

UDC 69.05

**MODERN SOFTWARE FOR ORGANIZATIONAL
AND TECHNOLOGICAL SOLUTIONS IN CONSTRUCTION**

Author – Dmytro Mykhailyk¹, Postgrad. Stud.

Scientific supervisor – Ihor Sokolov², Prof., Dr. Sc. (Tech.)

Language consultant – Kateryna Sokolova³, PhD, Assoc. Prof.

¹dima.mykhailyk@gmail.com, ²sokolov.igor@pdaba.edu.ua,

sokolova.kateryna@pdaba.edu.ua³

Prydniprovsk State Academy of Civil Engineering and Architecture

The construction industry is one of the most complex and demanding industries, requiring the coordination of multiple teams, resources, and activities to ensure successful project completion. Making optimal organizational and technical decisions during construction can be a challenging task, but a well-planned methodology can help ensure that decisions are made efficiently and effectively.

The first step in the methodology of making optimal organizational and technical decisions during construction is to define the objectives and constraints of the project. This includes determining the budget, schedule, and desired outcome of the project, as well as any regulations, safety requirements, and environmental factors that must be taken into consideration. Having a clear understanding of the project objectives and constraints helps to ensure that all decisions made during the construction process align with the overall project goals.

Once the objectives and constraints have been defined, the next step is to conduct a thorough risk analysis. This involves identifying potential risks and evaluating their likelihood and impact on the project. This information can then be used to prioritize decisions and allocate resources, accordingly, helping to ensure that the project remains on track and within budget. After the risk analysis has been completed, it is important to develop a detailed project plan. This plan should outline the tasks, resources, and timelines for each phase of the construction process, and should be reviewed and updated regularly to ensure that it remains relevant and accurate. The project plan helps to ensure that all team members understand their responsibilities and that the project stays on track.

The next step in the methodology is to assemble a competent and skilled project team. This team should include individuals with the necessary expertise and experience to make informed decisions about the project, as well as those responsible for overseeing the day-to-day activities of the construction process.

Effective communication and collaboration within the project team are essential for making optimal organizational and technical decisions during construction.

Throughout the construction process, it is important to gather and analyze data to inform decision making. This includes data on project progress, resource usage, and quality control, as well as feedback from stakeholders and team members. The data collected can then be used to make informed decisions about how to optimize the project, allocate resources, and resolve any issues that arise.

Moreover, it is important to regularly review and evaluate the project to ensure that it remains on track and that all decisions made during the construction process align with the project objectives and constraints. This includes monitoring the project budget, schedule, and quality, as well as conducting post-project evaluations to identify areas for improvement in future projects.

In recent years, advancements in technology have revolutionized the construction industry, offering new and innovative ways to improve project efficiency, enhance collaboration, and make better-informed decisions. Utilizing technology and digital tools can help organizations make optimal organizational and technical decisions during construction by providing real-time data, streamlining processes, and automating tasks. One common technology tool utilized in construction is Building Information Modelling (BIM), which provides a digital representation of the physical and functional characteristics of a building. BIM can help organizations make better-informed decisions by providing a comprehensive, up-to-date view of the construction project, including information on design, materials, and construction schedules.

Another technology tool used in construction is construction project management software, which can help streamline processes and improve communication and collaboration between stakeholders. Project management software can provide real-time project updates, automate scheduling and budget tracking, and help organizations make informed decisions about resource allocation and project progress.

Additionally, drone technology has also become increasingly popular in construction, offering a cost-effective way to collect real-time data and improve site safety. Drones can be used for tasks such as aerial photography and surveying, helping organizations make informed decisions about site layout, material delivery, and construction schedule.

In conclusion, utilizing technology and digital tools is an important consideration when making optimal organizational and technical decisions during construction. By providing real-time data, streamlining processes, and automating tasks, technology and digital tools can help organizations make better-informed decisions, improve efficiency, and enhance collaboration between particular stakeholders.