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INNOVATIVE APPROACH TO THE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY OF KAZAKHSTAN

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Abstract: *The study is devoted to improving enterprise management using a platform-based approach. This is one of the relevant directions for strengthening the market positioning of construction enterprises in Kazakhstan. The key directions and trends in the digitalization of Kazakhstan's construction industry from 2021 to 2024 are outlined. Factors influencing enterprises' choice of digital technologies are analyzed. A methodological approach to assessing the effectiveness of digital technology implementation by enterprises is further developed.*

Keywords: *digitalization, digital platform, Kazakhstan, construction industry, strategy.*

Introduction.

Construction is the second-largest industry in Kazakhstan: 13% of all companies in the country operate in this sector. Private companies perform 71% of all construction work, foreign developers account for 26.4%, and state enterprises make up 2.7%. Nearly one-third of the work is related to the construction and repair of non-residential buildings, while 12% is related to residential housing construction [1].

Currently, various digital platforms are used in the industry, including project management platforms such as Trello, Asana, Bitrix24, 1C:Enterprise, BIM platforms, procurement and supply management platforms, and construction equipment management platforms (GPS monitoring systems). Of particular importance are government digital platforms such as E-PSD, the Unified Geoportal of Infrastructure Data of the State Urban Development Cadastre (EGID), the Urban Development Cadastre system, the IS "Kazreestr" E-PSD system, E-QURYLYS, and the online building materials platform material.kz.

However, despite widespread digital transformation in Kazakhstan's construction-from 3D modeling software to IoT sensors on equipment-the absence of digital technologies in enterprises still slows down industry development and reduces

operational efficiency. There is a noticeable shortage of digital solutions that enable cost savings through resource control and allocation, reduce expenses for correcting errors, accelerate construction timelines, and increase process transparency.

The aim of this study is to identify the key directions and trends in the digitalization of Kazakhstan's construction industry, determine the factors construction enterprises should consider when choosing digital technologies, and develop a methodological approach to evaluating the effectiveness of digital technology implementation.

The object of the study is the construction industry of Kazakhstan.

Main text

For Kazakhstan's construction industry, digital transformation is a strategic imperative, and digital platforms are not merely tools to improve operational efficiency—they are catalysts for rethinking business models and driving innovation.

Since this article is devoted to the study of digital transformation in construction enterprises using a platform-based approach, Table 1 highlights the key directions of digitalization in Kazakhstan's construction industry as a comprehensive process. This process includes not only the implementation of technologies but also changes in business processes, staff training, and the creation of regulatory and legal frameworks.

Table 1 – Key directions and trends in the digitalization of Kazakhstan's construction industry in 2021–2024.

Direction	Content
1B implementation of BIM technologies	-large construction companies (BI Group) are implementing BIM technologies (Building Information Modeling) to optimize the design, construction and operation of facilities, many companies are not ready to switch to BIM modeling indicates that digitalization is uneven and depends on size and resources
2 Digitalization of the urban planning cadastre	- more than 63% of data in the urban development cadastre system has been digitized, including utility networks, master plans, detailed planning projects and information on the road network, which contributes to increased transparency and efficiency of urban development activities
3 Development of the IT market	- the volume of the IT market in Kazakhstan is showing steady growth And Growing demand for digital solutions in construction
4. Digitalization of public services	- government Kazakhstan is working on the digitalization of public services, including in the construction sector, which simplifies and speeds up bureaucratic processes; - development and implementation of online platforms for interaction between customers and expert organizations (for example, the E-PSD platform).

Source: Developed by the authors based on [4-6]

Construction organizations in Kazakhstan mainly hire external organizations and IT specialists (for example, in 2024, such expenses amounted to 5,999 million tenge, out of a total information and communication technology expenditure of 16,586 million tenge) [7].

To successfully implement a digital transformation strategy, construction enterprises will need to overcome several challenges. We have identified the most significant factors that should be considered when selecting digital technologies:

- alignment with the chosen business strategy: Determining how digital technologies can help achieve the business strategy, vision, mission, and goals;
- compatibility with existing systems: Assessing the current IT infrastructure and its compatibility with new digital technologies;
- cost-effectiveness and return on investment: Evaluating costs against alternative options.

Based on the established key directions and trends in the digitalization of Kazakhstan's construction industry during the studied period, and on the factors influencing the justification for choosing digital technologies, a methodological approach has been developed to assess the effectiveness of digital technology implementation by enterprises (Fig. 1).

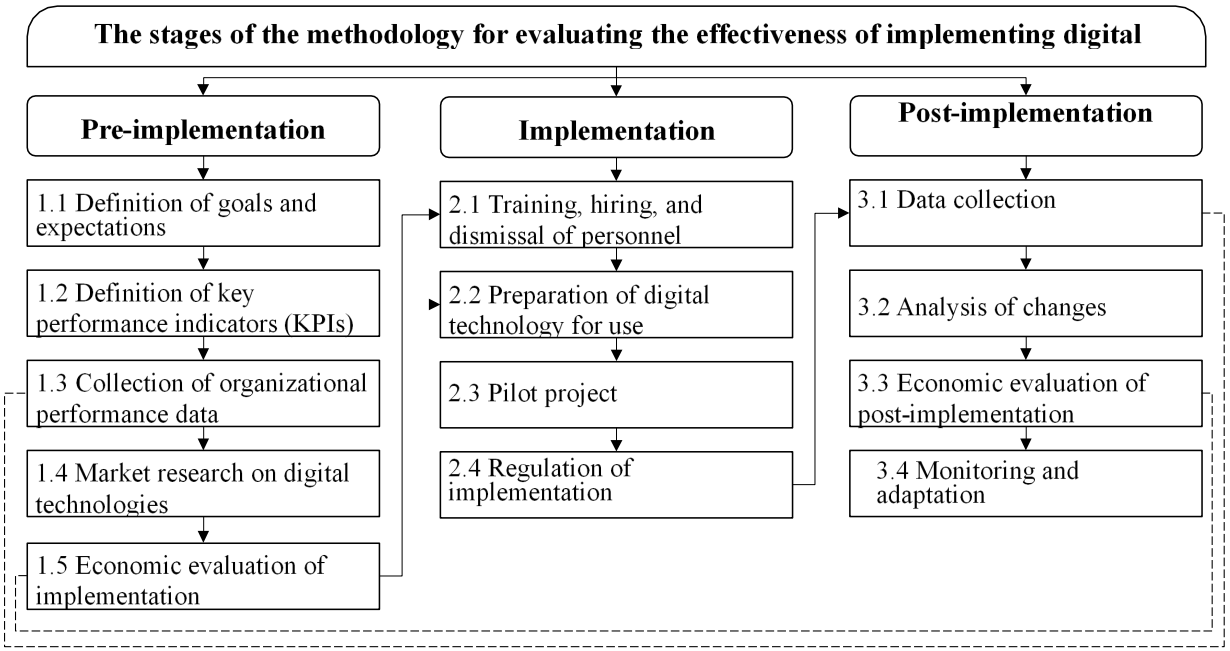

Figure 1 – Stages of the methodology for evaluating the effectiveness of digital technology implementation for construction organizations.

Source: Developed by the authors based on [8-10]

As can be seen, digital platforms are not merely tools for improving operational efficiency. They involve the integration of digital technologies into all areas of business, fundamentally changing the way business is conducted and value is delivered to customers. The growth in enterprise efficiency and the level of customer satisfaction largely depend on digital platforms. Therefore, the effectiveness of digital technology implementation is largely predetermined by the accumulated potential of the enterprise.

Conclusions.

According to the study, digital platforms have significantly changed the landscape of Kazakhstan's construction industry. However, companies still lack a structured approach to developing a digital platform strategy based on a deep understanding of goals, prioritization user experience and reliable security.

The authors hope that the proposed methodological approach will improve both the quality of business based on digital platforms and the industry's contribution to the national economy.

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