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THE ROLE OF HUMAN RESOURCES IN THE DEVELOPMENT OF THE GLOBAL CONSTRUCTION MARKET

ABSTRACT

The article explores how the development of the global construction market influences the increasing role of human resources, which are essential for the industry. The study examines the global construction market, noting that the construction sector currently plays one of the key roles in the global economy. The value of leading construction companies ranges from USD 13 billion to USD 48 billion. Overall, the global construction market accounts for 14.2% of global GDP. The research indicates that the growth rate of the market will continue to show a positive trend in the future, mainly due to catalysts such as risks leading to damage and loss of construction projects, population growth, urbanisation, sustainable development, government support, industrialisation, the development of smart cities, and infrastructure investments. The study reveals that the damages to construction projects caused by global emergencies are constantly increasing, necessitating reconstruction and renovation. Population growth stimulates the financing of residential and other real estate construction, such as hospitals, schools, roads, shopping centres, and other infrastructure. Urbanisation processes have led to an increased demand for new housing and social infrastructure. The need to reduce the harmful impact on the environment has led to the implementation of sustainable development programs, under which construction is financed with reduced carbon emissions and increased energy efficiency. Government support has significantly influenced the development of the global construction market, manifested in the financing of affordable housing. Innovations in design and construction have necessitated the financing of modern construction. The authors found that the factors studied have a significant impact on the development of the global construction market, which will lead to the need to enhance human resources. It is proposed to attract the younger generation to the industry, which will create a new construction culture that meets modern requirements.

Keywords: human resource, labour market, employment, funding, labour shortage, the global construction market, eco-friendly construction, infrastructure

JEL Classification: J24, L74, F16

INTRODUCTION

The construction industry plays a crucial role in the global economy. It serves as the foundation for providing the construction projects necessary for the full functioning of society. In recent years, this sector has seen significant expansion, driven by factors such as increased damage from natural disasters, population growth, urbanisation, increased demand for sustainable development, and financing of construction through innovative technologies. In 2023, the global construction market was valued at approximately USD 15.2 trillion, accounting for about 14.2% of global GDP, with forecasts indicating continued growth in the coming years. The development of the global construction market will enhance the role of human resources.

As the construction industry continues to evolve, the demand for skilled labour will become increasingly pronounced. The human resources in the construction sector are ageing, with a significant portion approaching retirement age, particularly in developed markets like the United States. To sustain growth and meet the future needs of the industry, there is an urgent need to attract and retain a new generation of professionals.

Effective management and development of human capital in the construction industry should focus on attracting young specialists. This requires comprehensive strategies aimed at creating an attractive employer brand, fostering partnerships with educational institutions, and offering competitive working conditions. By considering these key factors, construction companies can build a strong and dynamic workforce, ensure their ability to meet the challenges of a rapidly changing market and contribute to achieving the global community's sustainable development goals.

LITERATURE REVIEW

The role of human resources in the development of the global construction market is a relevant topic in academic research by recognised scholars, as the quality of the workforce determines not only the success of individual projects but also the overall development of the industry. Several researchers highlight that human resources are the foundation for the growth of any sector, and construction is no exception. H.K. Singla, A. Shrivastava, and A. Sharma (Singla, Shrivastava, Sharma, 2022) believe that human resources determine companies' ability to adapt to new technological and environmental market demands. The training and education of employees are crucial factors in ensuring the competitiveness of construction companies in the global market. Expanding on the authors' views, it can be noted that this research is essential for the modern development of construction companies and the improvement of their capitalisation. Further discussion of specific conclusions and recommendations from the scholar could deepen the understanding and significance of their contributions to the construction field.

Research by V. Shovkivska (Shovkivska, 2019) and co-authors emphasises the importance of investing in human capital, noting that companies that actively invest in the training and development of their employees achieve better results. They also highlight the need to create favourable conditions for attracting young specialists who can bring innovative approaches and new ideas to the construction industry. This scholar's research is crucial for the development of the construction sector and can deepen the understanding of the need to expand the workforce to avoid short-term shortages.

Globalisation significantly impacts the construction sector, creating new opportunities and challenges. As noted by R. Ramachandran, V. Babu, and V.P. Murugesan (Ramachandran, Babu, Murugesan, 2023), globalisation expands the market but also increases competition among companies for skilled workers. This research is highly valuable for scientific thought, as it includes an analysis of international projects and an assessment of the human resources of construction companies capable of operating in different cultural and regulatory environments.

Moreover, research by L. Aghimien, C. Aigbavboa, and D. Aghimien (Aghimien, Aigbavboa, Aghimien, 2024) points to the importance of workforce mobility in responding to global challenges. International companies increasingly require specialists willing to relocate to other countries for project implementation. Expanding on the authors' perspective, it is worth noting that this research is vital for construction companies and provides insights into the development of strategies for retaining employees and managing their professional development on a global scale.

In the context of sustainable development, significant attention is given to the environmental aspects of construction, which also affect human resources. Research by A. Serpell and X. Ferrada (Serpell, Ferrada, 2007) underscores the need for training personnel who understand the principles of sustainable construction and can apply them in practice. This requires construction companies to integrate environmental standards into their training and professional development programs. This research is significant for scientific thought and may include an analysis of innovative strategies and practices aimed at ensuring environmentally friendly and energy-efficient construction.

Technological changes occurring in the construction industry also have a substantial impact on human resources. As noted by D. Guillen, D. Gomez, I. Hernandez, D. Charris, J. Gonzalez, D. Leon, and M. Sanjuan (Guillen, Gomez, Hernandez, Charris, Gonzalez, Leon, Sanjuan, 2020), the implementation of digital technologies, such as Building Information Modeling (BIM), requires highly skilled personnel who can work with these tools. This presents companies with the challenge of continuously educating employees and adapting to new conditions. The importance of this research lies in understanding the need to develop human resources that meet the modern demands of the construction industry.

Another study conducted by R. Shirase, P. Chhibber, and A. Narkhede (Shirase, Chhibber, Narkhede, 2023) emphasises the need to change approaches to workforce management in the context of digitalisation. The authors note that automation of routine processes creates demand for workers with analytical and creative abilities who can focus on more complex tasks. Expanding on the scholar's view, it should be noted that training young specialists with an emphasis on innovation, modern approaches to design, and digital reconstruction is essential.

Equally important is research on the challenges of financing residential construction and the impact of government policies on the real estate market by M. Khan, S.Z. Abdul Rasid, and B. Bardai (Khan, Abdul Rasid, Bardai, 2023). The authors

analyse financing mechanisms and their impact on construction activity. The scientific findings are essential for understanding the factors influencing the development of the global construction market.

R.S. Perumandla and S. Bhattacharyya (Perumandla, Bhattacharyya, 2024) investigated the relationship between global financial markets and the construction industry, particularly in the context of developed and emerging markets. The significance of this scholar's work lies in revealing the key factors influencing the development of the real estate market on international finance.

T.R. Annamalai and N. Jain (Annamalai, Jain, 2020) devoted their research to the issues of financing large infrastructure projects, public funding of construction programs, and public-private partnerships in financing large construction projects. Expanding on the authors' perspective, it can be said that such research is crucial for understanding the potential use of various financial instruments in the construction industry.

This research contributes significantly to understanding how human resources influence the development of the construction industry and how human resources can be effectively managed in the context of global changes and technological innovations.

AIMS AND OBJECTIVES

The aim of the work is to summarise the processes and key factors influencing the development of the global construction market and to explore possible prospects for the formation of human resources in this sector. The research objectives are to be achieved by:

- examining the key factors that influence the development of the global construction market;
- assessing the potential impact of selected factors on the construction market;
- highlighting the role of human resources in connection with the expansion of the construction market;
- proposing solutions that will help attract professionals to the construction sector.

METHODS

The theoretical and methodological foundation of the research is based on modern economic theory, an analysis of scholars' views on the processes within the construction market, its nature, and significance. The following methods were applied in the article: the dialectical method of cognition, the method of scientific abstraction, analysis, and synthesis. The study of factors influencing the development of the construction market was conducted using methods of generalisation, classification, and grouping. The assessment of the damages to construction projects due to global emergencies was conducted using historical analysis and comparison methods. Economic and statistical methods were employed to analyse the growth rates of the global population. The study of green building projects and government programs for affordable housing construction was conducted using analysis and synthesis methods. In certain cases, when evaluating the potential impact of factors on the construction market, expert evaluation and comparison methods were used.

All these methods allowed for scientific analysis and the summarisation of research results on the global construction market, which contributed to the next step in the methodology regarding the scientific substantiation of strategies for attracting human resources to the construction sector that would meet modern market requirements.

RESULTS

In the current economic conditions, the construction industry plays a key role globally. The share of the construction sector in the global economy is significant. In 2023, the global construction market was valued at approximately USD 15,192.71 billion, representing about 14.2% of global GDP. By 2024, this market had grown to USD 15,971.45 billion, with a growth rate of 5.1% per year (Deloitte, 2024).

As of today, the total market capitalisation of the top 10 companies in the construction products and equipment sector ranges from USD 12.95 billion to USD 47.73 billion. The highest capitalisation belongs to the Japanese company Daikin Industries Ltd., at USD 47.73 billion, while the lowest belongs to the American company Owens Corning, at USD 12.95 billion (Table 1).

Table 1. Top 10 Building Products & Equipment Industry Companies Details as of January 1, 2024. (Source: Disfold, 2024)

Country	Company	Market Cap, USD
Japan	Daikin Industries,Ltd.	47.73
USA	Carrier Global Corporation	46.55
France	Saint-Gobain	36.35
Switzerland	Geberit AG	20.53
USA	Builders FirstSource, Inc.	19.65
Ireland	Kingspan Group plc	15.22
USA	Carlisle Companies Incorporated	14.69
Sweden	NIBE Industrier AB	14.60
USA	Masco Corporation	14.43
USA	Owens Corning	12.95

The companies listed in the Table are located in various parts of the world, including Japan, the United States, France, Switzerland, Ireland, and Sweden. This highlights the global nature of the construction industry and its importance across different economic regions. However, the dominant role in the construction products and equipment sector belongs to the United States, driven by its large domestic market and investments in construction infrastructure.

It is expected that by 2030, the size of the construction market will grow to USD 16,108.43 billion. The main drivers of this growth include:

- risks leading to damage and loss of construction projects;
- population growth;
- urbanisation;
- sustainable development;
- government support;
- industrialisation and the development of smart cities;
- infrastructure investments.

Among the risks leading to damage and loss of construction projects, the following are highlighted: natural disasters (earthquakes, tsunamis, floods, snowfalls, fires, floods, landslides, tropical storms, glacier collapses, hurricane winds), man-made disasters (fires at construction sites, accidents, explosions on construction sites), climatic and environmental risks (soil erosion, corrosion of building materials), financial and economic risks (supply chain disruptions, insufficient funding), social risks (wars, conflicts, and social unrest; migration), and human factors (terrorism, improper maintenance, incorrect design). Currently, natural disasters are the most significant among these risks, accounting for 35% of the total risk structure.

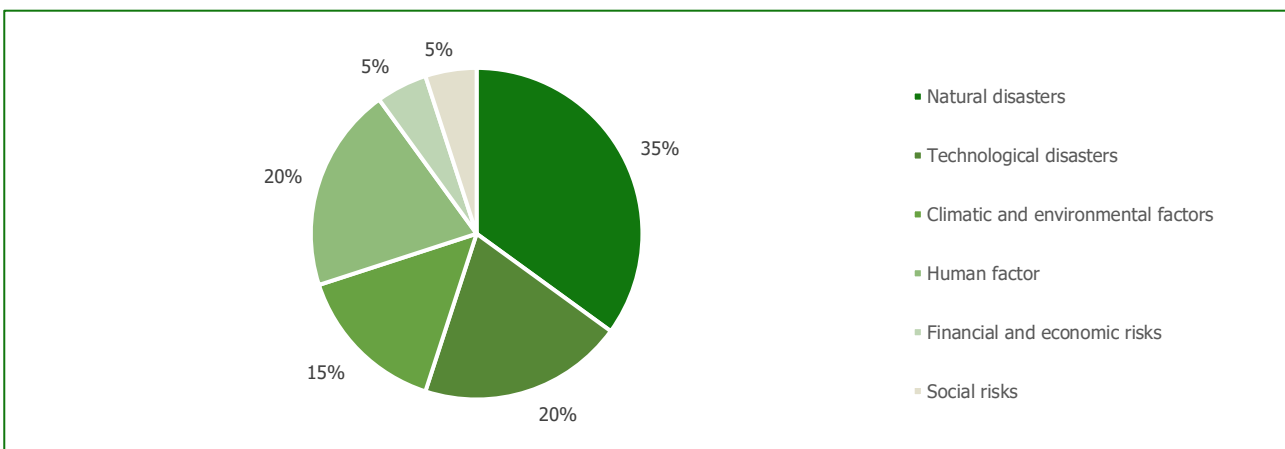


Figure 1. Risk Structure in the Construction Industry. (Source: McKinsey & Company, 2024)

An important aspect driving the expansion of the construction market is the need to address damages inflicted on properties as a result of natural disasters.

Table 2. Damages to Construction Projects Due to Natural Disasters Worldwide, 2011-2023. (Source: Bryukhovetska, 2023)

Year	Country	Emergency Situation	Damage, USD billion
2011	Japan, Guam, New Zealand, Philippines, Indonesia, USA, Canada, Chile, Mexico, Peru, Ecuador	Earthquake, tsunami	309
2012	Russia	Flood	68
	Philippines	Typhoon "Pablo"	20
	Jamaica, Cuba, The Bahamas, Haiti, North-eastern USA, and Eastern Canada	Hurricane "Sandy"	50
2013	USA	Hurricane "Nemo"	20
	Iran	Earthquake	25
	China	Earthquake	14
	China	Typhoon "Trami"	4
	Russia	Flood	1,2
2014	India	Cyclone "Hudhud"	7
	Japan	Snowfalls	3,1
2015	Nepal	Earthquake	5
2016	Japan	Earthquake	5,6
	Ecuador	Earthquake	40
	Canada	Wildfires	2,5
	USA	Thunderstorms	7
2017	USA	Hurricane "Harvey"	40
2018	USA	Hurricanes "Michael" and "Florence"	160
2019	Southern Africa, including Mozambique, Zimbabwe, and Malawi	Cyclone "Idai"	42
2020	Australia, India, Bangladesh, Turkey, Greece, Puerto Rico, Indonesia	Wildfires, Cyclone "Amphan," earthquakes	110
2021	USA, Canada, India, Pakistan, Greece, Turkey, Germany, Belgium, New Zealand	Wildfires, Cyclone "Tauktae," earthquakes, floods	80
2022	USA, Japan, China, Afghanistan, South Africa, Brazil, Philippines, Italy, Spain, Portugal, Ireland, England, parts of Belgium, the Netherlands, northern Germany and the Baltic Sea coast, Poland, Madagascar	Hurricane "Ian," floods, earthquakes, floods, landslides, tropical storm "Megi," glacier collapse, hurricane winds, wildfires, storm "Ylenia," Cyclone "Batsirai," Hurricane "Ian"	120
2023	Libya, Greece, Bulgaria, China, Spain, USA, Morocco, Turkey, Brazil, Taiwan	Earthquakes, floods, storms and wildfires, the storm "Daniel," Typhoon Haikui"	95

The analysis of damages inflicted on construction projects due to natural disasters worldwide during the period of 2011–2023 demonstrates significant variability in the scale of destruction depending on the type of disaster and the region in which it occurred. The most destructive events were earthquakes, tsunamis, hurricanes, and floods, which caused damages amounting to hundreds of billions of dollars. Notably, the largest losses were recorded in 2011 due to earthquakes and tsunamis in Japan, Guam, and other countries, resulting in losses totalling USD 309 billion.

In recent years, there has been an increase in the frequency and intensity of hurricanes and floods, which have also led to significant damages, particularly in the USA in 2018, when hurricanes Michael and Florence caused USD160 billion in damages.

These data underscore the importance of implementing effective risk management strategies in the construction industry, especially in regions prone to natural disasters. It is crucial to adapt construction standards and approaches to project design, considering the increased risks associated with climate change and the growing intensity of natural disasters. This will help reduce losses and enhance the resilience of construction projects to such threats in the future.

The growing population requires the provision of real estate and infrastructure. The industrial revolution significantly influenced the growth of the global population. It took all of human history until 1800 for the world's population to reach one billion, but it took only 130 years (1930) to reach the second billion, 30 years (1960) to reach the third billion, 15

years (1974) to reach the fourth billion, and only 13 years (1987) to reach the fifth billion. In the 20th century alone, the world's population grew from 1.65 billion to 6 billion. Over the last ten years, starting from 2020, the population has grown by nearly 10% (World Population Review, n.d).

Table 3. Global Population Numbers from 2014 to 2023. (Source: World Population Review, n.d)

Year	Population	Growth, %
2014	7,339,013,419	-
2015	7,426,597,537	1.19
2016	7,513,474,238	1.17
2017	7,599,822,404	1.15
2018	7,683,789,828	1.10
2019	7,764,951,032	1.06
2020	7,840,952,880	0.98
2021	7,909,295,151	0.87
2022	7,975,105,156	0.83
2023	8,045,311,447	0.88

The analysis of global population size from 2014 to 2023 shows a stable increase, although the growth rate has gradually slowed down. From 2014 to 2023, the total population grew from 7.3 billion to 8.0 billion people. The highest growth rate was observed in 2015 (1.19%), while by 2023, the growth rate had decreased to 0.88%. Despite the slowing growth rate, the overall population continues to rise. In 2023, the population increased by 70 million people over the year. It is evident that population growth will continue at a slower pace in the future compared to the period following the Industrial Revolution. However, it is projected that the population will increase by 50% over the next 40 years, reaching 9 billion by 2037. According to the UN report "World Population Prospects 2022," the global population is expected to reach 9.7 billion by 2050. This will, in turn, contribute to the development of the construction market. Population growth stimulates the construction of both residential real estate and other types of real estate, such as hospitals, schools, roads, shopping centres, and other infrastructure.

Regarding urbanisation, countries with high levels of urbanisation generally experience a high demand for new housing and social infrastructure, which contributes to the active development of the construction sector. Examples of such countries include Hong Kong (100%), Vatican City (100%), Gibraltar (100%), Nauru (100%), Bermuda (100%), Monaco (100%), Singapore (100%), Kuwait (98%), Qatar (99%), Belgium (98%), and Malta (95%).

As a result of urbanisation, the implementation of sustainable development strategies, including sustainable construction, has become crucial. The need to reduce the harmful impact on the environment has led to a demand for construction with lower carbon emissions and increased energy efficiency. Governments of various countries are actively funding green building projects (Table 4).

Table 4. Funding Projects for Green Building Worldwide. (Source: NovaTr, n.d.)

Country	Construction Funding Project	Essence
Costa Rica	Wetland Restoration Project	This project is aimed at the restoration of wetland ecosystems. It involves the simultaneous provision of wastewater treatment services and the creation of habitats for wildlife. The project has successfully implemented the idea of creating a sustainable solution for wastewater management and habitat restoration.
Senegal	Solar-Powered Irrigation System Construction Project	The project is focused on providing access to clean water for irrigating agricultural crops, utilising solar energy as a renewable energy source. This project has implemented the idea of sustainable farming methods and contributed to reducing poverty levels in the region.
Indonesia	"Green Schools" Construction Project	The project was aimed at implementing sustainable construction practices in schools using environmentally friendly materials. The school buildings were designed to be energy-efficient, utilising renewable energy sources. The project contributed to the sustainable development of education and raised awareness among students.
Kenya	Water Collection Systems Construction	The project aimed to install rainwater harvesting systems in schools to provide access to clean water and improve sanitation conditions. This project promoted the development of social and environmental sustainability. Additionally, it supported the implementation of the idea of access to clean water and the sustainable development of infrastructure.

The final document of the Summit, “Transforming Our World: The 2030 Agenda for Sustainable Development”, established 17 Sustainable Development Goals. Among them are ensuring the availability and sustainable management of water and sanitation for all; ensuring access to affordable, reliable, sustainable, and modern energy sources for all; building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation; ensuring open, safe, resilient, and environmentally sustainable cities and human settlements; transitioning to sustainable consumption and production patterns; and taking urgent action to combat climate change and its impacts. The implementation of these goals is inevitably linked to the demand for green building.

Government support influences the development of the construction market. This includes financial aid, legislative support, tax incentives, and more. Additionally, governments can initiate various state programs, such as financing the construction of affordable housing. Such construction programs have been successfully implemented in many countries (Table 5).






Table 5. Government Programs for Financing Affordable Housing Construction. (Source: Haven Services, n.d.; Housing the Homeless Foundation, n.d., Forbes Ukraine, 2024)

Country	Construction Program	Program Essence
USA	"Section 8" Program	A government program that provides housing vouchers for renting homes to low- or moderate-income families
Canada	National Housing Strategy	In 2017, the Canadian government adopted a National Housing Strategy, which includes the construction of new housing and the renovation of existing ones to provide affordable housing for the population. The government provides subsidies for low-income families to purchase homes.
United Kingdom	"Help to Buy" Program	The program is designed for young families and low-income families, offering low-interest loans for the purchase of their first home.
Singapore	"Housing and Development Board" Program	In Singapore, the government agency HDB (Housing and Development Board) was established to build affordable housing and sell it at subsidised prices. The program is designed for various categories of citizens, including retirees.
Germany	Social Housing Construction Program	In Germany, there is a program that involves the construction of social housing, which is intended to be rented out at reduced prices
Ukraine	"«Оселя: Affordable Housing Mortgage» Program	The program offers preferential mortgages for war veterans and their families; combatants, families of deceased war veterans, as well as families of fallen (deceased) defenders of Ukraine; internally displaced persons; and other citizens who do not own residential real estate.

The development of modern infrastructure and the construction of so-called "smart cities" are creating new opportunities for the construction market. This involves the use of automation systems and sensor technologies that can control lighting, heating, ventilation, and security. The shift in approaches to design and construction, along with the need to modernise facilities, stimulates the construction industry.

Based on qualitative analysis, the potential impact assessment of these factors on the construction market can be presented as shown in Table.

Table 6. Assessment of the Potential Impact of Factors on the Construction Market.

Factor	Potential Impact	Assessment	Demand for Construction and Human Resources
Risks Leading to Damage and Loss of Construction Projects	Risks that lead to the loss or damage of construction projects act as a catalyst for the development of the construction industry, as there is an objective need for restoration and recovery of damages	High	
Population Growth	Population growth stimulates the development of the construction sector, as it creates demand for the construction of new housing and infrastructure	High	
Urbanisation	Growing urbanisation leads to the need for the expansion of urban infrastructure, which increases the demand for construction	High	
Sustainable Development	Sustainable development has created the need for the construction of new projects that align with the achievement of sustainable goals	Medium	
Development of Smart Cities	The development of smart cities stimulates the construction sector and drives demand for next-generation projects that incorporate modern technologies	Medium	

Overall, the factors we have analysed can significantly impact the construction industry. By influencing the demand for new residential construction, infrastructure, the need for reconstruction and restoration, and the construction of projects that meet environmental standards and embody innovations, they serve as catalysts for the development of the global construction market. This, in turn, enhances the role of human resources in the construction industry. Currently, around 7% of the global workforce is employed in the construction sector, which amounts to approximately 220 million people. It is evident that with the rapid growth of the construction market, the demand for workers will only increase. However, it should be noted that many in this sector are nearing retirement age. For instance, in the United States, 40% of construction workers are expected to retire in the next decade. In the coming years, the country will need to attract 546,000 additional workers to meet market demands (International Labour Organization, 2024).

At present, attracting the younger generation to the industry is crucial for the development of the global construction market. Construction companies need to expand their workforce reserves, and these should include specialists from various professions. This period of rapid construction growth should foster a work culture that emphasises safety, technology, environmental considerations, and health. Strategies must be developed to enhance the appeal of the construction sector to young people and create favourable conditions for professional development. In our view, a key step in this context should be supporting career guidance programs in schools and universities, as well as implementing educational reforms that promote vocational and technical education and the training of skilled workers. To popularise the profession, new technologies and methods should be introduced into the training process, including digital technologies. The training of personnel should emphasise sustainable development and energy efficiency. It is also important to maintain collaboration between educational institutions and construction industry enterprises, including internships, practical training, and joint research projects. For continuous professional development, providing access to training, online courses, and certified programs is advisable.

Building human resources in the construction industry requires a comprehensive approach, including creating an attractive employer brand, partnering with educational institutions, offering competitive working conditions, providing opportunities for professional development and career growth, and supporting social responsibility and innovation. Implementing these strategies will enable construction companies to ensure sustainable development and the successful implementation of projects by attracting young and talented specialists.

DISCUSSION

We agree with the views of researchers H.K. Singla, A. Shrivastava, and A. Sharma regarding the role of human resources in enabling construction companies to adapt to new technological and environmental market demands. Training personnel should be a decisive factor in this process. However, we believe that strategies for preparing specialists should focus on the younger generation. It is important to instil an understanding of the modern challenges facing the industry in the workforce. Implementing recommendations on investing in human capital could lead to greater long-term resilience for construction companies. Further research could focus on specific examples of how these approaches have been implemented in different regions and contexts.

In addition, we find that the research by V. Shovkivska and colleagues, which focuses on the need to create favourable conditions for the professional growth of human resources, is critically important for an industry facing labour shortages. Analysing these findings, it can be noted that construction companies need to engage in both short-term and long-term planning for workforce development to avoid a shortage of skilled workers and to ensure the innovative growth of the industry.

R. Ramachandran, V. Babu, and V.P. Murugesan, in their research, highlight the significant impact of globalisation on the construction sector. On the one hand, globalisation opens new markets and opportunities; on the other hand, it intensifies competition for skilled labour. These observations are extremely important for academic discussion as they underscore the necessity of international workforce mobility and the adaptation of companies to various cultural and regulatory conditions. Further research could focus on the strategies used by successful international construction companies to effectively manage human resources across different regions of the world.

In the context of sustainable development, the research by A. Serpell and X. Ferrada emphasises the need for training personnel who understand and apply the principles of sustainable construction. This opens up new prospects for academic research, which could analyse the effectiveness of integrating environmental standards into educational programs and their impact on the practical outcomes of construction projects. Research into innovative strategies aimed at preserving the environment and enhancing energy efficiency could significantly strengthen the market positions of construction companies. However, given the increasing material damages caused by natural disasters, special international and national

standards may apply to construction projects that adhere to environmental requirements, which may not be feasible. For example, the use of building materials that can withstand high temperatures and maintain their integrity for a specified period (according to NFPA 101 (Life Safety Code), the International Fire Code (IFC), and Eurocode 1 (EN, 1991), or the use of water-resistant materials capable of withstanding direct contact with water without significant damage (according to the Federal Emergency Management Agency (FEMA), the minimum requirements for building in flood zones regulated by the National Flood Insurance Program (NFIP)).

The work of R.S. Perumandla and S. Bhattacharyya is important for understanding the impact of financing on the construction industry. Their research reveals the mechanisms of financing and their influence on the development of the real estate market, especially in the context of global financial markets. This is key to developing financing strategies that will enable construction companies to thrive in a globalised environment.

Finally, the research by T.R. Annamalai and N. Jain focuses on the financing of large infrastructure projects, including issues of public-private partnerships. Their findings emphasise the importance of using various financial instruments in the construction industry, which can be valuable for companies planning large-scale projects. Expanding this approach could include an analysis of new financing models emerging from technological and economic changes in the world.

In conclusion, while challenges and limitations exist, the construction industry remains a vital part of the global economy, providing housing and infrastructure and serving as a tool for stable recovery in the event of loss and damage to these assets. Human resources are a critical factor for the development of the construction industry in the context of globalisation, sustainable development, and technological change.

CONCLUSIONS

The construction sector is a vital component of the global economy and plays a crucial role in its development. An analysis of current trends in the construction industry has shown that the growth of the global construction market depends on various factors, with the key ones being risks associated with the damage and loss of construction projects, urbanisation, population growth, sustainable development, government support, and innovations in construction.

The frequency and intensity of natural disasters, which lead to significant damages, highlight the importance of adapting construction standards and design approaches to account for increased risks related to climate change and the growing intensity of natural disasters. This adaptation will help reduce losses and increase the resilience of construction projects to such threats in the future. Building according to new standards, as well as the restoration and reconstruction of damaged structures, will, in turn, stimulate the construction market.

An analysis of population trends indicates that the global population continues to grow. Moreover, according to UN forecasts, the world population is expected to reach 9.7 billion by 2050. This situation will lead to increased demand for residential real estate and social infrastructure, which will positively impact the development of the construction industry.

Urbanisation processes have significantly influenced the reorientation of lifestyles and the concentration of populations in urban areas. As cities grow and develop, the demand for housing and infrastructure increases, which fosters active growth in the construction sector.

Globally, sustainable development strategies are being actively implemented. Their goals include environmental preservation and green building practices. Funding for such projects is likely to become a catalyst for the growth of the construction market.

Governments in several countries, including the USA, Canada, the United Kingdom, Singapore, Germany, and Ukraine, are actively funding programs for the construction of affordable housing. The result of investing in such projects will be an increase in demand for construction.

As technology advances, there is growing demand for the construction of innovative infrastructure and smart cities, which in turn impacts the construction industry.

Given the forecasts for the construction sector's development, the need to attract specialists to meet market demands is becoming increasingly urgent. Human resources in the construction industry are gaining greater importance as the industry faces new challenges, such as the implementation of environmental standards, digital technologies, and the need to adapt to globalisation.

Research has highlighted the necessity of investing in the development of human capital, especially in the context of attracting young professionals who can bring innovative approaches and new ideas to the construction industry. This

requires creating attractive working conditions, training programs, and opportunities for continuous professional development.

Thus, human resources are becoming a critical factor in ensuring the sustainable development of the construction industry amid global changes and technological innovations. The implementation of the proposed strategies will not only enhance the competitiveness of companies but also contribute to the overall development of the industry, ultimately having a positive impact on the global economy.

Further research could focus on developing strategies for attracting skilled professionals to the construction industry. Special attention would be given to studying how the globalisation of the construction market creates new challenges for human resource management, particularly the need for workforce mobility and adaptation to various cultural and regulatory environments. Additional research should explore the use of financial instruments for the development of the construction industry and the role of government in funding public programs. In our view, it is worth investigating the potential of public-private partnerships in financing reconstruction efforts in the event of damage or loss due to risks.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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The Authors declare that there is no conflict of interest.

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РОЛЬ КАДРОВОГО ПОТЕНЦІАЛУ В УМОВАХ РОЗБУДОВИ ГЛОБАЛЬНОГО РИНКУ БУДІВНИЦТВА

У роботі досліджено, як розбудова глобального ринку будівництва впливає на підвищення ролі кадрового потенціалу, що має забезпечити галузь. У процесі дослідження розглянуто світовий ринок будівництва. Автори відзначають, що наразі будівельний сектор відіграє одну з ключових ролей у світовій економіці. Вартість провідних будівельних компаній варіюється від 13 до 48 млрд дол. США. Загалом глобальний ринок будівництва становить 14,2% світового ВВП. У дослідженні виявлено, що темпи його зростання продовжать позитивну динаміку в майбутньому. Головним чином за рахунок таких каталізаторів як ризику, що зумовлюють пошкодження і втрату об'єктів будівництва; збільшення кількості населення; урбанізація; сталий розвиток; підтримка з боку урядів; індустріалізація та

розвиток розумних міст; інвестиції в інфраструктуру. Розкрито, що збитки, завдані об'єктам будівництва внаслідок надзвичайних ситуацій, у світі постійно зростають, що вимагає відбудови, реконструкції. Збільшення кількості населення стимулює фінансування будівництва житлової нерухомості та інших об'єктів нерухомості: лікарень, шкіл, доріг, торгових центрів, іншої інфраструктури. Процеси урбанізації спричинили підвищення попиту на нове житло й соціальну інфраструктуру. Необхідність зниження шкідливого впливу на навколишнє середовище призвела до реалізації програм сталого розвитку, у рамках яких відбувається фінансування будівництва зі зниженням викидів вуглецю та підвищеною енергоефективністю. На розвиток глобального ринку будівництва значно вплинула підтримка з боку урядів, що проявилася у фінансуванні будівництва доступного житла. Інновації в проєктуванні та будівництві зумовили необхідність фінансування сучасного будівництва. Автори виявили, що досліджені фактори мають значний вплив на розбудову глобального ринку будівництва, що призведе до необхідності нарощування кадрового потенціалу. Запропоновано залучення до галузі молодого покоління, яке створить нову культуру будівництва з урахуванням сучасних вимог.

Ключові слова: кадровий потенціал, ринок праці, зайнятість, фінансування, дефіцит робочої сили, глобальний ринок будівництва, екологічне будівництво, інфраструктура

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