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Utilizing Cloud Computing in Logistics

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Abstract*—Successful transportation planning places considerable emphasis on developing modern infrastructure to comply with new regulations. Cloud computing has become a transformative technology in various industries, and its application in logistics is no exception. Construction organizations are facing great challenges. The paper discusses the simplified communication between the planning organization and the contractor using modern technology, particularly the cloud. Incorporating cloud computing into logistics operations can significantly improve efficiency, scalability, and cost-effectiveness. By offering real-time access to data, enabling automation, and enhancing collaboration, cloud technology allows logistics providers to streamline their processes, reduce costs, and improve customer service*.

***Keywords*—** *Logistics, infrastructure, AutoCAD, Revit, Cloud*.

I. Introduction

The advancement of information and communication technologies (ICT) has created new opportunities for generating and capitalizing on business ideas, accessible to entrepreneurs of all types [1].

Logistics is an essential part of supply chain management, dealing with the transportation, storage, and distribution of goods. Cloud computing can significantly enhance the efficiency, scalability, and flexibility of logistics systems, enabling companies to optimize their operations. Study results indicate a high attractiveness and impact perspective of cloud computing for logistics service providers [2,3,4].

According to the definition of logistics, planning, organizing, and controlling the movement of material flows should be carried out with minimum cost and rational use of resources. When planning transportation, great importance is attached to the arrangement of infrastructure. Modern infrastructure must meet new regulations and increased user requirements. Infrastructure planners and implementing organizations face great challenges. As a directory of logistics resources on the internet - Logistics World - offers businesses and professionals in logistics and supply chain management the chance to submit their company or business details [5]. Logistics companies need to choose the right cloud provider based on their specific needs. Public, private, and hybrid cloud solutions all have distinct advantages, depending on factors such as data security, compliance requirements, and operational flexibility. Quality, environment, and safety are the main criteria for a successful logistics company [6]. Major cloud service providers like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud offer tailored solutions for logistics operations, including infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS).

Transitioning to the cloud requires careful planning to avoid disruptions. Logistics companies should assess their current IT infrastructure, choose the right migration approach (e.g., lift-and-shift, re-platforming, or re-architecting), and ensure that staff is trained on using cloud-based systems. Testing and piloting the cloud solution in specific regions or departments before full-scale implementation can help identify potential issues and ensure a smooth transition.

II. Results

We will consider modern ways of effective interrelation of planning and execution processes (Figure 1). The feedback between the project organization and the executor is of special importance. Effective cooperation requires experienced and knowledgeable staff, which is in short supply worldwide. While working on-site (in the field), the contractor may encounter a problem caused by incompatibility with the project and will have to make corrections to the project.

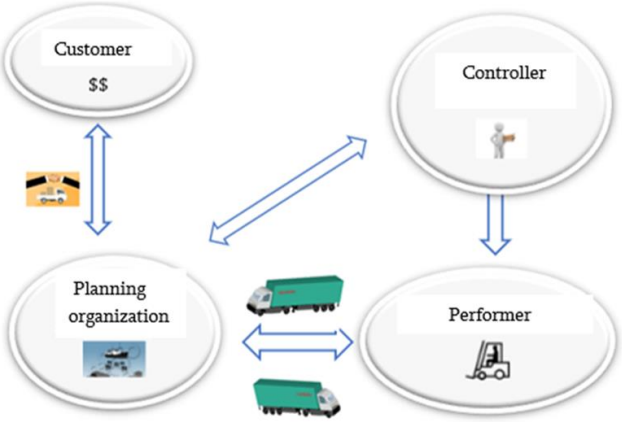

Figure 1. Interrelation of planning and execution processes

In this case, almost 80% make corrections to the printed version on paper, then send it to the design organization, which in turn, based on the material provided by the contractor, makes corrections to the main project and sends it back to the contractor. This is how feedback is established. Precious time is wasted. At the same time, instead of paper, the performer can have an electronic device (e.g., a tablet or phone) and, with the help of the Cloud, he or she can review the project and make corrections to it.

The correction is immediately reflected in the planning organization (Figure 2). No matter where the performer is located (in another city, in another country), with the help of a VPN it is possible to use the Internet from any place and be able to connect to the cloud. Also, all links involved in the scheme (customer - design organization - contractor - controller) can use the cloud and track both project changes and construction stages from anywhere in the world. A lot of

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time will be saved, but it is necessary to train specialists and teach them how to use the “cloud”.

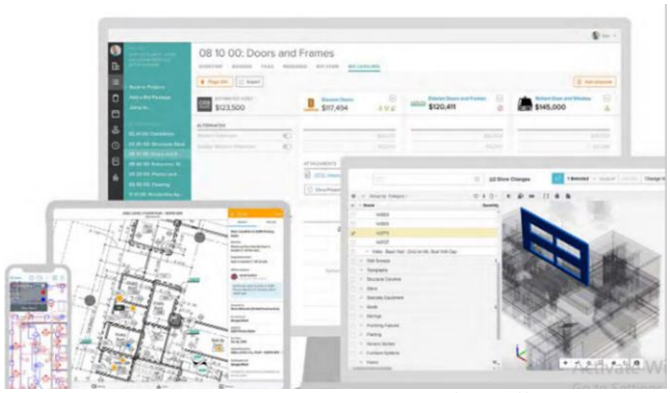

Figure 2. Connection to the project via the cloud from different devices.

This process is not complicated and can be done online. Finding new staff for a producer is time-consuming and costly. The producer prefers to retrain mid-level staff and get results quickly.

Adoption of new technologies is the biggest investment. 30% of companies plan to use artificial intelligence. Professionals believe that 26% of basic construction skills will move to smart reality. New building regulations are driving organizations to invest in training for existing staff. American multinational software corporation - Autodesk [7] offers cloud services for its products such as AutoCAD, Revit, and others (Figure 3).

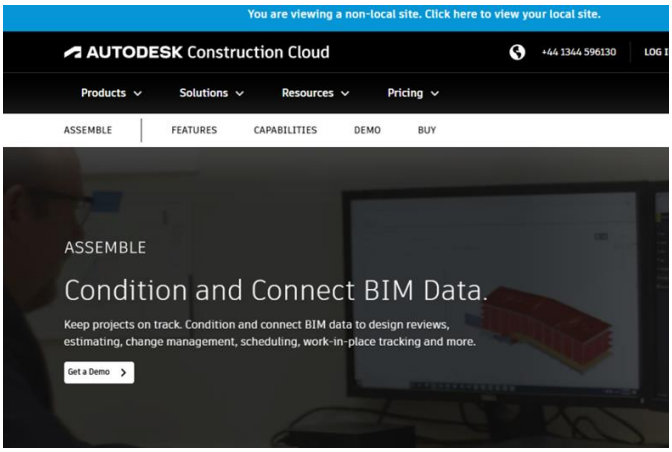

Figure 3. Autodesk Construction panel

III. Conclusion

The method discussed in this article - communication between the project organization and the contractor through the cloud using modern technology - simplifies communication, and reduces time and costs. Information about project updates and ongoing work is available on all links involved in the scheme, at any time and from anywhere. As logistics companies increasingly adopt cloud-based solutions, they are better positioned to adapt to changing market demands and navigate the complexities of modern supply chains.

References

1. Bezhovski, Zlatko/Janevski, Zoran et. al. (2021). From traditional to online methods for generating business ideas. In: Management dynamics in the knowledge economy 9 (3/33), S. 307 - 329. doi:10.2478/mdke-2021-0021.
2. Veshapidze Sh., Logistics (in Georgian). Tbilisi 2015, 216 p. ISBN 978-9941-0-7674-9 (PDF)
3. Sunyaev Ali. "Cloud computing." *Internet computing: Principles of distributed systems and emerging internet-based technologies* (2020): 195-236.
4. Ragmani, Awatif, et al. "A global performance analysis methodology: Case of cloud computing and logistics." *2016 3rd International Conference on Logistics Operations Management (GOL)*. IEEE, 2016.
5. http://www.logisticsworld.com/
6. https://groupecat.hr/
7. Assemble BIM Data | Autodesk Construction Cloud