

UDC 338.4:69

DEVELOPMENT TRENDS IN CONSTRUCTION MATERIALS INDUSTRY

Authors – Oleksandr Kurinny¹, Stud. of gr. PCB 22-4pm

Maksym Filatov², Stud. of gr. PCB 22-4pm

Scientific supervisor – Cand. Sc. (Tech.), Assoc. Prof. Alyona Kutsenko³

Language consultant – Assoc. Prof. Liliia Druzhinina⁴

¹kurennoy_2005@gmail.com, ²flvmx@gmail.com,

³kutsenko.alona@pdaba.edu.ua, ⁴druzhinina.liliya@pdaba.edu.ua

Prydniprovsk State Academy of Civil Engineering and Architecture

Construction is one of the largest sectors of the world economy, which accounts for about 13 % of the world's GDP [1]. Also, the construction industry is one of the main consumers of products from other industries and, therefore, acts as a powerful driver of their growth. However, the main factors that characterize the global construction industry indicate that this industry is experiencing a number of problems both during economic crises and at the stages of the world economy recovery.

The crisis of the COVID-19 pandemic, which has almost been overcome today, has accelerated changes in the global economic system and led to new business models for the functioning of the whole construction industry. Companies in the construction industry around the world are now recovering from the economic shocks of the pandemic, driven by changes in demand, operational restrictions and new safety procedures.

Also, the war unleashed against Ukraine has made its own adjustments to the development of the world economy. Such changes are associated with the investment redistribution to military goods production and the provision of humanitarian assistance for Ukraine.

The dynamics of the world construction materials market is influenced by changes in the volume of construction and in the development of the construction industry.

The specific way of forming the demand for the products of the construction materials industry, as well as the products' characteristics, determine the presence of their own features inherent only in the construction materials market, namely: a unity of consumers; the absence of a single market of construction materials; uneven and unbalanced distribution of enterprises producing construction materials across territories; high share of material, energy and transport expenses in the cost of construction materials; seasonality of demand for construction materials.

The construction materials market is an important element of the global construction industry infrastructure, which is influenced by both general factors affecting the entire infrastructure. Besides, it has several specific and unique drivers listed below.

Manufacturers and suppliers in the world construction materials market are increasingly feeling the growing experience of the final construction products consumers and the sophistication of their requirements for the quality of constructed objects. The demanding clients, who operate significant capital, influence the global construction industry [2].

The industry is experiencing an increase in customer requirements for energy efficiency, for the total cost of ownership and reliability. As a result of the above-mentioned demands in the construction market widespread energy efficiency, operational efficiency systems, and design flexibility and adaptability. All this leads to a change in the structure of sales of construction materials and in the growth of technological materials manufacturers.

Another major factor affecting the construction industry is the constant price pressure due to limited government budgets and problems with housing affordability. The analysis conducted in the study [3] shows that it is necessary to invest 69,4 trillion dollars in global infrastructure for maintaining the expected growth of world GDP by 2035. Also, one in three urban households in the world cannot afford decent housing at market prices.

The third determining factor is the persistent skilled labor shortage. The lack of skilled labor has become a major problem in developed countries, and the current generation of construction professionals' retirement may lead to a significant decrease in the skilled labor force.

There is a tightening of requirements to ensure labor and environmental protection standards around the world. Global climate change requires construction manufacturers to reduce their carbon emissions. And governments recognize the need to standardize construction codes, regulations and the construction materials certification.

The spread of modular structures, the remote production automation and their assembly into a finished object on-site contributes to the development of the industrialization of construction industry. Such innovations enable a remote manufacturing approach based on off-the-shelf modules. The next step towards efficient remote production will be the integration of automated production systems, that will make the construction industry more similar to vehicle production.

Another aspect of construction industry development is the widespread use of digital technologies that contribute to greater control over value chains and the transition to decision-making based on digital data. These innovations change the way the construction companies work and enable them to scale up their operations.

One more trend in the development of the construction materials market is the emergence of new players. Startups and private equity financing of venture capital projects are accelerating the destruction of current business models.

As a result of the complex influence of these factors, experts speak about the significant changes both in the construction industry and in the global construction materials market [4]. The COVID-19 pandemic consequences and the war in Ukraine will affect all developed countries and lead to an acceleration of economic changes.

The factors mentioned above require specialists in the construction market to increase investment in new technologies, equipment, modular structures production and increasing costs in R&D.

The increasing role of innovation and digital technology to control the value chain rise the issue of acquiring and retaining internal experience, which leads construction companies to increase investment in human capital.

Taking into account the new trends in construction, we can conclude that the construction materials industry is in the process of revolutionary changes and the economic crisis accelerates such changes. Therefore, companies in the construction materials industry need to restructure their economic activities to intensify the implementation of new business methods.

References

1. Deloitte GCC Powers of construction. URL: <https://www2.deloitte.com/xe/en/pages/real-estate/articles/gcc-powers-of-construction-2020.html>.
2. Annual performance – 2500 World's top R&D investors. URL: <https://iri.jrc.ec.europa.eu/scoreboard/2020-eu-industrial-rd-investment-scoreboard>.
3. Bridging infrastructure gaps : Has the world made progress? URL: <https://www.mckinsey.com/business-functions/operations/our-insights/bridging-infrastructure-gaps-has-the-world-made-progress> (date application: 15.03.2023).
4. The coming shakeout in industrial distribution. And five keys to outperformance in the years ahead. May 2019. URL: <https://www.mckinsey.com/industries/advanced-electronics/our-insights/the-coming-shakeout-in-industrial-distribution>.
5. Skill shift: Automation and the future of the workforce. URL: <https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce>.