

PROSPECTS OF DIGITALIZATION IN THE CONSTRUCTION SECTOR IN MODERN CONDITIONS OF BUSINESS TRANSFORMATIONS

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Digitalization is an unalterable direction of contemporary business development that encourages rethinking business strategic priorities and investment in digital transformation of a business model to ensure its resilience in the future.

According to the survey conducted by PwC Strategy &, the COVID-19 pandemic has become the impetus for accelerating business transformation [3]. The major focus of the business transformation has been imbedded in creation of new business models and adaptation of operational models to ensure future competitiveness with new digital capabilities. The transformative changes include significant changes in cost allocation – reducing real estate, human resources and marketing costs, as well as investment in digital technology and cybersecurity. Unlike the previous crises, the revenue growth measures are the most important along with development of new business models and revising strategies as top priorities by directing additional investment of 10% – 15% primarily to digitalization, cybernetics and sales to stimulate growth. Digital investment is primarily focused on new products and services that support new business models and value creation. As a result of the PwC Strategy & survey, 22% business respondents give priority to speeding up digitalization among cost-cutting measures.

Digitalization as the driving force of Industry 4.0 includes closer customer engagement, employee empowerment, production optimization and product transformation. Even though most companies are still in the process of digitalization of their business in the course of integration of artificial intelligence,

Internet of Things, cloud technologies, they are facing the challenges of Industry 5.0 in line with harmonization of human intelligence and cognitive computer technology, as well as the prudent use of biological resources for industrial purposes with the goal of achieving a balance between the environment, industry and the economy.

As defined by the European Economic and Social Committee (EESC), Industry 5.0 “... focuses on combining human creativity and skill with speed, productivity and consistency of work” [1], which emphasizes the transformation of manufacturing enterprises into smart ones with the support of Internet of Things, the use of cognitive computing, and interconnection through cloud servers with the focus on returning both human labor and intelligence into the industrial framework. Industry 5.0 is described as a revolution in the framework of which the man and machine reunite and work together to improve resource use and production efficiency. As such it will foster more technological human-machine interfaces, thus providing faster automation combined with the power of human intelligence. The key technologies contributing to the implementation of Industry 5.0 include industrial blockchain, 5G and above, augmented reality, exoskeletons, drones and additive technologies.

In terms of digitalization, the construction sector lags behind other industries despite the obvious prospects. Over the past 15 years, digital assets in the global economy have doubled. Digital use in the form of transactions, interactions with customers and suppliers, as well as internal business processes has increased almost fivefold. However, according to the McKinsey industry digitization index, the construction industry demonstrates low digitalization slightly surpassing agriculture [2].

A study conducted by the Leibniz Center for European Economic Research (ZEW) examined the reasons for the slow implementation of digitalization projects in the construction sector: 62.4% of construction companies indicated very high financial costs; 61.5% – the need for excessive amount of time; 57.5% – over-

regulation of data protection rules; 55.6% – insufficient expansion of broadband [4].

However, the active introduction of digitalization in the construction sector is very promising: HD-geodesy and geolocation; 5D building information modeling (BIM); digital collaboration and mobility; Internet of Things and advanced analytics; design and construction with advanced technologies and materials.

In the strategic aspect the SWOT-analysis of digitalization for a construction company is presented in Table 1.

Table 1 – SWOT-analysis of digitalization for a construction company

S – strengths	W – weaknesses
Saving on resources and time for operations Acceleration and flexibility of business processes Ready-made solutions save time on task fulfillment Increased quality control Acceleration of application processing Implementation and development of additional services Cost optimization Improving staff productivity Reduction of maintenance costs	Dependence on stable power supply and the Internet High cost of digital technologies Lack of skilled workers
O – opportunities	T – threats
Strengthening innovative activity Improving competitiveness Strengthening marketing activity Providing new types of services according to customer needs Opportunities for collaborative initiatives with other companies	Cyber threats Product copying Planned or emergency power or Internet outages

In order to solve the problems related to the implementation of the digitalization, it is important for construction companies to adopt a holistic process of socio-technical transformation. This requires the implementation of a

comprehensive digital strategy that takes into account the opportunities and risks of digital technologies and contributes to the creation of values and revenues based on digital assets.

Through a system of widespread communication channels, digitalization requires more active involvement of internal and external stakeholders. On the one hand, customers seek to participate in the development of new products and services. On the other hand, companies benefit from the integration of data and processes within their network of suppliers. As digitalization requires new skills and capabilities and changes organizational procedures, construction companies should avoid imbalances between different parts of the organization.

To ensure a comprehensive digital transformation, a digitalization company strategy is to be formulated and implemented that includes goals as well as an action and communication plan. This entails adapting to the business model of the company, the portfolio of services and products of the company, as well as the coordination of recruitment strategies to the needs of digitalization. By implementing adequate monitoring systems, companies can constantly align their digitalization strategy with market dynamics.

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