STRATEGIC MANAGEMENT: FROM THE DIGITALIZATION OF THE CONSTRUCTION INDUSTRY TO THE DEVELOPMENT OF THE HOUSING MARKET UNDER THE TERMS OF FINANCIAL LEASING

Mykola Denysenko[1], Svitlana Breus[2], Oleksandr Levchenko[3], Yehor Prytula[4], Oleksandr Balymov[5]

[1]*Doctor of Economic Sciences, Professor, Doktor habilitovanyi nauk ekonomichnykh, Profesor nauk ekonomichnykh, Professor at the Department of Management and Entrepreneurship, Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, Ukraine, e-mail: profden3@gmail.com, ORCID: https://orcid.org/0000-0001-8767-9762*

[2]*Doctor of Economic Sciences, Professor, Professor at the Department of Management and Marketing, European University, Kyiv, Ukraine, e-mail: breus.sv21@gmail.com, ORCID: https://orcid.org/0000-0003-0624-0219*

[3]*Doctor of Economic Sciences, Professor, Head of the Department of Management and Entrepreneurship, Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, Ukraine, e-mail: o.m.levchenko@cuspu.edu.ua, ORCID: https://orcid.org/0000-0001-5452-7420*

[4]*Postgraduate Student, European University, Kyiv, Ukraine, e-mail: egor.pritula@gmail.com, ORCID: https://orcid.org/0009-0001-9849-3979*

[5]*Postgraduate Student, European University, Kyiv, Ukraine, e-mail: o.balimov@e-u.edu.ua, ORCID: https://orcid.org/0009-0003-4643-9035*

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Abstract. *In the article, a study was conducted on the consideration of the advantages and possibilities of implementing the process of digitalization of the construction sector in the context of strategic management, taking into account the possibilities and need for effective interaction and interconnection of the state and business structures, taking this into account when developing effective mechanisms for its implementation in order to provide the population with housing on terms of financial leasing. The purpose of the article is the development of theoretical approaches and the development of practical recommendations for increasing the effectiveness of strategic management of the construction sector in the context of its digitalization, outlining the relationship with the real estate market, taking into account the prospects of providing the population with housing under the terms of financial leasing. The methodological basis of the article is a number of methods that ensure the reliability of the obtained results and conclusions, in particular, such as: monographic, logical, descriptive-analytical, analysis, synthesis, system approach, theoretical generalization, observation, quantitative and qualitative comparison. The article examines the digitalization of the construction sector of Ukraine in the context of strategic management as a vital necessity to ensure recovery in the post-war and post-war periods, as an important stage in the development of infrastructure and the economy in general. Attention is focused on the importance of developing a program of actions taking into account the implementation of digitization mechanisms, taking into account the interrelationship and dependence of the effective functioning of the economy on the level of development of innovative technologies, regulatory and legal support, the field of education, in particular higher education, and the development of public-private partnerships. The advantages and disadvantages of digitalization of the construction sphere of Ukraine are considered, taking into account the challenges that this sphere faces in modern business conditions. The role of digitization in the housing market under the terms of financial leasing and the main aspects in which digital technologies change this market are determined.*

Keywords: *digitalization, real estate, housing market, artificial intelligence, Building Information Modeling, digital platforms, drones, IoT, financial leasing.*

JEL Classification: A10, A11, A19, E22, G11, G17, G19, O10, O30, O40

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Introduction. Digitalization, as a global process, covers all spheres of life of society: economy, industry, education, social sphere, real estate market and relations and conditions for providing the population with housing, etc. For Ukraine in the conditions of a full-scale russian invasion, it is not just a technological one a trend, a vital necessity, basis existence the state as a component of a civilized society for its preservation on the world map and software restoration in post-war and postwar periods.

In this era, when the russian-Ukrainian war is ongoing, the external environment is significantly changeable, turbulent, the era of rapid changes, also caused by digital technologies, digitalization plays an important role. It consists, first of all, in ensuring the interconnection of all elements of the socio-economic system, in increasing the efficiency, transparency, convenience and accessibility of various processes for business, state institutions and citizens. This requires stakeholders to focus attention on determining priorities and, accordingly, priority sectors of the economy and industry within the framework of strategic management and developing and implementing measures to support them by concentrating resources on solving priority tasks in post-war conditions and during the period of post-war economic recovery of Ukraine. One of these priority areas, which can become a locomotive for the further development of the economy as a whole, because of which a synergistic effect will be ensured, is construction.

Literature Review. The intersection of strategic management, digitalization, and the development of the housing market through financial leasing has become a growing area of interest in academic and industry discussions. This literature review will explore key themes and research surrounding the digital transformation of the construction industry, its impact on strategic management practices, and how financial leasing can contribute to the development of the housing market.

Digitalization in the Construction Industry. The construction industry has traditionally been slow to adopt digital technologies compared to other sectors, but in recent years, digitalization has gained momentum. Research suggests that the integration of technologies such as Building Information Modeling (BIM), artificial intelligence (AI), and the Internet of Things (IoT) has the potential to revolutionize project management, improve efficiency, and enhance decision-making processes (Azhar, 2011; Ding et al., 2017). The adoption of these technologies helps firms to better manage risks, reduce costs, and enhance the quality of construction projects (Wu et al., 2018).

Digitalization in construction is not only reshaping operational processes but also driving strategic changes in firms. Companies that effectively incorporate digital tools into their workflows can achieve competitive advantages, leading to new business models that focus on innovation, collaboration, and enhanced customer value (Wang et al., 2020). Moreover, digital platforms enable better communication between stakeholders, streamline supply chains, and facilitate data-driven decision-making, which supports long-term strategic growth in the sector (Rana et al., 2019).

Strategic Management in the Digital Age. The role of strategic management in the construction industry has evolved alongside digitalization. Strategic management involves the formulation and implementation of major goals and initiatives taken by a

company's top management on behalf of owners, based on resource consideration and environmental factors (Porter, 1985). In the context of digitalization, strategic management in construction requires a focus on how technology can enhance business processes, operational efficiency, and organizational agility.

As construction firms adopt more digital tools, they must adjust their strategies to manage the complexities that come with these new technologies. For example, strategic investments in digital tools like AI for predictive analytics or 3D printing for on-site construction can transform traditional project workflows, leading to better time management and cost savings (Agarwal et al., 2016). Companies must also reconsider their competitive positioning, as digital capabilities can redefine market dynamics and customer expectations. This necessitates a shift from a cost-leadership strategy to one that emphasizes differentiation through technological innovation (Barney, 1991).

Moreover, digital transformation calls for changes in organizational culture and leadership. Leaders in construction firms must foster a culture that is open to change, encourages learning, and promotes cross-functional collaboration (Li et al., 2020). Strategic management practices must include training and upskilling employees to leverage digital tools, ensuring that digital transformation is not just technological but also human-centered.

The Housing Market and Financial Leasing. Financial leasing has emerged as a strategic tool for the development of the housing market, particularly in regions where traditional home ownership is becoming less accessible due to rising costs and stringent mortgage requirements. Financial leasing, also known as lease-to-own or rent-to-own schemes, allows individuals to live in a home while making lease payments that contribute to eventual ownership. This model provides an alternative pathway to home ownership, especially for those who may not qualify for traditional mortgages (Wong et al., 2015).

The use of financial leasing in the housing market can be particularly effective in emerging markets, where access to affordable housing remains a challenge. Studies show that financial leasing can help bridge the gap between housing demand and supply by providing more flexible financing options (Dang & Nguyen, 2022). Strategic management in real estate development must take into account how financial leasing models can be integrated into broader housing policies to stimulate growth in the sector. This model has been successfully applied in various markets to support housing affordability and expand access to homeownership.

In addition, the strategic use of financial leasing in the housing market requires careful management of risks, such as credit default and property depreciation. Companies involved in financial leasing must develop robust risk management strategies to ensure sustainability and profitability. Moreover, the regulatory environment plays a crucial role in determining the success of financial leasing models. Governments must provide supportive legal frameworks to encourage the growth of financial leasing as a viable alternative to traditional housing finance models (Zhou et al., 2019).

Integration of Digitalization and Financial Leasing in Strategic Management. The convergence of digitalization in the construction industry and the adoption of financial leasing in the housing market presents unique strategic opportunities. Digital

tools can streamline financial leasing processes, improve customer experiences, and enhance operational efficiencies. For example, digital platforms can be used to track lease payments, automate contract management, and provide transparent communication between lessors and lessees (McKinsey & Company, 2017).

Strategic management in this context involves the alignment of digital innovations with financial products to create new value propositions. Real estate developers and financial institutions can collaborate to design digital platforms that simplify the leasing process, making it more accessible and appealing to potential homeowners. This integration also allows for better data collection and analysis, enabling firms to tailor financial leasing products to specific customer segments (KPMG, 2020).

The adoption of digital tools within financial leasing also supports sustainable housing development. Technologies such as blockchain can be used to ensure transparency and security in property transactions, while smart contracts can automate lease agreements and payment schedules (Deloitte, 2019). The strategic implementation of these technologies can help reduce transaction costs, increase trust in financial leasing models, and ultimately contribute to the growth of the housing market.

The issues of digitization in general and the construction sector in particular were considered in a significant number of publications, in particular by such scientists as: Bohinska L., Marchenko O., Koliadenko R., Bousfield L., Tokbolat S., Demian P., Shandrik V., Bondarenko D., Kalashnikova K., Eastman Ch., Klochko A., Van Nederveen G., Tolman F., Sadoviak M., Maznyk Yu., Sekretar I., Staretskyi A., Volos M., Danylyshyn V., Synytsia S. and others.

Despite the significant number of publications on the issue of the article, issues related to ensuring the effectiveness of strategic management of the construction sector in the context of its digitalization, outlining the relationship with the real estate market and taking into account the prospects of providing the population with housing under the terms of financial leasing, require more detailed consideration.

Aims. The purpose of the article is the development of theoretical approaches and the development of practical recommendations for increasing the effectiveness of strategic management of the construction sector in the context of its digitalization, outlining the relationship with the real estate market, taking into account the prospects of providing the population with housing under the terms of financial leasing.

Methods. The methodological basis of the article is a number of methods that ensure the reliability of the obtained results and conclusions, in particular, such as: monographic, logical, descriptive-analytical, analysis, synthesis, system approach, theoretical generalization, observation, quantitative and qualitative comparison.

Results. Digitization of the construction sector of Ukraine in modern business conditions is an important stage in the development of infrastructure and the economy in general. The objective grounds for which are as follows:

- the implementation of digital technologies helps to make the processes of design, construction and operation of objects more efficient, transparent and controllable;

- contributes to the implementation of modern technologies and innovative solutions to increase the efficiency of construction management, reduce costs and time for project implementation;

- permeates all spheres of human activity, the integration of digital technologies into the processes of design, construction and management of real estate fundamentally changes traditional approaches, opening up new opportunities for increasing efficiency, quality and transparency;

- the results of the implementation of digitalization are based on innovative technologies, the legislative framework, educational programs and cooperation between the state and the private sector, which must be directly taken into account when developing effective mechanisms for its implementation, etc.

The full-scale russian invasion hit the construction industry hard. Construction companies, whose services are in high demand in the affected regions, faced a shortage of personnel due to migration and conscription of workers to the ranks of the armed forces. In the industry, there was a shortage of goods and an increase in the price of building materials, the production of metal, dry building mixtures and heat-insulating materials was the most affected. According to the results of the EBA study, 90% of the building materials needed for reconstruction can be produced in Ukraine.

Taking into account the significant damage caused by russia as a result of the war as infrastructure, to the economy as a whole, attempts are being made to compensate them at the international level. Thus, on April 2, the International Register of Damages Caused by the russian Federation's Aggression Against Ukraine became operational. Its premise was the resolution of the UN General Assembly from November 14, 2022. The Register itself was created under the auspices of the Council of Europe, which formed the corresponding council. During this time, the concept of functioning, types of damage from russian aggression were developed. In the end, 41 were determined. From April 2, the first category will be able to apply for compensation for damages: those whose real estate – apartments, private houses, other residential premises – were destroyed or damaged as a result of russian aggression. Subsequently, it will be possible to submit a statement regarding damage to life or health, forced displacement, torture, sexual violence, etc. In total, there are 41 categories for individuals, legal entities and the state of Ukraine. Despite the existence of such a register, it does not include information on losses and damages since the beginning of the war between russia and Ukraine (the Register will not currently accept applications related to damage, destruction before a full-scale invasion), this also requires active communications at the interstate level regarding fixing and developing appropriate mechanisms for compensation for these losses (the Ukrainian side continues to communicate that it is necessary to calculate all the damage caused by February 24, 2022. Currently, the countdown starts from the full-scale aggression, which was condemned by the Parliamentary Assembly of the OSCE, NATO, etc.). At the same time, the damage to the health of the population of Ukraine and the lost lives cannot be fully compensated at the expense of existing and future mechanisms, and this becomes an indicator of Ukraine's losses – the nation's irreversible losses from russian aggression.

The sum of Ukraine's losses from the russian-Ukrainian war is only preliminary. The very process of assessing (determining the amount of) damages caused by the war is regulated by the Methodology approved by the joint order of the Ministry of Economy and the State Property Fund dated October 18, 2022 No. 3904/1223. It is

used to determine: real losses – losses of business entities due to loss, destruction or damage to their property in connection with russia's armed aggression; lost profits – losses of economic entities due to the impossibility or obstacles in conducting their economic activities; needs for restoration costs – costs of business entities to restore property damaged as a result of armed aggression.

In this context, it is important not only a declaration of intentions, but also a real program of actions taking into account the implementation of digitization mechanisms, taking into account the interrelationship and dependence of the effective functioning of the economy on the level of development of innovative technologies, regulatory and legal support, the field of education, in particular higher education, and the development of state - private partnership. These components are at the same time the basic elements of digitization mechanisms and the results of their development and effective implementation.

Currently, there is an increase in digitalization trends in construction. Digitization as a process takes place in the following directions (Figure 1):

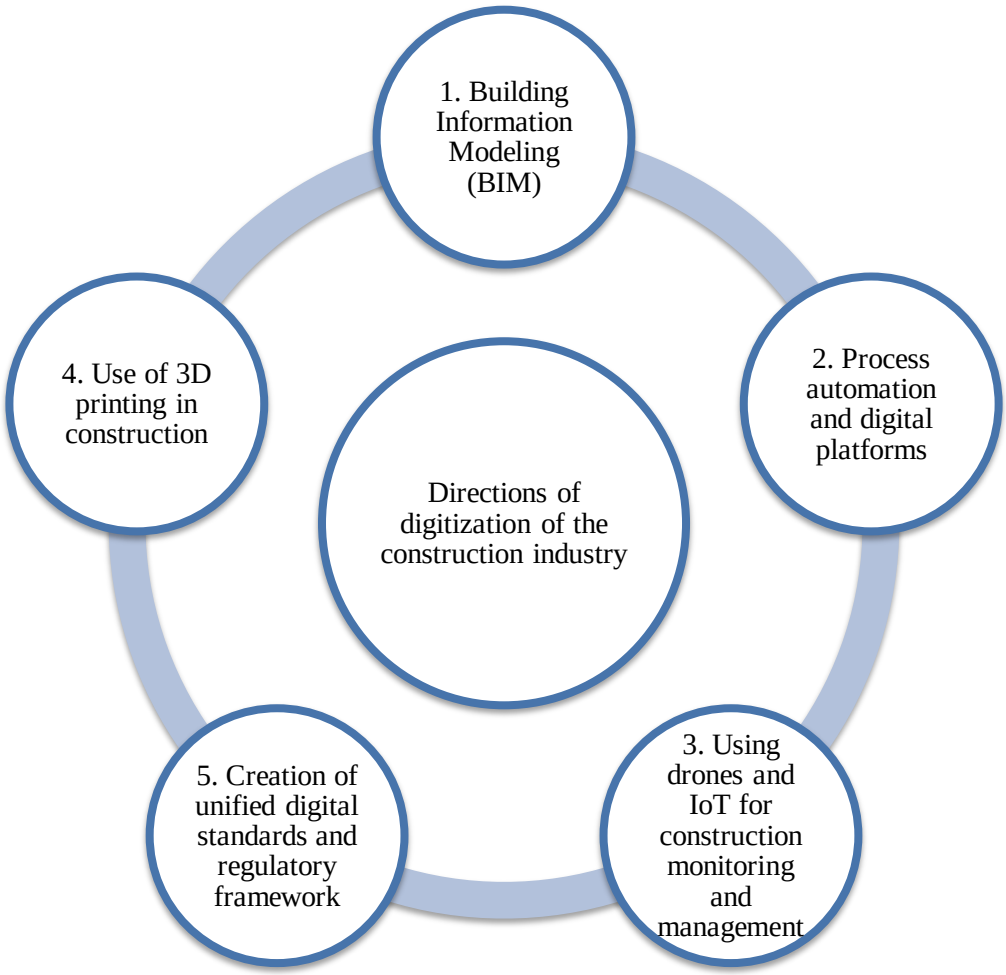

Figure 1. Directions of digitization of the construction industry

Sources: developed by the authors

1. Building Information Modeling (BIM). One of the main tools of digitalization of construction is the technology of information modeling of buildings — BIM (Building Information Modeling), which allows creating digital models of buildings

that include all information about the object — from design to operation. Its use reduces the number of errors in design, facilitates coordination between project participants and ensures resource savings and increases the level of accurate work planning.

2. Process automation and digital platforms. Digital platforms allow you to manage the entire life cycle of a construction project: from design to operation of objects. They also provide real-time tracking of work performance, which contributes to more effective control of project deadlines and budgets through resource optimization and coordination of actions between contractors.

3. Using drones and IoT for construction monitoring and management. Modern construction companies in Ukraine are increasingly using drones to monitor construction sites, evaluate the scope of work performed and control quality, which helps to reduce the time spent on making management decisions, simplify project management processes, increase the overall efficiency of projects and thus make them more transparent and controllable.

Internet of Things (IoT) technologies can increase the efficiency of construction site management by 25% due to improved data quality and timely detection of problems. Drones can fly over sites to collect data, and IoT sensors monitor the condition of materials and structures. This allows you to promptly respond to possible problems and prevent their occurrence.

4. Use of 3D printing in construction. 3D printing technology is becoming one of the promising directions for the development of the construction industry. In Ukraine, there is a growing interest in the construction of small buildings and infrastructure elements with the help of 3D printers, which contributes to reducing the costs of building materials, reducing the ecological impact of construction on the environment and the time of construction of objects.

5. Creation of unified digital standards and regulatory framework. To ensure the full implementation of digital technologies in the construction industry, it is important and expedient to create unified standards and regulations that should regulate the use of BIM, IoT, digital platforms and other technologies and contribute to ensuring effective interaction between various market participants, etc.

Despite the obvious advantages, digitalization of the construction sector of Ukraine faces a number of challenges (Figure 2):

1. Insufficient funding and support from the state. The introduction of new technologies requires significant investments, which are not always available for Ukrainian construction companies.

2. Lack of qualified specialists. Successful implementation of digital projects requires specialists who have knowledge in the field of BIM, automation and digital technologies, but such specialists are still in short supply.

3. Resistance to change. Traditional methods of construction management often prevail, and companies are not always ready to implement new digital solutions due to the fear of possible risks.

The introduction of digital technologies also has a significant impact on the housing market. The importance of digitization in this context is hard to overestimate, it actively transforms all spheres of society's life, actively manifests itself in the processes of purchase, rent and financial leasing, creates new opportunities for market

participants, facilitates access to housing and optimizes financial transactions.

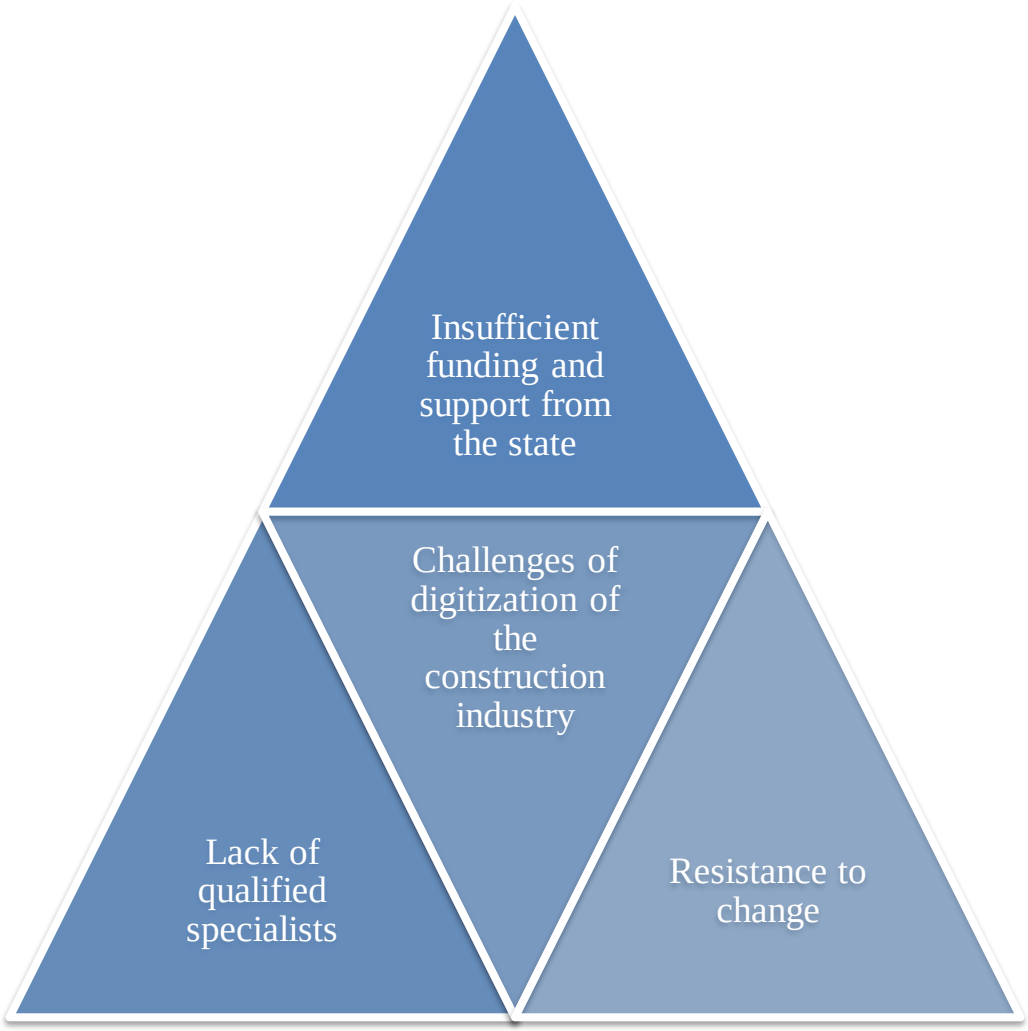

Figure 2. The main challenges of digitization of the construction industry
Sources: developed by the authors

Its role becomes especially significant in the conditions of a full-scale war between russia and Ukraine. Financial leasing as a mechanism for the purchase of housing is becoming increasingly popular under such circumstances, and its connection with digitalization contributes to the more effective use of digitalization tools to simplify this process and accelerate the recovery of Ukraine's economy in the post-war and post-war periods.

Given the essence of financial leasing of housing as a mechanism by which an individual or legal entity receives the right to use real estate with the possibility of its subsequent purchase after the end of the lease term and which, unlike a classic mortgage, does not require immediate registration of ownership of housing, which makes it attractive for those who cannot immediately contribute the full value of the object, this approach is an effective solution for countries with a low level of access to bank lending and, accordingly, Ukraine, taking into account the significant losses caused by russia as a result of the war.

The role of digitization in the housing market under the terms of financial leasing is significant. Digitalization makes financial leasing more accessible and transparent. Among the main aspects in which digital technologies are changing this market, the following can be distinguished:

1. Process automation and electronic document management. One of the key factors of digitalization is the automation of the processes of concluding agreements, which greatly simplifies the interaction between lessors and lessees. The use of electronic document circulation allows to reduce administrative costs, reduce time spent on concluding contracts and minimize human errors. In addition, electronic platforms for drawing up leasing contracts allow all stages of the agreement to be carried out remotely. Digital platforms enable users to draw up financial leasing contracts without the need for physical presence in the lessor's office, which simplifies the procedure and makes it more accessible to the public.

2. Big Data and housing market analytics. Digital technologies open opportunities for using big data (Big Data) and analytical tools for real estate market research. This allows both lessors and lessees to simplify the process of analyzing price, supply and demand in the housing market, so that market participants can make informed decisions about purchasing or leasing housing. Also, the introduction of Big Data into the process of financial housing leasing allows to improve the processes of risk analysis and real estate price forecasting, which makes this market more stable and predictable.

3. Digital platforms for financial transactions. Online platforms for concluding agreements and carrying out financial transactions are an important element of the digitization of the leasing housing market. They provide an opportunity to quickly make payments, track the history of transactions and manage payment processes, which helps reduce risks for both parties to the transaction, since each transaction takes place in a transparent digital environment, where it is easy to track payments and terms of the contract.

Despite the significant advantages of digitalization in the field of the housing market under the terms of financial leasing, there are a number of challenges, the main of which are the following:

1. Digital divide. Not all citizens have equal access to digital technologies, which can limit the use of online platforms for concluding deals, which is especially relevant in regions with low levels of Internet coverage, digital literacy and those affected by russian aggression.

2. Cyber security. The increase in the number of online transactions increases the risks of fraud and cybercrime, which requires an increase in investments in reliable cyber protection systems.

However, despite some negative consequences of the digitization process, it creates new opportunities for providing the population with housing under the terms of financial leasing (in particular, reducing the costs of financial transactions, improving access to housing and increasing the transparency of processes), which is especially relevant and necessary in the conditions of the post-war and post-war recovery of Ukraine's economy.

Discussion. The rapid digitalization of the construction industry, in tandem with the growing relevance of financial leasing in the housing market, represents a

transformative shift in strategic management for sectors key to economic recovery, particularly in post-conflict environments like Ukraine. The current geopolitical challenges, including the ongoing war with Russia, make digitalization not just a trend but a critical necessity for ensuring the resilience, efficiency, and transparency of industries such as construction. This discussion explores the impact of digitalization on strategic management in the construction industry and highlights the importance of financial leasing as a tool for revitalizing the housing market under such conditions.

Digitalization in the construction industry. Digitalization in construction has gained momentum as technological advancements such as Building Information Modeling (BIM), artificial intelligence (AI), and the Internet of Things (IoT) increasingly shape the sector's operational processes. These technologies have been shown to improve efficiency, reduce costs, and enhance project management, which is particularly crucial in the context of a post-war reconstruction scenario in Ukraine. The benefits of digitalization in construction extend beyond operational improvements. They fundamentally reshape how companies approach strategic management by promoting innovation and fostering a more data-driven decision-making process. For instance, BIM allows for the creation of detailed digital models of buildings, which improve coordination among stakeholders and optimize resource allocation (Azhar, 2011; Ding et al., 2017).

In the context of Ukraine's post-war reconstruction, digitalization provides an opportunity to overcome significant challenges posed by workforce shortages, material supply issues, and increasing costs due to the war. The use of digital platforms and automated systems for project management and real-time monitoring can streamline workflows, enhance communication between contractors, and ensure timely delivery of projects despite the turbulent environment (Rana et al., 2019). The ability to use AI for predictive analytics or 3D printing for on-site construction is no longer a futuristic concept but a viable solution for addressing immediate reconstruction needs (Agarwal et al., 2016).

However, the construction industry in Ukraine, like in many other countries, faces several barriers to fully embracing digital transformation. These include insufficient funding, a lack of qualified digital experts, and resistance to change from traditional management structures. To overcome these challenges, strategic management must focus on fostering a culture of innovation, investing in employee training, and facilitating collaboration between public and private sectors to leverage the full potential of digital tools. Such an approach would not only improve operational efficiency but also enhance the strategic resilience of construction firms in uncertain environments.

*Financial leasing and housing market development***.** In the aftermath of widespread destruction, the housing market in Ukraine faces unique challenges. Financial leasing has emerged as a critical tool in addressing the housing deficit by providing alternative home ownership models for citizens who are unable to access traditional mortgage financing. Financial leasing allows individuals to live in a property while making lease payments that contribute toward eventual ownership, a model that is particularly relevant in regions where the population's financial capacity has been severely impacted by conflict (Wong et al., 2015).

The strategic integration of financial leasing into housing development offers flexibility in financial planning for both developers and consumers, enabling a more inclusive approach to home ownership. Moreover, this model helps to mitigate the upfront financial burden that prevents many from entering the housing market. In Ukraine's current context, where economic recovery will take years, financial leasing provides a pragmatic solution to meeting immediate housing needs while stimulating long-term growth in the real estate sector (Dang & Nguyen, 2022).

However, the success of financial leasing depends on its strategic management, which requires a robust legal framework, risk management strategies to minimize defaults, and alignment with broader housing policies. The Ukrainian government's support for financial leasing through appropriate regulations and incentives will be crucial in ensuring its viability. In addition, the role of digital platforms in managing financial leasing processes—such as automating contract management, facilitating payments, and providing transparency—enhances its accessibility and efficiency. Digitalization thus plays a critical role in making financial leasing a scalable solution for the housing market in post-war Ukraine.

Strategic Integration of Digitalization and Financial Leasing. The convergence of digitalization in construction and the strategic use of financial leasing presents significant opportunities for Ukraine's economic recovery. By integrating digital tools into financial leasing models, stakeholders can streamline processes, improve customer experiences, and increase operational efficiencies. For instance, digital platforms can be used to automate the leasing process, track payments, and provide a transparent communication channel between lessors and lessees. This integration not only simplifies transactions but also makes housing more accessible to the broader population, an essential factor in post-war recovery (McKinsey & Company, 2017).

Moreover, the use of digital technologies such as blockchain and smart contracts in financial leasing can provide secure, automated solutions that reduce transaction costs and increase trust in the leasing process. Blockchain, for instance, can ensure the transparency and security of property transactions, while smart contracts can automate lease agreements and ensure that payments are made according to the terms set out in the contract (Deloitte, 2019). This combination of digital tools and financial leasing can create a more efficient, secure, and transparent housing market, which is particularly important in rebuilding trust among citizens affected by the war.

While the integration of digitalization into the construction and housing sectors offers clear advantages, it also presents challenges that must be addressed through strategic management. These include the digital divide, which can limit access to digital services in less connected regions, and cybersecurity risks associated with online transactions. Ensuring equitable access to digital platforms and robust cybersecurity measures will be essential for the successful implementation of these technologies.

The digitalization of the construction industry and the strategic use of financial leasing in the housing market present significant opportunities for Ukraine's post-war recovery. Digital tools can enhance the efficiency, transparency, and accessibility of both sectors, helping to rebuild the economy and meet the housing needs of the population. However, the success of these initiatives will depend on addressing the

challenges of funding, workforce development, resistance to change, and cybersecurity. By adopting a holistic approach to strategic management that integrates digitalization with financial leasing, Ukraine can create a more resilient and inclusive economy, better equipped to handle the uncertainties of the future.

Conclusion. Digitization of the construction sector in Ukraine has significant potential for increasing efficiency, transparency in construction processes and, accordingly, reducing costs for their implementation. Digitization of the housing market under the terms of financial leasing contributes to the simplification of the processes of conclusion of agreements, automation of document flow and the use of analytical tools for researching the real estate market. This creates new opportunities for both lessors and lessees, makes the housing market more accessible and efficient. At the same time, for the further development of digitalization, the issues of cyber security and the digital divide are important issues to be addressed in order to ensure equal access to digital services for all market participants. This process also poses new challenges to humanity, which require an integrated approach to ensure security, equal access to technology, adaptation of the labor market to new conditions, to overcome which significant investments, support from the state and training of qualified specialists are required.

In today's conditions of a full-scale war between russia and Ukraine, the Ukrainian construction sector must actively integrate digital solutions, taking into account the effective interaction and interconnection of the state and business structures, with appropriate consideration of this when developing effective mechanisms for its implementation in order to provide the population with housing on the terms of financial leasing.

Author contributions. The authors contributed equally.

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