

СЕКЦІЯ «БУДІВНИЦТВО ТА ЦИВІЛЬНА ІНЖЕНЕРІЯ»

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Anatolii Bobrakov¹, Dmytro Ivanenko², Anna Moskalova³

¹ PhD, assistant professor NU «Zaporizhzhia Polytechnic»

² PhD student NU «Zaporizhzhia Polytechnic»

³ student BAD-111 NU «Zaporizhzhia Polytechnic»

EFFICIENT LOGISTICS MANAGEMENT FOR COST REDUCTION IN CONSTRUCTION

Construction logistics management entails efficiently delivering materials and resources to sites, managing material flow, ensuring quality and safety, and fostering a conducive environment for construction activities. It's divided into offsite logistics, part of supply chain management, where firms collaborate to move materials, services, funds, and information effectively, aiming to reduce costs, lead time, and enhance profits while prioritizing customer value.

On the other hand, onsite material management involves allocating spaces for resource delivery, storage, and handling to minimize site congestion and material movement inefficiencies [1]. In construction projects, various tasks related to material supply are frequently outsourced to external logistic chains, including transport companies, wholesalers, or manufacturers. Traditionally, stocks stored on building sites are now often managed by suppliers who deliver materials in batches upon request. The selection of materials and suppliers is typically made by project management, designers, or employers. Supply planning and scheduling may be undertaken by project management, logistics professionals, or specialized wholesalers. As a result, construction projects involve a broader range of actors, and the relationships between them are constantly evolving. This trend towards increased specialization is illustrated in Fig. 1.

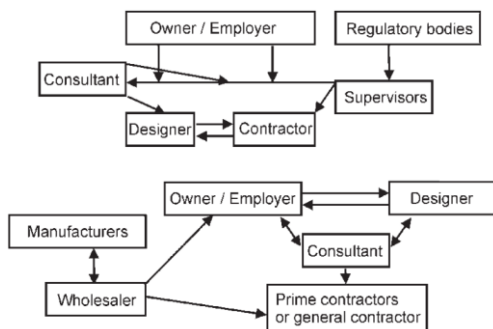


Figure 1 – Interaction among participants of the construction supply chain [2]

The following shortcomings are present in the logistic management of construction organizations:

- The lack of integration and coordination in logistic processes;
- Independent supply chains for each contractor increase costs and complicate control over material flows;
- Implementing efficient and modern approaches to logistics in construction will reduce costs, increase work speed, and enhance overall productivity.

To address these shortcomings, comprehensive solutions are essential. Government initiatives and programs to enhance logistics management in construction are crucial. Collaborating between construction organizations, implementing advanced logistic technologies, and providing training for industry professionals are essential steps. Encouraging adoption of best practices and standards can improve efficiency.

Effective logistics management is key for project cost-effectiveness, integrating processes and leveraging economies of scale for cost reduction. Coordinating and planning logistic processes involving all project participants contributes to cost optimization. There is no typical or best system of project logistics, as each system must be adjusted to external conditions or even completely reconstructed in the longer term. New effective solutions need to be implemented to achieve the expected project efficiency [3].

Various supply system models are possible, including independent chains for contractors, centralized systems managed by a general contractor or external logistic company, or a combination. Independent chains or services from external logistic companies are viable in any project delivery system. Utilizing the logistic resources of a general contractor or other party to manage the project's supply system is reasonable, benefiting from efficiency improvements and cost reduction.

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