

Environmentalization as a Strategic Determinant of Construction Enterprises' Competitiveness in the Context of Global Development

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Abstract. The article substantiates greening as a strategic determinant of the competitiveness of construction enterprises in the context of global development. The study is based on the premise that increasing environmental challenges, the tightening of international environmental regulations, and the growing importance of sustainable development principles significantly transform approaches to enterprise management in the construction sector. The purpose of the research is to justify the role of greening in ensuring long-term competitive advantages and to determine key directions for its integration into the strategic management system of construction enterprises.

The essence of greening is defined as a comprehensive transformation of production, technological, organizational, and managerial processes aimed at achieving a balance between economic efficiency and environmental sustainability. The study reveals the multidimensional impact of greening on competitiveness, including cost reduction through resource efficiency, improvement of product quality, enhancement of corporate reputation, and increased investment attractiveness.

The main global trends in the construction industry are analyzed, such as the implementation of ESG principles, circular economy, digitalization, and the development of green construction. Based on the research, key strategic directions are identified, including the integration of environmental goals into strategic management, development of eco-innovations, improvement of resource efficiency, formation of environmental corporate culture, and adaptation to international environmental standards.

The scientific novelty lies in the development of a conceptual model for integrating greening into the strategic management system, which ensures the transformation of environmental factors into sustainable competitive advantages.

Keywords: greening, competitiveness, construction enterprises, sustainable development, eco-innovation, ESG.

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Introduction

In the current conditions of global economic development, there is a significant transformation of approaches to ensuring enterprise competitiveness, particularly in the construction sector. The strengthening of requirements for environmental safety, resource efficiency, and energy saving, driven by international initiatives such as the European Green Deal, highlights the necessity of integrating environmental principles into the strategic management of construction enterprises. In the context of globalization and intensifying international competition, greening is no longer merely an element of corporate social responsibility but is transforming into a key factor in the formation of long-term competitive advantages.

The construction industry is one of the most resource-intensive and environmentally sensitive sectors of the economy, which determines its significant impact on the environment, including high energy consumption, greenhouse gas emissions, and waste generation. In this regard, the implementation of sustainable development principles, environmentally friendly technologies, and innovative materials becomes a strategic priority for construction enterprises. In this context, particular importance is attached to the ESG (Environmental, Social, Governance) concept, which ensures the integration of environmental, social, and governance aspects into decision-making processes and enhances the investment attractiveness of enterprises.

Theoretical and applied aspects of enterprise competitiveness, including in the context of greening, have been studied in the works of domestic and foreign scholars. However, the dynamic nature of global transformations, the tightening of environmental standards in international markets, and the need for post-war economic recovery in Ukraine necessitate further research into the role of greening as a strategic determinant of the competitiveness of construction enterprises.

Despite the considerable body of scientific research, issues related to the comprehensive integration of environmental approaches into the strategic management system of construction enterprises, taking into account global development trends, digitalization, and innovation, remain insufficiently explored. Particular attention should be paid to substantiating mechanisms for enhancing competitiveness through the implementation of eco-innovations, adaptation to international standards, and the formation of environmentally oriented business models.

The purpose of the article is to substantiate greening as a strategic determinant of the competitiveness of construction enterprises in global development and to identify key directions for its integration into the strategic management system.

To achieve this goal, the following tasks are set: to investigate the essence of greening in the construction industry; to determine its impact on the formation of competitive advantages of enterprises; to analyze current global trends in the greening of construction; and to substantiate strategic directions for enhancing competitiveness based on eco-innovations.

The object of the study is the process of ensuring the competitiveness of construction enterprises in the context of global development. The subject of the study is the theoretical and applied foundations of greening as a strategic determinant of the competitiveness of construction enterprises.

Thus, the relevance of the study is determined by the need to develop new approaches to the strategic management of construction enterprises focused on environmental responsibility, innovation, and integration into the global economic space.

Results

Contemporary transformation processes in the global economy, driven by increasing environmental challenges, necessitate a rethinking of traditional approaches to ensuring enterprise competitiveness, particularly in the construction sector. In this context, the

greening of enterprise activities is gradually acquiring the status of a strategic determinant of their development, which leads to a growing scientific interest in this issue.

The theoretical foundations of enterprise greening are based on the concept of environmental management, which is considered an integrated management system combining economic and environmental objectives of business entities [1, pp. 114–121]. The scientific literature emphasizes that environmental factors are evolving from a constraining element into a source of long-term competitive advantages, thereby driving the transformation of traditional enterprise management models.

Further development of these approaches is reflected in studies devoted to the essence and role of environmental strategies of construction enterprises. In particular, an environmental strategy is interpreted as a system of long-term managerial decisions aimed at minimizing the negative impact on the environment while ensuring economic efficiency [2, pp. 120–125; 3]. Within these approaches, emphasis is placed on the implementation of resource-saving technologies, improvement of energy efficiency, environmental certification, and the integration of environmental standards into business processes. At the same time, it should be noted that existing studies insufficiently address the relationship between environmental strategy and the formation of competitive positions of enterprises in the global environment.

An important stage in the development of scientific thought is the integration of environmental aspects into the system of competitiveness management based on ESG criteria. Modern studies demonstrate that the consideration of environmental, social, and governance factors contributes to increasing the investment attractiveness of enterprises and strengthening their market positions [4]. In this context, the greening of construction enterprises is viewed as a key instrument for achieving the Sustainable Development Goals, which involves the rational use of resources, reduction of environmental impact, and the implementation of green building principles [8].

Considerable attention in scientific research is paid to the innovative aspects of greening. Studies indicate that the implementation of eco-innovations positively affects the organizational and technological reliability of construction and contributes to improving enterprise performance [7]. At the same time, greening is considered an imperative of innovative development, ensuring the long-term sustainability of enterprises in a dynamic market environment [6]. However, innovation activity in the construction sector is often constrained by financial, institutional, and regulatory barriers, which limit the realization of the potential of environmental transformations [11].

In the context of globalization, the influence of the external environment on the formation of the competitiveness of construction enterprises becomes increasingly significant. Studies confirm that the greening of activities contributes to increasing the attractiveness of enterprises for investors, partners, and employees, particularly through the formation of a positive employer brand [5]. In addition, the adaptation of organizational models to modern innovation and investment trends enables enterprises to respond more effectively to global environmental challenges and the requirements of international markets [10].

A separate area of research concerns methodological approaches to assessing the competitiveness of construction enterprises. The scientific literature proposes the use of integrated and multicriteria evaluation methods that take into account various aspects of enterprise activity [9; 12]. However, the environmental component in most of these approaches is insufficiently systematized, which limits the possibilities for a comprehensive assessment of competitiveness in the context of the growing importance of environmental factors.

The generalization of the results of the conducted analysis allows concluding that, despite a significant number of scientific studies devoted to the issues of greening and

enterprise competitiveness, a number of unresolved issues remain. In particular, there is fragmentation of scientific approaches, insufficient integration of environmental factors into the system of strategic competitiveness management, limited research on the global context, and a lack of a comprehensive methodological toolkit for assessing the impact of greening on enterprise performance.

Thus, further scientific research should be aimed at developing a holistic conceptual approach to considering greening as a strategic determinant of the competitiveness of construction enterprises in the global environment, which will ensure the improvement of their operational efficiency and the sustainability of their development.

The theoretical and methodological gaps identified in the previous analysis of scientific sources highlight the need for a systematic substantiation of greening as a strategic determinant of the competitiveness of construction enterprises in global development. In this context, greening should be considered not as an isolated area of activity but as an integrated element of strategic management that shapes the long-term competitive advantages of an enterprise.

The essence of greening in the construction industry should be interpreted as a comprehensive process of transformation of production-technological, organizational-managerial, and innovation systems of an enterprise, aimed at ensuring environmental safety, resource efficiency, and compliance with sustainable development requirements. The specificity of the construction industry lies in its high level of environmental impact, manifested in significant consumption of natural resources, energy intensity of production, waste generation, and impact on ecosystems. Therefore, greening should cover all stages of the life cycle of construction products—from design and material selection to operation and disposal of facilities.

In the strategic dimension, greening is transformed into a key factor in ensuring competitiveness, as it directly affects the ability of an enterprise to adapt to changes in the external environment. The tightening of environmental regulatory requirements, the growing role of international standards, the expansion of green finance, and changes in consumer behavior form a new paradigm of competition in which environmental responsibility becomes a necessary condition for market participation. Thus, greening ceases to be a reactive response to external pressure and acquires the character of a proactive development strategy.

The impact of greening on the formation of competitive advantages of construction enterprises is multidimensional. First of all, greening ensures increased efficiency in the use of resources, which is manifested in reduced energy consumption, optimization of material flows, and minimization of waste. This contributes to reducing production costs and improving the economic efficiency of enterprise activities. At the same time, the implementation of environmentally friendly technologies makes it possible to improve the quality of construction products, which is an important factor of competitiveness in modern conditions.

In addition, greening creates intangible competitive advantages associated with strengthening the reputational capital of an enterprise. In the modern business environment, environmental responsibility is considered an important element of corporate image that influences the level of trust from investors, partners, and consumers. The formation of a positive environmental image contributes to strengthening the market position of an enterprise and expanding its opportunities in international markets.

An important aspect is also the expansion of access to financial resources. In modern conditions, financial institutions increasingly take environmental criteria into account when making investment decisions. Compliance with ESG principles enhances the investment attractiveness of an enterprise and ensures access to green financial instruments, thereby creating additional opportunities for development.

The analysis of current global trends in the development of the construction industry

makes it possible to identify a number of key directions that determine the transformation of the competitive environment. First, there is an active implementation of sustainable development principles, which involves the integration of environmental, economic, and social aspects into enterprise activities. Second, there is a transition to a circular economy model focused on minimizing waste and reusing resources. Third, the role of decarbonization is increasing, which implies the reduction of greenhouse gas emissions and the improvement of energy efficiency in production.

Particular importance is attached to the development of green construction, which involves the use of environmentally friendly materials, the implementation of energy-efficient technologies, and the application of innovative approaches to design and construction. In this context, international certification standards play an important role, defining requirements for the environmental performance of construction products and processes.

At the same time, the digitalization of the construction industry is taking place, creating prerequisites for improving environmental efficiency. The use of modern digital technologies, including building information modeling, resource management systems, and analytical platforms, makes it possible to optimize production processes, reduce resource losses, and improve the accuracy of managerial decision-making. Thus, a synergy is formed between digital transformation and greening, which strengthens the competitive positions of enterprises.

Taking these trends into account necessitates not only the formal declaration of environmental priorities but their systematic integration into all levels of strategic management of construction enterprises. This involves the transformation of greening into a structural element of strategic management that determines the long-term development trajectory of the enterprise and its positioning in the global competitive environment.

First of all, such integration involves the institutionalization of environmental objectives in the strategic documents of the enterprise—mission, vision, corporate strategy, and functional and operational strategies. Environmental priorities should be formulated not as declarative statements but as clearly defined strategic priorities reflecting the enterprise's commitments to reducing environmental impact, improving resource efficiency, and implementing innovative environmental solutions. At the same time, it is important to ensure their alignment with the overall development strategy in order to avoid conflicts between economic and environmental objectives.

The next important element is the formation of a system of environmental performance indicators (environmental KPIs), which should be integrated into the overall system of strategic controlling of the enterprise. Such indicators should include energy efficiency metrics, levels of greenhouse gas emissions, volumes of waste generation and recycling, the use of secondary resources, as well as indicators of environmental certification of products and processes. An important condition is their quantitative measurability, comparability over time, and compliance with international standards, which ensures the possibility of integrating the enterprise into global value chains.

Particular importance is attached to the implementation of mechanisms for monitoring and controlling the achievement of environmental goals. This involves the creation of a system for the regular collection, processing, and analysis of environmental information, which allows for the prompt assessment of the effectiveness of implemented measures and the adjustment of managerial decisions. In modern conditions, it is advisable to use digital monitoring tools, including automated resource accounting systems, environmental performance tracking systems, and analytical platforms, which enhance the accuracy and transparency of management.

In addition, the integration of greening into strategic management requires the implementation of strategic controlling principles that ensure the interconnection between goals, resources, and enterprise performance results. This makes it possible to assess not only

the environmental but also the economic effects of implementing environmental measures, in particular through cost-benefit analysis, evaluation of the investment efficiency of eco-innovations, and determination of their impact on financial performance.

An important aspect is also the integration of environmental objectives into the enterprise risk management system. The increasing environmental requirements, strengthening regulatory pressure, and growing environmental responsibility of business generate new types of risks, including regulatory, reputational, and investment risks. Taking these risks into account in strategic planning allows for enhancing the resilience of the enterprise to external challenges and ensuring its adaptability.

Thus, the integration of greening into the strategic management system of construction enterprises involves the formation of a comprehensive mechanism that encompasses strategic planning, a system of performance indicators, monitoring and control, as well as risk management. The implementation of such an approach ensures the alignment of environmental and economic components of development, contributes to improving resource efficiency, and creates the prerequisites for achieving sustainable competitive advantages in the global environment.

The second strategic direction for enhancing the competitiveness of construction enterprises is the development of eco-innovations, which serve as a key foundation for the technological modernization of the industry and the formation of its long-term sustainability. Under modern conditions, eco-innovations should be considered as a комплекс of innovations encompassing technological, organizational, material, and managerial solutions aimed at reducing environmental impact while simultaneously increasing the economic efficiency of enterprise activities.

An important direction of eco-innovations is the implementation of energy-efficient technologies that enable the optimization of energy consumption at all stages of the construction process. This includes the use of energy-saving equipment, intelligent energy management systems, next-generation thermal insulation technologies, as well as the integration of the “smart building” concept. Combined with the use of alternative energy sources—solar, wind, and geothermal—such solutions contribute to reducing enterprises’ dependence on traditional energy resources and lowering their carbon footprint.

Another significant aspect is the implementation of innovative approaches to waste management based on the principles of the circular economy. This involves minimizing waste generation, its reuse, recycling, and reintegration into the production cycle. In the construction industry, this can be achieved through the use of secondary raw materials, modular construction technologies, as well as the design of facilities with consideration for disassembly and reuse of materials. Such an approach not only reduces environmental impact but also optimizes enterprise costs.

Particular importance in the context of eco-innovations is attached to the use of innovative construction materials that enhance the environmental efficiency of construction. These include low-carbon materials, energy-efficient thermal insulation materials, self-healing and nanomodified materials, as well as composite solutions based on secondary resources. The use of such materials contributes to reducing energy consumption during building operation, increasing durability, and lowering maintenance costs.

Moreover, innovative materials make it possible to implement new architectural and structural solutions that comply with sustainable development principles, including the creation of energy-neutral or energy-efficient buildings. The use of local materials is also important, as it reduces transportation costs and the associated environmental impact.

A significant component of eco-innovations is the digitalization of construction processes, which ensures greater planning accuracy, optimization of resource use, and reduction of production losses. The use of building information modeling (BIM), digital project management platforms, and monitoring and analytics systems allows for the

integration of environmental criteria into decision-making processes and ensures control over their compliance at all stages of project implementation.

It is important to emphasize that the development of eco-innovations has not only a technological but also a strategic nature. It involves the formation of an enterprise innovation ecosystem, including cooperation with research institutions, innovation clusters, technology suppliers, and public institutions. Such interaction facilitates the acceleration of the implementation of new solutions and enhances the competitiveness of enterprises in the global market.

Thus, the development of eco-innovations, including the implementation of energy-efficient technologies, alternative energy sources, innovative materials, digital solutions, and circular approaches, serves as a key factor in the technological modernization of construction enterprises. This ensures not only a reduction in environmental impact but also the formation of sustainable competitive advantages, which is decisive in the context of global development and increasing environmental requirements.

The third strategic direction is improving resource efficiency, which involves the systematic optimization of the use of material, energy, water, and labor resources at all stages of a construction enterprise's activities. In modern conditions, resource efficiency goes beyond the operational level and acquires strategic significance, as it directly affects production costs, environmental performance, and the overall competitiveness of the enterprise.

From the perspective of strategic management, improving resource efficiency should be implemented through a comprehensive approach that encompasses planning, organization, control, and continuous improvement of resource use. An important tool in this process is the implementation of resource auditing, which allows for identifying inefficient areas of resource use, determining reserves for savings, and developing well-founded managerial decisions.

In the context of the construction industry, improving resource efficiency primarily involves optimizing material flows. This includes reducing losses of construction materials, implementing precise planning of resource needs, and using modular and prefabricated structures, which help decrease waste volumes and improve the efficiency of production processes. The application of modern logistics solutions aimed at optimizing supply chains, reducing transportation costs, and minimizing environmental impact is also important.

Improving energy efficiency is another key component of this direction. It involves the implementation of energy-saving technologies, modernization of equipment, the use of automated energy management systems, and the integration of renewable energy sources. In the long term, this makes it possible to significantly reduce operating costs and enhance the energy independence of the enterprise.

Particular importance in the context of improving resource efficiency is attached to the implementation of circular economy principles, which involve a transition from the linear model of "production–consumption–disposal" to closed-loop resource use. In the construction industry, this is realized through the reuse of construction materials, recycling of waste, the use of secondary raw materials, and the design of facilities with consideration for their disassembly and reuse of components.

An important tool for implementing circular economy principles is the concept of the life cycle assessment (LCA) of construction products, which makes it possible to evaluate the environmental impact of an object at all stages of its existence. The application of this approach contributes to more informed decision-making regarding the selection of materials, technologies, and the organization of construction processes.

In addition, improving resource efficiency is closely linked to the digitalization of resource management. The use of modern information systems, particularly BIM technologies, enables precise planning of resource needs, forecasting of their use, and minimization of losses. This creates the prerequisites for increasing transparency and

efficiency in enterprise resource management.

It should also be taken into account that the implementation of resource efficiency measures contributes to both economic and environmental effects. On the one hand, reducing resource costs enhances the financial stability of the enterprise; on the other hand, it decreases environmental impact, which corresponds to sustainable development requirements and increases the competitiveness of the enterprise in the global market.

Thus, improving resource efficiency based on the implementation of circular economy principles, digital technologies, and innovative management solutions represents an important strategic direction for the development of construction enterprises. Its implementation ensures the optimization of resource use, reduction of environmental impact, and the formation of sustainable competitive advantages in the long term.

The fourth strategic direction is the formation of an environmental corporate culture, which serves as the institutional foundation for integrating environmental principles into the management system of a construction enterprise and ensures the sustainability of environmental transformations. Unlike purely technological or organizational changes, corporate culture determines the underlying attitudes, behavioral patterns, and value orientations of employees, which directly influence the effectiveness of implementing an environmental strategy.

Environmental corporate culture should be formed as a component of the overall management paradigm of the enterprise and be integrated into all levels of decision-making—from strategic to operational. This involves embedding environmental values in the corporate mission, codes of conduct, internal regulations, and operational standards. An important condition is ensuring consistency between declared principles and actual managerial practices, which contributes to increasing employee trust and fostering a responsible attitude toward environmental issues.

A key element in shaping environmental culture is raising the level of environmental awareness among employees. This is achieved through the systematic organization of training, workshops, seminars, and professional development programs in the field of environmental management. Particular importance is attached to developing competencies related to the rational use of resources, waste management, compliance with environmental standards, and the implementation of innovative environmental solutions. The development of such competencies ensures the ability of personnel to effectively implement environmental initiatives in practice.

An important tool for developing environmental corporate culture is the implementation of motivation systems that encourage environmentally responsible behavior among employees. This involves integrating environmental indicators into the performance evaluation system, using both material and non-material incentives, and promoting initiatives aimed at improving resource efficiency and reducing environmental impact. Such an approach fosters a sense of personal involvement among employees in the implementation of the enterprise's environmental strategy.

A special role in shaping environmental culture is played by management personnel, who act as carriers and promoters of relevant values. Leadership in the field of greening involves not only making strategic decisions but also setting an example of environmentally responsible behavior, which contributes to the consolidation of corresponding norms within the corporate environment. In this context, it is important to ensure the development of managerial competencies in environmental leadership and strategic thinking.

In addition, the formation of environmental corporate culture involves the development of internal communications aimed at promoting environmental initiatives, sharing experience, and engaging employees in decision-making processes. The use of internal information platforms, corporate events, and environmental responsibility programs contributes to increasing employee engagement and fostering a team-based approach to

solving environmental challenges.

An important aspect is also the integration of environmental culture into the enterprise's interaction with external stakeholders—suppliers, contractors, clients, and local communities. This involves extending environmental standards to partnership relations, which contributes to the formation of environmentally oriented value chains.

Thus, the formation of environmental corporate culture is a complex, multi-level process that encompasses the development of values, competencies, motivational mechanisms, and managerial practices. Its implementation ensures the integration of environmental principles into the daily activities of the enterprise, enhances the effectiveness of environmental strategy implementation, and contributes to the formation of sustainable competitive advantages in the global environment.

The fifth strategic direction is adaptation to international environmental standards, which serves as a necessary prerequisite for the integration of construction enterprises into the global economic space and their effective participation in international competition. Under modern conditions, compliance with generally recognized environmental norms and standards becomes one of the key criteria for access to foreign markets, participation in international projects, and attraction of investment resources.

Adaptation to international standards involves a comprehensive transformation of the enterprise management system in accordance with the requirements of global environmental regulations. First of all, this concerns the implementation of environmental management systems based on the principles of international ISO standards, in particular ISO 14001. Such a system provides a structured approach to managing environmental aspects of enterprise activities, including the identification of environmental risks, planning of mitigation measures, control of implementation, and continuous improvement.

An important element of adaptation is the certification of products and production processes in accordance with international environmental standards. In the construction industry, this may include the certification of buildings under green building systems (in particular, environmental rating systems), verification of compliance of materials with environmental safety requirements, as well as obtaining environmental product declarations. The presence of such certifications increases trust from clients and partners and serves as a significant competitive advantage.

In addition, adaptation to international standards involves the harmonization of internal enterprise procedures with the requirements of environmental legislation of partner countries and international organizations. This includes compliance with standards related to emissions, energy efficiency, material use, waste management, and environmental protection. In this context, the ability of an enterprise to promptly respond to changes in the regulatory environment becomes particularly important, ensuring its adaptability and competitiveness.

A significant aspect is the integration of international standards into the system of strategic and operational management of the enterprise. This means that environmental requirements should be taken into account not only at the level of production processes but also in strategic planning, investment activities, risk management, and the formation of the enterprise's business model. Such an approach ensures the systemic nature of greening and enhances management efficiency.

At the same time, adaptation to international standards contributes to increasing the transparency of enterprise activities, which is an important factor for investors and financial institutions. The use of international reporting approaches, in particular non-financial (ESG) reporting, allows enterprises to demonstrate the results of their environmental activities and increase the level of trust among stakeholders.

A special role in this process is played by the participation of enterprises in international projects, partnerships, and professional associations, which facilitates the exchange of experience, the implementation of best practices, and the improvement of compliance with

international standards. Such integration enables enterprises not only to adapt to existing requirements but also to participate in shaping new standards and industry development trends.

At the same time, the process of adaptation to international environmental standards is associated with certain challenges, including the need for significant investments in production modernization, personnel training, and improvement of management systems. However, the long-term benefits, manifested in increased competitiveness, expansion of markets, and attraction of investments, significantly outweigh the initial costs.

Thus, adaptation to international environmental standards is a strategically important direction for the development of construction enterprises, ensuring their integration into the global economic space, improving operational efficiency, and forming sustainable competitive advantages in the long term.

At the same time, the implementation of these directions requires taking into account a number of constraints, among which financial, institutional, and organizational factors are key. The high cost of implementing environmental technologies, insufficient state support, and the imperfection of the regulatory framework may hinder the greening process. In this regard, particular importance is attached to the development of effective mechanisms for stimulating environmental transformations, including through the expansion of green financing, tax incentives, and support for innovative projects.

Thus, the greening of construction enterprises' activities acts as a system-forming factor of their strategic development, determining their ability to generate sustainable competitive advantages in the global environment. Its integration into the strategic management system ensures improved resource efficiency, strengthening of market positions, and adaptation to modern challenges, thereby creating the prerequisites for the long-term sustainable development of construction enterprises.

Conclusions

As a result of the conducted research, it has been substantiated that the greening of construction enterprises' activities under modern conditions of global development is transforming into a strategic determinant of their competitiveness. Unlike the traditional approach, in which environmental aspects were considered as a constraining factor, it has been proven that their integration into the strategic management system creates the prerequisites for the formation of long-term competitive advantages.

Within the study, the essence of greening in the construction industry has been clarified as a comprehensive process of transformation of production-technological, organizational-managerial, and innovation subsystems of the enterprise, aimed at achieving a balance between economic efficiency and environmental safety. It has been established that the specificity of construction necessitates the implementation of environmental principles at all stages of the life cycle of facilities, which determines the systemic nature of greening.

It has been demonstrated that greening directly influences the formation of competitive advantages of construction enterprises through increased resource and energy efficiency, cost reduction, improvement of product quality, strengthening of reputational capital, and expansion of access to investment resources. It has been determined that in the global environment, environmental responsibility becomes one of the key criteria for competitive differentiation.

The analysis of current global trends in the development of the construction industry has made it possible to establish that the determining factors of the transformation of the competitive environment include the implementation of sustainable development principles, the development of a circular economy, decarbonization of production, digitalization of construction processes, and the integration of ESG approaches into enterprise management systems. This necessitates the adaptation of construction enterprises to new conditions of

functioning in international markets.

The article substantiates strategic directions for enhancing the competitiveness of construction enterprises based on greening, including the integration of environmental goals into the strategic management system, the development of eco-innovations, improvement of resource efficiency, implementation of circular economy principles, formation of environmental corporate culture, and adaptation to international environmental standards.

The scientific novelty of the study lies in the development of an author's conceptual model for integrating greening into the strategic management system of competitiveness of construction enterprises, which, unlike existing approaches, combines external and internal determinants, the strategic management level, the process subsystem of implementation, and institutional and organizational support, taking into account a feedback mechanism. The proposed model makes it possible to ensure the systemic transformation of environmental factors into sustainable competitive advantages under conditions of global development.

The practical significance of the obtained results lies in the possibility of using the proposed approaches and model in the activities of construction enterprises when forming development strategies, improving resource management efficiency, and ensuring compliance with international environmental standards.

Prospects for further research are associated with the development of methodological tools for assessing the level of greening of construction enterprises' activities, as well as the quantitative analysis of the impact of environmental factors on their financial and economic performance in the context of the digital transformation of the economy.

References

1. Demianenko, K. A. (2015). The essence of environmental management and enterprise competitiveness. *Economic Analysis*, 19(3), 114–121.
2. Shpatakova, O. L. (2019). The essence of the environmental strategy of a construction enterprise. *Black Sea Economic Studies. Series: Economics and Enterprise Management*, 43, 120–125.
3. Tkachenko, A., & Buhrim, O. (2021). Environmental strategy for the development of a construction enterprise. *Herald of Khmelnytskyi National University. Economic Sciences*, 294(3), 298–303.
4. Livoshko, T. (2023). Modern approaches to managing the competitiveness of construction enterprises based on ESG criteria. *Herald of Khmelnytskyi National University. Economic Sciences*, 314(1), 61–66.
5. Danyliuk, L. (2025). The impact of the external environment on the formation of the employer brand of construction enterprises. *Ways to Improve Construction Efficiency*, 1(56), 374–385.
6. Zinchenko, M., & Nazvanov, D. (2025). Environmental imperatives of innovative development of construction enterprises. *Ways to Improve Construction Efficiency*, 2(55), 250–263.
7. Chernyshev, D. O., Prykhodko, O. O., Axelrod, R. B., Khomenko, O. M., Ryzhakov, D. A., & Petrukha, S. V. (2021). Development of scientific, methodological, and analytical approaches to identifying the impact of eco-innovations on the organizational and technological reliability of construction. *Management of Development of Complex Systems*, 47, 138–150.
8. Stankevych, I., Sakun, H., & Dvoienkin, Y. (2025). Priority directions for achieving the Sustainable Development Goals in the construction sector. *Sustainable Development of Economy*, 4(55), 62–69.
9. Oklander, T., & Salamakha, P. (2024). Methods for assessing the competitiveness of construction enterprises. *Economic Space*, 195, 42–46.
10. Druzhynin, M., Khomenko, O., & Ryzhakova, H. (2024). Methodological concept and applied principles of adaptive organization of construction considering modern innovation

and investment trends. *Management of Development of Complex Systems*, 59, 182–190.

11. Vynnyk, T., Konstantiuk, N., Vynnyk, T., & Konstantiuk, N. (2019). Innovative activity of developers in the context of sustainable development. *Socio-Economic Problems and the State*, 2(21), 62–74.

12. Lopatka, S. S. (2024). Essential characteristics of the competitiveness of construction enterprises. *Innovative Economy*, 4, 105–110.