timely manner.

2. Artificial Intelligence – AI. Artificial intelligence is the ability of computing machines to imitate the actions peculiar to the human brain (analysis, calculation, learning). The main advantage of such technology in the construction industry is the collection of information and its analysis. Application of such technology helps to minimize routine tasks, allows to process and systematize large amounts of information, as well as to form analytics. This will accelerate construction processes not only at the design stage, but also at the production stage.

3. Ecosystems of end-to-end digitalization of processes – digital ecosystem. In the construction industry, this system is represented by a single program that provides access to all information on the construction project. The main advantage of such an ecosystem is the unification of all participants in the construction process by a single ecosystem for storing and distributing project documentation.

The main problems in the development of these trends are: lack of qualified personnel; high cost of technology implementation; insufficient elaboration of regulations governing the use of digital technologies in construction; and the problem of integrating software from different manufacturers and within companies.

The following methods can be used to solve the problem of digitalization development: introduction of innovative technologies and software at the level of

educational institutions, organization of professional development courses. In solving the problem of high cost of technology implementation plays an important role in the correct setting of the goal and competent formation of the project plan, it is very important to gradually invest resources in the development of innovations for subsequent payback. An important aspect of solving the problem of digitalization is the development of regulatory documentation for the subsequent regulation of the use of digital technologies. Software import substitution – solves the problem of software conflicts between different companies by standardizing the software package used.

Based on this study, it can be concluded that the digitalization of construction is an objective process of modernization of the industry, requiring an integrated approach to innovation. Techniques such as comparing costs and potential benefits can be useful in the implementation of various digital technologies.

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INNOVATIONS IN TRADE: ROBOTICS

Инновации в торговле: роботизация

Currently retail trade is one of the leading sectors of the economy where the need for innovation processes is determined by the economy's focus on digitalisation.

The field of innovation in trade is a relevant and important area in everyone's life since each person encounters it. The modern buyer is digital. Information comes to him from the outside through various channels. He values time and prefers to spend less time on purchasing a high-quality desired product and trade organizations are interested in attracting customers using advanced technologies while optimizing their costs and receiving greater profits.

The purpose of the work is to identify the trends in the development of innovative trade namely robotics using the example of drones.

The process of introducing innovations into retail allows you to solve a number of companies' problems such as: increasing efficiency of operating activities; improving customer service quality; expanding business boundaries; improving marketing strategies. Robots can be used to perform a variety of tasks such as: replenishment of stock, order picking, customer service, shopping experience personalization (robots can remember selected customers and suggest them products that they may like), cleaning, security (robots can monitor security in the prevention and prevent of theft).

The study considers such an area of using robots in retail as goods delivery by drones.